PAYSON PCE

2012 PERIODIC SITE REVIEW
WATER QUALITY ASSURANCE REVOLVING FUND
PAYSON, ARIZONA

ADEQ
Arizona Department
of Environmental Quality

November 26, 2013
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2012 PERIODIC SITE REVIEW
PAYSON PCE WATER QUALITY ASSURANCE REVOLVING FUND SITE
PAYSON, ARIZONA

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Payson PCE WQARF Site
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APPROVAL PAGE

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EXECUTIVE SUMMARY

The Arizona Department of Environmental Quality (ADEQ) has conducted this first Periodic Site Review (PSR) of the remedial action at the Payson PCE Water Quality Assurance Revolving Fund (WQARF) Site (Payson PCE Site) located in Payson, Gila County, Arizona. The trigger for this five-year review was the Record of Decision (ROD) dated May 31, 2007.

The assessment of this five-year review found that the remedy was constructed in accordance with the requirements of the ROD. The selected remedy for the Payson PCE Site is pumping groundwater from existing production wells and treating the extracted groundwater by granulated-activated carbon (GAC) in a 200 gallon per minute system. Also, part of the selected remedy is delivering the treated water to the Town of Payson (TOP) for municipal supply which includes delivery to residential customers.

This PSR finds that the selected remedy assists in the protection of human health and the environment. The selected remedy is successfully treating groundwater and is helping ensure that contaminated groundwater is not part of the Town of Payson potable water supply. The Expanded Groundwater Treatment System (EGTS) is currently removing volatile organic compounds (VOCs) from impacted groundwater. The PSR indicates that the groundwater contaminant plume is not expanding.

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List of Acronyms

ADEQ	**Arizona Department of Environmental Quality**
ADHS	**Arizona Department of Health Services**
ADWR	**Arizona Department of Water Resources**
AL	**Alluvium**
ART	**Advanced Remediation Technologies**
ARAR	**Applicable or Relevant or Appropriate Review**
AWQS	**Aquifer Water Quality Standards**
Bgs	**Below Ground Surface**
BTEX	**Benzene, Toluene, Ethylbenzene, and Xylene**
CG	**Competent Granite**
cis-1,2, DCE	**cis-1,2-dichloroethene**
COC	**Contaminant of Concern**
DCE	**Dichloroethylene**
DG	**Decomposed Granite**
EGTS	**Expanded Groundwater Treatment System**
EPA	**Environmental Protection Agency**
ERA	**Early Response Action**
ESI	**Expanded Site Inspection**
EW	**Extraction Well**
EX Well	**Extraction Well**
FG	**Fractured Granite**
FS	**Feasibility Study**
FY	**Fiscal Year**
GAC	**Granular Activated Carbon**
GEC	**Geotechnical and Environmental Consultants, Inc.**
GPLs	**Groundwater Protection Levels**
GPM	**Gallons per Minute**
HCM	**Hydrologic Conceptual Model**
IGTS	**Interim Groundwater Treatment System**
IGA	**Intergovernmental Agreement**
IRIS	**Integrated Risk Information System**
LFR	**Levine-Fricke-Recon**
LUST	**Leaking Underground Storage Tank**
MCL	**Maximum Contaminant Level**
MEK	**Methyl Ethyl Ketone**
mg/L	**Milligrams per Liter**
MTBE	**Methyl Tertiary Butyl Ether**
MW	**Monitor Well**
OPDC	**Old Payson Drycleaners**
O & M	**Operation and Maintenance**
PA	**Preliminary Assessment**
P.E.	**Professional Engineer**
PCE	**Tetrachloroethylene, Tetrachloroethene, Perchloroethene**
PLC	**Programmable Logic Controller**
PC	**Personal Computer**
ppb	**Parts per Billion**

ppm	**Parts per Million**
PRAP	**Proposed Remedial Action Plan**
PSR	**Periodic Site Review**
Qal	**Quaternary Alluvium**
RAO	**Remedial Action Objectives**
RA	**Risk Assessment**
RfD	**Reference Dose**
R.G.	**Registered Geologist**
RI	**Remedial Investigation**
RIHU	**Remedial Investigations Hydrology Unit**
RO	**Remedial Objective**
ROD	**Record of Decision**
SCADA	**Supervisory Control and Data Acquisition**
SRLs	**Soil Remediation Levels**
SRP	**Salt River Project**
SVE	**Soil Vapor Extraction**
TCA	**Trichloroethane**
TCE	**Trichloroethylene, Trichloroethene**
TOP	**Town of Payson**
trans-1,2-DCE	**trans-1,2-dichloroethene**
TTHMs	**Total Trihalomethanes**
µg/L	**Micrograms per liter**
µg/m^3	**Micrograms per Cubic Meter of Air**
URS	**URS Corporation**
USGS	**United States Geological Survey**
USTs	**Underground Storage Tanks**
VC	**Vinyl Chloride**
VFD	**Variable Frequency Drives**
VOCs	**Volatile Organic Compounds**
WQARF	**Water Quality Assurance Revolving Fund**
WS	**Well Set**
WT	**Western Technologies, Inc.**

1.0 INTRODUCTION

The purpose of this Periodic Site Review (PSR) is to determine whether the remedy at the Payson PCE site is protective of human health and the environment. The methods, findings, and evaluations of reviews are documented in this PSR.

This report summarizes PSR activities conducted by ADEQ and Western Technologies Inc. (WT) for the Payson PCE Site. PCE is the primary chemical of concern (COC) for this WQARF Site. Table 1 in Appendix A summarizes PCE concentrations for groundwater samples collected in association with this project since 1997. Figures 1 through 8 in Appendix B show the location and extent of the source area, groundwater contour maps, PCE Concentration Maps, and the monitoring well network. The source area for the PCE is considered to be the location of the former Old Payson Drycleaners (OPDC) near the eastern end of the plume of PCE-impacted groundwater. Other potential chemicals of concern, such as the decay products of PCE and petroleum-related compounds from nearby releases are monitored. The ROD for the Payson PCE Site was published in June 2007.

2.0 SITE CHRONOLOGY

The following table presents a summary of the site chronology amended from ADEQ's Online Payson PCE WQARF Site Summary, dated January 2011.

Noted Events	Date
In April, the TOP collected samples from four TOP groundwater wells (TOP-4, TOP-5, TOP-19, and TOP-20) in preparation for utilizing the wells for municipal water production. PCE was detected in groundwater samples from two production wells (TOP-4 and TOP-5) at concentrations of 13,600 micrograms per liter (µg/l) and 542 µg/l, respectively. In May, ADEQ identified the Payson PCE Site as a potential WQARF Site and conducted its own initial groundwater sampling event. In December, ADEQ coordinated with Earth Tech for additional sampling of TOP wells.	1990
ADEQ and Earth Tech coordinated the plan for hydrogeologic investigation of the Payson PCE WQARF Site.	1991
In April, well elevations were surveyed by Yost and Gardner for ADEQ. In November, ADEQ identified the OPDC, located at 904-906 S. Beeline Highway, as a potential source of contamination. The OPDC had operated at the 904-906 S. Beeline Highway location from 1976 to 1984.	1992
In February, ADEQ conducted a preliminary assessment (PA) of the OPDC. In March, Earth Tech conducted additional sampling, prepared a plume map, and conducted hydrophysical logging of TOP-4 and TOP-5. In April, ADEQ conducted a site inspection of the Payson PCE WQARF Site source area, including direct push groundwater, soil vapor, and soil sampling.	1993
ADEQ conducted additional investigation activities and began groundwater monitoring and sampling of wells near the Payson PCE Site. Aquifer testing was conducted in the source area in December.	1994
In January, ADEQ conducted an Expanded Site Inspection (ESI) focusing on the suspected source location, a septic tank at the OPDC. In June, ADEQ retained Growth Environmental to remove the septic tank system and surrounding soils as an early response action (ERA) under the WQARF program.	1995

Noted Events	Date
In the first quarter, ADEQ conducted a detailed soil investigation at the OPDC and the gas station located to the south of Nugget Street. Extraction Wells EW-1 and EW-2 were installed (EW-3 was installed as Monitor Well PP-01 in June 1994). In September, ADEQ retained Dames and Moore to design and construct an air-stripping and carbon filtration interim groundwater treatment system (IGTS) to remediate groundwater at the source area. Between October and November, ADEQ installed down-gradient groundwater monitor wells (DG-1, DG-2, DG-4A and DG-5) and three downgradient exploratory borings (DG-3, DG-4, and DG-6) to define the extent of groundwater contamination, and ADEQ conducted sampling of a cesspool at the OPDC.	1996
Dames and Moore constructed the IGTS at the TOP's Water Services Compound at 204 West Aero Drive. The OPDC cesspool was removed and further characterized as an ERA. In August, ADEQ contracted EMCON to develop a Hydrogeologic Conceptual Model (HCM); to develop a groundwater flow model; and to evaluate, design, and build the EGTS as an ERA. The primary goal of the EGTS was to remediate dissolved groundwater from the diffuse PCE plume(s) down-gradient of the source area. ADEQ retained HSI GeoTrans to conduct aquifer testing on TOP wells. Dames and Moore was retained to conduct quarterly groundwater sampling and testing and create a database for sampling data. In December, a 90-day operational test of the completed IGTS was initiated.	1997
In March, a wellhead treatment system was constructed at the TOP-Skinner well by Levine-Fricke-Recon (LFR). EMCON designed and built the EGTS, installed and conducted aquifer testing on 32 new monitoring wells, and subsequently completed the groundwater flow model report. The Payson PCE Site was added to the WQARF Registry List on April 28, with an eligibility and evaluation score of 63 out of a possible 120. In October, the IGTS and EGTS became operational and began treating and delivering water to the TOP.	1998
In April, Geotechnical and Environmental Consultants, Inc. (GEC) conducted its initial quarterly comprehensive groundwater sampling and testing event on more than 100 wells including selected TOP wells, monitoring wells, and domestic wells. More than 35 domestic wells were evaluated to identify threatened or impacted domestic supplies in the area of the PCE groundwater plume. In September, three abandoned underground storage tanks (USTs) located at the property of the former OPDC were removed. Soil and soil vapor sampling was conducted, and three nested vapor monitor wells were constructed and sampled near the source area.	1999
In 2001, two additional groundwater extraction wells, EX-1 and EX-2, were drilled and constructed near the geographic center of the PCE plume to provide additional capture and control of the plume. A SVE system was constructed and operated to remediate contaminated soils in the source area.	2001
In June 2002, the Remedial Investigation (RI) report was finalized. In October, operation of the SVE system was terminated. The groundwater monitoring schedule was changed to a biannual schedule for comprehensive monitoring events (in March and September) and continued quarterly monitoring for a reduced number of selected wells.	2002
In January, the IGTS was turned off, and the SVE system was decommissioned. The Feasibility Study (FS) was completed in May. The Proposed Remedial Action Plan (PRAP) was completed, and ADEQ responded to comments. Dry extraction wells EW-1, EW-2 and EW-3 were abandoned in February.	2003
PCE was detected at a concentration of approximately 760 µg/l in December 1999 from a monitor well close to the source area. The concentration decreased to approximately 50 µg/l in September 2006.	2006

Noted Events	Date
Semi-annual groundwater sampling was conducted in March and September. The highest PCE concentration during the September sampling event was 41 µg/l from DMW-1C in the Fractured Granite/Competent Granite (FG/CG) Unit. In the Alluvial Unit, PCE concentrations ranged from non-detect to 21 µg/l. The Record of Decision (ROD) for the Payson PCE Site was signed in June.	2007
Groundwater samples were collected and water level measurements taken in March, June, September and December. In March, the highest PCE concentration, of 32 µg/l, was detected in the sample from monitor Well DMW-1C. This well was located southeast of the EGTS and southwest of the source area. PCE concentrations exceeding the Aquifer Water Quality Standards (AWQS) were present in samples from nine other monitor wells in the immediate vicinity.	2008
ADEQ continued to fund the operation of the ETGS. However, during the economic budgetary crisis, other ROD activities were conducted only as funding allowed. Between October and December, 18,015,400 gallons of water were treated, and 0.41 pounds of PCE were removed. As of December 31, 2009, the EGTS removed a cumulative total of 497.56 pounds of PCE. A cumulative total of more than 832,781,500 gallons of water were treated. In September, the contract for groundwater monitoring activities and monitoring well network maintenance was assumed by WT.	2009
In late September and early October, groundwater samples were collected from 42 monitor wells. PCE results ranged from non-detect to 16.3 µg/l. Samples from five wells in the Payson PCE Site area contained PCE concentrations that exceeded the AWQS.	2010
In September, groundwater samples were collected from 42 monitor wells. PCE results ranged from non-detect to 23.5 µg/l. Samples from seven wells in the Payson PCE Site area contained PCE concentrations that exceeded the AWQS.	2011
The Payson PCE Site PSR activities began in October 2011 continued in 2012. As of June 30, 2012, the EGTS removed a cumulative total of 499.64 pounds of PCE. A cumulative total of 938,200,000 gallons of water have been treated.	2012

3.0 BACKGROUND

The following background events are listed to augment the events listed in the Section 2.0 – Site Chronology:

- In 1990, PCE was detected in two Town of Payson production wells that were installed for future use.
- The Payson PCE Site was identified as a potential WQARF site in 1990.
- At the OPDC, removal of septic tanks used for disposal of the dry cleaning wastes, removal of a 40-foot deep cesspool and some surrounding soils, and removal of three USTs used for the storage of gasoline and diesel (September 1995).
- The Payson PCE Site was placed on the WQARF Registry List on April 28, 1998.
- In June 2007, the ROD – which documents the remedial method choice – was signed and presented to the Community Advisory Board (CAB).
- The Payson PCE Site contaminant plume boundaries were originally defined as an area encompassing approximately 110 acres in the southeastern portion of the Verde River Basin.

The boundaries have been refined over time based on additional investigative and remedial work.

- Figures 6, 7, and 8 in Appendix B compares the 1999 and 2011 inferred extent of the Payson PCE Site contaminant boundaries in the different groundwater bearing lithologic units.
- Additional contaminants, such as the decay products of PCE (trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and vinyl chloride (VC)) have been tracked through the history of the project. Methyl-tertiary butyl ether (MTBE) and benzene (MTBE and benzene are generally considered to be issues related to leaking USTs) have also been tracked.
- A second WQARF Site, the Tonto and Cherry WQARF Site, was discovered in 1993 centering around a former dry cleaner (Grand Way Cleaners), previously located in the Bonanza Square Shopping Center (northwest corner of Frontier Street and Colcord Street), immediately north of the eastern portion of the Payson PCE Site. The Tonto and Cherry WQARF Site is not a subject of this PSR; however, references are made to it in the discussions within this report.

3.1 Physical Characteristics

The Payson PCE Site is located within Payson, Arizona. The Payson PCE Site boundaries were originally defined as an area encompassing approximately 110 acres in the southeastern portion of the Verde River Basin (southwestern portion of the town). The boundaries have been refined over time based on additional investigative and remedial work. It is more specifically defined as the aerial extent of the composite PCE groundwater plume, See Figure 1 in Appendix B. The general geographic coordinates of the Payson PCE Site are 34° 13' 44" north latitude, and -111° 19' 45" west longitude, in portions of Sections 4 and 9, Township 10 North, Range 10 East of the Gila and Salt River Baseline and Meridian, Gila County, Arizona.

The Payson PCE Site is located in the Green Valley drainage system, which is one of the two main drainage systems in the TOP area. The Green Valley drainage system is an ephemeral stream that flows during times of significant precipitation. In the past, the central portion of the Green Valley drainage system, within the Payson PCE Site, has been a water-saturated area with shallow groundwater present, often rising above the land surface in certain areas. The central portion of the Green Valley drainage system has historically been within the 100-year flood plain, but storm drainage channelization (in the late 1990s) in the eastern portion of the Payson PCE Site, has altered drainage in that area. Currently, surface water is present only during precipitation events near the Payson PCE Site.

The groundwater in the Payson PCE Site area occurs within the upper portion of the Green Valley drainage system (a fault-controlled alluvial basin) and the underlying Payson Granite. The Payson Granite forms much of the exposed rock and bedrock within the immediate vicinity of the Payson PCE Site and is thought to be the parent material for much of the alluvial material within the groundwater basin. Generally, three distinct groundwater bearing zones are described in the area:

1. **AL Unit**: the upper alluvial unit composed of clayey to gravelly soil, the underlying heavily-weathered granitic bedrock;
2. **DG-FG Unit**: the middle decomposed bedrock/fractured bedrock unit; and the lowest unit, the fractured/competent granite. The middle unit is thought to be the primary source of groundwater within the Payson PCE Site area; and
3. **FG-CG Unit**: the lower fractured/competent granite unit. Generally, groundwater in this unit is limited to porosity created by interconnected fractures, faults and similar features.

3.2 Land and Resource Use

Land use in the Payson PCE Site area is identified in the TOP zoning map (August 24, 2007) as consisting primarily of commercial land (neighborhood service, general commercial, and roadway frontage classes), followed by respectively lesser areas of residential land (transitional multi-family class), and industrial land (light industrial class). Based on the ADEQ January 2012 Estimated Plume Boundary Map, the plume of impacted groundwater underlies roadway frontage commercial and transitional multi-family zoned land. Other zoned use areas, including single-family residential, are present around the periphery of the Payson PCE Site. It should be noted that variant, special-use, and grandfathered non-compliant land uses may occur within the area of the Payson PCE Site. Lands of the Tonto Apache Indian Reservation are present within approximately one-quarter mile south of the 2007 plume boundary estimate.

3.3 History of Contamination

The OPDC operated at 904-906 South Beeline Highway, Payson, AZ from 1976 to 1984. In 1990, PCE was discovered in groundwater samples from wells that were in the process of incorporation into the TOP's network of municipal groundwater production wells. The PCE concentrations exceeded the Arizona AWQS and the federal maximum contaminant level (MCL) for PCE. The TOP wells were identified as TOP-4, TOP-5, TOP-19, and TOP-20. The Payson PCE Site was identified as a potential WQARF Site in 1990, and placed on the WQARF Registry on April 28, 1998. The wells with impacted samples were all located downgradient of the OPDC.

PCE is considered the primary COC for the Payson PCE Site. In addition to PCE, the RI identified other potential COCs including TCE, benzene, chloroform, and 1,2-dichloroethane. The PCE degradation products: cis-1,2-DCE, trans-1,2-DCE and VC are also considered compounds of special interest and are tracked as COCs. Concentrations in groundwater of these COCs, though, are below AWQS.

3.4 Initial Response

As part of an ERA, ADEQ constructed three remediation systems to address contamination found at the Payson PCE Site. In 1990, following the discovery of VOCs in municipal supply drinking water wells, the impacted wells were removed from potable use. ADEQ also began providing bottled drinking water to residents with impacted drinking water wells in and around the study area. In June

1995, to clean up the suspected source of contamination, ADEQ removed the septic tank system and surrounding soils at the OPDC, as an ERA, under the WQARF program. In September 1996, the IGTS, which consisted of an air-stripping system with carbon filtration, was constructed to remediate groundwater at the source area. In August 1997, the construction of the EGTS began to remediate groundwater down-gradient of the source area and in December 1997, a 90-day operational test was conducted using the constructed IGTS. In 1998, the EGTS was constructed in order to contain the contaminant plume and remediate groundwater. In October 1998, the IGTS and EGTS were brought into full operation treating impacted groundwater and delivering treated water to the TOP. In 2001, a SVE system was constructed to remove contamination located in the soil near the source area; the SVE system was operated through October 2002.

3.5 Basis for Taking Action

As stated in the ROD, because the TOP has been completely dependent upon pumped groundwater to provide municipal water supplies, the aquifer near the Payson PCE Site is important as a critical water source for the TOP. The TOP 1998 Long Term Management Program, of the TOP's Water Resources (prepared by Southwest Ground-water Consultants, Inc.), indicated that the aquifer in the area of the Payson PCE Site was expected to supply 35 percent of the TOP's total water demands. Therefore, the TOP participated in the development and construction of portions of the remedial action systems.

According to the TOP Water Department, the aquifer and the EGTS remain critical to the TOP water supply program. They stated that the TOP has secured surface water rights to the C.C. Cragin Reservoir, located about 22 miles north of Payson, atop the Mogollon Rim. They indicated that the TOP anticipates transitioning to primary reliance on the surface water source for its water needs when the C.C. Cragin Reservoir pipeline and infrastructure come online in about three to five years. After the transition, groundwater will continue to be utilized on a seasonal basis as the C.C. Cragin Reservoir will be "off-line" during the winter months of December through March each year. Additionally, the TOP expects groundwater to remain a critical source for meeting peak and future demands, while also continuing to serve as a backup and emergency water supply. The TOP's long term plans have assumed continuous operation of the EGTS even when surface water is being delivered.

4.0 REMEDIAL ACTIONS

The Payson PCE Site has undergone extensive investigation to characterize the nature and extent of contamination and to manage the effectiveness of the remedial activities. In 1993, ADEQ performed a PA of the potential source area at the OPDC. ADEQ completed the RI Report and the FS Report. The RI Report established the nature, extent, and sources of contamination; identified current and potential impacts to public health, welfare, and to the environment; identified current and reasonably foreseeable uses of land and waters of the state; and obtained and evaluated information necessary for identification and comparison of alternative remedial actions. The FS Report used the information collected as part of the RI to identify a reference remedy and alternative remedies that appeared to be capable of achieving

the remedial objectives (ROs). The remedial actions were then evaluated based upon a comparison criteria that selected a remedy that complied with A.R.S §49-282.06 (ADEQ, 2007).

ADEQ used the evaluation of remedial alternatives in the FS Report to choose a remedial method. ADEQ then prepared a PRAP that included a description of the chosen remedy, how the remedy would achieve each of the ROs identified in the RI Report, how accomplishment of the ROs identified would be measured, and a description of the use of the remediated water as defined in A.R.S. §49-287.01 (ADEQ, 2007).

The Payson PCE Site is currently in the long term Operation & Maintenance (O & M) phase.

4.1 Remedy Selection - Record of Decision

The ROs established for the project site are to protect the public and the environment from exposure to COCs via land use or groundwater use. The ROs identify a resource type that, without remedial action, would be lost or threatened due to the presence of a contaminant within that resource. The ROs established protection goals for land use and for potentially lost or threatened groundwater uses.

The Selected Remedy to meet the RO's for the PCE Payson site is:

1. pump groundwater from existing production wells (TOP Skinner, TOP-4, TOP-5R, TOP-19, EX-1, EX-2);
2. treatment of COCs in the extracted groundwater by granular-activated carbon (GAC) at the EGTS (a 200 gallon per minute system); and
3. delivery of treated water to the TOP for municipal supply, including delivery to residential customers.

More specifically, the RO's for Land Use and Groundwater Use and the Metrics established to measure progress toward the RO's are as follows:

Land Use	
Remedial Objective (RO):	**Established Metric:**
Protect against possible exposure to hazardous substances in surface and subsurface soils that could occur during development for commercial/retail use. If additional work at the Property is necessary beyond the previously conducted early response actions, ADEQ will coordinate with the TOP and local property owners to work towards a final remedy that is compatible with these development plans.	NA – *Soils were remediated during ERA using technologies such as: 1) removal of septic tanks used for disposal of the dry cleaning wastes, removal of a 40-foot deep cesspool and some surrounding soils, and removal of three USTs used for the storage of gasoline and diesel; and 2) SVE operations.

*Please note that there were changes to ADEQ soil cleanup levels after the ROD was published. Please see section 6.4 for further discussion.

Groundwater Use		
Remedial Objective (RO):	**Rationale for RO:**	**Established Metric:**
Lost or Impaired Municipal Use of Groundwater – To restore, replace, or otherwise provide for the use of groundwater currently lost or impaired by PCE contamination at the Payson PCE Site. Water will be provided to the TOP in continuity with existing water treatment at the Payson PCE Site.	In the absence of groundwater treatment, TOP production wells TOP-4, TOP-5R, TOP-19, TOP-20, and TOP Skinner would be "lost" since PCE concentrations exceed the relevant AWQS of 5 µg/l.	To measure the changes in PCE concentrations in the wells to demonstrate whether concentrations are declining at each well. The goal will be to achieve PCE concentrations of less than the AWQS in these wells and nearby monitor wells to demonstrate cleanup.
Threatened Municipal Use of Groundwater –To protect or otherwise provide for the use of groundwater currently threatened by PCE contamination from the Payson PCE Site. Additional threatened municipal use of the groundwater source has not been identified since the publication of the ROD in June 2007.	In the absence of groundwater treatment, TOP production well TOP-New McKamey (also referred to as TOP McKamey) would be "threatened" since PCE concentrations have been detected in groundwater samples. However, none of the detected PCE concentrations have exceeded the AWQS for PCE. The ROD stated that the Selected Remedy, operation of the EGTS to maintain capture of the plume and prevent its spread, continues to mitigate/prevent further impact to the TOP New McKamey well.	To measure the changes in PCE concentrations in the well to demonstrate whether concentrations are increasing and the potential for PCE concentrations to exceed the respective AWQS. An additional metric of monitoring the groundwater gradient near monitoring wells WS-10 (DMW-10), WS-11 (DMW-11), and WS-14 (DMW-14) will identify potential changes in plume capture during the operation of the EGTS.
Threatened Private Groundwater Use –To protect or otherwise provide for the use of groundwater currently threatened by PCE contamination from the Payson PCE Site, as the remedy that will provide protection for individuals owning a threatened well and will be implemented in continuity with existing actions designed to protect and preserve water quality.	The ROD identified that threatened use of groundwater by the private user was considered reasonably foreseeable due to migration of the contaminant plume. The conclusion of the evaluation in the FS was that the Selected Remedy is capable of meeting the objective of capturing and containing the plume.	To measure the changes in PCE concentrations and groundwater gradients in the nearby monitor wells to demonstrate whether plume capture is maintained.
Threatened Tonto Apache Tribe Groundwater Use – To protect or otherwise provide for the use of groundwater currently threatened by PCE contamination from the Payson PCE Site. The Tribe owns a well located at McLane Road and the Beeline Highway which was evaluated as part of the FS. The Tribe also owns land at the southwest corner of McLane Road and Aero Drive, which may be used in the future to provide water for use on Tribal lands.	In the absence of groundwater treatment, the Tribe land and Tribe well southwest of the Payson PCE Site would be "threatened" since PCE concentrations could potentially be detected in groundwater samples. The Selected Remedy of operation of the EGTS to maintain capture of the plume and prevent its spread, continues to mitigate/prevent further impact to these Tribe resources.	To measure the changes in PCE concentrations and groundwater gradients in nearby monitor wells (Well Sets WS-5, WS-6, and WS-7) to demonstrate whether plume capture is maintained in the western portion of the Payson PCE Site.

The protection of threatened groundwater will continue for as long as the need exists, the resource remains available, and PCE contamination threatens use of groundwater.

4.2 Remedy Implementation

The Selected Remedy for the Payson PCE Site consists of the EGTS and a program of groundwater monitoring activities to evaluate the achievement of the ROs. The Selected Remedy is operated to achieve the following:

- best assure the protection of the public health and welfare,
- best assure the protection of the environment,
- to the extent practicable, provide for the control, management, and cleanup of the PCE contamination, maximizing beneficial use of the groundwater in the TOP, and
- be reasonable, necessary, cost-effective, and technically feasible.

This section describes the implementation of the Selected Remedy including the O & M of the EGTS and the groundwater monitoring program.

4.2.1 Expanded Groundwater Treatment System

Operation and Maintenance, System Design

The O & M of the EGTS is performed by the TOP. The TOP provides the basic data produced by their monitoring efforts to their current consultant, URS Corporation (URS). Using this data, the consultant tracks and calculates selected performance parameters (influent/effluent concentrations, volume of water treated, pounds of contaminants removed, etc.) which are then published in a biannual letter to the TOP.

The EGTS is a GAC system that was built and brought into operation in October 1998. The GAC system includes two 20,000-pound GAC filtration units, which currently receives contaminated groundwater from the production/extraction wells. The EGTS filtration system is housed in a 3,000-square-foot manufactured steel building. The design pumping rate of the EGTS is 200 gallons per minute (gpm), but the system itself is physically capable of a larger flow rate. The EGTS extracts groundwater from VOC plumes within the three groundwater units via six TOP production/extraction wells EX-1, EX-2, TOP-4, TOP-5R, TOP-19, and TOP-Skinner. However, as groundwater elevations decrease within the plume area, it is unlikely that significant increases in flow rates will occur.

Extracted groundwater from the production/extraction wells flows through parallel tandem bag pre-filters (See Picture 6, Appendix C), and enters the GAC vessels (Picture 9, Appendix C),

exiting via a pipeline through a chlorination meter to a 100,000-gallon capacity contact chlorination/distribution storage tank south of the EGTS building (See Picture 3, Appendix C). The EGTS is equipped with piping and inlet works for connecting up to two additional groundwater extraction wells or well sets. The EGTS design and construction has been documented by Advanced Remediation Technologies (ART) as part of the Construction Report: *Payson WQARF Site, EX-1 & EX-2 Extraction Wellheads, Payson, Arizona,* (ART, 2002) and Construction Report: *Expanded Groundwater Treatment System, Payson, Arizona,* (ART, 2000).

The carbon is periodically back-flushed or replaced, based on results of water sampling. The last carbon replacement was performed in early 2012 by the TOP. Generally, the carbon has been changed whenever breakthrough between the first and second vessels occurred, which has been approximately at two-year intervals. The treated water is chlorinated by the TOP and distributed from the 100,000-gallon capacity contact chlorination tank and delivered to the TOP potable water supply system through an on-site inter-connect.

The EGTS is controlled by means of a programmable logic controller (PLC) and a personal computer (PC). The PC functions as the data storage device and is the means by which changes in the operation parameters (set points) can be input to the PLC. Originally, the PLC and PC controlled variable frequency drive (VFD) pumps through a supervisory control and data acquisition (SCADA) control system. In 2002, the original SCADA system was replaced with a Citect SCADA system. This was done to integrate the EGTS systems with the TOP's existing control systems for the entire well network. Subsequently, the TOP modified the network, converting to smaller capacity pumps operated by individual timers, to simplify the equipment and promote more continuous operational performance. The PLC was programmed to automatically dial a list of personnel should the system go off-line. However, due to their re-established priority concerns, the TOP has removed the automatic dialer from service and relies on daily site visits to monitor the operation of the system. It is anticipated that the system will be incorporated into the TOP SCADA system. When this is completed, the EGTS alarms will be integrated with the WIN911 alarm service system.

4.2.2 Groundwater Monitoring Program

Groundwater monitoring activities began shortly after discovery and increased in scope through the late 1990s as additional monitoring wells and other wells were added to the monitoring network. Since 1999, the groundwater monitoring activities for the Payson PCE Site have been performed by GEC (1999-2009) and WT (2009-to the present). The following are the current activities that occur with regards to the groundwater monitoring program:

1. Semi-annual groundwater level measurements;
2. Semi-annual groundwater quality sampling;
3. Maintenance of well pump systems;
4. Management of investigative derived wastes; and

5. Submittals of electronic data for inclusion in the groundwater database maintained by ADEQ.

Historically, more than 100 wells have been included in the Payson PCE Site groundwater monitoring program, including approximately 55 monitoring wells (including DMW Wells, SW Wells, DG Wells, several early response wells near the source area installed as part of the project, and several other monitoring wells in the vicinity that were part of two nearby LUST investigations), seven TOP production wells, and more than 42 private/commercial wells.

As certain wells went dry, were abandoned, were transferred to the Payson Tonto and Cherry WQARF Project, or were demonstrated to be outside of the area threatened by PCE contamination, they were eliminated from the groundwater monitoring program. As of September 2011, 65 wells were included in the monitoring activities, including 52 monitoring wells, seven TOP wells, two EX Wells and four private wells. As part of the monitoring activities, field crews regularly perform cursory visits to a few other selected wells for information gathering purposes as the need arises.

4.3 Operation and Maintenance Costs

The EGTS O & M activities consist of routine groundwater monitoring of the remedy extraction wells and monitoring well network, air, and treatment system influent and effluent monitoring. Since December 31, 2009, the TOP has assumed the cost for O & M of the EGTS GAC units in addition to the influent and effluent monitoring. Since these costs are assumed to be part of the activities of the TOP Water Services Department, they are not evaluated in this PSR. The costs incurred by ADEQ are reviewed in the following section and include costs for the O & M and influent/effluent monitoring prior to 2010 as well as the cost for routine groundwater monitoring of extraction wells and the monitoring well network. The following table compares the projected costs versus the actual costs for ADEQ's expenditures for the Payson PCE Site from 2007 through 2012.

Time Period	Costs Estimated in the ROD				Actual ADEQ Expenditure
	EGTS Operation and Maintenance	Groundwater Monitoring, Sampling and Reporting	Community Involvement	Total Estimated Costs	
Fiscal Year 2007	Not Established	Not Established	Not Established	Not Established	$166,062.10
Fiscal Year 2008	$100,000	$150,000	$2,000	$252,000	$186,927.20
Fiscal Year 2009	$103,000	$154,500	$2,060	$259,560	$136,313.68
Fiscal Year 2010	$106,090	$159,135	$2,122	$275,367	$48,390.12
Fiscal Year 2011	$109,273	$163,909	$2,122	$283,628	$39,925.00
Fiscal Year 2012	$112,551	$168,826	$2,251	$292,137	$65,000.00
Totals	**$530,914.00**	**$796,370.00**	**$10,555.00**	**$1,362,692**	**$642,618.10**

It is noted that even without an established budgetary estimate for Fiscal Year 2007, the actual to-date ADEQ expenditures have not exceeded the budgetary estimates established in the ROD. This is significantly due to the stability of the project and the assumption of O & M costs by the TOP. However, changes to the TOP's water budget and extraction/recharge balance may change the funding demands for this project.

5.0 PROGRESS SINCE LAST REVIEW

Operational and overall review of this project is conducted on an ongoing basis by ADEQ and its consultants. This is the first PSR performed for the Payson PCE Site. Therefore, this section is not applicable at this time.

6.0 PERIODIC SITE REVIEW PROCESS

The following sections describe the process, data gathering, and findings of this PSR.

6.1 Administrative Components

This first PSR was conducted by the ADEQ's project management team and assisted by WT. The PSR consisted of community notification, document review, data review, applicable or relevant or appropriate requirements (ARAR) review, review of incidents, human health risk assessment, and

site inspection. This work was initiated on September 29, 2011 at a kick-off meeting led by the then ADEQ Remedial Projects Section Manager, Julie Riemenschneider. This meeting was also attended by Danita Hardy and Jennifer Thies (ADEQ Project Managers) and Felicia Calderon (Community Involvement Coordinator), Chet L. Pearson, P.E. (Principal, WT) and Steven C. Kaminski, R.G. (Project Manager, WT). Components of the PSR process are discussed in the following sections and include: community notification and involvement, document review, data review, site inspection, and site interviews.

6.2 Community Involvement

ADEQ placed a public notice announcement and information fact sheet regarding the PSR and a request for community response on its website on September 29, 2011. The notice was issued with the title indicating it as a Five Year Review, which is not defined by State of Arizona statutes for the WQARF program. The five-year term simply refers to the approximate period of time between the publication of the ROD and this PSR. ADEQ will determine the appropriate time for the next review, which may be more or less than five years.

In addition to the public notice fact sheets, ADEQ posted a PDF brochure on their website describing details of the plans for this PSR. The announcement posted the planned interview date and time for open public response interview sessions held in Payson on October 24 and 25, 2011. On October 6, 2011, Jonathan Parr, of WT, visited the TOP and posted 11-inch by 17-inch flyers summarizing the ADEQ public notice. These flyers were posted in a number of public areas including the TOP offices, the Payson Public Library, and at various places of business and public areas in the Town. WT published a public notice of the PSR and call for public response in the Payson Roundup on October 11, 2011. Copies of the brochure, flyer and Payson Roundup notice are included in Appendix D.

6.3 Document Review

As part of the PSR, background documents were reviewed to evaluate the Payson PCE Site status, details of the remedy implementation, and progress toward meeting the ROs and goals. Documents selected for review focused primarily on action taken during the period of this PSR. Section 12.0 provides a list of the reviewed documents. The most significant documents reviewed were the ROD, operational reports prepared by URS, groundwater monitoring reports, and hydrogeologic studies. Based on the review of these documents, the following sections describe the findings of this PSR.

6.4 Data Review

Selected available Payson PCE Site references (see Section 12.0) were reviewed to evaluate the progress of remediation in general terms and to assess whether the EGTS and groundwater monitoring program were meeting the ROs (see Section 4.1) for the Site.

Evaluation of RO Metrics

The goals of each RO detailed in Section 4.1 of this PSR have been met or there is significant progress towards meeting the RO.

Land use

The RO is to protect against possible exposure to hazardous substances in surface and subsurface soils that could occur during development for commercial/retail use. If additional work at the Property is necessary beyond the previously conducted early response actions, ADEQ will coordinate with the TOP and local property owners to work towards a final remedy that is compatible with these development plans.

Established Metric – At the time of the June 2007 ROD publication, the soils at the Payson PCE site were remediated to the cleanup levels that were in force at the time. Therefore, no metrics were necessary for this RO.

Since the time of ROD publication, though, ADEQ's soil remediation rule (A.A.C. Title 18, Chapter 7, Article 2) was revised. The revision changed the cleanup levels for several of the Payson PCE Site's COCs. The changes to the SRLs for these compounds are detailed in the following table:

COMPOUNDS	Residential SRLs (mg/kg)			Non-Residential SRLs (mg/kg)	
	1997	2007 - $10E^{-6}$ Risk	2007 - $10E^{-5}$ Risk	1997	2007
methylene chloride	77	**9.3**	93	180	210
PCE	53	**0.51**	**5.1**	170	**13**
TCE	27	**1.1**	**11**	70	**23**
cis-1,2-DCE	31	NE	43	100	150
trans-1,2-DCE	78	NE	**69**	270	**230**
MEK	7,100	NE	**5,300**	27,000	**17,000**

mg/kg = milligrams per kilogram **Bold** values indicate a more stringent SRL
NE = Not Established
2007 - $10E^{-6}$ Risk = Residential SRL for School-Day Care facilities.
2007 - $10E^{-5}$ Risk = Residential SRL

Based on the revisions to the SRLs for selected COCs, further evaluation of the soils is warranted.

Recent Land Use projects - Several recent land development projects had been completed in or near the Payson PCE Site, including the Green Valley multi-family housing project; a multi-family housing project located north of the TOP Water Department Yard and the EGTS; and the Sawmill Shopping Center and peripheral commercial developments. Most recently the Mountain Meadows Memorial Park Mortuary was developed in the Spring of 2011. In addition, Main Street, east of the Beeline Highway was raised and paved, and changes have been made to existing developments such as expanding the paved area on the west portion of the Giant Station at the northwest corner of

Aero Drive and the Beeline Highway. While the changes made by these developments have created a need for minor changes to the configuration of equipment or the conduct of groundwater sampling activities, they have not negatively impacted the effectiveness of the tasks performed. Since installation of remedial systems, the development has not had an effect on the remedial systems.

Groundwater Use

- **Lost or Impaired Municipal Use of Groundwater** – The RO is: To restore, replace, or otherwise provide for the use of groundwater currently lost or impaired by PCE contamination at the Payson PCE Site.

  Established Metric: The metric for evaluating the remedial action will be to measure the changes in PCE concentrations in the wells to demonstrate whether concentrations are declining at each well. The goal will be to achieve PCE concentrations less than the AWQS in these wells as well as nearby monitor wells to demonstrate cleanup.

  Evaluation of Metric: Groundwater quality and monitoring results for TOP-4, TOP-5R, TOP-19, TOP-20 and TOP-Skinner are given in Appendices A, B and G. With the exception of TOP-4, the goals for the RO have been met. TOP-4 remains actively managed as a production well through the EGTS. A definite trend in decreasing PCE concentrations for TOP-4 since March 2005 indicates significant progress towards the RO goal for TOP-4.

- **Threatened Municipal Use of Groundwater** – The RO for threatened municipal use of groundwater (specifically the TOP McKamey Well) is: to protect or otherwise provide for the use of groundwater currently threatened by PCE contamination from the Payson PCE. Additional threatened municipal use of groundwater source has not been identified since the publication of the ROD in June 2007.

  Established Metric: The metric for evaluating the remedial action will be to measure the changes of PCE concentrations in the well to demonstrate whether concentrations are increasing and the potential for PCE concentrations to exceed the respective AWQS. An additional metric of monitoring the groundwater gradient near monitoring wells WS-10 (DMW-10), WS-11 (DMW-11), and WS-14 (DMW-14) will identify potential changes in plume capture during the operation of the EGTS.

  Evaluation of Metric: The goals for this RO continue to be met. Groundwater quality and monitoring results for WS-10 (DMW-10), WS-11 (DMW-11), and WS-14 (DMW-14) are given in Appendices A, B and G. The estimated aerial extent of the plume of PCE concentrations exceeding the AWQS have continued to shrink through time and are presently at their smallest observed extents.

- **Threatened Private Groundwater Use** – The RO is: To protect or otherwise provide for the use of groundwater currently threatened by PCE contamination from the Payson PCE Site, as

the remedy that will provide protection for individuals owning a threatened well and will be implemented in continuity with existing actions designed to protect and preserve water quality.

Established Metric: The metric for evaluating the remedial action was established to measure the changes in PCE concentrations and groundwater gradients in the nearby monitor wells to demonstrate whether plume capture is maintained.

Evaluation of Metric: The goals for this RO continue to be met. The private groundwater wells actively monitored with the program at this time include Chapmen and Malinski wells (to the southeast of the PCE groundwater plume boundary), the Sheehan and Harrison-A wells (to the northeast of the PCE groundwater plume boundary) and the Kachina-New well (at the southern margin of the PCE groundwater plume boundary). Groundwater quality and monitoring results for these wells are given in Appendices A, B and G.

- **Threatened Tonto Apache Tribe Groundwater Use** – The RO is: To protect or otherwise provide for the use of groundwater currently threatened by PCE contamination from the Payson PCE Site.

Established Metric: The metric for evaluating the remedial action is to measure the changes in PCE concentrations and groundwater gradients in nearby monitor wells (well sets WS-5, WS-6, and WS-7) to demonstrate whether plume capture is maintained in the western portion of the Payson PCE Site.

Evaluation of Metric: The goals for this RO continue to be met. Groundwater quality and monitoring results for WS-5, WS-6, and WS-7 are given in Appendices A, B and G.

Evaluation of EGTS Performance

The EGTS has been successfully delivering treated groundwater to the TOP since 1998. Based on the review of operational reports provided by URS (current TOP consultant), the EGTS has been operating between 79 and 130 gpm. The following is a comparison of the design flow (estimated in the ROD) and reported operational flow (URS, 2009, 2010, 2011, 2012) through the EGTS:

Well	Pumping Rates for Selected Remedy – July 2009 Through June 2012 (gpm)					
	Design	2009 (Jul. – Dec.)	2010	2011	2012 (Jan. – June)	2009-2012 Average
EX-1	25	34.2	30.7	25.4	23.1	28.25
EX-2	30	22.0	22.0	25.5	14.2	21.9
TOP-4	40	11.3	11.5	11.6	9.2	11.1
TOP-5R	40	16.1	18.2	17.3	0.0	14.5

Well	Pumping Rates for Selected Remedy – July 2009 Through June 2012 (gpm)					
	Design	2009 (Jul. – Dec.)	2010	2011	2012 (Jan. – June)	2009-2012 Average
TOP-19	40	20.5	23.5	23.4	17.4	21.9
TOP-Skinner	25	23.3	23.3	20.4	15.9	21.1
Total	200	127.5	119.5	123.0	79.8	115.4

Based on the URS reports, the total amount of water treated through the system dropped from 67,229,200 gallons in the period from July 2009 through June 2010 to 44,835,000 gallons for the period of July 2011 through June 2012. This drop has been attributed to the lower demand spurred by economic conditions, declining water tables and production difficulties related to biofouling (accumulation of microorganisms, plants, algae, or animals on wetted surfaces) in the extraction wells, particularly in wells TOP-5R and TOP-19. TOP-5R was shut down in late 2011 due to the biofouling issues and was returned to service on October 8, 2012. A pellet chlorinator has been installed at TOP-19, in an effort to control the biological growth in that well.

The system, from July 2009 through June 2012, has treated over 900 million gallons of water with an average flow rate of approximately 115 gpm. The following table summarizes selected data from ADEQ's and URS's reports for the last three years of operation (URS, 2009, 2010, 2011, 2012)

Date	Total Volume Treated (millions of gallons)	Total VOC Influent Loading (pounds)	Total VOCs Removed by GAC (pounds)	Range of PCE Concentrations reported for samples from EGTS	
				Influent to EGTS	Treated water exiting the EGTS
				(µg/L)	
Prior to Dec. 2008	798.1	--	497.3	--	--
Dec. 2008 – June 2010	67.2	1.2	0.55	1.2 – 3.3	<1.0
Jul. 2010 – Dec. 2010			0.40	1.0 – 3.0	<1.0
Dec. 2010 – Jun. 2011	28.0	0.49	0.37	1.2 – 3.4	<1.0
Jul. 2011 – Dec. 2011	24.0	0.59	0.49	2.2 - 3.4	<1.0
Dec. 2011 – June 2012	20.9	0.59	0.53	<2.0 - 12.5	<0.5 - <2.0
Totals	938.2	--	499.64	<2.0 - 12.5	<0.5 - <2.0

It was noted that performance monitoring occurred on a weekly basis from June through December 2009, and monthly from that point through to the present. No monitoring occurred between December 8, 2011 and March 12, 2012. URS's report indicated that the lack of monitoring for this

period was due to the system being shut-down for replacement of the carbon media in the EGTS. The shut-down for carbon replacement was extended in order to conduct repairs to the liner of the 100,000-gallon capacity chlorination/distribution tank.

Observations and Evaluations of Groundwater Monitoring and Quality Data

Observations and comparisons were made of the change in estimated aerial extent of the plume in each of groundwater bearing units as well as a review of maximum PCE concentration values for selected groundwater monitoring events. The selected events included April 1999 (the first comprehensive regular groundwater monitoring event), September 2007 (the initial groundwater monitoring event during the period of this review), and September 2011 (the most recent groundwater monitoring event) (WT, 2011).

Plume Size (see Figures 6, 7, and 8 of Appendix B)

- AL-Unit – Achieved a 91% reduction in the areal extent of the estimated plume (numerous dry wells).
- DG-FG-Unit –Achieved a 66% reduction in the areal extent of the estimated plume (about 1.5 million square feet or slightly less than 35 acres in April 1999 to 512,000 square feet, or slightly less than 12 acres in September 2011)
- FG-CG-Unit – Achieved an 82% reduction in the areal extent of the estimated plume (in excess of 1.6 million square feet or about 38 acres in April 1999 to 292,000 square feet, or slightly less than 7 acres in September 2011).

PCE Concentrations (see Appendix A)

Based on this review, the maximum concentrations of the three highest starting values in each of the groundwater bearing units were reduced by the following amounts since 1999:

- AL-Unit – Average maximum concentration was reduced by 89.1% (based on DMW-1B and DMW-4A; using the latest previous results, 2006, for DMW-4A which was dry in 2011).
- DG-FG-Unit – Average maximum concentration was reduced by 99.9%.
- FG-CG-Unit – Average maximum concentration was reduced by 95.8%.

The highest recorded groundwater concentrations for PCE in September 2011 for each groundwater bearing unit is:

- AL-Unit – 23.5 µg/l in monitoring well DMW-1B
- DG-FG-Unit – 19.7 µg/l in monitoring well DMW-1C
- FG-CG-Unit – 5.85 µg/l in monitoring well DMW-11C

PCE Concentration Rebound over time (see Appendix A)

- AL-Unit – Since September 2007, PCE concentration in monitoring well DMW-1B has increased from 4.4 µg/l to 23.5 µg/l in September 2011 and 20.8 µg/l in September 2012. The PCE concentration in this monitor well was 110 µg/l in April 1999. The recent rebound in PCE concentration is likely related to the reduction in pumping rates from the extraction wells over that time period.

- DG-FG-Unit – Since September 2007, PCE concentration in monitoring well DMW-11B increased from 2.5 µg/l to 7.29 µg/l in September 2012. Initial concentrations in samples from DMW-11B were at or near non-detect levels in the late 1990s. Based on the trend analysis of the time-series graphs, PCE concentrations in DMW-11B are expected to potentially continue the relatively increasing trend. This well is near the source area and the recalcitrant nature of these low concentrations is to be expected.

- FG-CG-Unit - Since September 2007, PCE concentration in monitoring well DMW-11C increased from 3.7 µg/l to 5.85 µg/l in September 2011. Initial concentrations in samples from DMW-11C were at non-detect levels in the late 1990s. This well is near the source area and the recalcitrant nature of these low concentrations is to be expected.

Groundwater Levels and Monitoring Well Screens

- AL-Unit – Water levels have significantly dropped during the course of this project, leaving the majority of the AL Unit well screens dry. Generally, sufficient data in the AL Unit is becoming increasingly difficult to obtain as the shallow wells go dry due to the continued dropping water levels. Only five AL Unit wells (Table 2) in September 2011 contained enough water to measure water levels. This condition can indicate a potential data gap. This matter may require additional evaluation in the future should there be a marked change in contaminant concentrations (WT, 2011).

  Table 2 in Appendix A presents a summary of well screen and water level conditions (as of 2011) for the AL Unit wells, DMW-1B, and DMW-8B, which is considered a DG-FG Unit well.

- DG-FG-Unit – DMW-8B is the only DG/FG Unit well that has gone dry to date. The remaining wells have submerged screened intervals. The wells in the DG/FG Unit were installed with screened intervals in preferential pathways within the aquifer. Therefore the thickness of un-screened intervals below ground surface was not evaluated. Monitoring wells DMW-2B and DMW-10B have limited production capacity.

  The groundwater levels in the DG-FG Unit have fluctuated significantly in the past five years. Exceptional variation was observed in monitoring wells DMW-9B, where the water level has risen more than 37 feet, and SW-1B where the water level has risen more than 25 feet.

Excluding these well measurements (which were repeated to eliminate the potential that measurement errors occurred), the changes of groundwater levels have ranged from an increase of more than five feet to a decrease of more than nine feet, with an average change being a decrease of 1.35 feet.

The exceptional rises in water level have occurred in the north-central portion of the Payson PCE Site. The effect is a change in the general pattern of capture for the plume and development of outward groundwater flow direction patterns from the WS-8/WS-9 area. Since the WS-8/WS-9 area is entirely north of the estimated groundwater plume boundary for a concentration exceeding the AWQS, the capture in this area is not a significant issue at this time.

In the area of the plume, a general southerly shift of the groundwater flow direction through the eastern two-thirds of the Payson PCE Site has been recently observed. However, because the water levels in the extraction wells have been excluded from the potentiometric maps (due to potentially dynamic water level changes in response to the pumps cycling on and off), the changes are probably exaggerated somewhat by the current method of evaluation. The result is that a potential has been noted for a progressive southerly shift in flow gradients. It is understood that as the project progresses, the water levels in the extraction wells are tending to become less dynamic, and it may be beneficial to incorporate the water level information from the extraction wells in future potentiometric contour maps (WT, 2011).

- FG-CG-Unit – No FG/CG wells have gone dry. Monitoring Wells DMW-1D, DMW-2C, DMW-5C, DMW-9C, DMW-10C, DMW-11C, and DMW-14C have limited production capacity.

  Based on evaluation of groundwater potentiometric contour maps developed during the 2011 groundwater monitoring event and previous 2007 data, groundwater levels in the FG-CG Unit have fluctuated significantly in the past five years. The fluctuations have been most notable around the location of DMW-9C. The changes of groundwater levels have ranged from an increase of more than five feet to a decrease of more than four feet with an average change being a 0.20 foot drop. The effect has been a general southerly shift of the potentiometric flow gradients through the eastern two-thirds of the Payson PCE Site. However, the contours still indicate that capture is being generally maintained. Because the water levels in the extraction wells have been excluded from the potentiometric maps (due to potentially dynamic water level changes in response to the pumps cycling on and off), the changes are probably exaggerated somewhat by the current method of evaluation. The result is that a potential has been noted for a progressive southerly shift in flow gradients. It is understood that as the project progresses, the water levels in the pumping wells are tending to become less dynamic, and it may be beneficial to incorporate the water level information from these wells in future potentiometric contour maps (WT, 2011).

6.5 Site Inspections

On October 24 and 25, 2011, Mr. Chet L. Pearson, P.E. of WT conducted a site inspection of the EGTS facility. The inspection was attended by Michael Ploughe of the TOP Water Department. The site inspection included observation of the EGTS, several well sites, and site documents such as sampling and analysis plans, and O & M manuals. Photographs of the Payson PCE Site are presented in Appendix C. A summary of the site inspection is provided in Appendix E.

During the site visit, no activities were observed that might indicate potentially unsafe exposures to people or the environment. A visual inspection indicated good housekeeping is practiced, and the groundwater extraction and treatment systems are clean.

Groundwater Monitoring Well Function

Generally, the groundwater monitoring well network is functioning appropriately as designed. Recent maintenance/repair actions have restored proper operation of a few well pumps that had been experiencing problems. As of October 12, 2012, the ADEQ owned and maintained monitoring wells and pump equipment were in operating condition for wells with water. Operational condition of pump equipment is not being evaluated for dry wells. The pumps, risers, and cables from DMW-9A and DMW-11A have been removed from these dry wells.

The TOP Skinner Well is an extraction well that is located on the periphery of the monitoring well network. Difficulty in demonstrating capture would occur should PCE concentrations exceed the AWQS in samples from this well.

The following wells produce water at very slow to extremely slow rates: DMW-1D, DMW-2B, DMW-2C, DMW-3C, DMW-5B, DMW-5C, DMW-8C, DMW-9B, DMW-9C, DMW-10B, DMW-10C. Design purge rates have been significantly altered for these wells. These wells are generally purged of 25 to 50 gallons prior to sampling, because a typical purge of 3 to 5 well volumes is not feasible.

6.6 Site Interviews

As a part of the PSR process, interviews were conducted with individuals having knowledge of and/or concerns with the Payson PCE Site. E-mail responses to the interview questions were also accepted.

Key personnel associated with the site and interviewed, include residents, ADEQ and TOP representatives, and business owners. An overall consensus is that the remedy at the Payson PCE Site is functioning as designed.

The interviews are summarized and presented in Appendix F.

7.0 TECHNICAL ASSESSMENT

The following is a technical assessment of the Payson PCE Site based on the findings of this PSR. This assessment answers three basic questions:

- *Question A: Is the remedy functioning as intended by the decision documents?*
- *Question B: Are the COCs, exposure assumptions, toxicity data, cleanup levels, and remedial objectives (ROs) used at the time of the ROD still valid?*
- *Question C: Has any other information come to light that could call into question the protectiveness of the remedy?*

7.1 Question A – Is the Remedy Functioning as Intended by the Decision Document?

The review of documents, interviews and site inspections indicates that the Selected Remedy is functioning as intended by the ROD.

EGTS System Performance

Performance testing indicated that water provided from the EGTS to the TOP water distribution system did not contain PCE at concentrations exceeding the laboratory detection limit from July 2009 through December 2011. Communication was made with Michael Ploughe of the TOP, Janet Workman of URS, Danita Hardy, ADEQ Project Manager and Scott Goodwin, ADEQ Hydrologist. These contacts each responded that to the best of their knowledge, performance testing has not identified the presence of PCE in water delivered from the EGTS during the entire history of the system's operation. All indications are that the system is operating as designed.

According to WT, the TOP 2009 through 2012 Water Quality Reports for 2009 through 2012 contain water quality data for the water provided to the Town's distribution system, including the treated water from the EGTS. Based on these reports, the range of PCE concentrations in water provided to the system between 2007 and 2011 was from below the laboratory detection limits to a maximum of 1.4 µg/l. Based on our discussions with Mr. Ploughe of the TOP, the detectable PCE concentrations described in these reports are representative of water provided by production wells outside of the Payson PCE Site.

EGTS Performance Based on Groundwater Monitoring Results

Groundwater extraction and treatment activities at the Payson PCE Site have met the goal of preventing migration of contaminants and removing contaminant mass from groundwater, as supported by sampling data gathered from monitor and extraction wells since 2007. In addition, the plume size and mass of contaminants in the aquifers have been diminished.

As discussed above, groundwater concentrations reported for samples from the Payson PCE Site wells have decreased to values below the AWQS with the exception of five wells (DMW-1B at

23.5 µg/l, DMW-1C at 19.7 µg/l, TOP-4 at 11.7 µg/l, DMW-11B at 5.83 µg/l, DMW-11C at 5.85 µg/l and DMW-5B at 5.27 µg/l). There were previously 23 wells with PCE concentrations exceeding the AWQS, so there has been a significant reduction.

7.2 Question B – Are the COCs, exposure assumptions, toxicity data, cleanup levels, and remedial objectives (ROs) used at the time of the ROD still valid?

With the exception of the U-Haul company ceasing truck washing operations, there have been no changes in the physical conditions or exposure assumptions of the site that would affect the protectiveness of the remedy.

There have been some updates for COCs to the U.S. EPA Integrated Risk Information System (IRIS) with regard to health hazards and carcinogenity.

Cleanup levels for soils have changed since the ROD was finalized. Re-evaluation of the soils may be warranted.

The ROs are being met and are still valid. Amendment or modification of the ROs for the Payson PCE Site is not required at this time. The review of groundwater PCE concentration trends indicate that the remediation progress via the EGTS is progressing well within the 25-year time frame anticipated in the ROD.

7.2.1 COCs

This section presents data from March 2007 through September 2011.

Primary COC - The primary COC is PCE.

Secondary COC - TCE has also been frequently detected in groundwater samples from wells in various locations of the project. However, TCE is generally only observed in samples where higher concentrations of PCE are also detected. Therefore, TCE is a secondary concern relative to PCE. The AWQS for TCE is 5 µg/l.

The following is a summary of detected TCE results (in µg/l) for the past five years (WT, 2011):

Well	March 2007	Sept. 2007	March 2008	Sept. 2008	Sept. 2010	Sept. 2011
DMW-2B	0.72	0.86	0.90	1.1	Not Sampled	1.31
DMW-2C New	0.99	1.1	1.0	1.4	1.24	1.19
DMW-4C	<0.50	<0.50	<0.50	<0.50	3.88	0.760
DMW-5B	<0.50	<0.50	<0.50	<0.50	<0.500	0.660

Other COCs - Benzene, chloroform, and 1,2-DCA have been reported in some samples for the project. Their presence is typically related to petroleum fuel releases at specific areas in or near the Payson PCE Site and is considered generally unrelated to the PCE release for this project. The concerns associated with these compounds generally relate to their effect on the EGTS.

Benzene - Benzene has not been detected in regular groundwater monitoring samples from the Payson PCE Site in more than five years. The AWQS for benzene is 5 µg/l.

Chloroform and Trihalomethanes - There is no AWQS established for chloroform individually. However chloroform is a trihalomethane. The AWQS for total trihalomethanes (TTHMs) is 100 µg/l.

The following is a summary of detected chloroform results for the past five years (WT, 2011):

Well Name	March 2007	Sept. 2007	March 2008	Sept. 2008	Sept. 2010	Sept. 2011
Sheehan	0.50	<0.50	<0.50	<0.50	0.650	<0.500
Chapman	Not Sampled	<0.50	<0.50	<0.50	1.75	Not Sampled
TOP-5R	<0.50	<0.50	<0.50	<0.50	<0.500	1.10
DG-05	<0.50	<0.50	<0.50	<0.50	1.11	Not Sampled
DMW-7A	<0.50	<0.50	<0.50	<0.50	1.54	<0.500

Results presented in µg/l.

The following is a summary of detected TTHM results for the past five years (WT, 2011):

Well Name	March 2007	Sept. 2007	March 2008	Sept. 2008	Sept. 2010	Sept. 2011
Sheehan	22	16	8.6	10.2	19.0	<0.500
Chapman	Not Sampled	<1.0	<1.0	<1.0	1.75	Not Sampled
TOP-5R	<1.0	<1.0	<1.0	<1.0	<0.500	1.10
DG-05	<0.50	<0.50	<0.50	<0.50	1.11	Not Sampled
DMW-7A	<1.0	<1.0	<1.0	<1.0	1.54	<0.500

Results presented in µg/l.

1,2-DCA - No concentrations of 1,2-DCA have been reported for groundwater monitoring samples collected at the Payson PCE Site within the past five years. The AWQS for 1,2-DCA is 5 µg/l.

Toluene - Toluene has been detected in samples collected from some wells within Payson PCE Site. The AWQS for toluene is 1,000 µg/l.

Following is a summary of detected toluene results for the past five years (WT, 2011):

Well	March 2007	Sept. 2007	March 2008	Sept. 2008	Sept. 2010	Sept. 2011
TOP-5R	<3.0	<3.0	<3.0	<2.0	<2.00	5.09
DMW-2C New	6.4	6.3	5.9	6.7	4.89	4.78
DMW-4B	<3.0	<3.0	<3.0	<2.0	Not Sampled	10.3
DMW-10B	<3.0	<3.0	<3.0	2.4	Not Sampled	53.1
DMW-10C	<3.0	<3.0	<3.0	<2.0	Not Sampled	153

Results presented in µg/l.

Other noted COCs - Several other COCs have been noted in chemicals analysis of collected groundwater samples at the Payson PCE Site, including MTBE, cis-1,2-DCE, trans-1,2-DCE and VC.

MTBE – MTBE has at times been a focus of tracking and is believed to be related to UST releases in the area of the Payson PCE WQARF Site. As the nearby petroleum releases are remediated or naturally attenuate, they are becoming less of a concern for the Payson PCE Site. There is no AWQS established for MTBE.

The following is a summary of detected MTBE concentrations in groundwater monitoring samples collected in the past five years (WT, 2011):

Well Name	March 2007	Sept. 2007	March 2008	Sept. 2008	Sept. 2010	Sept. 2011
SW-2B	<2.0	<2.0	<2.0	<2.0	Not Sampled	2.09

Results presented in µg/l.

Cis-1,2-DCE - There is no AWQS established for cis-1,2-DCE.

The following is a summary of detected cis-1,2-DCE results for the past five years (WT, 2011):

Well Name	March 2007	Sept. 2007	March 2008	Sept. 2008	Sept. 2010	Sept. 2011
DMW-2B	0.89	1.6	1.6	1.8	Not Sampled	1.82
DMW-4C	<0.50	<0.50	<0.50	<0.50	12.0	9.11
DMW-5B	<0.50	<0.50	<0.50	<0.50	2.59	1.14

Results presented in µg/l.

Trans-1,2-DCE - There is no AWQS established for trans-1,2-DCE.

The following is a summary of detected trans-1,2-DCE results for the past five years (WT, 2011):

Well Name	March 2007	Sept. 2007	March 2008	Sept. 2008	Sept. 2010	Sept. 2011
DMW-4C	<0.50	<0.50	<0.50	<0.50	23.1	21.2

Results presented in µg/l.

VC - No concentrations of VC have been reported for groundwater monitoring samples collected at the Payson PCE Site within the past five years. The AWQS for VC is 2 µg/l.

Previously Undetected Compounds - Compounds detected in the past five years that previously were not detected in groundwater samples from the Payson PCE Site warrant evaluation for potential risk.

Methyl ethyl ketone - (MEK, also known as 2-butanone), at a concentration of 87 µg/l, was reported for the single sample collected from the Malinski Well in March 2008. This was the only sampling event conducted for this well which was installed shortly before the sampling event. Field checks during subsequent groundwater monitoring events have indicated that the Malinski Well has remained disconnected from service. MEK has not been detected in groundwater samples collected during the period of this PSR. There is no AWQS established for MEK.

7.2.2 Exposure Assumptions

The exposure assumptions from the RI are summarized in the following table:

Potential Exposed Population	Exposure Point	Exposure Route	Path Evaluated	Path Selected	Exposure Type	Rationale
Groundwater						
Residents/ Occupational	Ingestion of groundwater from private and semi-public wells, swimming pool	Ingestion Inhalation Dermal	Yes Yes Yes	Yes Yes Yes	Actual	Wells have been impacted
Occupational	Truck washing	Inhalation	Yes	Yes	Actual	Contaminated water used for washing trucks
Soil Gas						
Occupational/ Trespassers	Vapors outdoors from contaminated groundwater	Inhalation	Yes	Yes	Potential	Potential for human exposure

Potential Exposed Population	Exposure Point	Exposure Route	Path Evaluated	Path Selected	Exposure Type	Rationale
Soil						
Occupational/ Trespassers	Direct contact with soil at Site	Ingestion Inhalation Dermal	Yes Yes Yes	No No No	Intermittent	Insufficient data for analysis
Occupational/ Trespassers	Fugitive Dust	Ingestion Inhalation Dermal	Yes Yes Yes	No No No	Intermittent	Insufficient data for analysis

Truck washing was an activity identified at the former U-Haul facility located at 105 West Aero Drive. The U-Haul facility and the truck washing activities ceased operations at this address several years ago. With exception of the truck washing scenario, the exposure assessments remain applicable for the Payson PCE Site.

7.2.3 Toxicity Data

The following table represents the most recent U.S. EPA updates to the Integrated Risk Information System (IRIS) for the respective COCs and other compounds of interest for the Payson PCE Site.

COC	Most Recent IRIS Update
benzene	April 17, 2003
chloroform	October 19,2001
1,2-DCA	January 1, 1991
cis-1,2-DCE	September 30, 2010
trans-1,2-DCE	No Original Entry
MTBE	September 1, 1993
VC	August 7, 2000

The U.S. EPA updated the IRIS for PCE on February 10, 2012. The following table presents a summary of the changes made:

Exposure Route	Criteria	Previous	February 1, 2012
Health Hazard for Non-carcinogenic Effects	Reference Dose (RfD) for Chronic Oral Exposure	0.01mg/kg/day	0.006 mg/kg/day
	Inhalation Reference Concentration	Not Established	40 $\mu g/m^3$
Lifetime Carcinogenicity	Oral Slope Factor	Not Established	0.0021 per mg/kg-day
	Drinking Water Concentrations at 1.0 $X10^{-6}$ Risk Level	Not Established	20 µg/l
	Inhalation Exposure	Not Established	4 $\mu g/m^3$

(mg – milligram, µg – microgram, kg – kilogram, m^3 – cubic meter)

The U.S. EPA updated the IRIS for TCE on September 28, 2011. The following table presents a summary of the changes made:

Exposure Route	Criteria	Previous	February 1, 2012
Health Hazard for Non-carcinogenic Effects	Reference Dose (RfD) for Chronic Oral Exposure	Not Established	0.0005 mg/kg/day
	Inhalation Reference Concentration	Not Established	2 $\mu g/m^3$
Lifetime Carcinogenicity	Oral Slope Factor	Not Established	0.046 per mg/kg/day
	Drinking Water Concentrations at $1.0X10^{-6}$ Risk Level	Not Established	Not Established
	Inhalation Exposure	Not Established	$4.1X10^{-6}$ $\mu g/m^3$

7.2.4 Risk Assessment

It is not known if significant changes in risk assessment (RA) methods associated with groundwater affect protectiveness. In January 2009, EPA published "*Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual, Part F, Supplemental Guidance for Inhalation Risk Assessment.*" The previously recommended approach for evaluating the daily intake of chemicals in air took into consideration compounds in air, inhalation rate, body weight, and exposure conditions. The new approach recommends that the concentrations in air should be the exposure metric rather than the inhalation intake based on inhalation rate and body weight. Although this guidance changes the calculation method for inhalation risk, it should not significantly change the risk results.

The Arizona Department of Health Services (ADHS) conducted the initial RA for the Payson PCE Site. The results of this assessment were published in ADHS's report titled "*Draft Statement of Risk, Payson PCE Site, Payson, Arizona,*" dated June 3, 1994. The results of this study were reviewed in the RI for the Payson PCE Site (GeoTrans, 2002). ADHS reviewed the RA section of the draft RI Report and discussed its findings in a letter titled "*Risk Evaluation Section of the Payson PCE Site Remedial Investigation Report*", dated April 5, 2001, that was subsequently included in the final RI as an attachment.

7.2.5 Cleanup Levels

The cleanup levels for the Payson PCE Site include the SRLs, GPLs, and AWQSs. Since the time of the June 2007 ROD publication, though, ADEQ's soil remediation rule (A.A.C. Title 18, Chapter 7, Article 2) was revised. The revision changed the cleanup levels for several of the Payson PCE Site's COCs. The changes to the SRLs for these compounds are detailed in the following table:

COMPOUNDS	Residential SRLs (mg/kg)			Non-Residential SRLs (mg/kg)	
	1997	2007 - $10E^{-6}$ Risk	2007 - $10E^{-5}$ Risk	1997	2007
methylene chloride	77	**9.3**	93	180	210
PCE	53	**0.51**	**5.1**	170	**13**
TCE	27	**1.1**	**11**	70	**23**
cis-1,2-DCE	31	NE	43	100	150
trans-1,2-DCE	78	NE	**69**	270	**230**
MEK	7,100	NE	**5,300**	27,000	**17,000**

mg/kg = milligrams per kilogram **Bold** values indicate a more stringent SRL

NE = Not Established

2007 - $10E^{-6}$ Risk = Residential SRL for School-Day Care facilities

2007 - $10E^{-5}$ Risk = Residential SRL

Based on the revisions to ADEQ's SRLs for selected COCs, further evaluation of the soils is warranted.

7.3 Question C – Has Any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?

There is no information that calls into question the protectiveness of this remedy.

Capture of the plume of PCE impacted groundwater exceeding the AWQS has been demonstrated by a combination of the estimated potentiometric conditions and the trends of declining groundwater concentrations. As of September 2011, only one extraction well (TOP-4) in the Payson PCE Site area remained within the plume of groundwater impacted above the AWQS for PCE.

7.3.1 Observations and Notes Regarding EGTS Operations

1. Concerns over the availability of sufficient groundwater, within the hydrogeologic system, to maintain capture have been raised as groundwater levels dropped due to drought and general production rates within the Payson area. The decreasing water level trends have generally slowed with time; however, it is likely that this trend will continue until the TOP shifts to surface water sources for most of the year.

2. Beginning around 2007, economic conditions have significantly reduced the volume of water produced and consumed by water users in the TOP area. It is believed that this is responsible for slowing the trend of declining groundwater levels in the area. The introduction of water, from the planned addition of water from the C.C. Cragin Reservoir, to the TOP distribution system, may also impact this trend. These changes should be closely monitored during upcoming regular groundwater monitoring events.

3. It is recommended that an evaluation of optimal production rates should be considered for the Site, so that changes in demand and shifting of drinking water sources from groundwater to surface water do not promote conditions adverse to plume capture.

4. Currently the extraction well network is being evaluated with the possibility of another extraction well being installed near the source area or the eastern portion of the plume. The upcoming connection of source area monitor wells TOP-20 and EW-4 to the EGTS should improve overall protectiveness of the remedy.

5. The TOP recently identified biofouling issues at TOP-5R and TOP-19 that have the potential to significantly interfere with the ability to produce water from these wells. The former TOP Water Services Manager, Michael Ploughe, expressed some concern that the problem is recalcitrant due to the presence of gravel pack in the wells. The concern that this issue could be progressive was also raised. Backflow prevention should be used to protect wells from biofouling impacts at other wells.

6. Damage to the EGTS Carbon Vessel 1A's liner was identified during the last carbon change out. A repair was not performed at that time due to a lack of funding and the need to return the system to operation. The carbon vessel lining should be repaired as soon as possible.

8.0 ISSUES

No issues immediately impacting the protectiveness of the Selected Remedy were identified during this PSR.

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

This PSR recommends future consideration of the following items:

- Evaluate the potential changes to the groundwater aquifers and their potential impact on the EGTS in light of the TOP's future water usage changes.
- Addition of an extraction well near the source based on the consistent trend of increasing PCE concentrations in samples from DMW-11C if it is determined that EW-4 is not sufficiently operating as an extraction well after connection to the EGTS.
- Evaluate the use of water elevations from the extraction wells in the reported groundwater contours.
- Evaluate the RA based on recent changes.
- Evaluate incorporation of a domestic well into the monitoring events, which is located near the automotive shop, north of monitor well DMW-7 and west of McLane Road.
- Review the groundwater model and predictions to conditions documented over the years.
- Re-evaluate soil COC concentrations due to changes in ADEQ soil rules.

10.0 PROTECTIVENESS STATEMENT

Review of the Selected Remedy for the Payson PCE Site demonstrates that it is currently protective of human health and the environment and those exposure pathways that could result in unacceptable risks are being controlled. The groundwater extraction and treatment system, which comprise the EGTS, is removing VOC mass from the three groundwater zones, reducing VOC concentrations in groundwater, and treating VOC concentrations to below the AWQSs. The groundwater plume appears to be currently contained as demonstrated by analysis of groundwater data and predicted by groundwater modeling.

11.0 NEXT PERIODIC REVIEW

The Payson PCE WQARF Site will continue to have PSRs in the future until the remaining contamination in the groundwater achieves the cleanup standards. The next PSR has not currently been scheduled.

12.0 REFERENCES

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Summary of ROD Groundwater Monitoring Activities, September 2012, Payson PCE WQARF Site, Payson, Arizona, Contract No. EV09-0 100, Western Technologies, Inc., February 22, 2013.

APPENDIX A
TABLES

Table 1. Summary of Selected Historical PCE Concentrations Since December 1997
Payson PCE WQARF Site
WT Job 2182JV334
September 2012

Well Name	December 1997	March 1998	June 1998	September 1998	December 1998	April 1999	June 1999	September 1999	December 1999	March 2000	June 2000	September 2000	December 2000	March 2001	June 2001	September 2001	December 2001	March 2002	June 2002	September 2002	December 2002	March 2003	June 2003
	Concentration of PCE in micrograms per liter (µg/L)																						
DG-01	NS	NS	NS	NS	600	580	360	93	340	280	550	590	230	280	190	320	130	120	NS	12.0	NS	68	NS
DG-02	NS	NS	NS	NS	130	150	210	93	110	81	27	14	7.3	7.0	3.5	2.5	NS	3.6	NS	1.4	NS	0.88	NS
DG-04A	NS	NS	NS	NS	6.5	6.5	6.7	2.1	2.5	1.4	1.1	<1.0	<1.0	1.1	0.54	<0.50	NS	0.85	NS	0.70	NS	<0.50	NS
DG-05	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	0.72	NS	<0.50	NS	<0.50	NS
DMW-1A	NS	1100	1300	670	440	74	140	11	21	6.8	NS	12	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DMW-1B	NS	2900	2200	2100	1000	110	100	59	44	32	31	26	19	29	23	33	NS	36	NS	14	NS	7.3	NS
DMW-1C	NS	1800	1600	1600	2300	940	660	680	760	590	640	1500	330	520	340	500	NS	220	NS	190	NS	140	NS
DMW-1D	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	NS	<0.50	NS	0.72	NS	<0.50	NS	<0.50	NS
DMW-2A	NS	47	33	43	23	7.8	11	<1	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DMW-2B	NS	8.1	7.3	12	6.6	26	6.7	3.8	4.5	4.5	5.7	5.6	4.8	6.6	6.3	6.8	NS	5.9	NS	6.1	NS	6.1	NS
DMW-2C New	NS	NS	NS	NS	NS	6.2	15	11	8.5	7.1	8.2	6.5	4.6	5.5	4.5	4.1	NS	3.8	NS	3.7	NS	3.6	NS
DMW-3A	NS	NS	NS	2.3	4.2	3.8	4.4	<1	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DMW-3B	NS	<2	<2	<2	<2	<1	1.2	<1	4.8	<1	<1.0	<1.0	<1.0	1.2	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	0.65	NS
DMW-3C	NS	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	1.2	0.78	<0.50	NS	<0.50	NS	0.67	NS	0.64	NS
DMW-4A	NS	NS	NS	NS	66	110	73	77	89	62	40	40	48	>50	98	150	NS	41	NS	NS	NS	36	NS
DMW-4B	NS	NS	NS	NS	630	530	480	450	590	420	540	1200	340	460	310	440	NS	160	NS	130	NS	88	NS
DMW-4C	NS	NS	NS	NS	37	27	30	16	35	27	34	28	17	27	39	76	NS	30	NS	25	NS	24	NS
DMW-5A	NS	NS	NS	NS	<2	<1	2.7	<1	<1	<1	<1.0	<1.0	<1.0	1.0	0.53	<0.50	NS	0.52	NS	NS	NS	NS	NS
DMW-5B	NS	NS	NS	NS	<2	<1	2.0	<1	1.2	<1	<1.0	1.1	<1.0	2.0	2.0	4.4	NS	11	NS	16	NS	16	NS
DMW-5C	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS
DMW-6A	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	1.3	1.3	2.5	1.5	0.85	NS	0.88	NS	<0.50	NS	<0.50	NS
DMW-6B	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	1.2	0.67	<0.50	NS	0.92	NS	0.65	NS	<0.50	NS
DMW-6C	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS
DMW-7A	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	1.2	<1.0	1.7	0.97	0.79	NS	1.3	NS	0.92	NS	0.68	NS
DMW-7B	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	1.2	0.54	<0.50	NS	0.70	NS	0.61	NS	1.1	NS
DMW-7C	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS
DMW-8B	NS	NS	NS	NS	29	27	23	18	38	17	12	8.6	5.9	4.9	3.5	2.2	NS	2.7	NS	3.1	NS	3.1	NS
DMW-8C	NS	NS	NS	NS	<2	<1	1.3	3.4	<1	1.1	1.2	<1.0	<1.0	1.8	1.2	0.94	NS	0.85	NS	1.2	NS	1.2	NS
DMW-9A	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DMW-9B	NS	NS	NS	NS	2.9	1.6	2.8	1.0	<1	1.4	<1.0	<1.0	<1.0	1.7	1.1	0.57	NS	0.54	NS	0.98	NS	1.1	NS
DMW-9C	NS	NS	NS	NS	NS	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS
DMW-10A	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	0.71	NS	<0.50	NS	<0.50	NS
DMW-10B	NS	NS	NS	NS	2.0	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS
DMW-10C	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	1.2	1.1	2.0	<1.0	1.7	1.3	NS	1.9	NS	1.8	NS	1.7	NS
DMW-11A	NS	NS	NS	NS	NS	3.1	3.0	1.1	<1	<1	<1.0	<1.0	<1.0	NS	1.1	0.75	NS	1.3	NS	1.4	NS	NS	NS
DMW-11B	NS	NS	NS	NS	NS	1.2	<1	<1	<1	<1	<1.0	<1.0	1.3	2.0	2.0	2.3	NS	3.0	NS	2.9	NS	2.6	NS
DMW-11C	NS	NS	NS	NS	NS	<1	NS	<1	1.8	<1	<1.0	6.2	2.9	2.5	3.0	3.5	NS	6.3	NS	6.0	NS	5.9	NS
DMW-12A	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	NS	NS	NS	NS	NS	NS	NS	NS
DMW-12B	NS	NS	NS	NS	3.4	1.9	2.1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS
DMW-12C	NS	NS	NS	NS	7.9	4.9	4.8	1.8	2.1	1.2	<1.0	<1.0	<1.0	1.3	0.79	<0.50	NS	<0.50	NS	0.55	NS	0.58	NS
DMW-13A	NS	NS	NS	NS	<2	<1	1.1	<1	<1	<1	<1.0	<1.0	<1.0	1.1	0.70	<0.50	NS	NS	NS	NS	NS	NS	NS
DMW-13B	NS	NS	NS	NS	2.6	2.6	2.6	1.7	2.0	1.8	1.5	1.1	<1.0	1.6	1.0	0.58	NS	<0.50	NS	0.57	NS	0.55	NS
DMW-13C	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	0.55	<0.50	NS	<0.50	NS	0.54	NS	0.55	NS

Table 1. Summary of Selected Historical PCE Concentrations Since December 1997
Payson PCE WQARF Site
WT Job 2182JV334
September 2012

Well Name	December 1997	March 1998	June 1998	September 1998	December 1998	April 1999	June 1999	September 1999	December 1999	March 2000	June 2000	September 2000	December 2000	March 2001	June 2001	September 2001	December 2001	March 2002	June 2002	September 2002	December 2002	March 2003	June 2003
	Concentration of PCE in micrograms per liter (µg/L)																						
DMW-14B	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	1.1	0.65	<0.50	NS	<0.50	NS	0.55	NS	0.65	NS
DMW-14C	NS	NS	NS	NS	<2	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS
SW-1A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4.1	2.8	1.8	1.8	1.2	<0.50	NS
SW-1B	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	7.6	5.8	3.4	2.8	2.2	1.7	1.6
SW-2A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.50	1.0	<0.50	0.59	0.51	0.69	0.54
SW-2B	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.65	1.0	<0.50	0.51	<0.50	0.57	<.0.50
SW-3A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	52	49	35	24	23	14	14
SW-3B	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	50	47	34	23	21	14	12
TOP Skinner	NS	NS	11	23	NS	NS	NS	17	19	22	23	24	26	19	18	NS	NS	12	NS	7.2	NS	NS	NS
TOP-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	34	NS
TOP-5R	3500	NS	NS	NS	NS	NS	495	295	NS	137.5	112.5	150	75	57	62.5	96	NS	46	NS	35	NS	22	NS
TOP-19	290	NS	NS	NS	NS	NS	220	245	180	131	110	82.5	75	55	82	140	NS	43	NS	29	NS	30	NS
TOP-20	<2	<2	<2	<2	<2	24	46	37	36	28	17	7	2.9	2.4	3.3	1.1	NS	0.90	NS	0.57	NS	0.70	NS
EX-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	44	52	56	55	NS	NS
EX-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	9.1	6.6	4.4	3.2	NS	NS
Chapman	7.7	6.4	45	24	<2	2.3	3.0	1.0	1.2	<1	1.1	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.50	NS	0.63	NS
TOP-McKamey	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.8	NS	1.0	NS	1.2	NS	1.2	NS
Kachina-New	6	15	14	20	19	8.9	7.1	4.3	5.5	3.5	3.5	3.6	5.9	4.0	3.9	2.5	NS	1.3	NS	<0.50	NS	0.62	NS
Malinski	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sheehan	11	43	22	41	3.3	10	8.6	4.4	16	3.9	3.2	4.3	3.9	3.0	2.2	NS	NS	NS	NS	2.2	NS	1.1	NS
Hill	5.4	5.3	5.6	7.3	8.6	14	14	14	14	13	13	9.8	10	9.2	6.9	7.0	6.0	6.1	5.6	4.2	5.1	5.3	NS
301 W. Cherry	NS	NS	NS	NS	NS	47	40	26	24	16	15	10	10	9.2	9.0	8.0	6.4	6.8	<0.50	NS	NS	NS	NS
Harrison A	NS	2.6	2.9	3	<2	1.4	3.1	<1	2.8	<1	<1.0	1.2	<1.0	<1.0	0.95	0.90	NS	1.3	NS	1.8	NS	1.5	NS
Harrison B	NS	<2	<2	<2	4.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Harrison C	NS	<2	<2	<2	<2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Bold is concentration above the ADEQ AWQS of 5 micrograms per liter (µg/L) NS= Not sampled

> 50 - laboratory assigned this "E" value result when reanalysis was not possible due to insufficient remaining sample.

Table 1. Summary of Selected Historical PCE Concentrations Since December 1997
Payson PCE WQARF Site
WT Job 2182JV334
September 2012

Well Name	September 2003	March 2004	June 2004	March 2005	June 2005	September 2005	December 2005	March 2006	June 2006	September 2006	December 2006	March 2007	June 2007	September 2007	December 2007	March 2008	June 2008	September 2008	December 2008	September 2010	September 2011	September 2012	Contaminant of Concern Detected in Last 10 Years
	Concentration of PCE in micrograms per liter (µg/L)																						
DG-01	**50**	**16**	NS	**9.5**	NS	**10**	NS	**1.2**	NS	0.66	NS	<0.50	NS	<0.50	NS	<0.5	NS	<0.50	NS	<0.500	<0.500	<0.500	Yes
DG-02	1.1	0.56	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	NS	NS	NS	<0.50	NS	NS	<0.500	<0.500	Yes
DG-04A	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	0.51	NS	<0.50	NS	0.60	NS	0.62	NS	0.81	NS	NS	1.07	1.00	Yes
DG-05	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	NS	<0.500	No
DMW-1A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
DMW-1B	**9.8**	**13**	NS	**13**	NS	**11**	NS	**9.7**	NS	**7.8**	NS	**6.7**	NS	4.4	NS	4.9	NS	4.5	NS	**15.5**	**23.5**	**20.8**	Yes
DMW-1C	**120**	**120**	NS	**93**	NS	**65**	NS	**51**	NS	**50**	NS	**41**	NS	**40**	NS	**32**	NS	**35**	NS	**16.3**	**19.7**	**18.1**	Yes
DMW-1D	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	No
DMW-2A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
DMW-2B	**5.3**	**5.9**	NS	3.9	NS	4.4	NS	**5.1**	NS	3.4	NS	4.3	NS	3.8	NS	3.8	NS	4.3	NS	NS	2.99	2.39	Yes
DMW-2C New	3.5	3.2	NS	2.7	NS	3.4	NS	3.0	NS	2.7	NS	2.2	NS	2.2	NS	2.0	NS	2.3	NS	1.42	1.43	0.540	Yes
DMW-3A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
DMW-3B	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	No
DMW-3C	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	Yes
DMW-4A	NS	NS	NS	0.60	NS	2.3	NS	<0.50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Yes
DMW-4B	**73**	**43**	NS	**20**	NS	**21**	NS	**3.6**	NS	**2.1**	NS	1.2	NS	1.1	NS	0.86	NS	0.94	NS	NS	3.16	3.83	Yes
DMW-4C	**26**	**32**	NS	**23**	NS	**26**	NS	**30**	NS	**27**	NS	**29**	NS	**24**	NS	**21**	NS	**26**	NS	4.64	1.53	1.61	Yes
DMW-5A	NS	NS	NS	<0.50	NS	0.52	NS	<0.50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
DMW-5B	**20**	**27**	NS	**25**	NS	**20**	NS	**27**	NS	**16**	NS	**22**	NS	**13**	NS	**13**	NS	**12**	NS	**5.40**	**5.27**	**5.48**	Yes
DMW-5C	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	No
DMW-6A	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	NS	NS	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.500	<0.500	<0.500	No
DMW-6B	<0.50	<0.50	NS	0.78	NS	0.86	0.92	1.2	1.5	1.9	2.2	2.4	2.7	2.5	3.0	3.3	4.2	4.1	3.7	2.96	2.72	2.66	Yes
DMW-6C	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	0.560	0.580	Yes
DMW-7A	0.54	<0.50	NS	<0.50	NS	<0.50	<0.50	<0.50	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.500	<0.500	<0.500	Yes
DMW-7B	1.7	3.1	NS	4.2	NS	**6.2**	**6.9**	**7.5**	**6.3**	**6.1**	**6.3**	**5.6**	**6.0**	**5.3**	**5.7**	**5.6**	**7.5**	**7.3**	**5.5**	4.30	3.65	3.14	Yes
DMW-7C	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	No
DMW-8B	1.4	NS	NS	0.65	NS	0.52	NS	<0.50	NS	0.70	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Yes
DMW-8C	0.77	0.9	NS	0.70	NS	0.73	NS	0.83	NS	<0.50	NS	0.57	NS	<0.50	NS	0.56	NS	NS	NS	<0.500	<0.500	<0.500	Yes
DMW-9A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
DMW-9B	0.95	1.1	NS	1.2	NS	1.9	NS	2.0	NS	1.6	NS	1.6	NS	1.5	NS	1.8	NS	1.9	NS	1.14	0.640	0.860	Yes
DMW-9C	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	<0.500	<0.500	No
DMW-10A	NS	NS	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
DMW-10B	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	<0.500	<0.500	No
DMW-10C	NS	1.7	NS	1.6	NS	1.7	NS	1.7	NS	1.6	NS	1.3	NS	1.2	NS	1.5	NS	1.7	NS	NS	0.950	<0.500	Yes
DMW-11A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Yes
DMW-11B	2.1	2.0	NS	2.1	NS	2.5	NS	3.1	NS	3.0	NS	2.8	NS	2.5	NS	2.7	NS	3.3	NS	4.58	**5.83**	**7.29**	Yes
DMW-11C	**5.6**	4.7	NS	4.2	NS	**5.2**	NS	4.9	NS	4.8	NS	4.7	NS	3.7	NS	**5.0**	NS	**5.7**	NS	**5.47**	**5.85**	**5.56**	Yes
DMW-12A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
DMW-12B	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	No
DMW-12C	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	NS	<0.500	Yes
DMW-13A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
DMW-13B	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	NS	<0.500	Yes
DMW-13C	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	Yes

Table 1. Summary of Selected Historical PCE Concentrations Since December 1997
Payson PCE WQARF Site
WT Job 2182JV334
September 2012

Well Name	September 2003	March 2004	June 2004	March 2005	June 2005	September 2005	December 2005	March 2006	June 2006	September 2006	December 2006	March 2007	June 2007	September 2007	December 2007	March 2008	June 2008	September 2008	December 2008	September 2010	September 2011	September 2012	Contaminant of Concern Detected in Last 10 Years
	Concentration of PCE in micrograms per liter (µg/L)																						
DMW-14B	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	Yes
DMW-14C	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	NS	<0.500	No
SW-1A	NS	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.500	NS	No
SW-1B	0.91	0.69	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.500	<0.500	<0.500	Yes
SW-2A	<0.50	<0.50	NS	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.500	<0.500	<0.500	Yes
SW-2B	<0.50	<0.50	NS	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.500	<0.500	<0.500	Yes
SW-3A	**14**	**32**	NS	**13**	**18**	**8.6**	**6.1**	**7.1**	**11**	**7.2**	**7.8**	**11**	**16**	**15**	**14**	**12**	**13**	NS	NS	4.58	2.04	1.92	Yes
SW-3B	**10**	**27**	**19**	**13**	**13**	**7.0**	**6.1**	**3.7**	**9.6**	**11**	**6.6**	**10**	**12**	**12**	**12**	**11**	**10**	**8.5**	**6.3**	2.57	1.27	1.27	Yes
TOP Skinner	NS	3.5	NS	NS	NS	2.1	NS	1.7	NS	1.2	NS	0.87	NS	0.55	NS	0.63	NS	0.53	NS	<0.500	<0.500	<0.500	Yes
TOP-4	**43**	**77**	NS	**32**	NS	**28**	NS	**26**	NS	**24**	NS	**22**	NS	**21**	NS	**20**	NS	**20**	NS	**14.3**	**11.7**	**10.5**	Yes
TOP-5R	**16**	**13**	NS	NS	NS	**7.2**	NS	**9.8**	NS	**6.5**	NS	**7.3**	NS	**5.9**	NS	**6.5**	NS	**7.1**	NS	3.99	2.89	2.14	Yes
TOP-19	**27**	**18**	NS	NS	NS	**8.2**	NS	**7.4**	NS	**6.0**	NS	4.0	NS	3.2	NS	2.7	NS	2.6	NS	1.21	0.940	1.49	Yes
TOP-20	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	<0.500	<0.500	Yes
EX-1	NS	**25**	NS	NS	NS	NS	NS	**14**	NS	**9.3**	NS	**6.0**	NS	4.4	NS	3.0	NS	3.6	NS	2.11	1.81	1.54	Yes
EX-2	NS	**5.2**	NS	NS	NS	NS	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	0.50	NS	0.650	0.720	0.630	Yes
Chapman	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	NS	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	NS	<0.500	Yes
TOP-McKamey	1.1	NS	NS	NS	NS	0.5	NS	0.60	NS	0.70	NS	0.70	NS	0.61	NS	<0.50	NS	NS	NS	<0.500	<0.500	<0.500	Yes
Kachina-New	<0.50	**21**	NS	**15**	NS	**26**	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	NS	NS	Yes
Malinski	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.50	NS	NS	NS	NS	NS	NS	No
Sheehan	<0.50	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.50	NS	<0.500	0.850	NS	Yes
Hill	3.6	**5.0**	4.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Yes
301 W. Cherry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
Harrison A	1.5	0.97	NS	0.90	NS	0.89	NS	0.77	NS	0.73	NS	0.63	NS	0.93	NS	0.67	NS	1.2	NS	1.30	<0.500	0.760	Yes
Harrison B	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No
Harrison C	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No

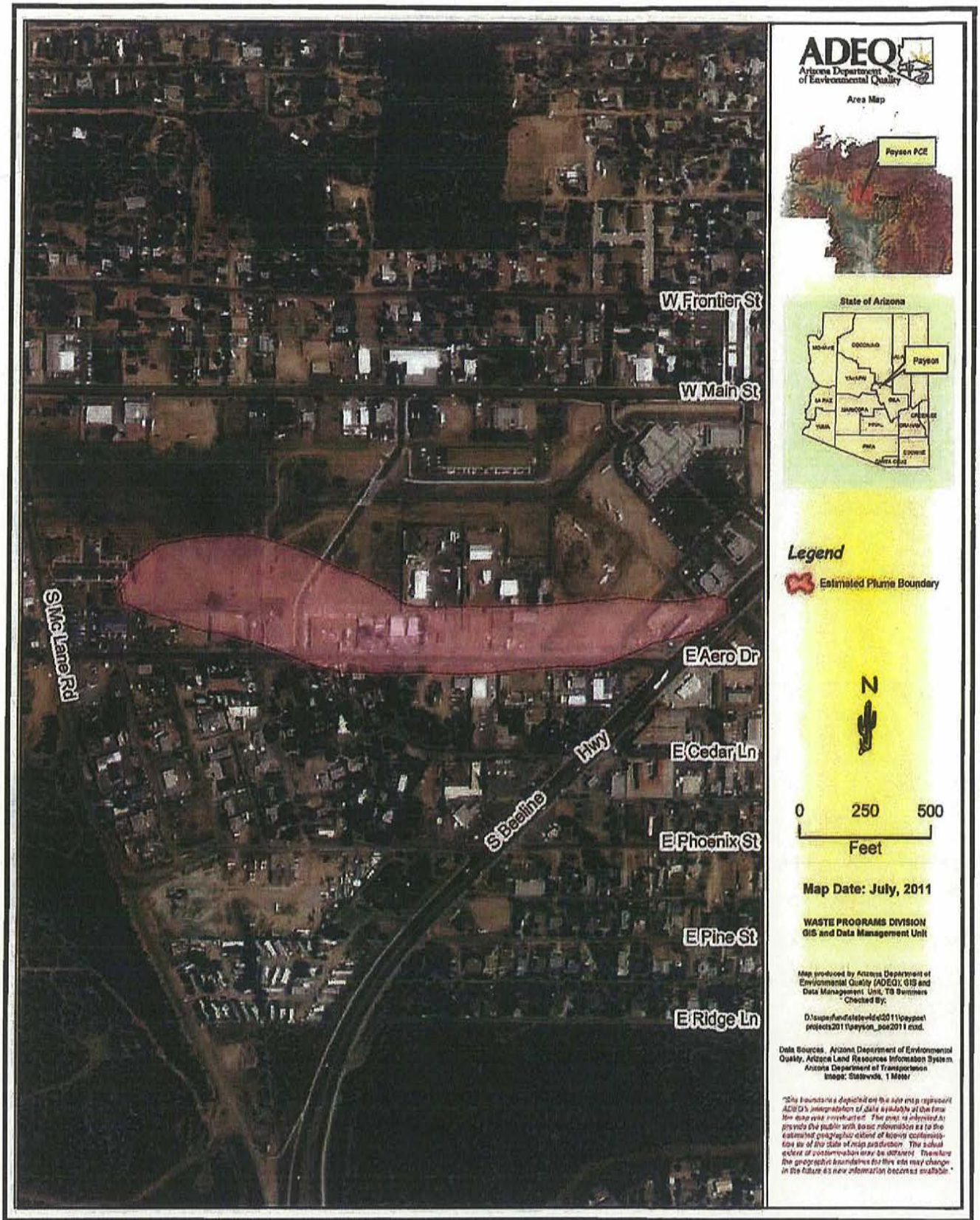
Bold is concentration above the ADEQ AWQS of 5 micrograms per liter (µg/L) NS= Not sampled

Table 2. Effectiveness of Well Screen Intervals - AL Unit

Well ID	Top of Casing Elevation / Depth to Top of Screen / Top of Well Screen Elevation (ft. MSL/ ft./ ft. MSL)			Bottom Screen Depth / 2011 DTW / Water Elevation / Elevation Bottom of Screen (ft. / ft. / ft. MSL / ft. MSL)				Water Column (ft.)	Top Elevation of DG/FG Well Screen in Same Well Set (ft. MSL)	Distance Between AL Well Screen and DG/FG Well Screen (ft.)[1]	Water Level Above DG/FG Well Screen 2011 (ft.)
DG-02	4881	108	4773	138	75	4806	4743	63	NA	NA	NA
DG-04A	4878	89	4789	119	69	4809	4759	50	NA	NA	NA
DG-05	4878	70	4808	100	65	4813	4778	35	NA	NA	NA
DMW-1A	4902	30	4872	70	<70	dry	4832	--	4796	36	22
DMW-1B[2]	4902	107	4795	127	81	4821	4775	9	4732	43	0
DMW-2A	4901	25	4876	65	<65	dry	4836	--	4675	161	148
DMW-3A	4912	25	4887	65	<65	dry	4847	--	4762	85	63
DMW-4A	4883	30	4853	70	<70	dry	4813	--	4763	50	40
DMW-5A	4887	30	4857	70	<70	dry	4817	--	4667	150	136
DMW-6A	4878	30	4848	70	60	4818	4808	10	4757	51	51[3]
DMW-7A	4876	30	4846	70	59	4817	4806	11	4716	90	90[3]
DMW-8B	4889	64	4825	84	<84	dry	4805	--	4725	80	114
DMW-9A	4896	30	4866	70	<70	dry	4826	--	4756	70	83[4]
DMW-10A	4912	30	4882	70	<70	dry	4842	--	4730	112	105
DMW-11A	4908	30	4878	73	<73	dry	4835	--	4738	97	90
DMW-12A	4896	30	4866	70	67	4829	4826	3	4796	30	30[3]
DMW-13A	4909	50	4859	90	<90	dry	4819	--	4759	60	63
SW-1A	4894	50	4844	90	81	4813	4804	9	4798	6	6[3]
SW-2A	4897	50	4847	90	75	4822	4807	15	4797	10	10[3]
SW-3A	4895	50	4845	90	79	4816	4805	11	4800	5	5[3]

1 = DMW-8B is a DG/FG Unit Well - Included here due to its relative depth and elevation with the AL Unit Wells.
2 = DMW-1B is presented as a substitute for the dry DMW-1A well.
3 = Vertical distance between the AL and DG/FG well screens.
4 = This is an unusual condition, the DG/FG Unit water level is higher than the bottom of the adjacent AL Unit well which is dry.
NA = Not Applicable
DTW = Depth to Water

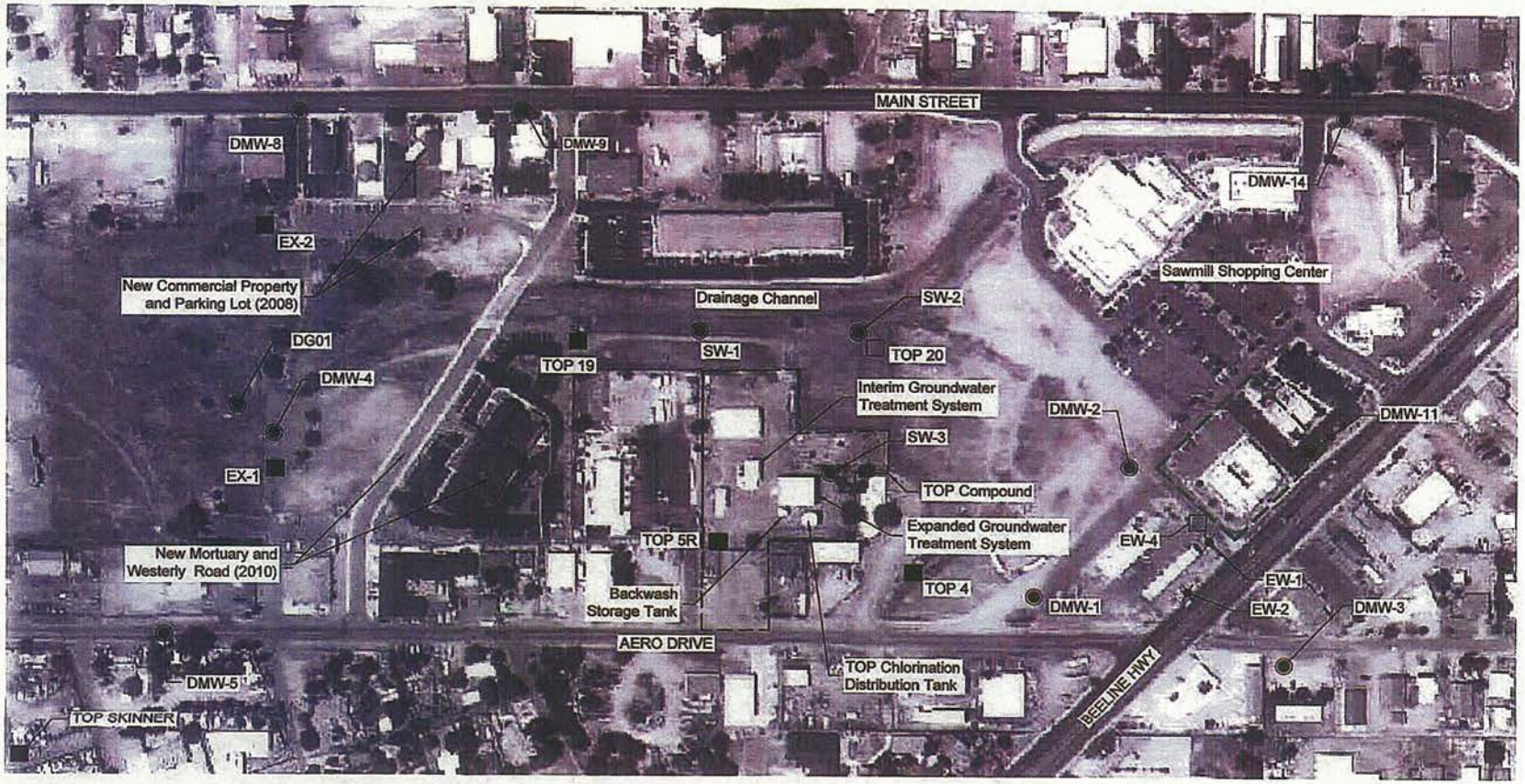
APPENDIX B
FIGURES



Western Technologies Inc.

FIGURE 1. **SITE MAP**
ADEQ Payson PCE
WQARF Study Area
Payson, Arizona

WT Job No. 2181JV334



LEGEND:

- ■ Extraction Well
- □ Extraction Well (Disconnected from service)
- ◉ Monitor Well
- ✱ Abandoned Well

TOP Town of Payson

WELL/WELL SET NAME

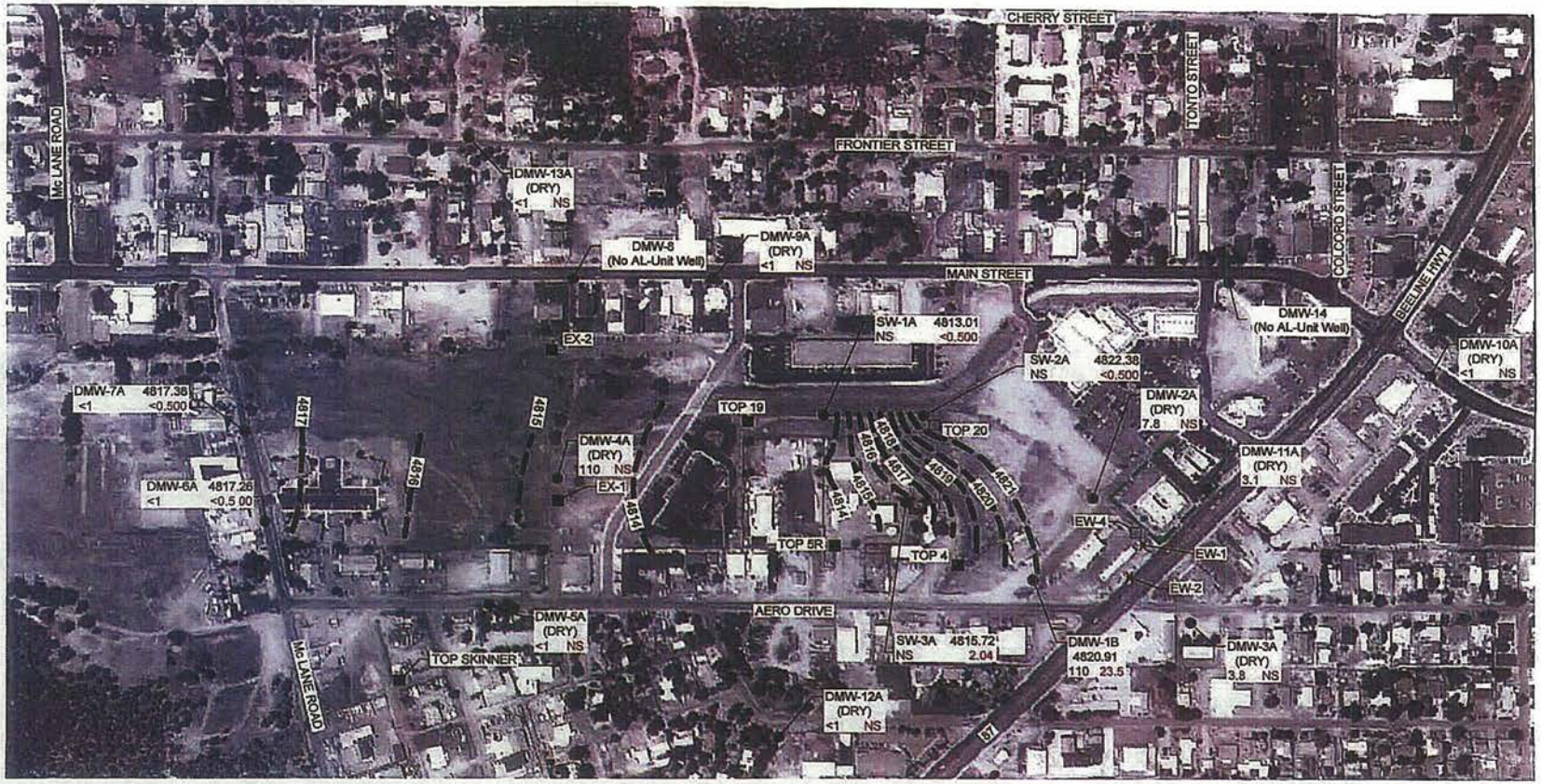
◉

Approximate PCE Source Area

Western Technologies Inc.

FIGURE 2. **EGTS COMPOUND AND PCE SOURCE AREA**
ADEQ Payson PCE
WQARF Study Area
Payson, Arizona

WT Job No. 2181JV334.PSR



NORTH

APPROXIMATE SCALE: 1" = 300'

NOTES:

- Groundwater well locations and well head elevations are based on survey information provided by ADEQ. Locations of DMW-11 and DMW-13 are estimated.
- Groundwater elevation information is calculated based on WT depth to water level measurements collected between 13:11 September 19, 2011 and 14:49 September 20, 2011.
- Groundwater elevation information is presented based on WT's review and modification of contour maps created on Golden Software's Surfer Version 8.0 program.
- All concentrations are micrograms per liter ($\mu g/l$).
- Laboratory Detection Limit for PCE has varied through time.
- (DRY) Indicates well was dry.
- DMW-1B has been used as a substitute AL Unit monitoring well since DMW-1A went dry in 2000-2001.

WELL NAME

<1	<0.500
PCE Concentration 04/1999	PCE Concentration 9/2011

4818.67 Groundwater Elevation in Feet Above Mean Sea Level

Estimated Groundwater Elevation Contour

4830

LEGEND:

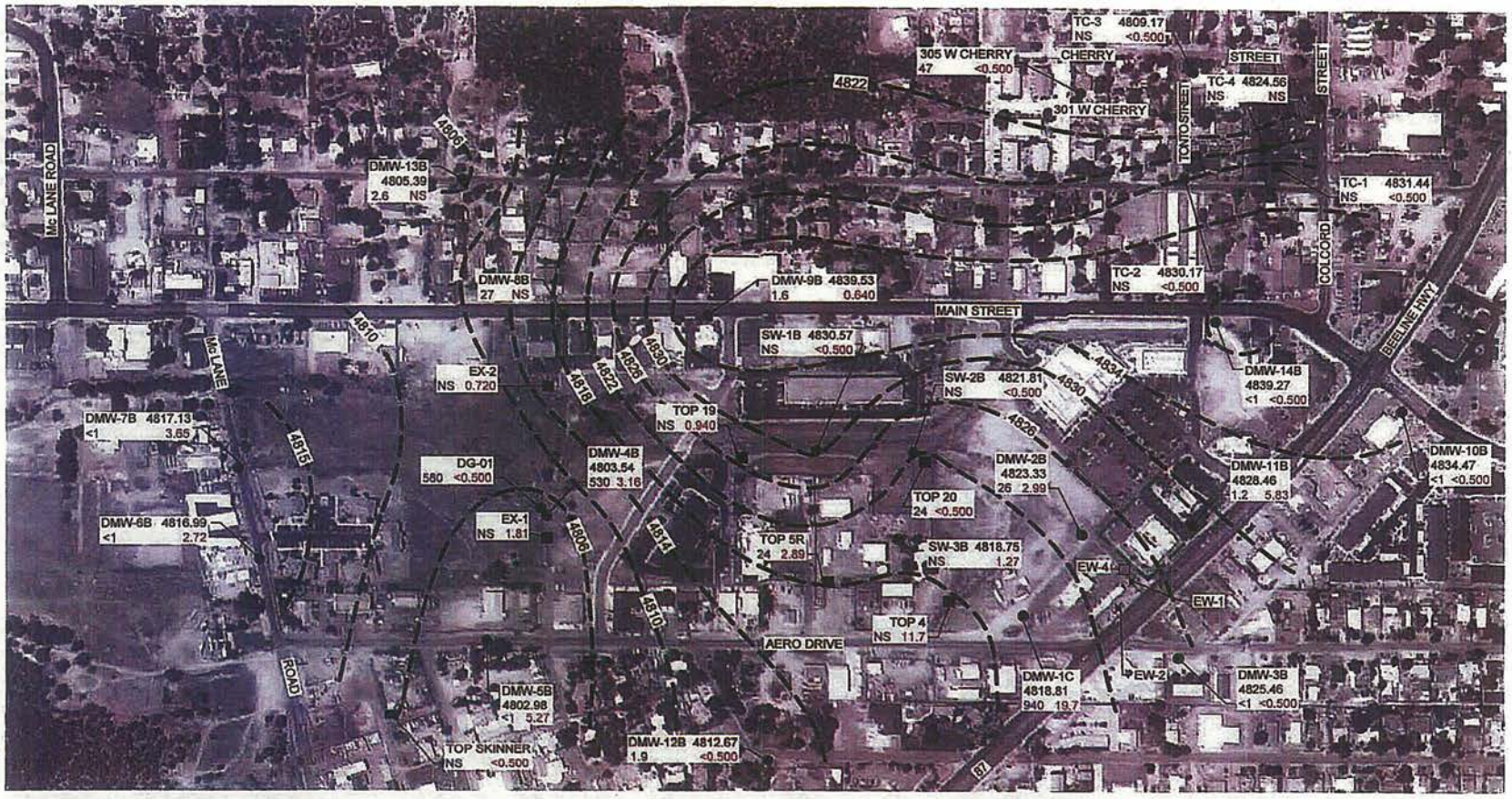
- Extraction Well - Operating
- Extraction Well - Not Operating
- Monitor Well
- Abandoned Well

Approximate PCE Source Area

Western Technologies Inc.

FIGURE 3. GROUNDWATER CONTOUR MAP
SEPTEMBER 2011 - AL UNIT
ADEQ Payson PCE and Tonto & Cherry WQARF Study Areas
Payson, Arizona

WT Job No. 2181JV334.PSR



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- Groundwater elevation information is presented based on WT's review and modification of contour maps created on Golden Software's Surfer Version 8.0 program.
- All concentrations are in micrograms per liter ($\mu g/l$).
- Includes data obtained by WT from the Payson PCE and Tonto & Cherry WQARF Study Areas.
- DMW-1C was identified as representative of the DG/FG Unit during the initial stages of the remedial characterization.

WELL NAME

<1 PCE Concentration 04/1999 ● <0.500 PCE Concentration 9/2011

4818.67 Groundwater Elevation in Feet Above Mean Sea Level

Estimated Groundwater Elevation Contour

4830

LEGEND:

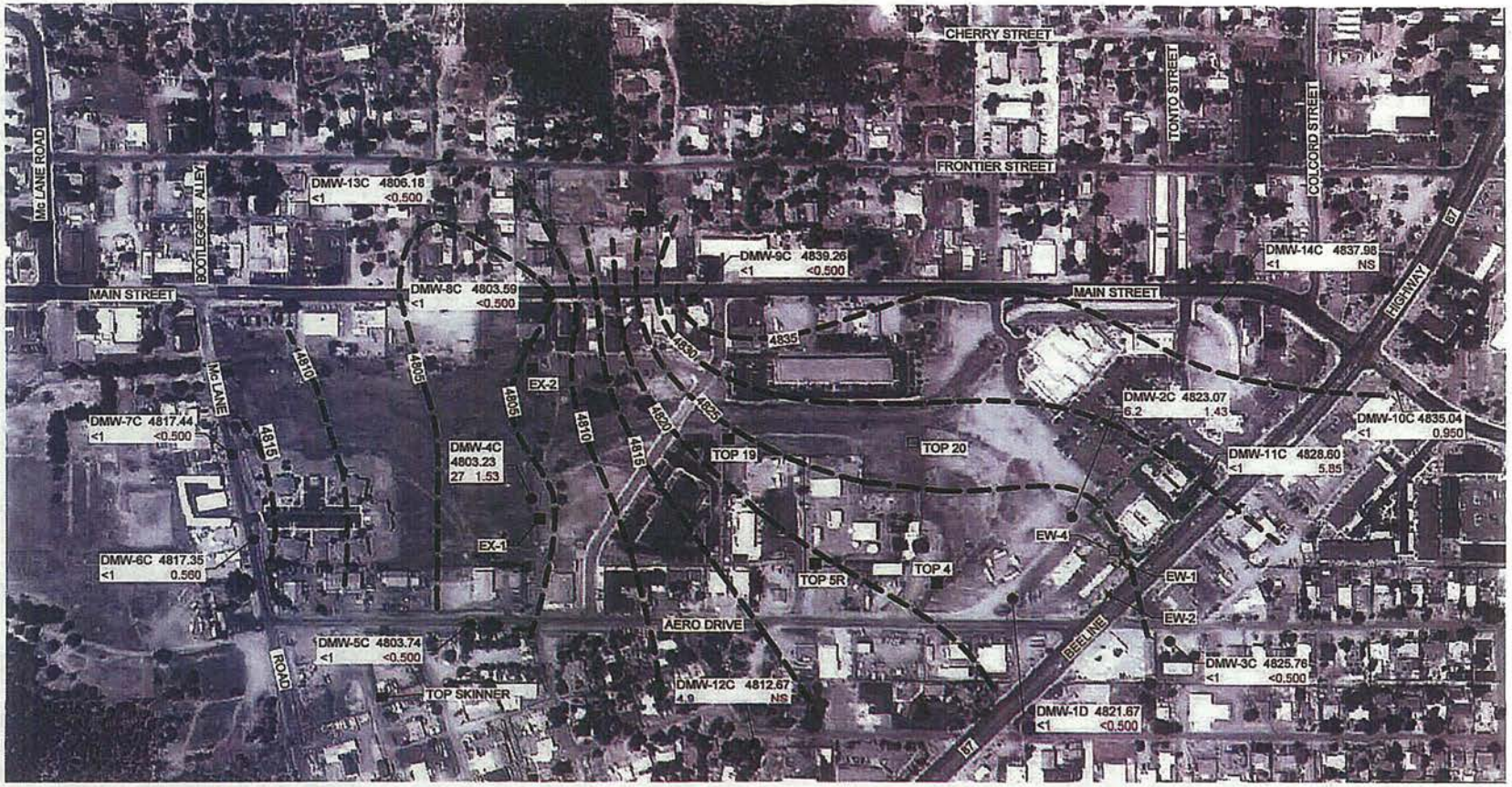
- ■ Extraction Well - Operating
- □ Extraction Well - Not Operating
- ● Monitor Well
- ✕ Abandoned Well
- NS Not Sampled

Approximate PCE Source Area

Western Technologies Inc.

FIGURE 4. GROUNDWATER CONTOUR MAP
SEPTEMBER 2011 - DG/FG UNIT
ADEQ Payson PCE and Tonto & Cherry WQARF Study Areas
Payson, Arizona

WT Job No. 2181JV334.PSR



NORTH

APPROXIMATE SCALE: 1" = 300'

NOTES:

- Groundwater well locations and well head elevations are based on survey information provided by ADEQ. Locations of DMW-11 and DMW-13 are estimated.
- Groundwater elevation information is calculated based on WT depth to water level measurements collected between 13:11 September 19, 2011 and 14:49 September 20, 2011.
- Groundwater elevation information is presented based on WT's review and modification of contour maps created on Golden Software's Surfer Version 8.0 program.
- All concentrations are micrograms per liter ($\mu g/l$).
- Laboratory Detection Limit for PCE has varied through time.
- DMW-1D was identified as representative of the FG/CG Unit during the initial stages of the remedial characterization.

WELL NAME

<1	<0.500
PCE Concentration 04/1999	PCE Concentration 9/2011

4818.67 Groundwater Elevation in Feet Above Mean Sea Level

Estimated Groundwater Elevation Contour

4830

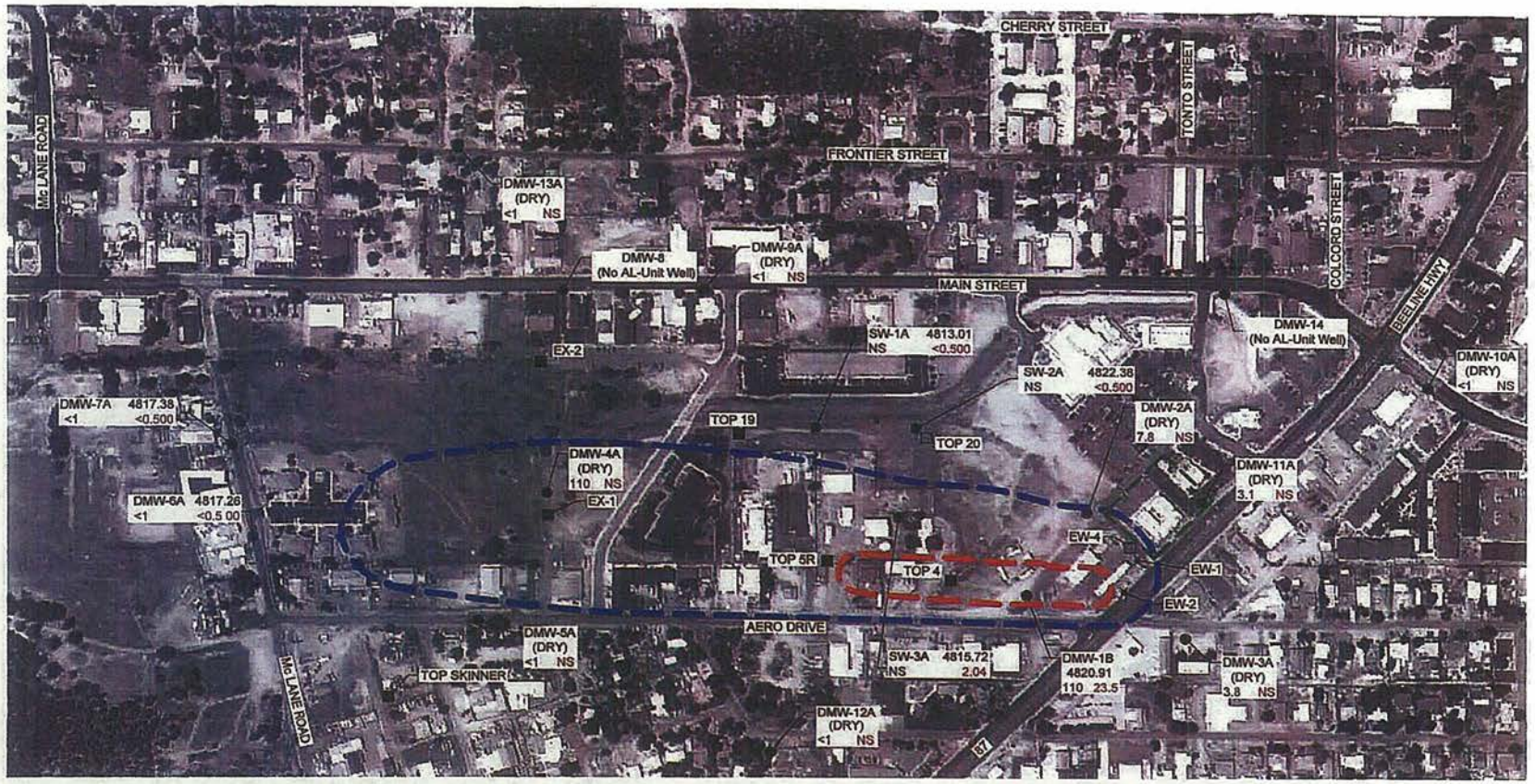
LEGEND:

- Extraction Well - Operating
- Extraction Well - Not Operating
- Monitor Well
- Abandoned Well
- NS Not Sampled
- Approximate PCE Source Area

Western Technologies Inc.

FIGURE 5. GROUNDWATER CONTOUR MAP
SEPTEMBER 2011 - FG/CG UNIT
ADEQ Payson PCE and Tonto & Cherry WQARF Study Areas
Payson, Arizona

WT Job No. 2181JV334.PSR



NORTH

APPROXIMATE SCALE: 1" = 300'

NOTES:

- Groundwater well locations and well head elevations are based on survey information provided by ADEQ. Locations of DMW-11 and DMW-13 are estimated.
- Groundwater elevation information is calculated based on WT depth to water level measurements collected between 13:11 September 19, 2011 and 14:49 September 20, 2011.
- All concentrations are micrograms per liter (μg/l).
- Laboratory Detection Limit for PCE in ND wells is 0.5 μg/l.
- (DRY) Indicates well was dry.
- DMW-1B has been used as a substitutute AL Unit monitoring well since DMW-1A went dry in 2000-2001.

WELL NAME

<1 PCE Concentration 04/1999 ● <0.500 PCE Concentration 9/2011

4818.67 Groundwater Elevation in Feet Above Mean Sea Level

LEGEND:

- ■ Extraction Well - Operating
- □ Extraction Well - Not Operating
- ◉ Monitor Well
- ✕ Abandoned Well
- NS Not Sampled

Inferred PCE 5 µg/l Concentration Contour September 2011

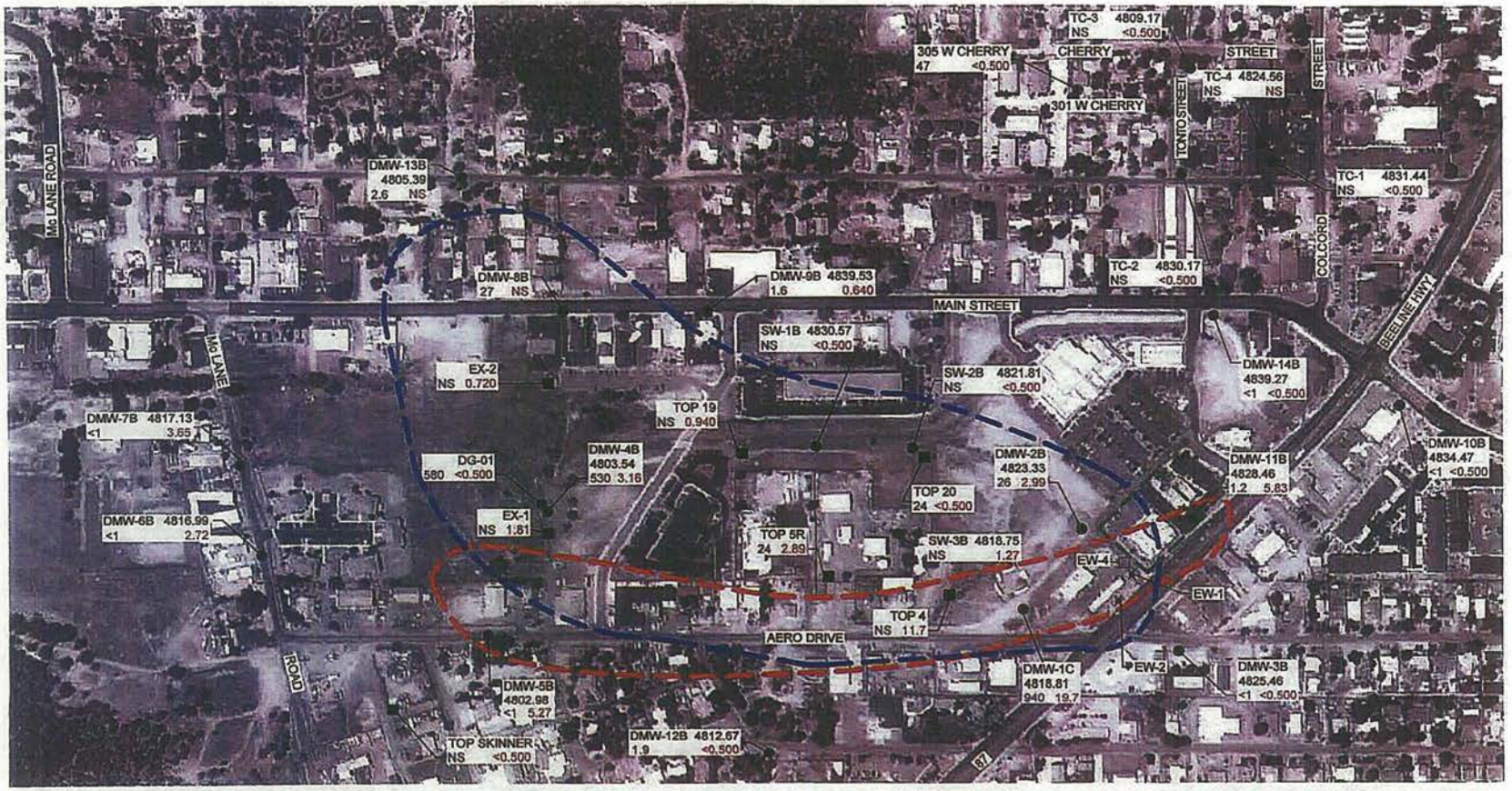
Inferred PCE 5 µg/l Concentration Contour April 1999

Approximate PCE Source Area

Western Technologies Inc.

FIGURE 6. PCE CONCENTRATION MAP
SEPTEMBER 2011 - AL UNIT
ADEQ Payson PCE and Tonto & Cherry WQARF Study Areas
Payson, Arizona

WT Job No. 2181JV334.PSR



NOTES:

- Groundwater well locations and well head elevations are based on survey information provided by ADEQ. Locations of DMW-11 and DMW-13 are estimated.
- Groundwater elevation information is calculated based on WT depth to water level measurements collected between 13:11 September 19, 2011 and 14:49 September 20, 2011.
- All concentrations are micrograms per liter (μg/l).
- Laboratory Detection Limit for PCE has varied through time.
- Includes data obtained by WT from the Payson PCE and Tonto & Cherry WQARF Study Areas.
- DMW-1C was identified as representative of the DG/FG Unit during the initial stages of the remedial characterization.

WELL NAME

<1	●	<0.500
PCE Concentration 04/1999		PCE Concentration 9/2011

4818.67 Groundwater Elevation in Feet Above Mean Sea Level

LEGEND:

- ■ Extraction Well - Operating
- □ Extraction Well - Not Operating
- ◉ Monitor Well
- ✱ Abandoned Well
- NS Not Sampled

Inferred PCE 5 µg/l Concentration Contour September 2011

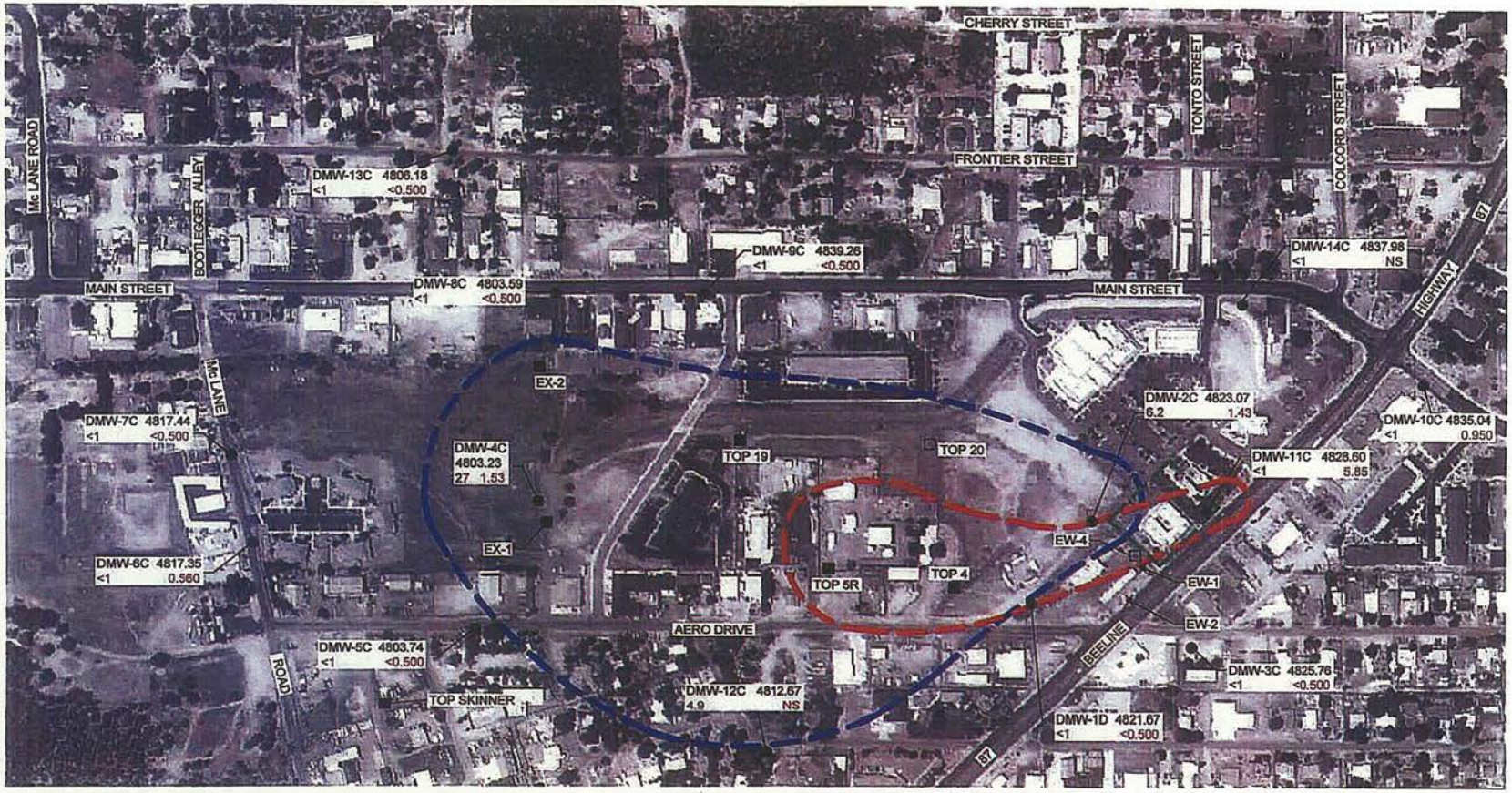
Inferred PCE 5 µg/l Concentration Contour April 1999

Approximate PCE Source Area

Western Technologies Inc.

FIGURE 7. PCE CONCENTRATION MAP
SEPTEMBER 2011 - DG/FG UNIT
ADEQ Payson PCE and Tonto & Cherry WQARF Study Areas
Payson, Arizona

WT Job No. 2181JV334.PSR



NOTES:

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- Groundwater elevation information is calculated based on WT depth to water level measurements collected between 13:11 September 19, 2011 and 14:49 September 20, 2011.
- Groundwater elevation information is presented based on WT's review and modification of contour maps created on Golden Software's Surfer Version 8.0 program.
- All concentrations are micrograms per liter ($\mu g/l$).
- Laboratory Detection Limit for PCE in ND wells is 0.5 $\mu g/l$.
- DMW-1D was identified as representative of the FG/CG Unit during the initial stages of the remedial characterization

WELL NAME

<1 PCE Concentration 04/1999 ● <0.500 PCE Concentration 9/2011

4818.67 Groundwater Elevation in Feet Above Mean Sea Level

LEGEND:

- ■ Extraction Well - Operating
- □ Extraction Well - Not Operating
- ◉ Monitor Well
- ✖ Abandoned Well
- NS Not Sampled

Inferred PCE 5 µg/l Concentration Contour September 2011

Inferred PCE 5 µg/l Concentration Contour April 1999

Approximate PCE Source Area

Western Technologies Inc.

FIGURE 8. PCE CONCENTRATION MAP
SEPTEMBER 2011 - FG/CG UNIT
ADEQ Payson PCE and Tonto & Cherry WQARF Study Areas
Payson, Arizona

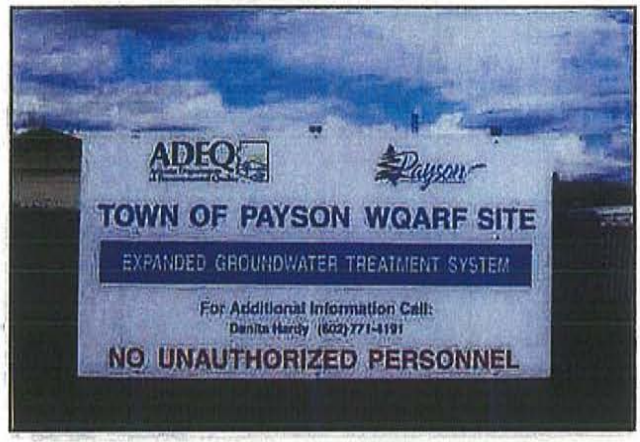
WT Job No. 2181JV334.PSR

APPENDIX C
PHOTOGRAPHS

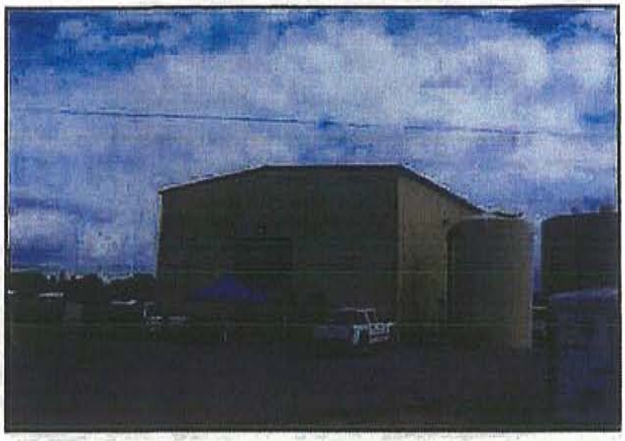
ADEQ – Town of Payson PCE WQARF Site
Periodic Site Review – Site Inspection Photographs
EGTS, 204 West Aero Drive
Payson, Arizona

WESTERN TECHNOLOGIES INC.

WT Job No.: 2181JV334 Date: October 25, 2011



Picture 1 – View of Sign For Town of Payson (TOP) WQARF Site at the Expanded Groundwater Treatment System (EGTS) Site. Location is 204 West Aero Drive, Payson, Arizona.



Picture 2 - View to the northeast of EGTS Structure. Distribution and Isolation water tanks are visible to right of photograph.

Picture 3 – View northeast of Storage-1 a contact chlorination/distribution water tank (on right) and Storage-2 an isolation water tank (on left).

Picture 4 - View to the east along north side of EGTS structure, of entry point stub-ups from each extraction well.

Picture 5 - View of EGTS entry point manifold inside north wall of the EGTS structure.

Picture 6 - View of EGTS bag-type pre-filters.

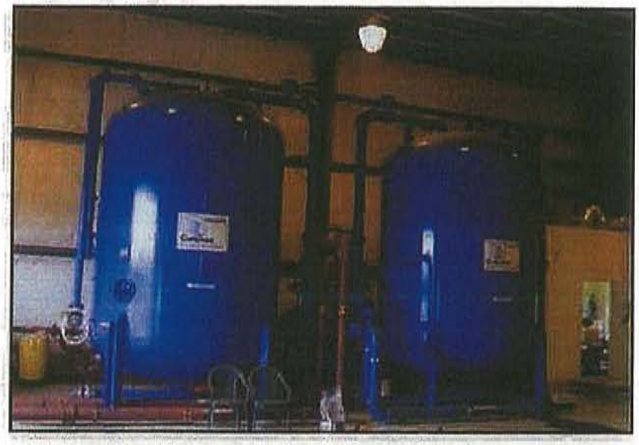
WESTERN TECHNOLOGIES INC.

WT Job No.: 2181JV334

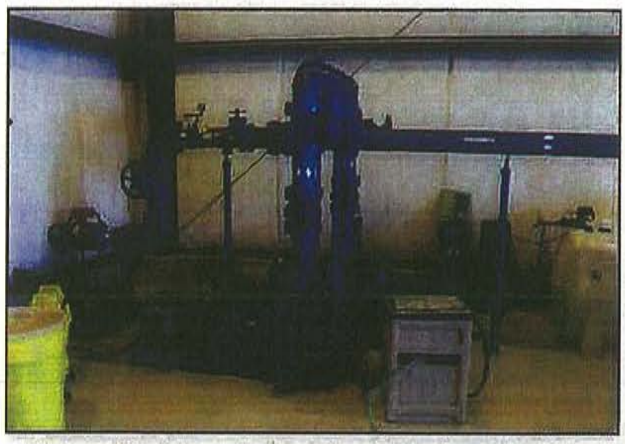
Date: October 25, 2011

Picture 7 - View of EGTS carbon filtration manifold.

Picture 8 – View EGTS carbon filtration manifold.



Picture 9 – View granular activated carbon vessels of the EGTS.



Picture 10 – View of alternate source (sources not requiring EGTS treatment) entry point, booster pumps, and isolation manifold.

Picture 11 – View of EGTS discharge line, TOP alternate source connection, and chlorination station.

Picture 12 –View of chlorination metering device.

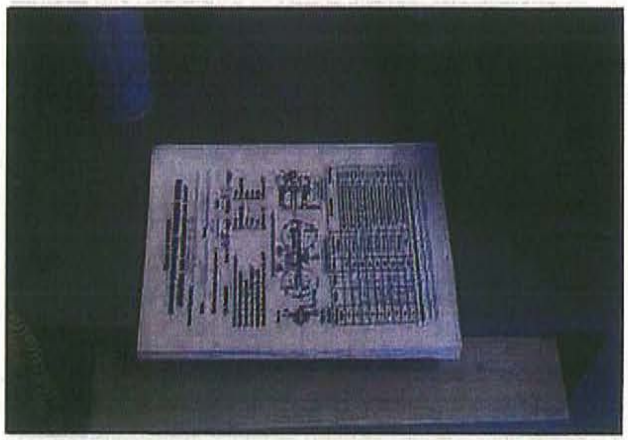
WESTERN TECHNOLOGIES INC.

WT Job No.: 2181JV334 Date: October 25, 2011

Picture 13 – View Control Center interface station in EGTS Control Room.

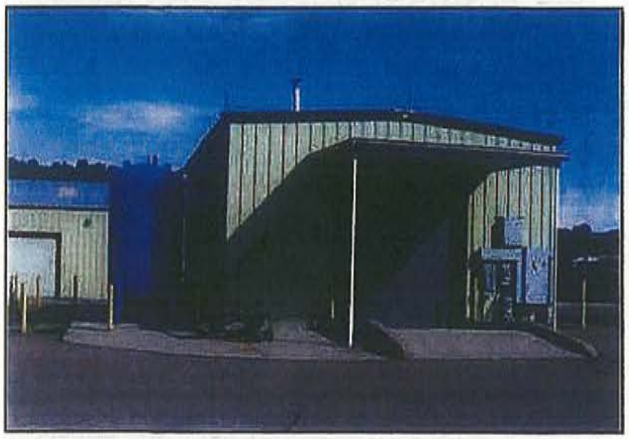
Picture 14 - View to the power control panel and emergency shut-off in EGTS Control Room.

Picture 15 – View of document storage in EGTS Control Room.



Picture 16 - View of TOP Operation and Maintenance Log Sheets for the EGTS monitoring program.

Picture 17 - View of TOP water lab in EGTS.



Picture 18 - View of inactive Interim Groundwater Treatment System (IGTS) Structure.

APPENDIX D
PUBLIC NOTIFICATION DOCUMENTS

ADEQ Arizona Department of Environmental Quality

Janice K. Brewer, Governor
Henry R. Darwin, Director

PUBLIC INPUT FOR 5-YEAR REVIEW

DATE: OCTOBER 2011

PUBLIC NOTICE
THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY ANNOUNCES THE START OF COMMUNITY INTERVIEWS FOR THE FIVE-YEAR REVIEW OF THE PAYSON PCE WATER QUALITY ASSURANCE REVOLVING FUND (WQARF) SITE

The Arizona Department of Environmental Quality (ADEQ) has initiated the Five-Year Review of the groundwater remedy at the Payson PCE WQARF Site. The purpose of a Five-Year Review is to evaluate whether the interim remedies at a site are protective of human health and the environment, and to assess if any factors suggest that the remedies may not continue to be protective in the future. During the Five-Year Review process, ADEQ would like to address any concerns from the public regarding the site.

FIVE-YEAR REVIEW PROCESS

According to the Payson PCE WQARF Site Record of Decision (ROD) pursuant to A.A.C. R18-16-410(B) (8) ADEQ will review the remedy every five years from the issuance of the ROD (May 31, 2007).

During this Five-Year Review, in order to determine the protectiveness of the remedy, ADEQ will conduct studies, perform inspections of the site, and review existing operation and maintenance information. ADEQ will also interview key project personnel, evaluate any changes of site conditions, and review federal and state requirements.

ADEQ plans to complete the review by January 2012. The findings of the Five-Year Review will be available to the public at the local information repositories listed at the conclusion of this notice after January 2012.

COMMUNITY INTERVIEWS:

In an effort to better engage and inform the community, ADEQ would like to interview people who have knowledge of operations of the cleanup systems as well as members of the public who have information or concerns about on-going Site cleanup activities.

ADEQ will conduct community interviews at the Payson WQARF Site located at 204 W. Aero Dr., in Payson on:

Monday, October 24, 2011, from 11:00 a.m. - 3:00 p.m.
Tuesday, October 25, 2011, from 11:00 a.m. - 2:00 p.m.

(Interviews can also be conducted over the phone by request)

Please contact Felicia Calderon, ADEQ Community Involvement Coordinator, at (602) 771-4167 before October 17, 2011 to schedule an interview appointment.

SITE BACKGROUND

In 1990, Town of Payson officials discovered two wells that were contaminated with tetrachloroethene (PCE). After further investigation by ADEQ, the site was added to the WQARF Priorities List in 1993. After years of investigation and coordination with the town, two groundwater treatment systems were installed. In September 1996, the Interim Groundwater Treatment System (IGTS) was constructed to remediate groundwater at the source area. From 1996 to 1998, ADEQ installed groundwater monitor wells to define the extent of groundwater contamination. The IGTS captured and contained the source of the contamination. In August 1997, the Expanded Groundwater Treatment System (EGTS) construction began to remediate groundwater downgradient of the source area. The site was added to the WQARF Registry in 1998. A soil vapor extraction (SVE) system was constructed to remediate contaminated soils in the source area in 2001 and was operated until October 2002. In June 2002, volatile organic compound (VOC) concentrations decreased significantly and the IGTS was shut down in 2003. The EGTS continues to capture and contain the remainder of the contamination.

The town continues to operate and fund the EGTS groundwater treatment system. Groundwater is treated through carbon vessels and is distributed to a holding tank at the site. To ensure compliance with drinking water standards, the town collects water samples on a monthly basis from the system prior to discharging the treated water to the municipal drinking water system.

The site is currently in the operations and maintenance phase of the ROD. It is anticipated that the existing groundwater cleanup system will operate until approximately 2033 or until the PCE concentrations in groundwater are consistently below the 5.0 micrograms per liter (µg/l) Aquifer Water Quality Standard (AWQS).

SITE INFORMATION REPOSITORIES:

ADEQ Records Management Center
1110 W. Washington St.
Phoenix, AZ 85007
(602) 771-4830

City of Payson Public Library
328 N. McLane Road
Payson, AZ 85541
(928) 474-9260

For more information regarding the Payson PCE WQARF site, please contact Felicia Calderon, ADEQ Community Involvement Coordinator, at (602) 771- 4167 or (800) 234-5677 (Arizona toll free), or via e-mail at calderon.felicia@azdeq.gov. Hearing impaired may call TDD line at (602) 207-4827. ADEQ also provides site information at: http://azdeq.gov/environ/waste/sps/download/state/payson.pdf.

For general comments and questions regarding the Five-Year Review for the site, please contact Danita Hardy, ADEQ Project Manager, at (602) 771-4191, or via e-mail at hardy.danita@azdeq.gov. In Arizona, outside the Phoenix area, call 1-800-234-5677. Hearing impaired may call TDD line at (602) 207-4827.

GLOSSARY

Aquifer Water Quality Standard (AWQS) - State of Arizona maximum levels for contaminants which apply to groundwater in aquifers designated for drinking water use. For example, the AWQS for tetrachloroethene (PCE) is 5 micrograms per liter (µg/L).

Contamination - is any hazardous or regulated substance released into the environment.

Groundwater - is water found beneath the earth's surface that fills pores between materials such as sand, clay, or gravel and that often supplies wells and springs.

Perchloroethene (PCE): Also called tetrachloroethene, PCE, or perc. It is a manufactured chemical widely used for dry cleaning and metal degreasing.

Record of Decision (ROD) - is a legal document that explains the cleanup action(s) that will be implemented at a contaminated site.

Remediation- Cleanup or other methods used to remove or contain a toxic spill or hazardous materials.

Soil Vapor Extraction (SVE) - A commonly used technique for cleaning up contaminated soils. This process physically separates contaminants from soil in a vapor form by exerting a vacuum through the soil formation; removes volatile and semi-volatile organic compounds from the ground surface.

Volatile Organic Compounds (VOCs) - is a large group of carbon-containing compounds that are easily dissolved into water, soil, or the atmosphere and evaporate readily at room temperature. Examples of VOCs include tetrachloroethene, trichloroethene, benzene, toluene, ethylbenzene and xylene (BTEX). These contaminants are typically generated from metal degreasing, printed circuit board cleaning, gasoline, and wood preserving processes.

ADEQ Arizona Department of Environmental Quality

Janice K. Brewer, Governor
Henry R. Darwin, Director

PUBLIC INPUT FOR 5-YEAR REVIEW

DATE: OCTOBER 2011

PUBLIC NOTICE
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FIVE-YEAR REVIEW PROCESS

According to the Payson PCE WQARF Site Record of Decision (ROD) pursuant to A.A.C. R18-16-410(B) (8) ADEQ will review the remedy every five years from the issuance of the ROD (May 31, 2007). During this Five-Year Review, in order to determine the protectiveness of the remedy, ADEQ will conduct studies, perform inspections of the site, and review existing operation and maintenance information. ADEQ will also interview key project personnel, evaluate any changes of site conditions, and review federal and state requirements.

ADEQ plans to complete the review by January 2012. The findings of the Five-Year Review will be available to the public at the local information repositories listed at the conclusion of this notice after January 2012.

COMMUNITY INTERVIEWS:

In an effort to better engage and inform the community, ADEQ would like to interview people who have knowledge of operations of the cleanup systems as well as members of the public who have information or concerns about on-going Site cleanup activities. ADEQ will conduct community interviews at the Payson WQARF Site located at 204 W. Aero Dr., in Payson on:

Monday, October 24, 2011, from 11:00 a.m. - 3:00 p.m.
Tuesday, October 25, 2011, from 11:00 a.m. - 2:00 p.m.

COMMUNITY INTERVIEWS (Continued):

(Interviews can also be conducted over the phone by request) Please contact Felicia Calderon, ADEQ Community Involvement Coordinator, at (602) 771-4167 before October 17, 2011 to schedule an interview appointment. Hearing impaired may call TDD line at (602) 207-4827. ADEQ also provides site information at: http://azdeq.gov/environ/waste/sps/download/state/payson.pdf.

SITE INFORMATION REPOSITORIES:

ADEQ Records Management Center
1110 W. Washington St
Phoenix, AZ 85007
(602) 771-4830

City of Payson Public Library
328 N. McLane Road
Payson, AZ 85541
(928) 474-9260

For general comments and questions regarding the Five-Year Review for the site, please contact Danita Hardy, ADEQ Project Manager, at (602) 771-4191, or via e-mail at hardy.danita@azdeq.gov. In Arizona, outside the Phoenix area, call 1-800-234-5677. Hearing impaired may call TDD line at (602) 207-4827.

GLOSSARY

PCE (Perchloroethene): Also called tetrachloroethene, PCE, or perc. It is a manufactured chemical widely used for dry cleaning and metal degreasing

Record of Decision (ROD) - is a legal document that explains the cleanup action(s) that will be implemented at a contaminated site.

PAYSON ROUNDUP
The Rim Review

Advertising Summary

PO Box 2520 · Payson, AZ 85547
708 N. Beeline Highway · Payson, AZ 85541
928/474-5251 · Fax: 928/474-2542
Website: payson.com

Customer ID:	10024083
Customer Name:	WESTERN TECHNOLOGIES INC.
Contact:	Megan
Address1:	3737 East Boradway Road
Address2:	Phoenix, AZ 85040
City:	Phoenix
State, Zip:	AZ 85040
Phone:	6024373737
Fax:	
Email:	

Order No.:	10054956
Ad Type:	Classified
Ad Key #:	
Category:	Public Notices
Size:	1 X 9.80
Inches:	9.80
Words:	457
Color:	

Salesperson: pvanbuskirk

Keywords: 14086: 10/11/2011 PUBLIC NOTICE THE

Description	Start	Stop	Insertions	Total
Payson Roundup	10/11/11	10/11/11	1	77.89
Affidavit Charge				4.95
Arizona Tax				1.65
			Total:	84.49
			Prepaid:	0.00
			Total Due:	$84.49

2181V334
SK

14086: 10/11/2011
PUBLIC NOTICE THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY ANNOUNCES THE START OF COMMUNITY INTERVIEWS FOR THE FIVE-YEAR REVIEW OF THE PAYSON PCE WATER QUALITY ASSURANCE REVOLVING FUND (WQARF) SITE (Initial Publication: ADEQ Website September 29, 2011) The Arizona Department of Environmental Quality (ADEQ) has initiated the Five-Year Review of the groundwater remedy at the Payson PCE WQARF Site. The purpose of a Five-Year Review is to evaluate whether the interim remedies at a site are protective of human health and the environment, and to assess if any factors suggest that the remedies may not continue to be protective in the future. During the Five-Year Review process, ADEQ would like to address any concerns from the public regarding the site. FIVE-YEAR REVIEW PROCESS According to the Payson PCE WQARF Site Record of Decision (ROD) pursuant to A.A.C. R18-16-410(B) (8) ADEQ will review the remedy every five years from the issuance of the ROD (May 31, 2007). During this Five-Year Review, in order to determine the protectiveness of the remedy, ADEQ will conduct studies, perform inspections of the site, and review existing operation and maintenance information. ADEQ will also interview key project personnel, evaluate any changes of site conditions, and review federal and state requirements. ADEQ plans to complete the review by January 2012. The findings of the Five-Year Review will be available to the public at the local information repositories listed at the conclusion of this notice after January 2012. COMMUNITY INTERVIEWS: In an effort to better engage and inform the community, ADEQ would like to interview people who have knowledge of operations of the cleanup systems as well as members of the public who have information or concerns about on-going Site cleanup activities. ADEQ will conduct community interviews at the Payson WQARF Site located at 204 W. Aero Dr., in Payson on: Monday, October 24, 2011, 11:00 a.m. - 3:00 p.m. Tuesday, October 25, 2011, 11:00 a.m. - 2.00 p.m. (Interviews can also be conducted over the phone by request) To schedule an interview appointment please contact Felicia Calderon, ADEQ Community Involvement Coordinator, before October 17, 2011 at (602) 771- 4167 or (800) 234-5677 (Arizona toll free), or via e-mail at calderon.felicia@azdeq.gov. Hearing impaired may call TDD line at (602) 207-4827. ADEQ also provides Payson PCE WQARF Site information at http://azdeq.gov/environ/waste/sps/download/state/payson.pdf. For general comments and questions regarding the Five-Year Review for the site, please contact Danita Hardy, ADEQ Project Manager, at (602) 771-4191, or via e-mail at hardy.danita@azdeq.gov. In Arizona, outside the Phoenix area, call 1-800-234-5677. Hearing impaired may call TDD line at (602) 207-4827. SITE INFORMATION REPOSITORIES: ADEQ Records Management Center 1110 W. Washington St. Phoenix, AZ 85007 (602) 771-4830 City of Payson Public Library 328 N. McLane Road Payson, AZ 85541 (928) 474-9260

APPENDIX E
SITE INSPECTION SUMMARY

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Payson PCE WQARF Site	**Date of inspection:** October 25, 2011
Location and Region: Payson, Arizona	**EPA ID: Not Applicable**
Agency, office, or company leading the five-year review: ADEQ	**Weather/temperature:** Moderate; Clear

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☐ Institutional controls
- ■ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ■ Site map attached (see report)

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Micheal Ploughe, Town of Payson Water Resources Manager, October 25,2011
   Name, Title, Date
   Interviewed ■ at site ☐ at office ■ by phone Phone no. _____
   Problems, suggestions; ■ Report attached: See interview form included in appendices of the Five Year Review Report.

2. **O&M staff** Daniel Utz, Town of Payson Water Services Technician, October 25, 2011
   Name, Title, Date
   Interviewed ■ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

   Refer to Five Year Review Report for Additional Interviews

4. **Other interviews** (optional) ☐ Report attached.

Refer to Five Year Review Report for Additional Interviews

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ■ O&M manual — ■ Readily available — ■ Up to date — ☐ N/A
   - ■ As-built drawings — ■ Readily available — ☐ Up to date — ■ N/A
   - ■ Maintenance logs — ■ Readily available — ■ Up to date — ☐ N/A

   Remarks_____

2. **Site-Specific Health and Safety Plan** — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks_____

3. **O&M and OSHA Training Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks_____

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks_____

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks_____

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks_____

7. **Groundwater Monitoring Records** — ■ Readily available — ■ Up to date — ☐ N/A

   Remarks_____

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks_____

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ■ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ■ N/A

   Remarks_____

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ■ N/A

    Remarks_____

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ Contractor for State
   - ☐ PRP in-house
   - ☐ Contractor for PRP
   - ☐ Federal Facility in-house
   - ☐ Contractor for Federal Facility
   - ■ Town of Payson Water Department

2. **O&M Cost Records**
   - ☐ Readily available
   - ☐ Up to date
   - ■ Funding mechanism/agreement in place

   A summary of the O&M costs for the project is included in the text Five Year Review Report.

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: Not Applicable

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ■ N/A
   Fencing and three gates (two toward Aero Drive and one at the north of the compound) surrounded the facility which includes the EGTS, the former IGTS, a wood frame storage building, TOP-5R, a sheet metal storage building, and the Public Works/Water Department operational areas. The fence and gates were in operable condition. No needs for repair were identified.

B. Other Access Restrictions

1. **Signs and other security measures**
   A four-foot by eight-foot billboard style sign is present at the main (west) entrance gate to the Water Department compound where the EGTS is located. The sign was in good condition and identified Danita Hardy as the point of contact for questions from the public.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
   Site conditions imply ICs not properly implemented ☐ Yes ☐ No ■ N/A
   Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ■ N/A

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ■ N/A

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ■ No vandalism evident
   Remarks_____

2. **Land use changes on site** ☐ N/A
   A description of on Site land use status is present in the Five Year Review Report.

3.	**Land use changes off site** ☐ N/A A description of on Site land use status is present in the Five Year Review Report.

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ■ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A

No roads were installed as a part of the Selected Remedy. A new Town of Payson street, Westerly Road, was constructed through the central portion of the project and is not expected to impact implementation of the Selected Remedy. Pre-existing roadways remain and present no issues that alter the planning for or execution of the Selected Remedy.

B. Other Site Conditions

No additional site conditions were identified which require further comment.

VII. Expanded Groundwater Treatment System ■ Applicable ☐ N/A

A. Treatment System ■ Applicable ☐ N/A

1. **Treatment Train**

Treatment Train

■ Extraction Wells – TOP-4, TOP-5R, TOP-19, TOP-Skinner, EX-1, EX-2.

In good condition. TOP-5R was recently returned to service after being disinfected and rehabilitated to abate a bacterial bloom/biofouling.

Treatment Train

■ Pre-treatment Piping – from extraction wells to EGTS.

Piping and valves between pumps and outer wall of EGTS are below grade and not available for inspection. As specified, the pipes are high-density polyethylene (HDPE) or ductile iron pipe (at sewer line crossings). The piping and valves were all installed during or after 1998 and are well within typical life-expectancy for these materials. No reports of leaks or damage incidents have been made. No unusual conditions such as blockage or back-pressure have been made to indicate restriction problems. Underground piping is assumed to be in good condition.

Treatment Train

■ EGTS Manifolds, pipes, and Valves.

Underground piping from each well exits the ground surface and enters the north wall of the EGTS. The aboveground portions of these exterior pipes were thermal wrapped for freeze protection. The thermal wrapping showed signs of wear but appeared to be in serviceable condition. Inside the building, the incoming pipelines joined a manifold along the north wall which led first to the bag pre-filters, then to and between the carbon vessels, and then from the carbon vessels to the Town of Payson distribution connection point. An adjustable manifold constructed of valves and flanged piping connections (the "decon piping system") served to support backflow, vessel isolation, and flow re-direction maintenance activities. The manifold, valves, and piping was painted and appeared in good condition. Staining and corrosion were not observed on the exterior of the piping or the underlying floor. Cracks and leaks were not evident. The piping was functioning at the time of the site inspection. Based on this review, the piping was in good condition.

Treatment Train

■ EGTS Pre-filters.

Two bag-style pre-filters were located in-line between the entry manifold and the carbon vessels. The pre-filters appeared in good condition. Staining and corrosion were not observed on the exterior of the filters housings or the underlying floor. Cracks and leaks were not evident. The piping was functioning at the time of the site inspection. Based on this review, the pre-filters were in good condition. On June 6, 2010, the Town of Payson reported discovery of bio-fouling originating from TOP-5R. The discovery was made because the Town of Payson Water Department Staff noticed an increase in the plugging rates of the bag filters media in the pre-filters. The Water Department staff, isolated the problem/affected components. TOP-5R was taken off-line and disinfected along with its distribution piping, manifold, and the bag filter units. The Town of Payson suspected nitrates as a contributing factor. The Town identified that slime bacteria were the suspected source of the issues and the treatment involved utilized frequent bag filter changes, periodic pH/chlorination treatment of the impacted wells and upgrading of the piping manifold at the EGTS.

Treatment Train

■ Granular Activated Carbon Vessels

Two 500-gallon per minute (physical capacity) carbon vessels formed the functional core of the EGTS treatment system and were located in the north-central portion of the EGTS building. The EGTS was functioning at the time of the inspection and only the exterior of the carbon vessels were observed. The vessels appeared in good condition. Staining and corrosion were not observed on the exterior of the piping or the underlying floor. Cracks and leaks were not evident.

During a previous carbon change out event, the Town of Payson identified deterioration of the protective interior lining of the carbon vessels. Corrective action was taken by re-application of the lining to the vessels during the subsequent clean out event.

Treatment Train

■ General Features

Sampling ports properly marked and functional
Sampling/maintenance log displayed and up to date
Equipment properly identified

Treatment Train

■ Air stripping – Air stripping no longer performed since termination for the IGTS.

2. **Electrical Enclosures and Panels** (properly rated and functional)

☐ N/A ■ Good condition ☐ Needs Maintenance

No evidence was noted or reports received indicating functional issues with the electrical system.

3. **Tanks, Vaults, Storage Vessels**

☐ N/A ■ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

The facility includes two bulk water storage tanks located immediately south of the EGTS building. The larger, a 100,000-gallon capacity re-inforced fiberglass contact chlorination tank is located downstream of the EGTS effluent connection point and the Town of Payson chlorination metering devise. A 10,000-gallon capacity isolation/settlement tank is located west of the chlorination tank in a secondary containment berm is used during backwash and maintenance events.

4. **Discharge Structure and Appurtenances**

The discharge point for the EGTS is the connection point to the Town of Payson water distribution system.

5. **Treatment Building(s)**

■ Good condition (esp. roof and doorways)
■ Generally, chemicals and equipment were properly stored and marked.
■ General housekeeping conditions were good to excellent.

6. **Monitoring Wells** (pump and treatment remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☐ N/A

Monitoring Wells	Maintained by ADEQ
Records are current based on 2012 conditions.	
DG-01	Depth to top of pump = 119.5'. Pump replaced in October 2012.
DG-02	Depth to top of pump = 86.7'. Well was operational in 2011. No service required. Access requires coordination with property manager of multi-family residential complex that occupies this site.
DG-04A	Depth to top of pump = 86.15'. Well was operational in 2012. No service required. Access can be difficult in wet weather due flooding of surrounding field.
DG-05	Depth to top of pump = 86.5'. Pump replaced in October 2012.
DMW-1A	Well is dry. Converted from above-grade to flush completion July 2005. Well heads re-surveyed by Northstar in August 2005. Last sampled in December 2000. No service is required based on recent water level conditions.
DMW-1B	Depth to top of pump = 105'. Converted from above-grade to flush completion July 2005. Well heads re-surveyed by Northstar in August 2005. Well was operational in 2012. No service is required.
DMW-1C	Depth to top of pump = 166'. Pump repaired by Aero Drilling in May 2005. Converted from above-grade to flush completion July 2005. Well heads re-surveyed by Northstar in August 2005. Well was operational in 2012. No service required.
DMW-1D	Slow recharge requires reduced purge volume. Depth to top of pump = >300'. Converted from 36" flush to 18" completion July 2005. Well head was raised approximately 10". Well heads re-surveyed by Northstar in August 2005. Well was operational in 2012. No service required.
DMW-2A	Well is dry. Last sampled December 1999. No service is required based on recent water level conditions. Well vault is difficult to find due to sediment from parking lot run-off covering vault and surrounding areas between sampling events.
DMW-2B	Slow recharge requires reduced purge volume. Depth to top of pump = 170'. Well was operational in 2012. No service required.
DMW-2C New	Slow recharge requires reduced purge volume. Depth to top of pump = 241' Well was operational. No service required.
DMW-3A	Well is dry. Last sampled December 1999. Depth to top of pump = 67'. No service required based on recent water level conditions.
DMW-3B	Depth to top of pump = 152.5'. Well was operational during 2011. No service required.
DMW-3C	Reduced purge rate due to slow recharge. Well was operational in 2011. No service required.
DMW-4A	Pump intake is dry. Last sampled September 2005. No service required based on recent water level conditions.
DMW-4B	Depth to top of pump = 135.5'. Pump motor replaced on 9/21/2011. Well was operational during 2011. No service required.
DMW-4C	Slow recharge requires reduced purge volume. Depth to top of pump = >200'.

DMW-5A	Well is dry. Last sampled September 2005. Depth to top of pump = 68.5'. No service required based on recent water level conditions.
DMW-5B	Slow recharge requires reduced purge volume. Depth to top of pump = 220'. Well was operational during 2012. No service required.
DMW-5C	Depth to top of pump = 335'. Well was operational during 2012. No service required.
DMW-6A	Depth to top of pump = 67.5'. Pump replaced in June 2002, and after inconsistent performance, was again replaced in July 2007. The pump has operated satisfactorily since that time. Well was operational during 2012. No service required.
DMW-6B	Depth to top of pump = 136.5'; Note this is deeper than recorded depth of well, and this depth should be re-measured to verify accuracy. Well was operational during 2012. No service required.
DMW-6C	Slow recharge requires reduced purge volume. Depth to top of pump = >200'. Well was operational during 2012. No service required.
DMW-7A	Depth to top of pump = 67.5'. Well was operational during 2012. No service required.
DMW-7B	Depth to top of pump = 175.5'. Well was operational during 2012. No service required.
DMW-7C	Slow recharge requires reduced purge volume. Depth to top of pump = 282'. Well was operational during 2012. No service required.
DMW-8B	Well is dry. Depth to top of pump = 78.7'. Last sampled March 2008. No service required based on recent water level conditions.
DMW-8C	Slow recharge requires reduced purge volume. Measurement needed for depth to top of pump. Well was operational during 2012. No service required.
DMW-9A	Well is dry. No sample collected. Pump removed from well in 2001. No service required during recent water level conditions.
DMW-9B	Depth to top of pump = 156.5'. Well was operational during 2012. No service required.
DMW-9C	Depth to top of pump = >300'. Existing pump repaired in March 2011. Well was operational in 2012. No service required.
DMW-10A	Well is dry, last sampled in March 2006. Well head elevations raised about 14" in 2003. Re-surveyed in August 2005 by Northstar. Depth to top of pump = 67.0'. No service required based on recent water level conditions.
DMW-10B	DMW-10 Well head elevations raised about 14" in 2003, Re-surveyed elevation August 2005 by Northstar. Pump was replaced on 9/21/2011 and raised from 220' to 200'. Well was operational during 2012. No service required.
DMW-10C	DMW-10 Well head elevations raised about 14" in 2003, Re-surveyed elevation August 2005 by Northstar. Depth to top of pump = >300'. Pump was replaced on 9/21/2011. Well was operational during 2012. No service required.
DMW-11A	Well is dry. Last sampled in September 2002. Pump has been removed. Water level was measured for the first time in about 10 years near the bottom of this well. Well may be recharging. If water level continues to rise, replacing pump will be recommended. No service required based on recent water level conditions.
DMW-11B	Depth to top of pump = 185'. Well was operational during 2012. No service required.
DMW-11C	Slow recharge and tendency of pump to overheat requires reduced purge volume. Depth to top of pump = 295'. Well was operational during 2012. No service required.

DMW-12A	Pump intake is dry, last sampled June 2001. Depth to top of pump = 68'. No service required based on recent water level conditions. Well vault is typically buried by surface sediment between sampling events.
DMW-12B	Depth to top of pump = 115'. Well was operational during 2012. No service required.
DMW-12C	Depth to top of pump = 211.5'. Pump would not turn on. No sample collected. Pump was replaced (due to seized armature), tested, and and utilized to collect a sample confirmed operational in June 2012.
DMW-13A	Well is dry. Depth to top of pump = 74.5'. Last sampled September 2001. No service required based on recent water level conditions.
DMW-13B	Depth to top of pump = 162.2'. Pump would not operate in Septmeber 2011. No sample collected. Pump was replaced, tested, and confirmed operational in June 2012.
DMW-13C	Slow recharge requires reduced purge volume. Measurement to top of pump needed. Well was operational during 2012. No service required.
DMW-14B	Depth to top of pump = 105'. Well was operational during 2012. No service required.
DMW-14C	Depth to top of pump >200'. Pump would not turn on. No sample collected in September 2011. Pump difficult but managed to start in 2012 after attempts with different generators. Recommendation is to pull and service pump if difficulties persist.
SW-1A	Depth to top of pump = 83'. Dry in 2012. Last sampled in 2011. No service required.
SW-1B	Depth to top of pump = 120.4'. Well was operational during 2012. No service required.
SW-2A	Depth to top of pump = 83'. Well was operational during 2012. No service required.
SW-2B	Depth to top of pump = 124.7'. Well was operational during 2012. No service required.
SW-3A	Depth to top of pump = 83'. Well was operational during 2012. No service required.
SW-3B	Depth to top of pump = 118'. Well was operational during 2011. No service required.
Extraction Wells	**Maintained by Town of Payson**
EX-1	Well was operational during 2012. No service required.
EX-2	Well was operational during 2012. No service required.
TOP-4	Well was operational during 2012. No service required.
TOP-5R	Well was operational during 2012 but out of service for bio-fouling issues in 2012.
TOP-19	Well was operational during 2012. No service required.
TOP Skinner	Well was operational during 2012. No service required.
	Due to bacteria problems, the Town of Payson conducts chlorination of the extraction wells on a periodic basis. In 2012 Western Technologies recommended preservation for chlorine of future samples collected from the extraction wells.

D. Monitoring Data

1. Monitoring Data
   ■ Is routinely submitted before the end of the State fiscal year.

2. Monitoring data suggests:
   ■ Groundwater plume is effectively contained ■ Contaminant concentrations are declining

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Remedy is containing plume and reduction contaminant concentrations.

Actions by Town of Payson Water Services to mitigate bio-fouling should be continued to promote optimal operation of the EGTS. If bio-fouling persists, it may be prudent to evaluate organisms responsible to optimize treatment.

A determination should be made regarding the Town of Payson's proposed modifications to the IGA.

The interior lining of Vessel 1A should be repaired as soon as practicable.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Bio-fouling may require further evaluation to optimize treatment.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

Potential capture issues on east side of plume.

Town of Payson water injection could be responsible for pushing plume south and may get worse once full-scale injection begins.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

APPENDIX F
INTERVIEW SUMMARIES

Payson PCE WQARF Site
Periodic Site Review Questions

General Public:
Name: John Shoemaker
Title/position: Former CAB member
Date: 10/21/11
Method: Phone

1. What is your knowledge of the history of the Payson PCE WQARF Site (Site)?

   Was a CAB member for 5-6 years.

2. What is your overall impression of the Site?

   Very impressed the State and ADEQ did a good job and saved the Town of Payson a lot of money.

3. Is the remedy functioning as expected?

   Yes.

4. Are you aware of any community concerns regarding the Site or its operation and maintenance?

   No.

5. Are you aware of any events, incidents, or activities at the Site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.

   No.

6. Do you have any comments, suggestions, or recommendations regarding the Site's management or operation?

   No.

7. Are you familiar with the ADEQ website? Do you know where to find information on the Payson PCE WQARF Site?

   Not, really.

8. Are you aware of the information repository for the Site? Have you ever used it to find information for the Site?

   Yes. No.

9. Have you contacted ADEQ in the past to inquire about the Site? If so, did you feel that your questions or concerns were answered to your satisfaction?

   No.

10. What is the best way for ADEQ to communicate with you about this Site in the future?

    No preference.

11. Is there anyone else that you think might be useful for us to talk with about the Site?

    No.

Payson PCE WQARF Site
Periodic Site Review Questions

General Public:
Name: Gary Bedsworth
Title/position: Former Community Advisory Board (CAB) member
Date: 10/21/11
Method: Phone

1. What is your knowledge of the history of the Payson PCE WQARF Site (Site)?

   Dry cleaner contamination.

2. What is your overall impression of the Site?

   Great area to be developed once finally cleaned up. Concerned about water contamination in the Town of Payson's drinking water.

3. Is the remedy functioning as expected?

   Don't know wants to see some recent sampling numbers.

4. Are you aware of any community concerns regarding the Site or its operation and maintenance?

   No.

5. Are you aware of any events, incidents, or activities at the Site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.

   No.

6. Do you have any comments, suggestions, or recommendations regarding the Site's management or operation?

   No. It would be nice for a community update once or twice a year in the Roundup newspaper. The people who live around the Site do have heightened concerns and an update might reduce their concerns.

7. Are you familiar with the ADEQ website? Do you know where to find information on the Payson PCE WQARF Site?
Yes. Yes.

8. Are you aware of the information repository for the Site? Have you ever used it to find information for the Site?

Yes. Yes.

9. Have you contacted ADEQ in the past to inquire about the Site? If so, did you feel that your questions or concerns were answered to your satisfaction?

No. N/A

10. What is the best way for ADEQ to communicate with you about this Site in the future?

Email.

11. Is there anyone else that you think might be useful for us to talk with about the Site?

The local business and or homes that surround the plume.

Payson PCE WQARF Site
Periodic Site Review Questions

Town Management:
Name: Laron Garret
Title/position: Assistant Town Manager
Date: 10/25/11
Method: Face Interview
Interviewer: Danita Hardy (Technical); Felcia Calderon (Community Involvement)
Attendees: Jennifer Theis (ADEQ), Steve Kaminski (Western Technologies Inc.)

TECHNICAL QUESTIONS

1. What is your overall impression of the Payson PCE WQARF Site (Site)?

   It's been a good project. It has done what it is supposed to do. It has cleaned up the water. Unfortunately, the groundwater levels haven't made it work as efficiently as it could have, but that is not a problem with the plan.

2. During the last 5 years have there been any changes to the groundwater recharge program, the surface water management of the groundwater management programs?

   No. However, we (the Town of Payson) are evaluating a few projects and testing a few options for more groundwater recharge, but nothing has been implemented yet. Specifically, we are working on connecting water from the Blue Ridge Reservoir to the Town's system. If in the early years we have excess, we are evaluating recharging the excess in another portion of Town.

3. Is the remedy functioning as expected to meet drinking water standards?

   Yes.

4. Do you feel well informed about the Payson PCE WQARF Site activities and progress?

   Yes. I've been involved with it for about 15 years.

5. Have there been complaints, or violations or other incidents related to the Payson PCE WQARF Site that required a response from your office.

   No.

6. Have there been any site visits, inspections, reporting activities conducted for the Payson PCE WQARF Site?

   The Town performs its regular operational activities, and I visit facility periodically, but I don't believe there have been any visits by outside parties, if that was the question.

7. Are you aware of any problems, difficulties, or significant changes in the O&M requirements, maintenance schedules or sampling routines encountered?

   No.

8. Do you know of changes in the Local, State, or Federal regulation requirements?

   Not that affect the remediation project.

9. Do you have any comments or suggestions regarding the operation of this system?

   None that are critical. We are transitioning cost and operations of the system from ADEQ to the Town of Payson. The town has submitted a proposed amendment to the intergovernmental agreement and that is still under review. In the meantime, the Town is operating under the proposed alternative. The Town proposed changes including to the scope of testing and calculations. My understanding is that the bulk of the proposed changes were acceptable, but there was some review of the standard terms of the amendment that were delaying its approval.

10. Do you know of any operations or adjustments that can optimize the system or make it perform better?

No. I mean, it does what it is supposed to do. For the current amount of flow it is probably overdesigned, but there's nothing wrong with that.

11. Do you conduct any groundwater monitoring or review groundwater monitoring data?

The water department does regular sampling and testing related to their services. I usually don't see it or become involved, unless there's an issue.

12. Has the Town of Payson ever detected anything in groundwater like MTBE, boron, chromium, or other constituents that might have caused a problem?

Historically, there has been MTBE found, but I'm not aware of anything recent.

13. Are you aware of a continuous operation & maintenance presence?

There is not a continuous presence of staff on the treatment system site. However, there is full-time monitoring by the systems computer which auto-dials Town of Payson staff in the event of a problem.

14. Are you familiar with initial conditions and the current status of impact to groundwater?

Yes. We were initially unable to use our water from this location, and now we are.

15. From your perspective, what does having this clean up operation here do for the surrounding community?

There are a few properties surrounding the project that still have private wells, and it has helped clean up their water. I've never heard any complaint about the system. Most Town residents like it.

16. Are you aware of any ongoing community concerns about the Payson PCE WQARF Site or its operation?

No. When the air-stripper in the Interim System was running, we received some noise complaints about the blowers. I have discussed the traffic plan for Main Street east of the highway with Western Technologies and requested alteration of the restrictions for left turns there.
No.

17. Have the local authorities, you, or others heard about any dumping or vandalism at the Payson PCE WQARF Site?

I haven't.

18. Are you aware of repairs or upgrades/replacement that should be made to the system within the next 5 years?

No. It should last longer than that for what we are doing right now.

19. Generally describe changes in the past five years or plans for future changes to the Town of Payson water production program.

There's hasn't been a lot of change in the past five years. In the future, the Town will begin importing water from the Blue Ridge Reservoir. Excess water may be recharged in the Rumsey Park area, north of the Payson PCE WQARF Site. The Blue Ridge water would replace the use of groundwater for about 9 months a year.

COMMUNITY INVOLVEMENT QUESTIONS

1. Are you familiar with the ADEQ website and how to access the specific information we have on it regarding the Payson PCE WQARF Site?

I've heard of it, but have not accessed it.

2. Do you know how to access the website?

Yes. I've been to it for other issues.

3. Are you aware of the information repository at the Payson Public Library for the Payson PCE Site?

   Yes. If I want something, I just call the Water Department.

4. Have you ever had to contact ADEQ in the past regarding the Payson PCE WQARF Site?

   Not since the construction was completed.

5. When you were working with ADEQ during the construction phase, did you feel that your questions and comments were responded to promptly?

   Yes.

6. What is the best way for ADEQ to continue to communicate with you? Via E-mail, telephone, or other?

   Either of those work fine.

7. Is there anyone else that you think we should contact for an interview that could provide vital information for this report?

   The Mayor, Buzz Walker or Michael Ploughe or possibly some of the water operators.

END OF INTERVEIW

Payson PCE WQARF Site
Periodic Site Review Questions

Town Management:
Name: Michael Ploughe
Title/position: Hydrogeologist/Water Resource Manager
Date: 10/26/11;and finalized June 2012
Method: Face and Phone Interview
Interviewer: Danita Hardy, Chet Pearson, Steve Kaminski (Technical and Community Involvement);

TECHNICAL QUESTIONS

1. What is your overall impression of the Payson PCE WQARF Site (Site)?

   It's a success.

2. During the last 5 years have there been any changes to the groundwater recharge program, the surface water management, or the groundwater management programs?

   No significant changes.

3. Is the remedy functioning as expected to meet drinking water standards?

   Yes.

4. Do you feel well informed about the Payson PCE WQARF Site activities and progress?

   Yes.

5. Have there been complaints, or violations or other incidents related to the Payson PCE WQARF Site that required a response from your office.

   No.

6. Do you have any comments, suggestions, or recommendations regarding the Site's management or operation?

   No, other than it is going well.

7. Have there been any site visits, inspections, reporting activities conducted for the Payson PCE WQARF Site?

   Just by Water Department regular operations folks and routine annual inspection from the ADEQ drinking water compliance unit.

8. Are you aware of any problems, difficulties, or significant changes in the O&M requirements, maintenance schedules or sampling routines encountered?

   - The condition of the carbon vessel lining was noticed in 2011 it needs to be corrected, currently the problem is not an immediately threat to the system,
   - Potential life time of wells has been identified. This has become evident by bio-fouling issues at TOP-5R. We are currently evaluating this as a life cycle issue relating to the extraction wells that have gravel packs. The Town has tried acidification, biocide, and super chlorination of TOP5R, which was not successful. The early stages of this issue is now being noticed in TOP-19.
   - The SKATA programmable logical control system that replaced original PLC system is being progressively upgraded.
   - The Town reworked and simplified the manifold header system in early summer 2012 to abate early stage bacteria film issues.
   - Town of Payson recoated and relined the 100,000-gallon contact chlorination tank in the fall 2011, during carbon change activities.

9. Do you know of changes in the Local, State, or Federal regulation requirements?

   Nothing significant.

10. Do you have any comments or suggestions regarding the operation of this system?

    I've have no additional comments to what we've already discussed.

11. Do you know of any operations or adjustments that can optimize the system or make it perform better?

    We might want to consider optimizing the performance monitoring schedule, because the blend influent concentrations are occasionally dropping below the MCL. The consistent proven performance of the system demonstrates a low risk. We should consider that this may warrant decreasing sampling frequency. Otherwise only the improvements I referred to earlier.

12. Do you conduct any groundwater monitoring or review groundwater monitoring data?

System wide, Yes.

13. Has the Town of Payson ever detected anything in groundwater like MTBE, boron, chromium, or other constituents that might have caused a problem?

MTBE had been found in the past and only in the WQARF area to my knowledge.

14. Are you aware of a continuous operation & maintenance presence?

Town of Payson staff visits daily. The system is monitored full time electronically, and automatic alarm calls are made by the system if problems develop. With time we have been able to reduce the false alarms. The improvements to the SKATA system are helping with this.

15. Are you familiar with initial conditions and the current status of impact to groundwater.

Yes.

16. From your perspective, what does having this clean up operation here do for the surrounding community?

Provides a clean, safe, and reliable water supply.

17. Are you aware of any ongoing community concerns about the Payson PCE WQARF Site or its operation?

No.

18. Have the local authorities, you, or others heard about any dumping or vandalism at the Payson PCE WQARF Site?

No.

19. Are you aware of repairs or upgrades/replacement that should be made to the system within the next 5 years?

We've already discussed these.

20. Generally describe changes in the past five years or plans for future changes to the Town of Payson water production program.

Not much change has happened in the past five years. The plan for adding Cragin Reservoir surface water to our system will be a dramatic change in the future.

COMMUNITY INVOLVEMENT QUESTIONS

1. Are you familiar with the ADEQ website and how to access the specific information we have on it regarding the Payson PCE WQARF Site?

Yes.

2. Do you know how to access the website?

Yes.

3. Are you aware of the information repository at the Payson Public Library for the Payson PCE Site?

Yes.

4. Have you ever had to contact ADEQ in the past regarding the Payson PCE WQARF Site?

Occasionally.

5. When you were working with ADEQ during the construction phase, did you feel that your questions and comments were responded to promptly?

Yes.

6. What is the best way for ADEQ to continue to communicate with you? Via E-mail, telephone, or other?

   I like e-mail.

7. Is there anyone else that you think we should contact for an interview that could provide vital information for this report?

   From what I understand, I think you guys have covered the bases.

END OF INTERVEIW

Payson PCE WQARF Site
Periodic Site Review Questions

ADEQ Representative:
Name: Tina LePage
Title/position: Section Manager
Date: March 2012
Method: Written Response

1. What is your overall impression of the Payson PCE WQARF Site (Site)?

   I'm happy with the progress of the Site.

2. Is the remedy (the Expanded Groundwater Treatment System or EGTS) working as well as you would expect to meet drinking water standards?

   The remedy is working. There is no PCE in the water delivered from the EGTS to the Town's drinking water system.

3. Have there been any complaints, violations, or other incidents related to the Payson PCE WQARF Site that required a response from your office. If so, please summarize the events and results. Do you have any inspection/complaint reports

   Yes. Due to reduced funding, ADEQ is no longer funding the operations of the EGTS. ADEQ and the Town of Payson are currently re-negotiating the inter-governmental agreement.

4. Have there been any site visits, inspections, reporting activities conducted regarding the Payson PCE WQARF Site? Are there any inspection reports?

   Yes. Our contractor (Western Technologies) conducts semi-annual sampling and Site visits. The Town of Payson provides ADEQ with semi-annual system operation data reports. URS also inspected the inside of the GAC vessels during previous carbon change-outs.

5. Are you aware of any problems, difficulties, costs or significant changes in the O&M requirements, maintenance schedules or sampling routines encountered since 2006 which have impacted progress or resulted in a change of operations and maintenance procedures?

Due to State funding cuts, the Town of Payson is now responsible for the O&M of the EGTS.

If so, do the affect the protectiveness or effectiveness of the remedy?

No.

Please describe the changes and impacts.

None.

6. Are you aware of any changes to Town, State, or Federal regulations or ordinances since 2006 which may impact current operations, protectiveness, or effectiveness of the remedy:

No.

7. Do you have any comments, suggestions, or recommendations regarding the Payson PCE WQARF Site's management or operation?

No.

8. Have there been any upgrades to the EGTS? Are any upgrades planned for the EGTS? Are you aware of any upgrades or changes to the system?

Extraction wells have been added, and carbon change-outs have been performed as needed.

9. Do you know of opportunities to optimize the operation, maintenance, or sampling efforts at the Payson PCE WQARF Site? Have any of these changes been adopted? Are there any desired cost savings or improved efficiencies?

No.

10. Since 2009, with the decreased funding from the State of Arizona, are you aware of any changes to the EGTS: Are there any upgrades that were "postponed" or "put on hold"? Have nay repairs not been performed? Have the decreased funding levels affected the protectiveness or effectiveness of the remedy?

Recoating of the granular activated carbon (GAC) vessel has been postponed, but this has been inspected by qualified engineers.

11. Do you conduct any groundwater monitoring or review groundwater monitoring data?

No

12. What does the monitoring data show? Are there any trends that show contaminant concentrations are decreasing?

N/A.

13. Have any compounds been detected in groundwater (MTBE, boron, chromium, etc.) that may negatively affect the EGTS remedy?

According to the project manager, MTBE occasionally is detected in groundwater.

14. Do you feel well informed about the Site's activities and progress?

Yes.

15. From your perspective, what effect has continued cleanup operations at the Site had on the surrounding community?

The EGTS has provided clean drinking water to an orphaned WQARF Site

16. Is there a continuous operation and maintenance presence? If so, please describe staff activities? If there is not a continuous on-site presence, describe the staff and frequency of Site inspections and activities.

Yes, The Town of Payson continues to provide operation and maintenance activities. ADEQ's contractor provides semi-annual sampling as well as monitor well maintenance.

17. Are you aware of any ongoing community concerns regarding the Site or its operation and administration?

    No.

18. Has there been any dumping, vandalism, or anything that required emergency response from local authorities? Have any of these activities disrupted the operation of the system? If so, please give details.

    The only thing that I am aware of is two monitor well aprons had to be replaced after the Town of Payson noticed problems in the right-of-way.

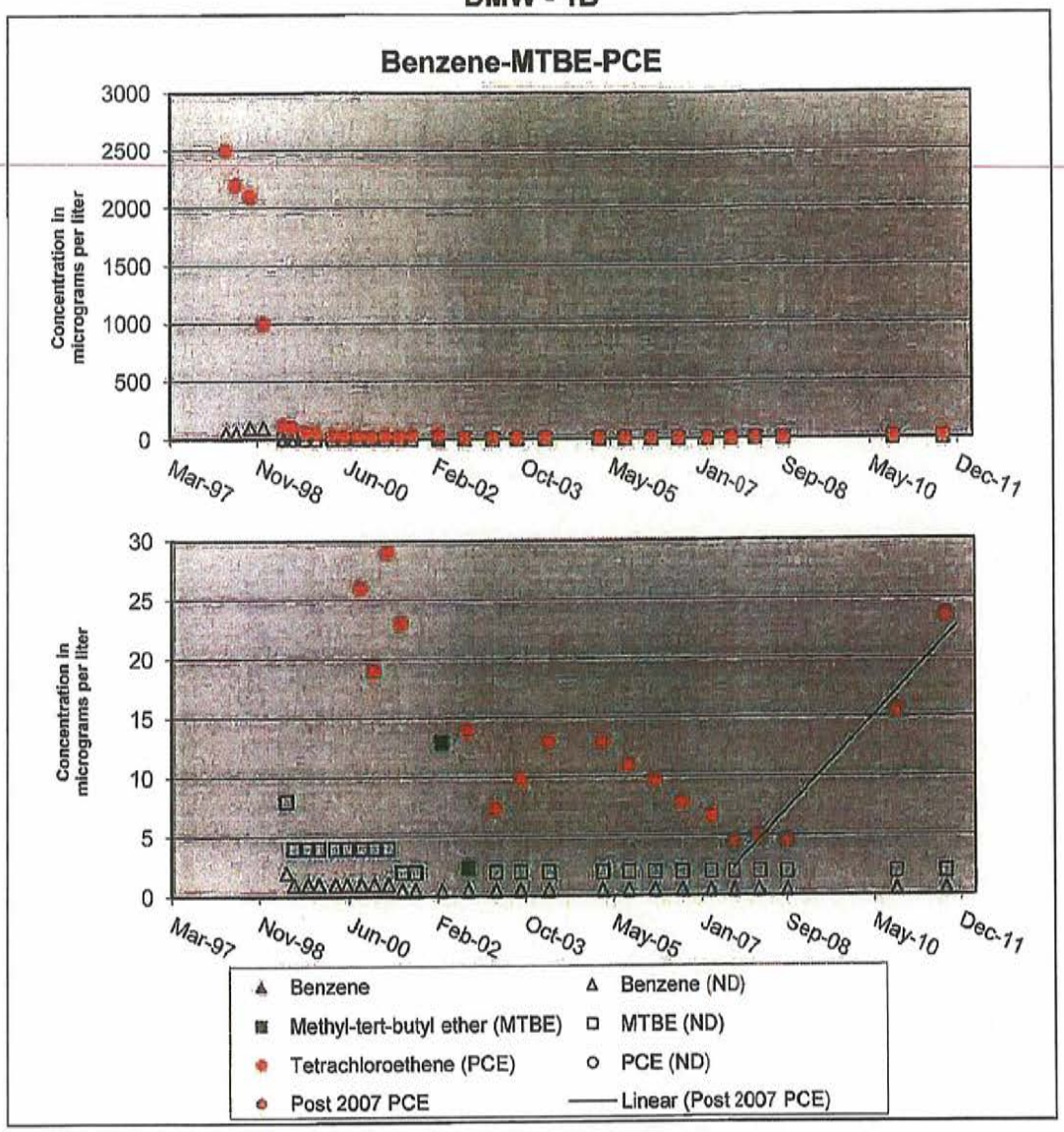
19. Prior to the next 5 year review (2016), are any potential remedy repairs, upgrades or replacements anticipated? If so, please list the possible repairs, replacements, or upgrades. These items might be early indicators of potential remedy problems.

    Other than the normal maintenance and repairs, none are anticipated.

APPENDIX G
TIME-SERIES GRAPHS AND HYDROGRAPHS FOR SELECTED WELLS

AL UNIT TIME SERIES GRAPHS

DMW - 1B


Benzene-MTBE-PCE
Concentration in micrograms per liter
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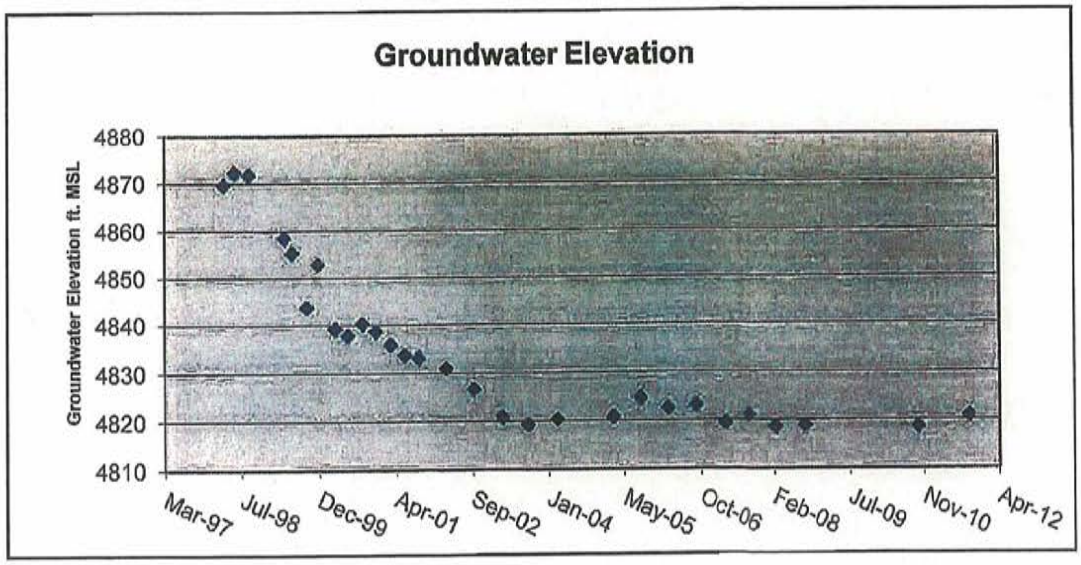
2500
2000
1500
1000
500
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Benzene
Benzene (ND)
Methyl-tert-butyl ether (MTBE)
MTBE (ND)
Tetrachloroethene (PCE)
PCE (ND)
Post 2007 PCE
Linear (Post 2007 PCE)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Groundwater Elevation ft. MSL
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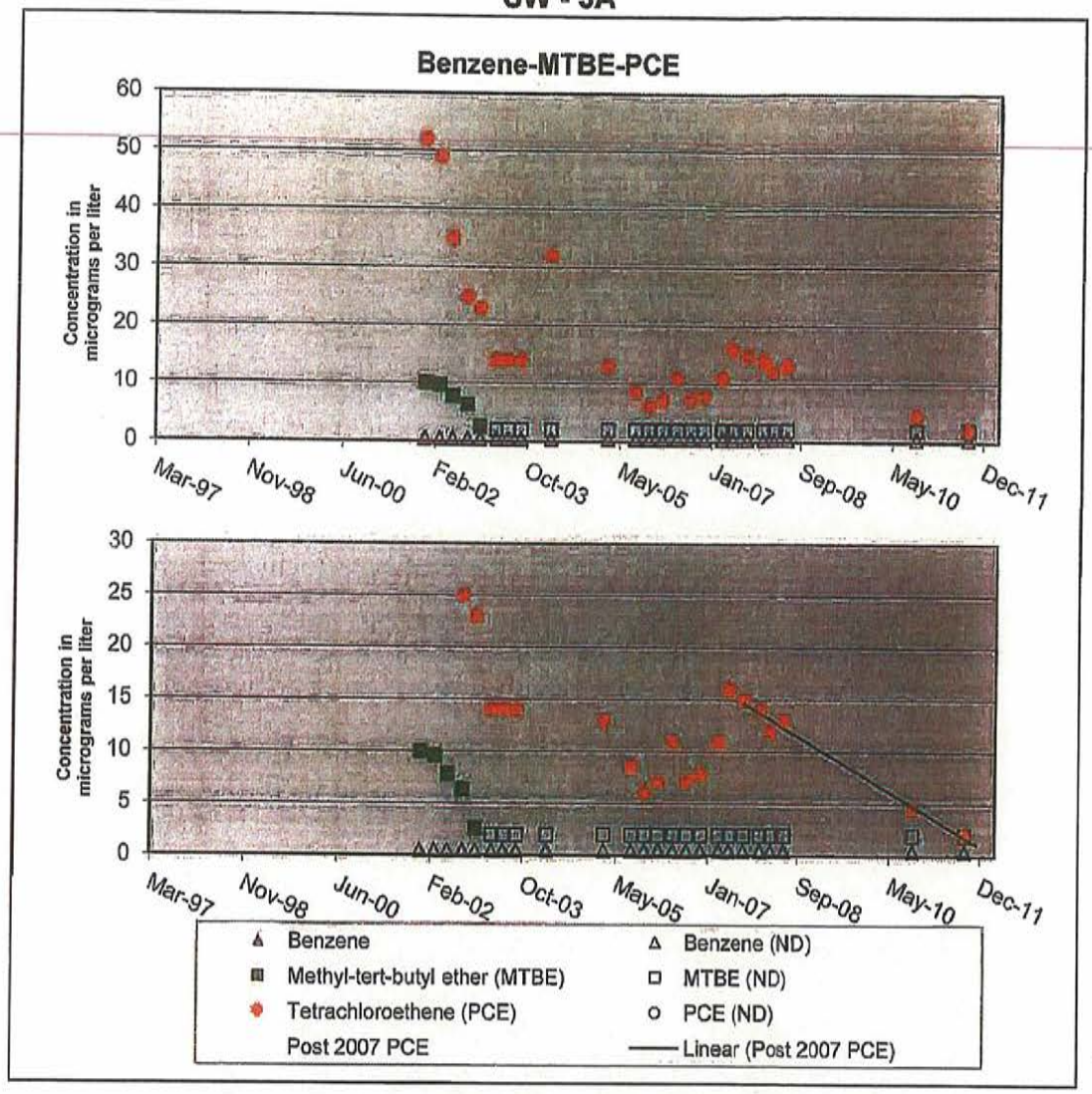
4870
4860
4850
4840
4830
4820
4810
Mar-97
Jul-98
Dec-99
Apr-01
Sep-02
Jan-04
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12

SW - 3A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Concentration in micrograms per liter
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40
30
20
10
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
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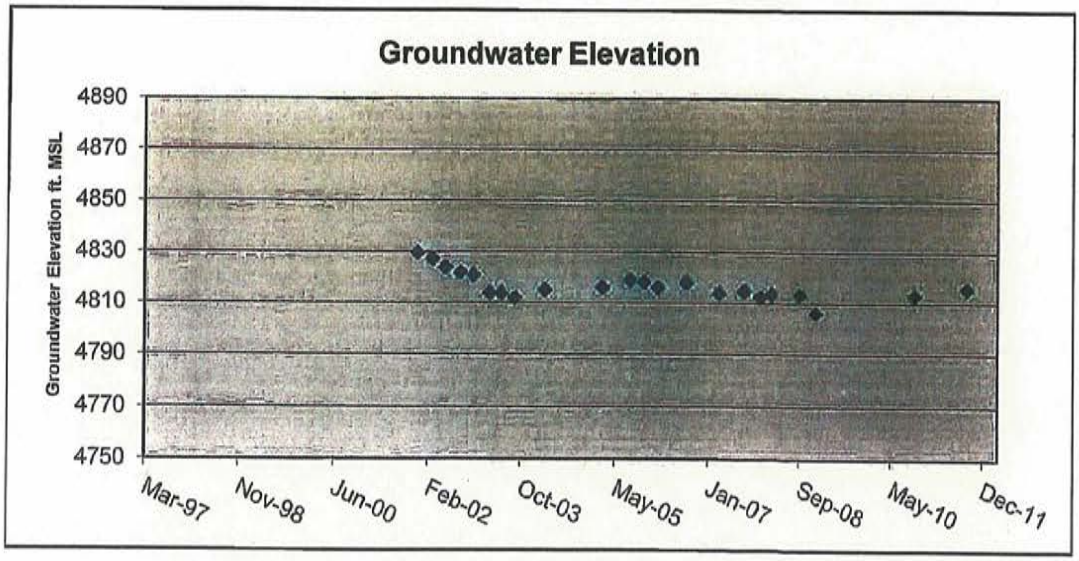
0
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Post 2007 PCE
Benzene (ND)
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)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4750
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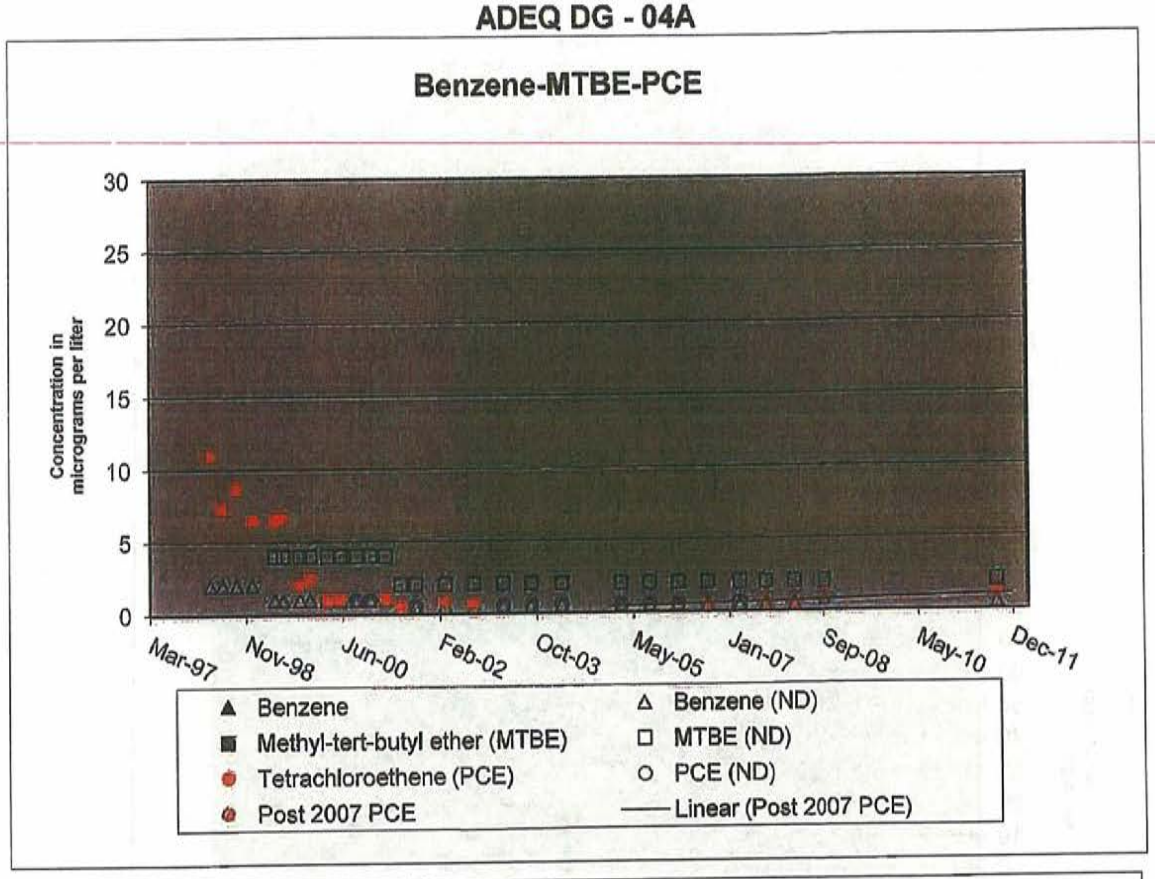
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

FG/CG UNIT TIME SERIES GRAPHS

ADEQ DG - 04A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Concentration in micrograms per liter
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10
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Jun-00
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Jan-07
Sep-08
May-10
Dec-11
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
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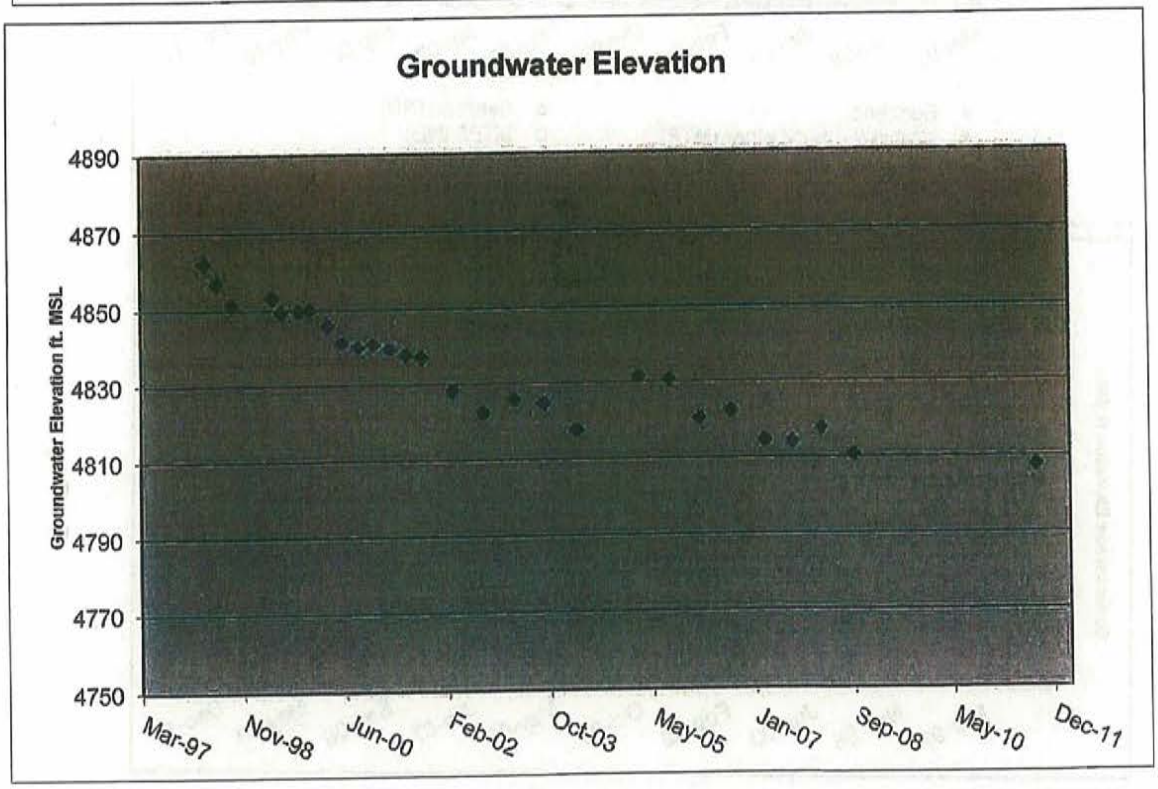
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)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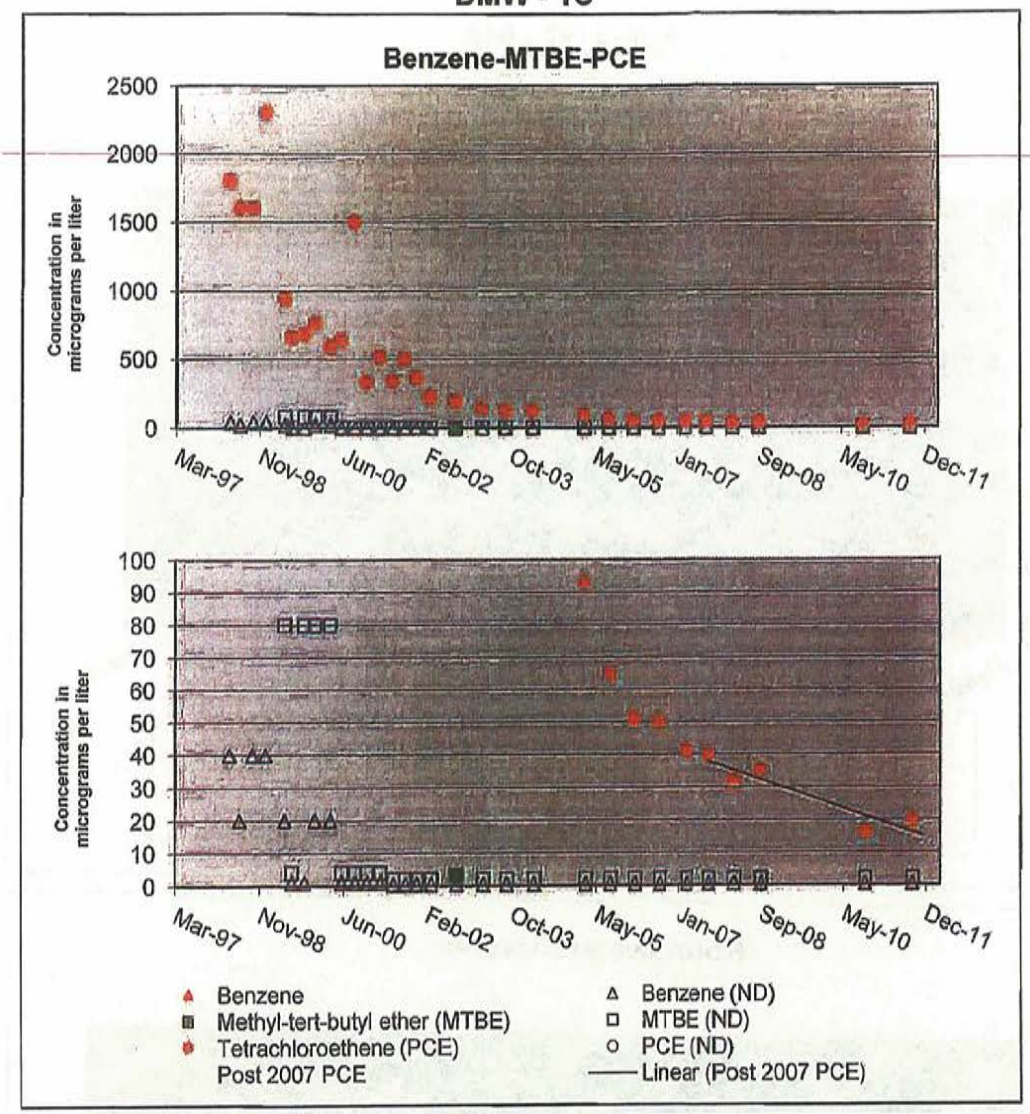
May-10
Dec-11

DMW - 1C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Concentration in micrograms per liter
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1500
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Mar-97
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Dec-11
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Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
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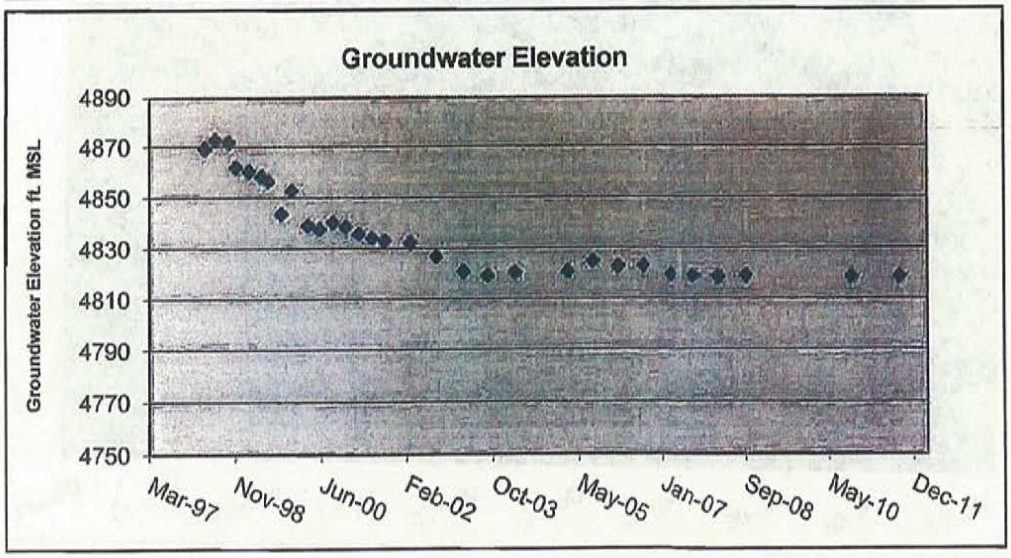
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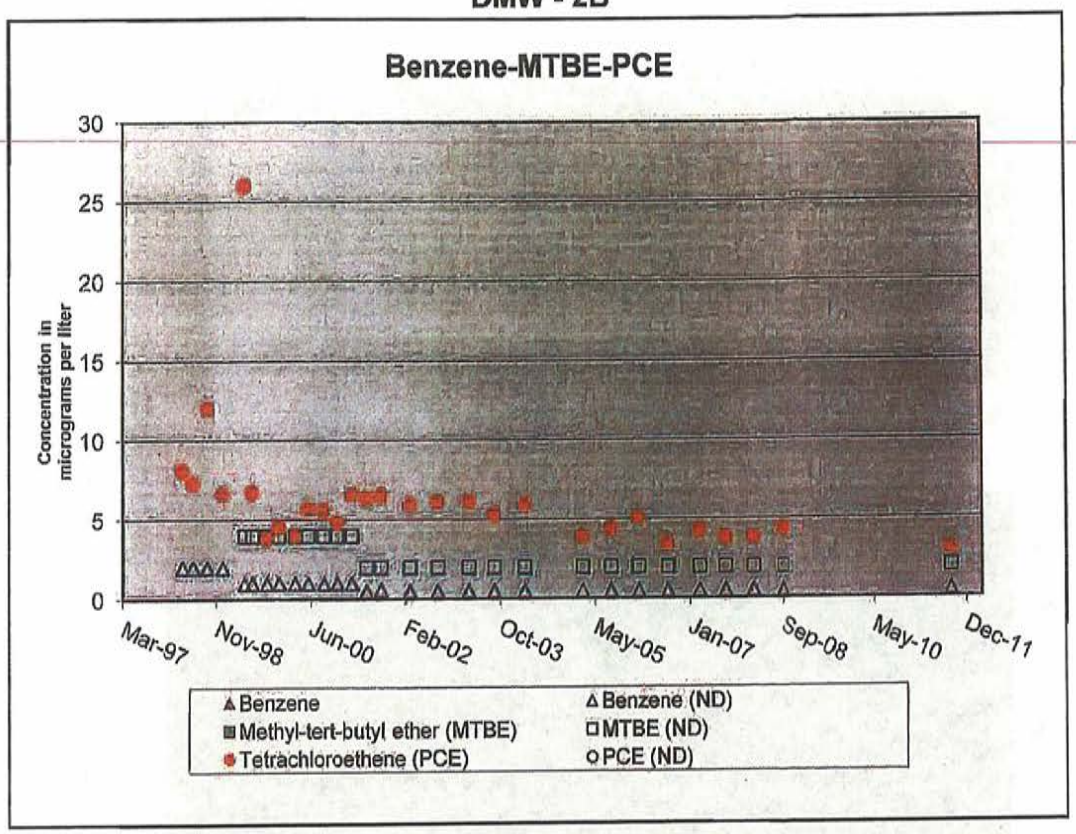
Dec-11

DMW - 2B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Concentration in micrograms per liter
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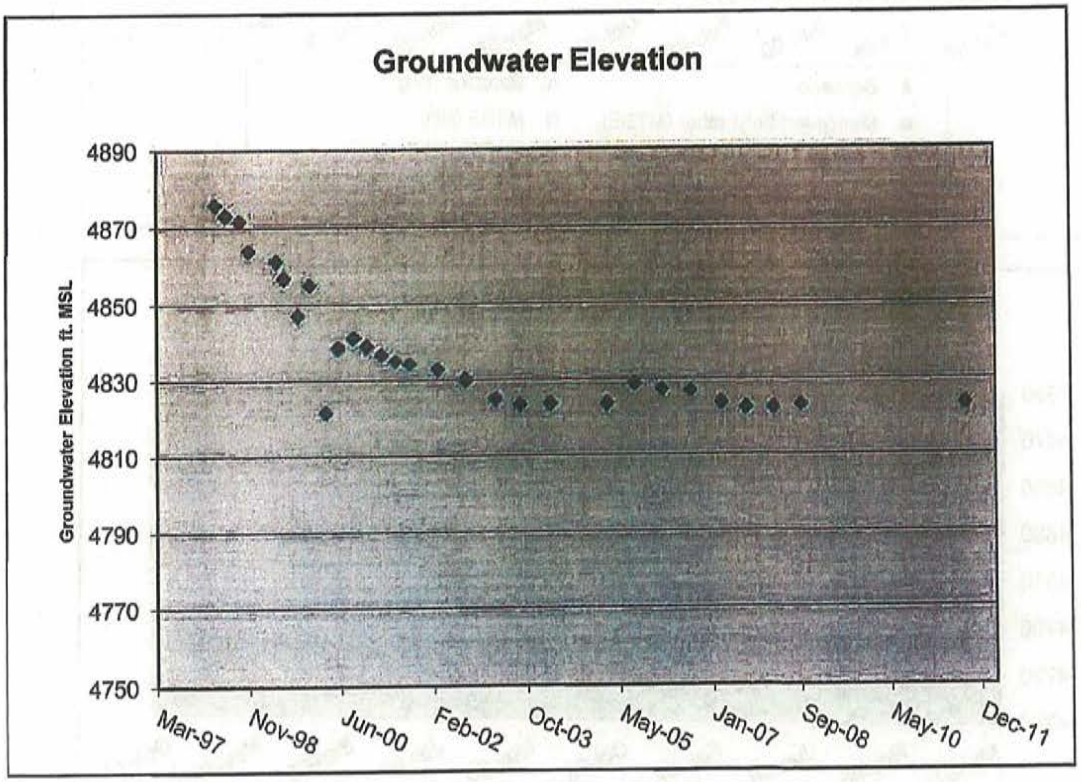
Benzene (ND)
MTBE (ND)
PCE (ND)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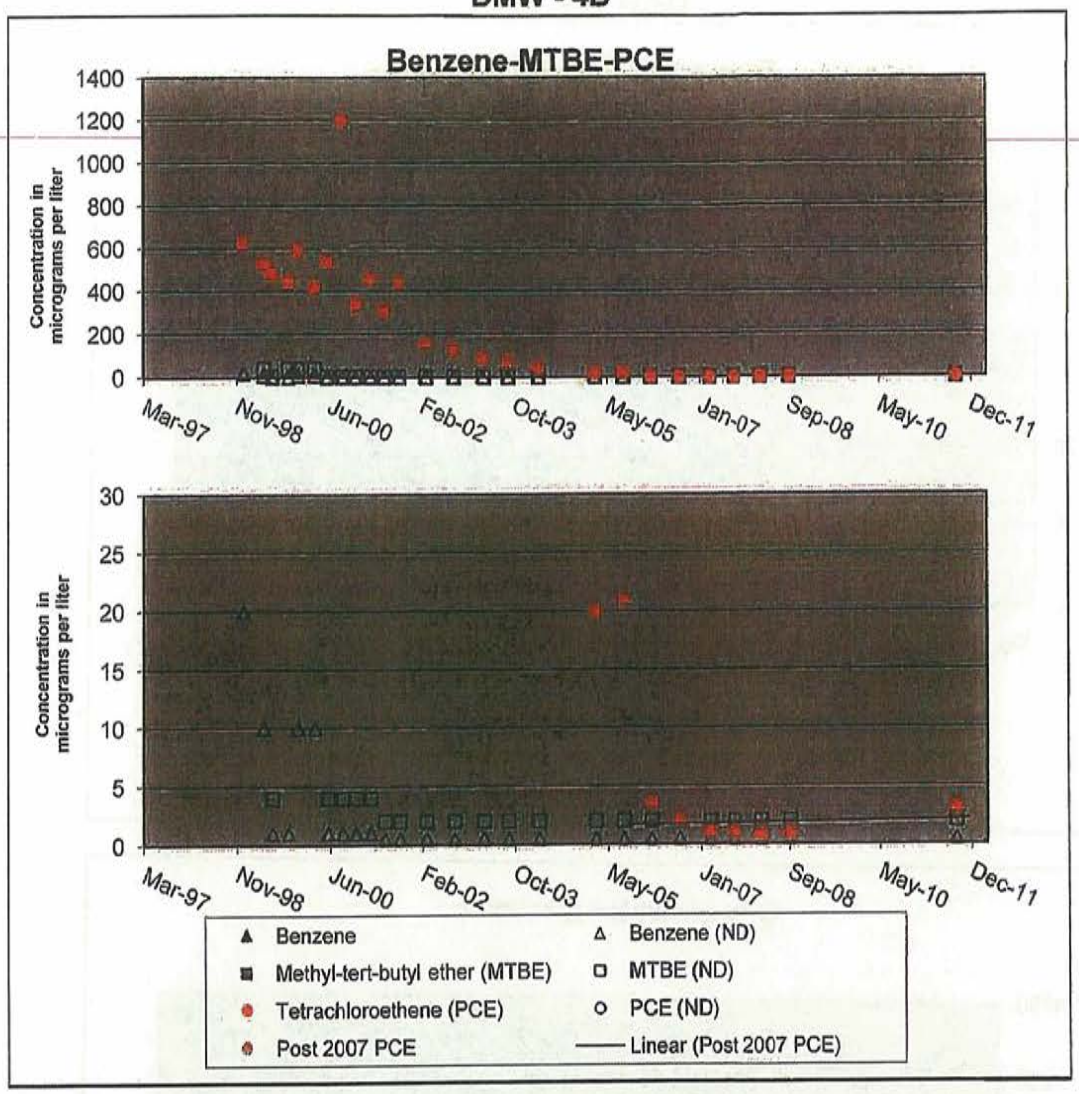
DMW - 4B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Concentration in micrograms per liter
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Dec-11
Concentration in micrograms per liter
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Jun-00
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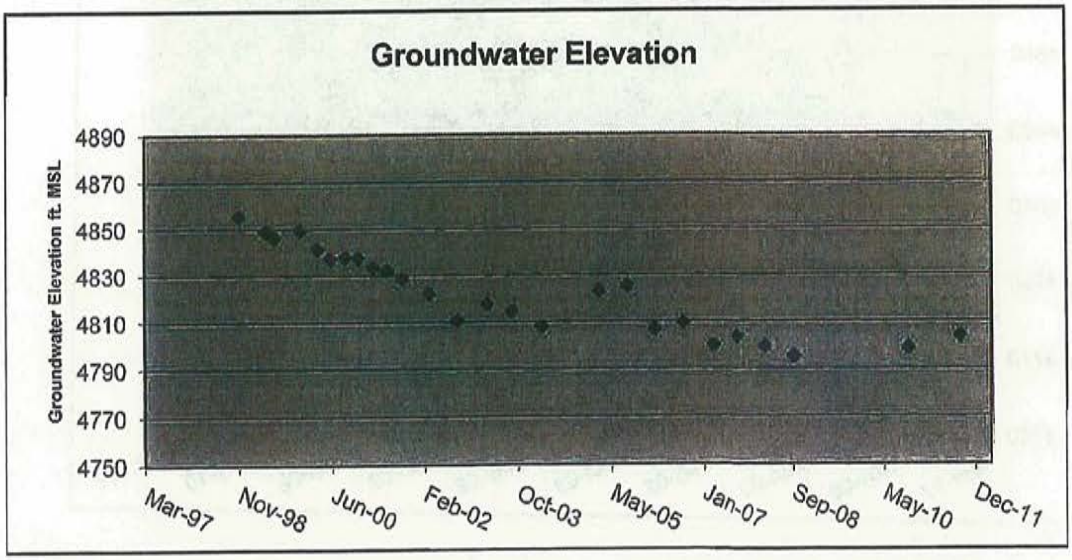
May-10
Dec-11
Benzene
Benzene (ND)
Methyl-tert-butyl ether (MTBE)
MTBE (ND)
Tetrachloroethene (PCE)
PCE (ND)
Post 2007 PCE
Linear (Post 2007 PCE)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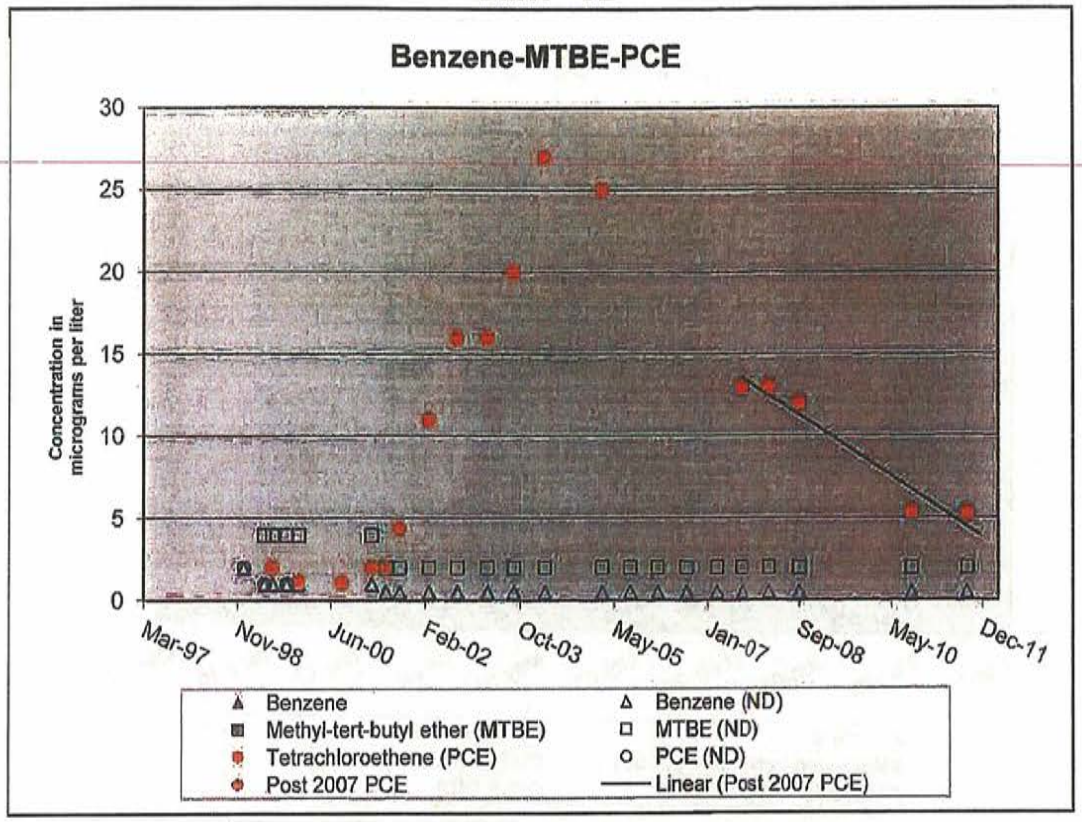
DMW - 5B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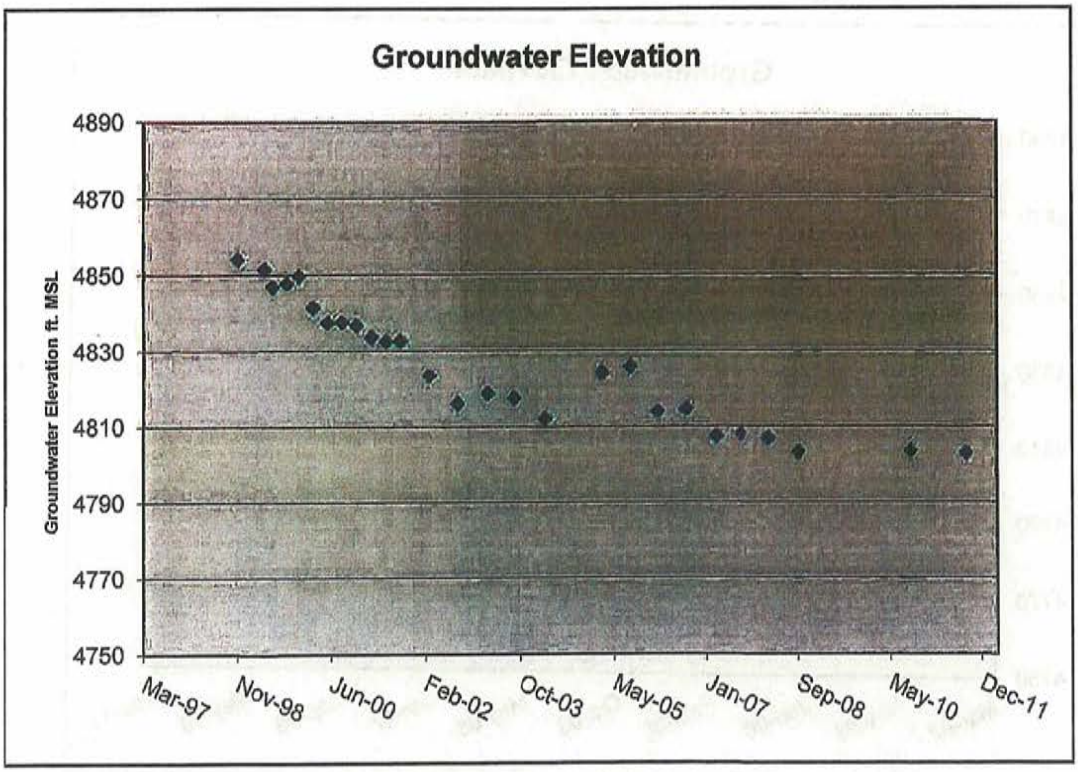
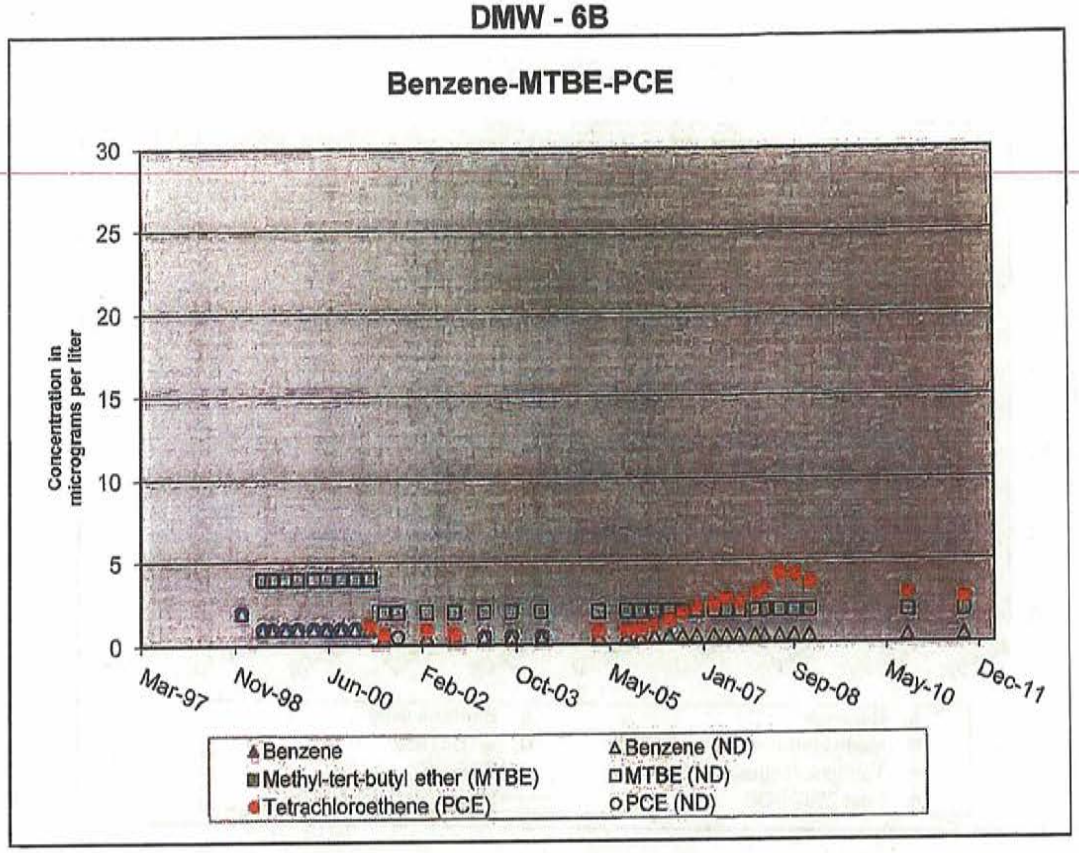
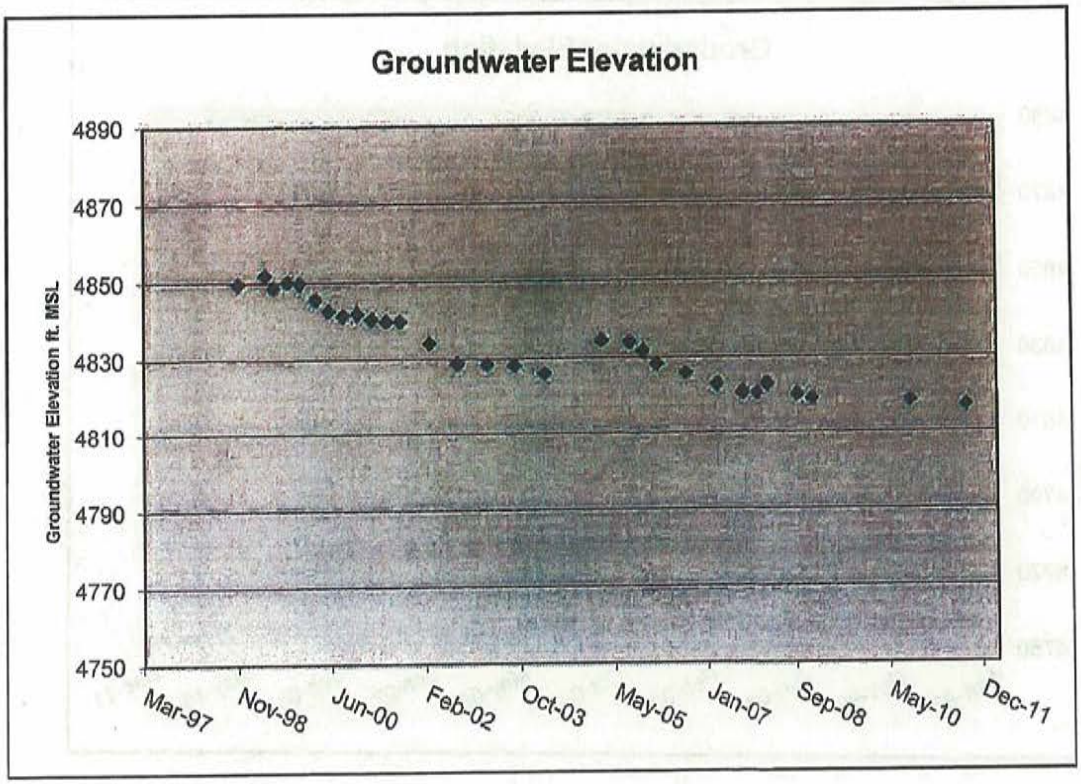
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Post 2007 PCE
Benzene (ND)
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)

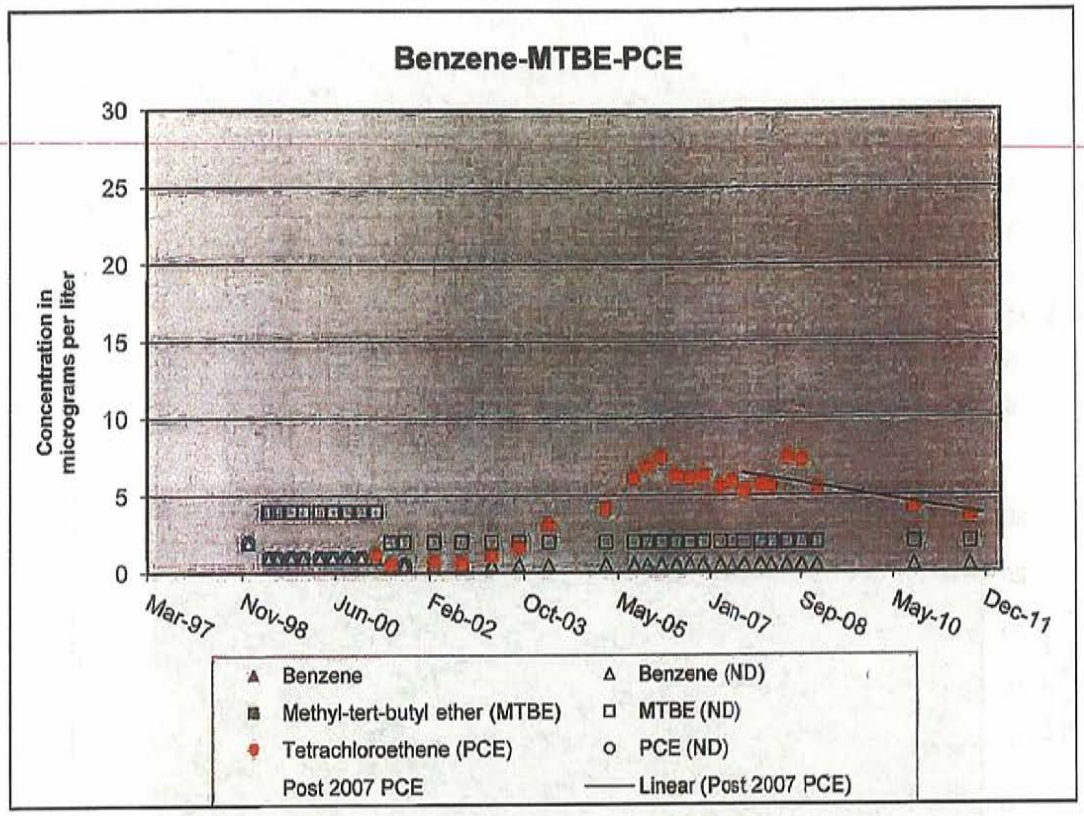

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

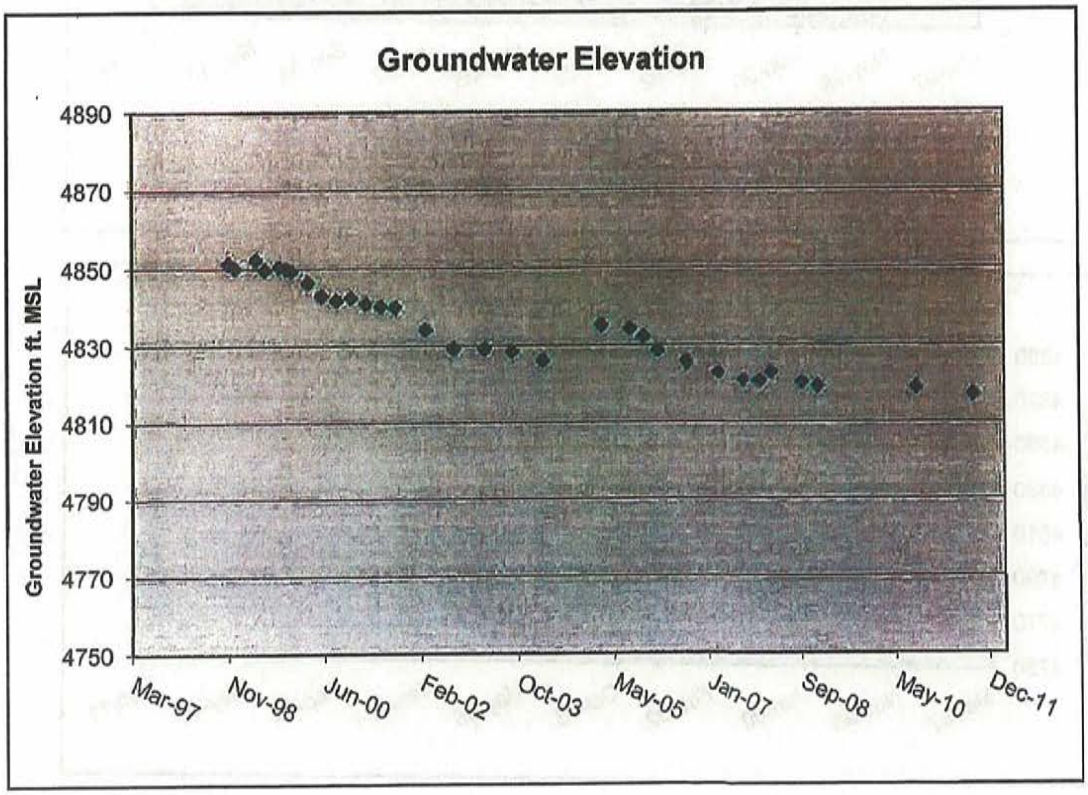
DMW - 6B


Benzene-MTBE-PCE
Concentration in micrograms per liter
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Benzene (ND)
MTBE (ND)
PCE (ND)

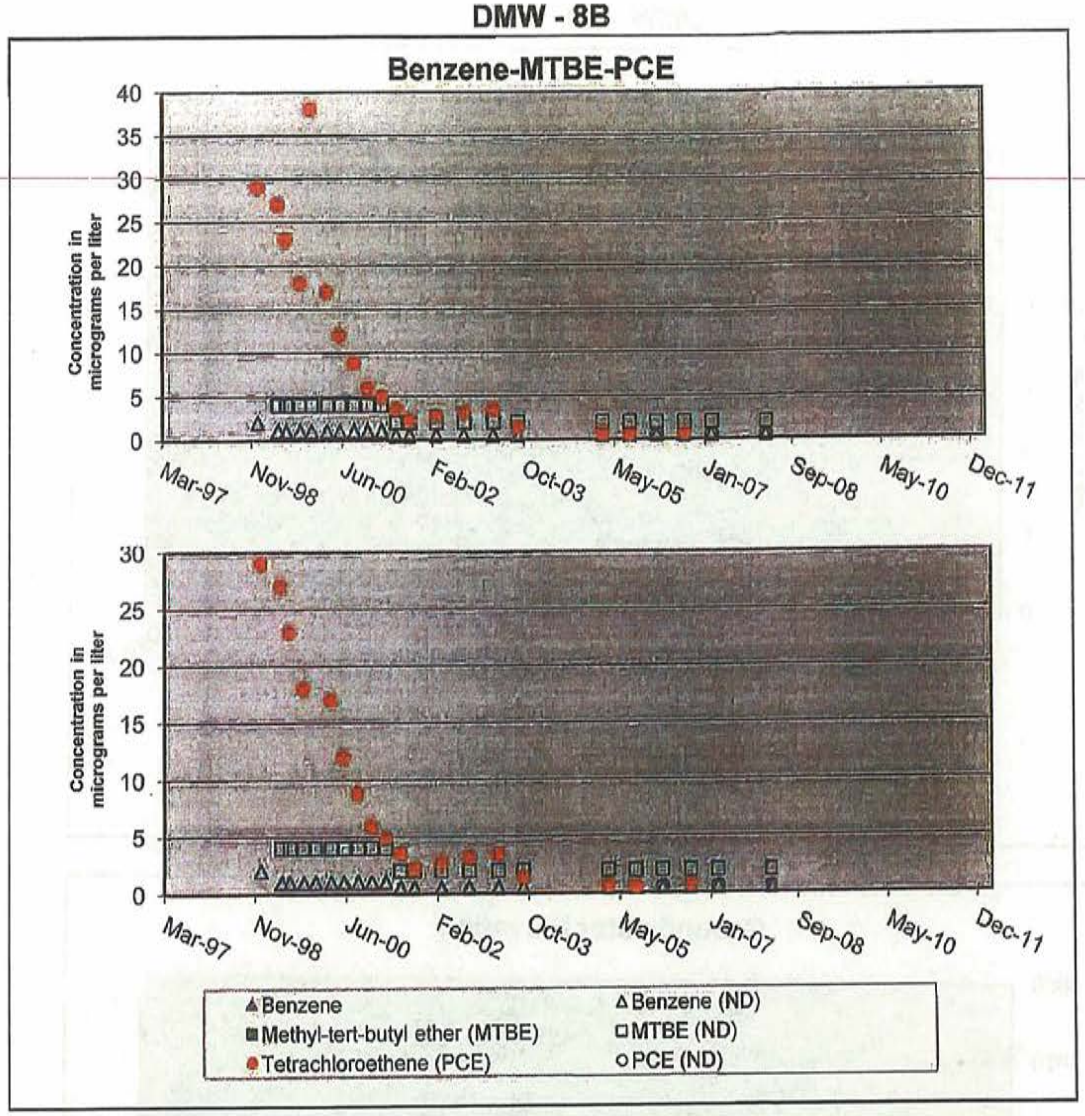

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

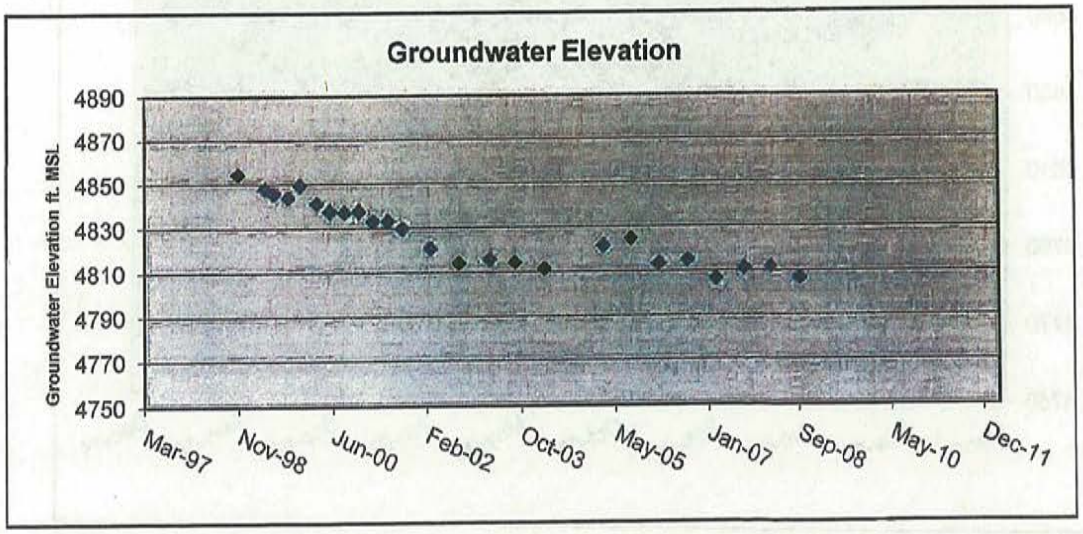
DMW - 7B


Benzene-MTBE-PCE
Concentration in micrograms per liter
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Benzene
Benzene (ND)
Methyl-tert-butyl ether (MTBE)
MTBE (ND)
Tetrachloroethene (PCE)
PCE (ND)
Post 2007 PCE
Linear (Post 2007 PCE)

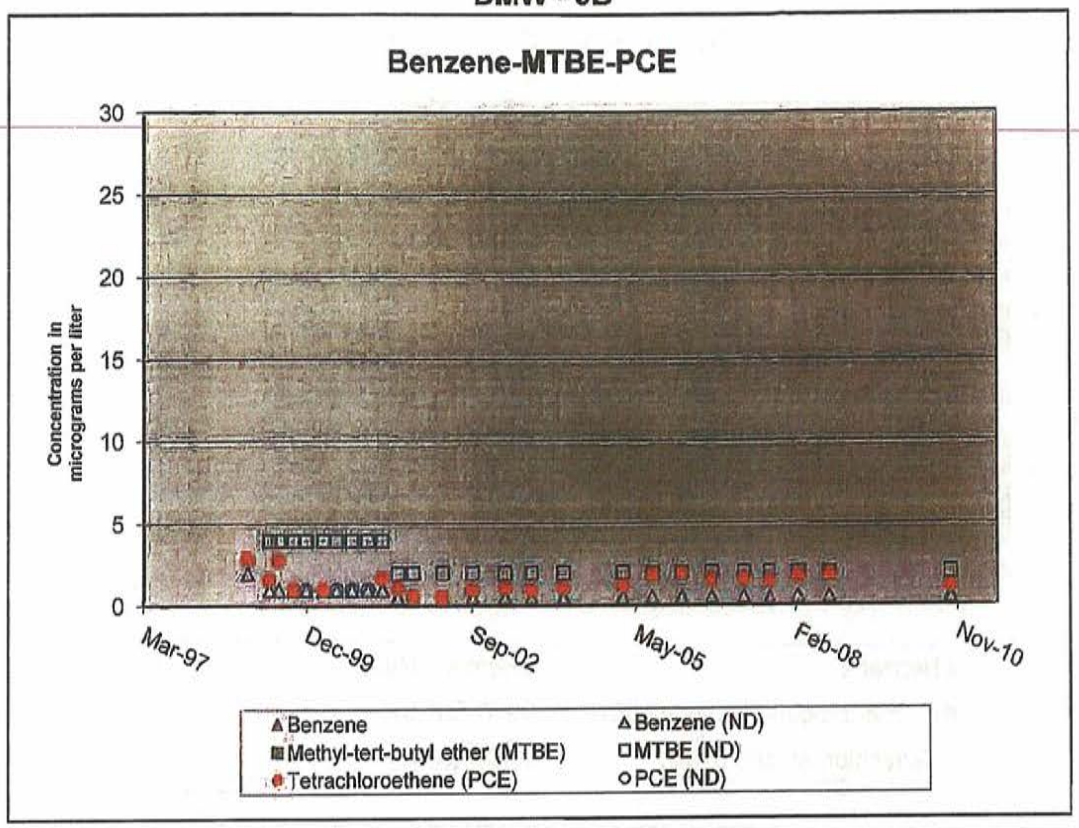

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

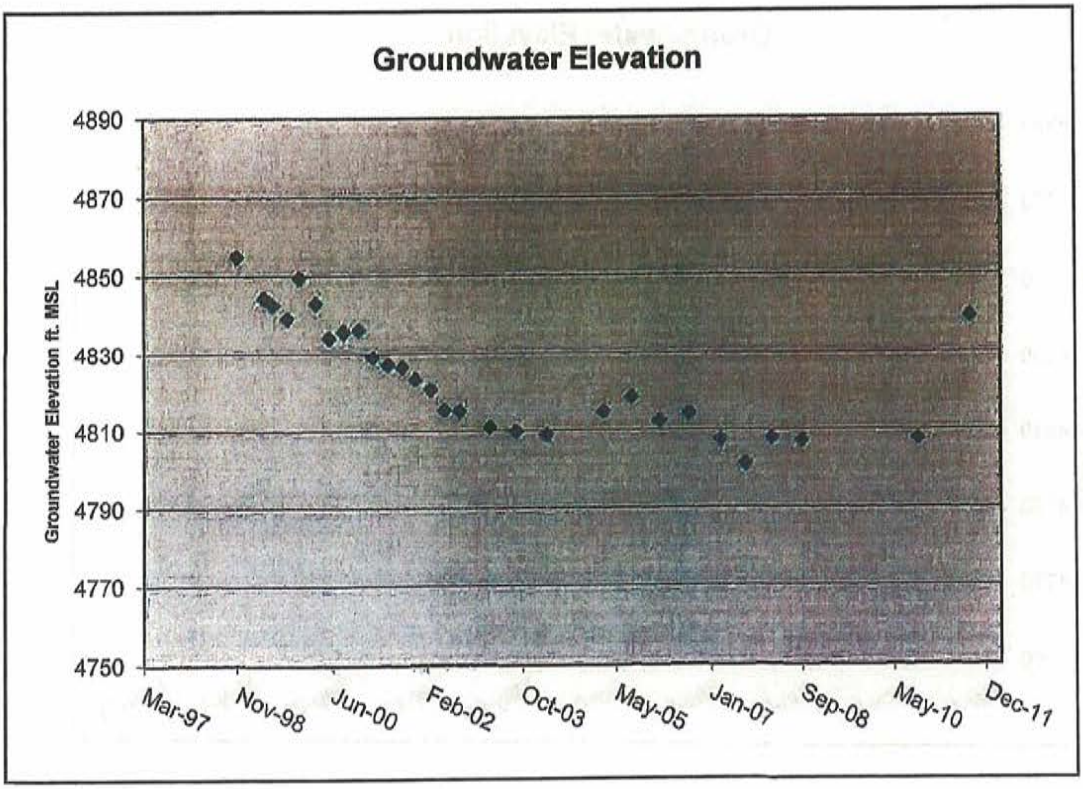
DMW - 8B


Benzene-MTBE-PCE
Concentration in micrograms per liter
40
35
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Benzene (ND)
MTBE (ND)
PCE (ND)

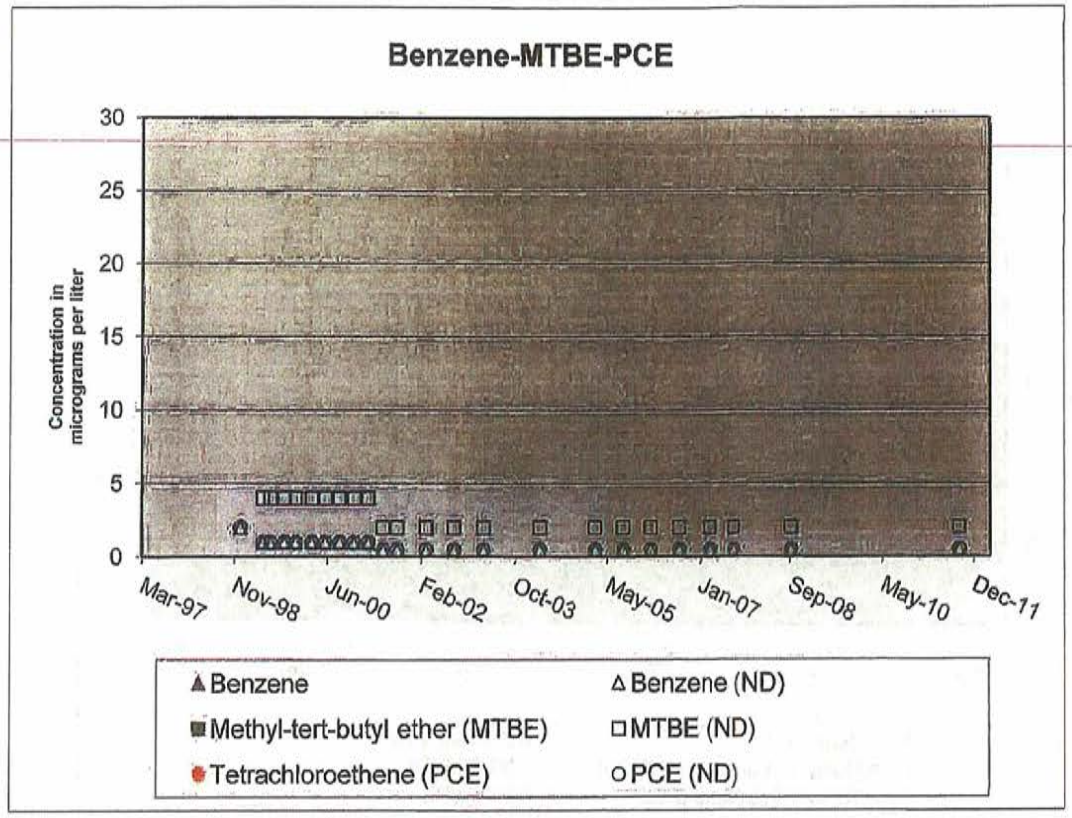

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

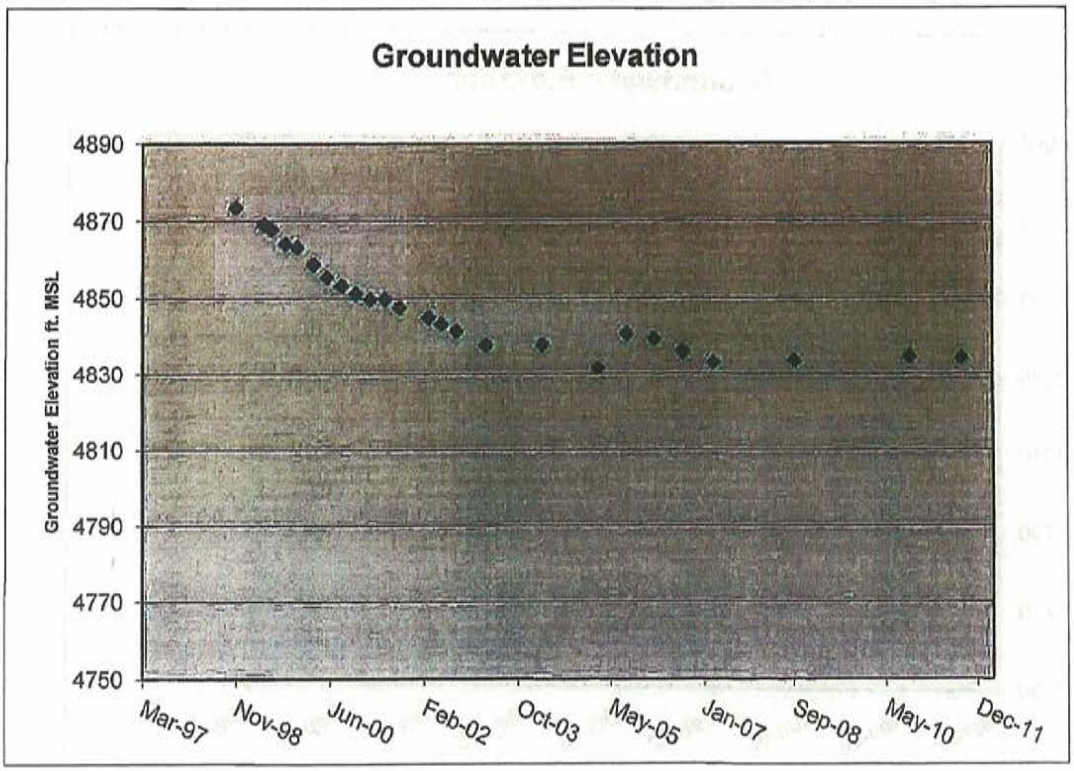
DMW - 9B


Benzene-MTBE-PCE
Concentration in micrograms per liter
30
25
20
15
10
5
0
Mar-97
Dec-99
Sep-02
May-05
Feb-08
Nov-10
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Benzene (ND)
MTBE (ND)
PCE (ND)

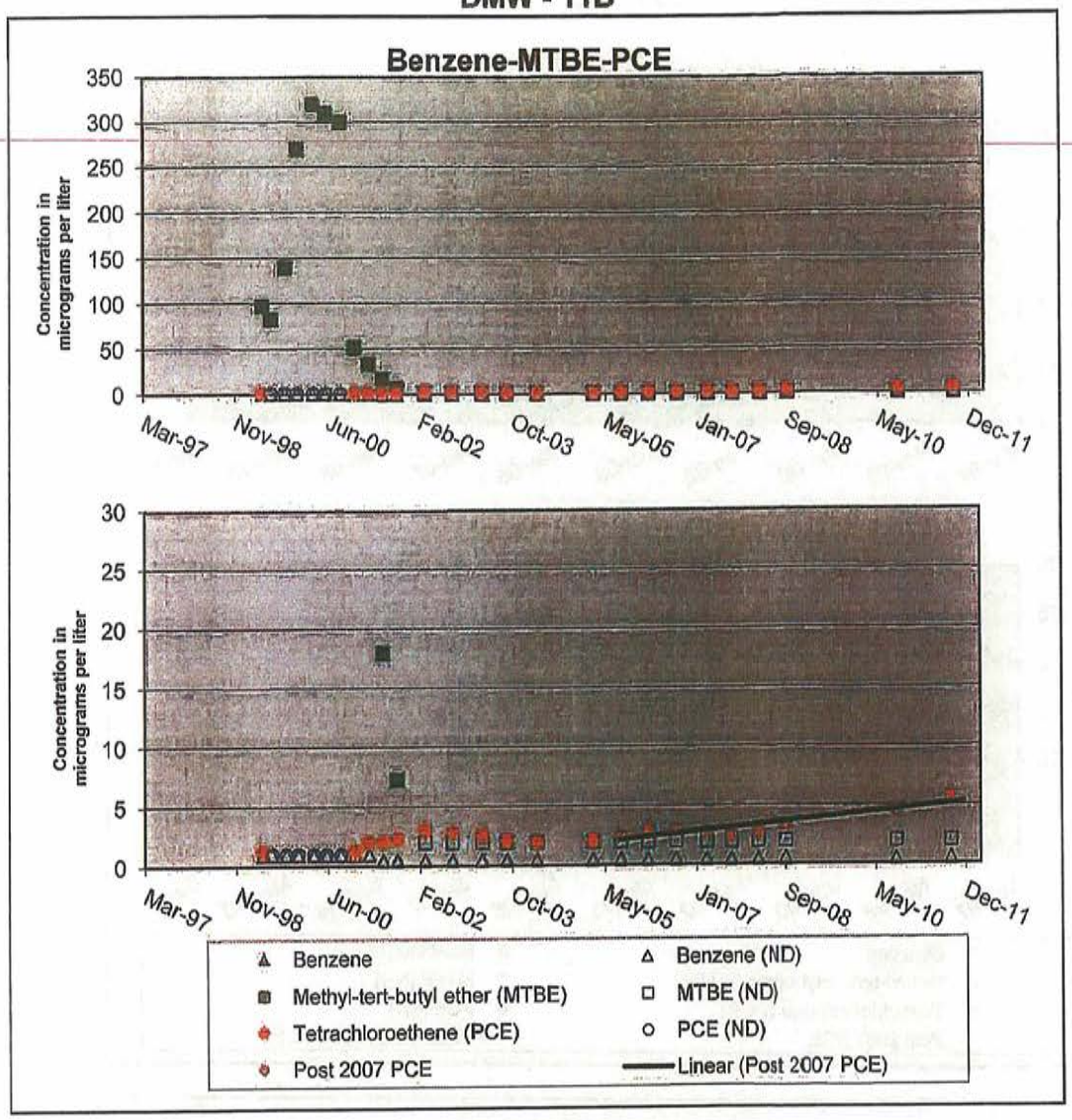

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

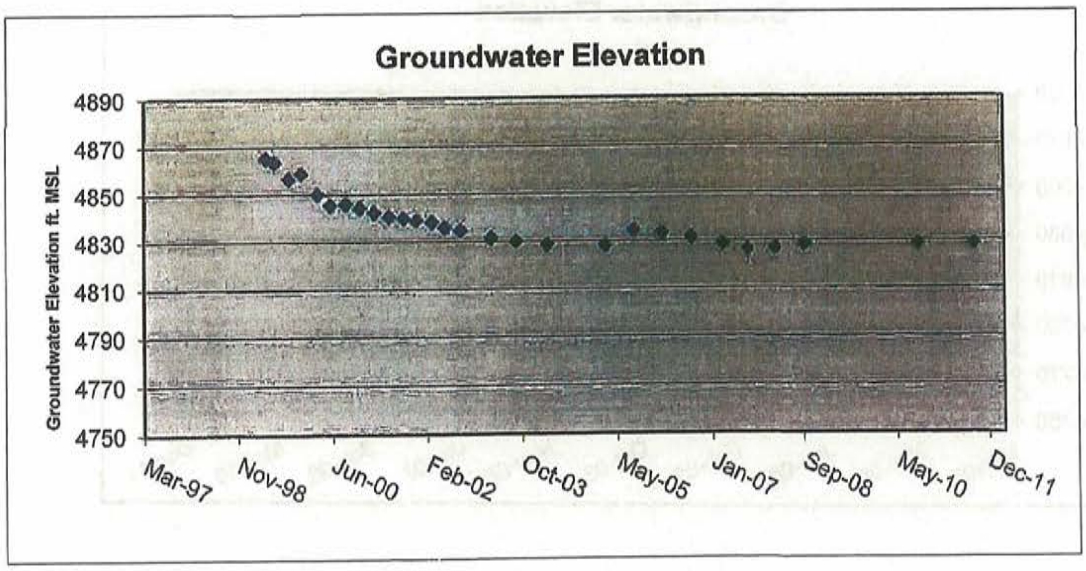
DMW - 10B


Benzene-MTBE-PCE
Concentration in micrograms per liter
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Benzene
Benzene (ND)
Methyl-tert-butyl ether (MTBE)
MTBE (ND)
Tetrachloroethene (PCE)
PCE (ND)

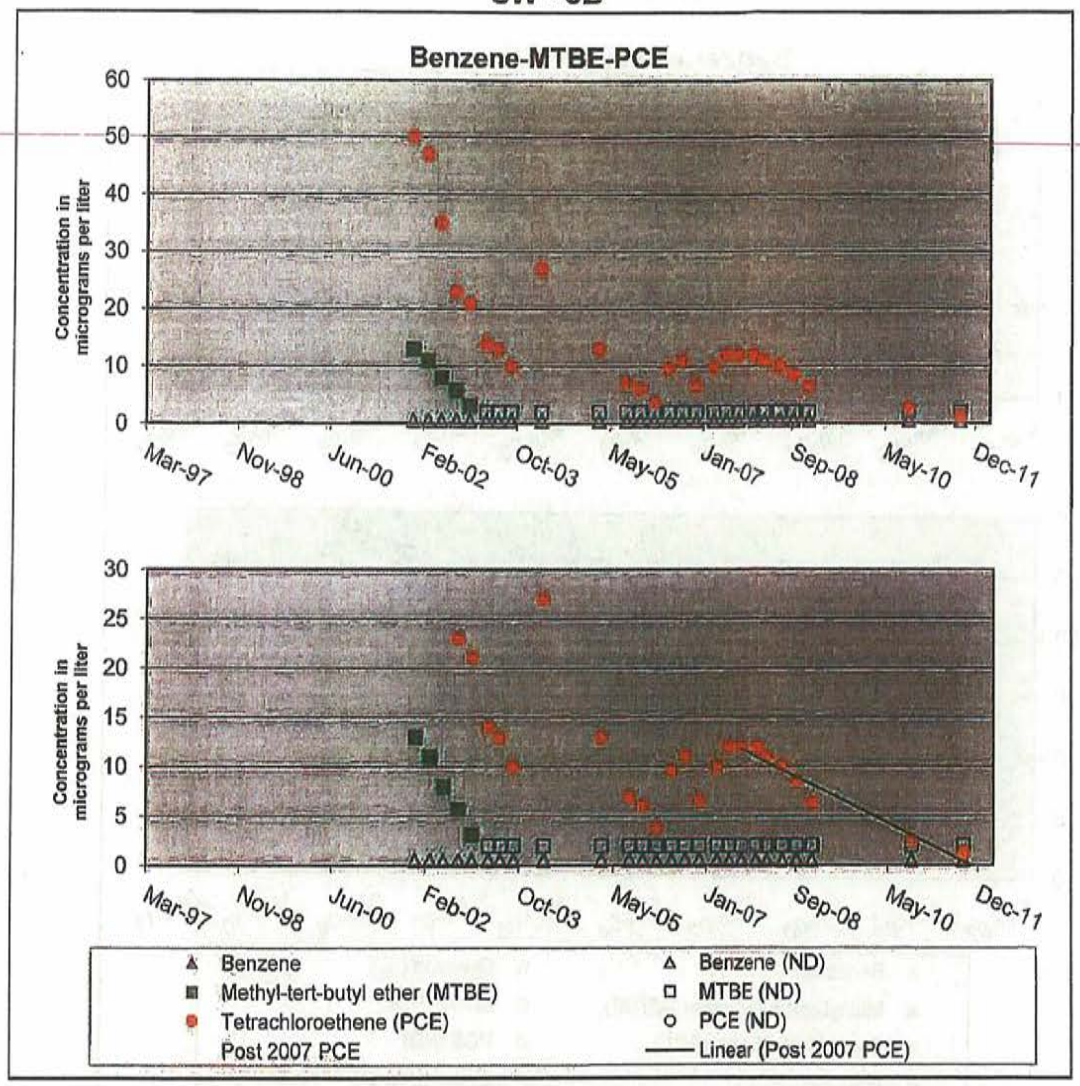

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

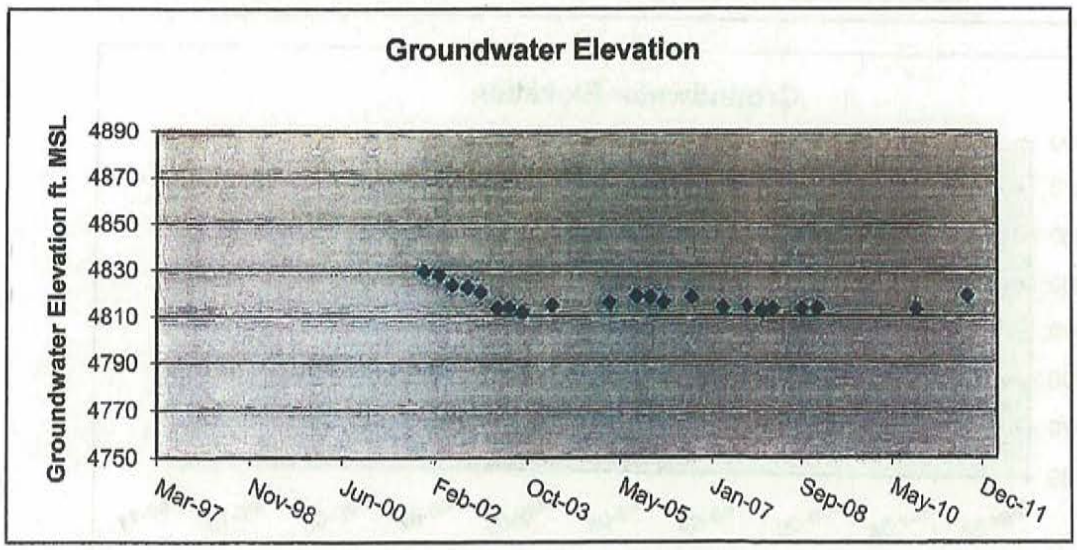
DMW - 11B


Benzene-MTBE-PCE
Concentration in micrograms per liter
350
300
250
200
150
100
50
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Post 2007 PCE
Benzene (ND)
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)

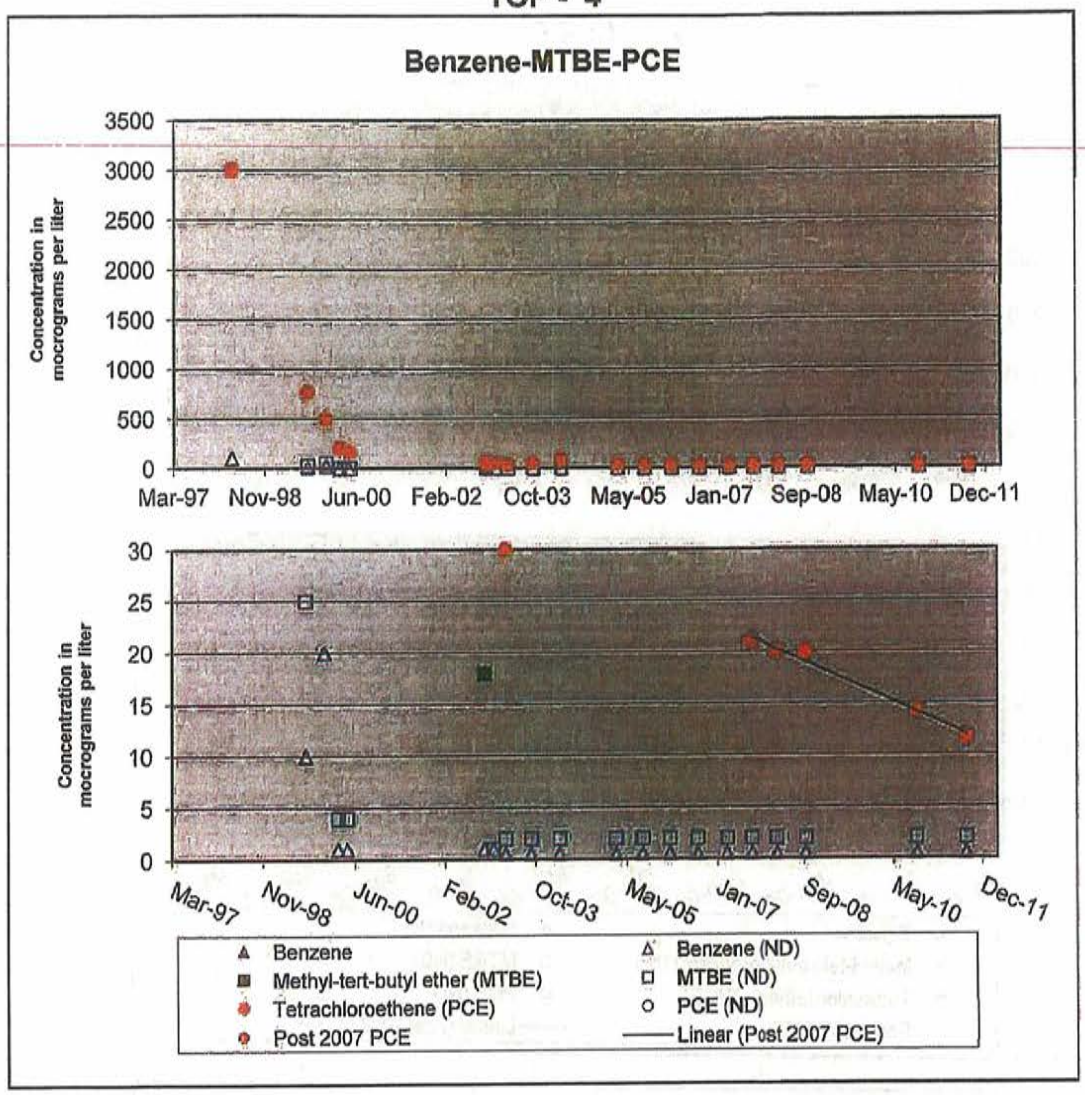

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

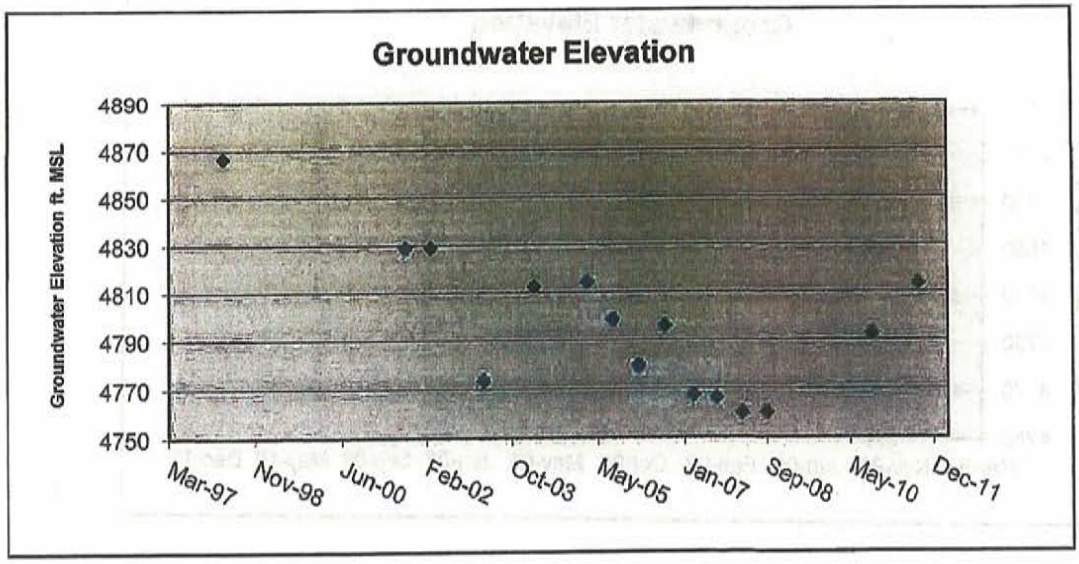
SW - 3B


Benzene-MTBE-PCE
Concentration in micrograms per liter
60
50
40
30
20
10
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Post 2007 PCE
Benzene (ND)
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)

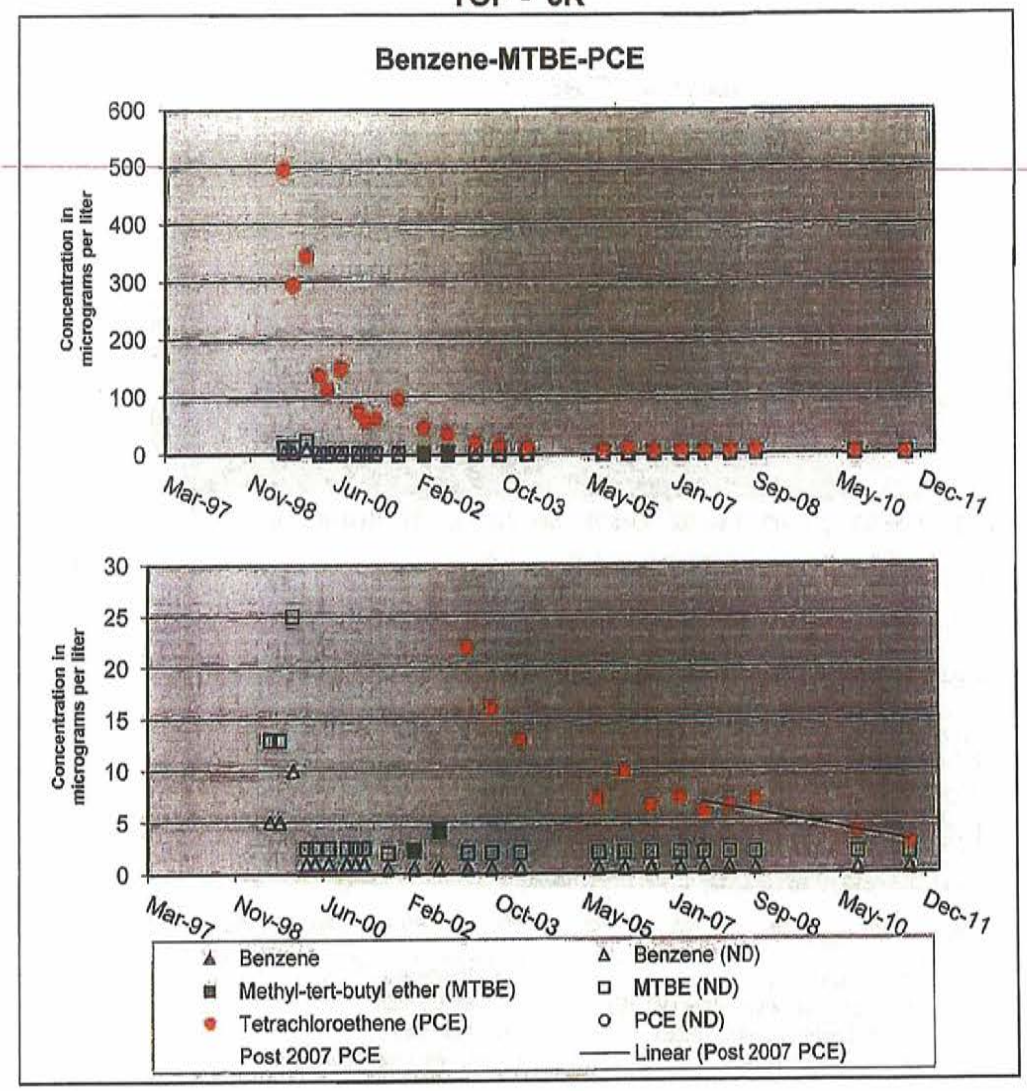

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

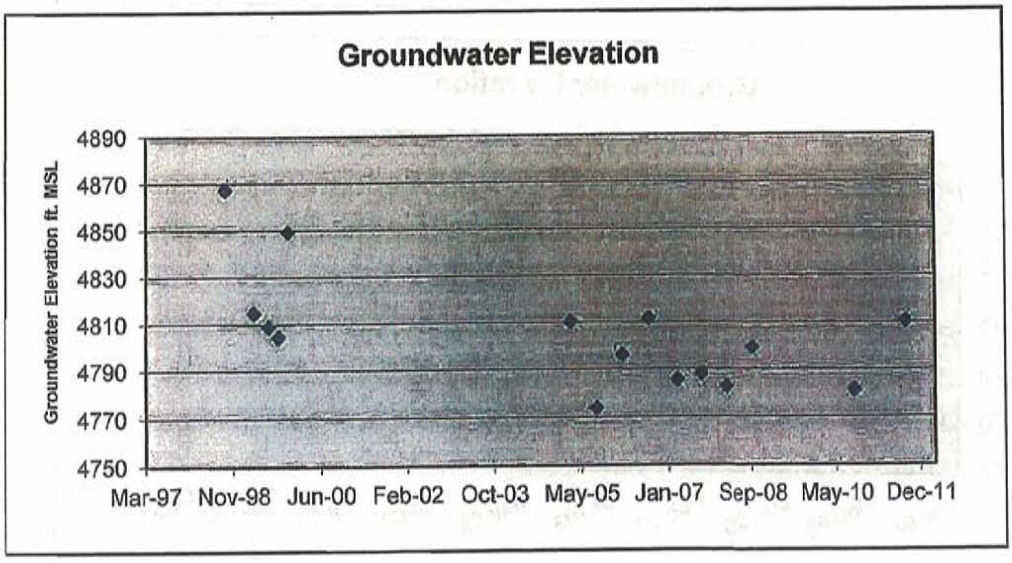
TOP - 4


Benzene-MTBE-PCE
Concentration in micrograms per liter
3500
3000
2500
2000
1500
1000
500
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Post 2007 PCE
Benzene (ND)
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)


Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

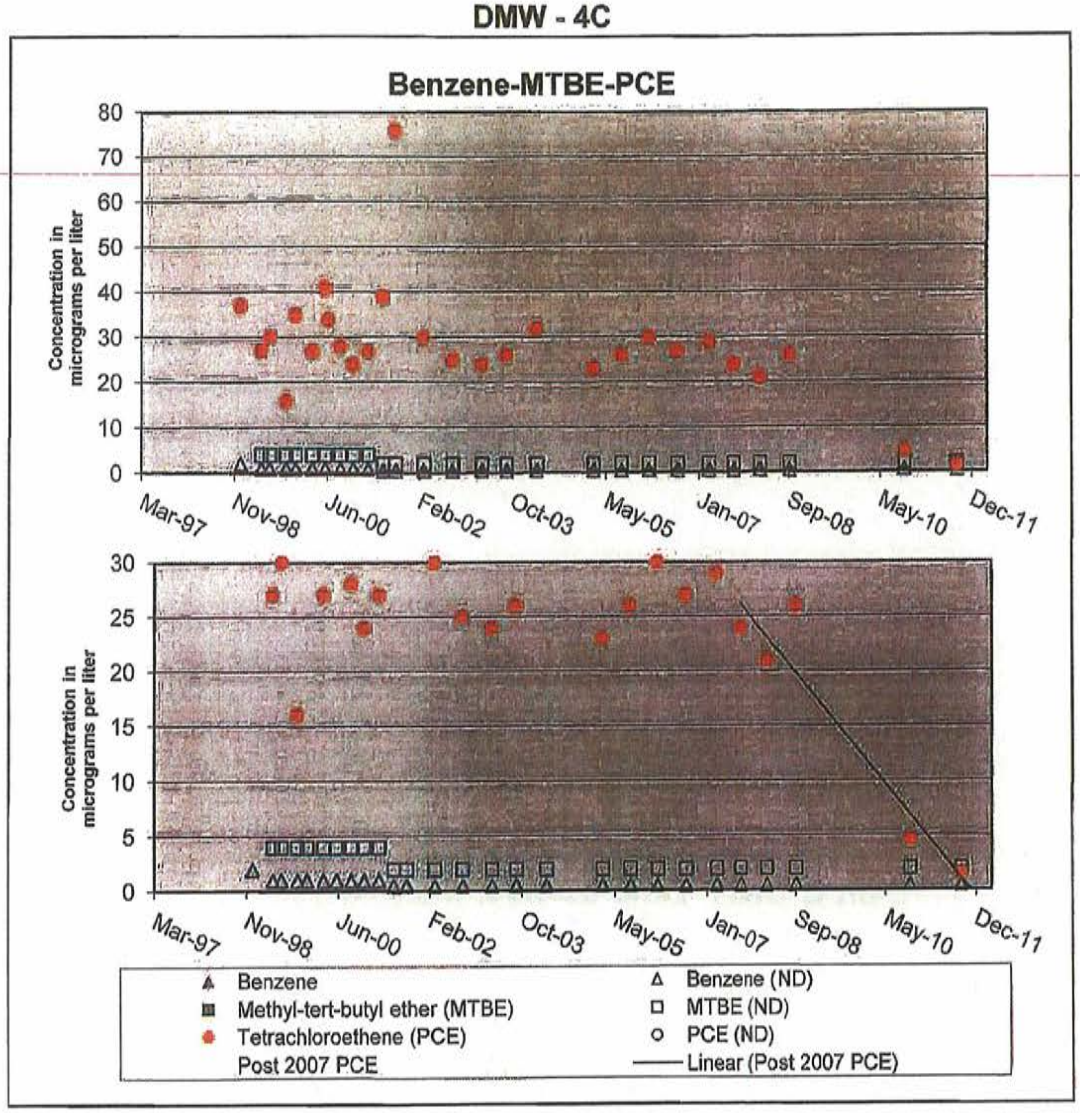
TOP - 5R

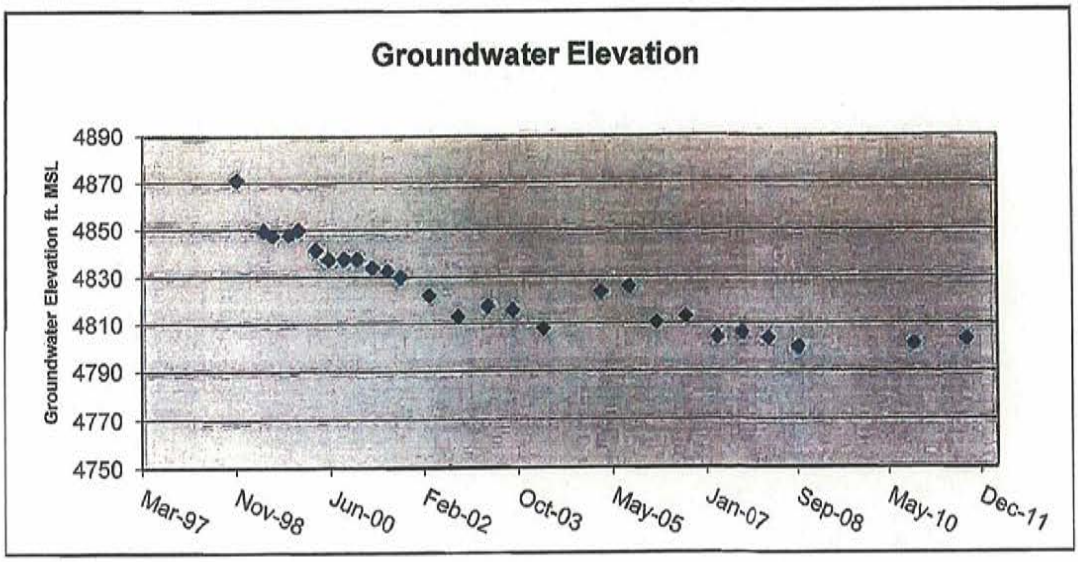

Benzene-MTBE-PCE
Concentration in micrograms per liter
600
500
400
300
200
100
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Post 2007 PCE
Benzene (ND)
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)


Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

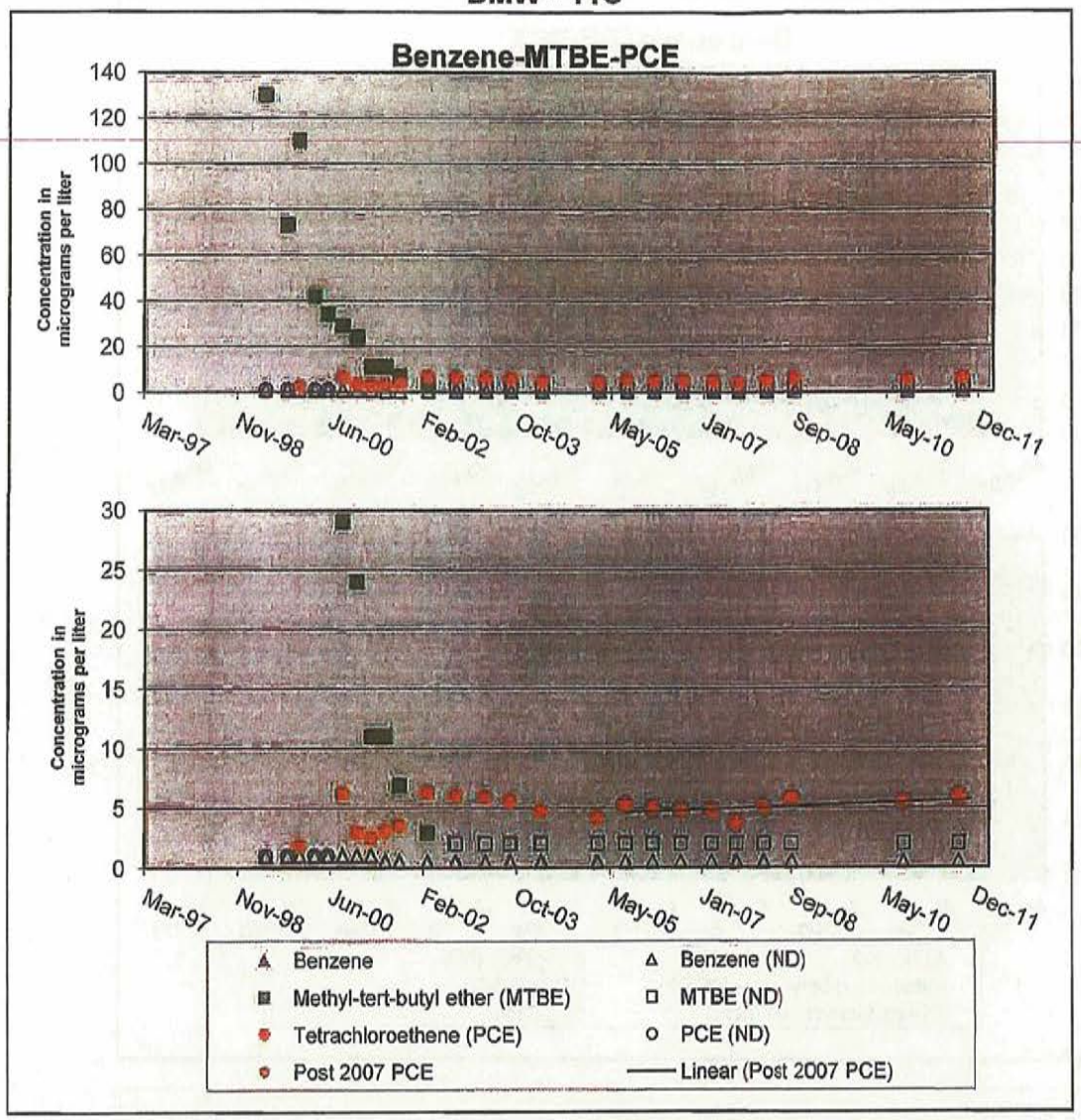
DG/FG UNIT TIME SERIES GRAPHS

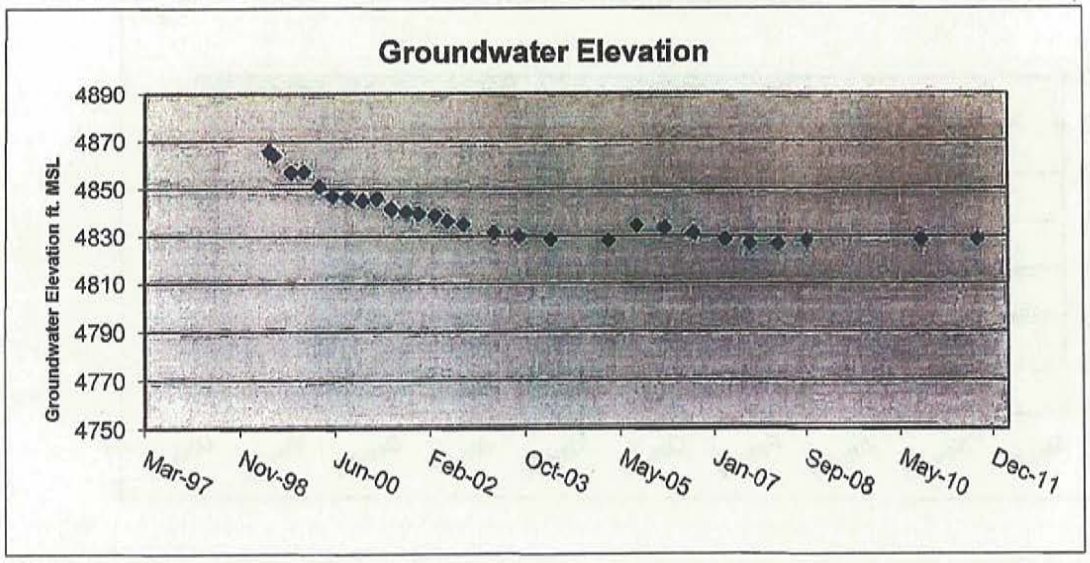
DMW - 4C


Benzene-MTBE-PCE
Concentration in micrograms per liter
80
70
60
50
40
30
20
10
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Post 2007 PCE
Benzene (ND)
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)

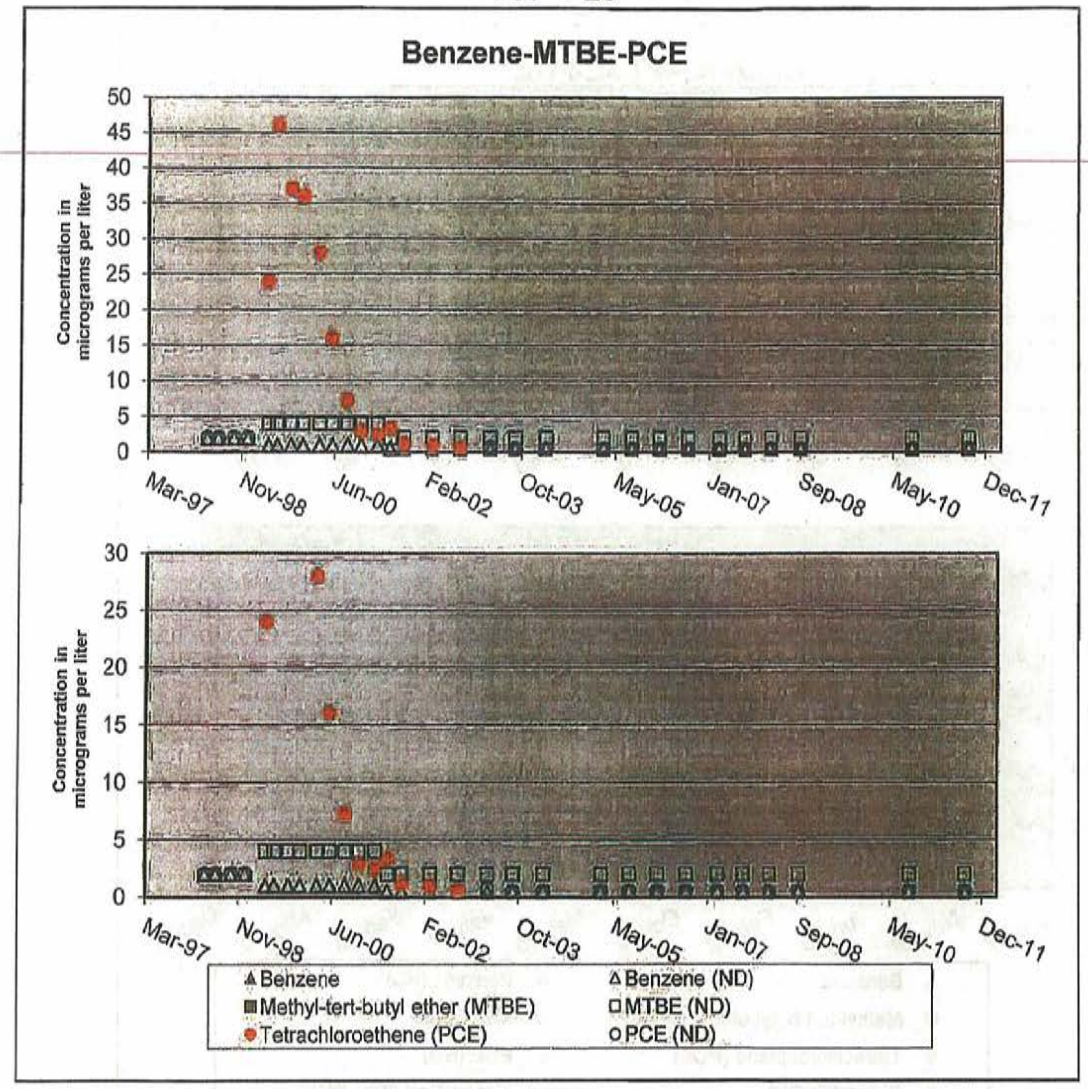

Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

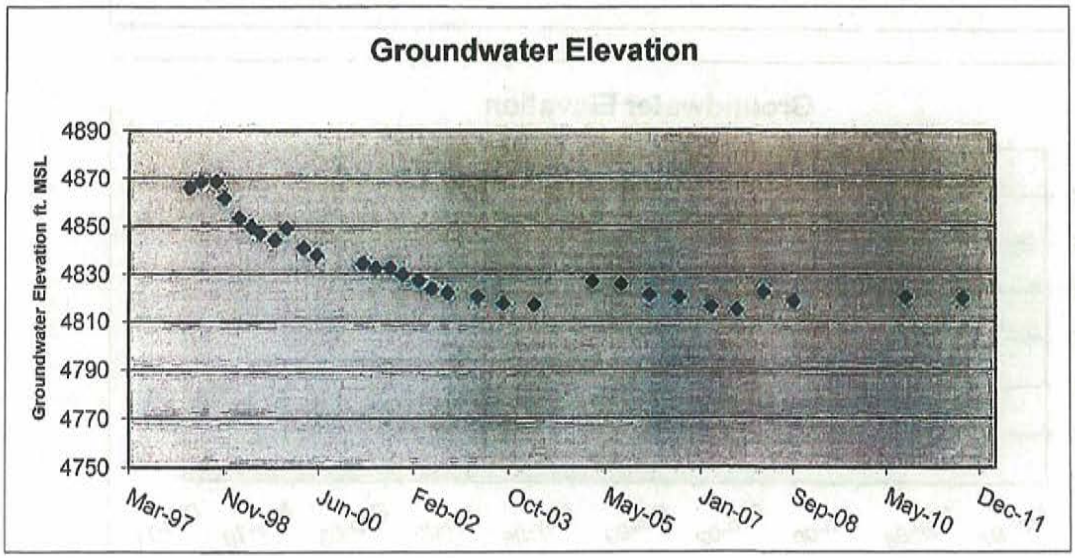
DMW - 11C


Benzene-MTBE-PCE
Concentration in micrograms per liter
140
120
100
80
60
40
20
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Post 2007 PCE
Benzene (ND)
MTBE (ND)
PCE (ND)
Linear (Post 2007 PCE)


Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11

TOP - 20


Benzene-MTBE-PCE
Concentration in micrograms per liter
50
45
40
35
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Concentration in micrograms per liter
30
25
20
15
10
5
0
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11
Benzene
Methyl-tert-butyl ether (MTBE)
Tetrachloroethene (PCE)
Benzene (ND)
MTBE (ND)
PCE (ND)


Groundwater Elevation
Groundwater Elevation ft. MSL
4890
4870
4850
4830
4810
4790
4770
4750
Mar-97
Nov-98
Jun-00
Feb-02
Oct-03
May-05
Jan-07
Sep-08
May-10
Dec-11