

**FOURTH FIVE-YEAR REVIEW REPORT FOR
FACET ENTERPRISES, INC. SUPERFUND SITE
CHEMUNG COUNTY, NEW YORK**



Prepared by

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Region 2
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Date

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LIST OF ABBREVIATIONS & ACRONYMS

BGS	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
FS	Feasibility Study
GPM	Gallons Per Minute
IC	Institutional Control
MCL	Maximum Contaminant Level
NAPL	Non-Aqueous Phase Liquid
NCP	National Contingency Plan
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
PCB	Polychlorinated Biphenyl
PPB	Parts Per Billion
PPM	Parts Per Million
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
ROD	Record of Decision
SPDES	State Pollutant Discharge Elimination System
TCE	Trichloroethylene
TDS	Total Dissolved Solids
TSCA	Toxic Substances Control Act
SES	Sevenson Environmental Services
VOC	Volatile Organic Compound
WQR	Water Quality Regulations

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the Facet Enterprises, Inc. Superfund site (site). The triggering action for this statutory review is the date of the previous FYR. The FYR has been prepared due to the fact that hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE). The site was addressed under one operable unit (OU) which is the subject of this FYR.

The Facet Enterprises Inc. Superfund site FYR was led by Isabel R. Fredricks, the EPA remedial project manager. Participants included Pietro Mannino (Western New York Remediation Section Chief), Marian Olsen (human health risk assessor), Charles Nace (ecological risk assessor), Michael Scorca (hydrogeologist), Michael Basile (community involvement coordinator), and Adam Morgan (project manager for the New York State Department of Environmental Conservation (NYSDEC)). The potentially responsible party (PRP), Motor Components, as corporate successor to Purolator Products Company (Purolator), was notified of the initiation of the five-year review. The review team met to start the FYR process in November 2016.

Site Background

The site is located in the Village of Elmira Heights, Chemung County, New York. The Facet Enterprises, Inc. facility (the facility property) is bounded to the north by a municipal golf course, to the east by New York State Route 14, to the south by 18th Street, and to the west by residential properties. The Village of Elmira Heights is a mixture of residential, commercial and industrial development and wooded land. The closest residences are within 60 feet of the present manufacturing facility to the south and west.

The site includes a 31-acre parcel of land, also referred to as the facility property, which was extensively used for various manufacturing purposes in the past. Currently, approximately one-half of the facility property is developed and being actively used. The facility property is zoned for commercial use and the surrounding area is zoned primarily for residential and commercial use and these land use designations are not anticipated to change in the future. The facility property includes: an active manufacturing plant and the foundation and concrete slab of a former manufacturing plant, small production buildings, parking areas, a boiler house and a small landfill. (See Figure 1)

The facility was constructed in 1895 and was used by the Eclipse Bicycle Company for the manufacture of bicycles. In the early 1900s, the Eclipse Bicycle Company began manufacturing motorcycles and engine parts and changed its name to Eclipse Machine Company. During World Wars I and II, the Eclipse Machine Company manufactured military support parts, ammunition, airplane parts, and fuel pumps. In

1929, Bendix Aviation Corporation, later to become Bendix Corporation, acquired control of Eclipse Machine Company. From 1960 until 1975, Eclipse, as a division of Bendix, manufactured electric clutches and brakes. In 1974, Facet Enterprises, Inc. was organized as a result of an antitrust action between Bendix and the U.S. Federal Trade Commission. In 1989, Purolator Products Inc. (Purolator) became the corporate successor to Facet Enterprises, Inc.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Facet Enterprises, Inc.		
EPA ID: NYD073675514		
Region: 2	State: NY	City/County: Town of Elmira Heights, Chemung County
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA <i>[If "Other Federal Agency", enter Agency name]:</i>		
Author name (Federal or State Project Manager): Isabel R. Fredricks		
Author affiliation: U.S. EPA		
Review period: 9/29/2012 - 9/15/2017		
Date of site inspection: 8/29/2017		
Type of review: Statutory		
Review number: 4		
Triggering action date: 9/28/2012		
Due date (five years after triggering action date): 9/28/2017		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In 1986, Facet Enterprises, Inc. agreed to conduct a Remedial Investigation and Feasibility Study (RI/FS). The 1986 RI concluded that trichloroethylene (TCE), perchloroethylene, 1,1,1-trichloroethane, trans-1,2-dichloroethene, 1,2-dichlorobenzene, trichlorofluoromethane, methylene chloride, acetone, polychlorinated biphenyls (PCBs), pentachlorophenol, and four inorganic contaminants were detected in groundwater at concentrations above federal and state standards. Soil contamination included TCE, semi-

volatile organic compounds (SVOCs), PCBs, arsenic, cadmium, and chromium. Investigations divided the site into a number of study areas and extended beyond the property into Mays Creek.

As part of the RI, a baseline risk assessment was conducted to evaluate the potential risks to human health and the environment associated with the site under current and future land uses. The risk assessment focused on contaminants in the soil, sediment, surface water, groundwater and air which are likely to pose significant risks to human health and the environment. The baseline risk assessment evaluated the health effects which could result from exposure to contamination as a result of ingestion of groundwater, inhalation of groundwater contaminants volatilizing during showering, ingestion of sediments in the drainage swale south of the facility, incidental ingestion of sediments while wading in the North Drainage way, ingestion of on-site soils, ingestion of sediments in Mays Creek, and incidental ingestion of sediments in Areas 6 and 10 lagoons. Both current and future land use at the facility were considered to be industrial with exposure scenarios for on-site workers and trespassers evaluated. For Mays Creek and the unnamed drainage way south of the facility, exposure to small children and adults was evaluated since these areas are generally more accessible to the public. A total of 12 exposure pathways were evaluated under possible on site current and future land-use conditions.

The risk assessment evaluated cancer risks to the reasonably maximally exposed (RME) individual that represents the highest exposure reasonably likely to occur. The assessment found cancer risks above the risk range of 10^{-4} to 10^{-6} (e.g., one in ten thousand to one in a million) from ingestion of groundwater (2×10^{-3}); ingestion of surface soils by the trespasser (1.1×10^{-4}), exposure to sediment in the Unnamed Drainage Swale (4×10^{-4}) and Mays Creek (6.5×10^{-4}).

The risk assessment indicated that noncarcinogenic effects may occur from RME exposures from ingestion of contaminated groundwater. The noncarcinogenic risk was attributable to several compounds including vinyl chloride, *cis*-1,2 dichloroethylene, TCE, antimony, arsenic, cadmium, chromium, mercury, and nickel. Furthermore, the risk assessment concluded that the hazard index (HI) for noncarcinogenic effects from ingestion of sediment in the Unnamed Drainage Swale exceeded the goal of protection of an Hazard Index (HI) = 1 (HI = 3.5 from exposures by the child to the Unnamed Drainage Swale); and an HI = 20 for adults ingesting groundwater and an HI = 46 for a child ingesting groundwater) for RMEs. The noncarcinogenic hazard was attributable to several compounds including chromium. In addition, MCLs are currently exceeded for several hazardous substances in groundwater. Although the risks posed by the soils are within EPA's acceptable risk range, contamination in the soils, if not addressed, will likely continue to contribute to further contamination of the groundwater at the site.

An ecological risk assessment was not conducted as part of the investigation of the site since there are no significant habitats present at the facility property which could potentially support indigenous wildlife receptor species.

Response Actions

Several investigations were conducted by EPA and NYSDEC beginning in 1979. In 1979, an initial facility inspection conducted by NYSDEC resulted in the implementation of remedial measures which included excavation of surface water diversions, covering of past disposal areas with soil, and construction of a leachate collection system. A facility inspection was conducted by EPA in 1980, and additional sampling and investigation was conducted by EPA in 1980 and 1981. These investigations found that volatile organics, inorganics, pesticides, and polychlorinated biphenyl (PCB) compounds were present in surface

soils, soils, and sediments in disposal areas, surface water at the facility, and groundwater. The site was placed on the National Priorities List (NPL) on September 1, 1983.

On September 4, 1992, based upon the findings of the RI/FS and human health risk assesment, EPA issued a Record of Decision (ROD) which addressed contaminated soil, sediment and groundwater.

The remedial action objectives (RAOs) of the remedy are:

- Prevent human contact with contaminated soils, sediments and groundwater;
- Mitigate the migration of contaminants from soils and sediments to groundwater; and
- Restoration of groundwater to drinking water standards.

The selected remedy includes:

- Excavation of contaminated soils and sediments from the Disposal Areas as identified in the Risk Assessment and in those areas where soils and sediment pose a risk to groundwater quality;
- Disposal of Toxic Substances Control Act (TSCA) waste (PCBs > 50 ppm) in a secure TSCA double-lined landfill facility (estimated at approximately 1,275 cubic yards);
- Stabilization of RCRA waste to prevent leaching of metals and subsequent disposal in a secure RCRA-permitted facility (approximate volume 2,124 cubic yards);
- Disposal of non-RCRA wastes in an industrial waste landfill (approximate volume 120 cubic yards);
- Strategic placement of pumping wells to extract the contaminated groundwater from the aquifer;
- Storage of extracted groundwater in a central collection tank for subsequent treatment in an above-ground system;
- Treatment of the contaminated groundwater to meet Federal and State standards for surface water discharge. Treated groundwater would then be either discharged as effluent to the facility non-contact cooling system, or to a surface water discharge;
- Recommendation that local institutional controls (ICs), in the form of local zoning ordinances, be implemented in an attempt to control any future site use that could create an exposure pathway to subsurface soils;
- Recommendation that ICs be provided/maintained to restrict access to those portions of the aquifer which remain contaminated above cleanup levels; and
- Implementation of a long-term monitoring program to track the migration and concentrations of the contaminants of concern.

Status of Implementation

A Consent Decree covering the remedial design (RD) and performance of the selected remedy was lodged on June 17, 1993. Construction activities were conducted in two phases from August 1996 through June 2000.

Phase I of the remedial action (RA), conducted from August 5, 1996 through August 21, 1997, included:

- Excavation and off-site disposal of contaminated soils in Areas 1, 4, 7 and 8;
- Backfilling these areas with clean fill/topsoil and restoration of these areas;
- Consolidation of soil in Area 5;

- Consolidation of sediments from Area 6 with consolidated soils in Area 5 and construction of a RCRA cap in Area 5;
- Excavation and dewatering sediments from Area 10, the North Drainage Ditch, the Unnamed Drainage Swale, and Mays Creek;
- Installation of 12 pumping wells to extract groundwater; construction of the groundwater treatment plant; and,
- Installation of units to pump and remove the floating product at the wells.

Phase II included the excavation and backfill of the Oil/Water Separator area. Phase II started on April 3, 2000 and was completed on June 6, 2000.

The total amount of contaminated material excavated and disposed off-site was 16,130 cubic yards (cy); 13,725 cy of contaminated soil and 2,405 cy of contaminated sediment. The total volume of soil and sediment that was excavated and placed beneath the cap was 2,400 cy. The total volume of contaminated waste material was significantly greater than the volume estimated in the ROD which was 9,580 cy.

The analytical results of post-excavation soil samples collected from the excavated areas indicated that the remediation of all excavated areas reduced contamination of site soils to below cleanup levels required in the ROD. The construction of the remedy is described in the Remedial Action Report, dated December 1995, and approved by EPA in May 1996.

The groundwater recovery and treatment system consisted of 12 groundwater recovery wells (identified on Figure 1 as WRW-1 to WRW-12) and two air strippers. All treated groundwater is discharged to Mays Creek, a New York State Class C surface water. Construction of the groundwater remediation system was completed in August 1997. Following discovery of trace product material in well WRW-1, the well was taken off-line since the groundwater recovery system was not designed to treat groundwater with product material. Groundwater sampling results for recovery well WRW-1 have typically revealed only low-level concentrations of TCE. WRW-1 continues to be offline and an evaluation of the resulting impact to groundwater remediation efforts is ongoing. Ongoing activities at the site which include long-term groundwater monitoring as well as operation and maintenance (O&M) are described below.

IC Summary Table

Table 1: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	Facility property	Deed restrictions to manage soil that may be excavated during future activities on the facility property.	Deed restrictions filed with Chemung County Clerk on March 16, 2001

Groundwater	Yes	Yes	Facility property	Restrict access to those portions of the aquifer which remain contaminated above cleanup levels.	Deed restrictions filed with Chemung County Clerk on March 16, 2001
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Systems Operations/Operation & Maintenance

An O&M program is part of the remedy for the site and includes:

- Groundwater Monitoring Wells;
- Groundwater Recovery System;
- Groundwater Treatment System;
- Floating Product Recovery System;
- Geomembrane Cap; and
- Site Soil Management.

Periodic inspections of the above-referenced remedial components are conducted by the PRP and inspection reports are submitted to EPA. In order to evaluate groundwater movement on the property and assess the area of influence of the recovery wells (WRW-2 through WRW- 12), water levels measurements are collected from the recovery and monitoring wells. Groundwater elevations for each monitoring period are used to construct groundwater contour maps.

Periodic groundwater sampling to evaluate the effectiveness of the extraction and treatment is conducted. This sampling program includes the collection of groundwater elevations, groundwater samples from monitoring wells as well as the recovery wells for the extraction system and sampling of the groundwater treatment system effluent. Groundwater samples from 11 recovery wells and 17 monitoring wells are collected on an annual basis and sampled for VOCs and metals

A belt system or pump skimmer was intended to be used to capture floating product at several locations. However, with the limited amount of oil interface within the oil interface well locations (0.01-.26 feet), the system was not functional at this product thickness. A bailer method was utilized instead but over the years, the recovery of floating product has been sporadic with barely enough product present to recover.

Potential site impacts from climate change have been assessed, and the performance of the remedy is currently not at risk due to the expected effects of climate change in the region and near the site.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the **last** FYR as well as the recommendations from the **last** FYR and the current status of those recommendations.

The third five-year review for this site was signed on September 28, 2012.

Table 2: Protectiveness Determinations/Statements from the 2012 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protectiveness Deferred	A protectiveness determination of the remedy cannot be made at this time until further information is obtained and evaluated. Further information will be obtained by identifying any remaining source material that may be left on site and impacting groundwater, delineating the extent of groundwater contamination downgradient of the existing pump and treat capture zone, and completing the vapor intrusion investigation. It is expected that these actions will take approximately three years to complete, at which time a protectiveness determination will be made.
Sitewide	Protectiveness Deferred	A protectiveness determination of the remedy cannot be made at this time until further information is obtained and evaluated. Further information will be obtained by identifying any remaining source material that may be left on site and impacting groundwater, delineating the extent of groundwater contamination downgradient of the existing pump and treat capture zone and completing the vapor intrusion investigation. It is expected that these actions will take approximately three years to complete, at which time a protectiveness determination will be made.

Table 3: Status of Recommendations from the 2012 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
1	Vapor intrusion in residences near the site.	Additional investigation necessary to identify any residences impacted by vapor intrusion associated with site-related contaminants.	Ongoing	Additional residences were sampled in April 2017. Based on the sampling results, installation of abatement systems at three properties is planned. Vapor intrusion sampling is proposed at additional properties.	
1	Additional investigation necessary to identify any remaining source material on the property that may be impacting groundwater.	Additional investigation necessary.	Addressed in Next FYR	Additional groundwater sampling was conducted on the southern portion of the facility property and revealed the presence of elevated levels of VOCs in the southeast corner of the facility property. Additional investigation and analysis of potential remediation approaches is warranted.	

1	Additional investigation necessary to delineate the extent of groundwater contamination downgradient of the existing pump and treat capture zone.	Additional investigation necessary.	Ongoing	Temporary groundwater sampling points on public rights-of-way to the south and east of the facility property and a survey of additional existing permanent groundwater monitoring wells not associated with this site was conducted in 2012. The analysis revealed a second area of VOC-impacted groundwater that potentially extends approximately 500 feet downgradient from an area on the facility property that is to the west of the recovery wells. EPA and the PRP are discussing next steps and additional data collection needs.	
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EPA began a vapor intrusion investigation at the site in October 2007 by conducting subslab and indoor air sampling for volatile organic compounds (VOCs), including TCE, at nearby residential properties. As part of this effort, vapor intrusion sampling was conducted in 2007, 2008, 2010, 2015, and 2017. As a result of this ongoing investigation, 190 residential properties have been sampled to date, resulting in the installation of 39 abatement systems. EPA plans to install three additional abatement systems based on the sampling conducted the week of April 3, 2017. Based on the 2017 sampling, follow-up monitoring of subslab vapors will be conducted at two additional homes. Inspection and repair of the abatement systems is conducted, as warranted. The evaluation of the vapor intrusion pathway is ongoing.

In order to more fully understand the extent of the vapor contamination attributable to the release to the environment, an off-property groundwater investigation was initiated by EPA in the summer of 2012. This investigation included the installation of temporary groundwater sampling points on public rights-of-way to the south and east of the facility property and a survey of additional existing permanent groundwater monitoring wells not associated with this site. This evaluation resulted in the identification of additional residences warranting sampling for vapor intrusion. The off-property investigation also revealed a second area of VOC-impacted groundwater that potentially extends approximately 500 feet downgradient from an area on the facility property that is to the west of the recovery wells. The evaluation of off-property groundwater data is ongoing to determine if additional remediation is needed.

Due to elevated concentrations of contaminants detected as part of the periodic sampling of the recovery wells, the PRP conducted an additional soil and groundwater investigation at the facility property between September and October 2011 in an effort to identify potential residual source material in the area near the groundwater treatment building and surrounding the former underground storage tank. As part of this effort, four permanent monitoring wells were installed, two on the inside of the line of recovery wells and two outside the recovery wells. The investigation revealed the presence of elevated levels of VOCs in the southeast corner of the facility property. The findings of this investigation are documented in a report entitled "Limited On-site Source Investigation Report," dated April 2012. As a result, additional investigations on site are currently being discussed with the PRP.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On November 14, 2016, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at 38 Superfund sites in New York and New Jersey, including the Facet Enterprises Inc. site. The announcement can be found at the following web address: https://www.epa.gov/sites/production/files/2016-11/documents/five_year_reviews_fy2017_final.pdf. In addition to this notification, a public notice was made available and posted on the website for the City of Elmira Heights, Chemung County, NY notifying the community of the initiation of the five-year review process, on June 14, 2017 and inviting the public to submit any comments to the U.S. EPA. The results of the review and the report will be made available at the site information repository located at the office of the Town Clerk, Horseheads Town Hall - 150 Wygant Rd., Horseheads, NY 14845.

Data Review

Groundwater

The ROD identified the more stringent of federal drinking water standard MCLs and NYSDEC Water Quality Regulations (WQRs) as the cleanup levels for contaminants of concern (COCs) in groundwater.

Groundwater samples from 11 recovery wells and 17 monitoring wells are collected on an annual basis and sampled for VOCs and metals. For the last five years, the groundwater analytical results detected VOCs including TCE, vinyl chloride, *cis*-1,2-dichloroethene and metals including chromium, lead and nickel. Chromium, lead, and nickel in the treated effluent are also sampled and no exceedances of discharge limits were observed. The overall results of the VOC sampling are described below based on well location.

Total VOC concentrations in groundwater samples collected from monitoring and recovery wells were evaluated over time. During the past five-years, recovery wells WRW-7 and WRW-8 (Figure 2) in the southeast corner of the property have continued to have the highest total VOC concentrations of the 12 recovery wells (as high as 4,400 ppb in 2014). Total VOC concentrations in monitoring wells MW-15 and D-13 (Figure 3), which are nearby downgradient wells to the east of the recovery wells, are significantly lower than in WRW-7 and WRW-8. Concentrations in MW-15 and D-13 have been fairly stable during the last five years, with a maximum total VOC level of 41.2 ppb at MW-15 in 2016. Based on the hydraulic (water level) data and the VOC concentrations at at these two data points, the groundwater pumping system is effectively containing and preventing off-site migration of the residual source contamination on the eastern side of the facility property.

In 2011, monitoring wells MW-20 and MW-21 were installed just south of the line of recovery wells, near recovery wells WRW-6 and WRW-7. Although water-level measurements from these wells generally shows a gradient back towards the recovery wells, water-quality monitoring of these wells revealed elevated levels of total VOCs immediately downgradient of the recovery wells (Figures 4 and 5).

During the last five years, downgradient monitoring wells to the south of the facility property (MW-16U, MW-16L, D-7 - see Figure 6) showed a significant increase in total VOC concentrations, followed by a decline to levels similar to concentrations observed during the previous five-year review period. Total VOCs at well D-7 declined from 307 ppb in 2012 to 56 ppb in 2017. VOC Concentrations at well MW-

16U and MW-16L spiked to 102 and 109 ppb, respectively in 2012 and declined to 18.2 and 21.6 ppb, respectively, in 2017.

Concentrations of total VOCs in recovery wells along the eastern boundary of the property (WRW-9, WRW-10, WRW-11, WRW-12; Figure 7) have continued to decline, but some individual contaminants still exceed the federal MCL and/or the NYSDEC WQR. Concentrations of total VOCs in monitoring wells MW-14U, MW-14L, and D-8 along the eastern boundary (Figure 8) have generally shown declining VOC levels since 1998, but concentrations trends have been fairly stable since 2009. Of these three monitoring wells, well MW-14L has had the highest concentration of total VOCs, which have ranged between 67.2 and 98 ppb during the last five years.

VOC concentrations in recovery wells along the southern boundary of the property (WRW-3, WRW-4, WRW-5, WRW-6; Figure 9) exceed the federal MCL and/or the NYSDEC WQR and have generally had fairly variable VOC concentrations overall, with no clear long-term trends. Concentrations of total VOCs at WRW-6 exceeded 300 ppb in 2007, 2012, and 2014, however, more recently concentrations of VOCs have ranged between 86 and 131 ppb.

Concentrations of total VOCs in monitoring wells MW-18U and MW-18L (Figure 10), which are on the property but upgradient of the highest VOC concentrations, have been fairly stable during the past five years, and are significantly lower than in 1998. The maximum concentrations of total VOCs observed since 2013 in MW-18U and MW-18L were 10 and 30 ppb, respectively.

Wells MW-22 and MW-23 were installed in the southeastern part of the facility property in 2011 and sampling has indicated that very high levels of VOCs in groundwater are still present in this area. Total VOC concentrations at these wells have shown significant variability, with VOCs at MW-22 ranging from 330 to 2,180 ppb (Figure 11) and concentrations of VOCs at MW-23 ranging from 644 to 34,550 ppb (Figure 12).

Groundwater-level monitoring indicates that on the western half of the property, the general direction of groundwater flow is mostly eastward (Figure 13). On the eastern half of the property, the groundwater direction shifts to the southeast and south, which is consistent with the regional flow direction. The configuration of the water-table surface in the southeast corner of the property and in the immediate areas just outside the recovery wells indicates flow is directed toward the recovery wells. Groundwater levels in monitoring wells D-13 and MW-15, which are east of the line of recovery wells and near WRW-7, have indicated an inward gradient toward the recovery system from the very nearby zone just past the recovery wells. Recently-installed monitoring wells MW-20 and MW-21, which are just outside the line of recovery wells to the south of WRW-6 and WRW-7 also indicate an inward hydraulic gradient. Although most of the groundwater at the facility property is likely to be contained during pumping operations, the higher VOCs observed at MW-20 and MW-21 during the last five years (Figures 4 and 5) could indicate that some affected groundwater can move in between the recovery wells. The containment effectiveness of the system could be affected by variations in pumping rates of the recovery system, which are illustrated in Figure 14. Since 2010, the flow rate has ranged from 14 to 32 gallons per minute (gpm), with an average of 22 gpm. Fluctuations in the recovery system flow rate could be affected by several factors including well efficiency and seasonal water level elevations. Additional data has been requested to verify whether or not bypass is occurring.

System Influent

The groundwater treatment system influent water samples are collected and analyzed for VOCs on a quarterly basis. Since 2012, TCE concentrations were detected at concentrations ranging from 84 ppb to 540 ppb. Vinyl chloride was detected at concentrations ranging from less than 1.0 to 5.4 ppb. The concentrations represent a decrease since the last five-year review period, when the highest concentration was 10 ppb. These concentrations exceed the federal MCL and/or the NYSDEC WQR.

System Effluent

The groundwater treatment system effluent is sampled and analyzed quarterly for VOCs, selected metals, PCBs (Aroclors 1248 and 1254), total cyanide, total hardness (as CaCO₃), total dissolved solids (TDS), total suspended solids (TSS), and pH. In general, the treated effluent is within the discharge limits of the equivalent State Pollutant Discharge Elimination System (SPDES) permit and VOC concentrations are not detectable. A new equivalent SPDES permit was finalized in January 2013. The results indicate that the treatment system is treating the recovered groundwater to non-detectable VOC concentrations prior to discharge to Outfall 001.

Chromium, lead, and nickel in the treated effluent are also sampled as part of the O&M plan and no exceedances of discharge limits were observed.

Vapor Intrusion

Vapor intrusion sampling has been conducted since 2007. As a result of this ongoing investigation, 190 residential properties have been sampled to date, resulting in the installation of 39 abatement systems. Based on the 2017 sampling, follow-up monitoring of subslab vapors will be conducted at two additional homes. Inspection and repair of the abatement systems is conducted, as warranted. The evaluation of the vapor intrusion pathway is ongoing.

Site Inspection

The inspection of the site was conducted on 8/29/2017. In attendance were Isabel R. Fredricks, EPA RPM, and Adam Morgan, Frank Sowers, and Scott Williams of NYSDEC. Jim Moore and Reeve Howland, representatives of Motor Components, were also present during the inspection. The purpose of the inspection was to assess the protectiveness of the remedy. During the inspection, there were no problems or deviations observed with respect to the ongoing operation and maintenance activities.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Groundwater-level performance monitoring data suggests that the extraction system captures contaminated groundwater and maintains inward hydraulic gradients towards the eleven extraction wells. However, two recently-installed wells just outside the line of extraction wells have contained elevated VOC concentrations during the last five years, which could indicate a loss of capture in certain areas of the recovery system. Additional groundwater investigation has been recommended.

Results of soil vapor sampling conducted by EPA in the vicinity of the facility property revealed elevated TCE concentrations above TCE screening levels for vapor intrusion and have required the installation of vapor mitigation systems at 39 residences.

Regarding ecological receptors, the remedy is protective. The implementation of the soil and sediment excavation and capped landfill prevents exposure of ecological receptors. In addition, the groundwater remedy was designed to capture the contaminated groundwater, interrupting any discharge of contaminated groundwater to the surface water, therefore the groundwater remedy is protective for ecological receptors.

The operation and maintenance programs appear to be keeping treatment plant equipment, wells, piping, and fencing in good working condition. The integrity of the cap is well maintained; the cap is fully vegetated with no signs of erosion.

The ICs implemented in 2001, remain in place.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

There have been no changes in the physical conditions of the site over the past five years that would change the protectiveness of the remedy. Soil and groundwater use at the site are not expected to change during the next five years, the period of time considered in this review.

The RAOs included preventing human contact with contaminated soils, sediments and groundwater; mitigate the migration of contaminants from soils and sediments to groundwater; and restoration of groundwater to drinking water standards. These objectives are still valid.

The ROD called for restricting access to those portions of the aquifer that remain contaminated above cleanup levels. Although the groundwater is classified as a potable water source, a municipal water supply provides town residents with drinking water. Therefore, this exposure pathway is not currently complete as the residents do not have direct contact with the groundwater. The ROD also required ICs to ensure that property use remains industrial. This land use is still valid.

The ROD established the federal MCLs and state WQRs as the cleanup criteria for the groundwater COCs. There have been no updates to the toxicity criteria for the COCs through EPA's Integrated Risk Information System (IRIS) that serves as the Agency's consensus database for toxicity information. The MCLs remain protective. There have been no changes in the WQRs since the last FYR.

Persistently elevated levels of VOCs have been detected in two recovery wells for the groundwater pump and treat system. Since the last five-year review, the PRP conducted additional on-property investigations and initiated a quarterly groundwater sampling program to identify a potential source. Further evaluation of the remaining on-property source material impacting the groundwater is necessary.

Vapor intrusion was not evaluated in the original ROD. Based on the identification of TCE as a site COC, EPA identified vapor intrusion as a potential exposure pathway. EPA conducted vapor intrusion sampling at residences in the vicinity of the site. EPA evaluated the data by comparing it to the vapor intrusion screening level calculator (VISL); concentrations of TCE in subslab and indoor air were compared to risk based concentrations using the IRIS toxicity data and residential exposure factors. The concentrations in

the subslab and indoor air informed decisions regarding the need for remedial action, continued monitoring, or no further action. Vapor intrusion systems were installed and are repaired as necessary for those properties requiring remedial action. EPA continues to monitor subslab concentrations at properties identified with elevated subslab concentrations to inform decisions regarding the need for further action. Sampling is being expanded to additional homes.

There have been no changes in the risk assessment methodology, toxicity values, and exposure pathways used in the original risk assessment that would impact the protectiveness of the remedy.

The facility property is zoned for commercial use and soil is either paved with asphalt or covered by a cap. Some limited areas of lawn are present. Sediments within the unnamed drainageway to the south of the facility property have been removed and the drainageway has been replaced with an underground drainage pipe, backfilled to grade and covered with grass. Mays Creek is located on the northern border of the site, while groundwater flows in a south to southeasterly direction; therefore, the contaminated plume would not discharge to Mays Creek. In addition, the groundwater pump and treat system is designed to capture the contaminated groundwater which should interrupt any discharge to downgradient surface water bodies. Effluent from the groundwater pump and treat system meets the equivalent State Pollution Discharge Elimination System (SPDES) permit levels which are protective of aquatic receptors. Therefore, there are no completed exposure pathways for ecological receptors.

QUESTION C: Has any **other** information come to light that could call into question the protectiveness of the remedy?

Vapor intrusion into indoor air continues to be evaluated and needs further evaluation to determine if it is a concern to public health.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations				
OU(s) without Issues/Recommendations Identified in the Five-Year Review:				
None				

Issues and Recommendations Identified in the Five-Year Review:				
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OU(s): 1	Issue Category: Remedy Performance			
	Issue: Vapor Intrusion in residences impacted by the site and installation of abatement systems, as necessary.			
	Recommendation: Additional vapor intrusion investigation is necessary.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
Yes	Yes	EPA	EPA	5/31/2019

OU(s): 1	Issue Category: Remedy Performance			
	Issue: Impact of remaining on-property source material to groundwater.			
	Recommendation: Further evaluation necessary.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
Yes	Yes	PRP	EPA	9/30/2019

OU(s): 1	Issue Category: Remedy Performance			
	Issue: Additional off-property investigation necessary to delineate the extent of groundwater contamination downgradient of the existing pump and treat capture zone.			
	Recommendation: Additional investigation necessary.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
Yes	Yes	EPA	EPA	9/30/2020

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
<i>Operable Unit: 1</i>	<i>Protectiveness Determination:</i> Protectiveness Deferred	<i>Planned Addendum Completion Date:</i> 9/30/2020
<i>Protectiveness Statement:</i> A protectiveness determination of the remedy cannot be made at this time until further information is obtained and evaluated. Further evaluation of the potential for vapor intrusion at residences needs to be completed. In addition, further evaluation of impacts of remaining on-property source material to groundwater is necessary. Additional investigation of the extent of groundwater contamination downgradient of the existing pump and treat capture zone is also necessary. It is expected that these actions will take approximately three years to complete, at which time a protectiveness determination will be made.		

Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i> Protectiveness Deferred	<i>Planned Addendum Completion Date:</i> 9/30/2020

Protectiveness Statement: A protectiveness determination of the remedy cannot be made at this time until further information is obtained and evaluated. Further evaluation of the potential for vapor intrusion at residences needs to be completed. In addition, further evaluation of impacts of remaining on-property source material to groundwater is necessary. Additional investigation of the extent of groundwater contamination downgradient of the existing pump and treat capture zone is also necessary. It is expected that these actions will take approximately three years to complete, at which time a protectiveness determination will be made.

VIII. NEXT REVIEW

The next FYR report for the Facet Enterprises, Inc. Superfund site is required five years from the completion date of this review. An addendum to this FYR report will be completed in the interim.

APPENDIX A – REFERENCE LIST

Record of Decision, 1992
Remedial Action Report, 2000
Annual Long-Term and Operation, Maintenance Reports and Monitoring Reports for 2012 to 2017
EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new applicable or relevant and appropriate requirements relating to the protectiveness of the remedy have been developed since EPA issued the ROD
Five-year review reports from 2001, 2007 and 2012

APPENDIX B - Figures

Figure 1

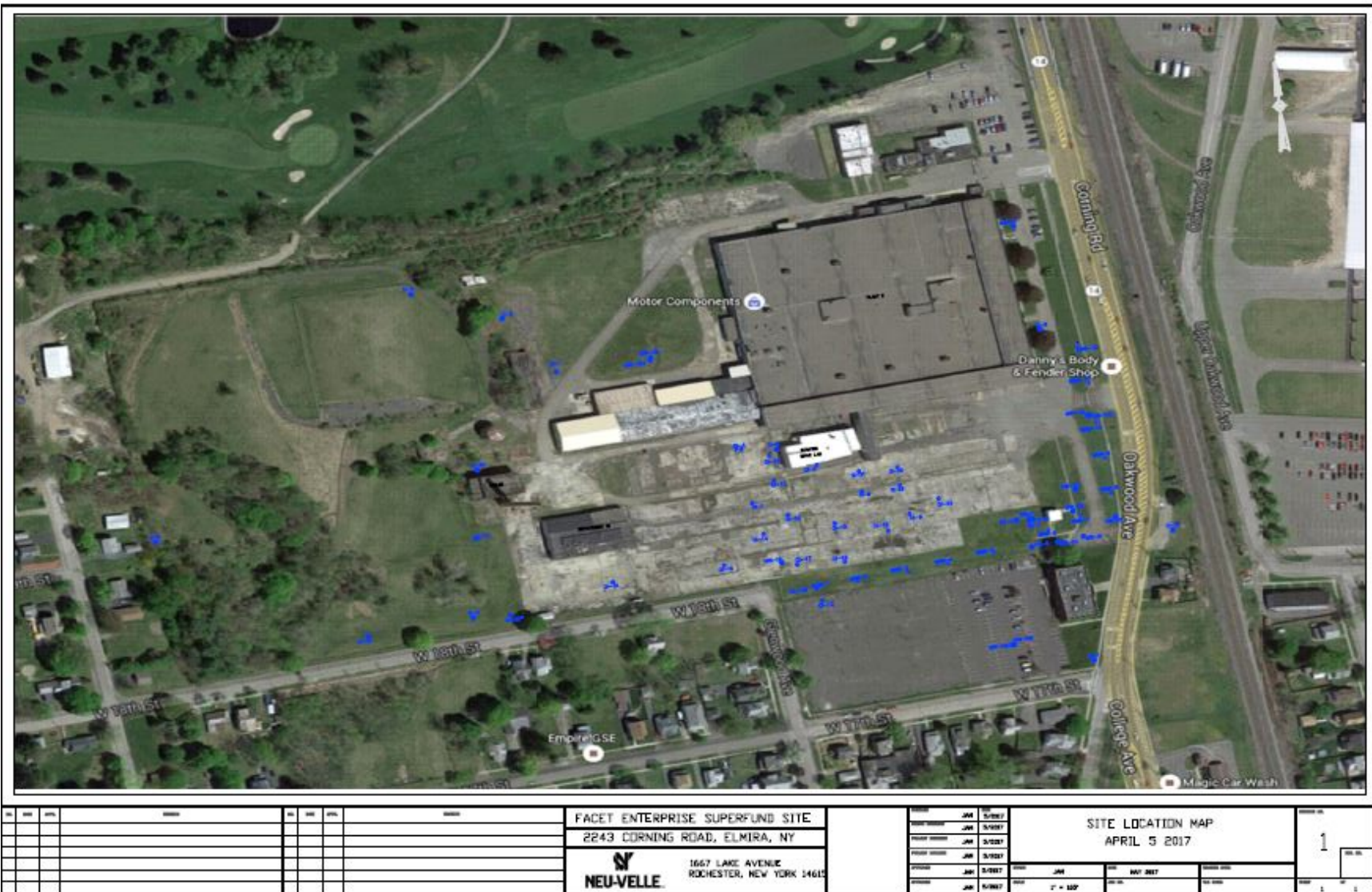


Figure 2

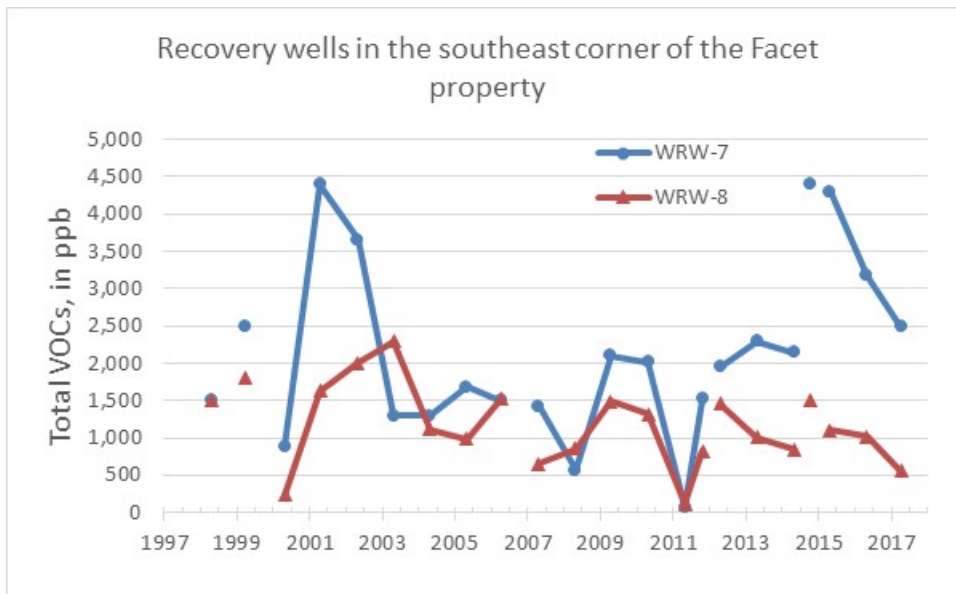


Figure 3

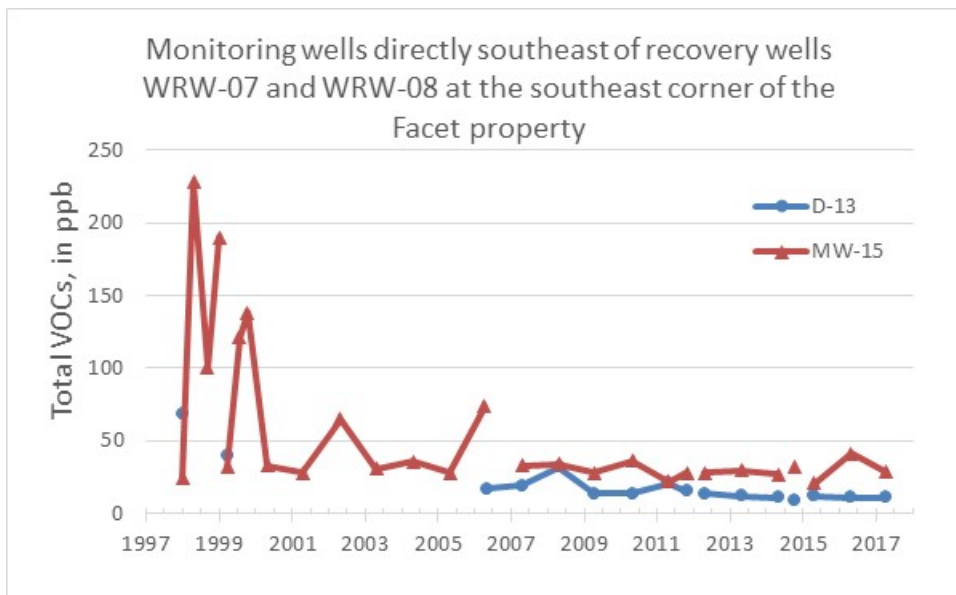


Figure 4

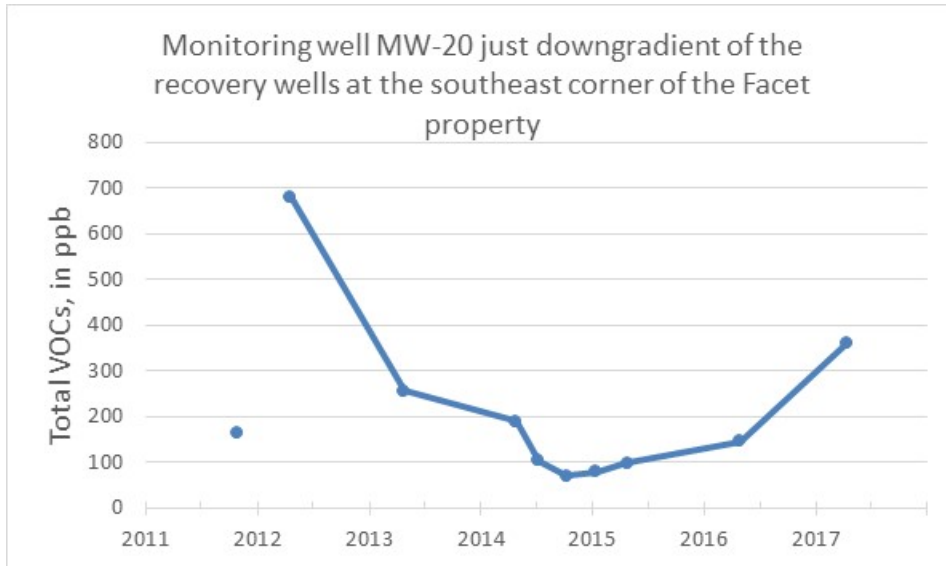


Figure 5

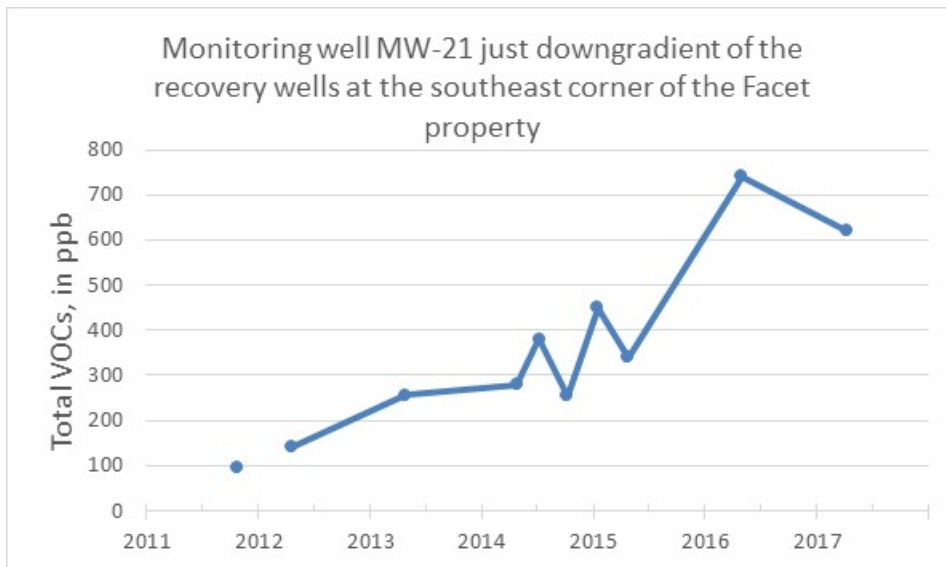


Figure 6

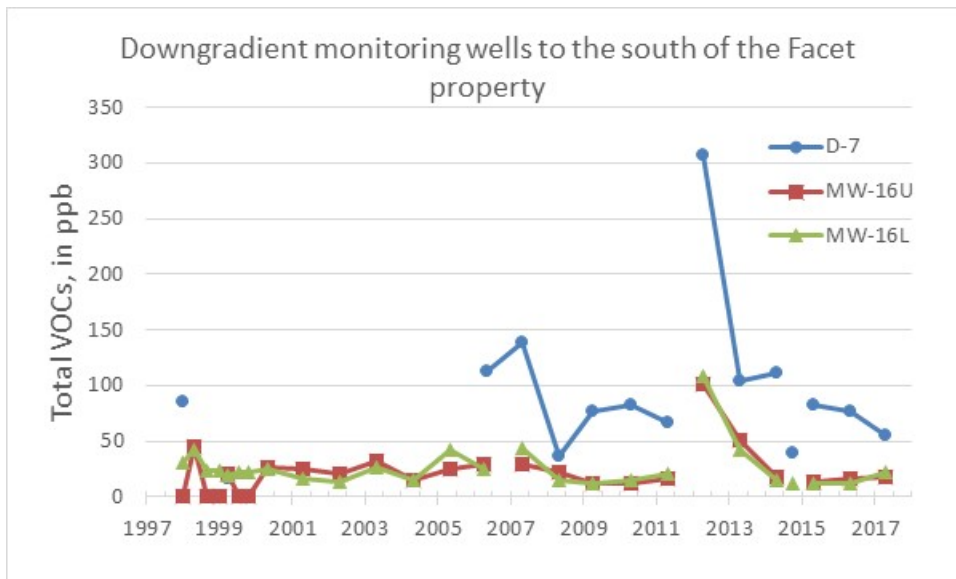


Figure 7

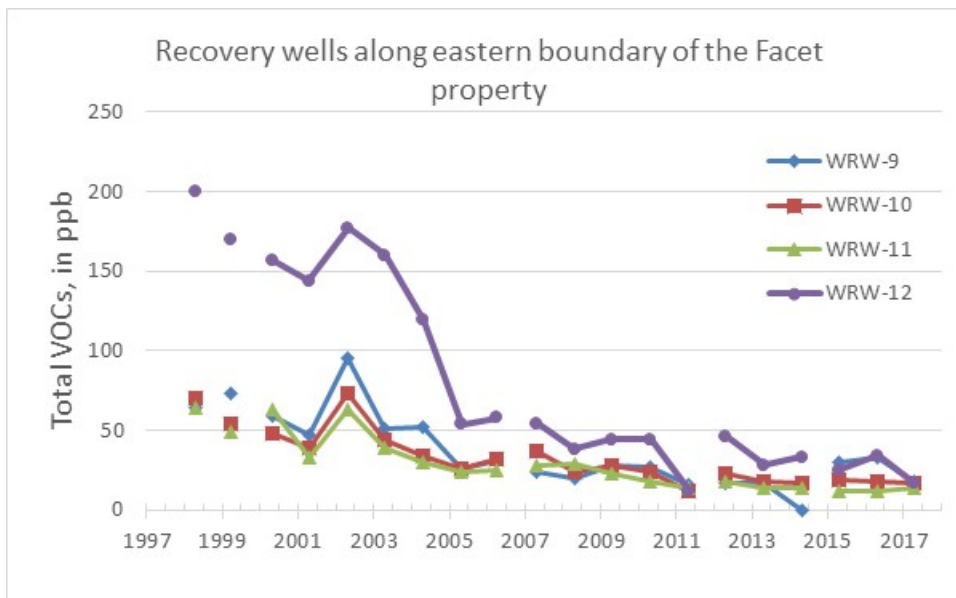


Figure 8

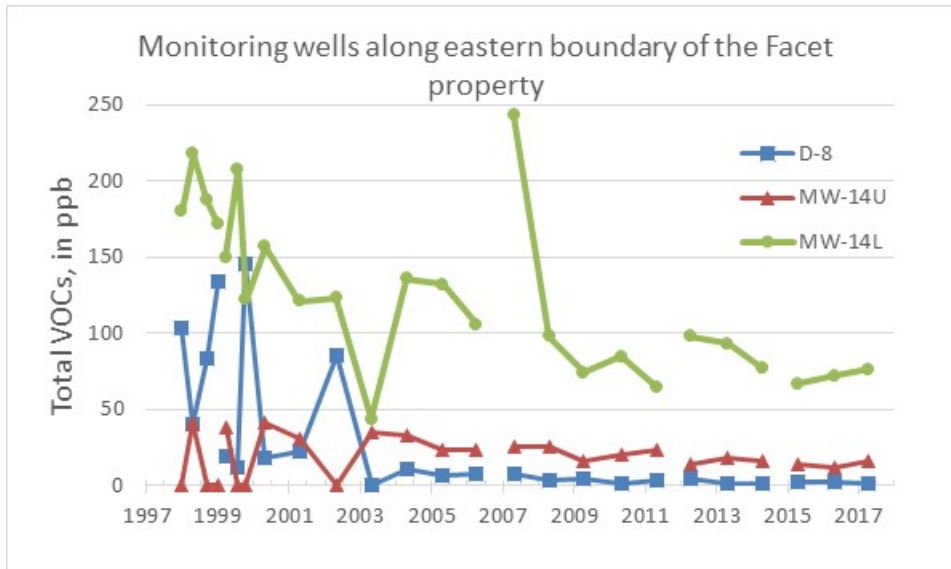


Figure 9

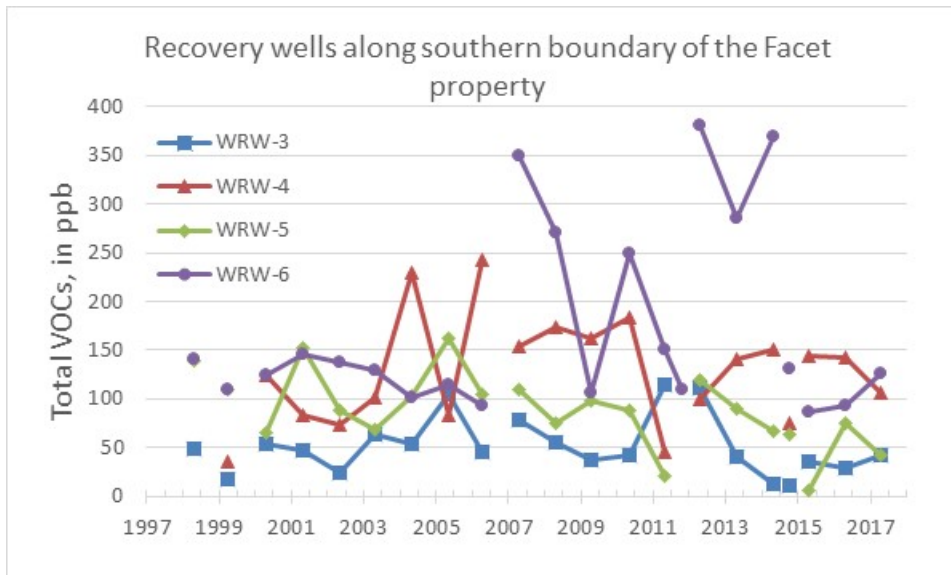


Figure 10

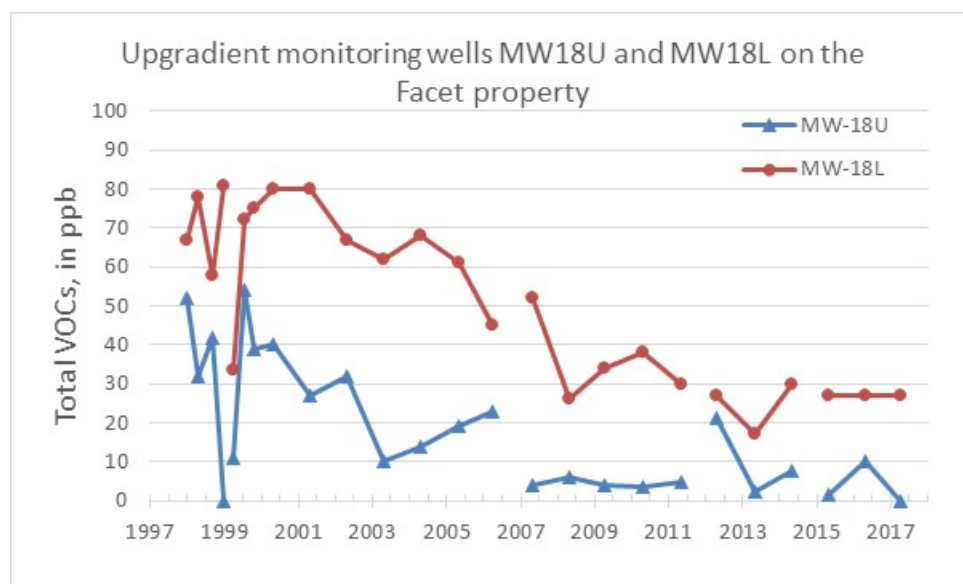


Figure 11

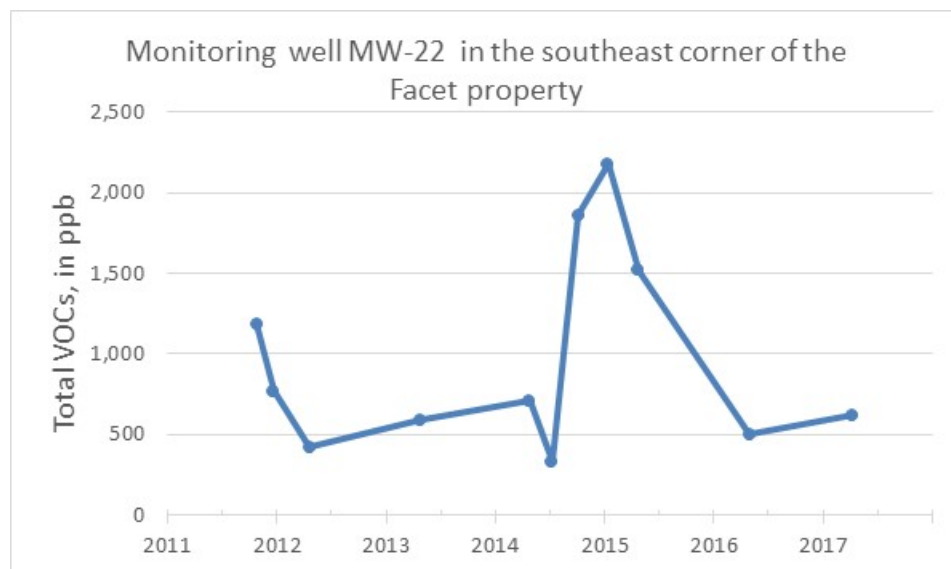


Figure 12

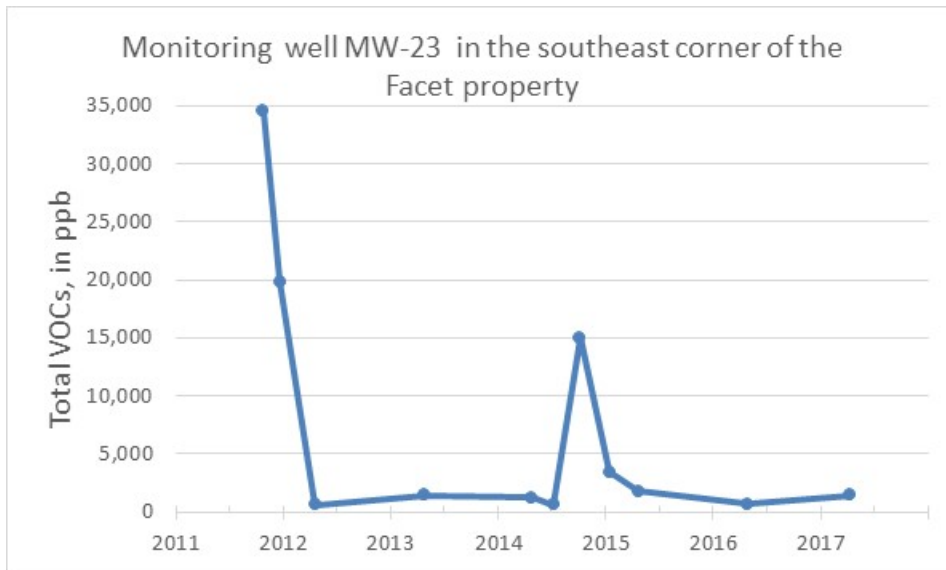


Figure 13

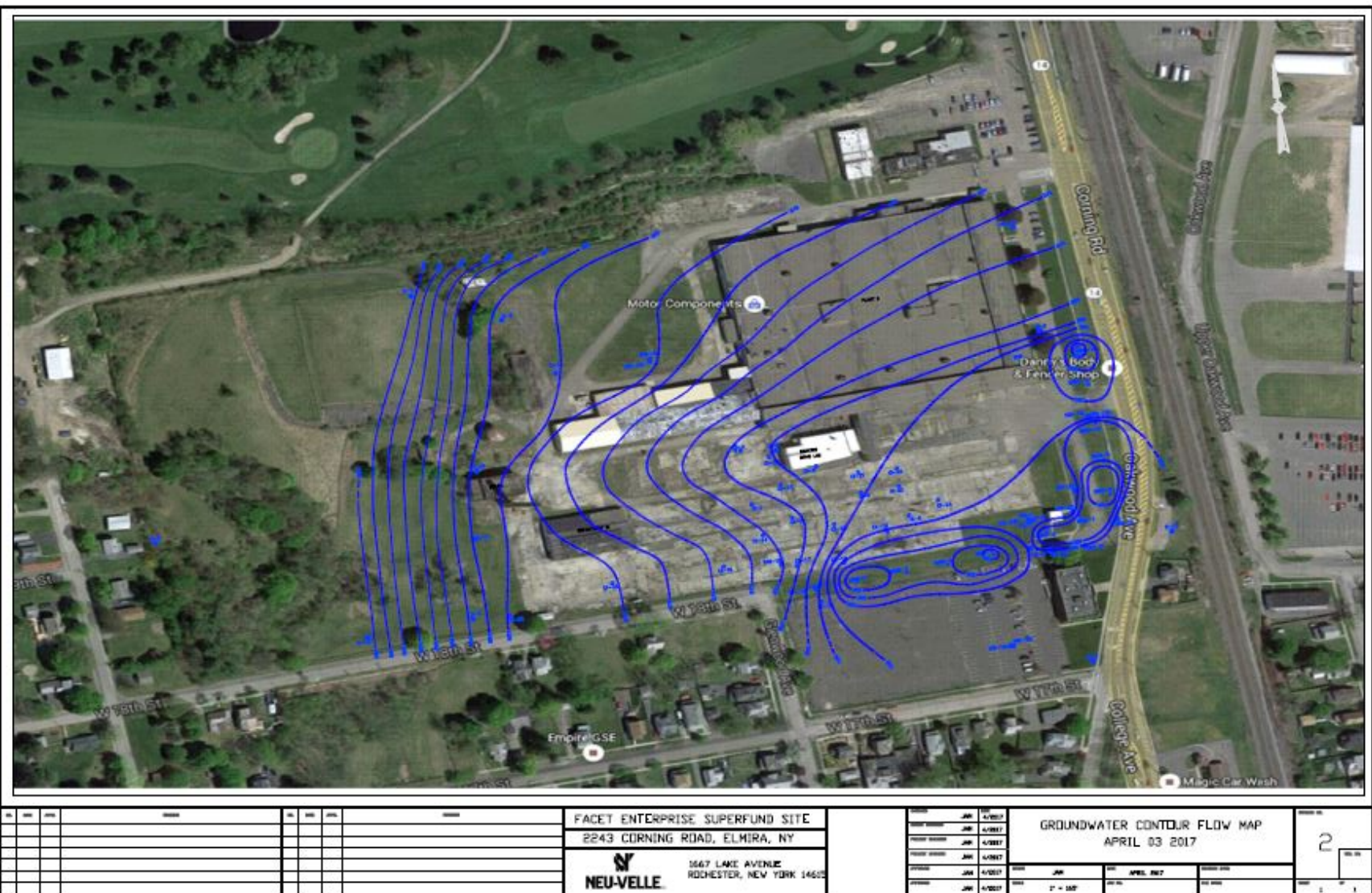


Figure 14

