25 January 2016

Mr. Ken McDaniel, LPG
Senior Project Manager
Indiana Department of Environmental Management
100 North Senate Ave.
Indianapolis, IN 46204-2251

RE: Report of Injection Well and Monitoring Well Installation at the TORX Facility
4366 North Old US Highway 31, Rochester, Indiana
Facility Cleanup ID 7100149
Amec Foster Wheeler Project Number 3359-14-1028

Dear Mr. McDaniel:

Enclosed is the *Report of Injection Well and Monitoring Well Installation* performed at the Torx Facility located in Rochester, Indiana prepared by Amec Foster Wheeler Environment and Infrastructure, Inc. The report documents the installation of the injection wells and monitoring wells that will be used as part of the remediation activites as described in the *Remediation Work Plan* dated 24 June 2014.

If you have any questions or comments following your review of this correspondence, please call our office at 937-859-3600.

Sincerely,
Amec Foster Wheeler Environment & Infrastructure, Inc.

Paul J. Stork
Project Manager

Joe Deatherage, PE
Senior Engineer

Enclosure

cc: Jamison Schiff, Textron, Inc.

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REPORT OF INJECTION WELL AND MONITORING WELL INSTALLATION

Former TORX Facility
4366 North Old US Highway 31
Rochester, Indiana

Prepared for:

Textron Inc.
40 Westminster Street
Providence, RI 02903

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.
521 Byers Road, Suite 204
Miamisburg, OH 45342

January 2016

Project No. 3359-14-1028

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EXECUTIVE SUMMARY

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) was retained by Textron, Inc. to conduct remediation activities at the former TORX facility, located at 4366 North Old US Highway 31, Rochester, Indiana (Site). The Site has been used to manufacture metal fasteners since about 1946. Groundwater that is beneath the Site contains Volatile Organic Compounds (VOCs), including trichloroethene (TCE) and its degradation products. To address the VOCs in groundwater a Remediation Work Plan (RWP) was prepared and submitted to the Indiana Department of Environmental Management (IDEM) in June 2014. The RWP was approved by IDEM with comments for implementation on 31 October 2014. This report summarizes the installation of the injection wells and observation monitoring wells to be used in the remediation of the Site.

This report documents the installation of the injection wells for the remediation activities, which included:

- Installing and developing 304 injection wells;
- Installing, developing, and sampling 13 monitoring wells; and
- Abandoning five wells to prevent short-circuiting of the remediation amendments.

These activities were completed between November 2014 and April 2015. The wells were installed in general accordance with the *Remediation Work Plan* with any deviations noted herein.

The injection well locations were established using a grid-based system arranged into spatial arrays and treatment zones. These included:

- Arrays A and B (Source Area) – 9 shallow and 10 deep injection wells (9 locations are nested);
- Arrays C through H (Source Area)– 45 shallow injection wells;
- Arrays I through N (Treatment Zone A) – 34 shallow and 34 deep injection wells (nested);
- Arrays O through R (Treatment Zone B) – 17 shallow, 17 intermediate injection wells, and 5 deep injection wells;
- Arrays S and T (Treatment Zone C) – 10 shallow and 10 deep injection wells (nested); and
- Arrays U through Z (Treatment Zone D) – 38 shallow, 38 intermediate, and 37 deep injection wells (nested).

The lithology beneath the Site and surrounding area consists of interbedded coarse-grained, permeable sediments (sands and gravels) and fine-grained, low permeable sediments (silts and clays) overlying limestone bedrock. The fine-grained deposits vary in depth, thickness, and extent. A fine-grained low-permeability unit ranging from clayey sand to silt was observed to be laterally continuous within treatment zone A at an approximate elevation of 750 feet NAVD 88 (roughly 50 to 60 feet bgs). This fine-grained unit is also observed in most of the borings in treatment zones B and C. The contaminant distribution in groundwater in the area indicates that this fine-grained unit is impeding downward migration of contaminants.

Based upon observations of debris encountered at depth (e.g. concrete, metal, glass), several borings including A-20, A-32, B-6, B-16, and C-5 penetrated a significant unit of fill. The composition of the fill included sands, silts, and clays that are likely native to the area. Based upon these observations, it is likely that one or more pits or depressions were once present within treatment zones A, B, and C and

backfilled. This interpretation is consistent with notations on the 1962 USGS topographic map for the Rochester Quadrangle identifying several gravel pits near the Site. The depth of the fill appears to be a maximum of 20 feet below present ground surface.

Groundwater monitoring wells were installed at six locations (OW-1 through OW-6) for use in monitoring remedial effectiveness. Two wells (shallow and deep) were nested at five of the six locations (OW-1 through OW-4 and OW-6). Three wells (shallow, intermediate, and deep) were nested at location OW-5. Groundwater samples were collected from the wells in December 2014 to provide a baseline for VOC concentrations at these locations. Site-related VOCs including TCE, cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-DCE, and vinyl chloride were detected in the groundwater samples at concentrations exceeding their respective U.S. EPA maximum contaminant levels (MCLs) and IDEM Risk Closure Guidance (RCG) residential screening levels. TCE, cis-1,2-DCE, and vinyl chloride were detected in the groundwater samples at concentrations exceeding their IDEM RCG industrial screening levels.

1.0 INTRODUCTION

Amec Foster Wheeler was retained by Textron, Inc. to conduct remediation activities at the former TORX facility, located at 4366 North Old US Highway 31, Rochester, Indiana (Site). This report documents implementation of the remediation activities, which included:

- Installing and developing 304 injection wells;
- Installing, developing, and sampling 13 monitoring wells; and
- Abandoning five wells to prevent short-circuiting of the remediation injection amendment.

1.1 Purpose

This report describes the installation of the injection wells as part of the full scale remediation that is being conducted at and in vicinity of the Site. The purpose of this report is to:

- Document the installation of injection wells and monitoring wells at and in vicinity of the Site, which occurred from November 2014 through April 2015
- Provide boring/well logs for the injection and monitoring wells
- Document groundwater analytical results for the 13 monitoring wells
- Provide an updated geologic Conceptual Site Model (CSM) based upon observations made during the installation of the wells

This report will be maintained as part of the evidentiary file for the Site.

1.2 Site Description

The Site occupies approximately 96 acres and is located to the west of North Old US Highway 31 and to the south of road E 450 N in Rochester, Fulton County, Indiana. A site location map is provided as Figure 1. The Site contains a large facility operations building (Plant), two small auxiliary buildings, a parking lot west of the Plant, and a pond. The Site layout is shown on Figure 2.

Textron, Inc. owned the Site from the 1950s through 2006 and operated it as the TORX facility, producing metal fasteners. In 2006, Acument Global Technologies (Acument) acquired the Site and continues to produce metal fasteners. Relevant project identification and contact information is provided below.

Site Name:	Former TORX Facility
Site Address:	4366 North Old US Highway 31 Rochester, IN 46975
IDEM Facility Cleanup ID:	7100149
Site Remediation Lead:	Textron, Inc. Attn: Mr. Jamieson Schiff 40 Westminster Street Providence, RI 02903 (401) 457-2422

Current Site Owner/Operator: Acument Global Technologies
Camcar LLC-Rochester Operations
4366 North Old US Highway 31
Rochester, IN 46975
(574) 223-3131

The surrounding properties include a mix of municipal, commercial, agricultural, and residential land use. The property to the north of the Site across Route E 450 N and west of North Old US Highway 31 was the Fulton County Landfill, which is now closed. Properties to the east of the Site across North Old US Highway 31 include a mix of residential, agricultural, and industrial uses. A pond (Eastern Pond) is located southeast of the Site (Figure 2). Single-family residential properties are located to the south of the Site along Route E 425 N. The property west of the Site is unimproved woodland, which extends west to the new US Highway 31.

2.0 BACKGROUND

The Site has been used to manufacture metal fasteners since about 1946. From approximately 1952 to 1992, the Plant discharged process wastewater and non-contact cooling water into the pond located west of the Plant (Western Pond). The source of the process wastewater included a caustic parts washer and heat-treat washers. The wastewater discharge was sampled in 1986 and found to contain heavy metals (cadmium, chromium, copper, and lead) and VOCs.

Numerous investigations have been conducted at the Site since 1986. A list of the associated investigative reports is provided in Section 10. VOCs, including TCE and its degradation products (cis-1,2-dichloroethene [DCE], trans-1,2-DCE, 1,1-DCE, and vinyl chloride) were identified in groundwater beneath the Site at concentrations exceeding regulatory criteria. There appear to be two primary source areas for the TCE: a former degreaser pit located in the central portion of the Plant and the southeast region of the Western Pond. Remediation activities were conducted for the Western Pond in the early 1990s, which included removing approximately 19,000 tons of sediment and soil.

The majority of the VOC impact to groundwater occurs in the uppermost water bearing zone of the overburden aquifer; although, VOCs are also present in lower unconsolidated water bearing zones. Low-permeability deposits separating the upper overburden groundwater unit from lower water bearing units are found at varying depths and thicknesses. The concentration of VOCs generally decreases with depth and distance from the source areas. Groundwater contamination extends off the Site to the east-southeast. The magnitude and distribution of degradation products indicates natural biodegradation is occurring. VOCs were not detected in the bedrock water-bearing unit.

A Human Health Risk Assessment and Remediation Feasibility Study were conducted in 2011. The HHRA concluded that VOCs in groundwater could present an unacceptable risk to human health via direct contact and inhalation of vapors. The Remediation Feasibility Study evaluated six alternative approaches to control or treat VOCs in the groundwater. Alternative 4 was selected as the preferred remediation alternative. Alternative 4 relies on a combination of Enhanced Reductive Dechlorination (ERD) using a biostimulant and in-situ chemical reduction using Zero Valent Iron (ZVI) to remediate the groundwater and use of a sub-slab depressurization (SSD) system to inhibit potential for vapor intrusion into the Plant.

A Remediation Work Plan was prepared in June 2014 and submitted to IDEM for approval. IDEM approved the RWP with comments provided in September and October 2014. Amec Foster Wheeler provided a response to comments from IDEM in December 2014. The scope of services outlined in the Remediation Work Plan is comprised of five stages:

- Stage 1 – Installation of Injection Wells
- Stage 2 – In-Situ Chemical Reduction
- Stage 3 – Enhanced Reductive Dechlorination
- Stage 4 – SSD System Installation and Operation
- Stage 5 – Performance Groundwater Monitoring

Remediation activities began at the Site in November 2014 with commencement of Stage 1, Installation of Injection Wells.

3.0 INJECTION WELL INSTALLATION

Amec Foster Wheeler subcontracted Cascade Drilling Company to drill and install the injection wells. Amec Foster Wheeler geo-scientists oversaw the drilling activities, visually examined the soil cores, logged the soil lithology and physical properties, and recorded the well construction details for each injection well location. The boring/well logs are provided in Appendix A. Soil cores were also scanned for indication of volatile organics using a photoionization detector (PID), and the PID readings were recorded on the boring/well logs.

With the exception of well locations beneath the Plant footprint, the injection wells were installed using rotosonic drilling technology. Rotosonic drilling technology uses high frequency vibration and rotational force delivered through a combination core barrel and override casing system to advance the drill string. The override casing maintains the integrity of the borehole while soil is extracted using 5 or 10-feet (feet) long core barrels then extruded into plastic bags to allow for continuous logging of the strata.

The injection wells interior to the Plant were drilled using a direct push technology drill rig equipped with a dual-head hollow stem auger system. Direct push technology relies on hydraulic or percussive methodology to advance the boring. Soil can be extracted from the boreholes continuously using dual tube or macro-core samplers. Direct push technology produces small diameter boreholes. The dual-head system allows the borehole to be widened using hollow stem auger drilling techniques.

3.1 Injection Well Locations

A total of 304 injection wells were installed within spatial arrays as follows:

- Arrays A and B (Source Area-west of building) – 9 shallow and 10 deep injection wells (9 locations are nested);
- Arrays C through H (Source Area-beneath building)– 45 shallow injection wells;
- Arrays I through N (Treatment Zone A) – 34 shallow and 34 deep injection wells (nested);
- Arrays O through R (Treatment Zone B) – 17 shallow, 17 intermediate injection wells, and 5 deep injection wells;
- Arrays S and T (Treatment Zone C) – 10 shallow and 10 deep injection wells (nested); and
- Arrays U through Z (Treatment Zone D) – 38 shallow, 38 intermediate, and 37 deep injection wells (nested).

Each spatial array represents an alignment of injection wells arranged into a row or column. The assemblage of arrays represent treatment zones, with two source area treatment zones and four downgradient treatment zones. Details regarding the injection wells installed within each array and treatment zone are provided in Section 3.2.

Prior to commencing drilling operations, the injection well locations were staked by a professional surveyor using the grid-based layout of arrays as shown in the Remediation Work Plan. Clearing and grubbing activities were completed as needed to make the drilling locations accessible. Each injection well was drilled at its staked location unless a utility line, immobile structure, or other similar obstruction precluded it. In such instances, the well locations were shifted as needed for assured distance. In addition, injection well C-4 was installed at an offset location due to fracture of the well casing at the original drill site. The final injection well locations, array, and treatment zone designations are shown on Figure 3.

3.2 Injection Well Screened Intervals

Each injection well or nested well set was designed to screen across one or more intervals for targeted bio-amendment delivery in order to maximize remediation performance. The screened intervals varied by treatment zone and/or array and are described in the subsections that follow.

3.2.1 Source Area West of Building - Arrays A and B

Arrays A and B are located west of the Plant building and east of the West Pond. Nine shallow and 10 deep injection wells were installed within this treatment zone (AA-1 through AA-4; AA-10 through AA-14; AB-5 through AB-9; and AB-15 through AB-19) as shown on Figure 4. With the exception of AA-13, which is the deep injection well installed adjacent to INJ-2, the shallow and deep injection wells within Arrays A and B were installed as nested sets. A nested set of wells refers to two or more single-casing wells installed within a single borehole. Each well within the nested set screened a different depth, and the annular space between the screens inside the borehole was filled with sealant material (e.g. bentonite) to provide hydraulic isolation between the wells. The shallow and deep well screens in Arrays A and B were each 5-feet in length.

The nested injection well boreholes were drilled using rotosonic drill tools that produced a borehole 9-in. in diameter. The single well borehole (AB-13) was drilled using rotosonic drill tools that produced a borehole 6-in. in diameter.

Ground surface elevation in the area of Arrays A and B is roughly 798 to 808 feet (feet) NAVD 88. The bottom of the shallow well screens were set slightly into the silt or silty sand layer that occurs at approximately 770 to 776 feet NAVD 88 in the Array A area and at approximately 778 feet NAVD 88 in the Array B area with the following exceptions:

- At injection wells AA-1/10, AA-2/11, and AA-3/12 (Array A), the target silty sand layer was observed at shallower depths, which ranged from 775 to 781 feet NAVD 88. The shallow well screens in these wells were installed below the silty sand layer to address elevated organic vapor headspace measurements.
- At injection well AB-5/15 in Array B, the target silt layer was observed at a deeper depth, approximately 770 to 773 feet NAVD 88. The shallow well screen was installed above this layer at approximately 778 to 783 feet NAVD 88.

The bottoms of the deep well screens were placed above and slightly into the silt or clay layer that occurs at approximately 753-763 feet NAVD 88 in the Array A area and at approximately 755 feet NAVD 88 in the Array B area with the following exceptions:

- At injection well AA-2/11 in Array A, the target silt layer was observed at a shallower depth from approximately 763 to 765 feet NAVD 88. The deep well screen was installed below the silt interval at 757 to 762 feet NAVD 88.
- At injection well AA-3/12 in Array A, the target silt layer was observed from approximately 759 to 762 feet NAVD 88, but the deep well screen was installed just below the silt interval at 754 to 759 feet NAVD 88 in order to separate the shallow and deep injection well screens.

- At injection well AA-4/14 in Array A, interbedded sand and silt were observed from 754 to 759 feet NAVD 88. The deep well screen was installed above the interbedded sand and silt at 767 to 772 feet NAVD 88 for the purpose of screening a gravel seam identified within this interval.
- At injection well AB-7/17 in Array B, the target silt layer was not observed at the anticipated depth. The deep well screen was installed from approximately 755 to 760 feet NAVD 88.

The well construction details were consistent with the general injection well construction specifications identified in Section 3.3 with the following deviation:

- Due to the permeable nature of the formation the slurry grout settled out almost immediately after introduction into the annulus. For the boring locations were the grout settled out, additional slurry grout was added to the bore hole. Only hydrated bentonite was used at locations AA-1/10, -2/11, -3/12, and -4/14 in lieu of neat cement slurry to seal the annulus.

The boring/well logs for the injection wells in Arrays A and B are provided in Appendix A.

3.2.2 Source Area Beneath Building - Arrays C through H

Injection wells in Arrays C through H are within the footprint of the Plant building. Each array contains six to nine shallow single-casing injection wells (AC-1 through AH-45) as shown on Figure 3. Prior to beginning drilling operations, a 14 in. diameter hole was cored through the concrete slab of the Plant building at each injection well location. The injection well boreholes were drilled using a low-clearance direct push technology drill rig equipped with a dual-head hollow stem auger. The hollow stem auger was used to create a 9.5-in. outer diameter borehole at all the injection wells locations except AC-1, AC-4, AC-7, and AC-16 which had insufficient clearance for the drilling rig. Pre-packed wells were installed into the borehole created with the direct push tooling at these four locations.

The elevation of the building slab is approximately 810 feet NAVD 88. The Remediation Work Plan specified placement of the well screen above and slightly into a layer of silt, if identified between 27 and 32 feet bgs (778 to 783 feet NAVD 88). A silt or silty sand layer was observed within this depth interval in the following injection well boreholes:

- AE-23,
- AF-25 through AF-32, and
- AC-7.

For these injection wells, the well screens were set above and slightly into the silt or silty sand layer with the exception of AF-32, which was screened below the silt interval due to elevated organic vapor headspace screening results recorded in the samples of sand located beneath the silt layer.

A silty sand layer, ranging in thickness from one to four feet, was observed in Array G injection well boreholes AG-34 through AG-39 between the depths of 24 and 29 feet bgs (781 to 786 feet NAVD 88). For these injection wells, the well screens were set so as to straddle this layer, with the exception of AG-39 for which the well screen was set under the silty sand layer due to elevated organic vapor headspace screening results recorded in the samples of sand located beneath the silty sand layer.

For the remaining injection wells in this source area treatment zone, a silt or silty sand layer was not observed and the boreholes were terminated a depth of 32 feet bgs (778 feet NAVD 88) and the well screens were set at the bottom 5-feet of the borehole.

The well construction details were consistent with the general injection well construction specifications identified in Section 3.3 with the following deviations:

- The neat cement grout slurry used to seal the annulus extended to within 2 feet of the concrete floor.
- The outer protective casing and flush-mount cover was secured flush with the concrete slab surface via placement of quick setting high strength (minimum 5,000 psi) Portland cement above the grout and between the outer protective casing and the concrete slab.
- Injection well AC-4 is a 1-in. diameter pre-packed well installed using 3.5-in. direct push tooling.
- Injection wells AC-1, AC-7, and AC-16 are ¾-in. pre-packed wells installed using 2.5-in. direct push tooling.
- The screen length for injection wells AE-23, AF-24, and AF-25 are 3 feet in length.

The boring/well logs for the injection wells in Arrays C through H are provided in Appendix A.

3.2.3 Treatment Zone A – Arrays I through N

Arrays I through N are located east of the Plant building. Array I is located west of North Old US Highway 31, and arrays J through N are located east of the highway. Each array contains between five and six nested pairs of injection wells (A-1 through -34) as shown on Figure 3.

The injection wells in Treatment Zone A were completed using rotosonic drilling techniques. The boreholes in Arrays L through N and location A-10 in Array J were completed using rotosonic drill tools that produced a borehole 6-in. in diameter. The remainder of the injection well boreholes in Treatment Zone A were completed using rotosonic drill tools that produced a borehole 9-in. in diameter.

Ground surface in the area of Arrays I through N is approximately 805 to 813 feet NAVD 88. The well screen placement was as follows:

- Array I – Shallow well screens were set within the interval of 773 and 784 feet NAVD 88. Deep well screens were set within the interval of 762 and 772 feet NAVD 88. Per the Remediation Work Plan, locations A-1 and A-2 had shallow screens that were 5-feet in length and deep screens that were 10-feet in length. Due to hydrogeological factors and organic vapor headspace screening results, shallow well screens that were 10-feet in length and the deep well screens that were 5-feet in length were used for locations A-3 through A-6.
- Arrays J through N - Shallow well screens that were 5-feet in length were set within the interval of 777 and 784.5 feet NAVD 88. Deep well screens that were 10-feet in length were set within the interval of 762 and 775.5 feet NAVD 88.

The well construction details were consistent with the general injection well construction specifications identified in Section 3.3. The boring/well logs for the injection wells in Arrays I through N are provided in Appendix A.

3.2.4 Treatment Zone B – Arrays O through R

Treatment Zone B is located east of Treatment Zone A and includes Arrays O through R. Each array contains three to five shallow injection wells and three to five corresponding deep injection wells (B-1 through -17) as shown on Figure 3. Five of the locations (B-9, B-14, B-15, B-16, and B-17) contain a third well screened within a deeper zone. The injection wells were clustered (i.e. located in close proximity to one another) with the exception of B-7, B-9, B-14, B-15, B-16, and B-17. For these six locations, the shallow injection well and the deepest injection well were nested. To the extent possible, each deep well was installed in an upgradient direction relative to its corresponding shallow well.

The ground surface elevation in the Arrays O through R area is approximately 802 to 807 feet NAVD 88. The shallow injection wells were installed with 10-feet screens placed within the interval of 766.5 and 782 feet NAVD 88. With the exception of B-7, each location had a corresponding intermediate injection well installed with a 10-feet screen placed within the interval of 755.5 and 770.5 feet NAVD 88. A deeper injection well with a 5-feet screen was installed at B-7, B-9, B-14, B-15, B-16, and B-17 within the interval of 747.5 and 758 feet NAVD 88 into a clay/silt layer located within this interval.

The well construction details were consistent with the general injection well construction specifications identified in Section 3.3. The boring/well logs for the injection wells in Arrays O through R are provided in Appendix A.

3.2.5 Treatment Zone C – Arrays S and T

Treatment zone C is located east-southeast of Treatment Zone B and contains Arrays S through T. Together the two arrays contain 10 shallow injection wells and 10 corresponding deep injection wells installed as nested pairs (C-1 through -10). The shallow and deep injection wells each have 10-feet screens. We note that due to a steep hill located in Treatment Area C, injection wells C-4 and C-5 are actually located in Treatment Area B, though for the purposes of the injection program are considered part of Treatment Area C.

Ground surface in the area of Arrays S and T is approximately 792 to 802 feet NAVD 88. The shallow well screens were set within the interval ranging from 761 to 780 feet NAVD 88. The deep well screens were set according to the following:

- Deep well screens at locations C-1 through C-5 were set within the interval ranging from 745 to 764 feet NAVD 88 with the bottom of the screened interval set slighting into the silt and clay layer in locations C-2, C-3, and C-5.
- Deep well screens at locations C-6 through C-10 were set within the interval ranging from 740 to 760 feet NAVD 88 with the bottom depth at the top of the silt and clay layer or at a maximum depth of 740 feet NAVD 88.

The well construction details were consistent with the general injection well construction specifications identified in Section 3.3 with the following deviation:

- Due to the shallow nature of the wells, hydrated bentonite was used at locations C-6 and C-10 in lieu of neat cement slurry to seal the annulus.

The boring/well logs for the injection wells in Arrays S through T are provided in Appendix A.

3.2.6 Treatment Zone D – Arrays U through Z

Treatment zone D is located southeast of Treatment Zone C and contains Arrays U through Z. The arrays contain between 3 and 11 locations as shown on Figure 3 (D-1 through -38). With the exception of D-1, each injection well location within Treatment Zone D has three nested injection wells. Injection well location D-1 has two nested wells (shallow and intermediate).

Ground surface in the area of Arrays U through Z is approximately 782 to 797 feet NAVD 88. The well screen placement is described below.

- Shallow Injection Wells: Shallow wells within Arrays W and X have screens that are 3-feet in length. Shallow wells within Arrays U, V, Y, and Z have screens that are 5-feet in length. The well screens were placed within the interval of 769 and 783 feet NAVD 88.
- Intermediate Injection Wells: The intermediate screened interval was set so as to contact a silt lens that occurs at approximately 760 feet NAVD 88 (Arrays U through X) and 763 feet NAVD 88 (Arrays Y and Z). The intermediate well screens were 5-feet in length.
- Deep Injection Wells: The deep injection well screens were 5-feet in length. The well screens were placed within the interval of 741 and 754 feet NAVD 88.

Well construction was consistent with the general injection well construction specifications identified in Section 3.3 with the following deviations or additions:

- Due to the shallow nature of the wells, hydrated bentonite was used in lieu of neat cement slurry to seal the annulus. Neat cement slurry was used only for location D-1.
- Injection well locations D-19 through D-21, and D-29 through D-38 were completed with a 2-feet above grade stick-up. The steel outer protective casing was installed in the concrete pad and extends 2.5 feet above the surface.

3.3 Injection Well Construction

The injection wells were constructed in general accordance with the IDEM Drilling Procedures and Monitoring Well Construction Guidelines (Policy # WASTE-053NPD) and Indiana Rule 312 IAC 13-8-3 Requirements for Monitoring Well Construction. Unless otherwise indicated within Section 3.2, the injection wells were constructed in conformance with this section. The injection wells were constructed of 1-inch diameter, Type II, Schedule 40 polyvinyl chloride (PVC) with a 0.020-slot well screen. The well screens had 0.125 in. slot spacing and were equipped with a threaded end cap. Casing segments were connected via threaded joints and gaskets.

The annular space around the well screen(s) was filled with filter pack material and the remainder of the annulus was sealed with a bentonite seal and neat cement grout slurry. The well filter pack material was composed of washed quartz silica sand of 10/30 sieve size. It was placed from at least six inches below each injection well screen to one or two feet above the top of each injection well screen. For nested wells, the annular space between the filter pack intervals was filled with a bentonite seal, consisting of medium grade crushed bentonite, hydrated with potable water. For single wells, the bentonite seal was placed above the filter pack material and was approximately two-feet thick. The remainder of the annular space to within 3 feet of the ground surface was filled with a neat cement grout slurry (95/5). The grout was allowed to cure for a minimum of 24 hours before finishing the well construction with its protective casing and pad.

Cement slurry was placed from the top of the grout seal to within two feet of the ground surface. The injection wells were capped and secured with a protective outer casing set in a concrete pad with minimum dimensions of 2 feet by 2 feet by 6-in. in thickness. Each well or nested well set was covered with a traffic-rated manhole cover secured to the outer protective casing with bolts. The manhole cover sizes that were installed are as follows:

- 8-in. diameter for single well installations;
- 10-in. diameter for nested dual well installations;
- 12-in. diameter for nested triple well installations.

The top of the injection well casings were equipped with a female slip to NPT threaded adapter, a male camlock fitting connection and a female camlock fitting.

4.0 MONITORING WELL INSTALLATION

Groundwater monitoring wells were installed at six locations (OW-1 through OW-6) for use in monitoring remedial effectiveness (Figure 3). Borings advanced for the installation of monitoring wells were completed using rotosonic drilling methods. Soil samples were collected continuously using rotosonic soil sampling techniques. Amec Foster Wheeler oversaw the drilling activities, visually examined the soil cores, logged the soil lithology and physical properties, and recorded the well construction details at each monitoring well location on boring/well logs. The boring/well logs are provided in Appendix A. Soil cores were also scanned for indication of volatile organics using a PID, and the PID readings were recorded on the boring/well logs.

Two wells (shallow and deep) were nested at five of the six locations (OW-1 through OW-4 and OW-6). Three wells (shallow, intermediate, and deep) were nested at location OW-5. Each well was constructed of 2-inch diameter, Type II, Schedule 40 polyvinyl chloride (PVC) with 0.010-slot well screens and threaded end caps. The deep well screens were 10-feet in length in OW-2, OW-3, and 5-feet in length for OW-1, OW-4, OW-5 and OW-6. The shallow well screens were 5-feet in length. All the screens in OW-5 were 5-feet in length. The casings had threaded joints and gaskets.

For locations OW-1 through OW-4 and OW-6, filter pack material, consisting of No. 5 washed quartz silica sand of, was placed from one feet below the bottom of the deep well to one to two feet above the top of the deep well screen. The annular space between the top of the deep well screen and up to two-feet below the bottom of the shallow well screen was filled with a bentonite seal, consisting of medium grade crushed bentonite, hydrated with potable water. The filter pack material was placed from one feet below the bottom of the shallow well screen to one to two feet above the top of the shallow well screen. A one to two feet thick bentonite seal consisting of medium grade crushed bentonite hydrated with potable water was installed above the top of the shallow well filter pack. The bentonite seal was allowed to cure with potable water; thereafter the remainder of the annular space to within 3 feet of the ground surface was filled with a neat cement grout slurry (95/5) installed in a manner that prevents bridging. A similar installation process was used for location OW-5, with the following exceptions:

- An intermediate filter pack layer was placed from one feet below the bottom of the intermediate well screen to one to two feet above the intermediate well screen, and
- Hydrated bentonite was use in lieu of neat cement slurry to fill the annual space due to the shallow nature of the wells.

The grout was allowed to cure for a minimum of 24 hours before the concrete pad and protective outer casing were installed. Cement slurry was placed from the top of the grout seal to within one-feet of the ground surface. Each monitoring well was capped with an expandable locking plug and each well nest was secured with a 10 or 14-inch diameter flush-mount protective cover set in a concrete pad with minimum dimensions of 2 feet by 2 feet by 6-inches in thickness. Monitoring well OW-6 was completed at the surface using an above ground protective cover set in a concrete pad.

5.0 GEOLOGIC CONCEPTUAL SITE MODEL UPDATE

Soil descriptions recorded for the injection and monitoring well locations were evaluated to refine the geologic conceptual site model. The lithology beneath the Site and surrounding area consists of interbedded coarse-grained, permeable sediments (sands and gravels) and fine-grained, low permeable sediments (silts and clays) overlying limestone bedrock. The fine-grained deposits vary in depth, thickness, and extent. The coarse grained sediments are preferential flow paths for groundwater flow and VOC migration.

Based upon observations of debris at depth (e.g. concrete, metal, glass), several borings including A20, A32, B6, B16, and C5 penetrated a significant unit of fill. The composition of the fill included sands, silts, and clays that are likely native to the area. Based upon these observations, it is likely that one or more pits or depressions were once present within treatment zones A, B, and C and backfilled. This interpretation is consistent with notations on the 1962 USGS topographic map for the Rochester Quadrangle identifying several gravel pits near the Site (Figure 1). The depth of the fill appears to be a maximum of 20 feet below present ground surface.

A fine-grained low-permeability unit ranging from clayey sand to silt was observed to be laterally continuous within treatment zone A around an elevation of 750 feet NAVD 88 (approximately 50 to 60 feet bgs). This fine-grained unit is also observed in most of the borings in treatment zones B and C. Based upon groundwater concentrations observed in the area (Figure 5), this unit is impeding downward migration of contaminants. Fine-grained low-permeability units observed at shallower depths within the overburden appear to be laterally discontinuous.

Geologic cross-sections have been prepared to depict the stratigraphic units beneath the Site. A number of geologic cross-sections were provided in the Remediation Work Plan. Additional and updated cross-sections are provided herein. Figure 5 presents the Site and vicinity with cross-section lines indicated. Geologic cross-section (H - H') transecting treatment zones A through D, originally provided in the Remediation Work Plan, was updated to reflect additional geologic information obtained during the injection and monitoring well boring logs. The updated H – H' cross-section is provided as Figure 6. Figure 7 provides a cross-section for the line identified as I – I' which transects the H– H' line through treatment zone A.

6.0 WELL DEVELOPMENT

The injection wells and monitoring wells were developed using pumping and surging techniques. A minimum of five well casing volumes of water were removed during development. The injections wells and groundwater monitoring wells were developed using either an air lift submersible educator pumping system or a double diaphragm pump. Dedicated disposable tubing was used to develop each well. The development continued until the water was visually clear or five well volumes were removed. The development water was containerized and placed into a tank and stored for proper disposal.

7.0 MONITORING WELL SAMPLING RESULTS

Groundwater samples were collected from monitoring well locations OW-1 through OW-6 in December 2014 to provide a baseline for contaminant concentrations at these locations. OW-1 through OW-4 and OW-6 each have two nested wells. OW-5 has three nested wells. Each well is identified using a nomenclature that includes the location followed by the bottom screen depth in parentheses (e.g. OW-1(28)).

The wells were purged using a submersible pump with dedicated disposal polyethylene tubing. Water quality parameters including pH, temperature, specific conductance, oxidation-reduction potential (ORP), dissolved oxygen, and turbidity were monitored during purging. The purge logs are provided in Appendix B. Groundwater samples were collected directly from the pump discharge tubing once the water quality parameters stabilized. The groundwater samples were collected into laboratory-supplied pre-preserved containers and labeled.

The samples were placed into a cooler on ice and shipped via overnight courier to ALS laboratory in Holland Michigan for VOC analysis by EPA Method 8260B. The analytical results are shown in Table 1. Site-related VOCs including TCE, cis-1,2-DCE, 1,1-DCE, and vinyl chloride were detected at concentrations exceeding the U.S. EPA maximum contaminant levels (MCLs) and IDEM Risk Closure Guidance (RCG) residential screening levels. TCE, cis-1,2-DCE, and vinyl chloride were detected at concentrations exceeding their IDEM RCG industrial screening levels of 31 µg/L, 1,000 µg/L, and 4.0 µg/L, respectively. The IDEM RCG industrial screening level exceedances included:

- TCE at OW3-(55) [680 µg/L] and OW5-(35) [330 µg/L].
- cis-1,2-DCE at OW1-(28) [1,300 µg/L], OW2-(53) [1,100 µg/L], OW5-(35) [1,200 µg/L].
- Vinyl chloride at OW1-(28) [500 µg/L], OW1-(39) [650 µg/L], OW2-(33) [140 µg/L], OW2-(53) [1,500 µg/L], OW3-(35) [94 µg/L], OW4-(35) [540 µg/L], OW5-(16) [230 µg/L], OW5-(35) [43 µg/L], OW5-(44) [580 µg/L], OW6-(63) [6 / 6.1 µg/L].

Monitoring well location OW-5 and associated data are shown on the geologic cross-section for H – H' (Figure 5). The laboratory data package is provided in Appendix C.

In accordance with the Quality Assurance Project Plan (QAPP), one equipment blank was collected per day from each sampling pump, one field replicate was collected per 20 groundwater samples collected, one matrix spike and matrix spike duplicate were run at a rate of one per 20 samples collected, one field blank for the groundwater monitoring event was collected and submitted, and one trip blank for each cooler containing VOC samples was submitted and analyzed for VOCs.

There was good agreement between the VOC concentrations reported in the replicate samples and primary samples. The maximum relative percent difference (RPD) was calculated to be 6.1% for primary sample from monitoring well OW-6(63) for TCE, which is below the RPD goal of 25%. The other analytes in this replicate sample had an RPD less than this. None of the equipment blanks, field blank or trip blank had any detections.

8.0 WELL ABANDONMENT

As presented in the IDEM-approved RWP, Amec Foster Wheeler abandoned five wells on the site to mitigate risk of the wells acting as a preferential pathway for the ZVI slurry to rise to surface. The wells that were abandoned included MW-80, MW-81(45), PM-1, INJ-1, and INJ-3. Figure 4 presents the locations of the wells that were abandoned. Abandonment consisted of filling the wells with a neat cement grout (95/5 cement to bentonite ratio) using procedures that prevent bridging. Copies of the Indiana Department of Natural Resource (IDNR) Well Sealing Logs that were submitted to IDNR are provided in Appendix D.

9.0 IDW MANAGEMENT

Investigative-Derived Wastes (IDW) generated during the work included soil cuttings, purge water, and development water. General solid waste such as used gloves, cardboard boxes, etc. was segregated from the IDW and disposed as general refuse in a sanitary waste dumpster.

Amec Foster Wheeler containerized soil generated from drilling activities in DOT-compliant 15 cubic yard roll-off containers equipped with weather-proof tarps. Amec Foster Wheeler provided waste characterization sampling to comply with Heritage Environmental Services waste profiling requirements. The testing indicated that the soil did not have characteristics of a hazardous waste. Heritage removed the roll-off containers from the site for proper disposal.

Amec Foster Wheeler contained the purge and development water in polyethylene tanks. A sample of the purge and development water was collected and submitted to the laboratory for analysis. The results of the laboratory analyses did not detect VOCs at concentrations exceeding the detection limits. The purge and development water was removed by Clean Harbors for treatment/disposal.

10.0 REFERENCES

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TABLES

Table 1
Summary of Volatile Organic Compound Analyses
Performed on the Groundwater Samples Collected in December 2014
TORX Facility, 4366 North Old US Highway 31, Rochester, Indiana
(Results reported in micrograms per liter, µg/L)

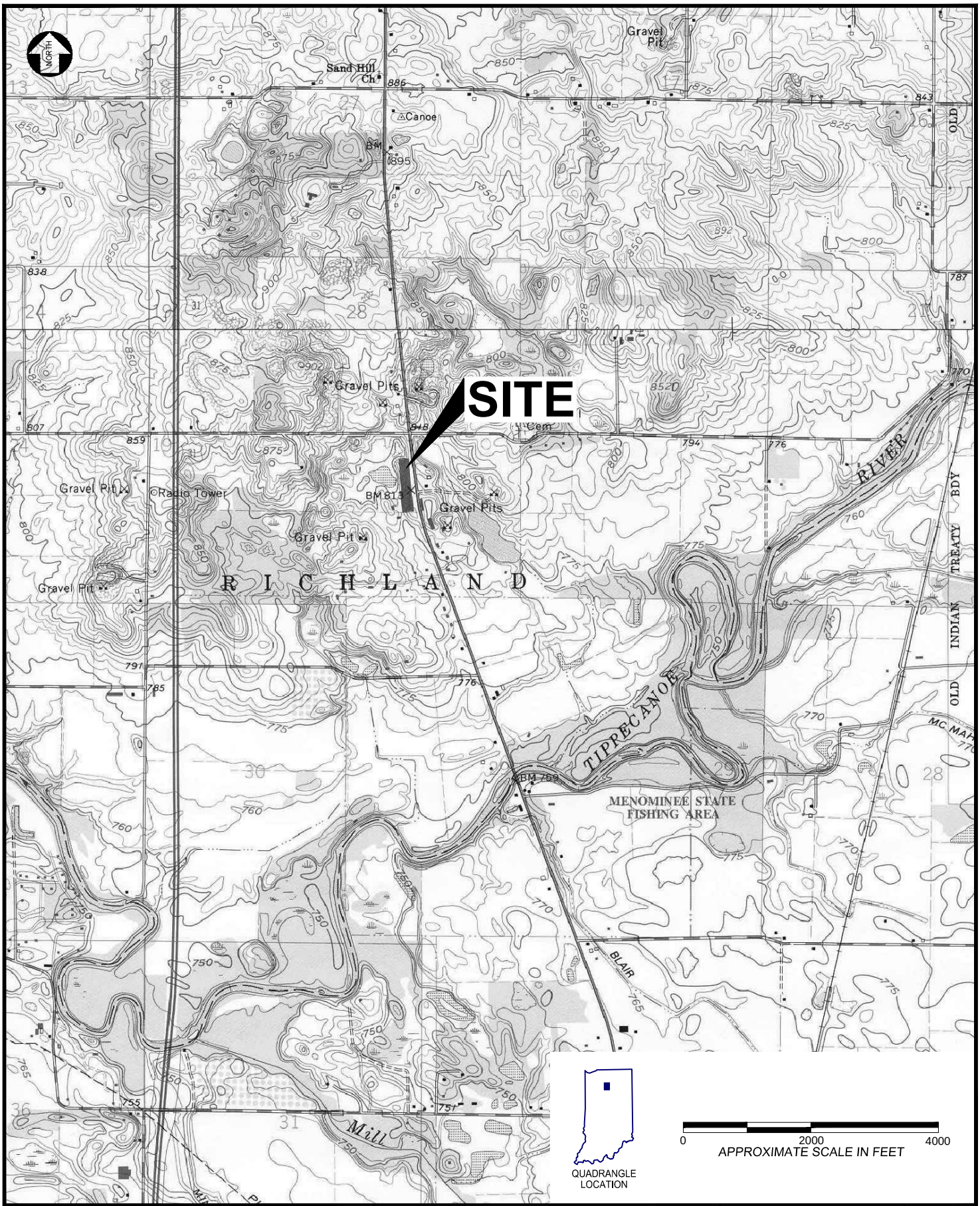
Monitoring Well Number	Field Sample ID	Sample Date	1,1-Dichloroethane	1,1-Dichloroethene	Cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl chloride
OW-1(28)	ATR-OW1(28)-G121714	12/17/2014	1 U	7.2	1,300	1 U	11	1 U	500
OW-1(39)	ATR-OW1(39)-G121714	12/17/2014	1 U	2.1	540	1 U	1 U	1 U	650
OW-2(33)	ATR-OW2(33)-G121814	12/18/2014	1 U	1 U	180	1 U	1 U	1 U	140
OW-2(53)	ATR-OW2(53)-G121814	12/18/2014	1 U	4.2	1,100	1 U	7.3	1 U	1,500
OW-3(35)	ATR-OW3(35)-G121614	12/16/2014	1 U	1 U	300	1 U	1.7	8	94
OW-3(55)	ATR-OW3(55)-G121614	12/16/2014	1 U	1.7	110	1 U	45	680	3.3
OW-4(35)	ATR-OW4(35)-G121614	12/16/2014	1 U	1 U	210	1 U	1 U	2.4	540
OW-4(54)	ATR-OW4(54)-G121614	12/16/2014	1 U	1 U	2.5	1 U	1 U	1 U	1 U
OW-5(16)	ATR-OW5(16)-G121714	12/17/2014	1 U	2.9	780	1 U	5.6	9.4	230
OW-5(35)	ATR-OW5(35)-G121714	12/17/2014	1 U	11	1,200	1 U	15	330	43
OW-5(44)	ATR-OW5(44)-G121714	12/17/2014	1 U	1 U	220	1 U	6.1	5.5	580
OW-6(38)	ATR-OW6(38)-G121714	12/17/2014	1 U	1 U	8.1	1 U	1 U	28	1 U
OW-6(63)	ATR-OW6(63)-G121714	12/17/2014	1 U	7.5	510	1 U	47	6.6	6
	ATR-OW6(63)-G121714R	12/17/2014	1 U	7.8	530	1 U	45	6.2	6.1
	USEPA MCLs		NE	7.0	70	5.0	100	5.0	2.0
	IDEM RCG Screening Levels								
	Industrial		240	70	700	50	1000	50	20
	Residential		24	see MCL	see MCL	see MCL	see MCL	see MCL	see MCL

Notes:
NA - Not analyzed
U - not detected, value is the detection limit
J - value is estimated
NE - None established
R - replicate sample

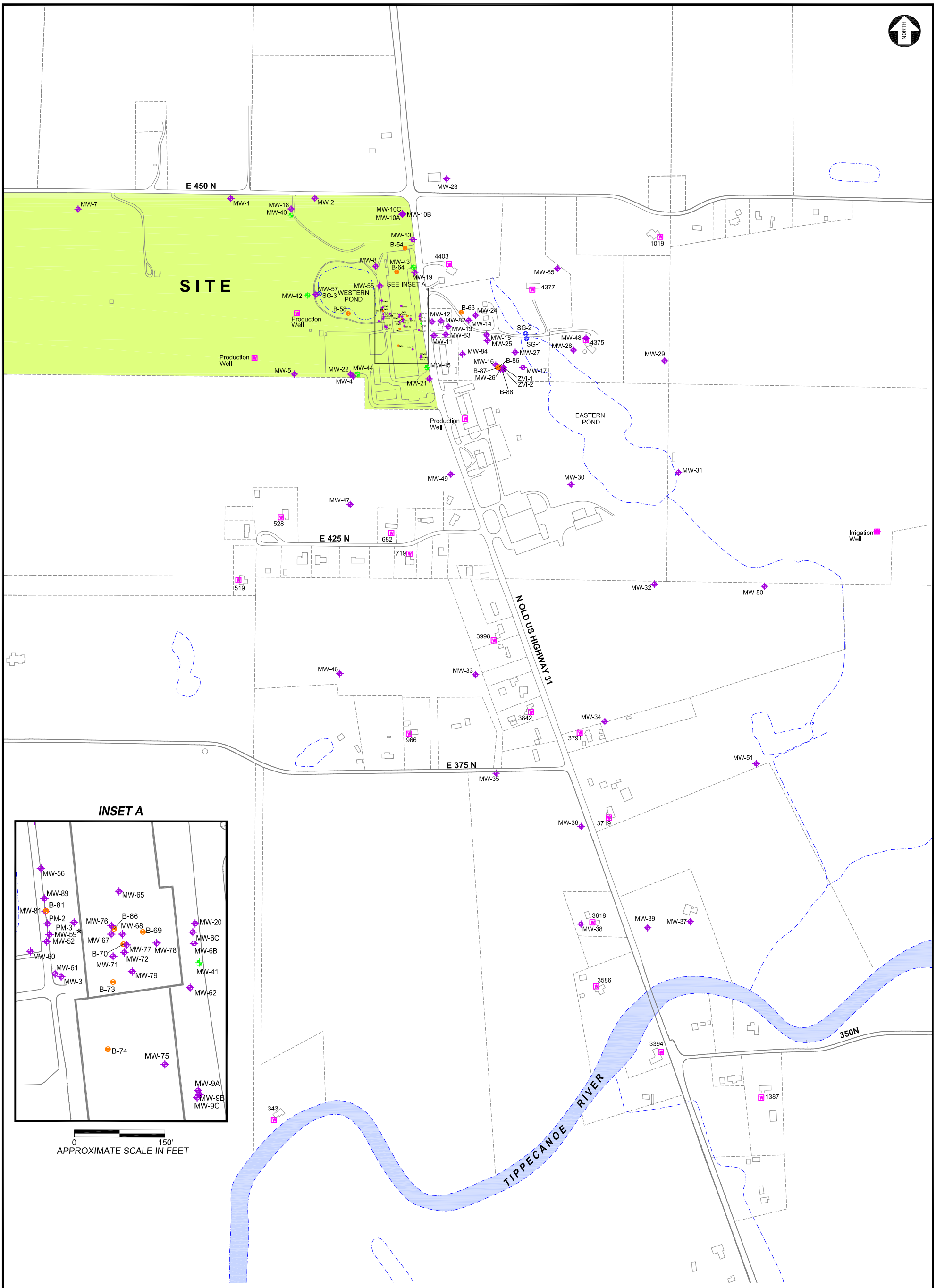
USEPA MCLs - United States Environmental Protection Agency (USEPA) Maximum Contaminant Levels (MCLs) (May 2009)
IDEM Remediation Closure Guide (RCG) Screening Levels 2015
Xylene mixed (total) used as a surrogate for Xylene, m/p.
For a complete list of analyzed compounds and results please refer to the laboratory reports
Concentration exceeds IDEM RCG industrial screening level
Concentration exceeds IDEM RCG residential screening level and U.S. EPA maximum contaminant level

Prepared By: RLB
Checked By: PJS

FIGURES



DRAWN BY: RLB	FILE NO.: P:\Textron\TFS\Drawings\TFS Topo.dwg	**TORX FACILITY** **4366 NORTH OLD US HIGHWAY 31** **ROCHESTER, INDIANA**	amec foster wheeler	**SITE LOCATION MAP**	FIGURE: **1**
APPROVED BY: LF	DATE: 01/15/2016				
SOURCE: USGS topographic quadrangles of Argos, IN, 1994 and Rochester, IN, 1992.					SHEET 1 of 1
PROJECT NO.: 3359 14 1028	SCALE: SEE ABOVE				



0 600 1200
APPROXIMATE SCALE IN FEET

LEGEND

B-70	SOIL BORING LOCATION
MW-28	OVERBURDEN MONITORING WELL LOCATION
MW-40	BEDROCK MONITORING WELL LOCATION
3618	POTABLE WATER WELL LOCATION
SG-1	STAFF GAGE LOCATION
	APPROXIMATE PROPERTY BOUNDARY (from the Fulton County GIS website)
*	WELL CLUSTER WITH OFF–SET WELL

DRAWN BY RLB	FILE NO. P:\Textron\TFS\Drawings\ TFS Site Plan 2013 11x17.dwg	**TORX FACILITY 4366 NORTH OLD US HIGHWAY 31 ROCHESTER, INDIANA**	FIGURE **2**
APPROVED BY LF	DATE 01/15/2016	amec foster wheeler	**SITE PLAN**
SOURCE Wells surveyed by Territorial Engineering; Fulton County, IN GIS, 2005.			
PROJECT NO. 3359 14 1028	SCALE SEE ABOVE		SHEET 1 of 1

FIGURE 3

SHEET 1 of 1

TREATMENT ZONES, ARRAYS AND WELL LOCATIONS

amec foster wheeler

TORX FACILITY
4366 NORTH OLD US HIGHWAY 31
ROCHESTER, INDIANA

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PROJECT NO.	3359 14 1028
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DATE	01/22/2016
SCALE	SEE ABOVE

SOURCE Wells surveyed by Territorial Engineering; Fulton County, IN GIS, 2005.

NORTH

AREA DEPICTED ON NEXT FIGURE

IN-SITU CHEMICAL REDUCTION ZONE

SOURCE AREA TREATMENT ZONE

DOWNGRADIENT TREATMENT ZONE

TREATMENT ZONE A

TREATMENT ZONE B

TREATMENT ZONE C

TREATMENT ZONE D

WESTERN POND

EASTERN POND

N OLD US HIGHWAY 31

4403

4377

Row 1 Row 2 Row 3 Row 4 Array A Array B Array C Array D Array E Array F Array G Array H Array I Array J Array K Array L Array M Array N Array O Array P Array Q Array R Array S Array T Array U Array V Array W Array X Array Y Array Z

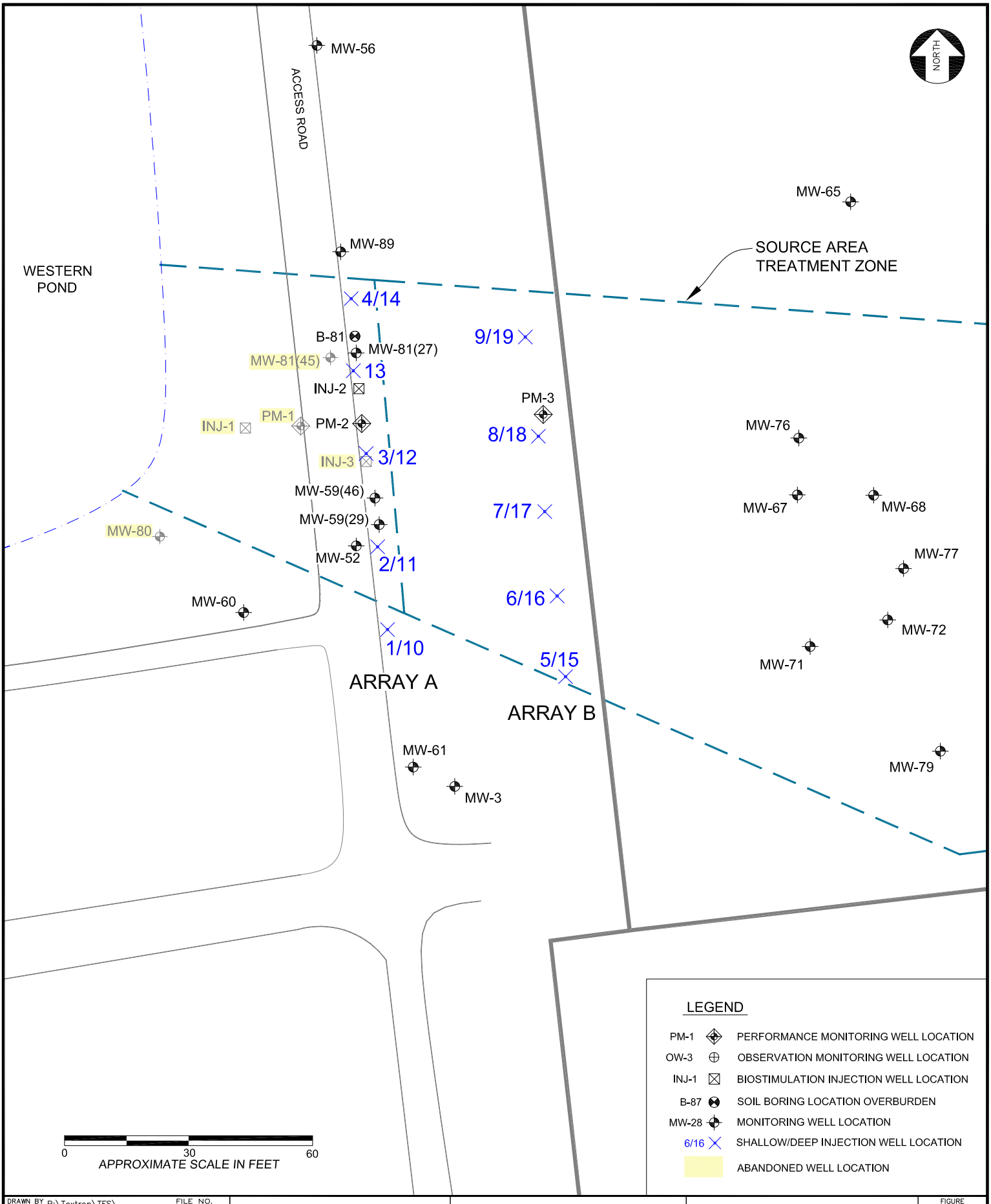
MW-8 MW-43 B-64 MW-19 MW-55 MW-56 MW-89(28) MW-81(27) MW-81(45) INJ-2 PM-2 PM-1 INJ-1 PM-3 INJ-3 MW-59(46) MW-59(29) MW-52 MW-80 MW-60 MW-61 MW-3 B-73 MW-65 MW-76 B-66 MW-67 MW-68 MW-77 MW-72 MW-71 MW-79 B-70 B-69 MW-78 MW-20 MW-6C MW-6B MW-41 MW-62 MW-12 MW-82 MW-13 OW-1 B-63 B-9(35)/B-9(54) B-9(47) B-14(33)/B-14(55) B-14(45) B-4(48) B-4(36) B-8(35) B-8(48) MW-14 B-13(46) B-13(33) B-17(33)/B-17(55) B-17(45) MW-24 OW-3 B-3(46) B-3(36) B-7(35)/B-7(52) B-16(36)/B-16(55) B-16(47) B-2(48) B-2(36) OW-2 B-12(48) B-12(37) B-6(49) B-6(36) B-15(52)/B-15(51) B-15(45) B-1(47) B-1(37) B-5(48) B-5(34) B-11(47) B-11(36) B-10(47) B-10(35) C-3 C-2 C-9 C-8 MW-15 C-7 C-1 OW-4 MW-25 MW-11 MW-83 B-74 MW-75 MW-9A MW-9B MW-9C MW-45 MW-21 MW-84(65) MW-84(44) OW-5 MW-27 MW-16 B-86 B-87 MW-26 ZVI-1 B-88 ZVI-2 MW-17 OW-6

LEGEND

PM-1	Performance Monitoring Well Location
OW-5	Observation Monitoring Well Location
INJ-1	Biostimulation Injection Well Location
B-87	Soil Boring Location
MW-28	Overburden Monitoring Well Location
MW-40	Bedrock Monitoring Well Location
	Treatment Zone A Injection Wells
	Treatment Zone B Injection Wells
	Treatment Zone C Injection Wells
	Treatment Zone D Injection Wells
	ABC + Injection Points
	Array A & B Shallow/Deep Injection Wells
	Building Treatment Zone Injection Wells
Array N	Injection Array

Note:
Grayed well locations were abandoned in 2014.
(MW-80, MW-81(45), INJ-1, INJ-3, and PM-1)

0 80 160
APPROXIMATE SCALE IN FEET



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APPROVED BY PJS	DATE 10/15/2016	amec foster wheeler	FIGURE 4
SOURCE Wells surveyed by Territorial Engineering, 2009; Fulton County, IN GIS, 2005; historical maps from Textron			
PROJECT NO. 3359 14 1028	SCALE SEE ABOVE		SHEET 1 of 1

LOCATION OF GEOLOGIC CROSS SECTIONS

FIGURE 5

SHEET 1 of 1

IN-SITU CHEMICAL REDUCTION ZONE

SOURCE AREA TREATMENT ZONE

DOWNGRADIENT TREATMENT ZONE

TREATMENT ZONE A

TREATMENT ZONE B

TREATMENT ZONE C

TREATMENT ZONE D

WESTERN POND

EASTERN POND

N OLD US HIGHWAY 31

4403

4377

MW-8, MW-43, B-64, MW-19, MW-55, MW-56, MW-65, MW-89(28), B-81, MW-81(27), MW-81(45), INJ-1, INJ-2, PM-1, PM-2, PM-3, INJ-3, MW-59(46), MW-59(29), MW-80, MW-52, MW-60, MW-76, B-66, MW-67, MW-68, B-69, B-70, MW-77, MW-78, MW-72, MW-71, MW-61, MW-3, MW-79, B-73, MW-62, MW-20, MW-6C, MW-6B, MW-41, MW-12, A-10, A-15, MW-82, OW-1, A-34, A-33, A-32, A-31, A-30, MW-13, OW-2, H, I, I', B-63, MW-24, B-3(46), MW-14, OW-3, B-16(36)/B-16(55), C-3, MW-15, OW-4, MW-25, D-8, OW-5, MW-27, MW-16, D-14, B-86, B-88, ZVI-1, B-87, MW-26, ZVI-2, MW-17, H', OW-6, MW-11, MW-83, B-74, MW-75, MW-9A, MW-9B, MW-9C, MW-84(65), MW-84(44), MW-45, MW-21

LEGEND

PM-1	Performance Monitoring Well Location
OW-5	Observation Monitoring Well Location
INJ-1	Biostimulation Injection Well Location
B-87	Soil Boring Location
MW-28	Overburden Monitoring Well Location
MW-40	Bedrock Monitoring Well Location
	Treatment Zone A Injection Wells
	Treatment Zone B Injection Wells
	Treatment Zone C Injection Wells
	Treatment Zone D Injection Wells
H - H'	Cross Section Location

Note:
Grayed well locations were abandoned in 2014.
(MW-80, MW-81(45), INJ-1, INJ-3, and PM-1)

0 80 160
APPROXIMATE SCALE IN FEET

NORTH

amec foster wheeler

TORX FACILITY
4366 NORTH OLD US HIGHWAY 31
ROCHESTER, INDIANA

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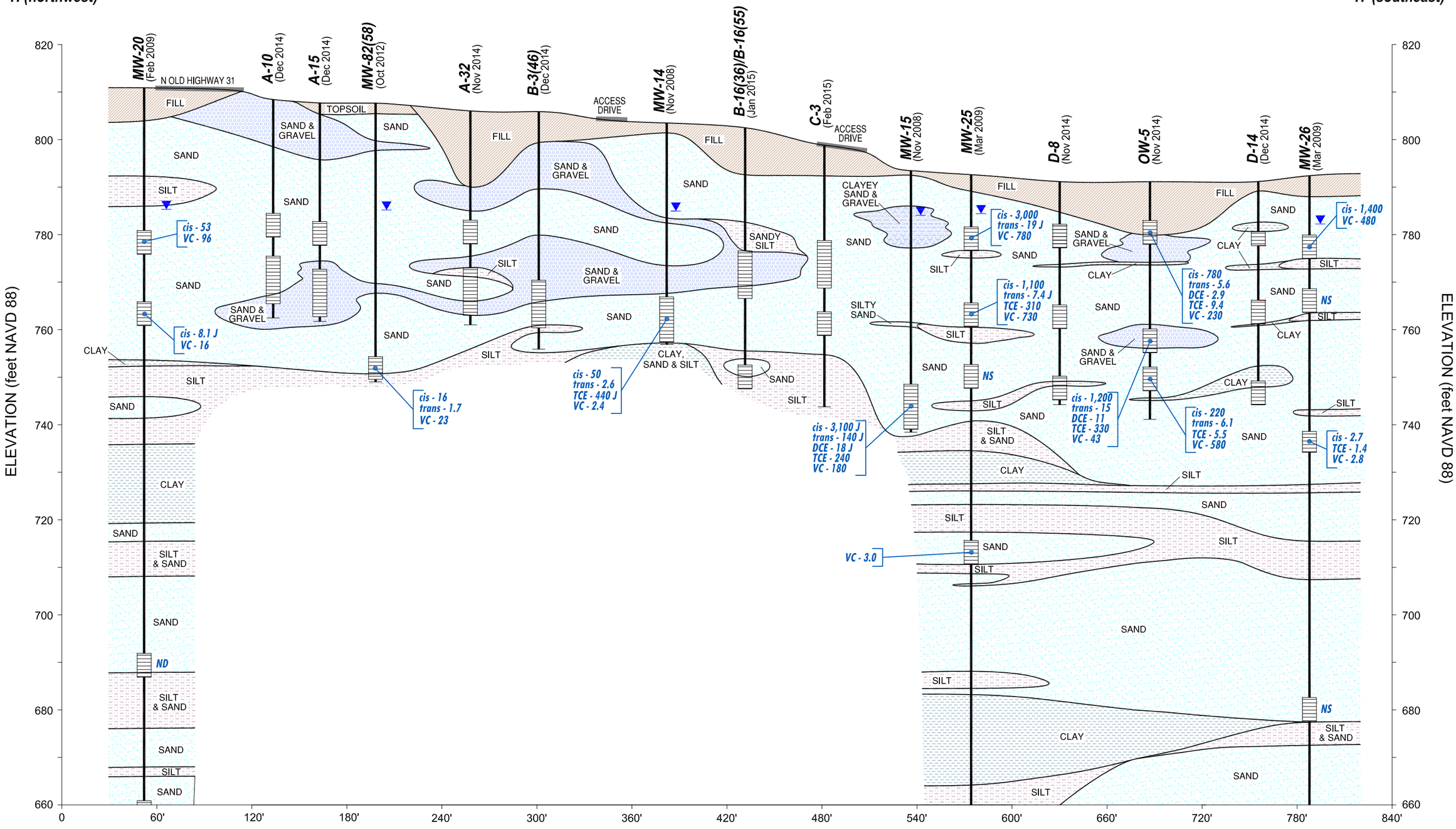
APPROVED BY	P.JS
PROJECT NO.	3359 14 1028
FILE NO.	P:\Textron\TFS\Drawings\Im Pts 2014.dwg
DATE	01/22/2016
SCALE	SEE ABOVE

SOURCE Wells surveyed by Territorial Engineering, Fulton County, IN GIS, 2005.

H (northwest)

H' (southeast)



Horizontal Scale (in feet)
Vertical Exaggeration: 1:3

LEGEND:

- Depth to Water (June 2014)
- Well Screen
- Observed Vertical Groundwater Gradient

MW-20 (Feb 2009) Well Location & Date Installed

VC - 11 Site-related VOCs Results from December 2014 and July 2015

NOTES:

cis - cis-1,2-Dicloroethene
trans - trans-1,2-Dichloroethene
TCE - Trichloroethene
DCE - 1,1-Dichloroethene
VC - Vinyl Chloride

VOC results reported in micrograms per liter (μg/L)
ND - Site-related VOCs not detected greater than detection limits.
NS - Not sampled
J - Estimated value
NAVD 88 North American Vertical Datum 1988

FIGURE 6
SHEET 1 of 1

GEOLOGIC CROSS SECTION H-H' NORTHWEST to SOUTHEAST

amec foster wheeler

TORX FACILITY
4366 NORTH OLD US HIGHWAY 31
ROCHESTER, INDIANA

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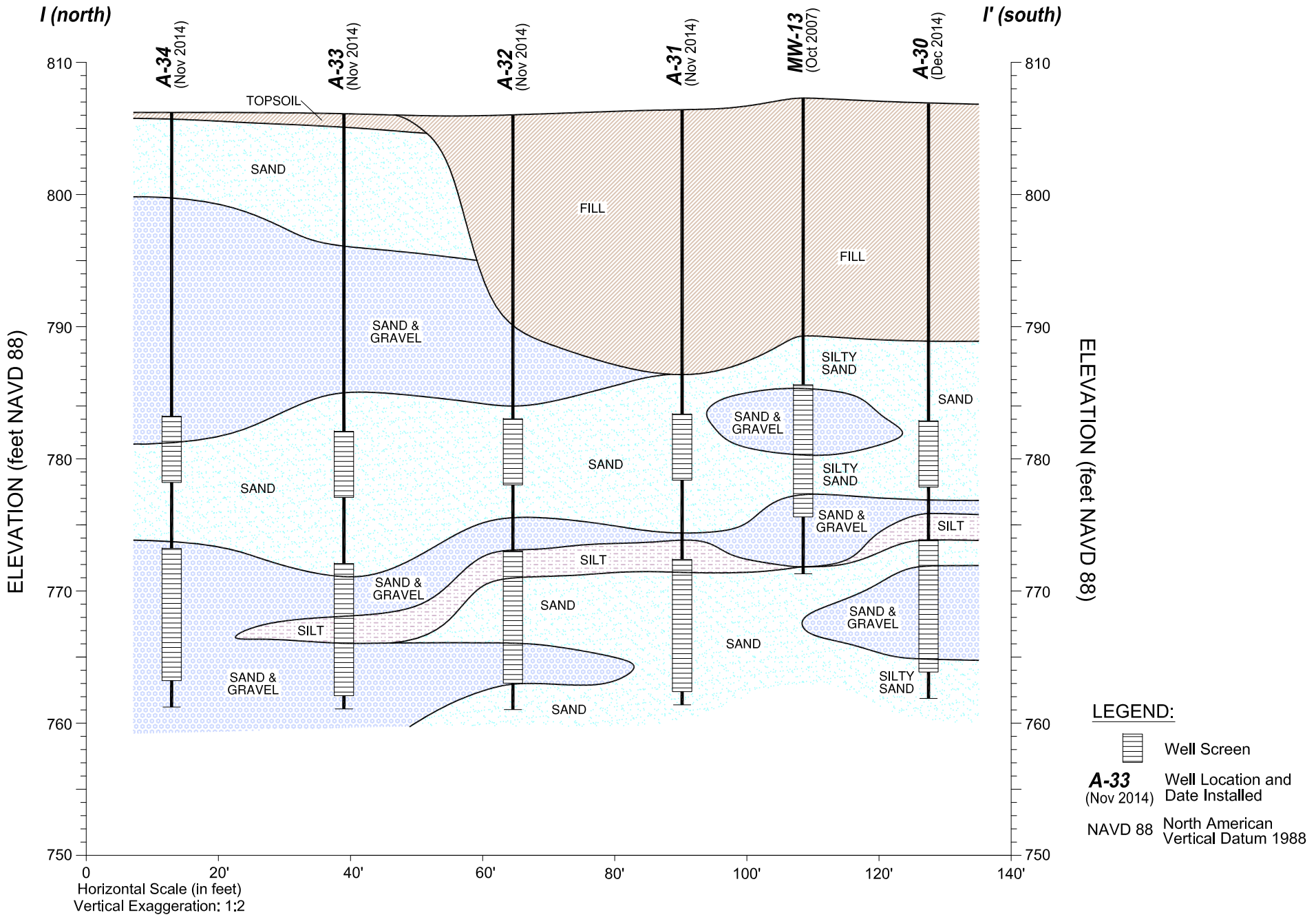
APPROVED BY	PJS
SOURCE	Survey provided by Territorial Engineering, LLC
PROJECT NO.	3359 14 1028
FILE NO.	P:\Tetra\TFS\Drawings\TFS Sections Jan 2013.dwg
DATE	01/22/2016
SCALE	SEE ABOVE



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APPROVED BY: LF	DATE: 01/15/2016	amec foster wheeler	FIGURE: 7
SOURCE: Survey provided by Territorial Engineering, LLC			
PROJECT NO.: 3359 14 1028	SCALE: SEE ABOVE		SHEET 1 of 1