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Sent: Friday, April 10, 2009 3:26 PM
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Cc: Mark Fisherkeller, Arcadis; ENVIRON, Francis Ramacciotti; Jean Caufield, GM; Marilyn Dedyne, GM; David Favero
Subject: Former GM Delco Plant 5, Kokomo, IN
Attachments: Kokomo GW Evaluation-090410-draft.pdf

Michelle and Gary,

The attached document provides GM's evaluation of groundwater conditions at and in the vicinity of the subject Facility. The attached document is intended to be an appendix to the RFI Report for the Facility and serve as part of the basis for the CA750 determination. Note that the drawings referenced in the attached document are being sent to you by ARCADIS and you should receive them early next week. If you would like a paper copy of the attached document, please let me know.

GM would appreciate your review of the attached document. Our objective of reviewing this information with you now is to minimize the possibility that the groundwater data in the RFI Report and the CA750 determination are not sufficient. Note that we have identified the need to collect and analyze additional groundwater samples, but we have only a limited amount of time to collect additional data before the November 2009 submittal deadline for the CA750.

We are available to review this information with you either by teleconference or in your office. Please contact me if you would like to schedule a call/meeting or if you have any questions.

Thank you,
David Favero

DRAFT

APPENDIX

Groundwater Evaluation

Former GM Delco Plant 5, Kokomo, IN

USEPA ID IND000806844

April 10, 2009

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- B Proposed Sampling Matrix
- C Groundwater (Potentiometric Surface) Level Study

1 Introduction

This groundwater evaluation has been prepared to provide the United States Environmental Protection Agency (USEPA) with GM's evaluation of data collected through February 2009 as part of RCRA Corrective Action for the Former GM Delco Plant 5 (Facility) located in Kokomo, Indiana. This evaluation will be included in the RFI Report. This evaluation summarizes data related to the delineation of chlorinated solvents (primarily TCE and its breakdown products) within the three identified transmissive water bearing units at and in the vicinity of the Facility (the Study Area); an upper sand unit (S1), a deeper sand unit (S2), and the upper limestone bedrock (B1). This evaluation also provides additional information regarding significant water withdrawal facilities in the vicinity of the Facility. Finally, planned investigation at the Facility is summarized in Section 6.

Note that the drawings referenced in this evaluation are draft drawings prepared for the RFI Report.

2 Hydrogeology and Delineation of Chlorinated Solvents in Groundwater

This section summarizes data collected to-date for each of the three transmissive water bearing units, and GM's evaluation and current conclusions regarding the distribution of chlorinated solvents within each unit.

2.1 S1 Unit

- Geology
 - o The S1 unit is thickest near the center of the Facility, and thins moving to the Southeast. The top of the underlying clay slopes downward towards the northwest, and the slope ranges from a 1 to 3 percent (Drawing 7).
- Flow Characteristics
 - o Flow direction is consistently toward the Southeast (Drawing 9).
 - o Groundwater in the Study Area is under confined conditions, as presented in the CCR.

- o Average Gradient is 0.0016 feet/foot (ft/ft).
- o Average Hydraulic Conductivity is 84.1 feet per day (ft/day).
- o Average Calculated Groundwater Flow Velocity is 0.7 ft/day.
- Constituent Concentrations in Groundwater
 - o TCE is the primary constituent observed in groundwater within the S1 unit, with the highest concentrations centered around the former operations area of the Facility (AOIs 3, 5, and 7) (Drawing 27). Cis-1,2-DCE, a daughter product of TCE, is also observed within the footprint of the TCE plume (Drawing 29), suggesting that natural degradation of TCE is occurring. Absent from the S1 unit are detectable concentrations of PCE (Drawing 28). However, it is noted that PCE has been detected within the S1 unit at monitoring well MW-0617-S1 (Drawings 23 and 24). This monitoring well is located south the Facility on the Former Midwest Plating property where prior operations and/or releases are not related to GM's activities at the Facility.
 - o Concentrations of TCE in groundwater decrease moving away from AOIs 3, 5, and 7 where TCE is found in vadose zone soil (Drawing 25 shows the areas of TCE in vadose zone soil).
 - o Concentrations of TCE and daughter products have been delineated to non-detect in groundwater in the Study Area (Drawing 27 and Drawing 29).
 - o A direct connection between the on-site concentrations of TCE in groundwater and those detected in off-site monitoring well MW-0612-S1, where TCE concentrations do not decrease as rapidly as observed at other off-site locations has not been made. However, the following three scenarios have been identified:
 - § Scenario 1: The TCE at this monitoring well originated from the Facility and migrated with groundwater flow to the southeast with less attenuation than observed at other off-site monitoring wells.

§ Scenario 2: Migration of TCE along the old William B. Morgan sewer (Drawing 32). This potential sewer was identified subsequent to completion of the CCR on an old utility drawing maintained by the Kokomo Street Department. Based on conversations with the Street Department this sewer is no longer in use and there are no records of this sewer having been abandoned. To identify whether this sewer was removed during construction or demolition activities at the Facility, ARCADIS dug several test pits along the understood location of the sewer and did not identify visual evidence of backfilled or disturbed soil or the historic sewer pipe (Drawing 32 identifies the test pit locations).

§ Scenario 3: An off-Facility source of TCE in the residential area to the east exists or existed.

- o Concentrations of TCE in groundwater at monitoring well MW-0616-S1 (located southwest of the Facility) have historically exceeded drinking water criterion (Drawings 23 and 24). In addition, cis-1,2-DCE and vinyl chloride concentrations in groundwater exceed the drinking water criteria. However, concentrations of these constituents in groundwater have always been non-detect at monitoring well MW-0603-S1, which is located between the Facility and MW-0616-S1 (Drawing 27). Therefore, there is no connection between the concentrations at MW-0616-S1 and those at the Facility. The CCR also identified that the area where this well is installed is a light industrial corridor and other sources could exist in this area.

2.2 S2 Unit

- **Geology**

- o The S2 unit is overlain by a hard gray clay (till), which separates it from the S1 unit (Drawings 4 through 6). The clay that separates S1 from S2 ranges in thickness from 2 to 30 feet (Drawing 4 B to B' and Drawing 5 G to G', respectively). On average, this clay is on the order of 20 feet thick (Drawing 4 A to A' and Drawing 6 L to L'). All locations installed during the RFI identified this clay as present.

- o The S2 unit is thickest in the northern part of the Study Area (Drawing 7), and thins moving to the south and ultimately pinches out immediately south of the Facility (Drawings 4, 6 and 7).
 - o In general, the S2 unit is underlain by a weathered bedrock zone consisting of mechanically fractured parent limestone angular clasts imbedded and cemented (hardened) within a lime mud matrix (Drawings 4 through 6). This weathered zone ranges in thickness from a few feet to 40 feet (Drawing 6 I to I' and K to K', respectively). While consisting of lime mud, this weathered zone likely does not act as an impermeable barrier between S2 and the underlying limestone bedrock (B1) and allows for some measure of hydraulic communication between these two units. One exception to the S2 unit underlain by lime mud is noted at monitoring well cluster MW-0501 (located on the north-end of the Facility (Drawing 2)). At this location, the S2 unit is underlain by approximately 8 feet of clay till, which is underlain by a third sequence of sand (Unit S3) (Drawing 4 A to A' and C to C'). This is the only location where this geologic sequence was identified.
- Flow Characteristics
 - o Flow direction:
 - § Data from December 5, 2006 and March 8, 2007 show a general southerly flow (Drawing 10).
 - § Data from November 11, 2008 and February 17, 2009 (Drawing 10) show a groundwater divide with a northerly component to flow in the northern half of the Facility and a southerly flow component in the southern half of the Facility (Drawing 10).
 - o Groundwater in the Study Area is under confined conditions and is not hydraulically connected to the S1 unit.
 - o Average Gradient is 0.0007 ft/ft.
 - o Average Hydraulic Conductivity of 137 ft/day.

- o Average Calculated Groundwater Flow Velocity is 0.5 ft/day.
- Constituent Concentrations in Groundwater
 - o TCE is the primary constituent observed in groundwater within the S2 unit, with the highest concentrations centered around off-site monitoring well MW-0612-S2 (Drawing 27). Cis-1,2-DCE, a daughter product of TCE, is also observed within the footprint of this TCE plume (Drawing 29), suggesting that natural degradation of TCE is occurring.
 - o TCE in groundwater was also detected at elevated concentrations at MW-0605-S2 (located at AOI 3), MW-0605-S2 (southwest of MW-0612-S2 and north of the Former Midwest Plating Facility), and MW-0617-S2 (located at the Former Midwest Plating Facility). Cis-1,2-DCE is also observed at and around the wells near the Former Midwest Plating Facility (Drawing 29), suggesting that degradation of TCE is occurring.
 - o Concentrations of TCE and daughter products in groundwater have been delineated to non-detect around all locations where TCE concentrations in groundwater exceeded the drinking water criterion (Drawing 27).
 - o PCE has consistently been detected in groundwater at concentrations above the drinking water criterion in MW-0617-S2. Based on the extensive soil and groundwater data collected to-date from the Facility, PCE is not a result of past GM operations at the Facility. PCE was consistently detected in the vertical soil profile at the MW-0617 series wells located at the former Midwest Plating facility. PCE concentrations in the vertical soil profile at this location were 31 mg/kg (0-2 ft bgs), 1,700 mg/kg (8 to 10 ft bgs), and 9,800 mg/kg (14 to 16 ft bgs). Based on these observations, PCE concentrations observed in groundwater south of the Facility are not related to GM operations. In addition, GM does not believe that the TCE present in soil or groundwater at the former Midwest Plating facility is related to former GM operations. Rather the TCE identified south of the Facility is likely attributable to the former Midwest Plating facility.

2.3 B1 Unit

- Geology
 - o As discussed in Section 2.2, the B1 unit is overlain by a lime mud (Drawings 4 through 6). In general, B1 consists of dolomitic limestone. The upper surface of this limestone is characterized best as vuggy (interconnect holes), with abundant dissolution features observed on bedding planes and fractures. This translates to the upper zone having the potential to horizontally transmit a large volume of water. This upper transmissive zone is on the order of 5 to 10 ft thick. Beneath this upper zone, bedding becomes more massive and little to no evidence of fractures is observed within the dolomitic limestone. This translates to a much reduced potential for vertical or horizontal flow, especially in comparison to the upper zone.
 - o The bedrock surface slopes downward from the south to the northwest (Drawing 8).
- Flow Characteristics
 - o Flow direction:
 - § It should be noted that while a potentiometric surface drawing was prepared for B1, the flow within B1 is likely more channelized along fractures, fracture sets, or solution features. As such, the potentiometric surfaces presented for B1 provide generalized groundwater flow direction and hydraulic gradient.
 - § Data from December 5, 2006 shows a general southerly flow direction (Drawing 11).
 - § Data from November 11, 2008 and February 17, 2009 show a groundwater divide with a northerly component to flow in the northern half of the Facility and a southerly flow component in the southern half of the Facility (Drawing 11).

§ Wildcat Creek is a bedrock lined gaining stream located south of the Facility, and influences the overall groundwater flow direction in the vicinity of the Facility. Based on this, groundwater within the upper bedrock beneath the Facility generally flows towards the south towards Wildcat Creek (U.S. Geological Survey Water-Resources Investigation Report 85-4076).

- o Groundwater in the Study Area is under confined conditions and may be hydraulically connected to S2.
- o Average Gradient is 0.0007 ft/ft.
- o Average Hydraulic Conductivity of 55.3 ft/day.
- o Average Calculated Groundwater Flow Velocity is 0.2 ft/day.
- o During the RFI four deeper boreholes were installed and hydraulically profiled to identify potential preferential horizontal flow zones at depth within the bedrock and determine whether these zones were impacted with chlorinated hydrocarbons. Details of this investigation are detailed in four technical memoranda¹ and the results from each of the four locations are summarized below:

§ MW-0503-B1a – Three distinct flow zones were observed 85.7 to 90 ft bgs, 122 to 127 ft bgs, and 146 to 152.7 ft bgs. The vast majority (94 percent) of the overall measured transmissivity was associated with the upper most zone (85.7 to 90 ft bgs).

¹ Evaluation of Packer Testing versus FLUTe Hydraulic Profiling (November 15, 2007), Vertical Profiling of Flow Zones and Groundwater Contaminant Concentrations in Bedrock (March 2008), Open Borehole Installation and Transmissivity Testing (July 2008), and Open Borehole Installation, Transmissivity Testing, and Isolated Packer Sampling (Updated October 2008).

- § MW-0615-B1a – Three distinct flow zones were observed 80 to 88 ft bgs, 94 to 98 ft bgs, and 100 to 140 ft bgs.
- § MW-0616-B1a – Permeable zones were less pronounced, nonetheless, zones of relatively greater transmissivity were observed at 104 to 110 ft bgs, 112 to 121 ft bgs, and 121 to 123 ft bgs. No significant flow zones were identified beneath 124 ft bgs.
- § MW-0701-B1a – Three distinct flow zones were observed from 93.5 to 98 ft bgs, 100 to 104 ft bgs, and 108 to 113 ft bgs. The test stopped at 113 ft bgs because the flow had decreased to a point where it could no longer be measured, meaning no appreciable transmissivity was present beneath 113 ft bgs.

- Constituent Concentrations in Groundwater

- o Detectable concentrations of TCE and PCE in B1 groundwater are limited to the bedrock well located on the former Midwest Plating facility (MW-0617-B1) (Drawings 23, 24, 27, and 28). The TCE and PCE at this location, which is at the former Midwest Plating facility, are not believed to be the result of GM operations, as discussed in Section 2.2.
- o Concentrations of cis-1,2-DCE in B1 groundwater that are higher than the drinking water criterion are limited to only off-site monitoring wells (Drawing 29).
- o The highest concentration of cis-1,2-DCE in groundwater is from monitoring well MW-0603-B1, which is located immediately southwest of the former Midwest Plating facility (Drawing 29). Cis-1,2-DCE at this location is believed to be related to TCE and PCE concentrations in groundwater from MW-0617-B1.
- o Concentrations of TCE, PCE, and cis-1,2-DCE in groundwater have been horizontally delineated to non-detect (Drawings 27, 28, and 29).

2.4 Vertical Delineation of Constituent Concentrations in Groundwater

- As discussed in Section 2.2, the hydraulic connection between the S1 and S2 units is very limited.
- A total of three nested sets of wells (wells set in both S2 and B1) exist where TCE and/or cis-1,2-DCE were detected above drinking water criteria within the S2 unit. This includes the MW-0605 wells located in the middle of the Facility, the MW-0608 wells (located in the neighborhood east of the Facility), and the MW-0617 wells located at the former Midwest Plating facility (Drawing 2). The data from these nested well pairs suggest the following (Drawings 27 and 29):
 - o Concentrations of cis-1,2-DCE detected in groundwater at MW-0605-S2 are not present in groundwater at MW-0605-B1. Therefore, downward migration of constituents is not occurring in this area of the Facility.
 - o Concentrations of TCE detected in groundwater at MW-0608-S2 are not present in groundwater at MW-0608-B1. Concentrations of cis-1,2-DCE is detected in groundwater at MW-0608-B1 are approximately three times lower than those detected at MW-0608-S2. Therefore, TCE and cis-1,2-DCE are both attenuating prior to reaching the B1 unit.
 - o Monitoring wells at the former Midwest Plating facility (MW-0617) are the only nested well pairs that show concentrations of TCE in groundwater increasing from S2 to B1. As discussed above in Sections 2.2, TCE (and PCE) concentrations in soil and groundwater at the former Midwest Plating facility is not related to GM activities at their Facility.
- As discussed in Section 2.3, four deeper boreholes were installed to assess preferential horizontal flow zones and determine whether these zones were impacted with chlorinated hydrocarbons. Based on the two rounds of sampling completed at all four locations, none of the identified flow zones below B1 contained VOCs above drinking water criteria. These data vertically delineate cis-1,2-DCE, TCE and PCE in the upper bedrock. Drawings 17, 22, 23, and 24 show the results of the vertical samples collected from beneath the

upper bedrock zone at MW-0503-B1a, MW-0615-B1a, MW-0616-B1a, and MW-0701-B1a.

- As detailed in the transmissivity and isolated packer sampling memoranda (discussed in Section 2.3), low level toluene concentrations (ranging from less than 5 to 32 ug/L) were detected at various intervals of the deeper bedrock boreholes. A review of historic groundwater and borehole water collected at the Facility, shows one historic detection of toluene (1.2 ug/L) at MW-0504-S2 during the March 2006 sampling event. Toluene concentrations at MW-0504-S2 were below laboratory detection limits during the November 2006 sampling event. Given there has been one toluene detection observed in the unconsolidated water bearing units and several observed toluene detections within the deeper bedrock boreholes, indicates that the observed toluene at the B1a locations are a result of off-Facility activities.

3 Depth to Water and Vertical Gradient Data

- Depth to water data collected in November 2008 showed a significant lowering of the potentiometric surface compared to previous potentiometric surface elevations observed in December 2006 and March 2007 (refer to Table 1 and refer to Drawings 9 through 11). Additional measurements were collected on February 17, 2009 to confirm the November 2008 data. The February 2009 depth-to-water data are provided as Drawings 9 through 11. In general, the following describes the observed change in potentiometric surface by unit:
 - o S1 Unit – The December 2006 and March 2007 events showed an average potentiometric surface elevation of approximately 816 ft above mean sea level (AMSL). The average potentiometric surface elevation observed during the November 2008 event was 812 ft AMSL, i.e., the potentiometric surface within the S1 unit dropped approximately 4 feet. Based on the data collected on February 17, 2009, the potentiometric surface rose approximately 1.5 ft to an average elevation of 813.5 ft AMSL from November 2008.
 - o S2 Unit – The December 2006 and March 2007 events showed an average potentiometric surface elevation of approximately 817 ft AMSL. The average potentiometric surface elevation observed during the November 2008 event was 808 ft AMSL, i.e., the potentiometric surface within the S2 unit dropped approximately 9 feet. Based on the

data collected on February 17, 2009, the potentiometric surface rose approximately 3.5 ft to an average elevation of 811.5 ft AMSL from November 2008.

- o B1 Unit – The December 2006 and March 2007 events showed an average potentiometric surface elevation of approximately 817.25 ft AMSL. The average potentiometric surface elevation observed during the November 2008 event was 808 ft AMSL, i.e., the potentiometric surface within the B1 unit dropped approximately 9.25 feet. Based on the data collected on February 17, 2009, the potentiometric surface rose approximately 3.5 ft to an average elevation of 811.5 ft AMSL from November 2008.
- Tables 2 and 3 provide vertical gradient data between nested sets of monitoring wells for depth to water gauging events completed in December 2006, March 2007, November 2008, and February 2009. In general, the following describes the observed vertical gradients between these gauging events:
 - o S1 to S2 Units (Table 2) - In general an upward gradient exists between the S1 and S2 units across the Facility for both the December 2006 and March 2007 gauging events. The November 2008 and February 2009 data show a downward gradient between S1 and S2 units for all monitoring well pairs.
 - o S2 to B1 Units (Table 3) - An upward gradient exists between the B1 and S2 and units across the Facility for both the December 2006 and March 2007 gauging events, with one exception. This exception is the northern most monitoring well pair (MW-0501-S2 and MW-0501-S3U²) which shows a downward gradient for both the December 2006 and March 2007 gauging events. The November 2008 and February 2009 data show a downward gradient between B1 and S2 units.

² MW-0501-S3U is partially set in a sand unit observed beneath the S2 unit and partially in the bedrock. This is the only occurrence of this third sand at the Facility. The sand sets directly on-top of bedrock (refer to Drawing 5 of the previously supplied RFI drawings), and based on the current Facility conceptual model this sand unit behaves the same as the B1 unit.

4 Additional Information Regarding Significant Water Withdrawal Facilities

Two municipal water fields operated by Indiana American Water Company (IAWC) are located within two miles of the Facility. One is located approximately 1.4 miles to the northwest and the other is located approximately 1.75 miles to the southeast of the Facility (refer to Drawing 1). A generalized cross-section has been developed to show the generalized geology, elevations, and the screened intervals between the Northwest Well Field, the Facility, and the Wildcat Creek Well Field (see Drawing 1). In addition, two known significant water withdrawal facilities are within 0.5 miles of the Facility. They are Syndicate Sales Inc. and Moon Fabricating (refer to Drawing 1). As discussed above, depth to water data collected in November 2008 and February 2009 (Drawings 10 and 11) showed a shift in groundwater flow direction and a drop in the potentiometric surface elevation. Specifically the November 2008 and February 2009 events showed a northwesterly component to groundwater flow in the northern half of the Facility, with a southerly flow direction in the southern half of the Facility for both the S2 and B1 Units. Based on this change in groundwater flow direction and the drop in the potentiometric surface elevation, additional information was gathered from the IAWC and the two significant water users.

4.1 Indiana American Water Company (IAWC)

Northwest Well Field

The northwest well field is a relatively new facility (operations began March 2007), and was brought on-line to provide additional water to meet growing demand from the City of Kokomo. A generalized cross-section shows the generalized geology, elevations, and the screened intervals between the Northwest Well Field, the Facility, and the Wildcat Creek Well Field. Based on conversations with a representative of IAWC and information obtained from the Indiana Department of Natural Resources (IDNR) the following information is known about this facility.

- o The northwest well field is comprised of three production wells (logs are provided as Attachment A). Two of the three wells are operated on a continual basis. Specifically, the wells are operated at approximately 1,400 gallons per minute (gpm) each during peak use times (5 am to 7 pm), with a reduced flow rate (approximately 1,100 gpm each) during non-peak times. This translates to a total water withdrawal from the northwest well field of approximately 50 million

gallons per month. Total water withdrawal for 2008 (as reported to IDNR) is summarized in Table 4.

- o These wells are screened entirely within an unconsolidated sand unit that ranges in thickness from 41 ft to 69 ft bgs.
- o The IAWC has been contacted to determine whether additional data exists that would help further define the relationship between the sand units the northwest well field draws from and the sand units identified at the Facility. Because this is a municipal well field there are national security concerns associated with operational information from this facility. GM has made initial contacts with IAWC to obtain the necessary clearance to obtain access to data from this well field.

Wildcat Creek Well Field

The IAWC also operates a well field south of the Facility, which includes municipal production wells near and along Wildcat Creek. This well field consists of a total of 17 wells, which in total produce an average of 135 million gallons of water a month. The total 2008 water withdrawal for this well field was 1.6 billion gallons (refer to Table 4). The majority of the wells withdraw groundwater from limestone bedrock. Specifically wells 18 and 19 (which are the closest wells in relation to the Facility) are set to a total depth of approximately 300 ft bgs, which is within the limestone bedrock. These two wells appear to be finished as open boreholes with a surface casing set to 71 ft bgs in well 18 and a surface casing set to 40 ft bgs in well 19.

As noted above, due to national security concerns a request has been placed with the IAWC to obtain additional data regarding this well field.

4.2 Syndicate Sales Inc.

As shown on Drawing 1, Syndicate Sales is located approximately 2,000 ft to the northwest of the Facility. Syndicate Sales water withdrawal from 2005 through 2008, as reported to IDNR, is tabulated on Table 4. Table 4 shows that Syndicate Sales' water withdrawal over the last four years peaked in 2006 at 6 million gallons and has steadily dropped over the last two years with a withdrawal of approximately 3.5 million gallons in 2008.

Based on discussions with Syndicate Sales, they draw water from two wells for two purposes. One of the wells provides water for geothermal cooling of their facility, while the other well provides non-contact cooling water for the facility. Both wells appear to be set within the limestone unit, based on construction logs maintained by IDNR (provided as Attachment A). The well utilized for geothermal cooling is the shallower of the two wells (106 ft bgs) and the log contains very little information with respect to how this well was constructed. The well utilized for producing non-contact cooling water is set to a depth of 262 ft bgs with a surface casing set at 83 ft.

4.3 Moon Fabricating

As shown on Drawing 1, Moon Fabricating is located approximately 2,000 ft to the northwest of the Facility. Moon Fabricating's water withdrawal from 2005 through 2008, as reported to IDNR, is tabulated on Table 4. Table 4 shows Moon Fabricating's water withdrawal over the last four years peaked in 2007 at approximately 2.1 million gallons and decreased to approximately 1.4 million gallons in 2008.

Based on discussions with Moon Fabricating, they draw water from one well to provide water for steam generation for use in a boiler and an autoclave. Their water needs are periodic and they can go days without withdrawing any water. Moon Fabricating's production well is set within limestone to a depth of 234 ft bgs with a surface casing set to 93 ft, based on the construction log maintained by IDNR (provided as Attachment A).

5 Additional Information

As indicated in the CCR, the Former Midwest Plating facility had a production well which was believed to have been installed by Ortman Drilling & Water Services in 1969. No records were available which indicated if or how the production well was abandoned. Therefore, Ortman Drilling & Water Services was contacted to determine whether they had record of the well installation. While they did not have any information from the installation activities, they did have records of abandoning the well in December of 1997. In addition, their records indicated that a second 10-inch diameter well with a total depth of 239 ft bgs located on the former Midwest Plating property was abandoned at the same time as the production well. This second well had not previously been identified (record of this second well does not exist within the IDNR). There is no information available in regard to the specific location of these two wells.

6 Proposed Additional Investigation Activities

- o Additional Groundwater Sampling (Attachment B)
 - o Measure depth to water in most of the wells to confirm the recent trends in groundwater elevation and gradient.
 - o Collect groundwater samples via low flow methods from thirty-one wells to confirm horizontal and vertical delineation of chlorinated VOCs in groundwater in the Study Area.
 - o Following collection of groundwater samples via low flow methods, collect groundwater samples using passive diffusion bag (PDB) samplers from six of the 31 sampled monitoring wells to evaluate the merits of utilizing PDB samplers exclusively for future sampling events.
- o Groundwater (Potentiometric Surface) Level Study
 - o Complete a study of groundwater levels to allow for evaluation of changes in these levels over time using datalogging pressure transducers. Details of the proposed study are provided as Attachment C.

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0101-P1	11/15/2004	8.13	9.85	826.36	818.23
MW-0101-P1	10/25/2005	9.51	9.98	826.36	816.85
MW-0101-P1			Abandoned		
MW-0101-S1U	11/15/2004	11.15	17.50	826.36	815.21
MW-0101-S1U	10/25/2005	12.02	17.51	826.36	814.34
MW-0101-S1U	3/24/2006	10.52	17.23	826.36	815.84
MW-0101-S1U	3/31/2006	9.75	17.23	826.36	816.61
MW-0101-S1U	12/5/2006	9.13	17.51	826.36	817.23
MW-0101-S1U	4/28/2006	10.42	--	826.36	815.94
MW-0101-S1U	3/8/2007	10.21	17.51	826.36	816.15
MW-0101-S1U	1/16/2008	10.69	17.61	826.36	815.67
MW-0101-S1U	11/11/2008	14.31	17.46	826.36	812.05
MW-0101-S1U	2/17/2009	12.66	--	826.36	813.70
MW-0102-S1U	11/15/2004	11.10	26.00	826.36	815.26
MW-0102-S1U	9/20/2005	12.28	26.14	826.36	814.08
MW-0102-S1U	10/20/2005	12.12	26.28	826.36	814.24
MW-0102-S1U	10/25/2005	12.03	26.28	826.36	814.33
MW-0102-S1U	3/22/2006	10.50	25.90	826.36	815.86
MW-0102-S1U	3/31/2006	9.73	25.90	826.36	816.63
MW-0102-S1U	4/28/2006	10.47	--	826.36	815.89
MW-0102-S1U	12/5/2006	9.33		826.36	817.03
MW-0102-S1U	3/8/2007	10.32	26.28	826.36	816.04
MW-0102-S1U	1/16/2008	11.00	26.40	826.36	815.36
MW-0102-S1U	11/11/2008	14.33	26.26	826.36	812.03
MW-0102-S1U	2/17/2009	12.51	--	826.36	813.85
MW-0103-S1U	11/15/2005	12.60	20.00	828.15	815.55
MW-0103-S1U	10/25/2005	13.47	--	828.15	814.68
MW-0103-S1U	3/22/2006	12.03	19.76	828.15	816.12
MW-0103-S1U	3/31/2006	11.26	19.76	828.15	816.89
MW-0103-S1U	4/28/2006	11.91	--	828.15	816.24
MW-0103-S1U	12/5/2006	10.70	19.77	828.15	817.45
MW-0103-S1U	3/8/2007	11.71	19.76	828.15	816.44
MW-0103-S1U	1/16/2008	12.46	19.89	828.15	815.69
MW-0103-S1U	11/11/2008	15.87	19.81	828.15	812.28
MW-0103-S1U	2/17/2009	14.06	--	828.15	814.09
MW-0501-P1	9/20/2005	12.09	18.85	828.62	816.53
MW-0501-P1	10/18/2005	13.22	18.95	828.62	815.40
MW-0501-P1	10/25/2005	12.97	18.95	828.62	815.65
MW-0501-P1	3/22/2006	12.67	18.95	828.62	815.95
MW-0501-P1	3/31/2006	11.84	18.95	828.62	816.78
MW-0501-P1	4/28/2006	11.29	--	828.62	817.33
MW-0501-P1	12/5/2006	10.46	18.69	828.62	818.16
MW-0501-P1	3/8/2007	10.79	18.71	828.62	817.83
MW-0501-P1	1/16/2008	11.82	18.80	828.62	816.80
MW-0501-P1	11/11/2008	14.48	18.71	828.62	814.14
MW-0501-P1	2/17/2009	11.93	--	828.62	816.69

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0501-S1	3/22/2006	12.18	34.39	828.65	816.47
MW-0501-S1	3/31/2006	11.41	34.39	828.65	817.24
MW-0501-S1	4/28/2006	12.07	--	828.65	816.58
MW-0501-S1	12/5/2006	10.84	33.95	828.65	817.81
MW-0501-S1	3/8/2007	11.90	33.74	828.65	816.75
MW-0501-S1	1/16/2008	12.67	33.95	828.65	815.98
MW-0501-S1	11/11/2008	16.10	33.60	828.65	812.55
MW-0501-S1	2/17/2009	14.44	--	828.65	814.21
MW-0501-S2	10/18/2005	14.87	76.30	828.75	813.88
MW-0501-S2	10/25/2005	15.02	76.30	828.75	813.73
MW-0501-S2	3/21/2006	12.83	76.30	828.75	815.92
MW-0501-S2	3/31/2006	11.98	76.30	828.75	816.77
MW-0501-S2	4/28/2006	12.00	--	828.75	816.75
MW-0501-S2	12/5/2006	9.83	76.13	828.75	818.92
MW-0501-S2	3/8/2007	11.79	76.09	828.75	816.96
MW-0501-S2	1/16/2008	14.80	76.20	828.75	813.95
MW-0501-S2	11/11/2008	21.21	76.12	828.75	807.54
MW-0501-S2	2/17/2009	17.60	--	828.75	811.15
MW-0501-S3	10/20/2005	15.00	94.98	828.78	813.78
MW-0501-S3	10/25/2005	15.04	94.98	828.78	813.74
MW-0501-S3	3/21/2006	12.81	94.98	828.78	815.97
MW-0501-S3	3/31/2006	12.06	94.98	828.78	816.72
MW-0501-S3	4/28/2006	12.02	--	828.78	816.76
MW-0501-S3	12/5/2006	10.48	94.75	828.78	818.30
MW-0501-S3	3/8/2007	11.86	94.64	828.78	816.92
MW-0501-S3	1/16/2008	14.86	94.80	828.78	813.92
MW-0501-S3	11/11/2008	21.27	94.85	828.78	807.51
MW-0501-S3	2/17/2009	17.68	--	828.78	811.10
MW-0502-S1	9/20/2005	12.20	32.59	826.34	814.14
MW-0502-S1	10/19/2005	11.91	32.78	826.34	814.43
MW-0502-S1	10/25/2005	11.91	32.78	826.34	814.43
MW-0502-S1	3/24/2006	10.41	32.54	826.34	815.93
MW-0502-S1	3/31/2006	9.64	32.54	826.34	816.70
MW-0502-S1	4/28/2006	10.32	--	826.34	816.02
MW-0502-S1	12/5/2006	9.25	--	826.34	817.09
MW-0502-S1	3/8/2007	10.12	32.50	826.34	816.22
MW-0502-S1	1/16/2008	10.95	32.62	826.34	815.39
MW-0502-S1	11/11/2008	14.22	32.40	826.34	812.12
MW-0502-S1	2/17/2009	12.54	--	826.34	813.80
MW-0503-S1	10/18/2005	12.51	32.57	826.82	814.31
MW-0503-S1	10/25/2005	12.51	32.57	826.82	814.31
MW-0503-S1	3/24/2006	11.09	32.27	826.82	815.73
MW-0503-S1	3/31/2006	10.32	32.27	826.82	816.50
MW-0503-S1	4/28/2006	11.00	--	826.82	815.82
MW-0503-S1	12/5/2006	9.84	--	826.82	816.98
MW-0503-S1	3/8/2007	10.80	32.32	826.82	816.02
MW-0503-S1	1/16/2008	11.57	32.42	826.82	815.25
MW-0503-S1	11/11/2008	14.75	32.20	826.82	812.07
MW-0503-S1	2/17/2009	12.96	--	826.82	813.86

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0503-S2	10/18/2005	13.28	68.33	826.81	813.53
MW-0503-S2	10/25/2005	13.27	68.33	826.81	813.54
MW-0503-S2	3/24/2006	10.38	68.05	826.81	816.43
MW-0503-S2	3/31/2006	9.53	68.05	826.81	817.28
MW-0503-S2	4/28/2006	10.51	--	826.81	816.30
MW-0503-S2	12/5/2006	9.06	--	826.81	817.75
MW-0503-S2	3/8/2007	10.28	68.13	826.81	816.53
MW-0503-S2	1/16/2008	12.92	68.30	826.81	813.89
MW-0503-S2	11/11/2008	18.80	68.19	826.81	808.01
MW-0503-S2	2/17/2009	15.41	--	826.81	811.40
MW-0504-S1	9/20/2005	12.51	29.73	826.15	813.64
MW-0504-S1	10/18/2005	12.25	29.19	826.15	813.90
MW-0504-S1	10/25/2005	12.23	29.19	826.15	813.92
MW-0504-S1	3/27/2006	11.10	28.69	826.15	815.05
MW-0504-S1	3/31/2006	10.33	28.69	826.15	815.82
MW-0504-S1	4/28/2006	10.88	--	826.15	815.27
MW-0504-S1	12/5/2006	10.78	--	826.15	815.37
MW-0504-S1	3/8/2007	10.68	30.82	826.15	815.47
MW-0504-S1	1/16/2008	11.25	30.90	826.15	814.90
MW-0504-S1	11/11/2008	14.40	30.76	826.15	811.75
MW-0504-S1	2/17/2009	12.58	--	826.15	813.57
MW-0504-I2	10/18/2005	19.66	39.87	826.51	806.85
MW-0504-I2	10/25/2005	13.03	39.87	826.51	813.48
MW-0504-I2	3/27/2006	11.53	39.61	826.51	814.98
MW-0504-I2	3/31/2006	10.71	39.61	826.51	815.80
MW-0504-I2	4/28/2006	11.19	--	826.51	815.32
MW-0504-I2	12/5/2006	10.08	--	826.51	816.43
MW-0504-I2	3/8/2007	11.60	39.65	826.51	814.91
MW-0504-I2	1/16/2008	11.67	39.80	826.51	814.84
MW-0504-I2	11/11/2008	14.84	39.71	826.51	811.67
MW-0504-I2	2/17/2009	12.99	--	826.51	813.52
MW-0504-S2	3/27/2006	10.23	60.45	826.41	816.18
MW-0504-S2	3/31/2006	9.38	60.45	826.41	817.03
MW-0504-S2	4/28/2006	10.11	--	826.41	816.30
MW-0504-S2	12/5/2006	8.70	--	826.41	817.71
MW-0504-S2	3/8/2007	10.00	60.52	826.41	816.41
MW-0504-S2	1/16/2008	12.50	60.63	826.41	813.91
MW-0504-S2	11/11/2008	18.46	60.55	826.41	807.95
MW-0504-S2	2/17/2009	14.97	--	826.41	811.44
MW-0505-S1	9/20/2005	11.42	39.00	825.44	814.02
MW-0505-S1	10/19/2005	11.19	40.28	825.44	814.25
MW-0505-S1	10/25/2005	11.16	40.28	825.44	814.28
MW-0505-S1	3/23/2006	9.70	40.00	825.44	815.74
MW-0505-S1	3/31/2006	8.93	40.00	825.44	816.51
MW-0505-S1	4/28/2006	9.69	--	825.44	815.75
MW-0505-S1	12/5/2006	8.52	--	825.44	816.92
MW-0505-S1	3/8/2007	9.48	40.71	825.44	815.96
MW-0505-S1	1/16/2008	10.15	40.80	825.44	815.29
MW-0505-S1	11/11/2008	13.46	40.65	825.44	811.98
MW-0505-S1	2/17/2009	11.63	--	825.44	813.81

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0505-S2	10/19/2005	12.37	67.63	825.06	812.69
MW-0505-S2	10/25/2005	11.42	67.63	825.06	813.64
MW-0505-S2	3/23/2006	9.59	67.32	825.06	815.47
MW-0505-S2	3/31/2006	8.74	67.32	825.06	816.32
MW-0505-S2	4/28/2006	9.65	--	825.06	815.41
MW-0505-S2	12/5/2006	7.27	--	825.06	817.79
MW-0505-S2	3/8/2007	8.55	67.45	825.06	816.51
MW-0505-S2	1/16/2008	11.10	67.50	825.06	813.96
MW-0505-S2	11/11/2008	17.04	67.45	825.06	808.02
MW-0505-S2	2/17/2009	13.63	--	825.06	811.43
MW-0505-B1	12/5/2006	8.69	--	826.50	817.81
MW-0505-B1	3/8/2007	8.98	83.90	826.50	817.52
MW-0505-B1	1/16/2008	11.56	83.95	826.50	814.94
MW-0505-B1	11/11/2008	17.51	83.90	826.50	808.99
MW-0505-B1	2/17/2009	14.06	--	826.50	812.44
MW-0506-S1	10/19/2005	13.11	34.84	826.88	813.77
MW-0506-S1	10/25/2005	13.11	34.84	826.88	813.77
MW-0506-S1	3/27/2006	11.96	34.55	826.88	814.92
MW-0506-S1	3/31/2006	11.19	34.55	826.88	815.69
MW-0506-S1	4/28/2006	11.76	--	826.88	815.12
MW-0506-S1	12/5/2006	10.72	--	826.88	816.16
MW-0506-S1	3/8/2007	11.54	34.62	826.88	815.34
MW-0506-S1	1/16/2008	12.21	34.35	826.88	814.67
MW-0506-S1	11/11/2008	15.21	34.65	826.88	811.67
MW-0506-S1	2/17/2009	13.40	--	826.88	813.48
MW-0506-I2	10/19/2005	24.10	47.56	827.18	803.08
MW-0506-I2	10/25/2005	22.82	47.56	827.18	804.36
MW-0506-I2	3/27/2006	17.97	47.27	827.18	809.21
MW-0506-I2	3/31/2006	17.15	47.27	827.18	810.03
MW-0506-I2	4/28/2006	20.02	--	827.18	807.16
MW-0506-I2	12/5/2006	19.82	--	827.18	807.36
MW-0506-I2	3/8/2007	15.48	47.35	827.18	811.70
MW-0506-I2	1/16/2008	14.57	47.50	827.18	812.61
MW-0506-I2	11/11/2008	15.71	47.38	827.18	811.47
MW-0506-I2	2/17/2009	16.63	--	827.18	810.55
MW-0506-S2	10/19/2005	13.58	72.52	827.10	813.52
MW-0506-S2	10/25/2005	13.58	72.52	827.10	813.52
MW-0506-S2	3/27/2006	11.95	72.24	827.10	815.15
MW-0506-S2	3/31/2006	11.10	72.24	827.10	816.00
MW-0506-S2	4/28/2006	10.84	--	827.10	816.26
MW-0506-S2	12/5/2006	9.43	--	827.10	817.67
MW-0506-S2	3/8/2007	11.72	72.26	827.10	815.38
MW-0506-S2	1/16/2008	13.20	72.40	827.10	813.90
MW-0506-S2	11/11/2008	19.11	72.35	827.10	807.99
MW-0506-S2	2/17/2009	15.69	--	827.10	811.41
MW-0507-S1	10/19/2005	13.15	33.49	827.19	814.04
MW-0507-S1	10/25/2005	13.12	33.49	827.19	814.07
MW-0507-S1	3/27/2006	11.86	33.18	827.19	815.33
MW-0507-S1	3/31/2006	11.09	33.18	827.19	816.10
MW-0507-S1	4/28/2006	11.69	--	827.19	815.50
MW-0507-S1	12/5/2006	10.58	--	827.19	816.61
MW-0507-S1	3/8/2007	11.48	33.19	827.19	815.71
MW-0507-S1	1/16/2008	12.18	33.35	827.19	815.01
MW-0507-S1	11/11/2008	15.27	33.15	827.19	811.92
MW-0507-S1	2/17/2009	13.50	--	827.19	813.69

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0509-S1	9/20/2005	12.18	38.00	826.33	814.15
MW-0509-S1	10/25/2005	11.92	38.11	826.33	814.41
MW-0509-S1	3/23/2006	10.43	37.82	826.33	815.90
MW-0509-S1	3/31/2006	9.66	37.82	826.33	816.67
MW-0509-S1	4/28/2006	10.35	--	826.33	815.98
MW-0509-S1	12/5/2006	9.20	37.90	826.33	817.13
MW-0509-S1	3/8/2007	10.20	37.89	826.33	816.13
MW-0509-S1	1/16/2008	10.89	38.00	826.33	815.44
MW-0509-S1	11/11/2008	14.24	37.92	826.33	812.09
MW-0509-S1	2/17/2009	12.38	--	826.33	813.95
MW-0509-I2	10/19/2005	12.58	55.96	826.32	813.74
MW-0509-I2	10/25/2005	12.66	55.96	826.32	813.66
MW-0509-I2	3/23/2006	9.87	55.65	826.32	816.45
MW-0509-I2	3/31/2006	9.05	55.65	826.32	817.27
MW-0509-I2	4/28/2006	9.81	--	826.32	816.51
MW-0509-I2	12/5/2006	8.36	55.74	826.32	817.96
MW-0509-I2	3/8/2007	9.68	55.67	826.32	816.64
MW-0509-I2	1/16/2008	12.37	55.79	826.32	813.95
MW-0509-I2	11/11/2008	18.42	55.60	826.32	807.90
MW-0509-I2	2/17/2009	14.94	--	826.32	811.38
MW-0516-S1	10/19/2005	13.42	32.88	827.98	814.56
MW-0516-S1	10/25/2005	13.42	32.88	827.98	814.56
MW-0516-S1	3/23/2006	11.88	32.61	827.98	816.10
MW-0516-S1	3/31/2006	11.13	32.61	827.98	816.85
MW-0516-S1	4/28/2006	11.78	--	827.98	816.20
MW-0516-S1	12/5/2006	10.11	--	827.98	817.87
MW-0516-S1	3/8/2007	11.59	32.66	827.98	816.39
MW-0516-S1	1/16/2008	12.35	32.40	827.98	815.63
MW-0516-S1	11/11/2008	15.74	32.60	827.98	812.24
MW-0516-S1	2/17/2009	14.00	--	827.98	813.98
MW-0516-S2	10/20/2005	14.37	68.38	827.97	813.60
MW-0516-S2	10/25/2005	14.38	68.38	827.97	813.59
MW-0516-S2	3/23/2006	11.46	68.05	827.97	816.51
MW-0516-S2	3/31/2006	10.61	68.05	827.97	817.36
MW-0516-S2	4/28/2006	11.55	--	827.97	816.42
MW-0516-S2	12/5/2006	10.55	--	827.97	817.42
MW-0516-S2	3/8/2007	11.40	68.11	827.97	816.57
MW-0516-S2	1/16/2008	14.11	68.26	827.97	813.86
MW-0516-S2	11/11/2008	19.99	68.05	827.97	807.98
MW-0516-S2	2/17/2009	16.58	--	827.97	811.39
MW-0517-S1	9/20/2005	12.44	30.72	826.47	814.03
MW-0517-S1	10/18/2005	12.17	30.85	826.47	814.30
MW-0517-S1	10/25/2005	12.17	30.85	826.47	814.30
MW-0517-S1	3/22/2006	10.70	30.63	826.47	815.77
MW-0517-S1	3/31/2006	9.91	30.63	826.47	816.56
MW-0517-S1	4/28/2006	10.64	--	826.47	815.83
MW-0517-S1	12/5/2006	9.48	--	826.47	816.99
MW-0517-S1	3/8/2007	10.42	30.51	826.47	816.05
MW-0517-S1	1/16/2008	11.23	30.70	826.47	815.24
MW-0517-S1	11/11/2008	14.47	30.60	826.47	812.00
MW-0517-S1	2/17/2009	12.65	--	826.47	813.82

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0517-I2	10/18/2005	13.02	40.13	826.56	813.54
MW-0517-I2	10/25/2005	12.45	40.13	826.56	814.11
MW-0517-I2	3/22/2006	10.25	39.89	826.56	816.31
MW-0517-I2	3/31/2006	9.45	39.89	826.56	817.11
MW-0517-I2	4/28/2006	10.73	--	826.56	815.83
MW-0517-I2	12/5/2006	10.10	--	826.56	816.46
MW-0517-I2	3/8/2007	10.61	39.90	826.56	815.95
MW-0517-I2	1/16/2008	12.55	40.05	826.56	814.01
MW-0517-I2	11/11/2008	15.14	39.96	826.56	811.42
MW-0517-I2	2/17/2009	13.32	--	826.56	813.24
MW-0602-S1	3/24/2006	11.70	28.31	825.30	813.60
MW-0602-S1	3/31/2006	10.93	28.31	825.30	814.37
MW-0602-S1	4/28/2006	10.90	--	825.30	814.40
MW-0602-S1	12/5/2006	9.94	--	825.30	815.36
MW-0602-S1	3/8/2007	10.68	27.20	825.30	814.62
MW-0602-S1	1/16/2008	11.10	27.41	825.30	814.20
MW-0602-S1	11/11/2008	13.93	27.11	825.30	811.37
MW-0602-S1	2/17/2009	12.20	--	825.30	813.10
MW-0602-B1	3/24/2006	9.12	86.17	825.36	816.24
MW-0602-B1	3/31/2006	8.32	86.17	825.36	817.04
MW-0602-B1	4/28/2006	9.16	--	825.36	816.20
MW-0602-B1	12/5/2006	7.78	--	825.36	817.58
MW-0602-B1	3/8/2007	9.03	86.21	825.36	816.33
MW-0602-B1	1/16/2008	11.55	86.25	825.36	813.81
MW-0602-B1	11/11/2008	17.37	86.27	825.36	807.99
MW-0602-B1	2/17/2009	13.94	--	825.36	811.42
MW-0603-S1	3/24/2006	10.79	24.38	826.09	815.30
MW-0603-S1	3/31/2006	10.02	24.38	826.09	816.07
MW-0603-S1	4/28/2006	10.71	--	826.09	815.38
MW-0603-S1	12/5/2006	9.59	--	826.09	816.50
MW-0603-S1	3/8/2007	10.46	24.12	826.09	815.63
MW-0603-S1	1/16/2008	11.06	24.33	826.09	815.03
MW-0603-S1	11/11/2008	14.15	24.15	826.09	811.94
MW-0603-S1	2/17/2009	12.35	--	826.09	813.74
MW-0603-S2	3/24/2006	10.82	69.25	826.10	815.28
MW-0603-S2	3/31/2006	9.97	69.25	826.10	816.13
MW-0603-S2	4/28/2006	9.89	--	826.10	816.21
MW-0603-S2	12/5/2006	8.46	--	826.10	817.64
MW-0603-S2	3/8/2007	9.78	69.27	826.10	816.32
MW-0603-S2	1/16/2008	12.35	69.41	826.10	813.75
MW-0603-S2	11/11/2008	18.17	69.21	826.10	807.93
MW-0603-S2	2/17/2009	14.83	--	826.10	811.27
MW-0603-B1	3/24/2006	9.70	83.40	826.20	816.50
MW-0603-B1	3/31/2006	8.92	83.40	826.20	817.28
MW-0603-B1	4/28/2006	9.76	--	826.20	816.44
MW-0603-B1	12/5/2006	8.35	--	826.20	817.85
MW-0603-B1	3/8/2007	9.64	83.32	826.20	816.56
MW-0603-B1	1/16/2008	12.13	83.48	826.20	814.07
MW-0603-B1	11/11/2008	18.04	83.24	826.20	808.16
MW-0603-B1	2/17/2009	14.69	--	826.20	811.51
MW-0604-S1	3/22/2006	10.65	29.41	826.28	815.63
MW-0604-S1	3/31/2006	9.87	29.41	826.28	816.41
MW-0604-S1	4/28/2006	10.59	--	826.28	815.69
MW-0604-S1	12/5/2006	9.45	--	826.28	816.83
MW-0604-S1	3/8/2007	10.37	28.81	826.28	815.91
MW-0604-S1	1/16/2008	11.15	28.95	826.28	815.13
MW-0604-S1	11/11/2008	14.27	28.73	826.28	812.01
MW-0604-S1	2/17/2009	12.51	--	826.28	813.77

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0604-S2	3/22/2006	10.02	61.06	826.44	816.42
MW-0604-S2	3/31/2006	9.27	61.06	826.44	817.17
MW-0604-S2	4/28/2006	10.13	--	826.44	816.31
MW-0604-S2	12/5/2006	8.70	--	826.44	817.74
MW-0604-S2	3/8/2007	9.93	61.12	826.44	816.51
MW-0604-S2	1/16/2008	12.51	61.21	826.44	813.93
MW-0604-S2	11/11/2008	18.45	61.05	826.44	807.99
MW-0604-S2	2/17/2009	15.02	--	826.44	811.42
MW-0605-S1	3/22/2006	11.23	29.83	827.38	816.15
MW-0605-S1	3/31/2006	10.46	29.83	827.38	816.92
MW-0605-S1	4/28/2006	11.19	--	827.38	816.19
MW-0605-S1	12/5/2006	9.97	--	827.38	817.41
MW-0605-S1	3/8/2007	10.98	29.64	827.38	816.40
MW-0605-S1	1/16/2008	11.79	29.71	827.38	815.59
MW-0605-S1	11/11/2008	15.14	29.65	827.38	812.24
MW-0605-S1	2/17/2009	13.42	--	827.38	813.96
MW-0605-S2	3/22/2006	10.87	61.15	827.38	816.51
MW-0605-S2	3/31/2006	10.02	61.15	827.38	817.36
MW-0605-S2	4/28/2006	10.91	--	827.38	816.47
MW-0605-S2	12/5/2006	9.44	--	827.38	817.94
MW-0605-S2	3/8/2007	10.72	61.13	827.38	816.66
MW-0605-S2	1/16/2008	13.36	61.26	827.38	814.02
MW-0605-S2	11/11/2008	19.36	61.12	827.38	808.02
MW-0605-S2	2/17/2009	15.97	--	827.38	811.41
MW-0605-B1	3/22/2006	10.79	89.55	827.44	816.65
MW-0605-B1	3/31/2006	9.99	89.55	827.44	817.45
MW-0605-B1	4/28/2006	10.95	--	827.44	816.49
MW-0605-B1	12/5/2006	9.49	--	827.44	817.95
MW-0605-B1	3/8/2007	10.77	89.53	827.44	816.67
MW-0605-B1	1/16/2008	13.45	89.65	827.44	813.99
MW-0605-B1	11/11/2008	19.44	89.60	827.44	808.00
MW-0605-B1	2/17/2009	16.04	--	827.44	811.40
MW-0606-S1	3/23/2006	8.80	31.65	824.10	815.30
MW-0606-S1	3/31/2006	8.03	31.65	824.10	816.07
MW-0606-S1	4/28/2006	8.71	--	824.10	815.39
MW-0606-S1	12/5/2006	7.67	--	824.10	816.43
MW-0606-S1	3/8/2007	8.54	31.52	824.10	815.56
MW-0606-S1	1/16/2008	---	---	824.10	---
MW-0606-S1	11/11/2008	12.36	31.40	824.10	811.74
MW-0606-S1	2/17/2009	10.43	--	824.10	813.67
MW-0606-S2	3/23/2006	7.68	58.83	823.97	816.29
MW-0606-S2	3/31/2006	6.93	58.83	823.97	817.04
MW-0606-S2	4/28/2006	8.72	--	823.97	815.25
MW-0606-S2	12/5/2006	6.35	--	823.97	817.62
MW-0606-S2	3/8/2007	7.61	58.67	823.97	816.36
MW-0606-S2	1/16/2008	---	---	823.97	---
MW-0606-S2	11/11/2008	15.92	58.70	823.97	808.05
MW-0606-S2	2/17/2009	12.51	--	823.97	811.46
MW-0607-S1	3/24/2006	8.55	26.85	822.65	814.10
MW-0607-S1	3/31/2006	7.78	26.85	822.65	814.87
MW-0607-S1	4/28/2006	8.52	--	822.65	814.13
MW-0607-S1	12/5/2006	7.68	--	822.65	814.97
MW-0607-S1	3/8/2007	8.33	26.55	822.65	814.32
MW-0607-S1	1/16/2008	8.88	26.68	822.65	813.77
MW-0607-S1	11/11/2008	11.61	26.50	822.65	811.04
MW-0607-S1	2/17/2009	9.72	--	822.65	812.93
MW-0607-S2	3/8/2007	7.00	50.51	823.06	816.06
MW-0607-S2	1/16/2008	9.27	50.65	823.06	813.79
MW-0607-S2	11/11/2008	14.91	50.57	823.06	808.15
MW-0607-S2	2/17/2009	11.53	--	823.06	811.53

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0607-B1	1/16/2008	8.40	77.51	822.77	814.37
MW-0607-B1	11/11/2008	13.99	77.42	822.77	808.78
MW-0607-B1	2/17/2009	10.63	--	822.77	812.14
MW-0608-S1	3/23/2006	11.74	30.81	825.97	814.23
MW-0608-S1	3/31/2006	10.97	30.81	825.97	815.00
MW-0608-S1	4/28/2006	11.66	--	825.97	814.31
MW-0608-S1	12/5/2006	10.73	--	825.97	815.24
MW-0608-S1	3/8/2007	11.43	30.38	825.97	814.54
MW-0608-S1	1/16/2008	11.94	30.45	825.97	814.03
MW-0608-S1	11/11/2008	14.67	30.20	825.97	811.30
MW-0608-S1	2/17/2009	12.93	--	825.97	813.04
MW-0608-S2	3/23/2006	9.71	67.75	825.97	816.26
MW-0608-S2	3/31/2006	8.86	67.75	825.97	817.11
MW-0608-S2	4/28/2006	9.76	--	825.97	816.21
MW-0608-S2	12/5/2006	8.43	--	825.97	817.54
MW-0608-S2	3/8/2007	9.70	67.76	825.97	816.27
MW-0608-S2	1/16/2008	12.10	68.91	825.97	813.87
MW-0608-S2	11/11/2008	17.84	67.80	825.97	808.13
MW-0608-S2	2/17/2009	14.45	--	825.97	811.52
MW-0608-B1	3/23/2006	9.84	91.07	825.97	816.13
MW-0608-B1	3/31/2006	9.05	91.07	825.97	816.92
MW-0608-B1	4/28/2006	9.79	--	825.97	816.18
MW-0608-B1	12/5/2006	8.51	--	825.97	817.46
MW-0608-B1	3/8/2007	9.72	89.59	825.97	816.25
MW-0608-B1	1/16/2008	12.18	89.67	825.97	813.79
MW-0608-B1	11/11/2008	17.90	89.65	825.97	808.07
MW-0608-B1	2/17/2009	14.49	--	825.97	811.48
MW-0609-S1	3/23/2006	9.49	28.45	822.75	813.26
MW-0609-S1	3/31/2006	9.17	28.45	822.75	813.58
MW-0609-S1	4/28/2006	9.47	--	822.75	813.28
MW-0609-S1	12/5/2006	8.62	--	822.75	814.13
MW-0609-S1	3/9/2007	9.15	27.05	822.75	813.60
MW-0609-S1	1/16/2008	9.45	27.40	822.75	813.30
MW-0609-S1	11/11/2008	11.81	27.05	822.75	810.94
MW-0609-S1	2/17/2009	10.22	--	822.75	812.53
MW-0609-S2	12/5/2006	5.68	--	823.09	817.41
MW-0609-S2	3/8/2007	6.93	61.32	823.09	816.16
MW-0609-S2	1/16/2008	9.24	61.44	823.09	813.85
MW-0609-S2	11/11/2008	14.97	61.30	823.09	808.12
MW-0609-S2	2/17/2009	11.60	--	823.09	811.49
MW-0610-S1	12/5/2006	8.87	--	822.55	813.68
MW-0610-S1	3/8/2007	9.42	31.55	822.55	813.13
MW-0610-S1	1/16/2008	9.97	31.59	822.55	812.58
MW-0610-S1	11/11/2008	11.85	31.46	822.55	810.70
MW-0610-S1	2/17/2009	10.39	--	822.55	812.16
MW-0611-S1	12/5/2006	4.97	--	821.77	816.80
MW-0611-S1	3/8/2007	7.45	17.60	821.77	814.32
MW-0611-S1	1/16/2008	8.06	17.70	821.77	813.71
MW-0611-S1	11/11/2008	--	--	821.77	--
MW-0611-S1	2/17/2009	11.15	--	821.77	810.62

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0612-S1	12/5/2006	9.13	--	823.85	814.72
MW-0612-S1	3/8/2007	8.90	27.12	823.85	814.95
MW-0612-S1	1/16/2008	9.50	27.25	823.85	814.35
MW-0612-S1	11/11/2008	12.44	27.15	823.85	811.41
MW-0612-S1	2/17/2009	10.59	--	823.85	813.26
MW-0612-S2	12/5/2006	6.34	--	823.84	817.50
MW-0612-S2	3/8/2007	7.59	54.94	823.84	816.25
MW-0612-S2	1/16/2008	10.00	55.10	823.84	813.84
MW-0612-S2	11/11/2008	15.74	55.00	823.84	808.10
MW-0612-S2	2/17/2009	12.34	--	823.84	811.50
MW-0613-S1	12/5/2006	5.87	--	822.03	816.16
MW-0613-S1	3/8/2007	6.72	25.36	822.03	815.31
MW-0613-S1	1/16/2008	7.40	25.50	822.03	814.63
MW-0613-S1	11/11/2008	10.57	25.39	822.03	811.46
MW-0613-S1	2/17/2009	8.53	--	822.03	813.50
MW-0614-S2	12/5/2006	9.05	--	826.81	817.76
MW-0614-S2	3/8/2007	10.33	57.68	826.81	816.48
MW-0614-S2	1/16/2008	13.00	57.80	826.81	813.81
MW-0614-S2	11/11/2008	18.81	57.55	826.81	808.00
MW-0614-S2	2/17/2009	15.45	--	826.81	811.36
MW-0614-B1	12/5/2006	9.13	--	826.94	817.81
MW-0614-B1	3/8/2007	10.41	89.69	826.94	816.53
MW-0614-B1	1/16/2008	13.06	89.75	826.94	813.88
MW-0614-B1	11/11/2008	18.92	89.62	826.94	808.02
MW-0614-B1	2/17/2009	15.55	--	826.94	811.39
MW-0615-B1	12/5/2006	12.12	--	824.74	812.62
MW-0615-B1	3/8/2007	13.37	78.28	824.74	811.37
MW-0615-B1	1/16/2008	13.84	78.45	824.74	810.90
MW-0615-B1	11/11/2008	18.16	78.19	824.74	806.58
MW-0615-B1	2/17/2009	14.75	--	824.74	809.99
MW-0616-S1	12/5/2006	6.58	--	822.06	815.48
MW-0616-S1	3/8/2007	7.11	24.36	822.06	814.95
MW-0616-S1	1/16/2008	7.47	24.50	822.06	814.59
MW-0616-S1	11/11/2008	9.84	24.25	822.06	812.22
MW-0616-S1	2/17/2009	8.31	--	822.06	813.75
MW-0616-B1	12/5/2006	4.58	110.55	822.30	817.72
MW-0616-B1	3/8/2007	5.88	>100	822.30	816.42
MW-0616-B1	1/16/2008	8.60	>100	822.30	813.70
MW-0616-B1	11/11/2008	14.52	110.51	822.30	807.78
MW-0616-B1	2/17/2009	11.02	--	822.30	811.28
MW-0617-S1	3/8/2007	11.18	29.36	826.47	815.29
MW-0617-S1	1/16/2008	11.90	29.50	826.47	814.57
MW-0617-S1	11/11/2008	14.87	29.40	826.47	811.60
MW-0617-S1	2/17/2009	13.07	--	826.47	813.40
MW-0617-S2	3/8/2007	10.21	63.37	826.66	816.45
MW-0617-S2	1/16/2008	12.80	63.15	826.66	813.86
MW-0617-S2	11/11/2008	18.68	63.20	826.66	807.98
MW-0617-S2	2/17/2009	15.33	--	826.66	811.33
MW-0617-B1	3/8/2007	10.02	>100	826.63	816.61
MW-0617-B1	1/16/2008	12.58	>100	826.63	814.05
MW-0617-B1	11/11/2008	18.49	>100	826.63	808.14
MW-0617-B1	2/17/2009	15.08	--	826.63	811.55

Table 1: Potentiometric Surface Elevations, Former GM Delco Plant 5, Kokomo, Indiana.

Well ID	Date	DTW	TD	TOC	GWE
MW-0618-S1	12/5/2006	8.13	--	824.84	816.71
MW-0618-S1	3/8/2007	9.08	27.00	824.84	815.76
MW-0618-S1	1/16/2008	9.72	27.12	824.84	815.12
MW-0618-S1	11/11/2008	13.07	27.05	824.84	811.77
MW-0618-S1	2/17/2009	11.09	--	824.84	813.75
MW-0619-S1	12/5/2006	10.13	--	827.46	817.33
MW-0619-S1	3/8/2007	11.12	26.07	827.46	816.34
MW-0619-S1	1/16/2008	11.88	26.20	827.46	815.58
MW-0619-S1	11/11/2008	15.29	26.10	827.46	812.17
MW-0619-S1	2/17/2009	13.51	--	827.46	813.95
MW-0620-S1	12/5/2006	9.94	--	827.39	817.45
MW-0620-S1	3/8/2007	10.97	18.36	827.39	816.42
MW-0620-S1	1/16/2008	11.78	18.46	827.39	815.61
MW-0620-S1	11/11/2008	15.15	18.45	827.39	812.24
MW-0620-S1	2/17/2009	13.41	--	827.39	813.98
MW-0621-S1	12/5/2006	9.53	--	826.72	817.19
MW-0621-S1	3/8/2007	10.49	24.55	826.72	816.23
MW-0621-S1	1/16/2008	11.19	24.66	826.72	815.53
MW-0621-S1	11/11/2008	14.62	24.58	826.72	812.10
MW-0621-S1	2/17/2009	12.84	--	826.72	813.88
MW-0622-S1	12/5/2006	11.03	--	828.57	817.54
MW-0622-S1	3/8/2007	12.07	23.78	828.57	816.50
MW-0622-S1	1/16/2008	12.90	23.85	828.57	815.67
MW-0622-S1	11/11/2008	16.27	23.82	828.57	812.30
MW-0622-S1	2/17/2009	14.59	--	828.57	813.98
MW-0622-S2	12/5/2006	10.54	--	828.66	818.12
MW-0622-S2	3/8/2007	11.81	65.94	828.66	816.85
MW-0622-S2	1/16/2008	14.01	66.05	828.66	814.65
MW-0622-S2	11/11/2008	20.76	65.95	828.66	807.90
MW-0622-S2	2/17/2009	17.31	--	828.66	811.35
MW-0623-S1	3/8/2007	12.37	25.04	829.09	816.72
MW-0623-S1	1/16/2008	13.17	25.17	829.09	815.92
MW-0623-S1	11/11/2008	16.58	25.18	829.09	812.51
MW-0623-S1	2/17/2009	14.96	--	829.09	814.13
MW-0702-B1	1/16/2008	10.65	72.70	825.03	814.38
MW-0702-B1	11/11/2008	16.57	72.46	825.03	808.46
MW-0702-B1	2/17/2009	13.19	--	825.03	811.84
MW-0703-B1	1/16/2008	13.30	>100	823.61	810.31
MW-0703-B1	11/11/2008	17.01	111.32	823.61	806.60
MW-0703-B1	2/17/2009	13.66	--	823.61	809.95
MW-0704-S1	1/16/2008	9.84	29.31	825.38	815.54
MW-0704-S1	11/11/2008	13.15	29.20	825.38	812.23
MW-0704-S1	2/17/2009	11.27	--	825.38	814.11
MW-0705-S1	1/16/2008	11.20	25.78	826.16	814.96
MW-0705-S1	11/11/2008	13.71	25.68	826.16	812.45
MW-0705-S1	2/17/2009	11.86	--	826.16	814.30

Notes:

All depths recorded in feet (ft).

DTW - Depth to water.

TD - Total depth.

TOC - Top of casing.

GWE - Groundwater elevation.

-- - Not Measured

--- - Unable to locate wells

ARCADIS

Table 2: Calculated Vertical Gradient Between S1 and S2 Units, General Motors Corporation,
RFI Report, Former GM Delco Plant 5, RCRA Facility Investigation Data Report, Kokomo, Indiana

Nested Pairs	Ground Elevation	Top of Casing	Top of Screen	Bottom of Screen	Screen	DTW (Ft Below Top of	Potentiometric Surface	12/5/2006 Calculated	Direction	DTW (Ft Below Top of	Potentiometric Surface	3/8/2007 Calculated	Direction
	(FT AMSL)	Elevation (FT AMSL)	Elevation (FT AMSL)	Elevation (FT AMSL)	Length (ft)	Casing) 12/5/2006	Elevation (FT AMSL) 12/5/2006	Vertical Gradient (ft/ft)*		Casing) 3/8/2007	Elevation (FT AMSL) 3/8/2007	Vertical Gradient (ft/ft)*	
MW-0501-S1	829.05	828.65	804.55	794.55	10	10.84	817.81	-2.81E-02	Up	11.90	816.75	-5.32E-03	Up
MW-0501-S2	829.07	828.75	765.07	755.07	10	9.83	818.92			11.79	816.96		
MW-0503-S1	827.16	826.82	804.16	794.16	10	9.84	816.98	-2.21E-02	Up	10.80	816.02	-1.46E-02	Up
MW-0503-S2	827.25	826.81	769.25	759.25	10	9.06	817.75			10.28	816.53		
MW-0504-S1	826.63	826.15	804.63	794.63	10	10.78	815.37	-8.07E-02	Up	10.68	815.47	-3.24E-02	Up
MW-0504-S2	826.64	826.41	775.64	765.64	10	8.70	817.71			10.00	816.41		
MW-0505-S1	825.78	825.44	794.78	784.78	10	8.52	816.92	-3.24E-02	Up	9.48	815.96	-2.05E-02	Up
MW-0505-S2	825.91	825.06	767.91	757.91	10	7.27	817.79			8.55	816.51		
MW-0506-S1	827.24	826.88	802.24	792.24	10	10.72	816.16	-4.00E-02	Up	11.54	815.34	-1.06E-03	Up
MW-0506-S2	827.51	827.1	764.51	754.51	10	9.43	817.67			11.72	815.38		
MW-0516-S1	828.29	827.98	805.29	795.29	10	10.11	817.87	1.29E-02	Down	11.59	816.39	-5.15E-03	Up
MW-0516-S2	828.36	827.97	770.36	760.36	10	10.55	817.42			11.40	816.57		
MW-0602-S1	825.7	825.3	806.7	796.7	10	9.94	815.36	-3.90E-02	Up	10.68	814.62	-3.01E-02	Up
MW-0602-B1	825.81	825.36	749.81	739.81	10	7.78	817.58			9.03	816.33		
MW-0603-S1	826.37	826.09	811.37	801.37	10	9.59	816.50	-2.53E-02	Up	10.46	815.63	-1.53E-02	Up
MW-0603-S2	826.38	826.1	766.38	756.38	10	8.46	817.64			9.78	816.32		
MW-0604-S1	826.68	826.28	806.18	796.18	10	9.45	816.83	-2.99E-02	Up	10.37	815.91	-1.97E-02	Up
MW-0604-S2	826.74	826.44	775.74	765.74	10	8.70	817.74			9.93	816.51		
MW-0605-S1	827.91	827.38	806.91	796.91	10	9.97	817.41	-1.71E-02	Up	10.98	816.40	-8.37E-03	Up
MW-0605-S2	827.84	827.38	775.84	765.84	10	9.44	817.94			10.72	816.66		
MW-0606-S1	824.26	824.1	802.26	792.26	10	7.67	816.43	-4.41E-02	Up	8.54	815.56	-2.96E-02	Up
MW-0606-S2	824.27	823.97	775.27	765.27	10	6.35	817.62			7.61	816.36		
MW-0607-S1	823.14	822.65	806.14	796.14	10	7.68	814.97	--	--	8.33	814.32	-6.07E-02	Up
MW-0607-S2	823.46	823.06	777.46	772.46	5	--	--	--	--	7.00	816.06		
MW-0608-S1	826.15	825.97	805.15	795.15	10	10.73	815.24	-6.22E-02	Up	11.43	814.54	-4.68E-02	Up
MW-0608-S2	826.2	825.97	768.2	758.2	10	8.43	817.54			9.70	816.27		
MW-0609-S1	823	822.75	804.5	794.5	10	8.62	814.13	-8.61E-02	Up	9.15	813.60	-6.72E-02	Up
MW-0609-S2	823.39	823.09	766.39	761.39	5	5.68	817.41			6.93	816.16		
MW-0612-S1	824.06	823.85	802.06	797.06	5	9.13	814.72	-9.91E-02	Up	8.90	814.95	-4.64E-02	Up
MW-0612-S2	824.02	823.84	774.02	769.02	5	6.34	817.50			7.59	816.25		
MW-0616-S1	822.54	822.06	807.54	797.54	10	6.58	815.48	-2.36E-02	Up	7.11	814.95	-1.55E-02	Up
MW-0616-B1	822.55	822.3	712.55	707.55	5	4.58	817.72			5.88	816.42		
MW-0617-S1	826.96	826.47	802.46	797.46	5	--	--	--	--	11.18	815.29	-3.41E-02	Up
MW-0617-S2	826.95	826.66	768.45	763.45	5	--	--	--	--	10.21	816.45		
MW-0622-S1	828.85	828.57	809.85	804.85	5	11.03	817.54	-1.38E-02	Up	12.07	816.50	-8.34E-03	Up
MW-0622-S2	828.87	828.66	767.87	762.87	5	10.54	818.12			11.81	816.85		

* - Vertical gradient calculated utilizing High to High Value Method (i.e. top of screen elevation
utilized to calculate distance between nested pairs)

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Table 2: Calculated Vertical Gradient Between S1 and S2 Units, General Motors Corporation,
RFI Report, Former GM Delco Plant 5, RCRA Facility Investigation Data Report, Kokomo, Indiana

<i>Nested Pairs</i>	<i>Ground Elevation (FT AMSL)</i>	<i>Top of Casing Elevation (FT AMSL)</i>	<i>Top of Screen Elevation (FT AMSL)</i>	<i>Bottom of Screen Elevation (FT AMSL)</i>	<i>Screen Length (ft)</i>	<i>DTW (Ft Below Top of Casing) 11/11/2008</i>	<i>Potentiometric Surface Elevation (FT AMSL) 11/11/2008</i>	<i>11/11/2008 Calculated Vertical Gradient (ft/ft)*</i>	<i>Direction</i>	<i>DTW (Ft Below Top of Casing) 2/17/2009</i>	<i>Potentiometric Surface Elevation (FT AMSL) 2/17/2009</i>	<i>2/17/2009 Calculated Vertical Gradient (ft/ft)*</i>	<i>Direction</i>
MW-0501-S1	829.05	828.65	804.55	794.55	10	16.10	812.55	1.27E-01	Down	14.44	814.21	7.75E-02	Down
MW-0501-S2	829.07	828.75	765.07	755.07	10	21.21	807.54			17.60	811.15		
MW-0503-S1	827.16	826.82	804.16	794.16	10	14.75	812.07	1.16E-01	Down	12.96	813.86	7.05E-02	Down
MW-0503-S2	827.25	826.81	769.25	759.25	10	18.80	808.01			15.41	811.40		
MW-0504-S1	826.63	826.15	804.63	794.63	10	14.40	811.75	1.31E-01	Down	12.58	813.57	7.35E-02	Down
MW-0504-S2	826.64	826.41	775.64	765.64	10	18.46	807.95			14.97	811.44		
MW-0505-S1	825.78	825.44	794.78	784.78	10	13.46	811.98	1.47E-01	Down	11.63	813.81	8.86E-02	Down
MW-0505-S2	825.91	825.06	767.91	757.91	10	17.04	808.02			13.63	811.43		
MW-0506-S1	827.24	826.88	802.24	792.24	10	15.21	811.67	9.75E-02	Down	13.40	813.48	5.49E-02	Down
MW-0506-S2	827.51	827.1	764.51	754.51	10	19.11	807.99			15.69	811.41		
MW-0516-S1	828.29	827.98	805.29	795.29	10	15.74	812.24	1.22E-01	Down	14.00	813.98	7.41E-02	Down
MW-0516-S2	828.36	827.97	770.36	760.36	10	19.99	807.98			16.58	811.39		
MW-0602-S1	825.7	825.3	806.7	796.7	10	13.93	811.37	5.94E-02	Down	12.20	813.10	2.95E-02	Down
MW-0602-B1	825.81	825.36	749.81	739.81	10	17.37	807.99			13.94	811.42		
MW-0603-S1	826.37	826.09	811.37	801.37	10	14.15	811.94	8.91E-02	Down	12.35	813.74	5.49E-02	Down
MW-0603-S2	826.38	826.1	766.38	756.38	10	18.17	807.93			14.83	811.27		
MW-0604-S1	826.68	826.28	806.18	796.18	10	14.27	812.01	1.32E-01	Down	12.51	813.77	7.72E-02	Down
MW-0604-S2	826.74	826.44	775.74	765.74	10	18.45	807.99			15.02	811.42		
MW-0605-S1	827.91	827.38	806.91	796.91	10	15.14	812.24	1.36E-01	Down	13.42	813.96	8.21E-02	Down
MW-0605-S2	827.84	827.38	775.84	765.84	10	19.36	808.02			15.97	811.41		
MW-0606-S1	824.26	824.1	802.26	792.26	10	12.36	811.74	1.37E-01	Down	10.43	813.67	8.19E-02	Down
MW-0606-S2	824.27	823.97	775.27	765.27	10	15.92	808.05			12.51	811.46		
MW-0607-S1	823.14	822.65	806.14	796.14	10	11.61	811.04	1.01E-01	Down	9.72	812.93	4.88E-02	Down
MW-0607-S2	823.46	823.06	777.46	772.46	5	14.91	808.15			11.53	811.53		
MW-0608-S1	826.15	825.97	805.15	795.15	10	14.67	811.30	8.58E-02	Down	12.93	813.04	4.11E-02	Down
MW-0608-S2	826.2	825.97	768.2	758.2	10	17.84	808.13			14.45	811.52		
MW-0609-S1	823	822.75	804.5	794.5	10	11.81	810.94	7.40E-02	Down	10.22	812.53	2.73E-02	Down
MW-0609-S2	823.39	823.09	766.39	761.39	5	14.97	808.12			11.60	811.49		
MW-0612-S1	824.06	823.85	802.06	797.06	5	12.44	811.41	1.18E-01	Down	10.59	813.26	6.28E-02	Down
MW-0612-S2	824.02	823.84	774.02	769.02	5	15.74	808.10			12.34	811.50		
MW-0616-S1	822.54	822.06	807.54	797.54	10	9.84	812.22	4.67E-02	Down	8.31	813.75	2.60E-02	Down
MW-0616-B1	822.55	822.3	712.55	707.55	5	14.52	807.78			11.02	811.28		
MW-0617-S1	826.96	826.47	802.46	797.46	5	14.87	811.60	1.06E-01	Down	13.07	813.40	5.44E-02	Down
MW-0617-S2	826.95	826.66	768.45	763.45	5	18.68	807.98			15.08	811.55		
MW-0622-S1	828.85	828.57	809.85	804.85	5	16.27	812.30	1.05E-01	Down	14.59	813.98	6.26E-02	Down
MW-0622-S2	828.87	828.66	767.87	762.87	5	20.76	807.90			17.31	811.35		

* - Vertical gradient calculated utilizing High to High Value Method (i.e. top of screen elevation
utilized to calculate distance between nested pairs)

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Table 3: Calculated Vertical Gradient Between S2 and B1 Units, General Motors Corporation,
RFI Report, Former GM Delco Plant 5, RCRA Facility Investigation Data Report, Kokomo, Indiana

Nested Pairs	Ground Elevation (FT AMSL)	Top of Casing Elevation (FT AMSL)	Top of Screen Elevation (FT AMSL)	Bottom of Screen Elevation (FT AMSL)	Screen Length (ft)	DTW (Ft Below Top of Casing)	Potentiometric Surface Elevation (FT AMSL)	12/5/2006 Calculated Vertical Gradient	Direction	DTW (Ft Below Top of Casing)	Potentiometric Surface Elevation (FT AMSL)	3/8/2007 Calculated Vertical Gradient	Direction
						12/5/2006	12/5/2006	(ft/ft)*		3/8/2007	3/8/2007	(ft/ft)*	
MW-0501-S2	829.07	828.75	763.07	753.07	10	9.83	818.92	3.25E-02	Down	11.79	816.96	2.10E-03	Down
MW-0501-S3U	829.01	828.78	744.01	734.01	10	10.48	818.30			11.86	816.92		
MW-0505-S2	825.91	825.06	767.91	757.91	10	7.27	817.79	-9.97E-04	Up	8.55	816.51	-5.03E-02	Up
MW-0505-B1	827.35	826.5	747.85	742.85	5	8.69	817.81			8.98	817.52		
MW-0603-S2	826.38	826.1	766.38	756.38	10	8.46	817.64	-1.40E-02	Up	9.78	816.32	-1.60E-02	Up
MW-0603-B1	826.36	826.2	751.36	741.36	10	8.35	817.85			9.64	816.56		
MW-0605-S2	827.84	827.38	775.84	765.84	10	9.44	817.94	-3.57E-04	Up	10.72	816.66	-3.57E-04	Up
MW-0605-B1	827.81	827.44	747.81	737.81	10	9.49	817.95			10.77	816.67		
MW-0608-S2	826.2	825.97	768.2	758.2	10	8.43	817.54	3.64E-03	Up	9.70	816.27	9.11E-04	Up
MW-0608-B1	826.24	825.97	746.24	736.24	10	8.51	817.46			9.72	816.25		
MW-0614-S2	827.18	826.81	774.18	769.18	5	9.05	817.76	-1.56E-03	Up	10.33	816.48	-1.56E-03	Up
MW-0614-B1	827.21	826.94	742.21	737.21	5	9.13	817.81			10.41	816.53		
MW-0617-S2	826.95	826.66	768.45	763.45	5	--	--	--	--	10.21	816.45	-4.40E-03	Up
MW-0617-B1	827.06	826.63	732.06	727.06	5	--	--	--	--	10.02	816.61		

* - Vertical gradient calculated utilizing High to High Value Method (i.e. top of screen elevation
utilized to calculate distance between nested pairs)

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Table 3: Calculated Vertical Gradient Between S2 and B1 Units, General Motors Corporation,
RFI Report, Former GM Delco Plant 5, RCRA Facility Investigation Data Report, Kokomo, Indiana

<i>Nested Pairs</i>	<i>Ground Elevation (FT AMSL)</i>	<i>Top of Casing Elevation (FT AMSL)</i>	<i>Top of Screen Elevation (FT AMSL)</i>	<i>Bottom of Screen Elevation (FT AMSL)</i>	<i>Screen Length (ft)</i>	<i>DTW (Ft Below Top of Casing) 11/11/2008</i>	<i>Potentiometric Surface Elevation (FT AMSL) 11/11/2008</i>	<i>11/11/2008 Calculated Vertical Gradient (ft/ft)*</i>	<i>Direction</i>	<i>DTW (Ft Below Top of Casing) 2/17/2009</i>	<i>Potentiometric Surface Elevation (FT AMSL) 2/17/2009</i>	<i>2/17/2009 Calculated Vertical Gradient (ft/ft)*</i>	<i>Direction</i>
MW-0501-S2	829.07	828.75	763.07	753.07	10	21.21	807.54	1.57E-03	Down	17.60	811.15	2.62E-03	Down
MW-0501-S3U	829.01	828.78	744.01	734.01	10	21.27	807.51			17.68	811.10		
MW-0505-S2	825.91	825.06	767.91	757.91	10	17.04	808.02	-4.84E-02	Up	13.63	811.43	-5.03E-02	Up
MW-0505-B1	827.35	826.5	747.85	742.85	5	17.51	808.99			14.06	812.44		
MW-0603-S2	826.38	826.1	766.38	756.38	10	18.17	807.93	-1.53E-02	Up	14.83	811.27	-1.60E-02	Up
MW-0603-B1	826.36	826.2	751.36	741.36	10	18.04	808.16			14.69	811.51		
MW-0605-S2	827.84	827.38	775.84	765.84	10	19.36	808.02	7.14E-04	Down	15.97	811.41	3.57E-04	Down
MW-0605-B1	827.81	827.44	747.81	737.81	10	19.44	808.00			16.04	811.40		
MW-0608-S2	826.2	825.97	768.2	758.2	10	17.84	808.13	2.73E-03	Down	14.45	811.52	1.82E-03	Down
MW-0608-B1	826.24	825.97	746.24	736.24	10	17.90	808.07			14.49	811.48		
MW-0614-S2	827.18	826.81	774.18	769.18	5	18.81	808.00	-6.26E-04	Up	15.45	811.36	-9.38E-04	Up
MW-0614-B1	827.21	826.94	742.21	737.21	5	18.92	808.02			15.55	811.39		
MW-0617-S2	826.95	826.66	768.45	763.45	5	18.68	807.98	-4.40E-03	Up	15.33	811.33	-6.05E-03	Up
MW-0617-B1	827.06	826.63	732.06	727.06	5	18.49	808.14			15.08	811.55		

* - Vertical gradient calculated utilizing High to High Value Method (i.e. top of screen elevation
utilized to calculate distance between nested pairs)

Table 4: Summary of known significant nearby water usage, Former GM Delco Plant 5, Kokomo, Indiana

Facility	Year	January Usage (gallons)	February Usage (gallons)	March Usage (gallons)	April Usage (gallons)	May Usage (gallons)	June Usage (gallons)	July Usage (gallons)	August Usage (gallons)	September Usage (gallons)	October Usage (gallons)	November Usage (gallons)	December Usage (gallons)	Annual Usage (gallons)
<u>Municipal Wel Information</u>														
Indiana Water Company Wildcat Creek Well Field Usage Data*														
	2005	138,700,000	126,440,000	115,980,000	170,520,000	144,750,000	145,910,000	155,720,000	161,740,000	153,990,000	161,200,000	152,820,000	157,420,000	1,785,190,000
	2006	114,330,000	117,470,000	119,220,000	111,580,000	109,160,000	114,440,000	114,720,000	127,810,000	123,280,000	112,290,000	115,100,000	103,690,000	1,383,090,000
	2007	110,760,000	120,870,000	112,600,000	94,480,000	99,510,000	102,630,000	102,050,000	103,300,000	97,250,000	96,410,000	86,470,000	100,670,000	1,227,000,000
	2008	144,700,000	121,700,000	128,000,000	136,700,000	135,000,000	139,300,000	140,600,000	164,100,000	143,000,000	125,800,000	114,600,000	125,200,000	1,618,700,000
Indiana Water Company Wildcat Creek Well Field (Wells 18 and 19 only) Usage Data														
	2005	11,340,000	11,710,000	11,670,000	11,130,000	11,350,000	10,540,000	11,470,000	11,830,000	11,450,000	11,670,000	11,270,000	11,000,000	136,430,000
	2006	11,470,000	10,050,000	11,760,000	11,520,000	10,490,000	9,190,000	11,390,000	9,920,000	11,390,000	10,200,000	11,390,000	10,950,000	129,720,000
	2007	9,610,000	8,680,000	10,650,000	9,060,000	9,470,000	8,950,000	9,410,000	6,420,000	11,290,000	10,820,000	10,630,000	10,940,000	115,930,000
	2008	16,600,000	15,500,000	16,600,000	11,300,000	11,700,000	15,200,000	16,000,000	16,500,000	15,700,000	14,500,000	12,300,000	10,000,000	171,900,000
Indiana Water Company Northwest Well Field Usage Data														
	2008	50,200,000	52,300,000	56,700,000	46,800,000	51,800,000	54,700,000	54,600,000	56,200,000	54,600,000	56,300,000	51,400,000	47,300,000	632,900,000
<u>Significant Water Well User Information</u>														
Moon Fabricating Corporation														
	2005	80,000	70,000	90,000	90,000	20,000	80,000	80,000	30,000	70,000	110,000	80,000	70,000	870,000
	2006	170,000	130,000	290,000	230,000	220,000	210,000	130,000	140,000	160,000	130,000	120,000	140,000	2,070,000
	2007	260,000	270,000	320,000	250,000	120,000	160,000	100,000	110,000	60,000	110,000	180,000	180,000	2,120,000
	2008	147,000	223,000	113,000	154,000	104,000	122,000	73,000	62,000	108,000	97,000	88,000	141,000	1,432,000
Syndicate Sales,Inc.														
	2005	0	0	0	0	0	0	0	0	0	0	120,000	100,000	220,000
	2006	130,000	120,000	190,000	350,000	890,000	1,000,000	930,000	810,000	570,000	380,000	290,000	340,000	6,000,000
	2007	390,000	510,000	520,000	390,000	470,000	550,000	1,200,000	530,000	540,000	430,000	230,000	80,000	5,840,000
	2008	141,000	119,000	122,000	199,000	324,000	344,000	434,000	439,000	577,000	300,000	164,000	323,000	3,486,000

* - Flow totals include wells 15R, 16, 17, 18, 19, 20, 21, B, C, D E, F, G1, G2, H1, H2, and H3

Attachment A

Production Well Construction Logs
from IDNR Database

Northwest Well Field Logs

Well #1

Record of Water Well

Indiana Department of Natural Resources

Reference Number 331453		Driving directions to well TAKE 31N OUT OF KOKOMO TO MORGAN ST & TURN W, GO TO PHILLIPS ST TURN N, GO APPROX .5 MI WELL IS ON W SD OF RD		Date completed Aug 07, 1999	
Owner-Contractor	Name	Address	Telephone		
Driller	REYNOLDS, INC.	4520 N SR37, ORLEANS, IN	(812) 865-3232		
Operator	DONALD WILLIAMS	License: 548	0 -		
Owner	INDIANA AMERICAN WATER CO.	401 CAMBY CT., GREENWOOD, IN	(317) 885-2400		
Construction Details					
Well	Use: INDUSTRIAL	Drilling method: Cable Tool	Pump type:		
	Depth: 114.0'	Pump setting depth:	Water quality: CLEAR		
Casing	Length: 72.0'	Material: STEEL	Diameter: 16.0		
Screen	Length: 42.0'	Material: SS	Diameter: 16.0 Slot size:		
Well Capacity Test	Type of test: PUMPING	Test rate: 889.0 gpm for 72.0 hrs.	Bail Test rate: gpm for hrs.		
	Drawdown: 13.75 ft.	Static water level: 12.78 ft.	Bailer Drawdown: ft.		
Grouting Information	Material: 4000 PSI		Depth: from 0.0 to 20.0		
	Installation Method: STARTER PIPE		Number of bags used: 9.0		
Well Abandonment	Sealing material:		Depth: from to		
	Installation Method:		Number of bags used:		
Administrative	County: Howard		Township: 24N Range: 3E		
	Section: of Section 14		Topo map: Galveston		
	Grant Number:				
	Field located by:		on:		
	Courthouse location by:		on:		
	Location accepted w/o verification by:		on:		
	Subdivision name:		Lot number:		
	Ft W of EL:	Ft N of SL:	Ft E of WL:	Ft S of NL:	
	Ground elevation:	Depth to bedrock:	Bedrock elevation:	Aquifer elevation:	
	UTM Easting:		UTM Northing:		
Well Log	Top	Bottom	Formation		
	0.0	5.0	TOPSOIL		
	5.0	10.0	WET SILTY CLAY		
	10.0	45.0	GRAY CLAY W/GRAV		
	45.0	52.0	S&G W/CLAY		
	52.0	57.0	SAND & PEA GRAV		
	57.0	63.0	S&G W/BOULDERS		
	63.0	67.0	S&G W/CLAY		
	67.0	70.0	S&G		
	70.0	100.0	FN MED SAND W/GRAV		
	100.0	110.0	CRS S&G		
	110.0	114.0	CRS SAND & BOULDERS		
Comments	WELL #99-2				



Well #2
RECORD OF WATER WELL
State Form 35680 (R5/9-04)

Driller--Mail complete record in 30 days to:
INDIANA DEPT. OF NATURAL RESOURCES
Division of Water
402 W. Washington St., Rm. W264
Indianapolis, IN 46204-2641
(877) 928-3755 toll-free or (317) 232-4160

County Permit Number _____
DNR Variance Number _____

Include if applicable

Fill in completely 05 IND-20 RKO 0514

WELL LOCATION										
County where drilled HOWARD		Civil township name CENTER		Township number (N-S) T24N		Range number (E-W) R3E		Section 23		
Driving directions to the well location (include trip origin, street & road names, intersecting roads, and compass directions). Show well address below and subdivision in box at lower right. There is space for a map on the reverse side. Dixon Rd N to Judson approx 3/4 mi on E side of Rd Well # 2 @ South Central edge of field						UTM Northing 4485022				
						UTM Easting 571491				
						Datum ☒ NAD 27 ☐ NAD 83				
						GPS used				
Well address: 						Subdivision name & lot number (if applicable)				
If drilled for water supply, this well is: ☐ First well on property ☐ Replacement well ☐ Additional well on property ☐ Dry hole										
OWNER/CONTRACTOR										
Well owner--name Indiana-American Water Company Inc								Telephone number		
Address (number and street, city, state, ZIP code) P O Box 740 Kokomo IN 46903-0740										
Building contractor--name				Address (number and street, city, state, ZIP code)				Telephone number		
Drilling contractor--name Ortman Drilling & Water Services				241N 300W Kokomo IN 46901				Telephone number 765/459-4125		
Equipment operator--name Mike K Russell Mc Nathan Mc Jacob A				License number of operator 2050 1036		Date of well completion 11/28/05				
CONSTRUCTION DETAILS					WELL LOG					
Use of well ☐ Home ☒ Public supply ☐ Industrial / commercial ☐ Livestock ☐ Irrigation ☐ Monitoring / environ. ☐ Test hole Other: _____		Drilling method ☒ Rotary ☐ Reverse rotary ☐ Cable tool ☐ Jet ☐ Bucket / bore ☐ Auger (including HSA) ☐ Direct push Other: _____		Type of pump ☐ Submersible ☐ Shallow-well jet ☐ Deep-well jet ☐ No pump installed Other: _____		FORMATIONS: Type of material		From (feet)	To (feet)	
Total depth of well (feet) 103 1/2		Borehole diameter (in.)		Gravel pack inserted ☒ Yes ☐ No		Brown clay		0	17	
Casing length (feet) 73 1/2 + 2 1/2		Casing diameter (in.) 16		Casing material ☐ PVC ☒ Steel		Gray clay		17	32	
Screen length (feet) 30		Screen diameter (in.) 16		Screen material ☐ PVC ☐ Steel		Coarse gravel		32	38	
Screen slot size 80		Water quality (clear, odor, etc.)		Pump depth setting (feet)		Gravel w/clay		38	42	
						Gray clay		42	50	
						Gray clay w/coarse gravel		50	53	
						Fine-med sand & gravel		53	55	
						Gray clay w/gravel		55	63	
						Fine-med sand & gravel		63	75	
						Med-fine gravel		75	80	
						Med gravel w/med sand		80	85	
						Med-coarse gravel w/med sand		85	90	
						Fine-med sand & gravel		90	104 1/2	
GROUTING					WELL ABANDONMENT					
Grout material Benseal		Grout depth from to 30 0		Sealing material Red Flint		Depth filled from to 104 30				
Installation method		No. of bags used 16		Installation method		No. of bags used 1100 gals				
I hereby swear or affirm, under the penalties for perjury, that the information submitted herewith is, to the best of my knowledge and belief, true, accurate, and complete.					Signature of drilling contractor or authorized representative George Shipley					Date 12/13/05

**RECORD OF WATER WELL**

State Form 35680 (R5/9-04)

RKO 0514
05 IND - 17

Order--Mail complete record in 30 days to:
INDIANA DEPT. OF NATURAL RESOURCES
Division of Water
402 W. Washington St., Rm. W264
Indianapolis, IN 46204-2641
(877) 928-3755 toll-free or (317) 232-4160

County Permit
Number
DNR Variance
Number

Include if applicable

Fill in completely

WELL LOCATION				
County where drilled HOWARD	Civil township name CENTER	Township number (N-S) T24N	Range number (E-W) R3E	Section 23
Driving directions to the well location (include trip origin, street & road names, intersecting roads, and compass directions). Show well address below and subdivision in box at lower right. There is space for a map on the reverse side. 200W past 200N about 1/2 mile on east side of 200W Well address: If drilled for water supply, this well is: ☐ First well on property ☐ Replacement well ☐ Additional well on property ☐ Dry hole			UTM Northing 4485013	
			UTM Easting 570816	
			Datum ☒ NAD 27 ☐ NAD 83	
			GPS used	
			Subdivision name & lot number (if applicable)	
OWNER/CONTRACTOR				
Well owner--name Indiana-American Water Co Inc			Telephone number	
Address (number and street, city, state, ZIP code) P O Box 740 Kokomo IN 46903-0740				
Building contractor--name		Address (number and street, city, state, ZIP code)		Telephone number
Drilling contractor--name Ortman Drilling & Water Services		Address (number and street, city, state, ZIP code) 241N 300W Kokomo IN 46901		Telephone number 765/459-4125
Equipment operator--name Mike K Nathan Mc Jake Mc		License number of operator 2050		Date of well completion 8/25/05
CONSTRUCTION DETAILS				
Use of well ☐ Home ☒ Public supply ☐ Industrial / commercial ☐ Livestock ☐ Irrigation ☐ Monitoring / environ. ☐ Test hole Other:	Drilling method ☒ Rotary ☐ Reverse rotary ☐ Cable tool ☐ Jet ☐ Bucket / bore ☐ Auger (including HSA) ☐ Direct push Other:	Type of pump ☐ Submersible ☐ Shallow-well jet ☐ Deep-well jet ☐ No pump installed Other: Pump depth setting (feet)	FORMATIONS: Type of material	
			From (feet)	To (feet)
			Brown clay	0 4
			Fine-med gravel w/cobbles	4 10
			Brown clay	10 11
			Gray clay	11 15
			Fine-med gravel w/cobbles	15 16
			Gray clay	16 21
			Fine-med gravel w/cobbles	21 30
			Fine-med sand & gravel w/cobbles	30 39
			Gray clay	39 65
			Fine-med sand & gravel	65 111
			Gray clay w/gravel stringers	111 116
			Gray clay	116 125
			Gray clay w/sand & gravel	125 133
WELL CAPACITY TEST				
Test method ☒ Air ☐ Bailing ☐ Pumping	Static level below surface 17'7" feet	Gallons per min. 1000@85' 860@70'	Hours tested	Drawdown (change in level) feet
GROUTING				
Grout material Benseal	Grout depth from to 30 0	Sealing material Red Flint #60	Depth filled from to 111 30	
Installation method	No. of bags used 15	Installation method	No. of bags used 1000 gals	
I hereby swear or affirm, under the penalties for perjury, that the information submitted herewith is, to the best of my knowledge and belief, true, accurate, and complete.		Signature of drilling contractor or authorized representative Joyce Shipley Additional space for well log and comments on reverse side MUST BE SIGNED OR STAMPED Date 9-2-05		

Wildcat Creek Well Field Logs

Record of Water Well

Indiana Department of Natural Resources

Reference Number	Driving directions to well	Date completed
130062	925E 100S ON S SIDE. WELL 160 FT S AND 80 FT W OF TEST HOLE NO 68-1	Nov 01, 1968

Owner-Contractor	Name	Address	Telephone
Owner	KOKOMO WATER WORKS CO	420 N MAIN ST, KOKOMO IN	
Driller	J B ORTMAN AND SONS	717 S MALFALFA RD, KOKOMO IN	
Operator	NED O RICK O RICHARD R DUDE A	License: null	

Construction Details

Well	Use: Public Supply	Drilling method: Rotary	Pump type:
	Depth: 274.0	Pump setting depth:	Water quality:
Casing	Length: 90.0	Material:	Diameter: 12.0
Screen	Length:	Material:	Diameter: Slot size:

Well Capacity Test	Type of test: Pumping	Test rate: 1200.0 gpm for hrs.	BailTest rate: gpm for hrs.
	Drawdown: ft.	Static water level: 12.0 ft.	Bailer Drawdown ft.

Grouting Information	Material:	Depth: from to
	Installation Method:	Number of bags used:

Well Abandonment	Sealing material:	Depth: from to
	Installation Method:	Number of bags used:

Administrative	County: HOWARD	Township: 23N	Range: 5E
	Section: NE of the NW of the NW of Section 10		Topo map: GREENTOWN
	Grant Number:		
	Field located by:	on:	
	Courthouse location by:	on:	
	Location accepted w/o verification by:	on:	
	Subdivision name:	Lot number:	
	Ft W of EL:	Ft N of SL:	Ft E of WL: Ft S of NL:
	Ground elevation:	Depth to bedrock:	Bedrock elevation: Aquifer elevation:
	UTM Easting:		UTM Northing:

Well Log	Top	Bottom	Formation
	0.0	8.0	YEL CLAY
	8.0	25.0	BLUE CLAY
	25.0	33.0	YEL SAND
	33.0	65.0	GRAY SAND AND GRAV CRS
	65.0	67.0	BLANK
	67.0	78.0	BLUE CLAY
	78.0	112.0	GRAY LS

112.0	124.0	LS AND CLAY CREVICE
124.0	140.0	GRAY SOFT LS
140.0	170.0	GRAY HARD LS
170.0	188.0	BR LS
188.0	220.0	GRAY LS
220.0	274.0	GRAY HARD LS

Comments

PUMP TEST DATA AVAILABLE; SPUDDER DRILLED 12" LIME 90 TO 274; SURGED 12", SURGE 60L 20 HRS; PICKED UP WATER AT 106 TO 124 AND 170 AND 140 FT; DRILLED 17" HOLE TO 90 FT AND CEMENT GROUTED BY PUMPING THROUGH 12" PIPE TO SURFACE; OTHER EQUIPMENT OPERATOR WAS BILL F;

Record of Water Well

Indiana Department of Natural Resources

Reference Number 115390	Driving directions to well 320' N OF WELL 17 AND 10' W OF FENCE		Date completed Jan 30, 1980	
Owner-Contractor	Name	Address	Telephone	
Owner	AMERICAN WATER WORKS CO	KOKOMO		
Driller	LAYNE NORTHERN CO	INDPLS		
Operator	P TAYLOR	License: null		
Construction Details				
Well	Use:	Drilling method: Rotary	Pump type:	
	Depth: 68.0	Pump setting depth:	Water quality:	
Casing	Length: 48.0	Material:	Diameter: 4.0	
Screen	Length: 20.0	Material:	Diameter: 4.0 Slot size:	
Well Capacity Test	Type of test:	Test rate: gpm for hrs.	BailTest rate: gpm for hrs.	
	Drawdown: ft.	Static water level: ft.	Bailer Drawdown: ft.	
Grouting Information	Material:	Depth: from to		
	Installation Method:	Number of bags used:		
Well Abandonment	Sealing material:	Depth: from to		
	Installation Method:	Number of bags used:		
Administrative	County: HOWARD		Township: 24N Range: 4E	
	Section: SE of the SE of the SW of Section 22		Topo map: MIAMI	
	Grant Number:			
	Field located by:		on:	
	Courthouse location by:		on:	
	Location accepted w/o verification by: BRUNS		on: Jun 22, 1980	
	Subdivision name:		Lot number:	
	Ft W of EL:	Ft N of SL: 300.0	Ft E of WL: 2550.0	Ft S of NL:
	Ground elevation: 830.0	Depth to bedrock: 115.0	Bedrock elevation: 715.0	Aquifer elevation:
	UTM Easting: 579592.0		UTM Northing: 4484241.0	
Well Log	Top	Bottom	Formation	
	0.0	9.0	BR CLAY	
	9.0	48.0	GRAY CLAY	
	48.0	67.0	FN TO CRS GRAV SM LRG GRAV	
	67.0	102.0	HARD GRAY CLAY	
	102.0	115.0	WAXY CLAY & GRAV MX	
	115.0		STONE	
Comments	KOKOMO WATER WORKS CO BBS WELL 79-C; MC; PLOT AS BEDROCK DATA PT; FROM LAYNE MAP AND REPT			

Record of Water Well

Indiana Department of Natural Resources

Reference Number 115395	Driving directions to well 20' N OF FENCE 1/4 MI E OF WELL 16	Date completed Jan 31, 1980
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Owner-Contractor	Name	Address	Telephone
Owner	AMERICAN WATER WORKS CO	KOKOMO	
Driller	LAYNE NORTHERN CO	INDPLS	
Operator	P TAYLOR	License: null	

Construction Details

Well	Use:	Drilling method:	Pump type:
	Depth: 40.0	Pump setting depth:	Water quality:
Casing	Length:	Material:	Diameter:
Screen	Length:	Material:	Diameter: Slot size:

Well Capacity Test	Type of test:	Test rate: gpm for hrs.	BailTest rate: gpm for hrs.
	Drawdown: ft.	Static water level: ft.	Bailer Drawdown: ft.

Grouting Information	Material:	Depth: from to
	Installation Method:	Number of bags used:

Well Abandonment	Sealing material:	Depth: from to
	Installation Method:	Number of bags used:

Administrative	County: HOWARD	Township: 24N	Range: 4E
	Section: SW of the SE of the SW of Section 22	Topo map: MIAMI	
	Grant Number:		
	Field located by:	on:	
	Courthouse location by:	on:	
	Location accepted w/o verification by: BRUNS	on: Jul 22, 1980	
	Subdivision name:	Lot number:	
	Ft W of EL:	Ft N of SL: 20.0	Ft E of WL: 1950.0
			Ft S of NL:
	Ground elevation: 827.0	Depth to bedrock:	Bedrock elevation: 787.0
	UTM Easting: 579392.0	Aquifer elevation:	
		UTM Northing: 4484143.0	

Well Log	Top	Bottom	Formation
	0.0	12.0	BLACK TOPSOIL
	12.0	18.0	WAXY GRAY CLAY
	18.0	23.0	HARD PACK GRAY CLAY
	28.0	36.0	SANDY GRAY CLAY
	36.0	40.0	FN TO CRS GRAV

Comments	BBS WELL 79-D; MC; 6.75 INCH DIA HOLE; LOCATION FROM LAYNE MAP AND REPT
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Record of Water Well

Indiana Department of Natural Resources

Reference Number 341999	Driving directions to well E OF SR 31 ON WATER WORKS RD - 50N- ABOUT 3/8 MI THEN N ON PRIVATE LN 1000' THEN E ABOUT 800'	Date completed Apr 14, 2000
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Owner-Contractor	Name	Address	Telephone
Driller	ORTMAN DRLG INC	241N 300W KOKOMO IN	(765) 459-4125
Operator	LEE E RICK G	License: 1447	() -
Owner	INDIANA-AMERICAN WATER CO	KOKOMO IN	() -

Construction Details	Use: PS	Drilling method: Rotary	Pump type:
Well	Depth: 55.0	Pump setting depth:	Water quality:
Casing	Length: 45.0	Material: STEEL .500	Diameter: 20.0
Screen	Length: 10.0	Material: TELESCOPE SS	Diameter: 18.0 Slot size: .040

Well Capacity Test	Type of test: PUMPING	Test rate: 500.0 gpm for 59.25 hrs.	BailTest rate: gpm for hrs.
	Drawdown: ft.	Static water level: 34.0 ft.	Bailer Drawdown: ft.

Grouting Information	Material:	Depth: from to
	Installation Method:	Number of bags used:

Well Abandonment	Sealing material:	Depth: from to
	Installation Method:	Number of bags used:

Administrative	County: Howard	Township: 24N Range: 4E	
	Section: NE1/4 of Section 32	Topo map: Kokomo East	
	Grant Number:		
	Field located by:	on:	
	Courthouse location by:	on:	
	Location accepted w/o verification by:	on:	
	Subdivision name:	Lot number:	
	Ft W of EL:	Ft N of SL:	Ft E of WL: Ft S of NL:
	Ground elevation:	Depth to bedrock:	Bedrock elevation: Aquifer elevation:
	UTM Easting:	UTM Northing:	

Well Log	Top	Bottom	Formation
	0.0	20.0	BR CLAY W/GRAVEL & SAND
	20.0	36.0	MED GRAVEL 7 SAND
	36.0	55.0	CRS GRAEVL & CRS SAND
	55.0		LS

Comments	00-IND-23 PULLED BACK 20" PIPE 10' AFTER SETTING SCREEN LENGTH OF SCREENED AREA 10' OVERALL LENGTH OF SCREEN 12' 8.5" 17.25" ID 18 7/16" OD & PACKER - K RUBBER PACKER
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Record of Water Well

Indiana Department of Natural Resources

Reference Number	Driving directions to well	Date completed
119525	ON W SIDE OF WATER WORK PLANT	Jul 30, 1950

Owner-Contractor	Name	Address	Telephone
Owner	KOKOMO WATER WORKS CO	KOKOMO	
Driller	LAYNE NORTHERN	MISHAWAKA IN	
Operator	JOHN MILLER, JAMES NESS	License: null	

Construction Details	Use:	Drilling method: Cable Tool	Pump type:
Well	Depth: 382.0	Pump setting depth:	Water quality:
Casing	Length: 35.0	Material:	Diameter: 12.0
Screen	Length:	Material:	Diameter: Slot size:

Well Capacity Test	Type of test:	Test rate: 400.0 gpm for hrs.	BailTest rate: gpm for hrs.
	Drawdown: ft.	Static water level: 45.0 ft.	Bailer Drawdown: ft.

Grouting Information	Material:	Depth: from to
	Installation Method:	Number of bags used:

Well Abandonment	Sealing material:	Depth: from to
	Installation Method:	Number of bags used:

Administrative	County: Howard	Township: 24N Range: 4E
	Section: SW of the SE of the NE of Section 31	Topo map: Kokomo East
	Grant Number:	
	Field located by:	on:
	Courthouse location by:	on:
	Location accepted w/o verification by:	on:
	Subdivision name:	Lot number:
	Ft W of EL: 900.0	Ft N of SL: 2700.0
	Ground elevation: 798.0	Depth to bedrock: 31.0
	UTM Easting: 575340.0	UTM Northing: 4483280.0
		Ft E of WL:
		Ft S of NL:
		Bedrock elevation: 767.0
		Aquifer elevation:

Well Log	Top	Bottom	Formation
	0.0	4.0	FILL
	4.0	27.0	CLAY
	27.0	31.0	CRS GRAV AND BOULDERS
	31.0	58.0	BLUE LIME ROCK
	58.0	188.0	GRAY LIME ROCK
	188.0	193.0	BLUE SHALE
	193.0	220.0	BR LIME ROCK
	220.0	340.0	GRAY LIME ROCK
	340.0	360.0	BLUE LIME ROCK
	360.0	374.0	BR LIME ROCK
	374.0	380.0	BLUE LIME ROCK
	380.0	382.0	BLUE SHALE
	382.0	382.0	BLUE SHALE

Comments	WELL A; MC767;
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Record of Water Well

Indiana Department of Natural Resources

Reference Number 119515	Driving directions to well CARTER ST BY CREEK, E OF TREATMENT PLANT, 300 FT N OF CARTER ST		Date completed Nov 01, 1984	
Owner-ContractorName		Address	Telephone	
Owner		INDIANA AMERICAN WATER WORKS	KOKOMO IN	
Driller		LAYNE NORTHERN CO	MISHAWAKA IN	
Operator		W ELLIOTT	License: null	
Construction Details				
Well	Use: Industry	Drilling method: Rotary	Pump type:	
	Depth: 325.0	Pump setting depth:	Water quality:	
Casing	Length: 50.0	Material:	Diameter: 16.0	
Screen	Length:	Material:	Diameter: Slot size:	
Well Capacity Test	Type of test: Pumping	Test rate: 510.0 gpm for 24.0 hrs.	BailTest rate: gpm for hrs.	
	Drawdown: 34.0 ft.	Static water level: 17.0 ft.	Bailer Drawdown ft.	
Grouting Information	Material:		Depth: from to	
	Installation Method:		Number of bags used:	
Well Abandonment	Sealing material:		Depth: from to	
	Installation Method:		Number of bags used:	
Administrative	County: HOWARD		Township: 24N Range: 4E	
	Section: of Section 31		Topo map: KOKOMO EAST	
	Grant Number:			
	Field located by:		on:	
	Courthouse location by:		on:	
	Location accepted w/o verification by:		on:	
	Subdivision name:		Lot number:	
	Ft W of EL:	Ft N of SL:	Ft E of WL:	Ft S of NL:
	Ground elevation:	Depth to bedrock:	Bedrock elevation:	Aquifer elevation:
	UTM Easting:		UTM Northing:	
Well Log	Top	Bottom	Formation	
	0.0	4.0	BR CLAY	
	4.0	6.0	SAND AND GRAV	
	6.0	28.0	HARD GRAY CLAY	
	28.0	32.0	MD AND CRS SAND	
	32.0	38.0	FINE SAND	
	38.0	46.0	MD CRS SAND/GRAV	
	46.0	60.0	WEATHER BR LS	
	60.0	113.0	GRAY HARD LS W/ FIRE CLAY	
	113.0	147.0	DARK GRAY LIME, LT GRAY TRACES	
	147.0	210.0	DARK GRAY SHALEY W/ DARK BR	

210.0	245.0	DARK LT GRAY BR LS W/ CHERT
245.0	275.0	DARK GRAY BR CHERT
275.0	325.0	DARK AND LIGHT GRAY LIME

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	Driving directions to well	Date completed
265234	ACROSS ST FROM SYCAMORE SCHOOL KOKOMO	Dec 11, 1968

Well #18

Owner-Contractor	Name	Address	Telephone
Owner	KOKOMO WATER WORKS CO.	420 N. MAIN ST., KOKOMO, IN	
Driller	J.B. ORTMAN & SONS	717 S. MALFALFA RD., KOKOMO, IN	
Operator	RICK O., JOHN W., S. BARKER	License: null	

Construction Details

Well	Use: PS	Drilling method: Rotary	Pump type:
	Depth: 299.0	Pump setting depth:	Water quality:
Casing	Length: 71.0	Material:	Diameter: 6.0
Screen	Length:	Material:	Diameter: Slot size:

Well Capacity Test	Type of test: AIR	Test rate: 90.0 gpm for hrs.	BailTest rate: gpm for hrs.
	Drawdown: ft.	Static water level: 50.0 ft.	Bailer Drawdown: ft.

Grouting Information	Material:	Depth: from to
	Installation Method:	Number of bags used:

Well Abandonment	Sealing material:	Depth: from to
	Installation Method:	Number of bags used:

Administrative	County: Howard	Township: 24N Range: 4E
	Section: of Section 31	Topo map: Kokomo East
	Grant Number:	
	Field located by:	on:
	Courthouse location by:	on:
	Location accepted w/o verification by:	on:
	Subdivision name:	Lot number:
	Ft W of EL:	Ft N of SL:
	Ground elevation:	Depth to bedrock:
	UTM Easting:	UTM Northing:
		Ft E of WL:
		Ft S of NL:
		Bedrock elevation:
		Aquifer elevation:

Well Log	Top	Bottom	Formation
	0.0	18.0	BROWN CLAY
	18.0	35.0	BLUE CLAY
	35.0	40.0	SAND
	40.0	63.0	GRAVEL
	63.0	65.0	DK. BROWN STONE
	65.0	68.0	BLACK STONE
	68.0	73.0	BLUE & GRAY STONE
	73.0	106.0	BLUE GRAY STONE
	106.0	120.0	GRAY STONE
	120.0	122.0	DK. GRAY STONE
	122.0	132.0	DK. GREENISH GRAY
	132.0	135.0	BLUE STONE
	135.0	160.0	BLUE GRAY STONE
	160.0	165.0	BLUE GREEN STONE
	165.0	177.0	LT. GREENISH GRAY STONE

177.0	183.0	BLUE GREEN STONE
183.0	195.0	BLUE STONE
195.0	209.0	BLUE & GRAY STONE
209.0	211.0	LT. BLUE STONE
211.0	238.0	GRAY
238.0	250.0	LT. BROWN
250.0	287.0	BLUE & LT. BROWN STONE
287.0	299.0	GRAY STONE

CommentsTEST HOLE NO. 68-7

Record of Water Well

Indiana Department of Natural Resources

Reference Number 119520 <i>Well #19</i>	Driving directions to well KOKOMO WATER PLANT NW OF EXISTING AERATOR		Date completed Oct 19, 1984	
Owner-Contractor Owner Driller Operator	Name IND. AMERICAN WATER WORKS LAYNE-NORTHERN CO. W. ELLIOT	Address KOKOMO MISHAWAKA, IN. License: null	Telephone	
Construction Details				
Well	Use: INDUSTRIAL	Drilling method: Rotary	Pump type:	
	Depth: 300.0	Pump setting depth:	Water quality:	
Casing	Length: 40.0	Material:	Diameter: 16.0	
Screen	Length:	Material:	Diameter: Slot size:	
Well Capacity Test				
	Type of test:	Test rate: 524.0 gpm for 24.0 hrs.	BailTest rate: gpm for hrs.	
	Drawdown: 44.0 ft.	Static water level: 25.67 ft.	Bailer Drawdown: ft.	
Grouting Information				
	Material:	Depth: from to		
	Installation Method:	Number of bags used:		
Well Abandonment				
	Sealing material:	Depth: from to		
	Installation Method:	Number of bags used:		
Administrative				
	County: Howard	Township: 24N Range: 4E		
	Section: NW of the SE of Section 31	Topo map: Kokomo East		
	Grant Number:			
	Field located by:	on:		
	Courthouse location by:	on:		
	Location accepted w/o verification by:	on:		
	Subdivision name:	Lot number:		
	Ft W of EL:	Ft N of SL:	Ft E of WL:	Ft S of NL:
	Ground elevation:	Depth to bedrock:	Bedrock elevation:	Aquifer elevation:
	UTM Easting:	UTM Northing:		
Well Log				
	Top	Bottom	Formation	
	0.0	12.0	FILL/BRICKS, ROCK, ETC.	
	12.0	14.0	BR CLAY	
	14.0	16.0	SAND & SMALL GRAV	
	16.0	31.0	SOFT GREY CLAY	
	31.0	33.0	FN S & G	
	33.0	36.0	MD S & G	
	36.0	40.0	STONE	
	40.0	55.0	WEATHERED BR LS	
	55.0	110.0	GREY HARD LS	
	110.0	150.0	GREY HARD LS W/TRACE OF CLAY	
	150.0	210.0	DARK GREY LIME W/BR SEAMS	
	210.0	300.0	BR LS W/WH SEAMS	
Comments				

Record of Water Well

Indiana Department of Natural Resources

Reference Number 121046	Driving directions to well ON WILDCAT CREEK, 50 FT N OF CREEK BANK, 100 FT E OF BRIDGE ON US 31		Date completed Oct 31, 1950
Owner-Contractor Owner Driller Operator	Name KOKOMO WATER WORKS CO LAYNE NORTHERN JAMES NESS	Address KOKOMO IN MISHAWAKA IN License: null	Telephone
Construction Details Well Casing Screen	Use: Depth: 203.0 Length: 162.0 Length:	Drilling method: Cable Tool Pump setting depth: Material: Material:	Pump type: Water quality: Diameter: 12.0 Diameter: Slot size:
Well Capacity Test	Type of test: Drawdown: ft.	Test rate: 524.0 gpm for hrs. Static water level: 34.0 ft.	BailTest rate: gpm for hrs. Bailer Drawdown ft.
Grouting Information	Material: Installation Method:	Depth: from to Number of bags used:	
Well Abandonment	Sealing material: Installation Method:	Depth: from to Number of bags used:	
Administrative	County: Howard Section: NW of the SW of the NW of Section 32 Grant Number: Field located by: Courthouse location by: Location accepted w/o verification by: Subdivision name: Ft W of EL: Ground elevation: 795.0 UTM Easting: 575670.0		Township: 24N Range: 4E Topo map: Kokomo East on: on: on: Lot number: Ft E of WL: 250.0 Bedrock elevation: 755.0 UTM Northing: 4481370.0 Ft S of NL: 1700.0 Aquifer elevation:
Well Log	Top 0.0	Bottom 0.0	Formation FORMATION LISTED, NO DPTH INFO
Comments	MC 755;		

Record of Water Well

Indiana Department of Natural Resources

Reference Number 121459	Driving directions to well GARRISON FARM 1 1/4 MI E OF HWY 31 ON WILDCAT CREEK. HOLE # 1-OBSERVATION WELL			Date completed Nov 27, 1957
Owner-Contractor Owner Driller	Name KOKOMO WATER WORKS LAYNE NORTHERN INC	Address KOKOMO IN INDPLS IN	Telephone	
Construction Details				
Well	Use: Public Supply	Drilling method: Cable Tool	Pump type:	
	Depth: 84.0	Pump setting depth:	Water quality:	
Casing	Length:	Material:	Diameter: 6.0	
Screen	Length:	Material:	Diameter: Slot size:	
Well Capacity Test	Type of test: Drawdown: ft.	Test rate: gpm for hrs. Static water level: 23.0 ft.	BailTest rate: gpm for hrs. Bailer Drawdown: ft.	
Grouting Information	Material: Installation Method:		Depth: from to Number of bags used:	
Well Abandonment	Sealing material: Installation Method:		Depth: from to Number of bags used:	
Administrative	County: HOWARD Section: of Section 32 Grant Number: Field located by: Courthouse location by: Location accepted w/o verification by: Subdivision name: Ft W of EL: Ground elevation: UTM Easting:		Township: 24N Range: 4E Topo map: KOKOMO EAST on: on: on: Lot number: Ft E of WL: Ft S of NL: Bedrock elevation: Aquifer elevation: UTM Northing:	
Well Log	Top	Bottom	Formation	
	0.0	17.0	CLAY	
	17.0	18.0	CRS SAND AND GRAV	
	18.0	31.0	GRITTY CLAY	
	31.0	37.0	MD SAND AND GRAV	
	37.0	48.0	GRITTY CLAY	
	48.0	49.0	FINE SAND	
	49.0	60.0	FN AND MD GRAV	
	60.0	66.0	MD GRAV, CRS GRAV AND SAND	
	66.0	67.0	GRITTY CLAY	
	67.0	81.0	CRS GRAV AND FN TO CRS SAND	
	81.0	84.0	LS	

Comments

1 1/4" PILOT SET AT 55'-57', 55' OF 1 1/4" PIPE AND 3' POINT LEFT IN HOLE. HOLE # 1
OBS WELL;

Record of Water Well

Indiana Department of Natural Resources

Reference Number 115385	Driving directions to well 100 FT N OF E W FENCE LINE, 100 FT E OF CENTER OF RD 300E		Date completed Mar 01, 1977	
Owner-Contractor	Name	Address	Telephone	
Owner	KOKOMO WATER WORKS	KOKOMO IN		
Driller	LAYNE NORTHERN			
Operator	R COLLINS, WELLS, FOSTER	License: null		
Construction Details				
Well	Use: Public Supply	Drilling method: Reverse Rotary	Pump type:	
	Depth: 140.0	Pump setting depth:	Water quality:	
Casing	Length: 125.0	Material: SS	Diameter: 16.0	
Screen	Length: 15.0	Material: SS WW	Diameter: 16.0 Slot size: .100	
Well Capacity Test	Type of test: Pumping	Test rate: 1002.0 gpm for 24.0 hrs.	BailTest rate: gpm for hrs.	
	Drawdown: 39.5 ft.	Static water level: 3.5 ft.	Bailer Drawdown ft.	
Grouting Information	Material: CONCRETE		Depth: from 50.0 to 60.0	
	Installation Method:		Number of bags used:	
Well Abandonment	Sealing material:		Depth: from to	
	Installation Method:		Number of bags used:	
Administrative	County: HOWARD		Township: 24N Range: 4E	
	Section: SW of the SW of the SW of Section 22		Topo map: MIAMI	
	Grant Number:			
	Field located by: WH		on: Jul 12, 1977	
	Courthouse location by:		on:	
	Location accepted w/o verification by:		on:	
	Subdivision name:		Lot number:	
	Ft W of EL:	Ft N of SL: 100.0	Ft E of WL: 100.0	Ft S of NL:
	Ground elevation: 820.0	Depth to bedrock: 140.0	Bedrock elevation: 680.0	Aquifer elevation:
	UTM Easting: 578832.0		UTM Northing: 4484155.0	
Well Log	Top	Bottom	Formation	
	0.0	8.0	YEL GRITTY CLAY	
	8.0	16.0	GRAY CLAY GRITTY BOULDERS	
	16.0	18.0	GRAY CLAY, GRIT BOULDER STEEL	
	18.0	23.0	MD GRAV, MD SAND GRAY	
	23.0	29.0	CRS GRAV, CRS SAND GRAY	
	29.0	31.0	FINE SAND, GRAY BLK	
	31.0	46.0	CRS SAND, CRS GRAV, BOULDERS	
	46.0	50.0	FN SAND, LIKE QUICKSAND	
	50.0	56.0	MD GRAV, MD SAND GRAY BOULDER	
	56.0	64.0	CLAY, SOFT GRITTY	

64.0	70.0	CRS GRAV, MD SAND GRAY
70.0	90.0	HARD GRITTY CLAY GRAY
90.0	107.0	CLAY, SOFT TO HARD W/ GRAV
107.0	114.0	MD GRAV, MD SAND GRAY
114.0	115.0	SOFT GRITTY CLAY
115.0	119.0	CRS MD SAND, CLAY BALLS
119.0	140.0	MD TO CRS GRAV, FN SAND RED
140.0	140.0	LS

Comments

NOT PUMPING AS OF 7-12-77; PEAT BOG. KOKOMO WW PERM WELL # 2; SITE OF PERM WELL # 16?; SILICA GRAVEL PACK, 8 YDS OF # 3 FROM 140 TO 120; GRAVEL FILL FROM 120 TO 15; CONCRETE SEALS FROM 60 TO 50 FT AND 15 TO 5 FT; CLAY FROM 5 TO 0 FT; 42" DIA HOLE;

Record of Water Well

Indiana Department of Natural Resources

Reference Number 115400	Driving directions to well 107 FT N OF S FENCE, 3000 FT E OF CR 300E		Date completed Oct 28, 1977	
Owner-Contractor	Name	Address	Telephone	
Owner	KOKOMO WATER WORKS	KOKOMO IN		
Driller	LAYNE NORTHERN CO	INDPLS IN		
Operator	R C COLLINS	License: null		
Construction Details				
Well	Use:	Drilling method: Reverse Rotary	Pump type:	
	Depth: 75.0	Pump setting depth:	Water quality:	
Casing	Length: 60.0	Material:	Diameter: 16.0	
Screen	Length: 15.0	Material:	Diameter: 16.0 Slot size: .090 SS WW	
Well Capacity Test	Type of test:	Test rate: 1016.0 gpm for 24.0 hrs.	BailTest rate: gpm for hrs.	
	Drawdown: 40.5 ft.	Static water level: 13.9 ft.	Bailer Drawdown ft.	
Grouting Information	Material:	Depth: from to		
	Installation Method:	Number of bags used:		
Well Abandonment	Sealing material:	Depth: from to		
	Installation Method:	Number of bags used:		
Administrative	County: HOWARD		Township: 24N Range: 4E	
	Section: SE of the SE of the SW of Section 22		Topo map: MIAMI	
	Grant Number:			
	Field located by:		on:	
	Courthouse location by:		on:	
	Location accepted w/o verification by: BRUNS		on: Jul 22, 1980	
	Subdivision name:		Lot number:	
	Ft W of EL:	Ft N of SL: 107.0	Ft E of WL: 2550.0	Ft S of NL:
	Ground elevation: 830.0	Depth to bedrock:	Bedrock elevation: 755.0	Aquifer elevation:
	UTM Easting: 579591.0	UTM Northing: 4484155.0		
Well Log	Top	Bottom	Formation	
	0.0	14.0	YEL CLAY	
	14.0	37.0	GRAY HARD GRITTY CLAY	
	37.0	41.0	CRS GRAY GRAV, MD SAND	
	41.0	47.0	HARD GRITTY CLAY	
	47.0	57.0	CRS GRAY GRAV AND MD SAND	
	57.0	59.0	GRAY SOFT CLAY	
	59.0	75.0	CRS GRAY SAND AND GRAV	

LOCATION FROM LAYNE MAP AND DESCRIPTION INFO; SEE FILE CONCERNING PUMPING TEST ANALYSIS OR THIS WELL AND ITS EFFECT ON GRAVEL PIT 2 MI NE;

Comments 42 INCH DIA HOLE; SILICA GRAVEL PACK, 16 YDS OF # 3; FROM 75 TO 53; GRAVEL
FILL 53 TO 36; CONCRETE FROM 36 TO 22; WELL FIELD ATTACHED; PERM WELL # 17;
MC;

Record of Water Well

Indiana Department of Natural Resources

Reference Number 130069	Driving directions to well 99 FT N OF CR, 176 FT N OF ROCK WELL	Date completed Nov 25, 1974
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Owner-Contractor	Name	Address	Telephone
Owner	KOKOMO WATER WORKS	GREENTOWN IN	
Driller	LAYNE NORTHERN CO	MISHAWAKA	
Operator	FOSTER	License: null	

Construction Details

Well	Use: Public Supply	Drilling method: Bucket Rig	Pump type:
	Depth: 57.0	Pump setting depth:	Water quality:
Casing	Length: 45.0	Material:	Diameter: 18.0
Screen	Length: 15.0	Material:	Diameter: 18.0 Slot size:

Well Capacity Test	Type of test: Pumping	Test rate: 754.0 gpm for 24.0 hrs.	BailTest rate: gpm for hrs.
	Drawdown: 9.0 ft.	Static water level: 24.0 ft.	Bailer Drawdown ft.

Grouting Information	Material:	Depth: from to
	Installation Method:	Number of bags used:

Well Abandonment	Sealing material:	Depth: from to
	Installation Method:	Number of bags used:

Administrative	County: HOWARD	Township: 23N	Range: 5E
	Section: of Section 10	Topo map:	GREENTOWN
	Grant Number:		
	Field located by:	on:	
	Courthouse location by:	on:	
	Location accepted w/o verification by:	on:	
	Subdivision name:	Lot number:	
	Ft W of EL:	Ft N of SL:	Ft E of WL: Ft S of NL:
	Ground elevation:	Depth to bedrock:	Bedrock elevation: Aquifer elevation:
	UTM Easting:		UTM Northing:

Well Log	Top	Bottom	Formation
	0.0	57.0	BLANK

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	Driving directions to well	Date completed
121171	1/4 MI S OF 300N, 5 FT E OF 400E	Jan 29, 1980

Owner-Contractor Name	Address	Telephone
Owner	KOKOMO AMERICAN WATER WORKS CO	
Driller	LAYNE NORTHERN CO	
Operator	P TAYLOR	License: null

Construction Details

Well	Use:	Drilling method: Rotary	Pump type:
	Depth: 58.0	Pump setting depth:	Water quality:
Casing	Length: 38.0	Material:	Diameter: 4.0
Screen	Length: 20.0	Material:	Diameter: 4.0 Slot size:

Well Capacity Test	Type of test:	Test rate: gpm for hrs.	BailTest rate: gpm for hrs.
	Drawdown: ft.	Static water level: ft.	Bailer Drawdown: ft.

Grouting Information	Material:	Depth: from to
	Installation Method:	Number of bags used:

Well Abandonment	Sealing material:	Depth: from to
	Installation Method:	Number of bags used:

Administrative	County: HOWARD	Township: 24N Range: 4E
	Section: NW of the SW of the NW of Section 23	Topo map: MIAMI
	Grant Number:	
	Field located by:	on:
	Courthouse location by:	on:
	Location accepted w/o verification by: BRUNS 7-22-80	on:
	Subdivision name:	Lot number:
	Ft W of EL:	Ft N of SL:
	Ft E of WL: 25.0	Ft S of NL: 1400.0
	Ground elevation: 820.0	Bedrock elevation: 750.0
	Depth to bedrock: 70.0	Aquifer elevation:
	UTM Easting: 580413.0	UTM Northing: 4485336.0

Well Log	Top	Bottom	Formation
	0.0	3.0	BR CLAY
	3.0	30.0	GRAY SANDY CLAY
	30.0	60.0	FN TO CRS GRAV, LARGE ROCKS
	60.0	70.0	GRAY CLAY
	70.0	70.0	WH STONE

Comments	KOKOMO WATER WORKS CO OBS WELL NO 79B; MC; 6.75 IN DIA HOLE;
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Record of Water Well

Indiana Department of Natural Resources

Reference Number		Driving directions to well		Date completed	
312738		KOKOMO CITY WELLS ALONG WILDCAT CREEK; WELLS 1,2,4,5,6,7,13,14 - A,B,C,D,E,F,G			
Owner-Contractor		Name	Address	Telephone	
Owner		KOKOMO WATER WORKS	KOKOMO, IN		
Construction Details					
Well	Use: PS	Drilling method: Cable Tool	Pump type:		
	Depth: 387.0	Pump setting depth:	Water quality:		
Casing	Length:	Material:	Diameter:		
Screen	Length:	Material:	Diameter: Slot size:		
Well Capacity Test		Type of test:	Test rate: 425.0 gpm for hrs.	BailTest rate: gpm for hrs.	
		Drawdown: ft.	Static water level: ft.	Bailer Drawdown: ft.	
Grouting Information		Material:	Depth: from to		
		Installation Method:	Number of bags used:		
Well Abandonment		Sealing material:	Depth: from to		
		Installation Method:	Number of bags used:		
Administrative		County: Howard	Township: 24N Range: 4E		
		Section: of Section 31	Topo map: Kokomo East		
		Grant Number:			
		Field located by:	on:		
		Courthouse location by:	on:		
		Location accepted w/o verification by:	on:		
		Subdivision name:	Lot number:		
		Ft W of EL:	Ft N of SL:	Ft E of WL:	Ft S of NL:
		Ground elevation:	Depth to bedrock:	Bedrock elevation:	Aquifer elevation:
		UTM Easting:	UTM Northing:		
Well Log		Top	Bottom	Formation	
		0.0	0.0	NO LOG INFORMATION	
Comments		#G IN SE OF SW OF SECTION 28; HISTORY OF 12 WELLS ON ORIG.			

Syndicate Sales, Inc. Logs

Record of Water Well

Indiana Department of Natural Resources

Reference Number 127551	Driving directions to well KOKOMO	Date completed Jan 01, 1950	
Owner-Contractor Owner Driller	Name SYNDICATE SALES CO JB ORTMAN AND SONS	Address RR 1 KOKOMO	Telephone () - () -
Construction Details	Use:	Drilling method:	Pump type:
Well	Depth: 106.0	Pump setting depth:	Water quality:
Casing	Length:	Material:	Diameter: 6.0
Screen	Length:	Material:	Diameter: Slot size:
Well Capacity Test	Type of test:	Test rate: 60.0 gpm for hrs.	BailTest rate: gpm for hrs.
	Drawdown: 2.0 ft.	Static water level: 25.0 ft.	Bailer Drawdown ft.
Grouting Information	Material:	Depth: from to	
	Installation Method:	Number of bags used:	
Well Abandonment	Sealing material:	Depth: from to	
	Installation Method:	Number of bags used:	
Administrative	County: Howard	Township: 24N Range: 3E	
	Section: NE1/4 of the SW1/4of the SE1/4 of Section 25	Topo map: Kokomo West	
	Grant Number:		
	Field located by:	on:	
	Courthouse location by:	on:	
	Location accepted w/o verification by:	on:	
	Subdivision name:	Lot number:	
	Ft W of EL:	Ft N of SL:	Ft E of WL: Ft S of NL:
	Ground elevation: 820.0	Depth to bedrock: 44.0	Bedrock elevation: 775.0 Aquifer elevation:
	UTM Easting:	UTM Northing:	
Well Log	Top	Bottom	Formation
NO INFORMATION			
Comments	PLACED IN MASTER WELL LOG FILE-JMH 2/62;		

Record of Water Well

Indiana Department of Natural Resources

Reference Number 127566	Driving directions to well WELL 5 FT 6 INCH E AND 5 FT 6 INCH N FROM NW CORNER OF BLDG		Date completed Jul 24, 1973	
Owner-Contractor	Name	Address	Telephone	
Owner	SYNDICATE SALES INC	801 W MARGAN ST KOKOMO IN	0 -	
Driller	J B ORTMAN AND SONS	717 S MALFALFA RD KOKOMO IN	0 -	
Operator	JOHN W, MIKE O, CHRIS C, ETC	License: null	0 -	
Construction Details				
Well	Use: INDUSTRIAL	Drilling method: Rotary	Pump type:	
	Depth: 262.0	Pump setting depth:	Water quality:	
Casing	Length: 83.0	Material:	Diameter: 8.63	
Screen	Length:	Material:	Diameter: Slot size:	
Well Capacity Test	Type of test: AIR	Test rate: 330.0 gpm for hrs.	Bail Test rate: gpm for hrs.	
	Drawdown: ft.	Static water level: 29.0 ft.	Bailer Drawdown: ft.	
Grouting Information	Material:	Depth: from to		
	Installation Method:	Number of bags used:		
Well Abandonment	Sealing material:	Depth: from to		
	Installation Method:	Number of bags used:		
Administrative	County: Howard	Township: 24N Range: 3E		
	Section: of Section 25	Topo map: Kokomo West		
	Grant Number:			
	Field located by:	on:		
	Courthouse location by:	on:		
	Location accepted w/o verification by:	on:		
	Subdivision name:	Lot number:		
	Ft W of EL:	Ft N of SL:	Ft E of WL:	Ft S of NL:
	Ground elevation:	Depth to bedrock:	Bedrock elevation:	Aquifer elevation:
	UTM Easting:	UTM Northing:		
Well Log	Top	Bottom	Formation	
	0.0	13.0	BR CLAY	
	13.0	17.0	GRAY CLAY	
	17.0	33.0	SAND AND GRAV	
	33.0	69.0	GRAY CLAY	
	69.0	78.0	GRAY CLAY AND GRAV	
	78.0	79.0	BR CLAY	
	79.0	95.0	GRAY LS	
	95.0	140.0	BR LS	
	140.0	230.0	GRAY LS	
	230.0	262.0	DARK GRAY LS	
Comments	PUMP TEST ATTACHED;			

Moon Fabricating Log

Record of Water Well

Indiana Department of Natural Resources

Reference Number

240866

Driving directions to well

700 W MORGAN ST KOKOMO, IN; WELL LOC: 5 FT W & 8 FT S OF CORNER POST &
PROPERTY LINE ON NE CORNER OF PROPERTY

Date completed

Dec 27, 1978

Owner-Contractor

Owner
Driller
Operator

Name

MOON WELDING
ORTMAN DRILLING, INC
RICK C, FRANK C, MICK D

Address

700 W MORGAN ST KOKOMO, IN
717 S. MOLFALFA ROAD KOKOMO, IN
License: null

Telephone

()-
()-
()-

Construction Details

Well

Use: INDUSTRIAL

Drilling method: Rotary

Pump type:

Depth: 234.0

Pump setting depth:

Water quality:

Casing

Length: 93.0

Material:

Diameter: 8.0

Screen

Length:

Material:

Diameter: Slot size:

Well Capacity Test

Type of test: AIR

Test rate: 300.0 gpm for hrs.

BailTest rate: gpm for hrs.

Drawdown: ft.

Static water level: 22.0 ft.

Bailer Drawdown ft.

Grouting Information

Material:

Depth: from to

Installation Method:

Number of bags used:

Well Abandonment

Sealing material:

Depth: from to

Installation Method:

Number of bags used:

Administrative

County: Howard

Township: 24N Range: 3E

Section: of Section 24

Topo map: Galveston

Grant Number:

Field located by:

on:

Courthouse location by:

on:

Location accepted w/o verification by:

on:

Subdivision name:

Lot number:

Ft W of EL:

Ft N of SL:

Ft E of WL:

Ft S of NL:

Ground elevation:

Depth to bedrock:

Bedrock elevation:

Aquifer elevation:

UTM Easting:

UTM Northing:

Well Log

Top

Bottom

Formation

0.0

1.0

STONE FILL

1.0

5.0

BLACK DIRT

5.0

14.0

BROWN SANDY CLAY

14.0

29.0

SAND & MED GRAVEL

29.0

65.0

GRAY CLAY

65.0

83.0

SAND & FINE TO MED GRAVEL

83.0

86.0

BROKEN LIMESTONE

86.0

129.0

YELLOWISH BROWN STONE

129.0

135.0

LT GRAY STONE

135.0

152.0

MIXED

152.0

169.0

LT GRAY STONE

169.0

175.0

MIXED GRAY & LT BROWN STONE

175.0

190.0

LT GRAY STONE

190.0

220.0

MIXED GRAY & LT BROWN STONE

220.0

234.0

LT GRAY STONE

Comments

DK GRAY CLAY CREVICE 112-113; BROWN CLAY CREVICE 216-217

Attachment B

Proposed Sampling Matrix

Attachment B. Proposed Sampling Matrix, RCRA Facility Investigation, Former GM Delco Plant 5, Kokomo, Indiana

AOI	Name	Sample Matrix	Data Usage	Sample Locations	Number of Proposed Soil Borings	Number of Proposed Monitoring Wells	Sampling Interval	Laboratory Parameters	Field Parameters	Analytical Method
Upgradient	--	Groundwater	Groundwater Monitoring	Existing Monitoring Wells: MW-0501-S1***, MW-0501-S2, and MW-0501-S3U	--	--	NA	VOCs	Qualitative Screening*, Low Flow Parameters**	8260
AOI 2	Fill Area	Groundwater	Groundwater Monitoring	Existing Monitoring Well: MW-0103-S1U	--	--	NA	VOCs	Qualitative Screening*, Low Flow Parameters**	8260
AOI 5	Former Hazardous Waste Storage Unit	Groundwater	Groundwater Monitoring	Existing Monitoring Wells: MW-0503-S1, MW-0503-S2, and MW-0604-S2	--	--	NA	VOCs	Qualitative Screening*, Low Flow Parameters**	8260
AOI 6	Waste Pile	Groundwater	Groundwater Monitoring	Existing Monitoring Wells: MW-0506-S1 and MW-0506-S2	--	--	NA	VOCs	Qualitative Screening*, Low Flow Parameters**	8260
AOI 7	Northern Portion of Former East Manufacturing Building	Groundwater	Groundwater Monitoring	Existing Monitoring Wells: MW-0505-S1, MW-0505-S2, and MW-0509-S1	--	--	NA	VOCs	Qualitative Screening*, Low Flow Parameters**	8260
Off-Site West	--	Groundwater	Groundwater Monitoring	Existing Monitoring Wells: MW-0516-S1***, MW-0516-S2, MW-0603-S1, MW-0603-S2, MW-0603-B1***, and MW-0702-B1	--	--	NA	VOCs	Qualitative Screening*, Low Flow Parameters**	8260
Off-Site East	--	Groundwater	Groundwater Monitoring	Existing Monitoring Wells: MW-0602-B1, MW-0606-S2, MW-0607-S1, MW-0607-B1, MW-0608-S1, MW-0608-S2, MW-0608-B1***, MW-0609-S1***, MW-0612-S1, MW-0612-S2***, MW-0703-B1, MW-0704-S1, and MW-0705-S1	--	--	NA	VOCs	Qualitative Screening*, Low Flow Parameters**	8260

* - Qualitative screening consists of visual (staining, sheen) and olfactory (odor) observations at individual locations

** - Low flow parameters consist of: pH, conductivity, temperature, oxidation reduction potential, dissolved oxygen, and turbidity

*** - Well where both low flow and PDB samples will be collected

Attachment C

Groundwater (Potentiometric
Surface) Level Study

Attachment C – Groundwater (Potentiometric Surface) Level Study

Scope of Work

To evaluate changes in groundwater levels over time at the Facility, datalogging pressure transducers will be placed in nested monitoring well series at the Facility. Based on data collected up until November 2008, the groundwater flow direction in all saturated units at the Facility has historically been interpreted as generally being from the north to the south. Data collected in November 2008 and February 2009, indicated a possible divide with groundwater having both a northerly and southerly flow components. Therefore, nested monitoring wells positioned parallel with the apparent flow directions (i.e., along a line trending from northwest to southeast), are proposed for placement of pressure transducers. The proposed monitoring wells are: MW-0501-S1, MW-0501-S2 and MW-0501-S3; MW-0605-S1, MW-0605-S2 and MW-0605-B1; and MW-0617-S1, MW-0617-S2 and MW-0617-B1.

In order to evaluate the effects of possible temporary changes to groundwater levels due to precipitation events and barometric pressure changes the study will run for a period of at least one month. Barometric pressure and rainfall data will be obtained from the weather underground network for a weather station located approximately 0.5 miles from the Facility (<http://www.wunderground.com/US/IN/Kokomo.html>).

Methods

Transducers will be connected to a datalogger that for security will be placed under a housing that is bolted to the ground. At installation, the datalogging pressure transducers will be set to record the pressure data at 5 minute intervals. This frequency should be sufficient to observe trends due to ongoing pumping and also short term responses due to other local effects (i.e. short term variable pumping).

At installation, depth to water will be measured at each monitoring well and the potentiometric surface elevation will be calculated. This elevation will be used to set the initial measuring point for the pressure transducer. The pressure transducer will be lowered into the well to a depth approximately 2 feet from the bottom of the well or, to a depth approximately 20 feet below the measured potentiometric surface, whichever is shallower. All pressure transducers will begin recording data at the same starting time, which should be at least 30 minutes after the last transducer has been placed to allow the pressure transducer to equilibrate in the well. A security cable will be attached from the pressure transducer to the well cap or well seal. The security cable will consist of a static material (e.g., stainless steel cable) to provide an immobile base for the pressure transducer.

Once the pressure transducers are in place they will be monitored on a weekly basis. During each monitoring visit, depth to water will be measured in each monitoring well and the data for the previous week will be downloaded onto a portable personal computer or handheld personal digital assistant. These visits will accomplish two things: verification that the transducers are operating correctly and continued baseline line measurements for transducer calibration.

In combination with the weekly monitoring, the weather station data will also be obtained on the same day as the weekly Facility visit. This will insure that the weather station was continually operating and that the desired data are available.

If possible, the shut-down of all known water users will be coordinated to occur during the second week of the test. Shutting down pumping during the second week of the test will allow one week of background data to be collected prior to changing conditions and will also insure that the data loggers are working correctly. This will also allow sufficient time for a second shutdown test should the need arise or other factors occur.

Data Analysis

After each data download, the data will be plotted in a simple head versus time graph to identify any short duration changes and observe long term trends in the data. Significant changes will be noted and a preliminary evaluation will be made to determine possible causes for the observed changes.

At the conclusion of the test, the barometric efficiency of each well will be calculated. Barometric efficiency is calculated as follows:

$$BE = \frac{\Delta h}{\Delta(p_a / \lambda_w)} * 100\% \quad (1)$$

Where:

BE = barometric efficiency

h = measurement of head

p_a = atmospheric pressure

λ_w = unit weight of water

Once the barometric efficiency of each well is calculated, the data for each well will be corrected to remove the effects of barometric change. The correction is accomplished by solving equation 1 for change in head and applying the change to the data set.

$$\Delta h = \frac{BE}{100\%} * \Delta(p_a / \lambda_w)$$

After data have been corrected, the corrected data will be plotted in a head versus time graph to determine if any changes in head can be attributed to precipitation or pumping.

The corrected data will be used to calculate the horizontal gradients between each S1 series, S2 series, and B1 series well. The calculated gradients will be plotted versus time to determine if a change in gradient is observable during the study period.

The corrected data will also be used to calculate vertical gradients within each monitoring well nest. Vertical gradients will be calculated from the S1 to the S2 wells, the S2 to B1 wells and the S1 to B1 wells. The vertical gradients will be plotted versus time to determine if a noticeable change in gradient can be observed at each well series.

At the conclusion of the study and data analysis, the results and findings will be documented for USEPA.