

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action Environmental Indicator (EI) RCRAInfo code (CA750) Migration of Contaminated Groundwater Under Control

Facility Name: E.I. Du Pont de Nemours and Company
Facility Address: 666 Driving Park Avenue, Rochester, NY 14613-1565
Facility EPA ID #: NYD000632125

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of “Migration of Contaminated Groundwater Under Control” EI

A positive “Migration of Contaminated Groundwater Under Control” EI determination (“YE” status code) indicates that the migration of groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original “area of contaminated groundwater” (for all groundwater “contaminated” subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The “Migration of Contaminated Groundwater Under Control” EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRAInfo national database ONLY as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

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1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

 X If yes - check here and continue with #2 below.

 If no - re-evaluate existing data, or

 If data is not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

The DuPont site is located at 666 Driving Park Avenue in the City of Rochester. The site is approximately ten acres in area and is bounded to the east and north by residential areas, with industrial areas to the south. The west side of the site is bounded by an active railroad line. The area is served by public water.

Site Features: The site is a vacant lot that is surrounded by a 6-foot high chain-link fence. The demolished former manufacturing building was located on the south side of the property along Driving Park Avenue. The northern portion of the site is a former parking area that is covered with broken asphalt.

Current Zoning/Uses: The site is currently vacant and it is zoned for commercial or industrial uses. A densely populated residential area is immediately adjacent to the site.

Historic Uses: This property is a former manufacturing site that was operated since the early 1900s by DuPont and others to produce photographic film and paper. These manufacturing processes included the use of methanol, silver, cadmium, lead, and mercury. DuPont ceased operations at the facility in 1995 and demolished the building in 1996.

Prior to entering the Brownfield Cleanup Program, DuPont conducted an on-site soil and groundwater investigation. The results of the investigation identified several areas of cadmium and silver contamination in soils located near the former manufacturing building. In May 2007, DuPont signed a Brownfield Cleanup Agreement to investigate and cleanup the site.

Site Geology and Hydrogeology: Based upon the subsurface investigations to date, the site stratigraphy consists of historic fill and native soils over Rochester Shale bedrock. The depth to bedrock ranges from 4 to 12 feet below ground surface. Groundwater flows to the north, and predominantly exists within bedrock with localized groundwater in the overburden.

Soil: Environmental investigations conducted to date have indicated soil contamination with heavy metals (mainly silver and cadmium) and polycyclic aromatic hydrocarbons (PAHs). Cadmium was detected at several localized sub-surface soil areas at levels exceeding the restricted residential cleanup level of 4.3 parts per million (ppm). Several of these sample results exceeded 100 ppm, and there was a single detection for cadmium at 1,590 ppm. Silver was detected at several locations exceeding the restricted residential level of 180 ppm. The silver and cadmium contamination is limited to sub-surface soils on-

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site within these discrete areas.

In 2014, a soil removal was completed by DuPont. All soils exceeding the restricted residential SCO for silver and cadmium were excavated and disposed of off-site. PAHS remain on-site and were detected predominantly in the historic fill spread throughout the site. Levels of PAHS at the site are sporadically above the restricted residential cleanup levels. On-site concentrations of benzo(a)pyrene (BAP) in soils range from ND to 58 ppm.

Groundwater: Low levels of chlorinated solvents have been detected in one well at the southern property border; however, these contaminants are migrating from off-site and are not site-related. Contaminants detected along the southern property line during the groundwater sampling rounds include: trichloroethene from 21 to 96 ppb; cis-1,2-dichloroethene from 46 to 290 ppb; trans-1,2-dichloroethene from 4.7 to 120 ppb; 1,1-dichloroethene from 1.4 to 8.1 ppb; and vinyl chloride from 4.3 to 24 ppb. Site-related metals were not detected in groundwater above the groundwater standards.

2. Is **groundwater** known or reasonably suspected to be “contaminated”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

_____ If yes - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.

___X___ If no - skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not known or reasonably suspected to be “contaminated.”

_____ If unknown - skip to #8 and enter “IN” status code.

Rationale:

Groundwater: VOC contaminated groundwater is entering the site from an off-site upgradient source (Possibly GM-Delphi site 828064), and there is no identified on-site source of groundwater contamination. On-site wells downgradient of the soil removal areas were not impacted by site-related contaminants.

References:

Remedial Investigation Report, Parsons, February 2009
Addendum to Remedial Investigation Report, Parsons, April 2010
Remedial Alternatives Analysis Report, Parsons, March 2012
Decision Document, NYSDEC, March 2012
Remedial Action Report, Parsons, July 2014

¹“Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate “levels” (appropriate for the protection of the groundwater resource and its beneficial uses).

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3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within Aexisting area of contaminated groundwater² as defined by the monitoring locations designated at the time of this determination)?

- _____ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the existing area of groundwater contamination²).
- _____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the existing area of groundwater contamination²) - skip to #8 and enter “NO” status code, after providing an explanation.
- _____ If unknown - skip to #8 and enter “IN” status code.

Rationale:

Type here

References:

4. Does “contaminated” groundwater **discharge** into **surface water** bodies?

- _____ If yes - continue after identifying potentially affected surface water bodies.
- _____ If no - skip to #7 (and enter a “YE” status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater “contaminated” does not enter surface water bodies.
- _____ If unknown - skip to #8 and enter “IN” status code.

Rationale:

Type here

²“existing area of contaminated groundwater” is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of “contamination” that can and will be sampled/tested in the future to physically verify that all “contaminated” groundwater remains within this area, and that the further migration of “contaminated” groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

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References:

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5. Is the **discharge** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater “level,” and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater “levels,” the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter “IN” status code in #8.

Rationale:

Type here

References:

Type here

³As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

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6. Can the **discharge** of “contaminated” groundwater into surface water be shown to be “**currently acceptable**” (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

- _____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site=s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
- 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.
- _____ If no - (the discharge of “contaminated” groundwater cannot be shown to be “**currently acceptable**”) - skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.
- _____ If unknown - skip to 8 and enter “IN” status code.

Rationale:

Type here

References:

⁴Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

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7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the Aexisting area of contaminated groundwater?

_____ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the “existing area of groundwater contamination.”

_____ If no - enter “NO” status code in #8.

_____ If unknown - enter “IN” status code in #8.

Rationale:

Type here

8. Check the appropriate RCRAInfo status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

 X YE - Yes, “Migration of Contaminated Groundwater Under Control” has been verified. Based on a review of the information contained in this EI determination, it has been determined that the “Migration of Contaminated Groundwater” is “Under Control” at the E.I. Du Pont de Nemours and Company, EPA ID # NYD000632125, located at 666 Driving Park Avenue, Rochester, New York. Specifically, this determination indicates that the migration of known or reasonably suspected to be “contaminated” groundwater is under control, and that monitoring will be conducted, as necessary, to confirm that contaminated groundwater remains within the “existing area of contaminated groundwater”. This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

_____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

_____ IN - More information is needed to make a determination.

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Completed by: _____ Date: 2/28/18
Todd M. Caffoe, P.E.
Professional Engineer 1 (Environmental)

Supervisor:  Date: 3/5/18
Bernette Schilling, P.E.
Regional Hazardous Waste Remediation Engineer

Director:  Date: 3/5/18
Michael Ryan, P.E. - Assistant Director
Division of Environmental Remediation

References:

Remedial Investigation Report, Parsons, February 2009
Addendum to Remedial Investigation Report, Parsons, April 2010
Remedial Alternatives Analysis Report, Parsons, March 2012
Decision Document, NYSDEC, March 2012
Remedial Action Report, Parsons, July 2014

Locations where References may be found:

New York State Department of Environmental Conservation, Region 8
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, New York 14414

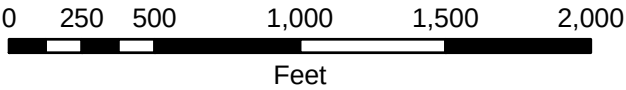
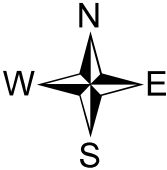
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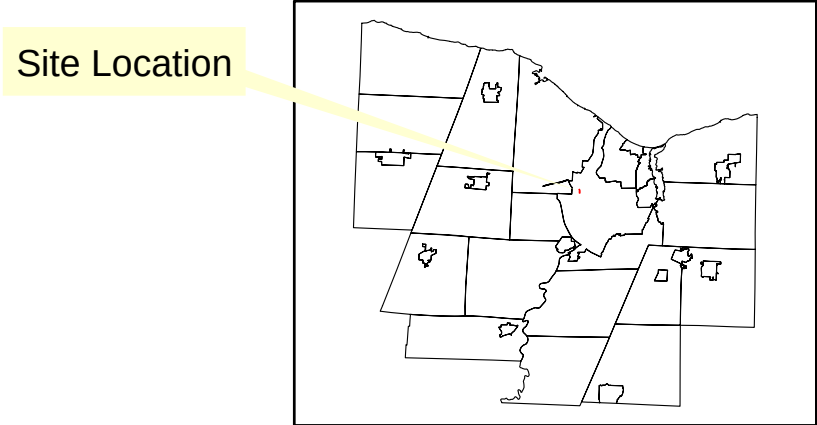
Figure 1
DuPont Site - 666 Driving Park Avenue
Rochester, New York



Monroe County 2002 Orthoimagery



Monroe County, New York



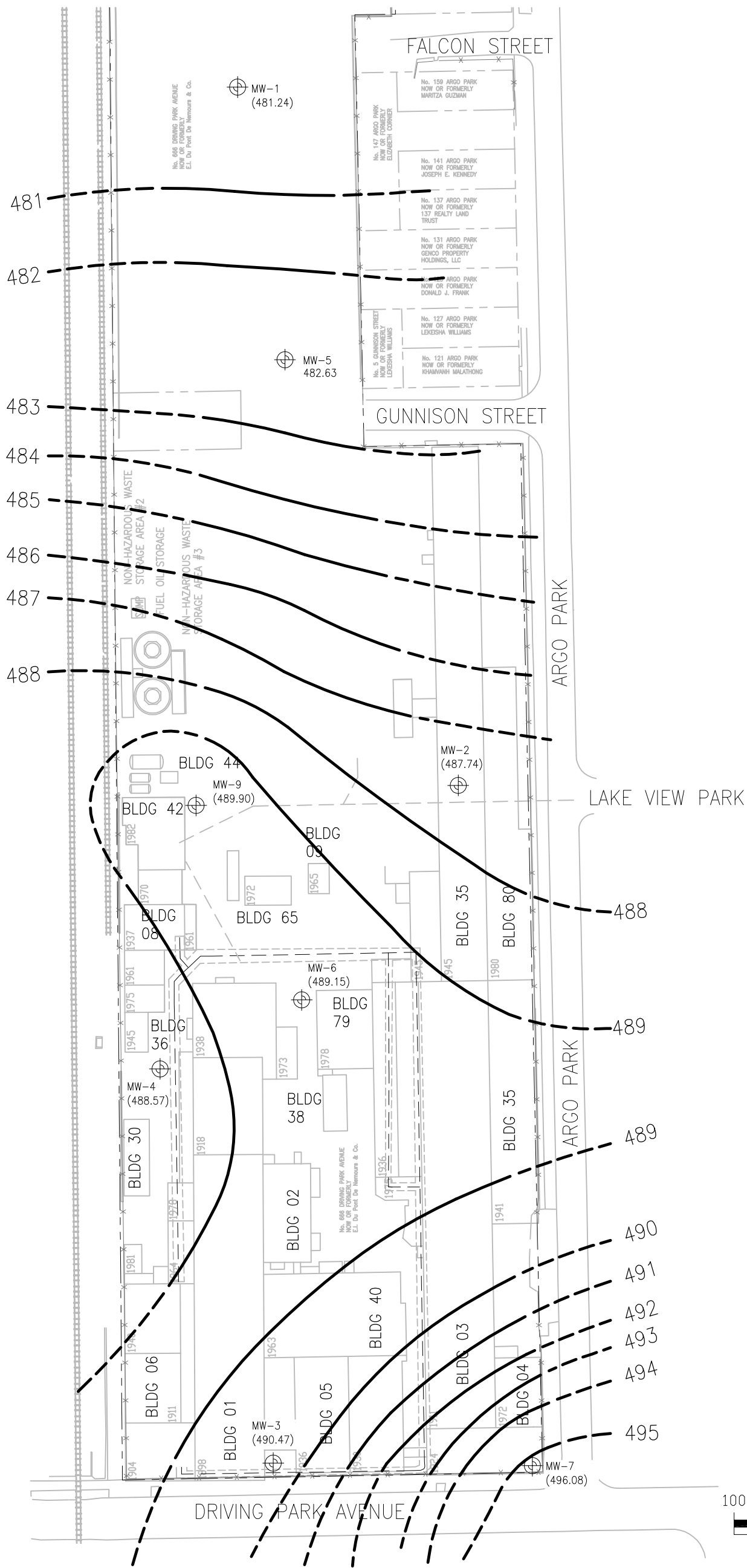


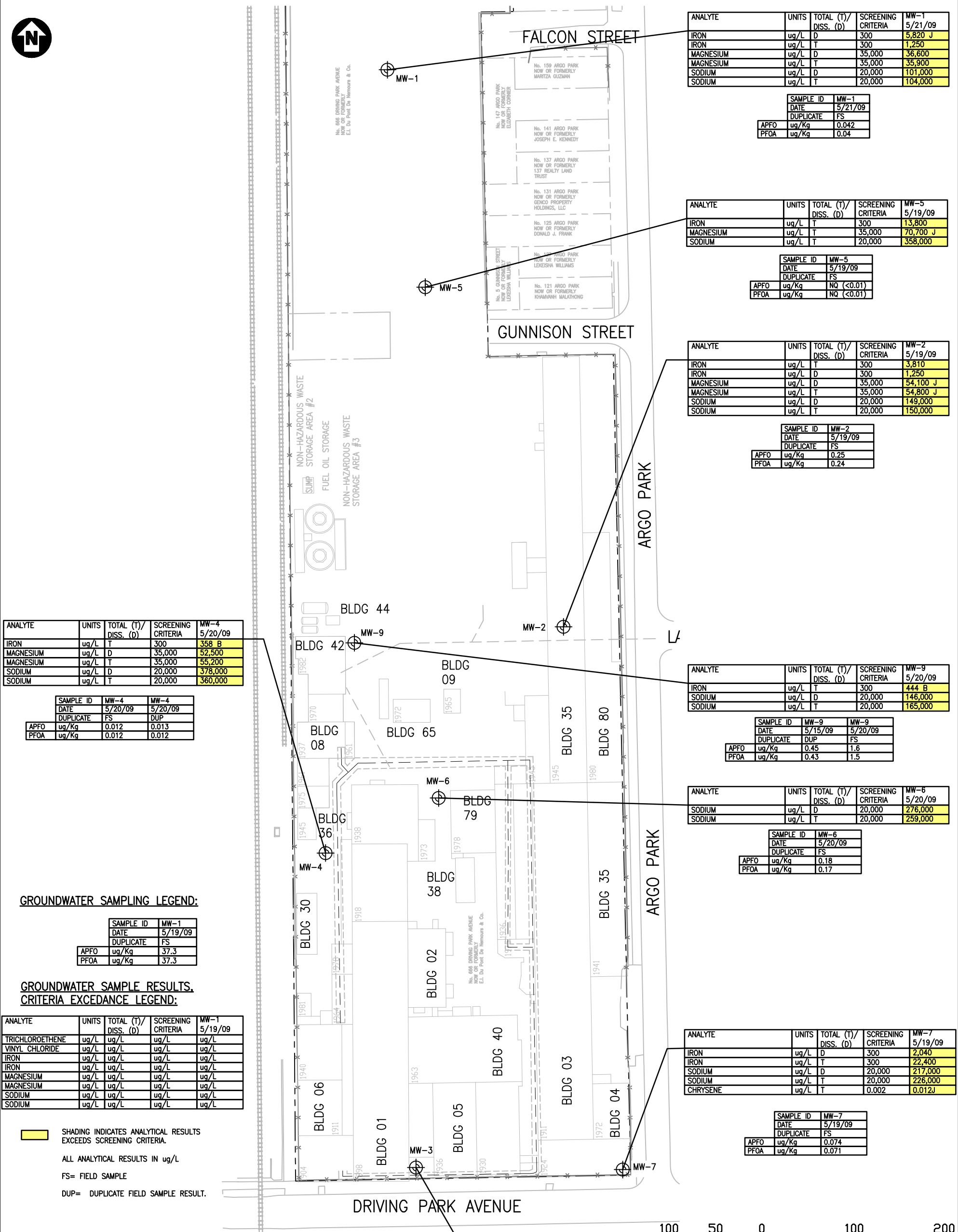
FIGURE 3

DuPont
666 DRIVING PARK SITE
ROCHESTER, NEW YORK

POTENTIOMETRIC SURFACE MAP
MAY 19, 2009

PARSONS

40 LA RIVIERE DRIVE, BUFFALO NY 14202, PHONE: (716)541-0730



ANALYTE	UNITS	TOTAL (T)/ DISS. (D)	SCREENING CRITERIA	MW-1 5/21/09
IRON	ug/L	D	300	5,820 J
IRON	ug/L	T	300	1,250
MAGNESIUM	ug/L	D	35,000	36,600
MAGNESIUM	ug/L	T	35,000	35,900
SODIUM	ug/L	D	20,000	101,000
SODIUM	ug/L	T	20,000	104,000

SAMPLE ID	MW-1
DATE	5/21/09
Duplicate	FS
APFO	ug/Kg 0.042
PFOA	ug/Kg 0.04

ANALYTE	UNITS	TOTAL (T)/ DISS. (D)	SCREENING CRITERIA	MW-5 5/19/09
IRON	ug/L	T	300	13,800
MAGNESIUM	ug/L	T	35,000	70,700 J
SODIUM	ug/L	T	20,000	358,000

SAMPLE ID	MW-5
DATE	5/21/09
Duplicate	FS
APFO	ug/Kg NQ (<0.01)
PFOA	ug/Kg NQ (<0.01)

ANALYTE	UNITS	TOTAL (T)/ DISS. (D)	SCREENING CRITERIA	MW-2 5/19/09
IRON	ug/L	T	300	3,810
IRON	ug/L	D	300	1,250
MAGNESIUM	ug/L	D	35,000	54,100 J
MAGNESIUM	ug/L	T	35,000	54,800 J
SODIUM	ug/L	D	20,000	149,000
SODIUM	ug/L	T	20,000	150,000

SAMPLE ID	MW-2
DATE	5/19/09
Duplicate	FS
APFO	ug/Kg 0.25
PFOA	ug/Kg 0.24

ANALYTE	UNITS	TOTAL (T)/ DISS. (D)	SCREENING CRITERIA	MW-4 5/20/09
IRON	ug/L	T	300	358 B
MAGNESIUM	ug/L	D	35,000	52,500
MAGNESIUM	ug/L	T	35,000	55,200
SODIUM	ug/L	D	20,000	378,000
SODIUM	ug/L	T	20,000	360,000

SAMPLE ID		MW-4	MW-4
DATE	5/20/09	5/20/09	
Duplicate	FS	DUP	
APFO	ug/Kg	0.012	0.013
PFOA	ug/Kg	0.012	0.012

ANALYTE	UNITS	TOTAL (T)/ DISS. (D)	SCREENING CRITERIA	MW-9 5/20/09
IRON	ug/L	T	300	444 B
SODIUM	ug/L	D	20,000	146,000
SODIUM	ug/L	T	20,000	165,000

SAMPLE ID		MW-9	MW-9
DATE	5/15/09	5/20/09	
Duplicate	DUP	FS	
APFO	ug/Kg	0.45	1.6
PFOA	ug/Kg	0.43	1.5

ANALYTE	UNITS	TOTAL (T)/ DISS. (D)	SCREENING CRITERIA	MW-6 5/20/09
SODIUM	ug/L	D	20,000	276,000
SODIUM	ug/L	T	20,000	259,000

SAMPLE ID		MW-6
DATE	5/20/09	
Duplicate	FS	
APFO	ug/Kg	0.18
PFOA	ug/Kg	0.17

ANALYTE	UNITS	TOTAL (T)/ DISS. (D)	SCREENING CRITERIA	MW-7 5/19/09
IRON	ug/L	D	300	2,040
IRON	ug/L	T	300	22,400
SODIUM	ug/L	D	20,000	217,000
SODIUM	ug/L	T	20,000	226,000
CHRYSENE	ug/L	T	0.002	0.012J

SAMPLE ID		MW-7
DATE	5/19/09	
Duplicate	FS	
APFO	ug/Kg	0.074
PFOA	ug/Kg	0.071

ANALYTE	UNITS	TOTAL (T)/ DISS. (D)	SCREENING CRITERIA	MW-3 5/19/09
CIS-1,2-DICHLOROETHENE	ug/L	T	5	45
TRICHLOROETHENE	ug/L	T	5	96
VINYL CHLORIDE	ug/L	T	2	4.3
MAGNESIUM	ug/L	D	35,000	47,900 J
MAGNESIUM	ug/L	T	35,000	48,100 J
SODIUM	ug/L	D	20,000	437,000
SODIUM	ug/L	T	20,000	436,000

SAMPLE ID		MW-3
DATE	5/19/09	
Duplicate	FS	
APFO	ug/Kg	0.29
PFOA	ug/Kg	0.28



SCALE: 1"=100'

FIGURE 4

DuPont
666 DRIVING PARK SITE
ROCHESTER, NEW YORK

GROUNDWATER SAMPLE RESULTS MAY 2009

PARSONS

40 LA RIVIERE DRIVE, BUFFALO NY 14202, PHONE: (716)541-0730



- LEGEND:
- PROPERTY LINE
 - FORMER BUILDINGS
 - C-1 SAMPLE ID
 - PROPOSED EXCAVATION AREA (PARSONS, AUGUST 2012)
 - ACTUAL EXCAVATION AREA (SEPTEMBER 2012)
 - TEST PIT (SEPTEMBER 2012)

EXCAVATION AREAS AND DEPTHS

NAME	AREA (SQ FT)		DEPTH (FT)	
	PROPOSED	ACTUAL	PROPOSED	ACTUAL
RR1	200	200	2'	2'
RR2	100	100	3'	3'
RR3	100	138	3'	3'
RR4	400	400	2'	3'
RR5	100	100	4'	4'
RR6	100	180	7.5'	12'
RR7	91	91	2'	2'
RR8	100	152	7'	7'
RR9	90	135	3'	5'
RR10	100	100	6'	6'
RR11	100	190	2'	2'
RR12	100	100	6'	6'
RR13	100	100	3'	3'
RR14	100	100	4.5'	4.5'
RR15	100	225	4.5'	4.5'
RR16	44	44	4.5'	4.5'
RR17	203	203	6'	7'
RR18	554	1028	2'	4'
RR19	100	100	6.8'	6.8'
RR20	100	100	4'	4'
RR21	100	100	10'	10'
RR22	30	155	4'	4'
RR23	100	150	6'	6'
RR24	230	230	4.5'	4.5'
3342 sq ft		4421 sq ft		

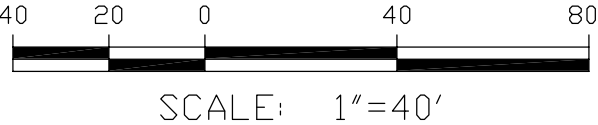


FIGURE 2

DuPont
666 DRIVING PARK SITE
ROCHESTER, NEW YORK

EXCAVATION AREAS AND 2012 TEST PIT
LOCATIONS

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 PHONE: (315) 451-9560