UPDATED WATER USE SURVEY REPORT
FORMER YORK NAVAL ORDNANCE PLANT
1425 EDEN ROAD, SPRINGETTSBURY TOWNSHIP
YORK, PENNSYLVANIA

Prepared for:

Former York Naval Ordnance Plant Remediation Team

March 2018
Revised September 2018

Prepared by:

Groundwater Sciences Corporation
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LIST OF ACRONYMS AND ABBREVIATIONS

COC	constituents of concern
CPA	Central Plant Area
CSM	conceptual site model
DCNR	Department of Conservation and Natural Resources
EDU	equivalent dwelling unit
FOIA	Freedom of Information Act
fYNOP	former York Naval Ordnance Plant
GIS	geographic information system
gpd	gallons per day
GSC	Groundwater Sciences Corporation
Harley-Davidson	Harley-Davidson Motor Company Operations, Inc.
HHRA	human health risk assessment
Hilderbrand	Hilderbrand Machine Company, Inc.
Langan	Langan Engineering and Environmental Services, Inc.
LUA	land use area
MCL	maximum contaminant levels
MSC	medium specific concentration
NPBA	Northern Property Boundary Area
NWIS	National Water Information System
PADEP	Pennsylvania Department of Environmental Protection
PaGWIS	Pennsylvania Groundwater Information System
PCE	tetrachloroethene
REWAI	R.E. Wright Associates, Inc.
REWEI	R.E. Wright Environmental, Inc.

SAIC	Science Applications International Corporation
SPBA	Southern Property Boundary Area
SRBC	Susquehanna River Basin Commission
SRI	Supplemental Remedial Investigation Groundwater Report (Part 2)
TCE	trichloroethene
TGM	Technical Guidance Manual
USACE	U.S. Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	volatile organic compounds
WPL	West Parking Lot
WRP	Water Resource Portal
WUDS	Water Use Database System
WWTP	Wastewater Treatment Plant
YCEMA	York County Emergency Management Agency
YWC	York Water Company

1 INTRODUCTION

This report presents the results of an updated water use survey for the former York Naval Ordnance Plant (fYNOP or Site) located at 1425 Eden Road, Springettsbury Township, York, Pennsylvania and the surrounding vicinity (**Figure 1)**. The fYNOP has been the subject of extensive environmental remediation activities since the mid-1980s including a previous water use survey that was completed in 2005 (Langan Engineering and Environmental Services, Inc. [Langan] 2005a/b). This report was prepared for Harley-Davidson Motor Company Operations, Inc. (Harley-Davidson) with U.S. Corps of Engineers (USACE) review and guidance (collectively the fYNOP Remediation Team).

The March 2018 version of this report was reviewed by Pennsylvania Department of Environmental Protection (PADEP). In an email dated July 20, 2018, PADEP requested that a private supply well that is not used for drinking be added into the report. As documented in this revised submittal of the report, the well is located to the southeast of the fYNOP and outside the area of the fYNOP groundwater plume.

1.1 Background

The search area used for the 2005 survey completed by Langan consisted of areas projected to be one-mile downgradient (south and west) of the property. The search area boundary is shown by the yellow line on **Figure 1 of Appendix A**. The survey documented no public water supply wells, springs, or surface water intakes within the search area; however, private wells and springs were identified. The 2005 report confirmed that public water from York Water Company (YWC) was provided and available throughout the search area.

1.2 Purpose and Scope of the Updated Water Use Survey

The purpose of this water use survey is to update the findings of the 2005 survey and identify existing water supplies (wells or springs) that could be exposed to contaminated groundwater from the fYNOP for the groundwater human health risk assessment (HHRA) (NewFields, 2018) and the Proposed Plan – Final Remedy, which the fYNOP Remediation Team anticipates submitting during the second half of 2018.

This report also documents water use conditions that have changed at the fYNOP Site since the completion of the 2005 survey. For example, information is provided on the connection to YWC public water of a residence that has a private supply well and is located to the northeast of fYNOP. In addition, site characterization data gaps were addressed during the Supplemental Remedial Investigation (SRI) for groundwater (Part 2) and the conceptual site model (CSM) was updated since the completion of the 2005 survey, which are included in the SRI Part 2 report (Groundwater Sciences Corporation [GSC], 2018). Using the updates and the modified CSM, Subsection 1.3 identifies the area potentially within the influence of the fYNOP groundwater plume that was used to further refine the results of the updated survey. Information on local water use ordinances for the area of the fYNOP Site is included in Subsection 1.4.

Information for the updated survey was obtained from public sources/agencies, previous well and surface water use surveys and investigations at the fYNOP Site. In addition, questionable private water supplies that were identified by the 2005 survey were reevaluated, either through field reconnaissance or additional research, and the water use information was incorporated into the updated survey.

The search area used for the updated survey was developed based on years of data and professional judgement, and the search area extends approximately one mile to the north of the fYNOP Site and one mile hydraulically downgradient with respect to groundwater flow (south and west) of the fYNOP Site. The search area was limited to approximately 0.1 miles or 500 feet to the east of the fYNOP property because data establishes that it is hydraulically upgradient with respect to groundwater flow. The boundary of the updated search area is shown by the red line on **Plate 1** and covers portions of five municipalities whose boundaries are illustrated by white lines (Springettsbury Township, Spring Garden Township, Manchester Township, North York Borough and York City). As shown on **Plate 1**, the search area for the updated survey is generally consistent with the 2005 survey, except it was expanded to the north to address the potential for groundwater plume migration from the fYNOP Site in this direction. The search area was selected and the search was completed prior to the completion of studies associated with the SRI Part 2 that refined and better defined the limits of the migration of Site-impacted groundwater, and therefore covers areas that have since been eliminated by the updated CSM. While this resulted in searching a much

larger area than ultimately necessary, it allowed the results of the SRI Part 2 to be quickly applied to the water supply research conducted.

The updated survey includes the assessment of surface water use within the search area, and was further extended downstream of the search area along Codorus Creek and approximately five miles downstream of the confluence of Codorus Creek and the Susquehanna River. A map showing the portions of Codorus Creek and the Susquehanna River that were included in the survey are highlighted in yellow on **Figure 2**.

The updated survey was conducted in the following manner:

- Water supplies and wells identified by previous investigators were reviewed. Shape files and databases from the figures included in the reports described in Subsection 2.1 were obtained and incorporated into the findings. Much of that data was the result of the 2005 survey. Where new information was available to GSC regarding those water supplies or wells through field verification or by other means, corrections were made and the changes listed in the text of this report.

- Public sources of water supply data and well records were obtained, compiled, and summarized. An exhaustive search of available databases, personal communication with data managers, and inquiries of numerous agencies described in Subsection 2.2 resulted in a list of wells and water supplies compiled for this investigation that are shown on **Plate 1** and summarized on **Table 1**.

- An updated list of water supplies was compiled and summarized in Subsection 2.3. The locations are posted on **Plate 2**, and the data is summarized on **Table 2**.

The survey results were refined by comparing the updated list of water supplies that were identified in the search area (shown by the red line on **Plate 2**) to a smaller search area that is considered within the influence of the fYNOP groundwater plume based on current groundwater use conditions. This refinement resulted in the identification of water supplies summarized in Subsection 2.4 that could be exposed to contaminated groundwater from the fYNOP.

1.3 Area of the fYNOP Site Groundwater Plume Considered for the Updated Water Use Survey

After completion of the SRI Groundwater Report Part 1 for the fYNOP (SRI Part 1), there were data gaps that left the lateral extent of Site-related constituents of concern (COCs) partially undefined. These data gaps were successfully addressed as a result of the investigations conducted in 2012, 2013, 2014 and early 2015 and reported in the SRI Part 2. The area of the fYNOP groundwater plume considered for updating the water use survey included in this report were established concurrently with the SRI Part 2 investigations so that the HHRA could proceed efficiently after the completion of the SRI Part 2. As a result, the areas searched included many areas that were eventually eliminated as groundwater pathways from the Site, however, for completeness of the process, discussion of the larger search area remains in this report.

A CSM search area was established as part of this investigation/survey as the area that could be impacted by the fYNOP plume. The CSM search area was developed using professional judgement and applying the CSM detailed in the SRI Part 2 (GSC, 2018), conservatively including the limits of the combined COC plume and applying the potential for household water supply usage in the areas surrounding the fYNOP plume. For a complete description of the CSM setting forth the physical characteristics of the study area, and the mechanisms affecting contaminant fate and transport of COCs, please refer to Section 4 of the SRI Part 2 (pp. 170-184).

The CSM search area is indicated by the yellow line illustrated on **Figure 3** and **Plate 2**. **Figure 3** also shows the lateral extent of the composited trichloroethene (TCE) / tetrachloroethene (PCE) plume defined by the CSM for the fYNOP Site, which is one factor that was used to develop the limit of the search area, and groundwater elevation contours that are representative of the groundwater gradient in the project area.

The boundary of the CSM search area for the water use survey is consistent with the boundary of the area that was used in the HHRA for groundwater and the boundary that will be used in the Proposed Plan – Final Remedy. In addition, the area within the boundary was divided into seven on- and off-site Land Use Areas (LUAs). Current and likely future use scenarios and hypothetical

future potable groundwater uses are evaluated for each of the seven areas in the HHRA to assist remedy selection in the Proposed Plan – Final Remedy

The CSM search area is further described below and the following numbered descriptions correlate with the same numbered locations shown on **Figure 3**.

1. In the Northern Property Boundary Area (NPBA), recent studies indicate that natural groundwater flow is southwestward onto the Site; any former up-gradient residential water supply wells that were impacted by Site-related COCs were the result of pumping reversing the natural gradient. Those impacted wells have not been used as water supplies since prior to groundwater investigations, which started in 1986. Operation of the fYNOP groundwater extraction wells in the NPBA succeeded in reversing the Site-related impacts. The potentially impacted groundwater supply area boundary line was established along a geologic fault located 200 to 300 feet north and up-gradient of the fYNOP property line. This fault represents a rock-type change that is believed to limit the propagation of pumping influences in the aquifer.

2. Site groundwater migrates from east to west, from high topographic areas underlain by quartzitic sandstone to the carbonate aquifer that underlies the western half of the Site. Solvents were potentially released along the eastern perimeter of the Site, however contaminant migration along the eastern boundary is westward, in the direction of groundwater migration. The eastern boundary of the potentially impacted groundwater supply area boundary line was selected as North Sherman Street, which is upgradient and a minimum of 400 feet east of the fYNOP property line.

3. Along the southern third of the eastern boundary, groundwater migration is southwestward, as illustrated by the plume concentrations starting at monitoring well MW-15, and migrating toward the Southern Property Boundary Area (SPBA).

4. Detailed investigations in the SPBA indicate groundwater migrates vertically downward into the underlying carbonate aquifer before migrating off-Site. Concentrations of Site-related COCs were traced southwestward from the SPBA in the carbonate aquifer, as indicated by

COC concentrations at MW-110 and at wells on the former Cole Steel property south of Route 30. This flow direction is further corroborated by the trace of dye concentrations that were injected into well MW-64D, which was drilled into the carbonate in the SPBA. Residual dye was traced southwestward across Route 30. North Sherman Street continues to represent a conservative and convenient eastern boundary for the potentially impacted groundwater supply area.

5. The direction of groundwater flow on the south side of Route 30 is westward toward Codorus Creek. The lateral extent of COCs (TCE and PCE) above PADEP medium specific concentration (MSC) for used aquifers is limited to 500 to 700 feet south of Route 30. Interstate 83, from where it crosses North Sherman Street to where it crosses Codorus Creek, is considered a convenient conservative southern limit for the potentially impacted groundwater supply area boundary line.

6. Numerous studies and observations determined that, under natural flow conditions (without the operation of the groundwater extraction system), all impacted groundwater flowing through the Site, including groundwater flowing from the SPBA, discharges to Codorus Creek. Non-carbonate Kinzers Shale eliminates the potential for development of solution channels connecting the Site to solution-prone carbonate rocks further west, and is a groundwater barrier that forces the discharge of Site-impacted groundwater to the creek and prevents further westward migration. There is a potential that Site-impacted groundwater may pass under and slightly west of Codorus Creek, as it travels through solution channels on its path to discharging to the creek. The boundary of the area that groundwater supplies may potentially be impacted by the Site groundwater plume was drawn along the eastern edge of the Kinzers Shale where it is close to the creek, and up to 1000 feet west of the creek immediately west of the Site. The boundary position west of the Site was limited by the shallow depth of the carbonate aquifer in this area.

7. The northern extent of carbonate rocks along Codorus Creek is limited by an east-to-west trending fault and the occurrence of non-carbonate rocks with limited transmissivity to the

north. The occurrence of the fault and rock type change forces northward migrating Site-impacted groundwater to discharge to the creek south of the fault.

8. Operation of the groundwater extraction wells in the West Parking Lot (WPL) captures Site-impacted groundwater flowing westward through the Central Plant Area (CPA) and the WPL. The potentially impacted groundwater supply area boundary line to the west of Codorus Creek was established not considering the operation of the groundwater extraction wells, and allows for groundwater migration from the Site as if the extraction system were not in place.

1.4 Local Water Use Ordinances

The local ordinances from the five municipalities that are within the search area for the updated survey were reviewed by GSC to determine if they have institutional controls in place that prohibit the use of groundwater and/or require connection to the public water supply.

The results of the review indicate that, although the municipalities do have ordinances in place regarding land and water use planning, the ordinances do not prohibit groundwater use and only require connection to the public water supply in some instances. For example, all mobile homes and mobile home parks in Spring Garden Township (southeast of fYNOP) shall be connected to a public water supply (see §195-6 Water Supply) and existing/new buildings in the Mt. Zion Water District portion of Springettsbury Township (east of fYNOP) shall connect to the YWC supply if located within 150 feet of any public street or easement in which is laid a public water main (see §319-3 Connections to Water System).

In summary, the municipalities located within the search area do not have local ordinances in place that fully eliminate potential groundwater use. In order to do so, the ordinance would need to satisfy all of the following performance criteria from the PADEP Land Recycling and Environmental Remediation Standards Act (Act 2) regulations published in 25 Pa. Code § 250 and guidance published in the Technical Guidance Manual (TGM):

- Establish a specific geographic area to which the ordinance relates.

- Establish prohibition of groundwater use for drinking water and agricultural purposes.
- Require that all properties in the specified area connect to community water supply for the above uses.
- Notification to water suppliers servicing the area of the conditions of the ordinance.
- Provide for notification to the PADEP if and when the ordinance is modified or eliminated.

2 WATER USE SURVEY

This chapter describes the process used to update the water use survey for the fYNOP area.

2.1 Previously Identified Water Supply Wells and Springs

This subsection describes the water supply wells and springs that were identified within the search area by previous surveys and during various other investigations associated with the fYNOP Site. Any updates on the status of these water supplies was as a result of recent follow-up activity performed by GSC are noted in this section.

In March 2004, a *Well and Surface Water Use Survey* report was prepared by Langan (Langan, 2004). The report included the results of an April 2003 review of readily available public information databases, records and information requested from various public agencies to determine well and surface water use for an area within one-mile downgradient (south and west) of the fYNOP Site (see Figure 1 – Area Wells in **Appendix A**). In addition, water use information from the following R. E. Wright Associates, Inc. (REWAI) reports was included in the report:

- January 1987 – Interim Report Regarding the Ongoing Investigation of Groundwater Quality at the Harley-Davidson, Inc. York Facility (REWAI, 1987a)

- August 1987 – Status Report to Pennsylvania Department of Environmental Resources Regarding the Harley-Davidson, Inc. York Facility (REWAI, 1987b)

- August 1988 – Report of Investigations in the Northeastern Property Boundary, TCA Tank and Containment Areas of the Harley-Davidson, Inc. York Facility (REWAI, 1988)

In December 2005, a *Final Well and Surface Water Use Survey* report was prepared by Langan (Langan, 2005a/b). The report provided updated well and surface water use information from a well survey questionnaire that was mailed to property owners and a door-to-door survey in the areas located immediately north, east and southeast of the fYNOP Site. In addition, the results of off-site sampling performed by Science Applications International Corporation (SAIC) in a memorandum dated October 28, 2005 were included in the Langan report (*Expedited Site-Wide RI/FS, Off-Site*

Private Well Sampling) (SAIC, 2005). The survey results are shown on two figures in the Langan report, which are included for reference in **Appendix B** (Figure 1 – Results From Well Survey Questionnaire and Figure 2 – Surface Water Locations).

No public water supply wells or surface water supplies were identified in the March 2004 and December 2005 Langan reports. In addition, public water from YWC was confirmed to be available throughout the survey area. The following is a summary of the private wells and springs that were identified and sampled by Langan and SAIC:

- More than 70 private non-water supply wells were identified (e.g., test wells or monitoring wells) (see Figure 1 in **Appendix B**).

- Six supply wells designated RW-1 through RW-6 were sampled as part of investigations at the fYNOP Site (see Figure 4-1 in **Appendix C** and Plate 1 in **Appendix D**).

    - Well RW-1, located to the northeast of the fYNOP Site, in the NPBA no longer exists (see GSC field report in **Appendix E**), and previously supplied water for a turkey farm prior to the beginning of investigations (1986).

    - RW-2 and RW-3 are former residential water supply wells located in the NPBA which had not been used since prior to the beginning of investigations in 1986. These wells still exist, and have been used as monitoring points.

    - RW-4 is also located in the NPBA. The well was used as the residential water supply until October 2007 when the fYNOP Remediation Team paid to have the residence supplied by RW-4 to be connected to the YWC supply. RW-4 is currently connected to an exterior spigot and is used occasionally for irrigation; however, it has been sampled regularly for decades, and has never contained Site-related COCs. The fYNOP Remediation Team has made an offer to the property owner to abandon this well at the fYNOP Remediation Team's expense.

    - RW-5 is located to the southwest of the fYNOP Site at the Giambalvo auto dealership. The fYNOP Remediation Team paid to have the business connected to

public water in January 1999. The well pump and piping have been removed and the well is maintained as a monitoring point for the fYNOP project.

- RW-6 (referred to as "Quarry" on Sand Bank Road) is located to the north of the fYNOP Site in the area of a quarry on Sand Bank Road (see location on Plate 1 in **Appendix D**), and was sampled by R.E. Wright Environmental, Inc. (REWEI) in 1995, as part of "residential water supply" monitoring (REWEI, 1995). In April 2015, field reconnaissance by GSC in the area of the mapped location of RW-6 at the quarry on Sand Bank Road and subsequent discussions with a representative of the current owner of the Sandbank Quarry property (Kinsley Construction, Inc.) confirmed that RW-6 still exists, and is a well that is being monitored periodically in the northern portion of the quarry as part of the fYNOP Site investigation (i.e., the Kinsley Well). The well is not used as a water supply for any purpose, and no other wells are known to exist at the property (see GSC field report in **Appendix E**). The Kinsley representative also indicated that Sandbank Quarry property is not connected to public water and the quarry was formerly owned by and presumably known as York Silica Sand from 1990 to 2004.

  RW-6 is also referenced in Langan's 2004 and 2005 water use survey reports, which shows RW-6 near an abandoned quarry owned by Standard Concrete Products, located south of fYNOP (see Figure 1 in **Appendix A**). Langan's report contains no explanation or data on RW-6. In April 2015, a representative of Standard Concrete Products indicated that they are not aware of a former or existing well at the property and that the property uses public water (see GSC field report in **Appendix E**). Therefore, it is likely that the location of RW-6 shown in the Langan reports is incorrect and resulted from confusion regarding which quarry was associated with the RW-6 location.

- Four industrial supply wells were identified by the Langan investigation:

  - Two wells were identified with an ownership by York Silica Sand, the former name of the Sandbank Quarry located northwest of fYNOP. The existence of these wells

was not confirmed by the Langan investigation. As indicated above, GSC met with representatives of the Sandbank Quarry property (formerly known as York Silica Sand) in April 2015, and determined that no supply wells exist on the property.

- One industrial supply well was identified for Hilderbrand Machine Company, Inc. (Hilderbrand), which was located west of fYNOP. The Hilderbrand well was abandoned in the late 1980s after the building was connected to public water.

- The mapped location of the Memco supply well (well ID 335201) is to the southeast of fYNOP, to the south of I-83 (**Plate 1**). Water from the Memco well was reportedly used for fabrication purposes by Memco (a.k.a., American Kitchens and Granite, Inc.) and bottled water was used for drinking/cooking (Langan, 2005a). GSC was not able to confirm information on the current status of the Memco well through field confirmation and/or personal contact. GSC confirmed that American Kitchens and Granite, Inc. is not located at the designated location. In addition, information provided to GSC by the PADEP indicates that PADEP does not have any water use reports for the Memco well in their database and the well was last in use sometime prior to 2000.

- Two domestic supply wells include Ward Investment (well ID 152924) and Leroy Mortorff (well ID 152914). The wells are located in York City, southeast of the Site. The Ward Investment well is reportedly used for sanitary purposes and bottled water is used for drinking.

- Thirty-one private wells were identified by Langan (Langan, 2005b) as a result of a survey mailed to local residents. Twenty-two of the 31 wells are located on residential properties that are connected to public water and the wells are not used for drinking or cooking. Nine of the 31 wells were reportedly used for drinking and cooking. The quantity of water used from these types of residential properties is relatively low and estimated to be 300 gallons per day (gpd) per equivalent dwelling unit (EDU). Eight of these nine wells are located to the south of Arsenal Road in the vicinity of Eleventh Avenue (southeast of the fYNOP). One of these nine wells (RW-4) is located along Paradise Road (northeast of the fYNOP).

Subsequent to the submittal of the December 2005 report, the property on which well RW-4 is located (Folk) was connected to public water, as stated above.

  - In June and August 2005, SAIC collected water samples for laboratory analysis of volatile organic compounds (VOCs) at five properties located along Eleventh Avenue (southeast of the fYNOP Site) and one property along North Sherman Street (east of the fYNOP Site). No VOCs were detected in the water samples at concentrations above the United States Environmental Protection Agency (USEPA) maximum contaminant levels (MCLs).

- Seven private wells were identified by REWAI to the northeast of fYNOP (REWAI, 1987a). Five of these wells are located along Park Avenue (46-000-08-0052-00, 46-000-08-0053-00, 46-000-08-0057, 46-000-08-0058 and 46-000-08-0059) and two of these wells are located along Pleasant View Drive (46-000-08-0016-00 and 46-000-08-0040-00). The use of these wells was not confirmed by Langan. In July 2015, GSC verified that the residential property located at 2101 Pleasant View Drive (46-000-08-0016-00) is connected to public water and the well is not used. The other wells were not checked.

- Nine springs were identified. Eight of the nine springs (S-1 through S-8) were sampled as part of investigations at the fYNOP Site and are shown on Figure 4-1 in **Appendix C** from REWAI (August 1987).

  - Springs S-1 through S-4 are located on the fYNOP Site, and therefore use is currently controlled. These springs were not used as water supplies since the beginning of fYNOP investigations (1986), and there is no information suggesting they were used prior to that time. A search for these springs in October of 2016 revealed that S-1 was no longer accessible, since it was located in the basement of a building that had been razed, S-2 and S-4 were dry, and S-3 no longer exists likely due to nearby construction.

  - Springs S-5 through S-8 are located to the north-northeast of the fYNOP Site in the NPBA. They were historically used as primary water sources; however, the

properties occupied by springs S-5, S-6 and S-7 are currently serviced by public water. Field observations by GSC of the S-5 area in May 2014 showed no indication of a spring that could be used as a water supply at this location (see field report in **Appendix E**). Spring S-6 (Tate), which feeds a pond, and spring S-7 have been monitored as part of the fYNOP investigations.

Spring S-8 is labeled as Treadway on Figure 4-1 in the August 1987 REWAI Report (**Appendix C**). **Appendix F** includes a copy of REWAI (January 1987), in which Figure 2-1 shows the location of a primary water supply, which is described in the text as "Treadway – Sand Bank Road – hand-dug well used as primary water supply" (page 12). It is suspected based on the recollection of the project manager at the time that the January 1987 REWAI report erroneously referred to Treadway as a hand-dug well used as a water supply and that the August 1987 REWAI report corrected the error and referred to the water supply as a spring. A search of the designated area was conducted by GSC in April 2015 (see field report in **Appendix E**). No trace of a spring, hand dug well or pond was found. No water supply or residence requiring a water supply exists in this area. The residence that occupied this property in the late 1980s has been removed.

- A ninth spring was identified to the northwest of the fYNOP Site at Rutter's Dairy, Inc.

No responses were received from more than 150 property owners/tenants that were sent the original and follow-up well survey questionnaires. The locations of no responses, as well as other results from that survey are shown on Figure 1 from the December 2005 Langan report (Results From Well Survey Questionnaire) that is included in **Appendix B** of this report.

2.2 Updated Water Use Survey

The procedures used and results of the updated water use survey performed by GSC are presented in this subsection of the report. Water use information for the survey was obtained from the following sources:

- Pennsylvania Groundwater Information System (PaGWIS) database maintained by the Pennsylvania Geologic Survey
- PADEP
- Susquehanna River Basin Commission (SRBC)
- YWC
- Emergency Management Agencies
- United States Geological Survey (USGS)
- Previous investigations

Each identified water use location was entered into the GSC geographic information system (GIS) database for the fYNOP Site, which was used to manage, tabulate and map the water use information. It is noted, that the existing wells located at the fYNOP Site (e.g., monitoring wells, collection wells, etc.) were not the focus of the survey and are only referenced when necessary for clarification purposes.

2.2.1 PaGWIS Database

On January 27, 2014, data for more than 24,500 water wells from the PaGWIS database for York County were downloaded and imported into the GSC database. The PaGWIS database includes well data that was submitted from various sources, including drillers, starting in 1969. In 2005, the PaGWIS database was updated with skeletal water well data (owner name, well address, county, municipality, driller and date drilled). No geographic coordinates were entered into PaGWIS for these records.

Approximately 14,500 of the 24,500 water wells (60%) have geographic coordinates that were used to determine if they fall within the survey area. Using those coordinates, more than 150 wells were determined to fall within the survey area. Out of the remaining 10,000 wells, 320 wells were determined to be located within the five municipalities that fall within the survey area. Geographic

coordinates for the 320 wells were assigned by GSC based on address information and/or sketch maps showing the wells on electronic copies of water well completion reports linked to the PaGWIS.

According to a representative of the Department of Conservation and Natural Resources (DCNR), some of the well records submitted to DCNR between 2005 and 2009 were not saved in the PaGWIS database due to a system malfunction. To address this issue, the DCNR provided GSC with electronic copies of individual water well completion reports that were submitted during this time period, which consisted of 69 reports for wells that are located within the five municipalities that are covered by the survey area. GSC reviewed these reports, determined that 19 of 69 wells fall within the survey area based on the owner's address, and assigned identification numbers and geographic coordinates to each of the wells (A01 through A013, A19, A20, A21, A26, A27 and A55).

Information from the PaGWIS database is useful as an initial step to identify wells; however, the data has limitations and field verification was necessary to confirm wells of interest and the use of those wells.

The review of the PaGWIS data identified almost 200 wells that fall within the survey area. Information for all of the identified wells is presented on **Table 1**. Note that the DCNR has clarified that well uses which are listed in the PaGWIS database as "MINE" are most likely "monitoring wells", which is the case for all of the "MINE" wells identified by this survey.

The wells and the corresponding identification numbers from **Table 1** are shown on **Plate 1**, with the exception of wells that were listed as abandoned and wells that were listed with Harley-Davidson as the owner. Two well use types are differentiated on **Plate 1** to distinguish the relative importance for the water use survey. The yellow-colored wells were identified as water supply wells and the green-colored wells were identified as non-water supply wells (e.g., observation, mine/monitoring, test, etc.). Other than acknowledging the non-water supply wells for the sake of completeness, they are thereafter excluded from this survey because they are not used as water sources.

As a result of fYNOP investigations, GSC is aware of numerous off-site monitoring and characterization wells located in the vicinity of the fYNOP property which were not picked up by the PaGWIS database search. Examples include monitoring wells located at the Rutter's retail store on the northwest corner of Arsenal Road and North Sherman Street (southeast of fYNOP), the Kinsley Well in the Sandbank Quarry (north of fYNOP) and some of the monitoring wells located at the former Cole Steel property located to the south of Arsenal Road between Eden Road and North Sherman Street (south of fYNOP). None of these wells are water supply wells or groundwater extraction wells, and they were installed for monitoring purposes at these facilities. While the exact geographic coordinates of these wells are known, they were not added to **Plate 1** because they are not considered to be water supplies.

The following information is provided for clarification purposes for some of the water supply wells shown on **Plate 1**:

- Based on the geographic coordinates in the PaGWIS database, well ID 165113 was identified as a water supply well to the southwest of the fYNOP Site along the north side of US Route 30. However, the PaGWIS coordinates appear to be incorrect and it is likely that the well is located to the north of the fYNOP Site at the York Silica Sand facility who is listed as the owner of the well. In addition, GSC has not observed a well in the area shown on **Plate 1** during extensive field reconnaissance completed during fYNOP Site investigations (e.g., geophysical survey, stream sampling, etc.). It is noted that five other water supply wells were identified at the York Silica Sand facility (well ID's 165110 and 354731 through 354734). As mentioned previously herein and in the GSC field report in **Appendix E**, no water supply wells exist at the Sandbank Quarry (formerly known as York Silica Sand facility) and these wells were eliminated.

- Water supply well 261839 (owner Litton Industries) is shown to the southeast of the fYNOP Site along the south side of US Route 30 based on geographic coordinates in the PaGWIS database. However, the PaGWIS coordinates appear to be incorrect and it is likely that the well is located to the southwest of the designated location where three other "MINE" wells are shown that have the same owner name (165137, 165138 and 165139). Three other

"MINE" wells were identified on this property (165134, 165135 and 165136), which is known as the former Cole Steel property where off-site investigations associated with the fYNOP Site were performed. Because no water supply wells are known to exist on the former Cole Steel property, as a result of considerable discussions between the property owners and fYNOP investigators, well 261839 is most likely one of the many monitoring wells installed on this property and was therefore eliminated from the survey.

- Two water supply wells were identified on the west side of the fYNOP Site (34780 and 34779) with AMF Incorporated listed as the owner name. Although the existence of these two wells was identified during discussions between investigators and former employees at the fYNOP Site, they have not been located, and are not in use as water supplies.

- The two non-water supply wells identified at the York Wastewater Treatment Plant (WWTP) located to the west of the fYNOP Site on the west side of Codorus Creek (160577 and 160567) do not exist based on information obtained from the York WWTP by GSC in February and March 2013 (see GSC field report in **Appendix G**).

- The Langan survey determined that the water supply well identified at the York WWTP (329521 – Hilderbrand) was abandoned in the late 1980s after connecting to public water. The Hilderbrand property is located to the north of the York WWTP. Thus, the PaGWIS coordinates for well 329521 appear to be incorrect.

- Three water supply wells were identified to the southeast of the fYNOP Site (260757, 260758 and 260759) with "Brewery" listed as the owner. Based on the shallow depths of these wells (27 to 30 feet deep), they are suspected to be monitoring wells.

2.2.2 PADEP

On January 30, 2014, the PADEP provided information from the Water Use Database System (WUDS) on regulated water withdrawals within the survey area. The PADEP regulates water withdrawals under 25 Pa. Code Chapter 101, which apply to public water supply agencies,

hydropower facilities and any person whose total water withdrawal exceeds an average rate of 10,000 gpd in any 30-day period.

The information provided by the PADEP indicated that there are no public water supplies within the survey area. However, the following PADEP-regulated private water withdrawals were identified and are shown on **Plate 1**:

- Well 335201 (Memco) was identified as an active groundwater withdrawal for industrial use. The location plots approximately 3,000 feet southeast of the fYNOP property line on the south side of I-83.

- Well 332114 (Rutter's Dairy Inc., a.k.a., CHR Corporation and Rutter's Brothers Dairy, Inc.) is a spring that was identified as an active groundwater withdrawal for industrial use. It is located approximately 4,200 feet west of the northwest corner of the fYNOP property, west of I-83. In addition, a water supply well was identified as being drilled at the Rutter's Site (Well No. 1 – Meadow Well) during a review of the PADEP Southcentral Regional Office files in August 2013 by GSC. Its location is shown on **Plate 1**. PADEP records indicate that the application that was submitted to permit Well No. 1 as a withdrawal well was withdrawn in December 2006.

- Well 329521 (Hilderbrand) was identified as an active groundwater withdrawal for industrial use; however, as discussed in the previous section, this well was abandoned in the late 1980s after connecting to public water service.

- Multiple well entries with Harley-Davidson as the owner were identified as collection wells. Extraction wells CW-1, 1A, 2, 3, 4, 5, 6, 7, 7A, 8, 9, 13, 15A and 17 and the Softail lift station were identified as active groundwater withdrawals for industrial use. Note that this is not a list of currently active extraction wells, but a list as identified by PADEP. These wells are within the fYNOP property lines, and are not shown on **Plate 1**.

Additional information on the above withdrawals (excluding the fYNOP Site collection wells and lift station) is presented on **Table 1.** The geographic coordinates for the Memco, Rutter's and

Hilderbrand withdrawals were assigned by GSC based on information available from the PADEP eFACTS web site (http://www.ahs.dep.pa.gov/eFACTSWeb) and the PADEP file for the Rutter's Site and are shown on **Plate 1**.

The PADEP identified one regulated surface water withdrawal that is located along the east side of the Susquehanna River, approximately 1.5-miles downstream of the confluence of Codorus Creek and the Susquehanna River (**Figure 2**). Specifically, Texas Eastern Transmission LP (ID 1036988) was identified as having a surface water withdrawal from the Susquehanna River. Based on information provided by the PADEP to GSC on March 6, 2014, this withdrawal was only used in 2011 and will not be used again. Additionally, the PADEP has requested a report from Texas Eastern Transmission LP for the use of the withdrawal and a termination of the source registration from the applicant.

In an email dated July 20, 2018 regarding their review of the March 2018 version of this report, PADEP indicated that a private supply well that is not used for drinking exists within the search area at the Baughman's U-Pull-It Auto Parts property. As shown on **Plate 2**, the well is located to the southeast of the fYNOP and to the south of I-83. In addition, the well is not included in the PaGWIS database and the DCNR does not have a record of the well.

2.2.3 SRBC

On February 4, 2014, GSC accessed the SRBC online Water Resource Portal (WRP) to obtain water use information within the survey area (http://gis.srbc.net/wrp/). The SRBC regulates groundwater and surface water withdrawals that exceed a 30-day average of 100,000 gpd and consumptive use (defined as loss of water from a groundwater or surface water source and including water that is purveyed through a public water system) that exceed a 30-day average of 20,000 gpd.

Other than the identification of the approved groundwater withdrawals at the fYNOP Site collection wells (CW-1, 1A, 2, 3, 4, 5, 6, 7, 7A, 8, 9, 13, 15A, 16, 17 and 20) and the Softail dewatering system, a search of the WRP did not identify any approved groundwater or surface water sources in the survey area. One approved consumptive use was identified for York County Solid Waste & Refuse Authority (located to the northwest of the fYNOP Site in Manchester Township); however,

based on a review of an electronic copy of the SRBC-approved docket, the water source is the YWC public water system. In addition, no surface water withdrawals were identified within the survey area, including downstream along the identified segments of Codorus Creek and the Susquehanna River (**Figure 2**).

2.2.4 YWC

On February 4, 2014, the YWC GIS administrator provided a map showing the coverage of their service area. The map confirmed that public water service from YWC is available throughout the survey area and that YWC does not have any water sources within the survey area, including downstream along the identified segments of Codorus Creek and the Susquehanna River shown on **Figure 2**. In addition, the YWC GIS administrator indicated the water supply source for YWC is a surface water intake along Codorus Creek that is located approximately 6 miles upstream of the fYNOP Site.

2.2.5 Emergency Management Agencies

On January 29, 2014, the hazardous materials administrator for the York County Emergency Management Agency (YCEMA) was contacted by GSC. They indicated that they are familiar with surface water users in York County because they frequently respond to requests from companies that are required to prepare emergency response plans which include a notification list of downstream surface water users. The YCEMA hazardous materials administrator confirmed that they are not aware of any surface water users within the survey area, including downstream along the identified segments of Codorus Creek and the west side of the Susquehanna River shown on **Figure 2**).

On January 29, 2014, GSC requested information on surface water users from the Lancaster County EMA, covering the east side of the Susquehanna River. The Lancaster County EMA responded to GSC in a letter dated January 30, 2014, indicating that the requested records do not exist.

2.2.6 USGS

On January 28, 2014, GSC accessed the USGS National Water Information System (NWIS) mapper to obtain water use information within the survey area (http://maps.waterdata.usgs.gov/mapper) and five inactive wells were identified. Two of the wells were identified on the west side of the fYNOP Site (YO 657 and YO 659) and have field groundwater level measurements from July 1, 1971 and three of the wells were identified along the northeast corner of the fYNOP Site (YO 1169, YO 1170 and YO 1171) and have field groundwater level measurements from June 14, 1998. It is noted that these five wells were also identified in the PaGWIS database as well identifications 34779 (YO 657), 34780 (YO 659), 34791 (YO 1171), 34792 (YO 1169) and 34794 (YO 1170) and are presented on **Table 1** and **Plate 1** for reference, using the PaGWIS nomenclature.

Three active USGS stream gauge stations were identified in NWIS mapper along Codorus Creek downstream of the survey area; however, no surface water users were identified.

2.3 Summary of Updated Water Use Survey Findings

The results of the updated water use survey did not identify any new public water supplies or surface water withdrawals within the survey area. More than 50 private water supplies and one surface water withdrawal were identified from the sources described in Sections 2.1 and 2.2.

2.3.1 Private Water Supplies

The results of the updated water use survey performed by GSC were used to identify more than 50 private water supplies that are within the search area shown on **Plate 2** and summarized on **Table 2**. These water supplies were identified by PaGWIS and PADEP (colored yellow and orange) and the supplies that were identified by Langan, REWAI and SAIC (colored blue, red and orange and discussed in detail below) and do not include the non-water supply wells, colored green on **Plate 1**, and the following water supplies, colored yellow on **Plate 1**:

- Well ID 329521 (Hilderbrand) was abandoned in the late 1980s after connecting to public water.

- Well ID's 34780 and 34779 (AMF Incorporated wells at the fYNOP Site) have not been located and are not in use.

- Well ID 165113 (York Silica Sand) does not exist at the mapped location.

- Well ID's 165110 and 354731 through 354734 do not exist at the mapped locations at the Sandbank Quarry (formerly known as the York Silica Sand facility).

More than 40 known or potential private residential water supplies were identified by the Langan/REWAI/SAIC surveys and the investigations performed at the fYNOP Site. These water supplies, which have an estimated daily water usage of 300 gpd for residential EDUs, are shown on **Plate 2** and consist of the following:

- Water supply wells used for drinking and cooking (colored red).

- Water supply wells and springs located on properties where public water is used for drinking and cooking (colored blue). These wells could potentially be used as water supplies.

- Water supply wells – use has not been confirmed (colored orange).

Five hundred twenty-six (526) well survey questionnaires were sent by Langan in 2004 to properties located to the north, east and southeast of the fYNOP Site. Although public water is available from YWC in these areas, more than 30 water supplies were identified, while 158 property owners/tenants did not respond to the survey questionnaires (see Figure 1 in **Appendix B**), indicating that additional wells may exist in the canvassed area. The availability of public water in this area remains unchanged since the 2004 survey.

2.3.2 Private Surface Water Withdrawals

One PADEP-regulated private surface water withdrawal was identified along the east side of the Susquehanna River, approximately 1.5-miles downstream of the confluence of Codorus Creek and the Susquehanna River (Texas Eastern Transmission LP) (**Figure 2**). However, this surface water

withdrawal was only used in 2011 and will not be used again, according to information provided by PADEP.

2.3.3 CSM Refinements to the Updated Water Use Survey

The final step of the updated survey was to further refine the results using professional judgement and by comparing the known or potential private water supplies identified in the search area (Subsection 2.3.1) to a smaller subset of private water supplies that are within the influence of the fYNOP groundwater plume as defined by the CSM (Subsection 1.3) and whose boundary is shown by the yellow line on **Plate 2**.

These refinements eliminated as a concern the private water supplies that are located outside the search area and resulted in the identification of the following eight private water supplies that are located within the boundary of the CSM search area shown on **Plate 2**:

- North of the fYNOP property in the NPBA.
    - Residential wells RW-2 and RW-3 are former supply wells located on properties along Paradise Road that are serviced by water from YWC and have not been used since prior to the beginning of the fYNOP investigations in 1986.
    - Residential Well RW-4 is a water supply well along Paradise Road that is currently connected to an exterior spigot, and is used occasionally for irrigation; however, it has been sampled regularly for decades, and has never contained Site-related COCs. This property is connected to the YWC supply and the fYNOP Remediation Team has made an offer to the property owner to abandon this well at its expense.
    - Residential Well IDs 46-000-08-0015 and 46-000-08-0016-00 (Pleasant View Drive) are not used and the properties are connected to the YWC supply.
    - Spring S-7 (Paradise Road) has been monitored as part of the fYNOP investigations.
- South of the fYNOP property – RW-5 (Giambalvo auto dealership) is a former water supply well that is maintained as a monitoring point for the fYNOP project.

- East of the fYNOP property – Well ID 46-000-07-0008 is a water supply along the west side of North Sherman Street that has never been used for drinking and cooking (SAIC, 2005) and was sampled in June 2005 and determined to have minor detections of VOCs below the USEPA MCLs.

It is acknowledged that there are some 40 properties within the CSM search area that did not respond to the 2004 Langan survey questionnaires where the use of private water supplies was not verified. These properties are immediately north of Paradise Road, east of City View Road and North Sherman Street or southeast of Canterbury Lane and have access to public water from YWC. The area where these properties are located has been canvassed during the investigations at the fYNOP and no additional private water supplies were identified and water from the known private supplies in these areas is not being used for drinking and cooking (e.g., well ID 46-000-07-0008 along North Sherman Street). Therefore, only a limited potential exists for private water supplies at these properties and, if a supply would be present, it is unlikely that the water would be used for drinking and cooking.

3 CONCLUSIONS

A CSM search area was established as part of this water use survey as the area that could be impacted by the fYNOP plume. The CSM search area was developed using professional judgement and applying the CSM detailed in the SRI Part 2 (GSC, 2018), conservatively including the limits of the combined COC plume and applying the potential for household water supply usage in the areas surrounding the fYNOP plume.

The following conclusions were drawn based on the results of the updated water use survey:

- No public water supply wells or surface water withdrawals were identified in the updated search area, or within the smaller CSM search area where groundwater may potentially be impacted by the fYNOP plume.

- More than 50 private water supplies (wells or springs) were identified in the updated search area:

    - Seven of these supplies were reported to be used for drinking and cooking. The quantity of water used from these types of residential dwellings is relatively low and conservatively estimated to be 300 gpd per residential EDU. The supplies used for drinking and cooking are the wells located along Eleventh Avenue (southeast of the fYNOP Site), which were sampled by SAIC in June and August 2005 and found not to contain VOCs above the USEPA MCLs. There is no recent information available on the status of those supplies; however, these wells were eliminated as a concern because they are not within the CSM search area.

    - One private residential well is known to be used for non-potable purposes (occasional irrigation use). This well is referred to as RW-4, and is located north and upgradient of the NPBA. This well is within the CSM search area; however, it has been sampled regularly for decades, and has never contained Site-related COCs.

- One private surface water withdrawal was identified along the east side of the Susquehanna River, approximately 1.5-miles downstream of the confluence of Codorus Creek and the Susquehanna River (Texas Eastern Transmission LP). However, this withdrawal was only used in 2011 and will not be used again, according to PADEP.

- The following eight private water supplies are located within the CSM search area:

    - North of the fYNOP property in the NPBA

        - Residential wells RW-2 and RW-3 are former supply wells located on properties along Paradise Road that are serviced by water from YWC and have not been used since prior to the beginning of the fYNOP investigations in 1986.

        - Residential Well RW-4 is a water supply well along Paradise Road that is currently connected to an exterior spigot, and is used occasionally for irrigation; however, it has been sampled regularly for decades, and has never contained Site-related COCs. This property is connected to the YWC supply and the fYNOP Remediation Team has made an offer to the property owner to abandon this well at its expense.

        - Residential Well IDs 46-000-08-0015 and 46-000-08-0016-00 (Pleasant View Drive) are not used and the properties are connected to the YWC supply.

        - Spring S-7 (Paradise Road) has been monitored as part of the fYNOP investigations.

    - South of the fYNOP property – RW-5 (Giambalvo auto dealership) is a former water supply well that is maintained as a monitoring point for the fYNOP project. The fYNOP Remediation Team paid for the connection of this property to the YWC supply in exchange for access to monitor the well and agreement that the RW-5 would not be used as a water supply well.

- East of the fYNOP property – Well ID 46-000-07-0008 is a water supply along the west side of North Sherman Street that has never been used for drinking and cooking (SAIC, 2005) and was sampled in June 2005 and determined to have minor detections of VOCs below the USEPA MCLs.

Accordingly, there are no private or public water supplies currently impacted by COC from the fYNOP plume, and there are no anticipated potential impacts to such supplies within the relevant CSM area.

The CSM search area was considered in the development of LUAs in the Groundwater HHRA (Newfields, 2018). It is recommended that this same area be considered as the area to be used for periodic monitoring of groundwater usage during development of the Site remedy.

4 REFERENCES

GSC, 2018. Supplemental Remedial Investigation Groundwater Report (Part 2), Former York Naval Ordnance Plant, 1425 Eden Road, York, PA 17402, March.

Langan, 2004. Well and Surface Water Use Survey, Supplemental RI Workplan, Harley-Davidson Motor Company Operations Inc., York, Pennsylvania Facility, March.

Langan, 2005a. Final Well and Surface Water Use Survey, Supplemental RI Workplan, Harley-Davidson Motor Company Operations Inc., York Vehicle Operations Facility, York, Pennsylvania Facility, December.

Langan, 2005b. FOIA Exempt Materials for Final Well and Surface Water Use Survey, Supplemental RI Workplan, Harley-Davidson Motor Company Operations Inc., York Vehicle Operations Facility, York, Pennsylvania Facility, December.

Newfields, 2018. Revised Groundwater Human Health Risk Assessment, Former York Naval Ordnance Plant, 1425 Eden Road, York, PA 17402, March.

REWAI, 1987a. Interim Report Regarding the Ongoing Investigation of Groundwater Quality at the Harley-Davidson, Inc., York Facility, January.

REWAI, 1987b. Status Report to Pennsylvania Department of Environmental Resources Regarding the Groundwater Investigation at the Harley-Davidson, Inc. York Facility, August.

REWAI, 1988. Report of Investigations in the Northeastern Property Boundary, TCA Tank and Containment Areas of Harley-Davidson, Inc., York Facility, August.

REWEI, 1995. Groundwater Extraction and Treatment System Annual Operations Report For The Period July 1, 1994 Thru June 30, 1995, December.

SAIC, 2005. Expedited Site-Wide RI/FS Task, Off-Site Private Well Sampling, Memorandum, October.

TABLES

Table 2 is included in the FOIA Exempt Materials Report

Table 1
PaGWIS Wells and PADEP Regulated Water Withdrawals
fYNOP

Well ID	Date	Activity	Address	Well Use	Water Use	Owner	Municipality	Local Well Number	Well Depth	Depth to Bedrock	Y Pa SP NAD 83 Ft	X Pa SP NAD 83 Ft	Source
152914	11/1/1992	NEW WELL		WITHDRAWAL	DOMESTIC	MORTORFF LEROY	YORK CITY	11578N	400	17	233472.7359	2259609.7376	PaGWIS
152918	10/1/1988	NEW WELL		MINE	INDUSTRIAL	ORINOKA MILLS	YORK CITY	11582N	50	15	233452.6479	2257897.2937	PaGWIS
152924	10/1/1989	NEW WELL		WITHDRAWAL	DOMESTIC	INVESTMENT WARD	YORK CITY	11588N	40	21	235418.0335	2261456.4002	PaGWIS
152927	10/15/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5341N	43	8	233148.5185	2257746.6729	PaGWIS
152928	10/15/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5342N	43	7	233149.4032	2257822.3465	PaGWIS
152929	10/16/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5343N	43	6	233150.3209	2257900.8228	PaGWIS
152930	10/16/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5344N	43	7	233151.2389	2257979.2991	PaGWIS
152931	10/29/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5345N	30	5	233152.1572	2258057.7755	PaGWIS
152932	12/6/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5346N	123		233153.0756	2258136.2518	PaGWIS
152933	10/29/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5347N	30	2	233153.9616	2258211.9254	PaGWIS
152934	10/29/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5348N	30	5.5	233154.8805	2258290.4017	PaGWIS
152935	10/29/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5349N	30	2	233155.7997	2258368.8780	PaGWIS
152936	10/29/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5350N	30	2	233156.7192	2258447.3543	PaGWIS
152937	1/9/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5351N	125		233157.6061	2258523.0279	PaGWIS
152938	11/8/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5352N	148	10	233158.5260	2258601.5042	PaGWIS
152939	11/9/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5353N	147	11	233159.4462	2258679.9805	PaGWIS
152940	1/1/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5354N	147	7	233046.5287	2257747.8627	PaGWIS
152941	12/7/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5355N	42	5	233047.4134	2257823.5367	PaGWIS
152942	12/7/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5356N	42	6	233048.3311	2257902.0133	PaGWIS
152943	12/7/1984	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5357N	42	6	233049.2491	2257980.4900	PaGWIS
152944	1/2/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5358N	47	8	233050.1674	2258058.9666	PaGWIS
152945	1/2/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5359N	47	12	233051.0858	2258137.4433	PaGWIS
152946	1/9/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5360N	43	13	233051.9718	2258213.1172	PaGWIS
152947	1/14/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5361N	43	8	233052.8907	2258291.5938	PaGWIS
152948	1/15/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5362N	43	8	233053.8100	2258370.0705	PaGWIS
152949	1/15/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5363N	125	7	233054.7294	2258448.5471	PaGWIS
152950	2/7/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5364N	300		233060.1857	2258913.8014	PaGWIS
152951	1/16/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5365N	125	8	233055.6163	2258524.2210	PaGWIS
152952	1/22/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5366N	43	8	233056.5363	2258602.6977	PaGWIS
152953	1/23/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5367N	43	12	233057.4565	2258681.1743	PaGWIS
152954	1/23/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5368N	43	9	233058.3769	2258759.6509	PaGWIS
152955	1/24/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5369N	125	5	233059.2976	2258838.1275	PaGWIS
152956	1/28/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5370N	143	1	232948.1813	2257749.0101	PaGWIS
152957	1/25/1985	NEW WELL		TEST	INDUSTRIAL	SUN REFIN MRKG CO	YORK CITY	5371N	146	5	232949.0661	2257824.6844	PaGWIS
153001	11/1/1989	NEW WELL		MINE		TETHYS GEOTECH	SPRING GARDEN TWP.	10260N	60	4	236644.7928	2262299.5338	PaGWIS
153007	2/23/1993	NEW WELL		MINE		LITTON INDUSTRIES	SPRING GARDEN TWP.	10266N	30	14	235054.5018	2256244.5108	PaGWIS
153008	2/23/1993	NEW WELL		MINE		LITTON INDUSTRIES	SPRING GARDEN TWP.	10267N	25	16	235156.4917	2256243.3270	PaGWIS
153009	6/22/1993	NEW WELL		MINE		BUCHART-HORN INC.	SPRING GARDEN TWP.	10268N	50	12	235161.0252	2256632.8741	PaGWIS
153010	6/22/1993	NEW WELL		MINE		BUCHART-HORN INC.	SPRING GARDEN TWP.	10269N	55	15	235361.3624	2256630.5457	PaGWIS
153011	6/22/1993	NEW WELL		MINE		BUCHART-HORN INC.	SPRING GARDEN TWP.	10270N	50	23	235463.3523	2256629.3604	PaGWIS
153012	3/1/1991	NEW WELL		MINE		COLE STEEL	SPRING GARDEN TWP.	10271N	30	9	237181.6969	2256530.9151	PaGWIS
153013	3/1/1991	NEW WELL		MINE		COLE STEEL	SPRING GARDEN TWP.	10272N	37	11	237180.7835	2256452.4516	PaGWIS
153014	3/1/1991	NEW WELL		MINE		COLE STEEL	SPRING GARDEN TWP.	10273N	35	9	237179.8704	2256373.9882	PaGWIS
153015	11/6/1992	NEW WELL		MINE		N Y WIRE CO	SPRING GARDEN TWP.	10274N	45	15	237585.1007	2256447.7551	PaGWIS
153016	11/6/1992	NEW WELL		MINE		N Y WIRE CO	SPRING GARDEN TWP.	10275N	34	21	237687.0906	2256446.5704	PaGWIS
153017	11/6/1992	NEW WELL		MINE		N Y WIRE CO	SPRING GARDEN TWP.	10276N	25	10	237789.0805	2256445.3857	PaGWIS
153018	11/6/1992	NEW WELL		MINE		N Y WIRE CO	SPRING GARDEN TWP.	10277N	25	11	237891.0704	2256444.2010	PaGWIS
153029	10/1/1983	NEW WELL		MINE	INDUSTRIAL	MOLYCORP INC	SPRING GARDEN TWP.	3166N	20	10	235290.3232	2259277.2757	PaGWIS
153030	10/1/1983	NEW WELL		MINE	INDUSTRIAL	MOLYCORP INC	SPRING GARDEN TWP.	3167N	20	18	235290.3232	2259277.2757	PaGWIS
153031	10/1/1983	NEW WELL		MINE	INDUSTRIAL	MOLYCORP INC	SPRING GARDEN TWP.	3168N	25	13	235290.3232	2259277.2757	PaGWIS
153032	10/1/1983	NEW WELL		MINE	INDUSTRIAL	MOLYCORP INC	SPRING GARDEN TWP.	3169N	25	22	235290.3232	2259277.2757	PaGWIS
153033	10/1/1983	NEW WELL		MINE	INDUSTRIAL	MOLYCORP INC	SPRING GARDEN TWP.	3170N	20	15	235290.3232	2259277.2757	PaGWIS
160517	9/1/1982	NEW WELL		WITHDRAWAL	DOMESTIC	EMIG T	MANCHESTER TWP.	4593N	120	15	245974.7624	2255495.7541	PaGWIS
160547	3/1/1986	NEW WELL		TEST	INDUSTRIAL	AMOCO	MANCHESTER TWP.	5339N	32		238355.9548	2252857.1979	PaGWIS
160548	3/1/1986	NEW WELL		TEST	INDUSTRIAL	AMOCO	MANCHESTER TWP.	5340N	37		238553.6202	2252622.3250	PaGWIS
160567	3/1/1990	NEW WELL		MINE		YORK CO SOLID WASTE	MANCHESTER TWP.	8481N	102		240208.6942	2255562.5785	PaGWIS
160569	9/1/1991	NEW WELL		MINE		MOBIL STATION	MANCHESTER TWP.	8484N	37		238857.7507	2252775.7763	PaGWIS
160570	9/1/1991	NEW WELL		MINE		MOBIL STATION	MANCHESTER TWP.	8485N	50		239061.7310	2252773.4372	PaGWIS
160571	9/1/1991	NEW WELL		MINE		MOBIL STATION	MANCHESTER TWP.	8486N	50		238959.7408	2252774.6068	PaGWIS
160577	9/12/1991	NEW WELL		MINE		YORK CO SWRA	MANCHESTER TWP.	8493N	70	4	240911.7319	2255243.3905	PaGWIS
160578	6/1/1992	NEW WELL		MINE		SUNOCO	MANCHESTER TWP.	8494N	30	13	240884.7543	2252906.6543	PaGWIS
160579	6/1/1992	NEW WELL		MINE		SUNOCO	MANCHESTER TWP.	8495N	30	12	240883.8525	2252828.2027	PaGWIS
160580	6/1/1992	NEW WELL		MINE		SUNOCO	MANCHESTER TWP.	8496N	30	11	240986.7445	2252905.4841	PaGWIS
160581	6/1/1992	NEW WELL		MINE		SUNOCO	MANCHESTER TWP.	8497N	30	14	240985.8426	2252827.0328	PaGWIS
160582	6/1/1992	NEW WELL		MINE		SUNOCO	MANCHESTER TWP.	8498N	30	13	241088.7346	2252904.3140	PaGWIS
160583	6/1/1992	NEW WELL		MINE		SUNOCO	MANCHESTER TWP.	8499N	38	11	241087.8327	2252825.8630	PaGWIS
160584	6/1/1992	NEW WELL		MINE		SUNOCO	MANCHESTER TWP.	8500N	30	15	241186.1803	2252824.7349	PaGWIS
160585	7/1/1988	NEW WELL		MINE		YORK INCINERATOR	MANCHESTER TWP.	8501N	90	3	242126.4713	2255383.4521	PaGWIS
160586	7/1/1988	NEW WELL		MINE		YORK INCINERATOR	MANCHESTER TWP.	8502N	90	2	242127.3813	2255461.8997	PaGWIS
160587	7/1/1988	NEW WELL		MINE		YORK INCINERATOR	MANCHESTER TWP.	8503N	100	4	242125.5615	2255305.0044	PaGWIS
160588	7/1/1988	NEW WELL		MINE		YORK INCINERATOR	MANCHESTER TWP.	8504N	90	1	242229.3713	2255460.7189	PaGWIS
160589	7/1/1988	NEW WELL		MINE		YORK INCINERATOR	MANCHESTER TWP.	8505N	95	4	242228.4613	2255382.2716	PaGWIS
160590	7/1/1988	NEW WELL		MINE		YORK INCINERATOR	MANCHESTER TWP.	8506N	130	10	242227.5515	2255303.8242	PaGWIS

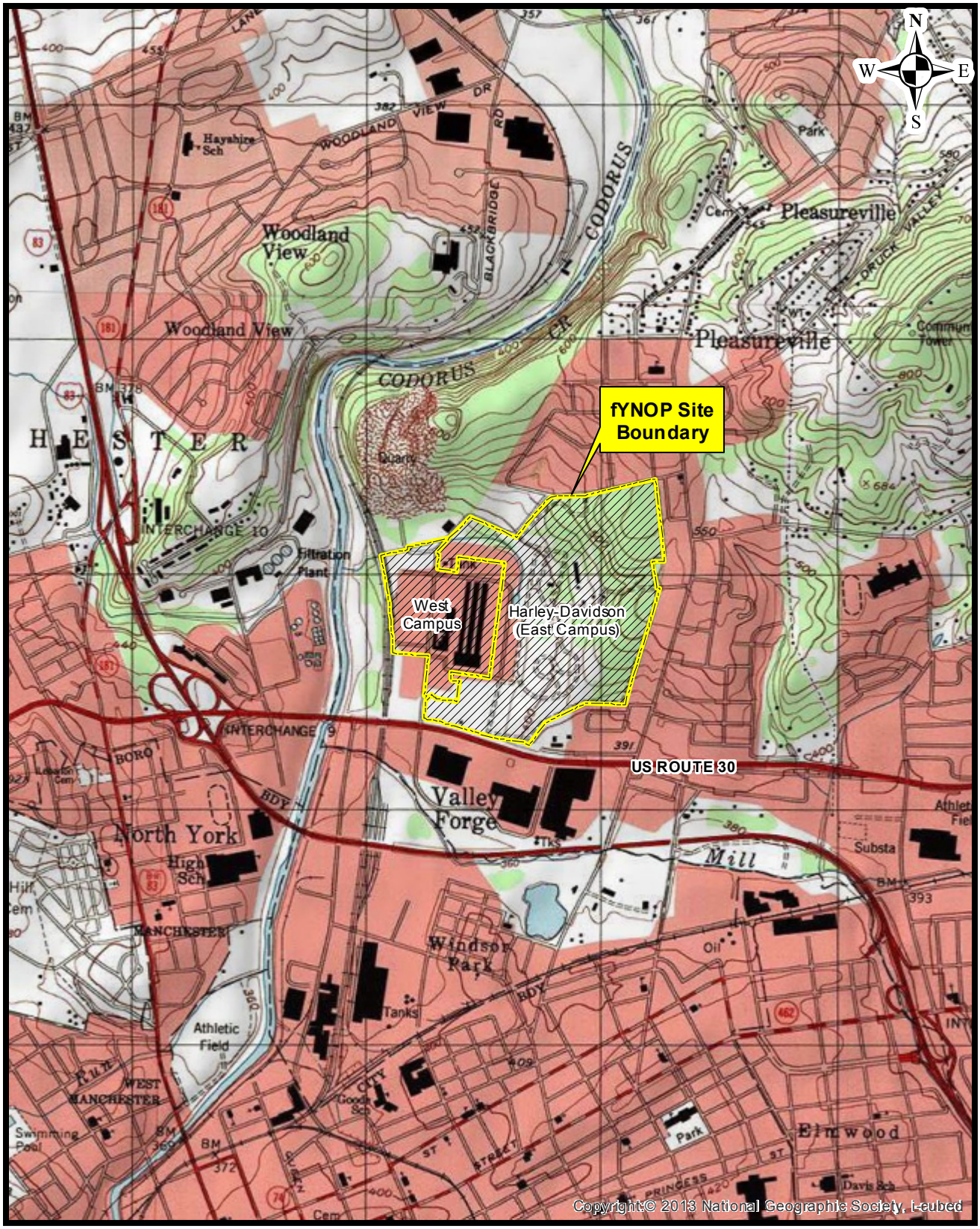
Table 1
PaGWIS Wells and PADEP Regulated Water Withdrawals
fYNOP

Well ID	Date	Activity	Address	Well Use	Water Use	Owner	Municipality	Local Well Number	Well Depth	Depth to Bedrock	Y Pa SP NAD 83 Ft	X Pa SP NAD 83 Ft	Source
160614	10/17/1991	NEW WELL				MOBIL	MANCHESTER TWP.	8534N	55	22	238858.6203	2252851.4323	PaGWIS
163557	2/1/1983	NEW WELL		MINE		MOBIL OIL CORP	NORTH YORK BORO	3609N	34	17	234933.5639	2254611.8245	PaGWIS
163558	2/1/1983	NEW WELL		MINE		MOBIL OIL CORP	NORTH YORK BORO	3610N	26	20	235137.5439	2254609.4705	PaGWIS
163559	2/1/1983	NEW WELL		MINE		MOBIL OIL CORP	NORTH YORK BORO	3611N	21	18	235035.5539	2254610.6475	PaGWIS
163560	2/1/1983	NEW WELL		MINE		MOBIL OIL CORP	NORTH YORK BORO	3612N	25		235036.4290	2254686.3153	PaGWIS
163561	2/1/1983	NEW WELL		MINE		MOBIL OIL CORP	NORTH YORK BORO	3613N	26	17	235034.6466	2254532.1772	PaGWIS
165057	9/1/1989	NEW WELL		MINE	INDUSTRIAL	R E WRIGHT ASSOC INC	SPRINGETTSBURY TWP.	10295N	220	72	239123.1227	2258066.5060	PaGWIS
165058	11/1/1989	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10296N	146	31	239122.2044	2257988.0488	PaGWIS
165059	9/1/1989	NEW WELL		MINE	INDUSTRIAL	R E WRIGHT ASSOC INC	SPRINGETTSBURY TWP.	10297N	83	43	239121.2864	2257909.5915	PaGWIS
165060	9/1/1989	NEW WELL		MINE	INDUSTRIAL	R E WRIGHT ASSOC INC	SPRINGETTSBURY TWP.	10298N	85	40	239120.3686	2257831.1343	PaGWIS
165061	7/1/1989	NEW WELL		MINE	INDUSTRIAL	R E WRIGHT ASSOC INC	SPRINGETTSBURY TWP.	10299N	124	78	239119.4511	2257752.6770	PaGWIS
165062	7/1/1989	NEW WELL		MINE	INDUSTRIAL	R E WRIGHT ASSOC INC	SPRINGETTSBURY TWP.	10300N	42	17	239118.5666	2257677.0218	PaGWIS
165063	4/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10301N	83	38	239225.1125	2258065.3145	PaGWIS
165064	4/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10302N	82	38	239224.1943	2257986.8576	PaGWIS
165065	4/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10303N	103	33	239223.2763	2257908.4007	PaGWIS
165066	5/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10304N	38	26	239222.3585	2257829.9437	PaGWIS
165067	5/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10305N	56	28	239221.4410	2257751.4868	PaGWIS
165068	5/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10306N	40	24	239220.5565	2257675.8319	PaGWIS
165069	5/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10307N	38	27	233255.0654	2258135.0603	PaGWIS
165070	1/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10308N	100	86	239326.1841	2257985.6664	PaGWIS
165071	2/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10309N	92	80	239325.2661	2257907.2098	PaGWIS
165072		NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10310N	35	29	239324.3484	2257828.7532	PaGWIS
165073	2/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10311N	50		239323.4309	2257750.2966	PaGWIS
165074	1/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10312N	143	17	239322.5464	2257674.6420	PaGWIS
165075	1/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10313N	103	21	239425.4497	2258062.9741	PaGWIS
165076	1/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10314N	103	18	239424.5315	2257984.5178	PaGWIS
165077	1/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10315N	125	9	239423.6135	2257906.0615	PaGWIS
165078	1/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10316N	125	24	239422.6957	2257827.6052	PaGWIS
165079	2/1/1990	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10317N	70	37	239421.7782	2257749.1489	PaGWIS
165080	6/1/1992	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10318N	19		239420.8937	2257673.4946	PaGWIS
165081	6/1/1992	NEW WELL		MINE	INDUSTRIAL	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	10319N	13		239419.9767	2257595.0383	PaGWIS
165110	9/1/1989	NEW WELL		WITHDRAWAL	INDUSTRIAL	YORK SILICA SAND INC	SPRINGETTSBURY TWP.	10348N	450	70	242041.7020	2256552.9044	PaGWIS
165113	3/1/1993	NEW WELL		WITHDRAWAL	INDUSTRIAL	YORK SILICA SAND	SPRINGETTSBURY TWP.	10351N	295	11	238802.6080	2256512.0815	PaGWIS
165121	1/1/1954	NEW WELL		WITHDRAWAL	DOMESTIC	CARTER WM	SPRINGETTSBURY TWP.	10359N	160	54	246031.2122	2260319.5255	PaGWIS
165134	4/3/1991	NEW WELL		MINE	INSTITUTIONAL	AAA QUA W&P INC	SPRINGETTSBURY TWP.	10372N	31		237413.8846	2258941.2747	PaGWIS
165135	4/3/1991	NEW WELL		MINE	INSTITUTIONAL	AAA QUA W&P INC	SPRINGETTSBURY TWP.	10373N	100	42	237515.8744	2258940.0797	PaGWIS
165136	4/4/1991	NEW WELL		MINE	INSTITUTIONAL	AAA QUA W&P INC	SPRINGETTSBURY TWP.	10374N	112	47	237614.2217	2258938.9273	PaGWIS
165137	12/1/1990	NEW WELL		MINE	INSTITUTIONAL	LITTON IND	SPRINGETTSBURY TWP.	10375N	47		237412.9636	2258862.8120	PaGWIS
165138	12/1/1990	NEW WELL		MINE	INSTITUTIONAL	LITTON IND	SPRINGETTSBURY TWP.	10376N	30		237514.9534	2258861.6173	PaGWIS
165139	12/1/1990	NEW WELL		MINE	INSTITUTIONAL	LITTON IND	SPRINGETTSBURY TWP.	10377N	24		237613.3007	2258860.4652	PaGWIS
259856	1/1/1991	NEW WELL	York PA		INDUSTRIAL	SUN OIL CO	MANCHESTER TWP.		40	9	241892.8959	2252505.5960	PaGWIS
259857	1/1/1991	NEW WELL	York PA		INDUSTRIAL	SUN OIL CO	MANCHESTER TWP.		30	14	241792.7078	2252663.6620	PaGWIS
260016	3/6/1994	NEW WELL	Route 30		INDUSTRIAL	HARLEY	YORK TWP.		26	21	239880.5975	2258354.7050	PaGWIS
260017	6/29/1994	NEW WELL	Eden Road York		INDUSTRIAL	HARLEY	YORK TWP.		53	18.5	239880.5975	2258354.7050	PaGWIS
260499	1/1/1991	NEW WELL	York PA		INDUSTRIAL	SUN OIL CO	MANCHESTER TWP.		30	18	241893.7968	2252584.0444	PaGWIS
260757	1/20/1997	NEW WELL	Sherman Street York		INDUSTRIAL	BREWERY	SPRINGETTSBURY TWP.		27		237390.5335	2260670.7711	PaGWIS
260758	1/20/1997	NEW WELL	Sherman Street York		INDUSTRIAL	BREWERY	SPRINGETTSBURY TWP.		30		237390.5335	2260670.7711	PaGWIS
260759	1/20/1997	NEW WELL	Sherman Street York		INDUSTRIAL	BREWERY	SPRINGETTSBURY TWP.		30		237390.5335	2260670.7711	PaGWIS
261839	4/9/1999	NEW WELL	640 WHITEFORD ROAD			LITTON INDUSTRIES	SPRINGETTSBURY TWP.		78	73	238712.4158	2257524.8218	PaGWIS
308522	2/9/1995	NEW WELL	1700 N. GEORGE STREET	Vapor Extraction Well	Vapor Extraction Well	MOBIL STATION	MANCHESTER TWP.		20		238830.6748	2252870.0607	PaGWIS
308523	2/9/1995	NEW WELL	1700 N. GEORGE STREET	Vapor Extraction Well	Vapor Extraction Well	MOBIL STATION	MANCHESTER TWP.		27		238830.6748	2252870.0607	PaGWIS
308524	2/9/1995	NEW WELL	1700 N. GEORGE STREET	Vapor Extraction Well	Vapor Extraction Well	MOBIL STATION	MANCHESTER TWP.		22		238830.6748	2252870.0607	PaGWIS
308525	12/20/1993	NEW WELL	NORTH GEORGE STREET	Recovery	Recovery	SUN STATION	MANCHESTER TWP.		30		241011.5006	2252642.2653	PaGWIS
308526	6/1/1996	NEW WELL	NORTH GEORGE STREET	Water Supply	Residence	RAYMOND MUNIZ	MANCHESTER TWP.		120		243544.6609	2253034.5804	PaGWIS
34779	1/1/1966			UNUSED	UNUSED	AMF INCORPORATED	SPRINGETTSBURY TWP.	YO 657	65		240234.0547	2257739.6698	PaGWIS
34780	1/1/1966			UNUSED	UNUSED	AMF INCORPORATE D	SPRINGETTSBURY TWP.	YO 659	62		240234.0547	2257739.6698	PaGWIS
34791	1/1/1988			OBSERVATION	UNUSED	HARLEY-DAVIDSON	SPRINGETTSBURY TWP.	YO 1171	204		241874.1676	2259668.0002	PaGWIS
34792	1/1/1988			OBSERVATION	UNUSED	HARLEY DAVIDSON	SPRINGETTSBURY TWP.	YO 1169	149		241978.8959	2259899.3446	PaGWIS
34794	1/1/1988			OBSERVATION	UNUSED	HARLEY-DAVIDSON	SPRINGETTSBURY TWP.	YO 1170	175		242086.4022	2260366.0304	PaGWIS
354731	4/7/1994	NEW WELL	SAND BANK RD YORK	Water Supply	Industrial	SAND QUARRY	SPRINGETTSBURY TWP.		180		241948.7798	2256854.7979	PaGWIS
354732	3/25/1994	NEW WELL	1501 SAND BANK RD YORK	Water Supply	Industrial	SILICA LAND QUARRY	SPRINGETTSBURY TWP.		273		240986.2370	2257173.2488	PaGWIS
354733	3/30/1994	NEW WELL	501 SAND BANK RD YORK	Water Supply	Industrial	SAND QUARRY	SPRINGETTSBURY TWP.		298		241012.2683	2257151.7347	PaGWIS
354734	9/14/1994	NEW WELL	501 SAND BANK RD YORK	Water Supply	Residence	KRIBER	SPRINGETTSBURY TWP.				241012.2683	2257151.7347	PaGWIS
414845	1/31/2006	WELL ABANDONMENT	350 N. SHERMAN ST.		UNUSED	MOLYCORP	SPRING GARDEN TWP.		27		237291.8531	2257230.2936	PaGWIS
414846	1/31/2006	WELL ABANDONMENT	350 N. SHERMAN ST.		UNUSED	MOLYCORP	SPRING GARDEN TWP.		32		237291.8531	2257230.2936	PaGWIS
414847	1/31/2006	WELL ABANDONMENT	350 N. SHERMAN ST.		UNUSED	MOLYCORP	SPRING GARDEN TWP.		46		237291.8531	2257230.2936	PaGWIS
414848	1/31/2006	WELL ABANDONMENT	350 N. SHERMAN ST.		UNUSED	MOLYCORP	SPRING GARDEN TWP.		22		237291.8531	2257230.2936	PaGWIS
414849	1/31/2006	WELL ABANDONMENT	350 N. SHERMAN ST.		UNUSED	MOLYCORP	SPRING GARDEN TWP.		40		237291.8531	2257230.2936	PaGWIS
414850	1/31/2006	WELL ABANDONMENT	350 N. SHERMAN ST.		UNUSED	MOLYCORP	SPRING GARDEN TWP.		25		237291.8531	2257230.2936	PaGWIS
414851	1/31/2006	WELL ABANDONMENT	350 N. SHERMAN ST.		UNUSED	MOLYCORP	SPRING GARDEN TWP.		30		237291.8531	2257230.2936	PaGWIS
414852	1/31/2006	WELL ABANDONMENT	350 N. SHERMAN ST.		UNUSED	MOLYCORP	SPRING GARDEN TWP.		42		237291.8531	2257230.2936	PaGWIS
415334	3/31/2004	NEW WELL	EDEN RD		UNUSED	HARLEY DAVIDSON	YORK TWP.		150		242249.2905	2257172.5508	PaGWIS
415335	3/31/2004	NEW WELL	EDEN RD		UNUSED	HARLEY DAVIDSON	YORK TWP.		45	18	242249.2905	2257172.5508	PaGWIS

Table 1
PaGWIS Wells and PADEP Regulated Water Withdrawals
fYNOP

Well ID	Date	Activity	Address	Well Use	Water Use	Owner	Municipality	Local Well Number	Well Depth	Depth to Bedrock	Y Pa SP NAD 83 Ft	X Pa SP NAD 83 Ft	Source
486275	7/15/2009	NEW WELL	101 ARSENAL ROAD			LEHR'S EXXON	MANCHESTER TWP.		47	32	238663.5418	2253627.1509	PaGWIS
486682	7/13/2009	NEW WELL	1555 N. QUEEN STREET			LEHR'S EXXON	MANCHESTER TWP.		44	44	238592.3070	2253768.0940	PaGWIS
486683	7/14/2009	NEW WELL	100 ARSENAL ROAD			LEHR'S EXXON	MANCHESTER TWP.		52	52	238566.2279	2253717.9495	PaGWIS
487189	7/14/2009	NEW WELL	100 ARSENAL ROAD			LEHR'S EXXON	MANCHESTER TWP.		64	49	238543.4685	2253639.7418	PaGWIS
492260	2/25/2010	NEW WELL	100 ARSENAL ROAD			LEHR'S EXXON	MANCHESTER TWP.		81	21	238594.8511	2253672.7806	PaGWIS
492261	2/24/2010	NEW WELL	100 ARSENAL ROAD			LEHR'S EXXON	MANCHESTER TWP.		53	20	238191.3410	2253747.4854	PaGWIS
492262	2/25/2010	NEW WELL	100 ARSENAL ROAD			LEHR'S EXXON	MANCHESTER TWP.		61	8	238374.7588	2253857.4750	PaGWIS
497088	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		40		234272.4209	2261926.8276	PaGWIS
497089	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		40		234381.6290	2261919.9288	PaGWIS
497090	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		40		234232.7856	2261963.7357	PaGWIS
497091	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		35		234232.3203	2261924.4992	PaGWIS
497092	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		40.52		234229.9743	2262033.8439	PaGWIS
497093	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		50		234229.9078	2262028.2387	PaGWIS
497094	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		25		234233.7498	2262045.0112	PaGWIS
497095	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		40		234223.0551	2262064.7588	PaGWIS
497584	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		35		234247.1561	2261946.7476	PaGWIS
497585	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		35		234225.4342	2261958.2167	PaGWIS
497586	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		35		234229.6750	2262008.6205	PaGWIS
497587	12/16/2010	WELL ABANDONMENT	1242 E. Market St York			TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		40		234222.5896	2262025.5223	PaGWIS
497588	12/16/2010	WELL ABANDONMENT	1242 E. Market St York	WITHDRAWAL	UNUSED	TURKEY HILL MINIT MART	SPRINGETTSBURY TWP.		210		234312.7874	2261951.5766	PaGWIS
A01	1/12/2008	NEW WELL	101 Arsenal RD, York, Pa	Monitoring		Lehr's Exxon	Manchester		52		238762.8038	2253638.5726	PaGWIS
A02	1/12/2008	NEW WELL	101 Arsenal RD, York, Pa	Monitoring		Lehr's Exxon	Manchester		45		238670.0756	2253621.7055	PaGWIS
A03	1/12/2008	NEW WELL	101 Arsenal RD, York, Pa	Monitoring		Lehr's Exxon	Manchester		55		238670.0756	2253621.7055	PaGWIS
A04	1/12/2008	NEW WELL	101 Arsenal RD, York, Pa	Monitoring		Lehr's Exxon	Manchester		54		238630.9450	2253608.7046	PaGWIS
A05	1/12/2008	NEW WELL	101 Arsenal RD, York, Pa	Monitoring		Lehr's Exxon	Manchester		53		238670.0756	2253621.7055	PaGWIS
A06	9/1/2007	NEW WELL	1422 North George St, York, Pa	Monitoring	Test	Lewis Cleaners	North York		75		237981.6045	2253026.2543	PaGWIS
A07	9/1/2007	NEW WELL	1422 North George St, York, Pa	Monitoring	Test	Lewis Cleaners	North York		65		237981.6045	2253026.2543	PaGWIS
A08	9/1/2007	NEW WELL	1422 North George St, York, Pa	Monitoring	Test	Lewis Cleaners	North York		100		237981.6045	2253026.2543	PaGWIS
A09	9/1/2007	NEW WELL	1422 North George St, York, Pa	Monitoring	Test	Lewis Cleaners	North York		160		237981.6045	2253026.2543	PaGWIS
A10	3/1/2007	NEW WELL	11th Ave, York Pa	Monitoring/Test	Residence	Apple Nissan	Springettsbury		26		237856.1060	2263006.7467	PaGWIS
A11	3/1/2007	NEW WELL	11th Ave, York Pa	Monitoring/Test	Residence	Apple Nissan	Springettsbury		26		237856.1060	2263006.7467	PaGWIS
A12	3/1/2007	NEW WELL	11th Ave, York Pa	Monitoring/Test	Residence	Apple Nissan	Springettsbury		26		237856.1060	2263006.7467	PaGWIS
A13	3/1/2007	NEW WELL	11th Ave, York Pa	Monitoring/Test	Residence	Apple Nissan	Springettsbury		40		237856.1060	2263006.7467	PaGWIS
A19	11/1/1990	NEW WELL	RT 30 & N. George St	Monitoring		Mobil Station	York		40		238768.1253	2252739.4896	PaGWIS
A20	11/1/1990	NEW WELL	RT 30 & N. George St	Monitoring		Mobil Station	York		40		238768.1253	2252739.4896	PaGWIS
A21	11/1/1990	NEW WELL	RT 30 & N. George St	Monitoring		Mobil Station	York		40		238768.1253	2252739.4896	PaGWIS
A26	4/17/2007	NEW WELL	George St	Monitoring		Lewis Cleaners	York		55		238001.7708	2253037.5127	PaGWIS
A27	4/17/2007	NEW WELL	George St	Monitoring		Lewis Cleaners	York		75		237987.0394	2253023.6695	PaGWIS
A55	3/28/1997	NEW WELL	PO Box 278 Monroyra MD	Water Supply	Residence	York Mini Storage	Manchester		500		241449.4613	2253503.0950	PaGWIS
329521				Groundwater Withdrawal	INDUSTRIAL USE	HILDERBRAND MACH CO INC					240070.1410	2255553.8526	PaDEP
332114				Groundwater Withdrawal	INDUSTRIAL USE	CHR CORP					241456.4556	2252812.8478	PaDEP
332114				Groundwater Withdrawal	INDUSTRIAL USE	RUTTERS DAIRY INC					241456.4556	2252812.8478	PaDEP
335201				Groundwater Withdrawal	INDUSTRIAL USE	MEMCO MFG					236914.7960	2262276.3623	PaDEP
Well No. 1						RUTTERS DAIRY INC					242039.4850	2251990.2551	PaDEP

FIGURES



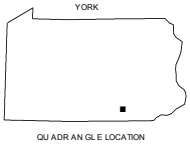
Portion of the York and York Haven PA
7.5-minute USGS Quadrangles
(2001)

Figure 1

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

Site Location Map



Scale (feet)

0 500 1,000 2,000

GROUNDWATER SCIENCES CORPORATION

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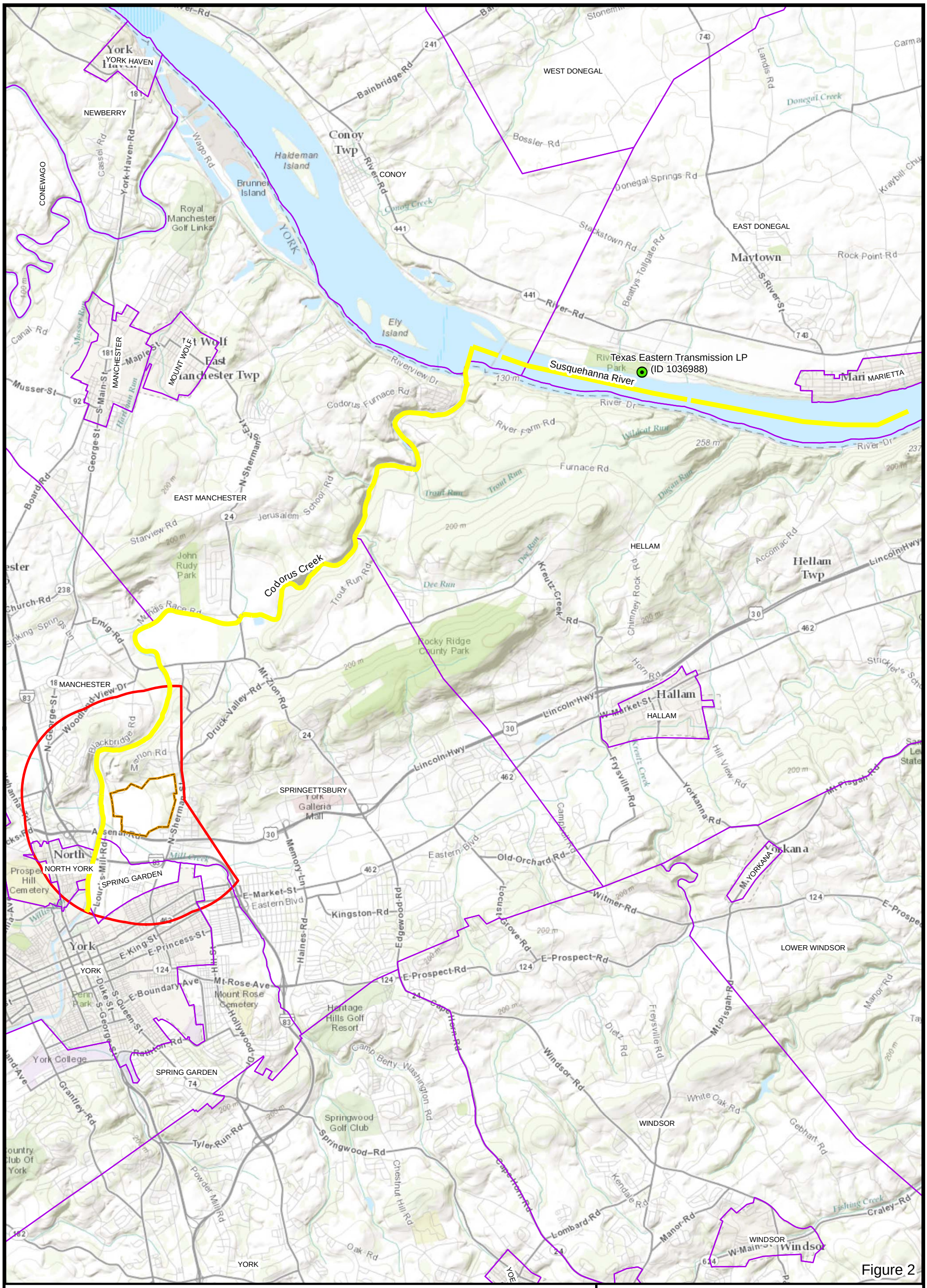

Figure 2

Legend

- PaDEP-Regulated Surface Water Withdrawal
- Extent of Surface Water Use Survey
- Pa Municipality Boundary
- Water Use Survey (Surface Water and Groundwater)
- fYNOP Property Boundary

Miles

0 0.5 1

N W E S

Note:
1.) Pa Municipality Boundary from PennDOT and Pennsylvania Bureau of Municipal Services from 2013.

2.) Topographic Layer: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

Surface Water Use Map

DRAWN BY: AM/JB	CHECKED AND APPROVED BY: CDO	DATE: 4/18/2014

Q:\10000\10012\Projects\2014 Water Use\Final\Figure_2_SurfaceWaterUse.mxd

GROUNDWATER SCIENCES CORPORATION

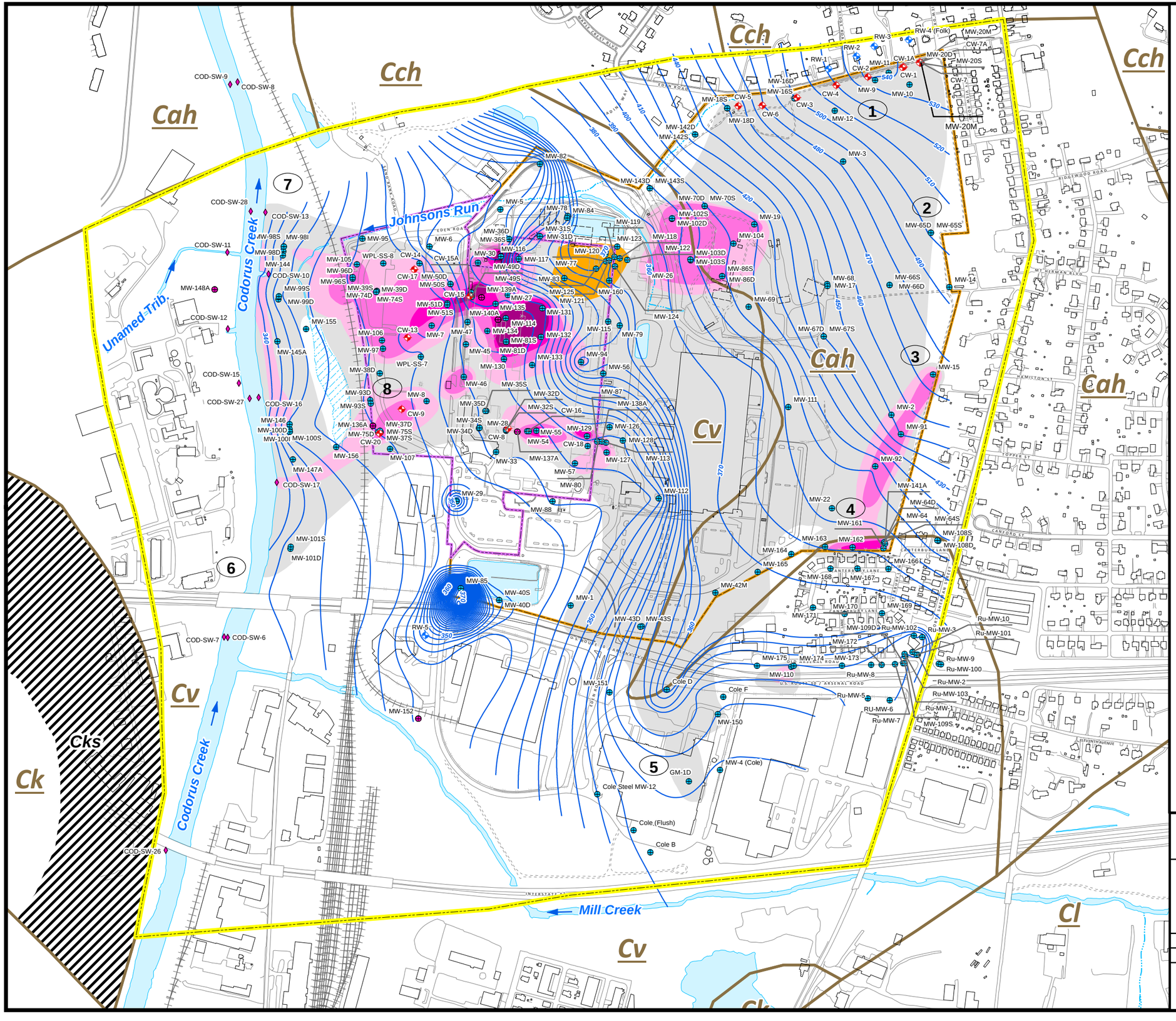

Figure 3

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

TCE/PCE and Petroleum Plumes, Monitoring Wells, and Surface Water Sampling Locations

DRAWN BY: AGM	CHECKED AND APPROVED BY:SMS	DATE:8/22/15

K:\10000\10012\Projects\2014 Water Use\Final\20161012_rev\Fig_3_20161012.mxd

GROUNDWATER SCIENCES CORPORATION

PLATE

Plate 2 is included in the FOIA Exempt Materials Report

LEGEND

- PaGWIS Located Water Supply Well
- PaGWIS Located Non-Water Supply Well
- Well Identified; Use of Well Not Confirmed
- PADEP Regulated Water Withdrawal
- Updated Water Use Survey Boundary Around the fYNOP Property
- fYNOP Property Boundary
- Municipality Boundary

NOTES:

1) Municipality Boundaries from Pennsylvania Department of Transportation.
2) Aerial from USDA National Agriculture Imagery Program (NAIP) from 2013.
3) fYNOP site monitoring and extraction wells are not included on this map.

N
W E
S

Scale (feet)

0 350 700 1,400

Plate 1

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

Map Showing the Locations of PaGWIS Wells and PADEP Regulated Water Withdrawals

DRAWN BY: AGM	CHECKED AND APPROVED BY: CDO	DATE: 9/14/2018

Q:\\10000\\10012\\Projects\\2014 Water Use\\Final\\20161012_rev\\Plate_1_PAGWIS_20180914.mxd

GROUNDWATER SCIENCES CORPORATION

APPENDIX A

Langan Well and Surface Water Use Survey (Figure 1 – March 2005)

Included in the FOIA Exempt Materials Report

APPENDIX B

Langan Results from Well Survey Questionnaire (Figure 1 – October 2005) and Surface Water Locations (Figure 2 – March 2005)

Included in the FOIA Exempt Materials Report

APPENDIX C

Selected Excerpts from R.E. Wright Associates, Inc.

August 1987 Report

STATUS REPORT TO PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES REGARDING THE GROUNDWATER INVESTIGATION AT THE HARLEY-DAVIDSON, INC. YORK FACILITY

Project 86030

For

Harley-Davidson, Inc.
York, PA

August 1987

Respectfully submitted,

Paul E. Nachlas
Project Geologist

Reviewed by:

Raymond S. Lambert, P.G.
Project Director

Stephen M. Snyder, P.G.
Project Director

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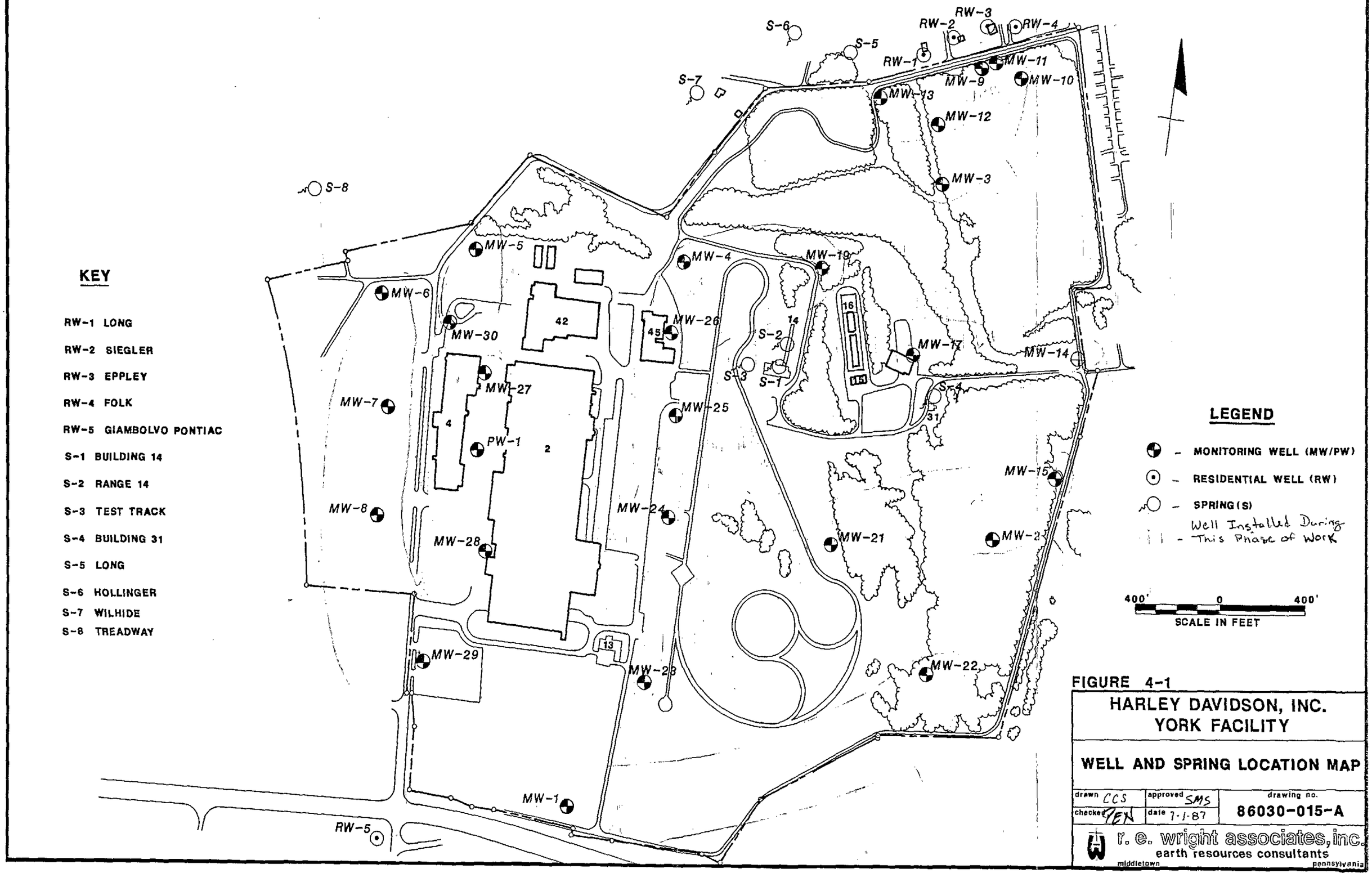


FIGURE 4-1

HARLEY DAVIDSON, INC.
YORK FACILITY

WELL AND SPRING LOCATION MAP

drawn CCS	approved SMS	drawing no.
checked TEN	date 7-1-87	86030-015-A

r. e. wright associates, inc.
earth resources consultants
middletown pennsylvania

APPENDIX D

Selected Excerpts from R.E. Wright Environmental, Inc. December 1995 Report

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ANNUAL OPERATIONS REPORT FOR THE PERIOD JULY 1, 1994 THRU JUNE 30, 1995

REWEI Project 92003

Prepared for

Harley-Davidson, Inc.
York, PA

December 1995

r.e. wright environmental, inc.

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ANNUAL OPERATIONS REPORT FOR THE PERIOD JULY 1, 1994 THRU JUNE 30, 1995

REWEI Project 92003

Prepared for

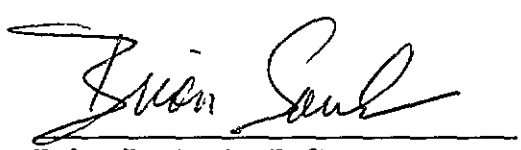
Harley-Davidson, Inc.
York, PA

By

R. E. WRIGHT ENVIRONMENTAL, INC.
3240 Schoolhouse Road
Middletown, PA 17057
(717) 944-5501

December 1995

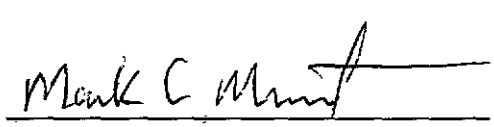
Respectfully submitted,



Brian D. Sauls, P.G.
Project Manager

Reviewed by:

Stephen M. Snyder, P.G.
Executive Vice President
Consulting Services



Mark C. Mummert, Ph.D, P.E.
Project Manager/Environmental Engineer

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8.0 RESIDENTIAL WELL MONITORING

A regular quarterly sampling program of residential off-site groundwater supplies adjacent to and downgradient of the Harley-Davidson property was initiated in April 1988. Five groundwater supplies designated "RW" for a residential well and "S" for a spring sample were included in this sampling program during the report period:

1. RW-4 - Folk residence.

2. RW-5 - Giambalvo Pontiac.

3. RW-6 - Quarry on Sand Bank Road

4. S-6 - Hollinger spring.

5. S-7 - Wilhide spring.

Groundwater sampling locations RW-4, RW-6, S-6, and S-7 are located to the north of the Harley-Davidson property and RW-5 is located southwest of the site as shown on Plate 1. RW-6 (quarry location) is a new sampling location and was first sampled in March 1995. A complete description of baseline sampling of residential wells is contained in the R. E. Wright Environmental, Inc. report, entitled "Report of Investigations in the NPBA, TCA tank, and containment areas of the Harley-Davidson, Inc. York facility," dated August 1988.

The off-site samples were analyzed for VOCs and free and total cyanide. Summary tables showing analytical results for the five locations are presented in Table A-5 of Appendix A.

Analytical results of the samples collected from the off-site wells and springs indicate the absence of cyanide in all locations sampled. VOCs were not detected in any of the samples except for the five RW-5 samples. In the RW-5 samples, the following VOCs were detected:

VOC	Concentration Range (ug/l)	*MCL (ug/l)	# Positive Results/ # Samples
1,2 - DCE (total)	<1 - 2	170	3/5
Chloroform	3-9	100	5/5
PCE	<1 - 8	5	3/5
TCE	2-57	5	5/5

* MCL - Maximum Contaminant Level (Federal Drinking Water Standard.)

As shown on the above table and in Appendix Table A-5, the federal drinking water standards are exceeded for both PCE and TCE. In past samples collected from RW-5 (February 1987 - April 1994), only the following VOCs were detected:

VOC	Concentration Range (ug/l)	# of Positive Results/ # of Samples
Chloroform	ND-69	24/25
Dichlorobromomethane	ND-7	23/25
TCE	ND-1	1/25

In samples collected prior to the current report period, only chloroform and dichlorobromomethane were consistently detected. TCE was first detected in the January 1994 sample and has consistently increased since then. PCE was first detected in the March 9, 1995 sample and has been present in both subsequent samples

In summary, the chloroform concentrations have decreased over the past eight years to almost non-detectable levels. PCE and TCE have recently surfaced as the dominant VOC species in RW-5.

PROPERTY LINE

RW-6 (LOCATION APPROXIMATE)

CODORUS CREEK

RAILROAD TRACKS

115KV SUB STATION

EDEN ROAD

SUN PIPE LINE CO. 6" STEEL HIGH PRESS. LINE

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7 MW-8 MW-9 MW-10 MW-11 MW-12 MW-13 MW-14 MW-15 MW-16 MW-17 MW-18S,D MW-19 MW-20S,D MW-21 MW-22 MW-23 MW-24 MW-25 MW-26 MW-27 MW-28 MW-29 MW-30 MW-31S,D MW-32S,D MW-33 MW-34S,D MW-35D MW-36S,D MW-37S,D MW-38S,D MW-39S,D MW-40S,D MW-41S,D MW-42S,M,D MW-43S,D MW-44 MW-45 MW-46 MW-47 MW-48 MW-49S,D MW-50 MW-51S,D MW-52 MW-53 MW-54 MW-55 MW-56 MW-57 MW-58 MW-59

CW-1 CW-1A CW-2 CW-3 CW-4 CW-5 CW-6 CW-7A CW-7B CW-8 CW-9 CW-10 CW-11 CW-12 CW-12A CW-13 CW-14 CW-15A CW-15B CW-16 CW-18

RW-1 RW-2 RW-3 RW-4 RW-5

S-1 S-2 S-3 S-4 S-5 S-6 S-7 S-8

LEGEND

MW-2 MONITORING WELL LOCATION

7/94 – DATE SAMPLED
<2 – 1, 1, 1 – TCA (ppb)
<2 – CIS/TRANS-1, 2-DCE (ppb)
71 – TCE (ppb)
150 – PCE (ppb)
221 – TOTAL VOLATILE ORGANIC COMPOUNDS (ppb)

200' 0 200' 400'
SCALE IN FEET

PLATE 1

HARLEY-DAVIDSON INC.

SELECTED VOC CHEMISTRY
JULY 1, 1994 THROUGH JUNE 30, 1995

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

drawn RAM checked BS
date 10/20/95 approved MCM
drawing no. 92003-025-C

r.e. wright environmental, inc.
total environmental solutions
middletown, pa exton, pa westminster, md va beach, va

APPENDIX E

GSC Memorandum with Field Reconnaissance and Research Documentation for the Updated Water Use Survey Report

Included in the FOIA Exempt Materials Report

APPENDIX F

Selected Excerpts from R.E. Wright Associates, Inc.

January 1987 Report

INTERIM REPORT
REGARDING THE ONGOING INVESTIGATION OF GROUNDWATER QUALITY AT THE HARLEY-DAVIDSON, INC. YORK FACILITY

For

HARLEY-DAVIDSON, INC.

January 1987

Respectfully submitted,

Paul E. Nachlas
Project Geologist

Reviewed by:

Raymond S. Lambert
Project Director

Stephen M. Snyder
Project Director

T01482

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a shovel. A complete log of each pit was recorded and they are presented in Appendix I.

Several criteria were used to determine sampling depths in each pit:

- o consideration was given to sampling foreign materials in the pit, materials which were obviously not naturally occurring sediments,
- o a second criterion used was detectable levels of volatile organic vapors. The pit profiles were scanned with a photoionization detector, and horizons emitting organic vapors were sampled, and
- o pits devoid of any foreign materials or any organic vapors were statistically sampled to obtain samples representative of the natural zonations encountered.

A representative population of the samples collected were analyzed for priority pollutant VOC's and free and total cyanide.

2.5 Off-site Survey

A door to door and telephone survey of selected homes and businesses adjacent to Harley-Davidson was conducted to identify dwellings and facilities with groundwater supplies. Identifying the location of off-site wells was necessary to determine if any health risks may exist with regard to the chemicals found on Harley-Davidson property, and to determine if there may be an off-site source for the chemicals for which Harley-Davidson or previous operators of the site were not responsible. The survey was also necessitated by our inability to obtain a list from the

York Water Company of the locations of customers in the immediate area.

A preliminary survey identified four homes with wells, three to the north and upgradient of the property, and one to the west and downgradient of the property. The locations of these homes are shown on Figure 2-1 and the names, addresses and status of those wells are listed below:

1. Lloyd - 2100 Pleasantview Drive - not used, filled with silt.

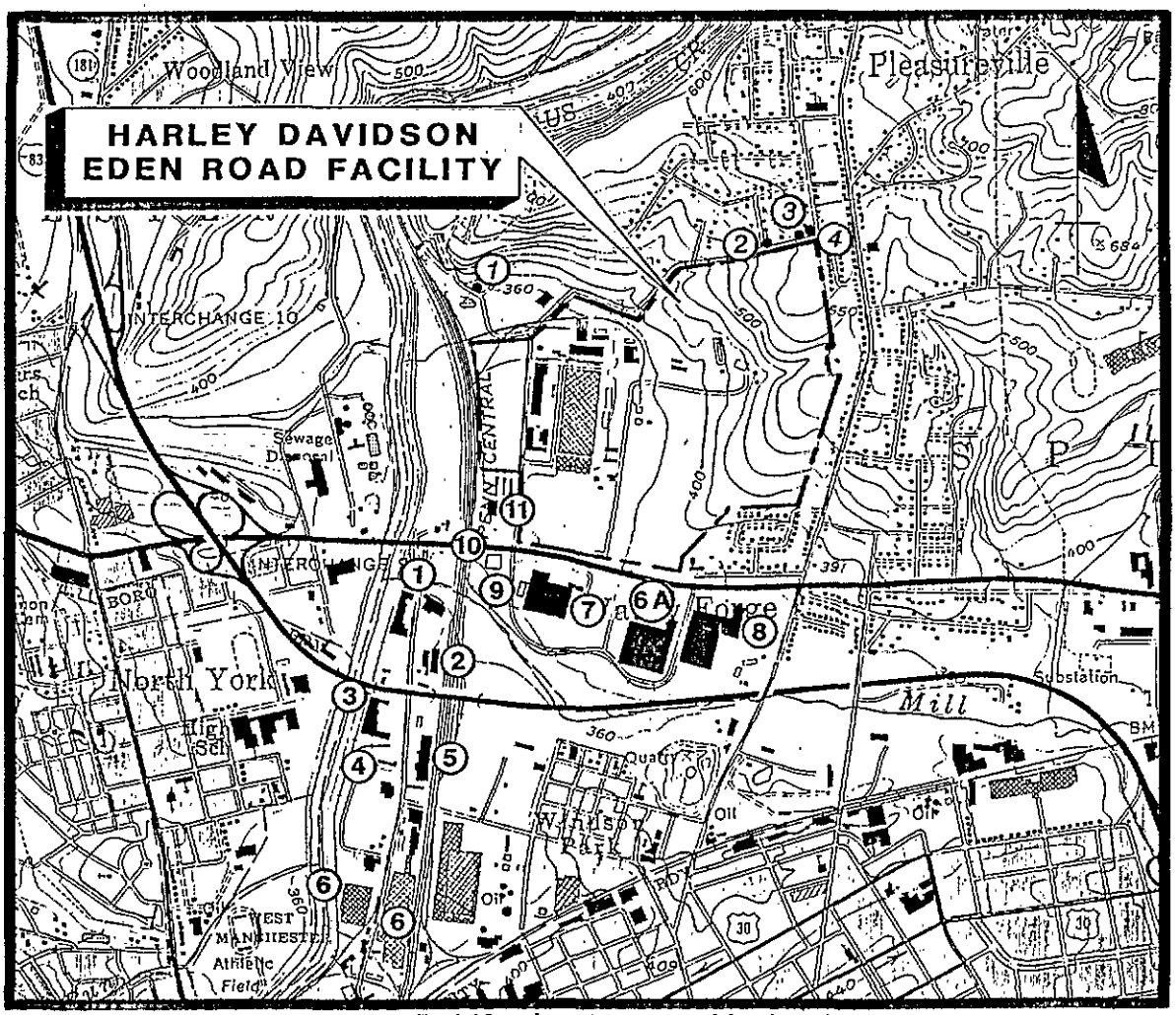
2. Folk - 677 Paradise Road - used as primary water supply.

3. Siegler - 613 Paradise Road - used for car washing, lawn watering.

4. Treadway - Sand Bank Road - hand-dug well used as primary water supply.

During the last phase of this recent investigation, two additional downgradient businesses were contacted regarding a well. They are the Carpet Mart and Jack Giambalvo auto dealership, shown on Figure 2-1. A well was located at the auto dealership and was reported to be used for all of the water needs at this facility. Actions should be taken in the following work scope to test the quality of groundwater at this location.

Samples were tested for priority pollutant VOC's, total cyanide, and free cyanide. No sample was collected from the Lloyd well. The two wells used as primary water supplies (Folk and Treadway) were analytically determined to be safe for consumption with no



BASE MAP: York, Pa. USGS 7-1/2 min. Topographic Quadrangle

1	YORKTOWN PAPER MILLS
2	YORK BUILDING PRODUCTS
3	AGWAY CHEMICAL COMPANY
4	WALTER ZEIGLER READY MIX
5	RAMS HEAD WIRE
6	COLE BUSINESS FURNITURE
6A	COLE BUSINESS FURNITURE
7	ASSOCIATED WHOLESALERS, INC.
8	P.A.& S. SMALL, ASSOCIATED
9	CARPET MART
10	JACK GIAMBALVO AUTO DEALERSHIP
11	84 LUMBER PRODUCTS

1	TREADWAY
2	SIEGLER
3	FOLK
4	LLOYD

LOCATIONS CONTACTED IN PRELIMINARY OFF-SITE WELL SURVEY

FIGURE 2-1

0 2000'
SCALE

r.e. wright associates, inc.

volatile organics. The Siegler well was found to have 2074 parts per billion (ppb) VOC's, primarily trichloroethylene (TCE) and tetrachloroethylene (PCE).

Businesses downgradient, to the south, of the property were contacted to investigate the southwest trend of the groundwater flow. The following businesses were contacted and reported no known active or inactive wells:

1. Yorktowne Paper Mills
2. York Building Products
3. Agway Chemical Company
4. Walter Zeigler Ready Mix
5. Rams Head Wire
6. Associated Wholesaler, Inc.
7. P. A. & S. Small, Associated
8. 84 Lumber Products

The discovery of high concentrations of TCE and PCE in the Siegler well led to an expanded investigation of the off-site residences. Areas to the north, east and south of the Harley-Davidson property were included. The purpose was twofold:

1. There was a concern that some residents may be exposed to potentially harmful groundwater, which may or may

not have resulted from past actions on the Harley-Davidson property.

2. By determining the distribution of chemicals in the groundwater and the gradient of the water table, the source of the chemicals may be determined.

A total of 65 homes were contacted of which 9 homes were found to have a well or spring as a primary water supply. Two homes have a well for supplemental use such as car washing, lawn watering, etc. Another 7 water supplies were identified as completely abandoned. Survey data relating to the individual homes are presented in Appendix 2 and Figure 2-2 shows the location of the homes surveyed. Not all homes adjacent to the property were contacted but a sufficient number were interviewed to show consistency of information with regard to who did and who did not have a well. The York Water Company was contacted but would not provide a list of its customers in the area. Chemical analyses of all the residential wells sampled are presented in Appendix 3 and the significance of these results will be discussed later in this report.

2.6 Perimeter Road and Property Fence Soils Investigation

Soil samples from beneath the perimeter road and at the base of the property fence were taken to investigate suspicions of past practices of road oiling and chemical application for weed control on the fence.

A total of 10 pits were excavated from the base of the property fence to the inner edge of the perimeter road. Six additional hand-dug test pits were also constructed. The location and the types of excavations are detailed on Figure 2-3.

Soil profiles were generally the same in each pit. As much as two inches of limestone gravel (road material) were seen on top of a medium to dark gray silty clay, which was compressed due to automobile traffic. Below this hard pack is a 10- to 12-inch zone of medium to dark brown silty loam topsoil. A well defined contact was visible between the topsoil and an underlying reddish-orange silty clay loam.

None of the pits encountered any unusual materials, and no organic vapors were detected with the field instruments. Consequently, the natural zonations in each pit were logged and statistically sampled for VOC's and free and total cyanide. The results of soil sample analyses (Appendix 4) revealed the presence of 4 VOC's in six of the excavations, as summarized in Table 2-1. These results are illustrated on Figure 2-3. PCE, was found in 4 of 8 samples and accounted for more that 67 percent by weight of the contaminants detected. TCE was present in only one pit, however, its degradation products 1,1-Dichloroethane and 1,1-Dichlorethylene are frequently detected in low concentrations.

The presence of the VOC's in the soils substantiates the supposition that chemicals were applied in these areas. However, the trace amounts found of these chemicals remaining in the soils could not be a continuing source of contamination to the water table. Furthermore, it is not known if the chemicals applied to the perimeter area were the source of contaminants found in the groundwater. Certainly the disposal of chemicals along the road and fence could explain the chemicals found in upgradient wells. But whether the trace levels present today are remnants of past higher contaminant levels is unknown. It is suspected that these chemicals may reduce in concentration in the soil as a result of volitilization and biodegradation.

LEGEND

- ○ LOCATION OF SAMPLED WELL
- ● LOCATION OF UNSAMPLED WELL
- ▲ LOCATION OF SAMPLED SPRING
- △ INTERVIEWED AND HAVE NO WELL

400' 0 400'
SCALE IN FEET

FIGURE 2-2

HARLEY DAVIDSON, INC.
YORK FACILITY

LOCATION MAP OF RESIDENCES CONTACTED IN OFF-SITE WELL SURVEY

drawn RAM	approved SMS	drawing no.
checked PEN	date 2-3-87	86030-005-A

r. e. wright associates, inc.
earth resources consultants
middletown pennsylvania

LAST TOPOGRAPHIC MAP REVISION OF 1954 DOES NOT SHOW RECENT ROAD AND DWELLING CONSTRUCTION

APPENDIX G

GSC Memorandum with Field Reconnaissance and Research Documentation for Wells at the York Wastewater Treatment Plant Property

Included in the FOIA Exempt Materials Report