



March 15, 2011

Stacy McNatt, P.E.
New Castle County
Department of Planning
87 Reads Way
New Castle, DE 19720

RE: Report on Water Resource Protection Areas in New Castle County

Dear Ms. McNatt:

Enclosed is our report that updates the draft report submitted on August 25, 2009 summarizing projects developed in Water Resource Protection Areas in New Castle County since 1990. Our GIS analysis indicates 180 projects have been reviewed for development in WRPAs covering 20.2 square miles of land area. Twenty two WRPA projects have water management agreements. Water monitoring reports indicate groundwater quality and quantity have largely been preserved under the WRPA provisions of New Castle County Code. We have developed an interactive web-based WRPA project mapping system that you may view on <http://brandywine.dgs.udel.edu/WRPAs/>. Please review the report and accompanying mapping and forward your comments.

Should you have any questions, please do not hesitate to contact our office at 302-831-4929 or ahomsey@udel.edu or jerryk@udel.edu.

Warmly,

A handwritten signature in blue ink, appearing to read "Andrew R. Homsey".

Andrew R. Homsey
GIS Services Manager

A handwritten signature in blue ink, appearing to read "Gerald J. Kauffman".

Gerald J. Kauffman, P.E.
Director

Cc: George Haggerty, New Castle County
Michael Clar, New Castle County
John Gysling, New Castle County

Report on Water Resource Protection Areas New Castle County, Delaware

March 14, 2011

Prepared for:

New Castle County
Department of Planning
Department of Special Services
New Castle, Del.

Prepared by:

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Report on Water Resource Protection Areas
New Castle County, Delaware
March 14, 2011

Introduction

Since 1990, New Castle County Code has protected Water Resource Protection Areas during new development to protect the quality and quantity of ground and surface water supplies. Under the Unified Development Code adopted in 1997, development within recharge, wellhead, Cockeysville formation, and reservoir water resource protection areas may not exceed maximum impervious cover thresholds (20% to 50%) and may require water management agreements, groundwater recharge facilities, and water monitoring plans. WRPAs protect 20% of New Castle County's land area in delineated floodplains and erosion prone slopes above surface water intakes, reservoir watersheds, Cockeysville limestone formation outcrop/drainage areas, wellhead, and groundwater recharge areas.

Figures 1 and 2 delineate water resource protection area mapping in New Castle County, Delaware. Watershed boundaries (in red) delineate source waters upstream from drinking water intakes. The maps delineate WRPAs such as wellhead, recharge, Cockeysville limestone, reservoir, and floodplain areas which are protected by New Castle County Unified Development Code.

This report summarizes the status of 180 projects proposed for development in Water Resource Protection Areas in New Castle County since 1990. We have assembled a GIS data base and mapping summarizing the groundwater recharge facilities and water management agreements authorized under New Castle County Code since 1990.

Scope of Work

The University of Delaware Water Resources Agency completed this project according by the following scope of work:

1. WRPA Base Map - Prepare a GIS base map with parcels and aerial photography overlaid with the following water resource protection areas protected by the Unified Development Code:
 - Wellhead
 - Recharge
 - Cockeysville Formation and Drainage Area
 - Hoopes Reservoir
 - Floodplain
 - Erosion Prone Slope
2. Water Management Agreement Database - Search project files and records of decision by the Resource Protection Area Technical Advisory Committee (RPATAC) and update the water recharge facility database that summarizes projects proposed in WRPAs since 1990. The data base includes the following parameters:
 - Name of development
 - Area (ac)
 - WRPA type
 - Watershed
 - North/south of C&D Canal

- Dates of application, RPATAC, record of decision, water management agreement, approval
 - % impervious
 - Type of recharge facility (recharge basin, underground, etc.)
 - Water monitoring parameters
3. Field Reconnaissance – Conduct a field visit to each water recharge facility to verify location and evaluate the condition of the facility. Visually document the project with photographs.
 4. Mapping – Delineate the location of each development and recharge facility on the WRPA base map. Prepare a series of digital maps on a web site in a “point and click” format.
 5. Report - Prepare a report summarizing WRPA projects, recharge facilities, and water management agreements including a survey of water quality monitoring trends.

Water Resource Protection Area Ordinance

Streams and aquifers in New Castle County provide drinking water for over 500,000 people or 60% of Delaware’s population. About 75% of the drinking water for New Castle County is withdrawn from streams in the Christina Basin that originate upstream in Pennsylvania and Maryland. New Castle County residents consume drinking water from the Brandywine Creek, Red Clay Creek, White Clay Creek, and the Christina River. Groundwater in the Piedmont and Coastal Plain supplies the remaining 25% of New Castle County’s drinking water.

In 1987, the Water Resources Agency for New Castle County (WRA) partnered with the Delaware Department of Natural Resources and Environmental Control (DNREC) and Delaware Geological Survey (DGS) to develop a set of maps in New Castle County that depicted overlay districts most critical for maintaining the quality and quantity of water resources utilized for public water supplies. In 1990, WRA assisted the City of Newark and New Castle County in developing WRPA ordinances to protect public water supplies. These WRPA ordinances were adopted in September 1991 as the first source water protection codes in Delaware and among the first WRPA ordinances in the United States.

The New Castle County Unified Development Code was adopted in 2007 that delineated resource protection areas to conserve environmental features such as floodplains, erosion prone slopes, Cockeysville limestone formation, aquifer recharge, wellhead, and reservoir watershed protection areas. The UDC seeks to protect the quality and quantity of drinking water supplies in water resource protection areas by limiting impervious cover of new development to 20% of the parcel area. The impervious cover threshold is based on water budget models reviewed by the New Castle County RPATAC that indicate the volume of recharge diminishes rapidly once impervious cover exceeds 10% to 20% of a parcel. The UDC defines impervious cover as the amount of pavement and roof area which prevents infiltration in a water resource protection area or watershed. Impervious cover thresholds in WRPAs are designed balance the need to protect drinking water sources and minimize loss of recharge with a property owner’s right to economically develop land.

Water Resource Protection Areas include:

Floodplains – 100 year floodplain upstream from public water intakes along the Brandywine Creek, Red Clay Creek, White Clay Creek, and Christina River as defined by FEMA hydrologic models or USDA flood prone soils.

Erosion Prone Slopes – steep slopes (>15%) draining to floodplains and water courses upstream of public water supply intakes.

Cockeysville Formation - area directly underlain by Cockeysville marble and limestone formation.

Cockeysville Drainage Area - watershed tributary to the Cockeysville formation.

Hoopes Reservoir watershed - 2-square mile watershed upstream from Hoopes Reservoir.

Recharge Areas - soils with $\geq 90\%$ sand and gravel with excellent recharge potential.

Class A Wellhead - area within a 300-foot radius around wells classified as public water systems.

- Community wells - public water purveyors
- Transient/non-community - restaurants, stores, hotels, parks
- Nontransient/non-community - schools, daycare centers, offices, factories

Class B Wellhead - zone of influence around a public water supply well field delineated by a hydrogeologic computer model based on 5-year time of travel.

Class C Wellhead - zone of influence around a public water supply well field delineated by interpretation of hydrogeologic reports and maps.

According to the New Castle County UDC, new development may exceed the 20% impervious cover threshold within WRPA's, but not exceed 50% impervious, provided the applicant submits an environmental assessment recommending a climatic water budget and facilities to augment recharge. The environmental assessment must document that post-development recharge will be no less than predevelopment recharge on an annual basis. Usually, the applicant offsets loss of recharge due to installation of impervious cover by constructing recharge basins that convey relatively pure rooftop runoff for infiltration to ground water. The WRPA ordinance is implemented in accordance with the following source water protection hierarchy (ranked in order of preference).

1. Preserve WRPA's as open space and parks by acquisition or conservation easement.
2. Limit impervious cover of new development to 20% within WRPA's.
3. Allow impervious cover of new development to exceed 20% within WRPA's (but no more than 50% impervious) provided the applicant develops recharge facilities that directly infiltrate rooftop runoff and installs groundwater monitoring wells.
4. Allow impervious cover of new development to exceed 20% within WRPA's (but no more than 50% impervious) provided the applicant develops recharge facilities that infiltrate stormwater runoff from forested and/or grassed surfaces with pretreatment.

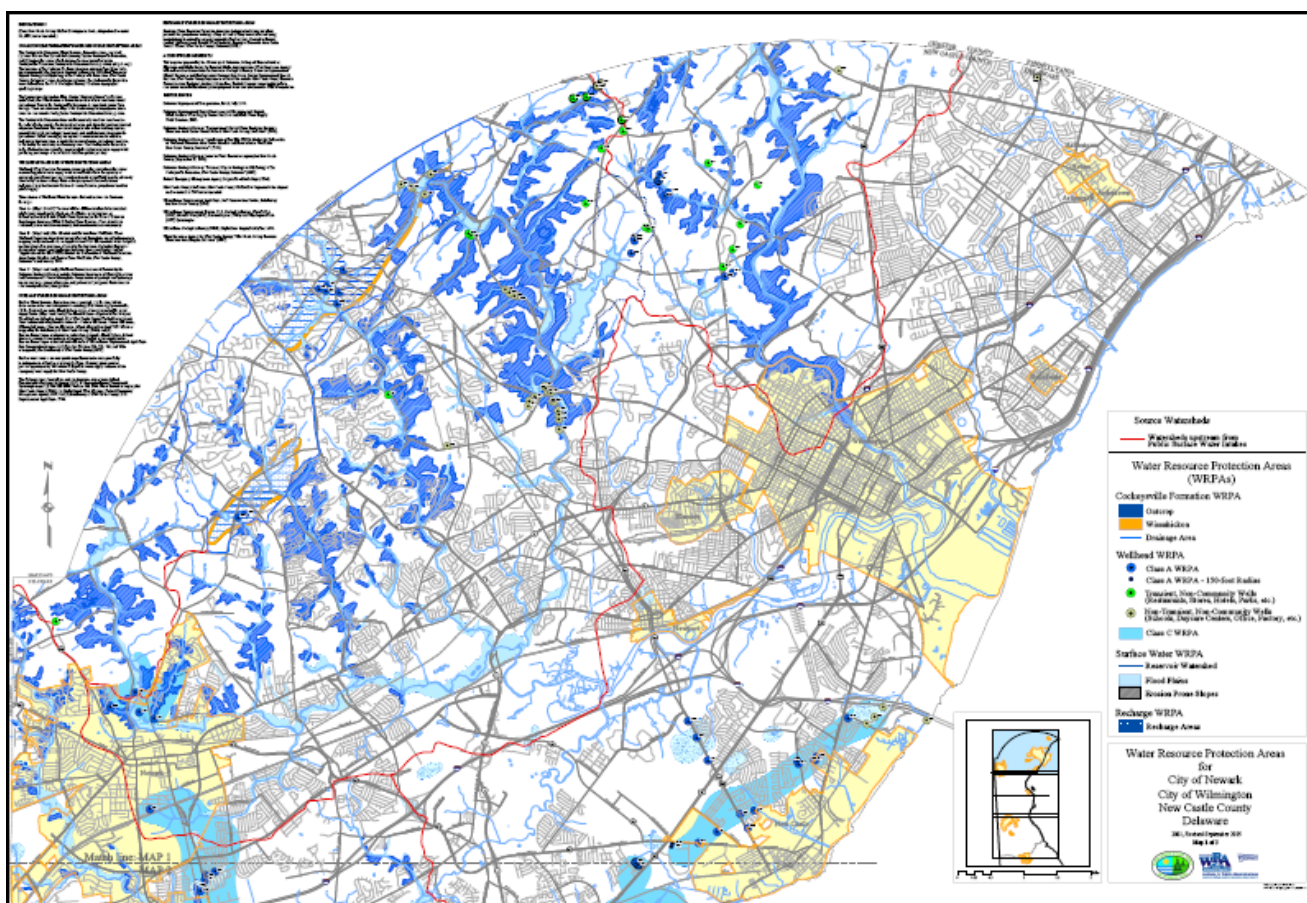


Figure 1. Water resource protection areas in northern New Castle County, Delaware

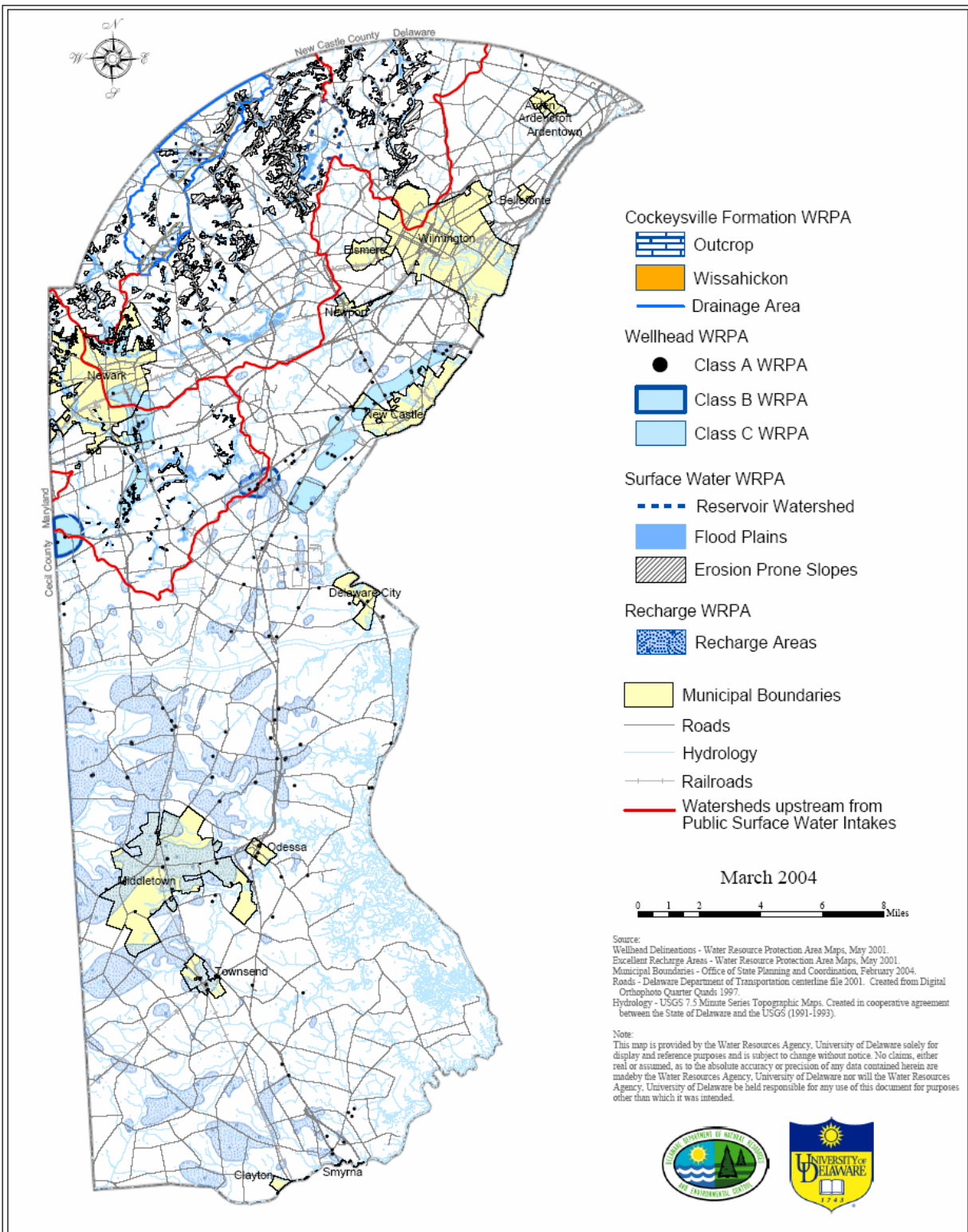


Figure 2. Water resource protection areas in New Castle County, Delaware

Water Management Agreements

Proposed developments with impervious surface greater than 20% must be designed to maintain existing pre-development groundwater recharge quantity and quality in accordance with the Uniform Standards and Criteria (USC, Section 40-386) of the New Castle County Unified Development Code. Proposed development plans must not alter the existing water balance at each site. While development will increase the amount of impervious coverage, the amount of on-site groundwater recharge must be maintained through augmented stormwater recharge.

The applicant and Department of Land Use execute a contract or Water Management Agreement (WMA) between to guarantee these obligations. WMAs typically contain:

- Plans and specifications for stormwater recharge systems
- Agreement to operate these facilities lawfully
- Agreement to retain a third party professional engineer to provide reviews of the recharge system
- Agreement to monitor the parcel's groundwater on a regular basis
- Letter of credit providing financial assurances to maintain the recharge basin and monitoring wells.

To estimate pre- and post-development groundwater recharge potential, a climatic water balance comparison is performed for the portion of the development site that lies within mapped WRPA's as shown on the record plan. The methodology and recharge (percolation) values are outlined in the applicant's Resource Management Plan for the particular site. The climatic water balance can be used to estimate groundwater recharge by accounting for water inputs such as precipitation and losses such as evapotranspiration, runoff, and soil moisture retention. Precipitation records for New Castle County Airport are used for this estimate.

To offset the projected reduction in average annual recharge potential due to proposed development, the applicant recommends that collection and conveyance of runoff from the area of impervious surface (building rooftop and paved parking lot area) to an on-site ground water recharge system.

Based on water quality monitoring data, water collected and discharged into the proposed recharge basin from rooftop areas should meet or exceed the quality of water which has historically recharged on site. Design measures are required to manage the quality of parking lot runoff, prior to recharge. Potential pre-treatment options include a sand filter, an oil-water-grit separator, and a grassed bio-infiltration swale.

Groundwater Monitoring

The applicant installs a groundwater monitor well(s) located down gradient from the proposed recharge basin as indicated on a site location sketch.

The applicant's professional engineer or geologist recommends quarterly or semiannual sampling of the monitor well(s) and recharge basin inflow water. Samples are analyzed in the laboratory for the following basic parameters:

- pH
- Specific Conductance
- Total Dissolved Solids (TDS)

- Chemical Oxygen Demand (COD)
- Total Organic Carbon (TOC)
- Total Carbon
- Total Petroleum Hydrocarbon (TPH)

Annually, during one of the quarterly sampling periods, samples from the monitor well and inflow water into the recharge basin should be analyzed for the following classes of substances, regulated under the Nation Primary Drinking Water Regulations, 40 CFR Part 141; 40 FR 59570, December 24, 1975; revised through December 5, 1994 (59 FR 62466):

- Inorganic Chemicals (141.11)
- Organic Chemicals (141.12)
- Turbidity (141.13)
- Volatile Organic Contaminants (141.61)

Baseline water quality samples are collected from the monitoring well, prior to connection of the stormwater collection system to the recharge basin, with quarterly and annual analysis. This monitoring program is re-evaluated two years after completion of construction to determine whether modifications to the scope and/or frequency of sampling are appropriate, based on the collected data.

Maintenance

Maintenance of the recharge system is essential to functional operation. Components of the recharge system should be reviewed semi-annually by a qualified registered professional engineer (P.E.) to determine maintenance requirements. Based on experience at similar systems, the contractor recommends that the following be done for proposed recharge systems:

- Review the recharge basin, and when conditions warrant, remove debris and leaves to maintain the infiltrative capacity of the basins.
- Review downspout/piping systems and perform minor repairs to maintain function.
- During the first 6 months of operation, review the recharge facility immediately after each rainfall event in which the rainfall amount equals or exceeds one (1) inch, as reported for the New Castle County Airport. On a form developed by the Engineer, record the reported rainfall amount, approximate start/stop times of rainfall event, water level in the basin and the time of the water level readings. Monitor the recharge basin again at approximately 12, 24, 48, and 72 hours after the first review, and record the observed water level. After the initial six month period, perform this same review at least once per year after storms in which the rainfall amount equals or exceeds one inch in 24 hours. If an annual review indicates an infiltration rate equal to or slower than an equivalent 1.7-inch storm volume in 24 hours, repeat the review for the next rainfall event which equals or exceeds one inch in 24 hours.
- When two consecutive post-rainfall reviews indicate the infiltrative performance of the recharge basin is slower than the equivalent of a 1.7-inch event in 24 hours, remove the bottom treatments from the recharge basin, remove and dispose of accumulated sediments, dry and scarify the subgrade, and clean and replace the bottom treatments.

Results

Impervious Cover

Table 1 summarizes a GIS analysis of impervious cover within WRPA's for 2000 and 2007 land use conditions. In 2007, composite impervious cover of WRPA's was 19%, up 4% since 2000. WRPA's protected by the UDC cover 83 square miles or 20% of New Castle County land area. This overall amount of impervious cover in WRPA's in 2007 (19%) is just below the 20% impervious cover threshold mandated by the ordinance.

Floodplains - Impervious cover within the floodplain WRPA remained unchanged from 2000 to 2007 at 12%, less than the 20% impervious threshold set by the ordinance. The Red Clay Creek floodplain WRPA impervious surface declined from 2000 to 2007 due to rezoning of commercial development along Newport Pike and Stanton Road to vacant land area. The Brandywine Creek floodplain is one of the least developed WRPA's at 8.6 % impervious coverage.

Erosion Prone Slopes - Composite impervious cover of the erosion prone slopes WRPA in 2007 was 14%, less than the 20% impervious cover threshold, but slightly above the 13% impervious coverage in 2000. The Brandywine Creek erosion prone slope WRPA remains one of the least developed at 10% impervious coverage due to large amounts of open space provided by the Brandywine Park in Wilmington, Brandywine Creek State Park, and adjacent conservation easements managed by the Woodlawn Trustees. Brandywine Creek erosion prone slope area increased by 1 sq mi between 2000 and 2007. This is the result of the City of Wilmington's adoption of a source water protection ordinance that increased boundaries of the WRPA to include erosion prone slopes within the municipal city area along the Brandywine Creek. The Christina River area experienced the largest increase in impervious coverage among erosion prone slope WRPA's with a 5% change in coverage, from 18% to 23%.

Hoopes Reservoir Watershed - Impervious cover within the Hoopes Reservoir watershed WRPA was 11% in 2007, up by 2% from 2000. The reservoir WRPA remains well below the WRPA ordinance 20% threshold, since it is protected from large amounts of development in the City of Wilmington Valley Garden Park system and large, heavily forested estates in the DuPont "Chateau" country north of Wilmington.

Cockeysville Formation - The composite Cockeysville limestone formation WRPA was covered by 32% impervious surface coverage in 2007, a 3% increase from the 29% impervious coverage in 2000 due to suburban growth in Hockessin. The Pleasant Hill Cockeysville WRPA surpassed the 20% impervious threshold in 2007, increasing by 8% to 27%. The Hockessin Cockeysville WRPA exceeded the threshold with 34% coverage mainly due to development that occurred prior to the 1990 WRPA ordinance. The impervious cover of the Cockeysville drainage area WRPA increased slightly from 24% in 2000 to 25% by 2007.

Recharge Areas – The average recharge WRPA's impervious coverage was 16% in 2007, an increase from 10% in 2000. North of the C&D Canal, the recharge WRPA impervious went from 30% in 2000 to 36% by 2007. South of the C & D Canal, the recharge impervious doubled, from 7% in 2000 to 14% by 2007. If the rate of development continues, impervious coverage in recharge areas south of the C&D Canal may soon exceed the 20% threshold.

Class A Wellheads - In 2007, Class A wellhead WRPA's have some of the highest impervious cover ratios with 37% impervious cover, up 6% from 31%. Many Class A public water supply wells were drilled prior to enactment of the ordinance in 1991 and many wellheads were placed in areas with pre-existing impervious surface coverage.

Class B Wellheads - Class B wellhead WRPA's have high levels of impervious surface coverage at 33% in 2007, up from 25% in 2000. The Glendale Class B wellhead WRPA at the intersection of Route 40 and Route 7 has the highest impervious coverage (47%) among all New Castle County WRPA's. Much of this impervious coverage is due to major shopping centers that all have groundwater recharge facilities including Glendale Plaza (87% impervious), Glendale West (41%), and Governor's Square II Shopping Center (46%). The Eastern States Class B wellhead WRPA along Route 40 near the Delaware/Maryland line is covered by 22% impervious coverage which is half the impervious surface coverage of its Glendale counterpart (47%) further east along Route 40.

Class C Wellheads - The composite impervious cover of Class C wellhead WRPA's is 29% in 2007, a 5% increase from the 2000 level of 24% impervious cover. The Newark Piedmont and River Road wells have the lowest Class C wellhead impervious coverage and are suitably protected at 13% and 8% imperviousness, respectively. Class C WRPA's exceed the 20% threshold in other areas ranging from 22% impervious at the Newark/DuPont wells to 41% impervious at the New Castle wells. The Army Creek Class C wellhead's impervious coverage increased by 13%, from 24% in 2000 to 37% due to intensive suburban development in the area along Route 13 near the Delaware River south of New Castle.

Table 1. Impervious cover within New Castle County Water Resource Protection Areas, 2000-2007

Water Resource Protection Area	Area (sq. km) 2000	Area (sq. km) 2007	Percent Impervious Cover (2000)	Percent Impervious Cover (2007)	Area Change (sq. km) from 2000-2007	Impervious Cover Change from 2000-2007
Floodplain WRPA						
Brandywine Creek	4	4	11%	12%	0	1%
Red Clay Creek	6	6	15%	14%	0	-1%
Christina River	8	8	10%	12%	0	2%
White Clay Creek	10	10	11%	10%	0	-1%
Subtotal	28	28	12%	12%	0	0%
Erosion Prone Slopes						
Brandywine Creek	6	7	10%	10%	1	0%
Red Clay Creek	9	9	13%	12%	0	-1%
Christina River	2	2	18%	23%	0	5%
White Clay Creek	11	11	14%	15%	0	1%
Subtotal	28	29	13%	14%	1	1%
Hoopes Reservoir	5	5	8%	11%	0	3%
Cockeysville						
Cockeysville (Hockessin)	3	3	35%	34%	0	-1%
Cockeysville (Pleasant Hill)	2	2	19%	27%	0	8%
Cockeysville Drainage Area	26	26	24%	25%	0	1%
Subtotal	30	30	29%	32%	0	3%
Recharge Areas						
Recharge Areas (North of Canal)	14	14	30%	36%	0	6%
Recharge Areas (South of Canal)	96	95	7%	14%	-1	7%
Subtotal	110	109	10%	16%	-1	6%
Class A Wellheads						
Community Wells	2.68	3.33	27%	33%	0.65	6%
Nontransient/Noncommunity	0.91	1.13	31%	30%	0.22	-1%
Transient/Noncommunity	1.30	1.38	41%	36%	0.08	-5%
Subtotal	4.89	5.84	31%	37%	0.95	6%
Class B Wellheads						
Glendale	2	2	n/a	47%	0	n/a
Eastern State	3	3	n/a	22%	0	n/a
Subtotal	5	5	25%	33%	0	8%
Class C Wellheads						
New Castle	5	5	36%	41%	0	5%
Newark Piedmont	2	2	11%	13%	0	2%
Newark South Wellfield	5	5	30%	34%	0	4%
Army Creek	3	3	24%	37%	0	13%
River Road	3	3	6%	8%	0	2%
Newark/Dupont	2	2	18%	22%	0	4%
Subtotal	19	19	24%	29%	0	5%
New Castle County WRPA	231	232	15%	19%	1	4%

WRPA Projects

Since 1990, 180 projects have been reviewed for development in New Castle County WRPAs with a composite impervious cover of 28% on 12,919 acres (20.2 sq mi) of land. By 2011, 125 sites have been built on 7,007 acres (11.0 sq mi) within WRPAs at a composite impervious cover of 45%. By 2011, 55 projects have been proposed but not yet built within WRPAs (Table 2).

Table 2. Projects within Water Resources Protection Areas in New Castle County since 1990

Application #	Project Name	Built	Area (ac)	% Imperv	Watershed	WRPA	Council District
	Gregg Subdivision	N	3.7	6%	Red Clay Cr.	Cockeysville	
	Walker Property	N	11.7	33%	Mill Cr.	Cockeysville	
80313	Preserve at Robinson Farms	N	183.6	25%	Appoquinimink	Recharge	
71051	Shuman Property	N	27.6	38%	Christina R.	Flood Plain	
	Valero Dredge Storage Area	N			Delaware R.	Recharge	
970800	Aerano Property	N	325.4	0%	C & D Canal	Recharge	6
	Arbeiter Property	N	26.2	0%	Christina R.	Flood Plain	6,11
961016	Armor Property	N	19.5	0%	White Clay Cr.	Flood Plain Erosion Prone	9
	Armstrong Corner	N	20.4	0%	Appoquinimink	Recharge	6
	Bayberry North	N	465.4	2%	C & D Canal East	Recharge	12
	Bayberry South	N	930.8	1%	C & D Canal Appoquinimink	Class A Wellhead,Recharge	12
	Becks Woods	N	1.5	0%	Christina R.	Erosion Prone Slopes	11
	Big Pond Tract	N	62.4	0%	White Clay Cr.	Class A Wellhead,Cockeys	3
	Budget Rooter	N	0.8	0%	Red Lion Cr.	Recharge	6
	Carter Farm	N	417.3	0%	C & D Canal	Class A Wellhead,Recharge	6
991291	Creative Flooring Contractors, Inc.	N	8.1	0%	Smyrna R.	Recharge	12
920263	Cromwell Subdivision	N	539.5	11%	Appoquinimink	Recharge	12
	Elder Village	N	164.6	0%	Christina R.	Recharge Flood Plain	11
961144	Entrepreneurs Park	N	15.4	0%	Army Cr.	Class C Wellhead	12
	Fidler and Biggs Properties	N	251.8	0%	C & D Canal	Recharge	6
970661	Ford Hunt	N	202.6	3%	Appoquinimink Sassafras	Recharge	6
	Glasgow Commons	N	48.9	1%	Christina R.	Class C Wellhead	11
	Hidden Meadows	N	93.0	3%			
20040167	Hyetts Corner, L.L.C.	N	144.5	1%	C & D Canal East	Recharge	12
	Intercollegiate Studies Institute	N	20.6	6%	Red Clay Cr.	Reservoir Watershed	3
	Kindercare Learning Center	N	1.7	0%	Red Clay Cr.	Flood Plain	3

	La Grange	N	246.1	0%	Christina R.	Recharge ,Flood Plain, Erosion	11
	Light House Farm	N	108.2	1%	C & D Canal East	Recharge	12
	Lincoln Center	N	56.0	0%	Christina R. Army Cr.	Class B Wellhead	7
991247	Mealey Funeral Homes	N	12.2	0%	Red Lion Cr.	Recharge	12
981452	Microtel Inn	N	1.4	45%	Army Cr.	Class C Wellhead	12
960789	Mount Pleasant Farm	N	182.5	0%	C & D Canal West	Class A Wellhead,Recharge	6
	Nick & Joan Tsaganos Property	N	9.9	0%	C & D Canal West	Class A Wellhead,Recharge	6
	Nisky Shopping Center	N	15.2	0%	Christina R.	Flood Plain Erosion Prone	11
	Old State Road Hotel	N	3.0	1%	Army Cr.	Class C Wellhead	6
930300	Pencader Corp. Ctr-Lot 30 B & A	N	17.2	1%	Christina R.	Class C Wellhead	11
	Pennfield	N	118.2	1%	C & D Canal East	Class A Wellhead,Recharge	12
	Peoples Park Addition	N	72.3	99%	Red Lion Cr. Dragon Run	Recharge	12
	Precious Memories Daycare	N	1.0	0%	Red Lion Cr.	Recharge	12
	Salem Center	N	4.8	0%	Christina R.	Flood Plain	11
	Sanford School	N	2.1	18%	White Clay Cr.	Erosion Prone Slopes	3
	School Bell Crossing	N	10.7	6%	Army Cr.	Class A Wellhead	6
	Spring Oaks	N	98.2	0%	Appoquinimink	Recharge	6,12
	Steeple Glenn	N	24.9	10%	Christina R. Red Lion Cr.	Recharge	6
	Sunset Meadows II	N	18.6	0%	Dragon Run	Recharge	12
	The Highlands	N	102.1	0%	Bohemia Cr.	Recharge	6
	Traditions at Pike Creek	N	36.8	6%	White Clay Cr.	Cockeysville Drainage	3
	University Garden Associates	N	40.8	0%	Christina R. C & D Canal	Recharge	12
	Village of Scott Run	N	176.7	5%	C & D Canal East	Recharge	12
	W.L. Gore	N	101.8	0%	Christina R.	Class A, Class C Wellhead	11
	White Clay Crossing	N	112.1	5%	White Clay Cr.	Class A, Class C Wellhead	3,9
	Whittington Woods	N	86.8	0%	Christina R.	Flood Plain	7
	Windsor Commons	N	77.1	10%	C & D Canal East	Recharge	12
	Woods at Mansion Farm	N	181.3	0%	Christina R. Dragon Run	Recharge	12
	Zeneca	N	1.2	0%	Delaware R.	Class C Wellhead,Recharge	12
	Advanced Auto Parts	Y	5.40	29%	Christina R.	Class C Wellhead	
	150 Red Mill Road	Y	23.4	0%	White Clay Cr.	Flood Plain	5

	316 South Dupont Hwy.	Y	3.8	50%	Army Cr.	Class C Wellhead	6
	633 Yorklyn Road	Y	2.0	16%	White Clay Cr.	Class A Wellhead,Cockeys	3
970799	Academy Hill, Phase V	Y	245.3	2%	Christina R.	Flood Plain Erosion Prone	5
	Across the Tracks	Y	1.1	51%	Brandywine Cr.	Class A Wellhead	3
990740	Adare Village	Y	10.0	45%	White Clay Cr.	Cockeysville Drainage	3
	Adriatic Assoc. Ltd.	Y	2.5	89%	Christina R.	Class C Wellhead	11
	Airport Industrial Park Parcel "X"	Y	7.9	44%	Army Cr.	Class C Wellhead	12
940317	Appoquin Farms II	Y	173.8	31%	Appoquinimink	Class A Wellhead	12
981738	Artesian Water Hamburg Rd. Site	Y	1.4	64%	Army Cr. Red Lion Cr.	Class A, Class C Wellhead,Recharge	12
970845	Augustine Creek, Phase 2	Y	166.1	16%	C & D Canal East	Recharge	12
	Back Creek C. C. Golf Course	Y	239.2	6%	C & D Canal	Recharge	6
	Back Creek Phase II	Y	346.2	8%	C & D Canal	Recharge	6
950866	Barrington	Y	88.6	20%	Christina R. Perch Creek	Class B Wellhead	6,11
	Bayview Crossing	Y	10.0	34%	C & D Canal East	Class A Wellhead,Recharge	12
20000373	Bayview Manor II	Y	93.9	18%	Army Cr.	Class C Wellhead	12
950949	Bear Library	Y	3.3	68%	Christina R.	Class B Wellhead,Recharge	7
	Beaver Brook Apartments	Y	27.5	53%	Army Cr.	Class C Wellhead	12
	Blue Diamond Recreation Park	Y	85.5	17%	Army Cr. Red Lion Cr.	Class A, Class C Wellhead,Recharge	12
970816	Blue Hen Industrial Park	Y	3.1	77%	Christina R.	Class C Wellhead	11
	Boyds Corner Middle School	Y	2.2	18%	C & D Canal East	Class A Wellhead,Recharge	12
	Boyds Corner Shops	Y	64.8	24%	C & D Canal Appoquinimink	Class A Wellhead,Recharge	12
950454	Brandywine Woods	Y	23.0	51%	Army Cr.	Class B Wellhead	6
	Breidabilik	Y	113.2	10%	Red Clay Cr.	Reservoir Watershed	3
950739	Brennan Estates	Y	1.5	20%	Dragon Run	Recharge	12
	Brookhill Dr.	Y	12.2	2%	Christina R.	Class A, Class C Wellhead,	11
960492	Brown Farm Major Subdivision Plan	Y	1.5	15%	C & D Canal West	Recharge	6
980279	Café Napoli	Y	0.6	59%	Christina R.	Class B Wellhead,Recharge	6
200010711	Calvarese Farms	Y	112.2	7%	Christina R.	Recharge ,Flood Plain	7
930545	Carman Ford	Y	11.0	78%	Army Cr.	Class C Wellhead	7
940546	Castle Hills Elem School	Y	14.5	32%	Delaware R.	Class A and Class C Wellhead	7
20050178	Center for the Creative Arts	Y	5.3	16%	Red Clay Cr.	Class A Wellhead,Cockeys	3

970168	Centerville School	Y	73.2	7%	Brandywine Cr. Red Clay Cr.	Class A Wellhead,	3
970662	Centerville Reserve	Y	10.7	25%	Brandywine Cr.	Class A Wellhead	3
970832	Chaddwyck	Y	147.1	13%	Army Cr.	Class C Wellhead	6,12
	Chancellor Property	Y	8.0	20%	C & D Canal	Recharge	12
930141	Chelsea	Y	48.5	31%	Army Cr. Red Lion Cr.	Class A, Class B Wellhead,Recharge	6,12
	Chestnut Hill Plaza	Y	15.4	93%	Christina R.	Class C Wellhead	11
990529	Chinese American Community Center	Y	6.6	24%	White Clay Cr.	Cockeysville Drainage	3
	Coastal Mart	Y	1.2	51%	Red Lion Cr. Dragon Run	Recharge	6
	Country House Estates	Y	17.2	5%	Brandywine Cr. Red Clay Cr.	Reservoir Watershed	3
	Delaware Land Co.	Y	0.2	24%	Perch Cr.	Class B Wellhead	6
20000046	Dental Office Site - Lancaster Pike	Y	3.3	7%	White Clay Cr.	Cockeysville Formation	3
990229	Dimaio Subdivision	Y	1.9	43%	White Clay Cr.	Cockeysville Drainage	3
960971	Dragon Run	Y	92.6	21%	Dragon Run	Recharge	12
970831	Dupont-Stine Haskell Research	Y	264.2	32%	Christina R.	Recharge Flood Plain	5
	Eastern Marine	Y	1.5	99%	Christina R.	Class A, Class C Wellhead,Recharge	5
930075	Eden Square	Y	35.8	63%	Christina R. Army Cr.	Class A, Class B Wellhead,Recharge	6
910014	Frenchtown Woods	Y	151.3	31%	Christina,R. Perch Cr.	Class A, Class B Wellhead	6,11
	Fuji Film	Y	23.8	39%	Delaware R.	Class A, Class C Wellhead,Recharge	12
	Giacchino Dodge	Y	5.1	59%	Army Cr.	Class C Wellhead	12
971021	Glendale Plaza	Y	2.7	53%	Christina R.	Class B Wellhead,Recharge	6
	Glendale West	Y	0.5	99%	Christina R.	Class B Wellhead,Recharge	6
	Governor's Field Property	Y	15.3	20%	Christina R.	Class B Wellhead,Recharge	7
	Governor's Square	Y	48.7	76%	Christina R.	Class B Wellhead,Recharge	6,7
	Governors Square II	Y	2.8	55%	Christina R.	Class B Wellhead,Recharge	7
	Grantham Lane	Y	30.9	12%	Army Cr.	Class C Wellhead	12
970788	Hills of Hockessin	Y	18.8	20%	White Clay Cr.	Cockeysville Drainage	3
	Hilltop Restaurant	Y	3.0	99%	Army Cr.	Class C Wellhead	12
20021039	Hockessin Animal Hospital	Y	1.4	30%	White Clay Cr.	Class A Wellhead, Cockeysville	3
20050690	Hockessin Baptist Church Expansion	Y	5.7	28%	White Clay Cr.	Cockeysville Drainage	3
951114	Hockessin Chase	Y	92.9	28%	White Clay Cr.	Cockeysville Drainage,	3
	Hockessin Crossing	Y	2.4	77%	White Clay Cr.	Cockeysville Formation	3
	Hockessin Fire Company	Y	3.9	59%	White Clay Cr.	Cockeysville Formation	3

981844	Hockessin Park	Y	19.3	35%	White Clay Cr.	Cockeysville Formation	3
	Hockessin Public Library	Y	23.3	16%	White Clay Cr.	Class A Wellhead Cockeysville	3
	Hockessin United Methodist Church	Y	5.8	50%	White Clay Cr.	Cockeysville Formation	3
	Hubers Crossing	Y	17.1	10%	C & D Canal	Class A Wellhead,Recharge	12
20090126	Hubers Crossing	Y	8.5	2%	C & D Canal	Recharge	12
990301	JB Toman, LLC	Y	0.8	53%	Army Cr.	Class A, Class C Wellhead	7
950393	Josef A. Burger	Y	122.9	2%	Appoquinimink Sassafras R.	Recharge	6
	Kensington	Y	38.7	37%	Christina R. Army Cr.	Class A, Class B Wellhead,Recharge	6
	Lantana Square	Y	44.0	56%	White Clay Cr.	Cockeysville Formation	3
20000824	Limestone Veterinary Clinic	Y	3.2	23%	White Clay Cr.	Cockeysville Drainage	3
990100	Little Falls Village	Y	23.6	46%	Red Clay Cr.	Erosion Prone Slopes	9
880430	Llangollen Green	Y	107.8	28%	Army Cr.	Class C Wellhead	12
	Lonestar	Y	2.3	74%	Army Cr.	Recharge	7
950443	Longmeadow Subdivision	Y	147.2	37%	Appoquinimink	Class A Wellhead Recharge	6,12
	May B. Leasure School	Y	14.0	42%	Christina,R. Red Lion Cr.	Recharge	6
	McGrellis	Y	0.2	31%	White Clay Cr.	Cockeysville Formation	3
	Mews at Hockessin	Y	11.4	42%	White Clay Cr.	Cockeysville Drainage	3
920680	Middle Run Crossing	Y	23.3	0%	White Clay Cr.	Cockeysville Drainage	3
	Midvale	Y	0.8	54%	Army Creek	Class A Wellhead Class C Wellhead	7
	Money's Truck Stop, Inc.	Y	9.7	53%	Bohemia Cr.	Class A Wellhead Recharge	6
	Motiva Demin. Water	Y	51.0	40%	Red Lion Cr.	Recharge	12
990381	New Castle Airport Redevelopment	Y	1158.4	62%	Christina R. Delaware	Class A Wellhead Recharge	12,7
	Newark Christian Child Care	Y	2.0	16%	Christina R. C & D Canal	Recharge	12
20010193	North Star Chase	Y	41.8	23%	White Clay Cr.	Cockeysville Formation	3
	Offices of Mendanhall	Y	2.2	42%	White Clay Cr.	Cockeysville Drainage	3
990068	Okolona	Y	118.2	1%	Appoquinimink	Class A Wellhead Recharge	12
19981799	Parkway Gravel	Y	4.0	40%	Army Cr.	Class A Wellhead Class C Wellhead	7
	Premcor Refining Group	Y	394.3	80%	Red Lion Cr. Dragon Run	Recharge	12
20020859	Red Lion Mini Storage	Y	16.3	22%	Red Lion Cr.	Recharge	12
20071245	Rockwood Apartments	Y	60.8	38%	Christina R. Red Lion	Recharge	6

	Roseville Park	Y	56.2	33%	White Clay Cr.	Flood Plain	5,9
950452	Rutledge	Y	20.7	44%	Red Lion Cr.	Recharge	12
970623	Saienni	Y	12.6	56%	Christina R.	Class B Wellhead Recharge	7
	Smyrna Church of Christ	Y	6.8	39%	Smyrna R.	Class A Wellhead Recharge	6
2000-0132	Southern District Elementary School	Y	163.0	18%	Dragon Run C & D Canal	Recharge	12
	Southgate Industrial Park	Y	5.2	81%	Christina R.	Recharge	7
20000613	St. Margaret's of Scotland	Y	84.1	18%	Christina R. Perch Cr.	Class B Wellhead	6
940131	Stone Mill	Y	31.8	47%	Christina R.	Recharge	7
	Summit Crossing - Phase 2	Y	10.8	41%	C & D Canal	Class A Wellhead Recharge	12
	Sunrise of Hockessin	Y	20.2	11%	White Clay Cr.	Cockeysville Drainage	3
950020	Teekatt	Y	2.6	55%	White Clay Cr.	Cockeysville Drainage	3
	Hockessin Hindu Temple	Y	4.5	24%	White Clay Cr.	Cockeysville Formation	3
	Independence School	Y	71.7	18%	White Clay Cr.	Cockeysville Formation	3
	Tri-Supply Equip.	Y	4.0	82%	Army Cr.	Class C Wellhead	6
981842	Uniqema Office Building	Y	152.5	40%	Delaware R.	Class A, Class C Wellhead, Recharge	12
940104	Valley Pointe	Y	8.8	34%	White Clay Cr.	Cockeysville Formation	3
	Vic Mead Hunt Club	Y	16.7	2%	Red Clay Cr.	Erosion Prone Slopes	3
20010637	Village of Jester Crossing	Y	12.2	42%	Dragon Run	Recharge	6,12
	Village of Llangollen	Y	218.6	30%	Army Cr.	Class A, Class C Wellhead	12
	W.W. Grainger	Y	2.4	51%	Army Cr.	Class C Wellhead	12
	Washington Hts.	Y	87.3	17%	Red Clay Cr. White Clay Cr.	Flood Plain	1
	Waterford II	Y	158.7	0%	Christina R. Red Lion Cr.	Flood Plain	6
	WAWA	Y	7.5	13%	Red Lion Cr.	Class A, Class C Wellhead, Recharge	12
950901	WAWA Hockessin	Y	1.6	72%	White Clay Cr.	Cockeysville Formation	3
990347	WAWA Newark	Y	2.6	35%	Christina R.	Class C Wellhead	5
	Westgate Corporate Center	Y	235.2	1%	White Clay Cr., Christina R.	Recharge	1
930735	Wilmington College	Y	16.0	59%	Christina R. Delaware R.	Recharge	7
	WSFS Limestone Road	Y	3.4	9%	White Clay Cr.	Cockeysville Drainage	3
990564	WSFS Stone Mill	Y	0.9	90%	White Clay Cr.	Cockeysville Formation	3
	Wynthorpe	Y	76.8	32%	Army Cr.	Class A Wellhead Class C Wellhead	12

Water Management Agreements

- Since 2000, 22 Water Management Agreements for construction of recharge facilities and monitoring wells have been signed between New Castle County and site developers.
- New development covered by WMA parcels exceeds 190 acres, with each site averaging 12 acres.
- The mean impervious surface cover of parcels with WMAs is 47%.
- In recharge WRPA north of the C&D canal, 5 WMAs have been signed for development of Glendale Plaza, Glendale West, Governor's Square Shopping Center II, Newark Christian Childcare, and Steeple Glenn Subdivision.
- WMAs in the Army Creek Class C Wellhead WRPA include 153 S. Dupont Highway, Beaver Brook Apts., Entrepreneurs Park, Giacchino Dodge, and Wynthorpe subdivision.
- Three WMAs issued for the Glendale Class B wellhead WRPA include Glendale Plaza, Glendale West, and Governor's Square Shopping Center II.

Groundwater Monitoring

Groundwater monitoring wells are installed to assess the performance of recharge facilities in protecting the quality and quantity of ground and surface water. The following parameters are analyzed: SC = Specific conductivity ($\mu\text{mhos/cm}$), TDS = Total dissolved solids (mg/l), TOC = Total organic carbon (mg/l), and DGW = Depth to groundwater level (ft). Table 3 summarize groundwater monitoring trends as improving water quality or groundwater level (green), unchanged water quality or groundwater level (blue), and declining water quality or groundwater level (orange). Improving or declining trends are defined where change from initial to final measurement exceeds 10% (Figure 3).

Specific conductivity - SC measures the concentration of total dissolved solids (TDS) and salinity. Ions measured by SC include calcium (Ca^{2+}), magnesium (Mg^{2+}), sodium (Na^{+}), potassium (K^{+}), bicarbonate (HCO_3^{-}), sulfate (SO_4^{2-}), and chloride (Cl^{-}). Sources include road salt, non-point source pollution (i.e. agricultural run-off) and industrial inputs. Of 27 monitoring wells with SC monitoring, 14 recorded improving, 3 recorded unchanged, and 10 recorded declining groundwater quality.

Total Dissolved Solids – TDS are inorganic and organic substances in water small enough to survive filtration through a sieve size of 2 micrometers. Primary TDS sources include agricultural runoff, leaching of soils, and industrial or sewage treatment plants. Chemical constituents are calcium, phosphates, nitrates, sodium, potassium and chloride in nutrients, stormwater runoff, and road de-icing salts. TDS also form from weathering and dissolution of rocks and soils. The USEPA set a secondary drinking water quality standard of 500 mg/l for drinking water palatability. Of 36 monitoring wells for TDS, 17 recorded improving, 12 recorded unchanged, and 7 recorded declining groundwater quality.

Total organic carbon - TOC is bound in organic compounds and is an indicator of water quality during the drinking water purification process. TOC is from decaying natural organic matter and synthetic sources such as detergents, pesticides, fertilizers, herbicides, industrial chemicals, and chlorinated organics. High levels of natural organic matter in source water can combine with chlorine during the disinfection process to increase carcinogens in processed drinking water. Of 30 TOC monitoring wells, 5 had improving, 20 had unchanged, and 5 had declining groundwater quality.

Depth to Groundwater – DGW levels may fluctuate with changing precipitation, adjacent groundwater withdrawals from wells, and/or reduced recharge from development. Of 22 monitoring wells, 5 recorded improving, 17 recorded unchanged, and none recorded declining groundwater levels.

Table 3. Groundwater quality and water level trends at recharge facilities in New Castle County, Del.

Application	Mon. Well	Date Initial	Date Final	SC Initial (μ mhos/cm)	SC Final (μ mhos/cm)	TDS Initial (mg/l)	TDS Final (mg/l)	TOC Initial (mg/l)	TOC Final (mg/l)	DGW Initial (ft)	DGW Final (ft)
Advanced Auto Parts	MW1	8/09	2/11	300	178	400	112	6	2	20.3	18.8
Back Creek	MW1	12/90	3/94			210	200				
	MW2	12/93	3/94			230	220				
	MW3	12/93	3/94			140	140				
	MW4	12/93	3/94			180	180				
	MW5	12/93	3/94			180	160				
Brandywine Woods		9/99	12/00	151	213	80	78	4	4	43.6	27.9
Carmen Ford	MW1	8/92	8/94	230	200			7	14		
	MW4	8/92	9/94	250	350			7	4		
Bear Crossing	MW1	4/96	8/98	119	-	44	31	4	3	51.8	51.4
	MW2	4/96	8/98	184	-	95	140	1	4	46.3	47.8
Eden Square	MW1	2/95	4/06	300	319	190	174	4	2	47.7	46.1
	MW2	2/96	8/06	514	178	400	89	7	2	47.6	44.7
Fuji Film	MW2	1/01	6/09	117	102	86	63	1	1	34.0	32.2
Avecia	MW1	8/93	8/00	219	105	150	60	1	1		
	MW2	11/00	12/01	126	62	75	75	1	2	33.7	30.0
Zeneca		8/93	2/97	219	92	150	46	1	1		
Glendale West		7/03	11/04	339	77	193	51	2	2	45.9	39.1
Governors Square	MW1	4/91	4/03	103	179	70	83	1	2		
	MW2	4/91	4/03	153	336	100	188	1	2		
Governors Square II		10/04	11/06	178	165	101	96	2	4	31.9	32.8
Hockessin Crossing	MW1	3/09	12/09	2,380	1,193	1,300	614	6	7		
Lantana Square	MW1	5/99	6/09	83	58	60	38	1	1	38.0	35.1
May Leasure School		12/97	11/03	267	45	151	35	1	2	10.8	6.4
Middle Run Crossing	MW1	3/95	9/95			138	110				
	MW2	3/95	9/95			141	130				
	MW3	3/95	9/95			119	97				
Pencader Corp. Center		8/00	2/04	138	159	90	81	1	2	26.8	23.1
Rockwood Apts.		7/04	3/05	70	55	55	26	2	1		
Rutledge	MW2	11/94	3/96			48	70	1	1	9.5	9.7
	MW3	11/94	3/96	164	226	139	150	1	1	20.3	20.9
	MW4	11/94	3/96	162	196	108	100	1	1	11.5	10.7
	MW5	11/94	3/96	499	455	272	280	1	1	10.4	10.2
Uniqema	MW1	8/00	5/02	425	314	243	182	1	2	34.3	36.0
	MW2	8/00	5/02	426	515	250	277	2	4	15.5	16.9
Wilmington College	MW1	7/95	12/10	473	1130	260	572	3	1	46.0	44.1
	MW2	8/00	11/05	254	271	158	128	1	1	41.0	41.2
Wynthorpe		10/03	11/07	133	167	91	106	2	2	24.9	26.3
Improving				14		17		5		5	
Unchanged				3		12		20		17	
Declining				10		7		5		0	
Total				27		36		30		22	

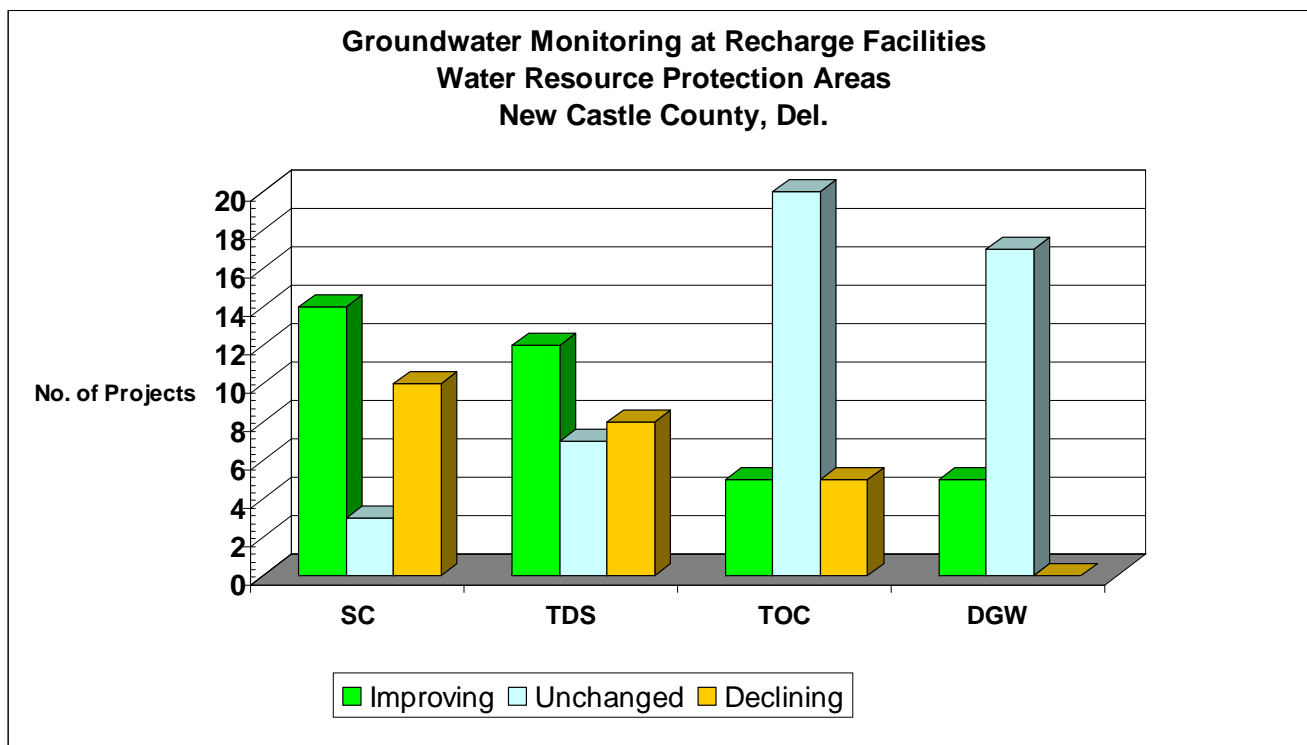


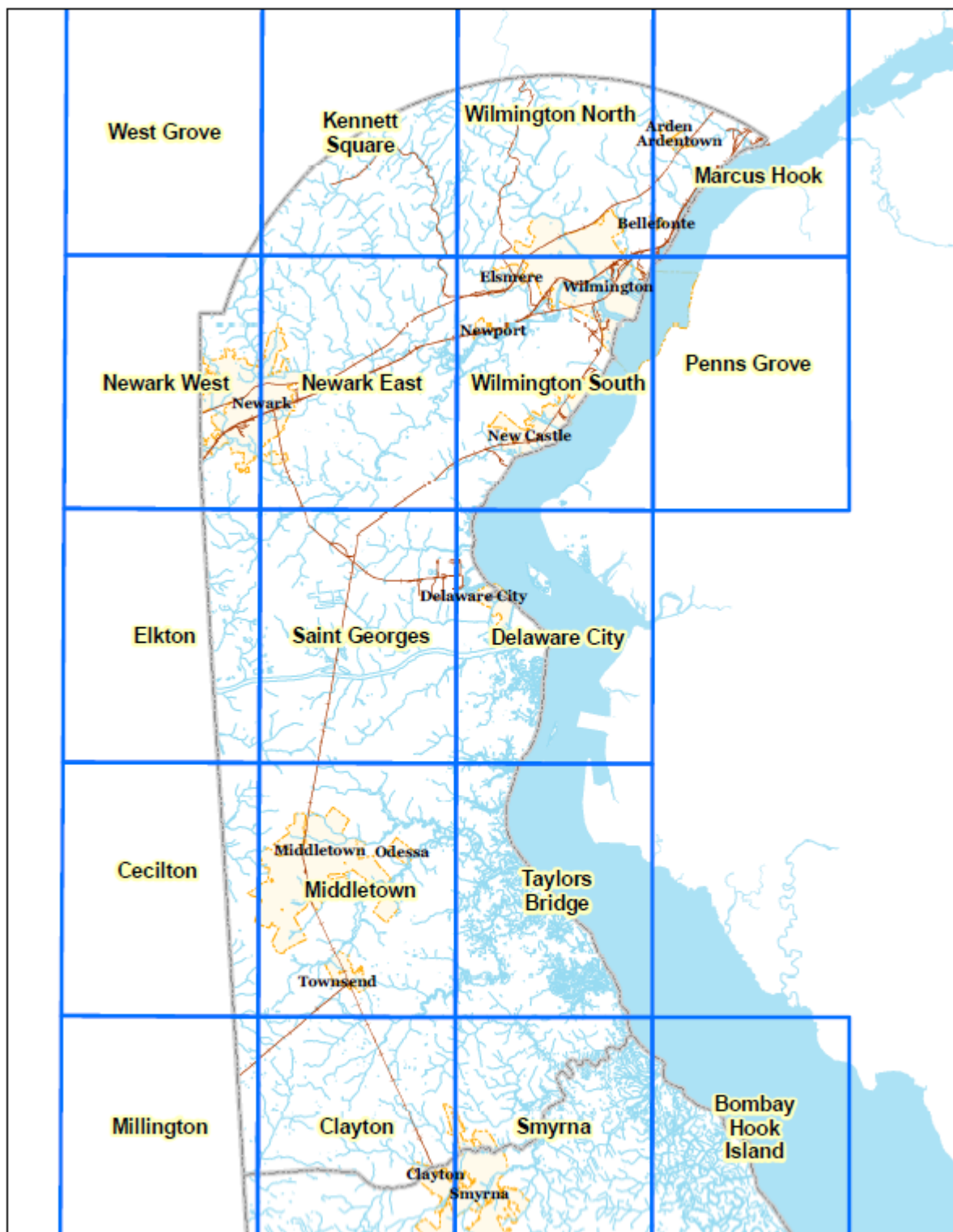
Figure 3. Groundwater monitoring trends at recharge facilities in New Castle County, Delaware.

Appendix 1. Maps delineating projects in Water Resource Protection Areas in New Castle County

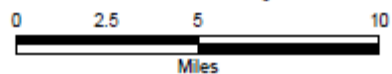


**New Castle County
Delaware**

**Water Resource Protection Area Projects
Site Maps**




USGS Topographic Quadrangle Map Index **New Castle County, Delaware**



Map Legend

Source Watersheds

 Watersheds Upstream from
Public Surface Water Intakes

Water Resource Protection Areas (WRPAs)

Cockeysville Formation WRPA



Outerop



Wissahickon



Drainage Area

Wellhead WRPA

Class A wells, 300' radius (with DNREC ID).
Black dot indicates 150' radius



Public Community Wells



Transient, Non-Community Wells



Non-Transient, Non-Community Wells



Class B Wellhead



Class C Wellhead

Surface Water WRPA



Reservoir Watershed



WRPA Flood Plains

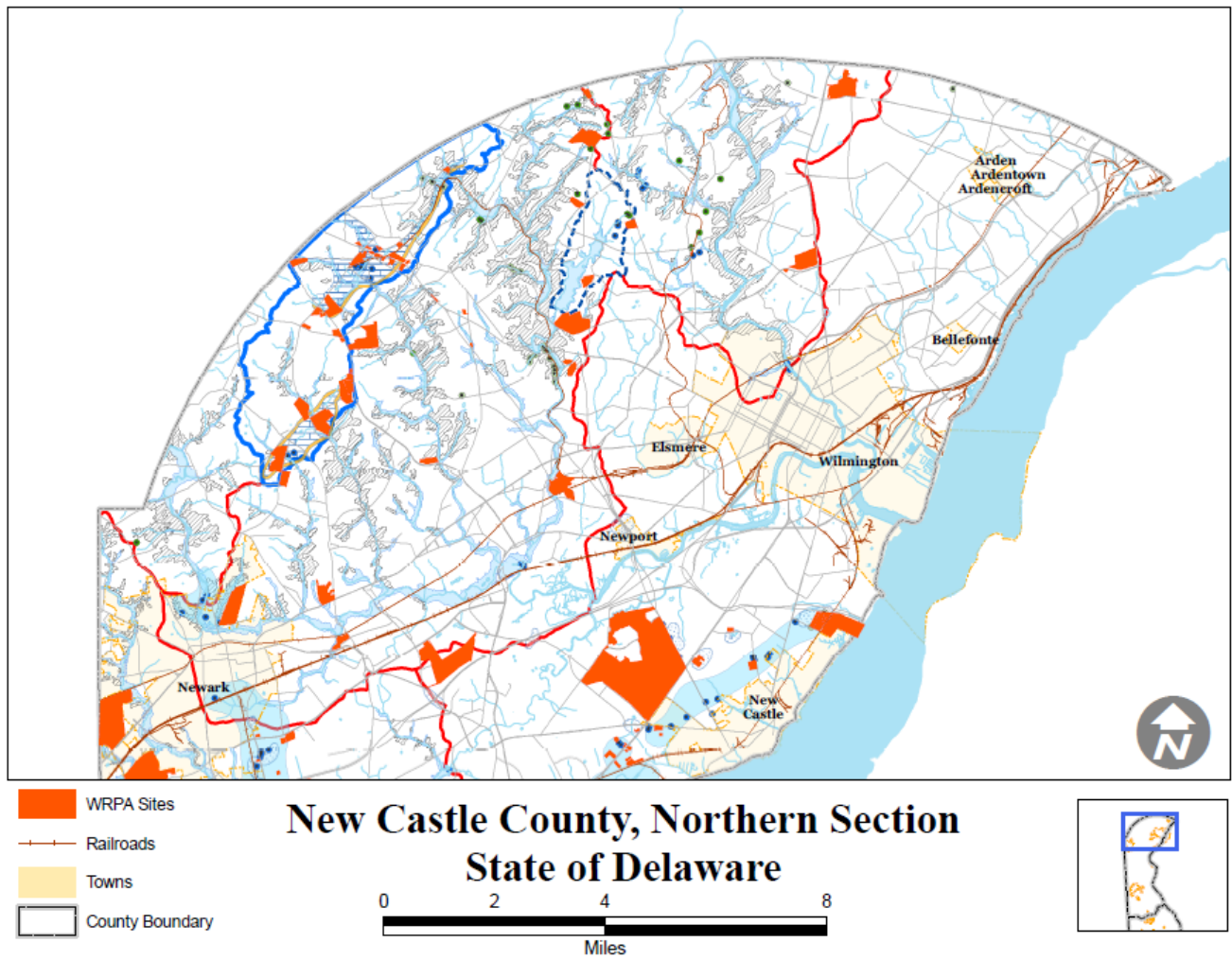


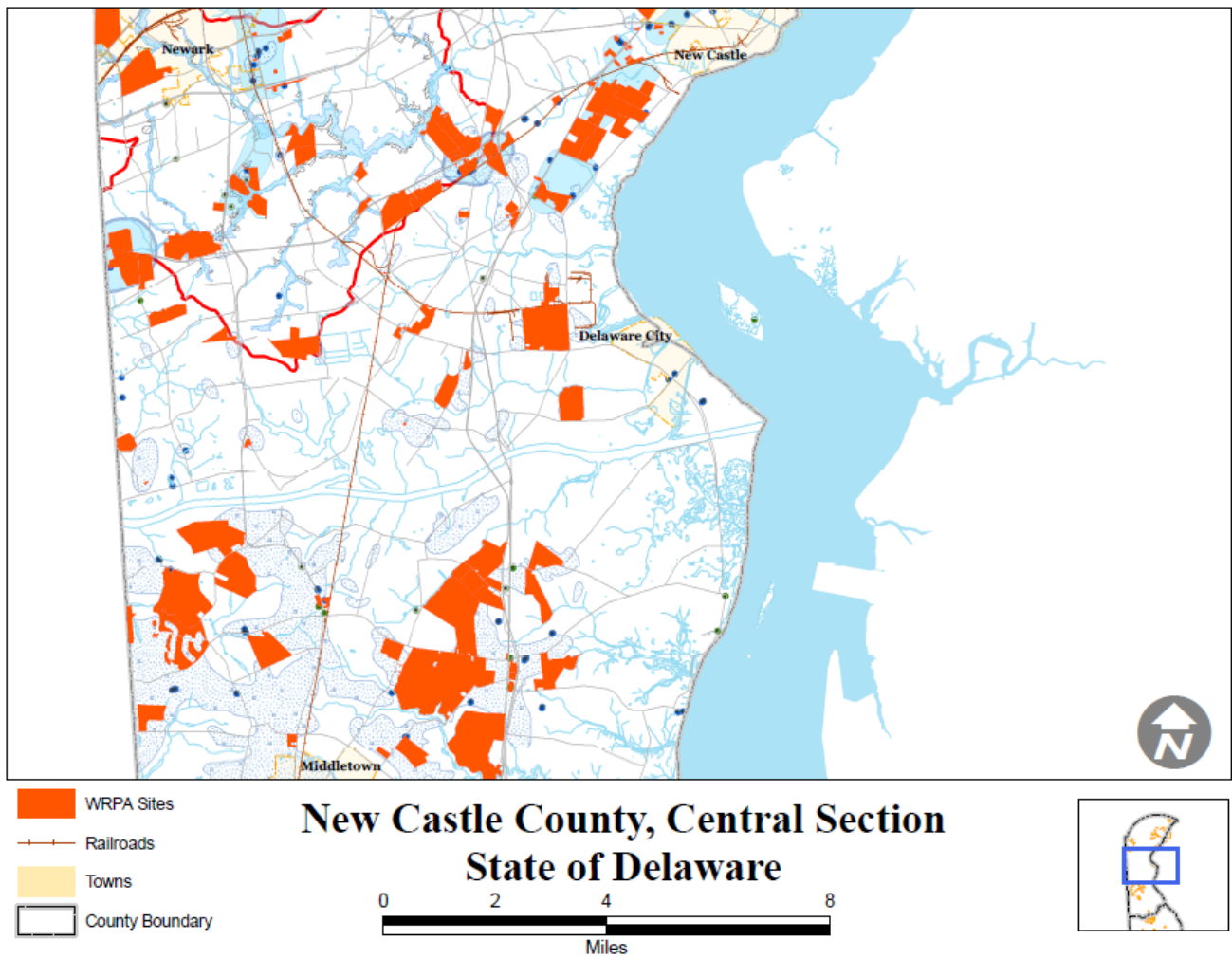
Erosion Prone Slopes

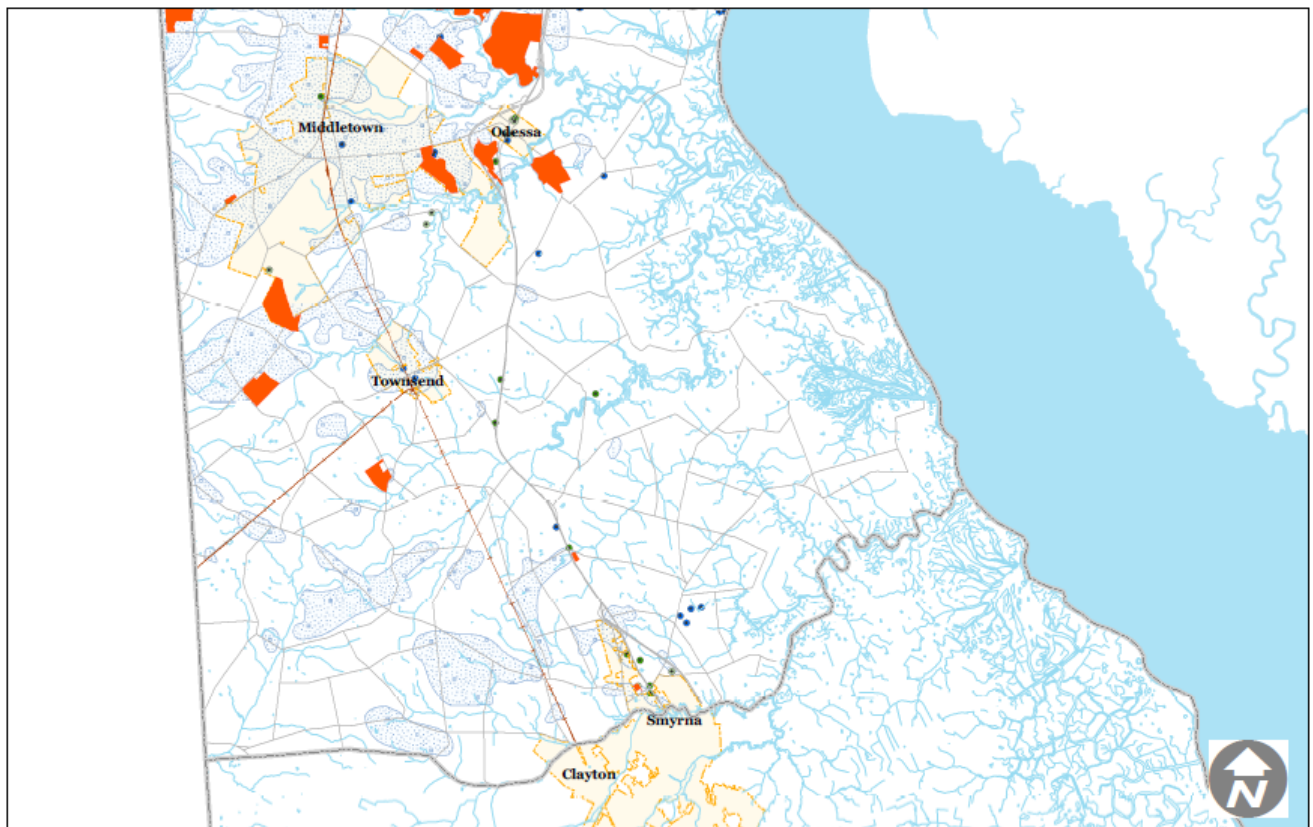
Recharge WRPA



Recharge Areas

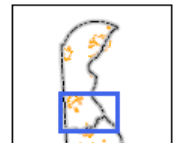
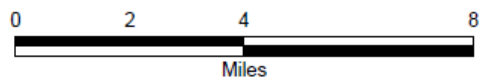


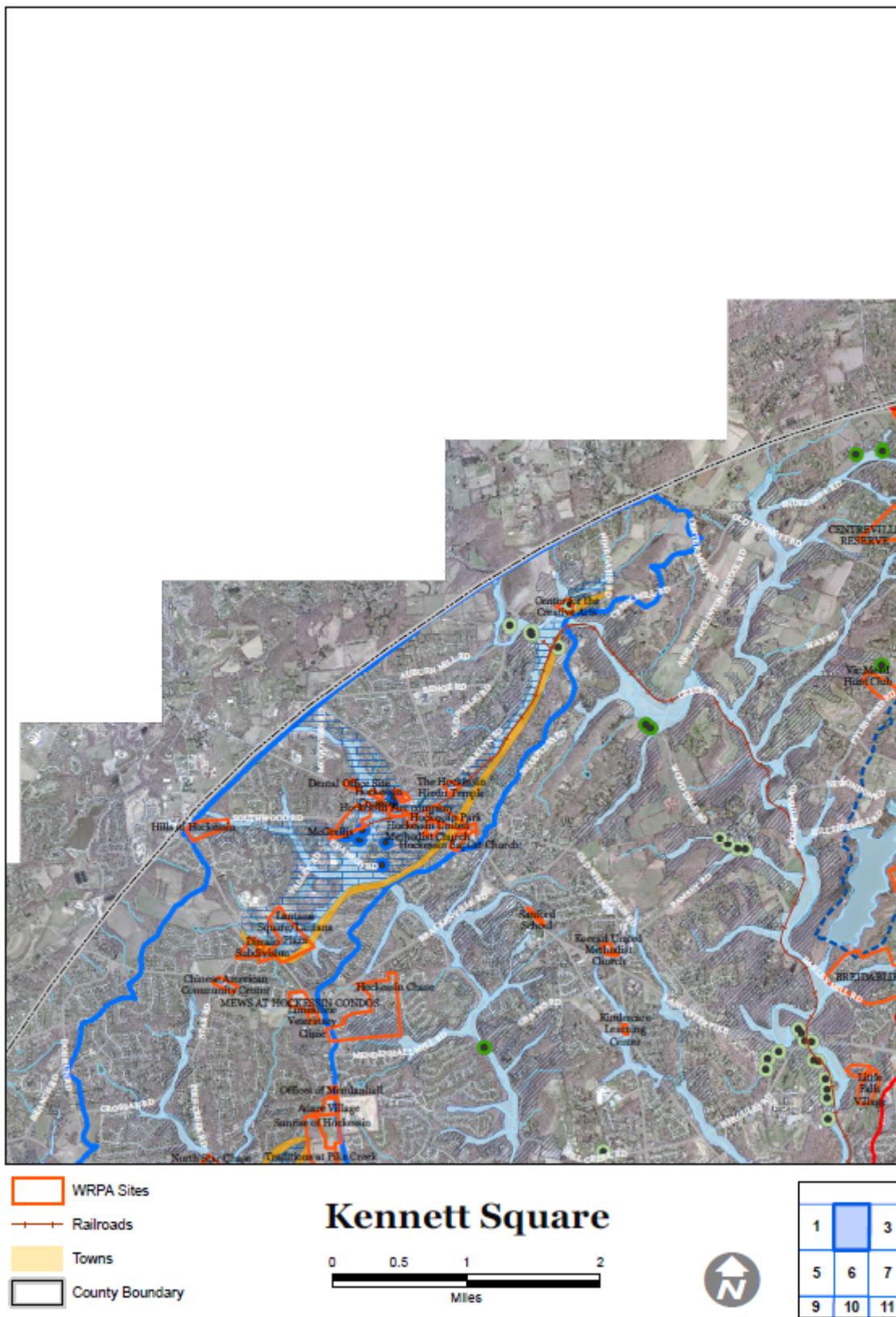




- WRPA Sites
- Railroads
- Towns
- County Boundary

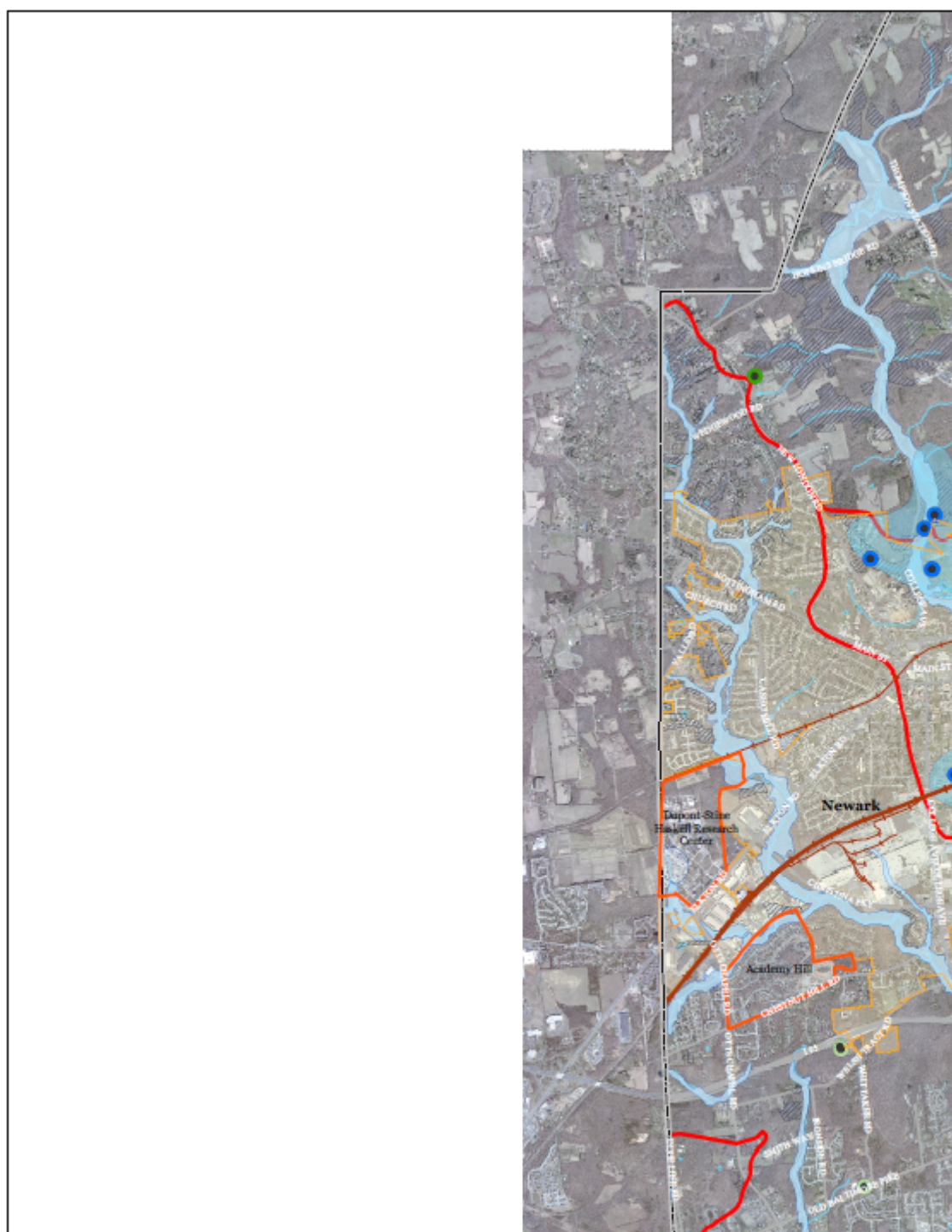
New Castle County, Southern Section State of Delaware





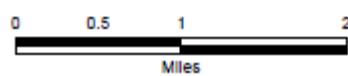






- WRPA Sites
- Railroads
- Towns
- County Boundary

Newark West

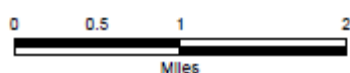


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4	5	6
7	8	9
10	11	12



- WRPA Sites
- Railroads
- Towns
- County Boundary

Newark East



1	2	3
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9	10	11

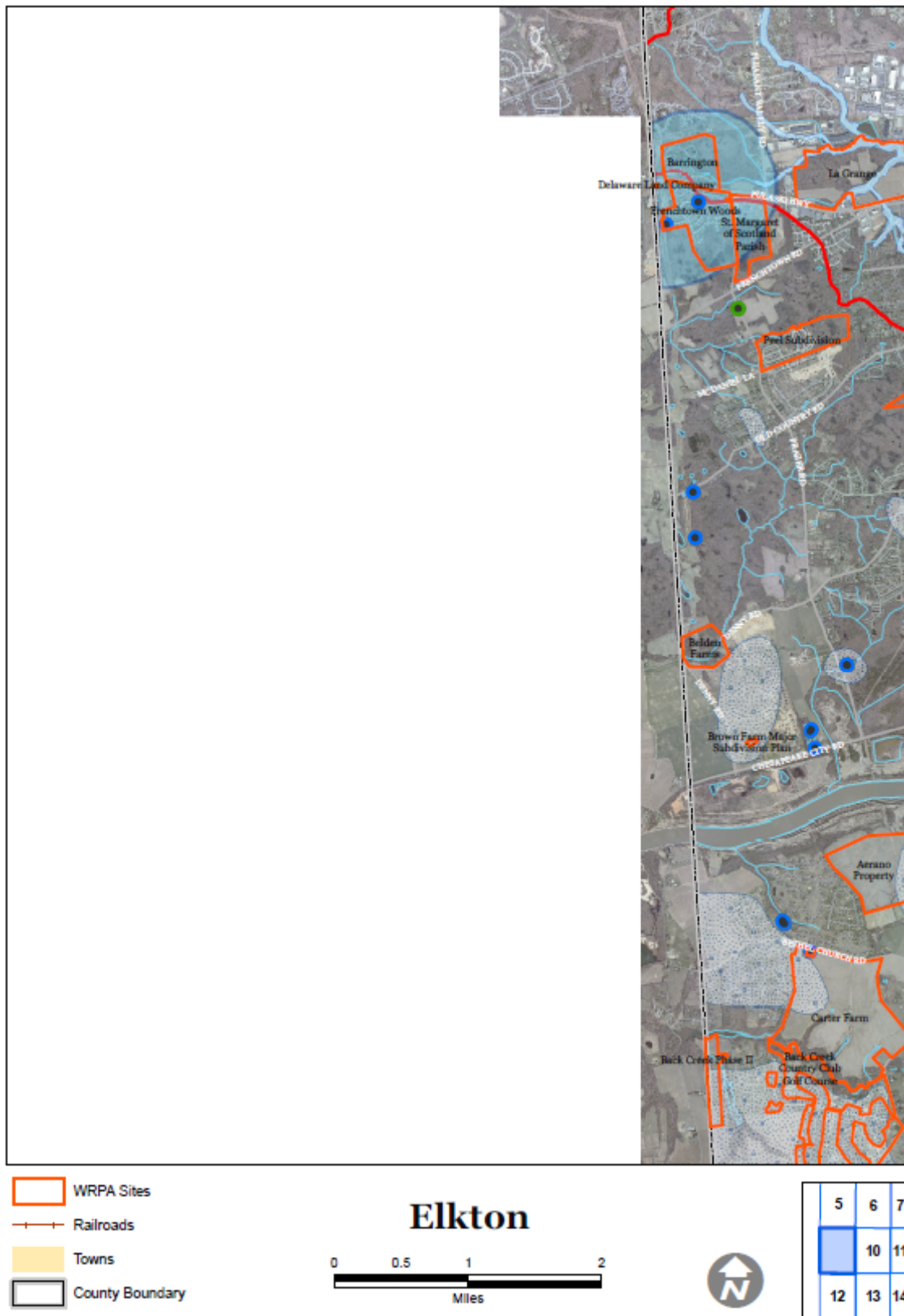


- WRPA Sites
- +— Railroads
- Towns
- County Boundary

Wilmington South



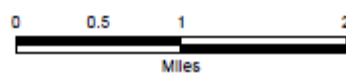
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10	11	





- WRPA Sites
- Railroads
- Towns
- County Boundary





Saint Georges



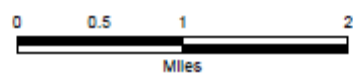
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-  WRPA Sites
-  Railroads
-  Towns
-  County Boundary

Cecilton



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12	13	14
15	16	17





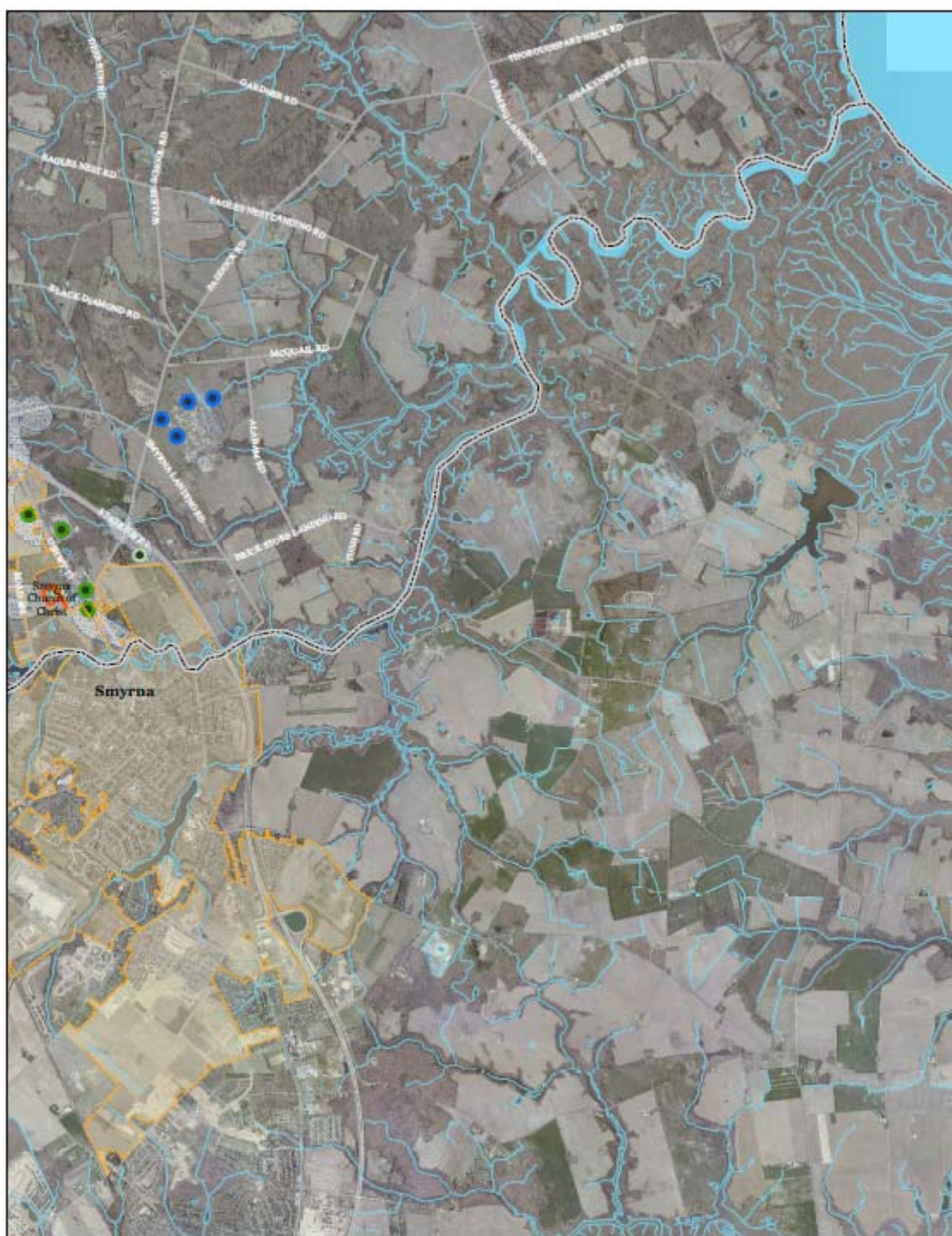


- WRPA Sites
- ++ Railroads
- Towns
- County Boundary

Clayton

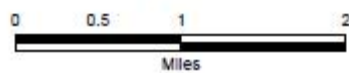


12	13	14
15	16	17
18	19	20



- WRPA Sites
- Railroads
- Towns
- County Boundary

Smyrna



13	14	
16	17	18
20	21	22

Appendix 2. Groundwater monitoring results at recharge facilities in New Castle County

Mr. Robert Slattery
2nd Round Quarterly Sampling Results
Advanced Auto Parts Site
Newark, Delaware
August 14, 2009
Page 2

Test results are summarized below in Table I.

Table I - Laboratory Test Results

Test Parameter	MW-1	SB-1
Total Carbon	41 mg/L	13 mg/L
Chemical Oxygen Demand	ND	ND
Specific Conductance	0.30 mS/cm	46.6 mS/cm
pH	6.35 S.U.	7.05 S.U.
Total Dissolved Solids	400 mg/L	120mg/L
Total Organic Carbon	6.50 mg/L	10 mg/L
Petroleum Hydrocarbons - DRO	Non-Detected	Non-Detected

mg/L - milligram/Liter (parts per million)
S.U. - Standard Unit

mL - milliliter mS/cm - millisiemen/centimeter
NTU - Nephelometric Turbidity Units

Comparison of the 2nd round test results with the 1st round results and background sampling showed an increase in Total Carbon and Total Organic Carbon in the groundwater. The concentrations of the remaining parameters were generally similar to the previous results. Test results are attached for reference.

Based on the results of the 2nd round of analysis, there are no indications that stormwater entering the basin contains adverse contaminants or is adversely impacting the underlying groundwater.

During the sampling event, the stormwater recharge system was also evaluated and found to be operating properly with no structural repairs required. A summary letter of this review was prepared by Mr. Thomas Louis and is attached for reference.

Test results are summarized below in Table I.

Table I - Laboratory Test Results

Test Parameter	MW-1	SB-1
Total Carbon	41 5.4 mg/L	13 Non-Detected
Chemical Oxygen Demand	ND Non-Detected	ND Non-Detected
Specific Conductance	8.3 0.178 mS/cm	46.6 11.3 mS/cm
pH	6.56 S.U.	5.39 S.U.
Total Dissolved Solids	400 112 mg/L	120 8.0 mg/L
Total Organic Carbon	6.5 1.50 mg/L	16 Non-Detected
Petroleum Hydrocarbons - DRO	ND Non-Detected	ND Non-Detected
Inorganic Chemicals - Arsenic	Non-Detected	Non-Detected
Pesticides and Herbicides	Non-Detected	Non-Detected
Turbidity	491 NTU	5.41 NTU
Total Coliform	Present	Non-Detected
Volatile Organic Contaminants	Non-Detected	Non-Detected
Polynuclear Aromatic Hydrocarbons	Non-Detected	Non-Detected

mg/L - milligram/Liter (parts per million)
 S.U. - Standard Unit

mL - milliliter mS/cm - millisiemen/centimeter
 NTU - Nephelometric Turbidity Units

Comparison of the 8th round test results with previous sampling results and background sampling showed no significant changes in the concentrations of tested parameters. Test results are attached for reference.

Based on the results of the 8th round of analysis, there are no indications that stormwater entering the basin contains adverse contaminants or is adversely impacting the underlying groundwater.

During the sampling event, the stormwater recharge system was reviewed and found to be operating properly with no structural repairs required. Our stormwater recharge system review letter is attached.

**BACK CREEK
WATER RESOURCE MANAGEMENT
SUMMARY OF QUARTERLY GROUNDWATER ANALYSIS**

**MONITORING WELL #1
Table 1**

Sample Date	pH	Alkalinity (mg/l)		Total Dissolved Solids (mg/l)	Nitrogen		Biochemical Oxygen Demand (mg/l)	Chemical Oxygen Demand (mg/l)	Chlorine Residual	Fecal Coliform (/100 ml)
		to pH 4.5	to pH 8.3		Nitrite Nitrogen (mg/l)	Nitrate Nitrogen (mg/l)				
Dec 1993	6.87	57.	<1.	210.	<0.02	13.	<2.	<50.	Negative	<10.
Mar 1994	6.90	47.	<1.	200.	<0.02	15.	<4.	<50.	Negative	<10.
Average (Mean)	6.89	57.	<1.	206.	<0.02	14.	<3.	<50.	-	<10.
Minimum	6.87	47.	<1.	200.	<0.02	13.	<2.	<50.	-	<10.
Maximum	6.90	57.	<1.	210.	<0.02	15.	<4.	<50.	-	<10.

NOTES: 1. mg/l = milligrams per liter
2. /100 ml = per 100 milliliters
3. This table is part of a report entitled "Water Resource Management Plan, Quarterly Groundwater Monitoring, April 1994 Reporting Period, Report No. 1," for Back Creek, Middletown, Delaware, and should be viewed only in the context of that report.

W. O. 2480 CC
Duffield Associates, Inc.
April 1994

**BACK CREEK
WATER RESOURCE MANAGEMENT
SUMMARY OF QUARTERLY GROUNDWATER ANALYSIS**

**MONITORING WELL #2
Table 2**

Sample Date	pH	Alkalinity (mg/l)		Total Dissolved Solids (mg/l)	Nitrogen		Biochemical Oxygen Demand (mg/l)	Chemical Oxygen Demand (mg/l)	Chlorine Residual	Fecal Coliform (/100 ml)
		to pH 4.5	to pH 6.9		Nitrite Nitrogen (mg/l)	Nitrate Nitrogen (mg/l)				
Dec 1993	7.67	100.	<1.	230.	<0.02	10.	<2.	<50.	Negative	<10.
Mar 1994	6.80	58.	<1.	220.	<0.02	20.	<4.	<50.	Negative	<10.
Average (Mean)	7.24	79.	<1.	225.	<0.02	15.	<3.	<50.	-	<10.
Minimum	6.80	58.	<1.	220.	<0.02	10.	<2.	<50.	-	<10.
Maximum	7.67	100.	<1.	230.	<0.02	20.	<4.	<50.	-	<10.

NOTES: 1. mg/l = milligrams per liter

2. /100 ml = per 100 milliliters

3. This table is part of a report entitled "Water Resource Management Plan, Quarterly Groundwater Monitoring, April 1994 Reporting Period, Report No. 1," for Back Creek, Middletown, Delaware, and should be viewed only in the context of that report.

W. O. 2483 CC
Duffield Associates, Inc.
April 1994

**BACK CREEK
WATER RESOURCE MANAGEMENT
SUMMARY OF QUARTERLY GROUNDWATER ANALYSIS**

**MONITORING WELL #3
Table 3**

Sample Date	pH	Alkalinity (mg/l)		Total Dissolved Solids (mg/l)	Nitrogen		Biochemical Oxygen Demand (mg/l)	Chemical Oxygen Demand (mg/l)	Chlorine Residual	Fecal Coliform (/100 ml)
		to pH 4.5	to pH 8.3		Nitrite Nitrogen (mg/l)	Nitrate Nitrogen (mg/l)				
Dec 1993	6.56	28.	<1.	140.	<0.02	14.	<2	<50.	Negative	<10.
Mar 1994	6.56	21.	<1.	140.	<0.02	13.	<4	<50.	Negative	<10.
Average (Mean)	6.56	25.	<1.	140.	<0.02	14.	<3	<50.	-	<10.
Minimum	6.56	21.	<1.	140.	<0.02	13.	<2	<50.	-	<10.
Maximum	6.56	28.	<1.	140.	<0.02	14.	<4	<50.	-	<10.

NOTES: 1. mg/l = milligrams per liter

2. /100 ml = per 100 milliliters

3. This table is part of a report entitled "Water Resource Management Plan, Quarterly Groundwater Monitoring, April 1994 Reporting Period, Report No. 1," for Back Creek, Middletown, Delaware, and should be viewed only in the context of that report.

W. O. 2480 OC
Duffield Associates, Inc.
April 1994

**BACK CREEK
WATER RESOURCE MANAGEMENT
SUMMARY OF QUARTERLY GROUNDWATER ANALYSIS**

**MONITORING WELL #4
Table 4**

Sample Date	pH	Alkalinity (mg/l)		Total Dissolved Solids (mg/l)	Nitrogen		Biochemical Oxygen Demand (mg/l)	Chemical Oxygen Demand (mg/l)	Chlorine Residual	Fecal Coliform (/100 ml)
		to pH 4.5	to pH 8.3		Nitrite Nitrogen (mg/l)	Nitrate Nitrogen (mg/l)				
Dec 1993	6.24	30.	<1.	180.	<0.02	14.	<2.	<50.	Negative	<10.
Mar 1994	6.34	21.	<1.	180.	<0.02	15.	6.	<50.	Negative	<10.
Average (Mean)	6.29	26.	<1.	180.	<0.02	15.	3.	<50.	-	<10.
Minimum	6.24	21.	<1.	180.	<0.02	14.	<2.	<50.	-	<10.
Maximum	6.34	30.	<1.	180.	<0.02	15.	6.	<50.	-	<10.

NOTES: 1. mg/l = milligrams per liter

2. /100 ml = per 100 milliliters

3. This table is part of a report entitled "Water Resource Management Plan, Quarterly Groundwater Monitoring, April 1994 Reporting Period, Report No. 1," for Back Creek, Middletown, Delaware, and should be viewed only in the context of that report.

W. O. 2450.CC
Duffield Associates, Inc.
April 1994

**BACK CREEK
WATER RESOURCE MANAGEMENT
SUMMARY OF QUARTERLY GROUNDWATER ANALYSIS**

**MONITORING WELL #5
Table 5**

Sample Date	pH	Alkalinity (mg/l)		Total Dissolved Solids (mg/l)	Nitrite Nitrogen (mg/l)		Nitrate Nitrogen (mg/l)	Biochemical Oxygen Demand (mg/l)	Chemical Oxygen Demand (mg/l)	Chlorine Residual	Fecal Coliform (/100 ml)
		to pH 4.5	to pH 8.3								
Dec 1993	6.67	50.	<1.	180.	<0.02		13.	2.	<50.	Negative	<10.
Mar 1994	6.77	34.	<1.	180.	<0.02		13.	6.	<50.	Negative	<10.
Average (Mean)	6.72	42.	<1.	170.	<0.02		13.	4.	<50.	-	<10.
Minimum	6.67	34.	<1.	180.	<0.02		13.	2.	<50.	-	<10.
Maximum	6.77	50.	<1.	180.	<0.02		13.	6.	<50.	-	<10.

NOTES:

1. mg/l = milligrams per liter
2. /100 ml = per 100 milliliters
3. This table is part of a report entitled "Water Resource Management Plan, Quarterly Groundwater Monitoring, April 1994 Reporting Period, Report No. 1," for Back Creek, Middletown, Delaware, and should be viewed only in the context of that report.

W. O. 2480.CC
Duffield Associates, Inc.
April 1994

TABLE 1
MONITORING WELL MW-1
WATER QUALITY SUMMARY
BRANDYWINE WOODS SITE, BEAR, DELAWARE

Date	Depth to Groundwater (feet)	Total		Total		Chemical		pH	Temperature (°C)	Conductivity (μ /cm2)	Redox Potential (mv)
		Total Carbon (mg/l)	Organic Carbon (mg/l)	Dissolved Solids (mg/l)	Petroleum Hydrocarbons (mg/l)	Oxygen Demand (mg/l)	Colliform (MPN)				
9-Sep-99	43.62	14.0	<1.0	80	<1.0	<10	Presence	6.05	14.7	151	224.1
29-Dec-99	42.42	19.0	1.5	68	<1.0	<10	<2.0	6.18	14.7	151	210.1
5-Apr-00	40.83	9.1	9.0	80	<0.5	<10	Presence	5.88	14.4	130	250.4
13-Jul-00	40.83	11.0	<1.0	152	<1.0	<10	Presence	5.62	14.4	141	139.0
13-Sep-00	41.31	17.8	<1.0	62	<1.0	<10	<2.0	5.43	14.7	104	193.0
18-Dec-00	27.90	5.4	<1.0	78	<5.0	<10	<2.0	5.59	15.1	213	403.2

MW-1

TABLE 1 GROUNDWATER ANALYTICAL RESULTS

Monitoring Wells MW-3 and MW-4
 Carman Ford, Inc. Facility
 193 South duPont Highway
 New Castle, Delaware
 09/12/94

Parameter	Units	Detection Limit	MW-3	MW-4
Specific Conductance (EPA 120.1)	umhos/cm	1	200	350
Total Organic Carbon (TOC) (EPA 415.2)	ppm	1.0	14	4

TABLE 2 COMPARISON OF ANALYTICAL RESULTS

Monitoring Wells MW-3 and MW-4
 Carman Ford, Inc. Facility
 193 South duPont Highway
 New Castle, Delaware
 1992 to 1994

Parameter	Units	MCL	MW-3				MW-4			
			08/92	05/93	11/93	09/94	08/92	05/93	11/93	09/94
Specific Conductance	umhos/cm	-	230	229	-	200	250	332	350	350
pH	pH units	6.5-8.5	5.55	4.8	-	-	6.16	5.5	6.2	-
TOC	mg/l	-	7.1	2	-	14	6.7	3	3.3	4
Ethylbenzene	ug/l	700	ND*	2.8	-	-	ND*	0.6	ND*	-
Xylenes, Total	ug/l	10000	ND*	1.0	-	-	ND*	2.6	ND*	-

*: The Laboratory Detection Limits for Ethylbenzene and Total Xylenes are less than 5 ug/l.
 MCL: Maximum Contaminant Level
 -: No data available

Figure 2
Monitoring Well Location Map
Carman Ford, Inc. Facility
193 South duPont Highway
New Castle, Delaware

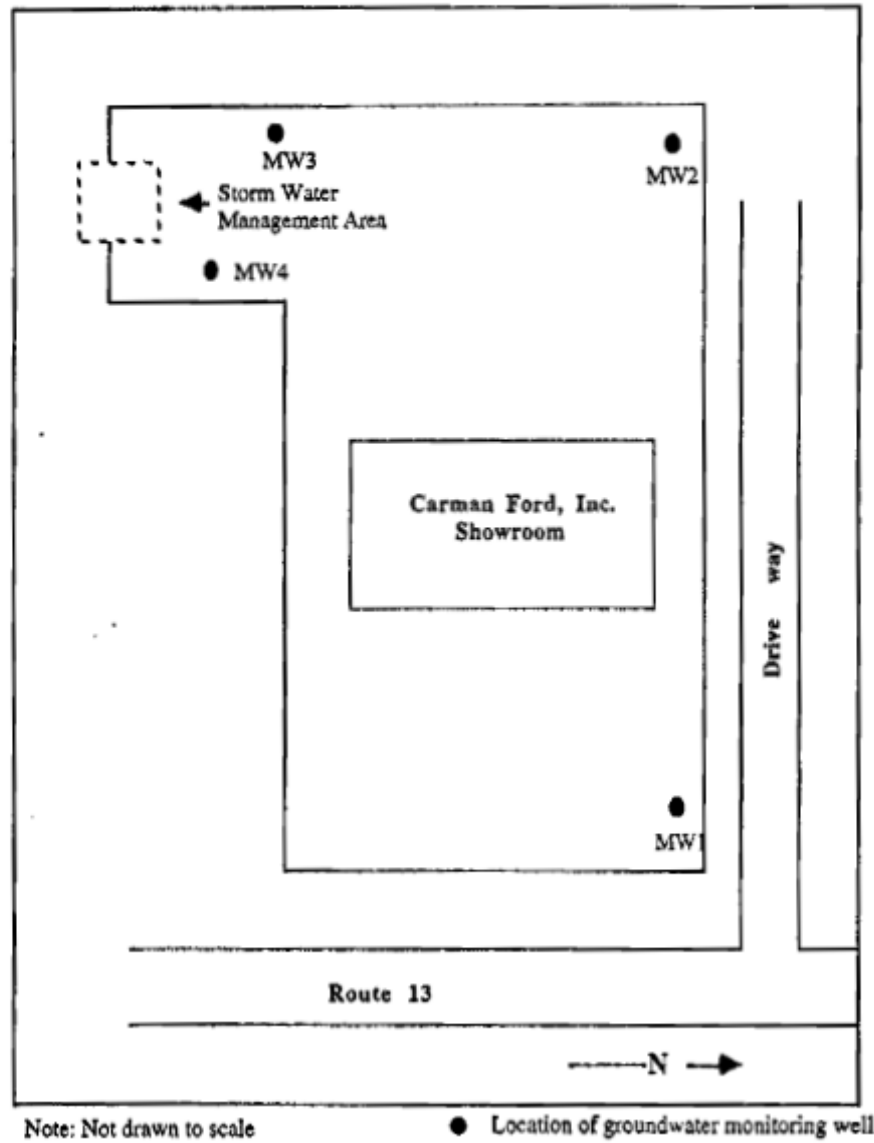




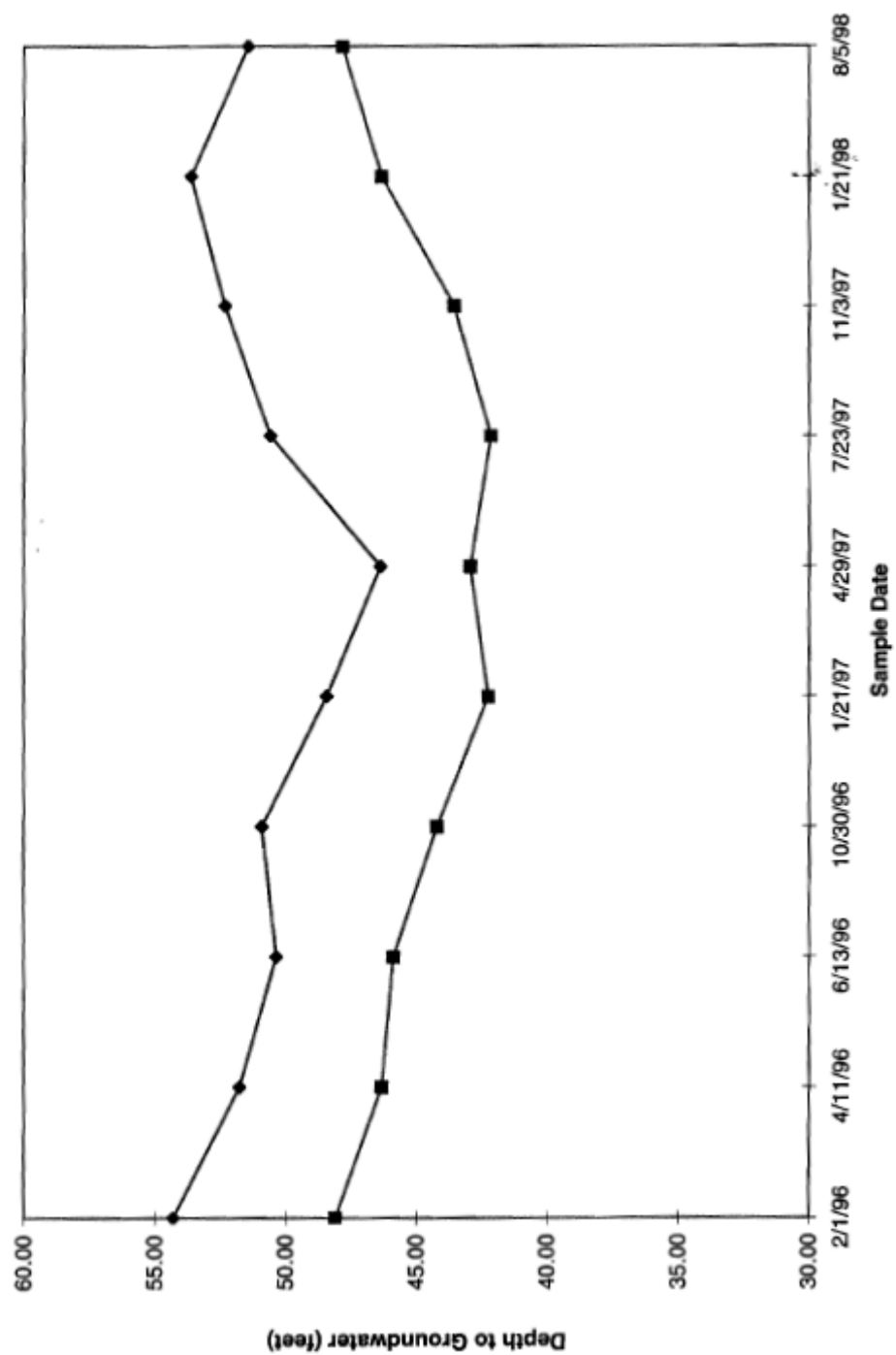
TABLE 1
MONITORING WELL MW-1
WATER QUALITY SUMMARY
BEAR CROSSING SITE, BEAR, DELAWARE

Date	Depth to Groundwater (feet)	Total Carbon		Total Organic Carbon (mg/l)	Total Dissolved Solids		Total Petroleum Hydrocarbons		Chemical Oxygen Demand		Chloroform (ug/l)	pH	Temperature (°C)	Conductivity (mu /cm2)	Redox Potential (mv)	
		(mg/l)	(mg/l)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)						
MW-1																
11-Apr-96	51.76	13.0		<1.0	44		<1.0	<1.0	<10		<1.0	5.86	13.3	119	0.319	
13-Jun-96	50.35	6.2		<1.0	49		<1.0	<1.0	<10		<1.0	5.83	13.4	116	0.317	
30-Oct-96	50.90	12.0		<1.0	47		<1.0	<1.0	<10		<1.0	6.23	14.1	121	0.328	
21-Jan-97	48.42	9.0		<1.0	32		<1.0	<1.0	13		<1.0	6.63	13.6	178	0.278	
29-Apr-97	46.37	5.7		<1.0	41		<1.0	<1.0	<10		<1.0	6.12	13.1	164	0.253	
23-Jul-97	50.58	9.0		<0.5	40		<1.0	<1.0	<10		<1.0	6.42	13.9	174	0.310	
3-Nov-97	52.32	9.0		<0.5	39		<1.0	<1.0	<10		<1.0	6.12	13.7	159	0.292	
21-Jan-98	53.62	10.0		2.1	36		<1.0	<1.0	<10		<1.0	6.74	13.5	53	0.224	
5-Aug-98	51.44	8.7		3.4	31		<1.0	<1.0	<10		<1.0	

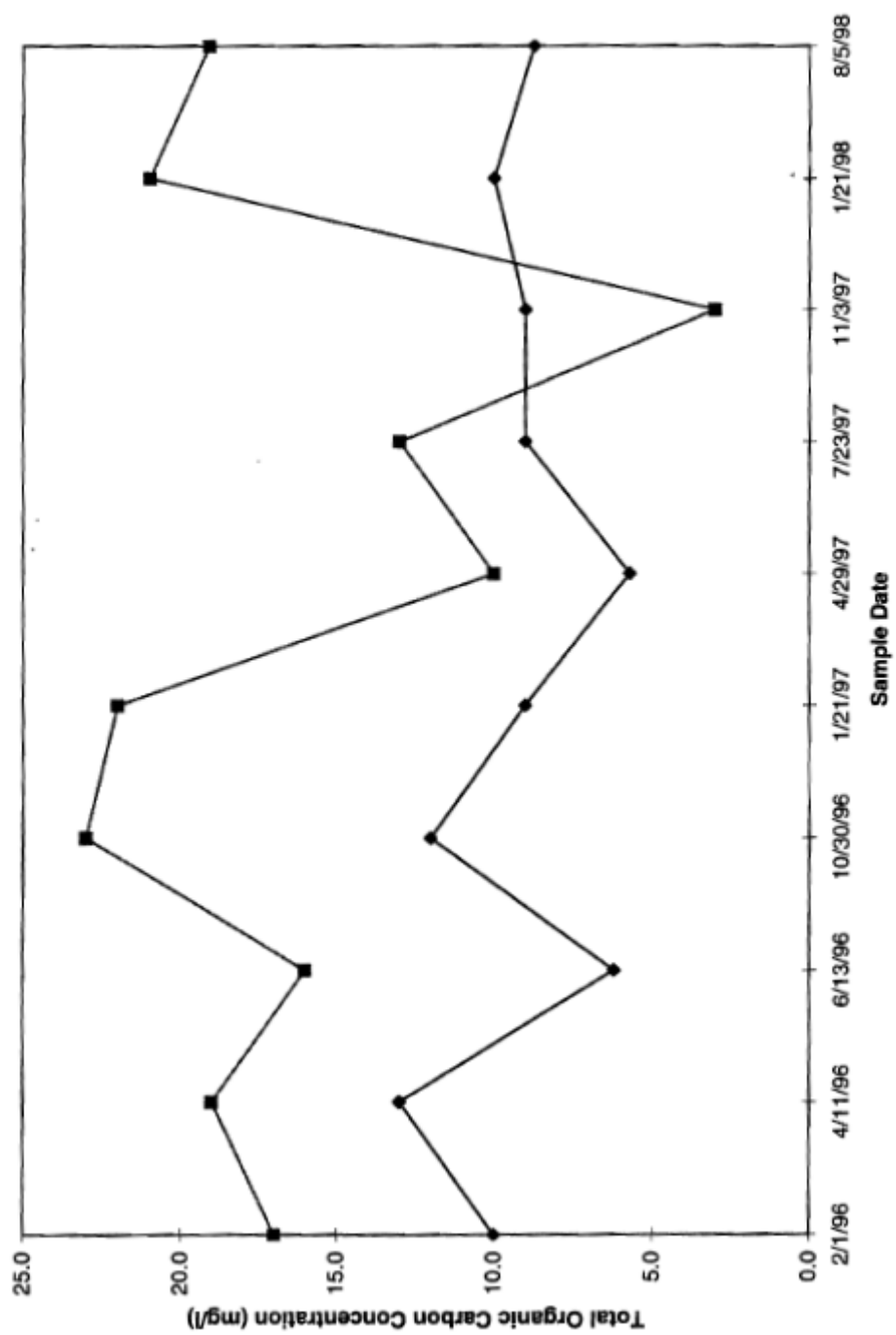
TABLE 2
MONITORING WELL MW-2
WATER QUALITY SUMMARY
BEAR CROSSING SITE, BEAR, DELAWARE

Date	Depth to Groundwater (feet)	Total			Total			Chemical			Redox Potential (mv)	
		Total Carbon (mg/l)	Organic Carbon (mg/l)	Dissolved Solids (mg/l)	Petroleum Hydrocarbons (mg/l)	Oxygen Demand (mg/l)	Chloroform (ug/l)	pH	Temperature (°C)	Conductivity (mu /cm2)		
MW-2												
11-Apr-96	46.32	19.0	<1.0	95	<1.0	<10	<1.0	6.32	13.7	184	0.244	
13-Jun-96	45.88	16.0	<1.0	94	<1.0	<10	<1.0	6.24	13.7	186	0.246	
30-Oct-96	44.20	23.0	<1.0	115	<1.0	<10	<1.0	6.64	14.5	165	0.237	
21-Jan-97	42.24	22.0	<1.0	92	<1.0	<10	<1.0	6.60	14.4	157	0.214	
29-Apr-97	42.92	10.0	<1.0	108	<1.0	<10	<1.0	6.43	14.3	167	0.209	
23-Jul-97	42.14	13.0	<0.5	110	<1.0	<10	<1.0	6.52	14.3	174	0.245	
3-Nov-97	43.55	3.0	<1.0	95	<1.0	11	<1.0	6.74	14.1	168	0.238	
21-Jan-98	46.33	21.0	1.4	180	<1.0	<10	<1.0	6.72	14.2	195	0.187	
5-Aug-98	47.83	19.1	3.6	140	<1.0	<10	<1.0	-	-	-	-	

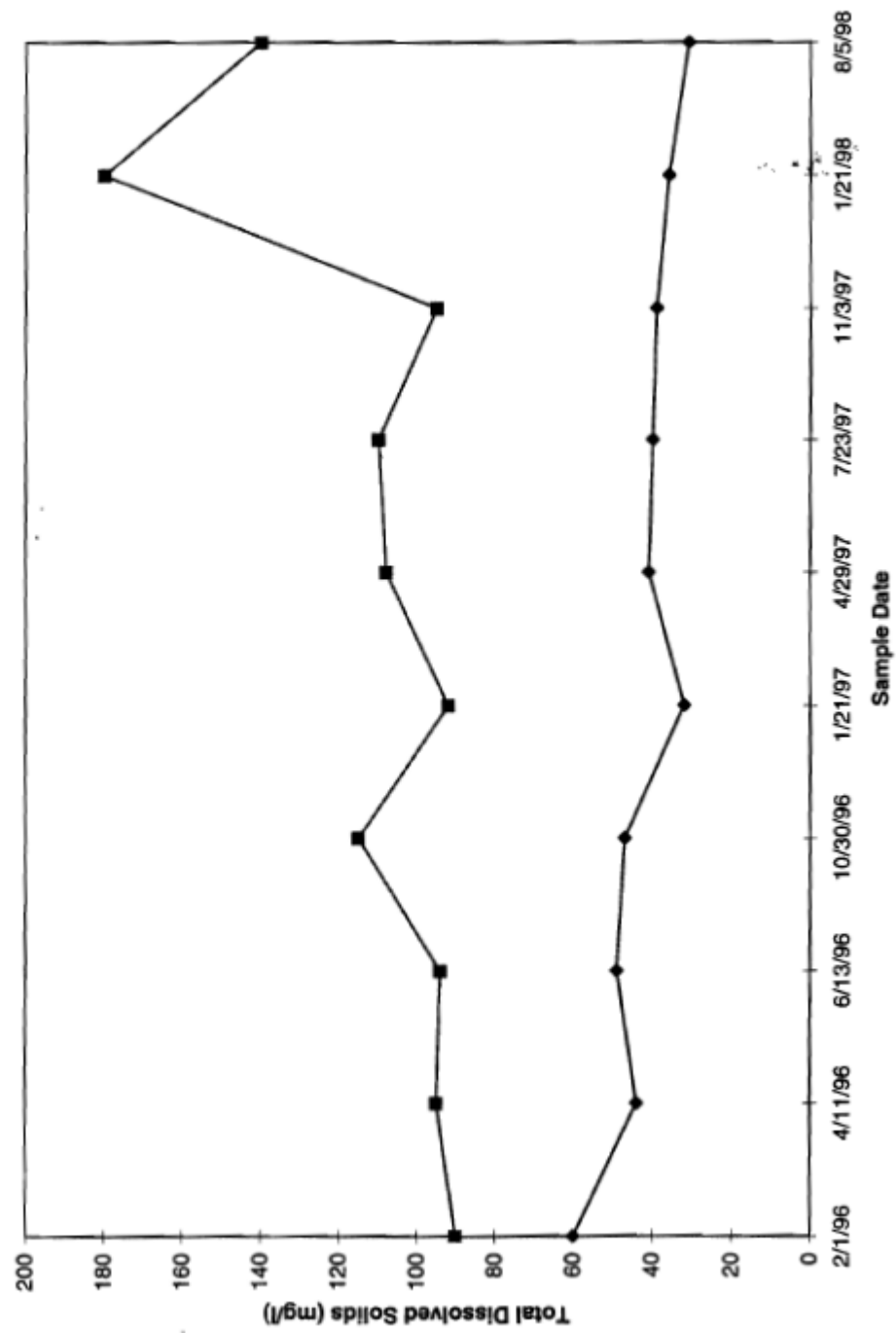
Bear Crossing Historical Depth to Groundwater Data



Bear Crossing Historical Total Carbon Data



Bear Crossing Historical Total Dissolved Solids Data



EDEN SQUARE WATER RESOURCE MANAGEMENT - Table 1
ROUTINE GROUNDWATER ANALYSES
MONITOR WELL #1

Sample Date	pH	Conductivity (umhos/cm)	Total Dissolved Solids (mg/l)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)	Total Petroleum Hydrocarbons (mg/l)
Aug 2006	6.1	316.	174.	<2.0	36.2	<1.5
Feb 2006	5.9	297.	178.	<2.0	32.5	<1.5
Jul 2005	6.0	321.	185.	<2.0	26.9	<1.3
Apr 2005	5.9	340.	184.	<2.0	7.2	<1.3
Aug 2004	6.1	305.	176.	<2.0	25.2	<1.3
Feb 2004	6.0	272.	171.	<2.0	40.7	<1.3
Aug 2003	6.0	286.	194.	<2.0	25.6	<1.0
Feb 2003	6.1	328.	190.	<2.0	39.2	<1.0
Aug 2002	6.14	327.	198.	<2.	28.9	<1.0
Feb 2002	6.18	329.	187.	<2.	27.5	<1.0
Aug 2001	6.12	335.	187.	<2.	34.2	<0.8
Feb 2001	6.20	358.	213.	2.0	21.6	<0.8
Nov 2000	6.17	333.	205.	1.3	16.6	<0.8
Aug 2000	6.17	312.	192.	1.4	32.8	<0.5
May 2000	6.24	312.	184.	1.	28.2	<0.5
Feb 2000	6.21	304.	200.	2.3	24.5	<0.5
Nov 1999	6.29	316.	181.	1.4	33.9	<0.5
Sep 1999	6.21	315.	190.	1.1	24.5	<0.5
Jun 1999	6.39	312.	206.	2.1	43.6	<0.5
Feb 1999	6.17	289.	183.	<1.	33.5	<0.5
Nov 1998	6.53	327.	165.	<1.	38.7	<0.5
Aug 1998	6.19	377.	194.	1.2	38.	<0.5
May 1998	6.77	268.	208.	1.4	42.1	<0.5
Feb 1998	6.15	337.	206.	<1.	38.	<0.5
Nov 1997	6.75	325.	208.	<1.	35	<0.5
Aug 1997	6.59	329.	204.	<1.	45.8	<0.5
May 1997	6.38	391.	195.	1.	29.2	<0.3
Feb 1997	5.96	301.	198.	<1.	44.6	<0.3
Dec 1996	6.56	313.	205.	<1.	35	<0.3
Aug 1996	6.06	336.	200.	1.	42	<0.3
May 1996	6.07	320.	200.	3.	42	<0.3
Feb 1996	6.23	319.	190.	<1.	42	<0.3
Nov 1995	6.72	320.	190.	<1.	40	<0.3
Aug 1995	6.20	303.	190.	<1.	39.	<0.3
May 1995	6.27	299.	180.	5.	47.	<0.3
Feb 1995	6.16	300.	190.	<1.	39.	<0.2
Period of Record						
Data Summary ⁽³⁾						
Average(mean)	6.22	313.	190.	—	33.7	—
Minimum	5.9	254.	160.	<1.	7.2	<0.2
Maximum	6.77	391.	213.	5.	47.	<1.5

NOTES:

- Abbreviations: umhos/cm = micromhos per centimeter.
mg/l = milligrams per liter [approximate parts per million (ppm)].
< = less than the indicated laboratory minimum quantification limit (i.e., none detected).
- Sampling for the initial "background" water quality analysis for Monitor Well #1 was performed on June 2, 1993.
- Period of record commenced with the initial "background" sample collected on June 2, 1993.
- This table is part of a report entitled "Water Resource Management Plan, August 2006 Annual Reporting Period, Report No. 20, Eden Square Shopping Center, Bear, Delaware" and should be viewed only in the context of that report.

Project No. 2514.CG
Duffield Associates, Inc.
September 2006

EXCEL/2514CG.XLS

**EDEN SQUARE
WATER RESOURCE MANAGEMENT - Table 2
ROUTINE GROUNDWATER ANALYSES
MONITOR WELL #2**

Sample Date	pH	Conductivity (umhos/cm)	Total Dissolved Solids (mg/l)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)	Total Petroleum Hydrocarbons (mg/l)
Aug 2006	6.6	178.	89.5	<2.0	11.9	<1.5
Feb 2006	6.7	122.	70.0	<2.0	14.6	<1.5
Jul 2005	6.2	223.	146.	<2.0	7.3	<1.3
Apr 2005	6.1	126.	70.5	<2.0	8.2	<1.3
Aug 2004	6.3	145.	81.5	<2.	8.5	<1.3
Feb 2004	6.1	559.	302.	<2.	21.4	<1.3
Aug 2003	6.4	165.	83.	<2.	12.2	<1.0
Feb 2003	--	--	--	--	--	--
Aug 2002	--	--	--	--	--	--
Feb 2002	5.82	1080.	592.	<2.	25.5	<1.0
Aug 2001	6.51	158.	76.	<2.	12.7	<0.8
Feb 2001	6.15	261.	139.	1.9	9.2	<0.8
Nov 2000	6.17	190.	108.	<1.	8.4	<0.8
Aug 2000	6.18	383.	205.	<1.	10.8	<0.5
May 2000	6.39	309.	155.	<1.	12.6	<0.5
Feb 2000	6.38	117.	73.	<1.	9.2	<0.5
Nov 1999	6.58	155.	87.	1.2	14.	<0.5
Sep 1999	5.86	548.	291.	2.1	19.6	<0.5
Jun 1999	5.76	591.	378.	<1.	35.4	<0.5
Feb 1999	5.70	836.	503.	<1.	21.8	<0.5
Nov 1998	7.35	640.	328.	<1.	25.1	<0.5
Aug 1998	5.90	496.	288.	1.7	20.	<0.5
May 1998	5.99	418.	288.	1.4	21.3	<0.5
Feb 1998	6.15	560.	284.	<1.	15.	<0.5
Nov 1997	6.68	182.	102.	<1.	15.3	<0.5
Aug 1997	6.65	107.	66.	<1.	15.3	<0.5
May 1997	6.65	114.	66.	<1.	14.5	<0.3
Feb 1997	6.12	100.	65.	<1.	13.5	<0.3
Dec 1996	6.92	98.	79.	<1.	8.3	<0.3
Aug 1996	6.40	288.	150.	2.	24.	<0.3
May 1996	6.99	561.	280.	13.	45.	<0.3
Feb 1996	6.14	514.	400.	97.	110.	<0.3
Period of Record						
Data Summary ⁽³⁾						
Average (mean)	6.32	304.	175.	--	17.7	--
Minimum	5.70	67.	50.	<1.	6.	<0.2
Maximum	7.35	1080.	592.	97.	110.	<1.5

NOTES:

- Abbreviations: umhos/cm = micromhos per centimeter.
mg/l = milligrams per liter [approximate parts per million (ppm)].
< = less than the indicated laboratory minimum quantification limit (i.e., none detected).
-- Not sampled - insufficient volume of water in well
- Sampling for the initial "background" water quality analysis for Monitor Well #2 was performed on May 18, 1994.
- Period of record commenced with the initial "background" sample collected on May 18, 1994.
- This table is part of a report entitled "Water Resource Management Plan, August 2006 Annual Reporting Period, Report No.20, Eden Square Shopping Center, Bear, Delaware," and should be viewed only in the context of that report.

EDEN SQUARE WATER RESOURCE MANAGEMENT - Table 4
SPOT MEASUREMENT OF DEPTH TO GROUNDWATER⁽¹⁾⁽⁴⁾
MONITOR WELLS #1 AND #2

DATE	MW #1 ⁽²⁾⁽⁴⁾	MW #2 ⁽³⁾⁽⁴⁾⁽⁵⁾
09 August 2006	46.15 feet	44.75 feet
07 February 2006	45.85 feet	44.85 feet
28 July 2005	42.75 feet H	42.3 feet
05 April 2005	43.35 feet	38.4 feet
08 August 2004	48.25 feet	42.75 feet
26 February 2004	51.2 feet	49.1 feet
26 August 2003	53.65 feet	51.6 feet
26 February 2003	60.05 feet L	58.85 feet L
14 August 2002	58.05 feet	56.5 feet
15 February 2002	54.2 feet	53.65 feet
30 August 2001	51.4 feet	50.2 feet
09 February 2001	51.4 feet	51.55 feet
13 November 2000	52.1 feet	51.75 feet
09 August 2000	51.65 feet	50.5 feet
15 May 2000	51.5 feet	50.45 feet
10 February 2000	53.2 feet	52.55 feet
17 November 1999	52.7 feet	51.3 feet
01 September 1999	53.3 feet	50.4 feet
01 June 1999	51.55 feet	50.35 feet
19 February 1999	50.5 feet	50.4 feet
20 November 1998	49.1 feet	49.5 feet
12 August 1998	47.8 feet	47.9 feet
06 May 1998	47.8 feet	47.6 feet
24 February 1998	48.5 feet	48.25 feet
21 November 1997	47.0 feet	47.05 feet
04 August 1997	44.9 feet	44.6 feet
12 May 1997	43.65 feet	43.4 feet
24 February 1997	44.6 feet	44.2 feet
27 December 1996	45.55 feet	40.7 feet H
17 October 1996	46.85 feet	43.65 feet
14 August 1996	47.05 feet	43.95 feet
20 May 1996	47.6 feet	44.65 feet
12 February 1996	50.35 feet	47.65 feet
17 November 1995	50.9 feet	45.65 feet
22 August 1995	49.95 feet	48.0 feet
08 May 1995	48.2 feet	47.2 feet
10 February 1995	47.7 feet	47.0 feet
21 November 1994	47.15 feet	46.1 feet
19 August 1994	45.3 feet	43.9 feet
18 May 1994	45.3 feet	43.75 feet
16 February 1994	47.9 feet	---
24 November 1993	48.1 feet	---
02 June 1993	47.15 feet	---

- Notes: 1. Depth to groundwater measured from the top of the PVC well casing in feet.
2. Monitor Well #1 installed on March 18, 1992.
3. Monitor Well #2 installed on March 21, 1994.
4. H = period of record high (shallow) level
L = period of record low (deep) level
5. This table is part of a report entitled "Water Resource Management Plan, Quarterly Groundwater Monitoring, August 2006 Annual Reporting Period, Report No. 20, Eden Square Shopping Center, Bear, Delaware" and should be viewed only in the context of that report.

FUJIFILM IMAGING COLORANTS, INC.
COMBINED STORMWATER RECHARGE SYSTEM MONITORING

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL, MW-2

Date Measured ⁽¹⁾⁽⁴⁾	Depth to Groundwater (Feet)		Height of Water In Well (Feet) ⁽³⁾
	Below Top of Casing	Below Grade ⁽²⁾	
09 Jun 2009	34.45	32.2	12.45
05 Dec 2008	34.95	32.7	11.95
06 Jun 2008	33.55	31.3	13.35
14 Dec 2007	34.15	31.9	12.7
03 Apr 2007	33.2	30.95	13.7
12 Dec 2006	33.55	31.3	13.35
08 Aug 2006	33.6	31.35	13.3
06 Apr 2006	34.0	31.75	12.9
08 Dec 2005	34.15	31.9	12.75
24 Aug 2005	33.15	30.9	13.75
26 Apr 2005	32.25	30.0	14.65
14 Dec 2004	33.2	30.95	13.7
09 Aug 2004	33.3	31.05	13.6
08 Apr 2004	34.4	32.15	12.5
16 Dec 2003	34.65	32.4	12.25
08 Aug 2003	34.45	32.2	12.45
04 Apr 2003	35.45	33.2	11.45
04 Dec 2002	37.2	34.95	9.7
07 Aug 2002	37.25	35.0	9.65
15 Apr 2002	37.0	34.75	9.9
21 Dec 2001	36.4	34.15	10.5
21 Aug 2001	35.55	33.3	11.35
04 Apr 2001	35.85	33.6	11.05
04 Jan 2001	36.25	34.0	10.65
29 Nov 2000	36.0	33.75	10.9
Average (mean)	34.7	32.5	12.2
High (04/26/05)	32.25	30.0	14.65
Low (08/07/02)	37.25	35.0	9.65

NOTES:

1. The period of record for depth to groundwater monitoring commenced 29 November 2000, prior to the Arch Chemicals Building recharge system being put into operation in December 2000.
2. Based on well casing stick-up = 2.25± feet above ground surface grade at well site.
3. Based on well bottom depth = 46.9± feet below top of well casing.
4. The 16 December 2003 water level is the initial water level measured after the combined recharge system was made fully operational on 01 October 2003.
5. This table is part of a monitoring elimination request dated October 8, 2009, and should be viewed only in that context.

Project No. 4065.CB
Duffield Associates, Inc.
October 2009

EXCEL\4065CB.TABLE.XLS

FUJIFILM IMAGING COLORANTS, INC.
COMBINED STORMWATER RECHARGE SYSTEM MONITORING

Table 2

SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL, MW-2

Sample Date	Analysis ⁽¹⁾					
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
09 Jun 2009	5.8	63.0	102	4.7	<1.0	<50.0
05 Dec 2008	6.0	126	183	3.1	1.1	<50.0
06 Jun 2008	5.9	76.5	120.	3.8	<1.0	<50.0
14 Dec 2007	6.3	49.5	96.0	2.6	<2.0	<50.0
03 Apr 2007	6.4	62.5	78.7	4.1	<2.0	<8.0
12 Dec 2006	6.1	69.5	97.0	3.7	<2.0	<8.0
08 Aug 2006	6.0	64.0	80.1	3.8	<2.0	<8.0
06 Apr 2006	5.9	64.5	92.8	3.4	<2.0	<8.0
08 Dec 2005	5.9	99.5	153.0	2.6	<2.0	<8.0
24 Aug 2005	5.9	72.5	99.5	4.4	<2.0	<8.0
26 Apr 2005	6.1	43.0	61.9	3.3	<2.0	<8.0
14 Dec 2004	5.9	73.0	101.0	8.2	<2.0	<8.0
09 Aug 2004	6.4	98.5	156.0	8.4	<2.0	<8.0
08 Apr 2004	6.2	68.0	91.3	5.7	<2.0	<8.0
16 Dec 2003 ⁽⁴⁾	5.8	92.5	136.0	6.0	<2.0	<8.0
08 Aug 2003	5.4	210.0	357.0	5.6	<2.0	<8.0
04 Apr 2003	5.6	64.5	96.6	6.1	<2.0	<8.0
04 Dec 2002	5.84	69.0	109.0	9.7	< 2.0	<8.0
07 Aug 2002	5.7	73.0	99.4	7.6	< 2.0	< 8.0
15 Apr 2002	5.65	84.0	137.0	7.6	< 2.0	< 8.0
21 Dec 2001	5.66	75.0	109.0	7.5	< 2.0	< 8.0
21 Aug 2001	5.74	85.0	114.0	8.4	< 2.0	< 8.0
04 Apr 2001	5.66	81.0	122.0	17.8	< 1.0	< 8.0
04 Jan 2001 ⁽³⁾	5.69	86.0	117.0	20.2	1.1	< 8.0
Pre-Recharge 29 Nov 2000 ⁽³⁾	5.68	75.0	126.0	13.9	< 1.0	< 8.0
Post Recharge Mean	5.90	81.3	121.2	6.6	---	---
Median	5.9	73.0	105.5	5.7	< 2.0	< 8.0
Max.	6.4	210.0	357.0	20.2	< 2.0	<50.0
Min.	5.4	43.0	61.9	2.6	---	---

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The 29 November 2000 sample was obtained before the Arch Chemicals Building recharge system was put into operation in December 2000. The 04 January 2001 sample is the initial sample, collected after the system was put into operation.

4. Combined recharge system made fully operational 01 October 2003. The 16 December 2003 sample is the initial sample, collected after the combined recharge system was made fully operational.

5. This table is part of a monitoring elimination request dated October 8, 2009, and should be viewed only in that context.

FUJIFILM IMAGING COLORANTS, INC.
COMBINED STORMWATER RECHARGE SYSTEM MONITORING

Table 3

SUMMARY OF INDICATOR ANALYSES
COMBINED RECHARGE SYSTEM INFLOW WATER

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
12 Apr 2007	6.7	<30.0	17.9	2.1	<2.0	<8.0
08 Jan 2007	7.2	<30.0	21.0	2.1	<2.0	<8.0
01 Sep 2006	6.7	<30.0	40.6	3.9	2.9	<8.0
26 Jun 2006	6.5	<30.0	16.9	2.8	<2.0	<8.0
18 Jan 2006	6.7	<30.0	28.7	3.0	2.2	<8.0
21 Oct 2005	6.6	<30.0	40.9	5.4	4.3	13.1
20 May 2005	6.8	<30.	32.2	3.8	2.5	<8.0
14 Jan 2005	6.7	<30.	18.0	2.5	<2.0	<8.0
12 Nov 2004	6.2	<30.	20.4	3.4	2.8	8.8
02 Apr 2004	5.1	<30.	31.4	2.6	2.2	<8.0
17 Dec 2003 ⁽⁴⁾	6.6	<30.	25.7	2.5	2.2	<8.0
04 Sep 2003	6.8	<30.	53.4	6.4	<2.0	8.5
11 Apr 2003	7.7	38.5	79.4	5.9	<2.0	8.9
11 Dec 2002	6.32	47.	62.9	6.3	4.15	14.6
10 Oct 2002	6.91	< 30.	45.3	5.0	4.2	10.5
14 Jun 2002	5.85	< 30.	15.5	2.4	2.5	< 8.0
14 Dec 2001	4.93	< 30.	20.0	4.5	2.0	8.6
24 Sep 2001	5.74	< 30.	16.3	3.0	2.6	9.7
22 May 2001	4.59	< 30.	35.4	3.5	3.2	8.7
19 Jan 2001 ⁽³⁾	4.82	< 30.	19.7	2.5	1.7	< 8.0
Mean	6.27	---	32.1	3.7	---	---
Median	6.6	< 30.	27.2	3.2	2.2	---
Max	7.7	47.	79.4	6.4	4.3	14.6
Min	4.59	< 30.	15.5	2.1	<2.0	<8.0

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The 19 January 2001 sample is the initial sample collected after the Arch Chemicals building system was put into operation in December 2000.

4. The 17 December 2003 sample is the initial sample collected after the combined recharge system was made fully operational on 01 October 2003.

5. This table is part of correspondence entitled "Monitoring Reduction Request", dated May 2, 2007, and should be viewed only in that context.

Project No. 4065.CB
Duffield Associates, Inc
May 2007

EXCEL4065CB.TABLE.XLS

FUJIFILM IMAGING COLORANTS, INC.
COMBINED STORMWATER RECHARGE SYSTEM MONITORING

Table 3

SUMMARY OF INDICATOR ANALYSES
COMBINED RECHARGE SYSTEM INFLOW WATER

Sample Date	Analysis ⁽¹⁾					
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
16 Dec 2008	6.5	<30.0	20.7	2.5	1.4	<50.0
14 July 2008	6.4	<30.0	28.7	4.7	3.6	<50.0
13 Dec 2007	4.5	37.5	116.	3.8	3.3	<50.0
12 Apr 2007	6.7	<30.0	17.9	2.1	<2.0	<8.0
08 Jan 2007	7.2	<30.0	21.0	2.1	<2.0	<8.0
01 Sep 2006	6.7	<30.0	40.6	3.9	2.9	<8.0
26 Jun 2006	6.5	<30.0	16.9	2.8	<2.0	<8.0
18 Jan 2006	6.7	<30.0	28.7	3.0	2.2	<8.0
21 Oct 2005	6.6	<30.0	40.9	5.4	4.3	13.1
20 May 2005	6.8	<30.	32.2	3.8	2.5	<8.0
14 Jan 2005	6.7	<30.	18.0	2.5	<2.0	<8.0
12 Nov 2004	6.2	<30.	20.4	3.4	2.8	8.8
02 Apr 2004	5.1	<30.	31.4	2.6	2.2	<8.0
17 Dec 2003 ⁽⁴⁾	6.6	<30.	25.7	2.5	2.2	<8.0
04 Sep 2003	6.8	<30.	53.4	6.4	<2.0	8.5
11 Apr 2003	7.7	38.5	79.4	5.9	<2.0	8.9
11 Dec 2002	6.32	47.	62.9	6.3	4.15	14.6
10 Oct 2002	6.91	< 30.	45.3	5.0	4.2	10.5
14 Jun 2002	5.85	< 30.	15.5	2.4	2.5	< 8.0
14 Dec 2001	4.93	< 30.	20.0	4.5	2.0	8.6
24 Sep 2001	5.74	< 30.	16.3	3.0	2.6	9.7
22 May 2001	4.59	< 30.	35.4	3.5	3.2	8.7
19 Jan 2001 ⁽³⁾	4.82	< 30.	19.7	2.5	1.7	< 8.0
Mean	6.2	---	35.1	3.7	---	---
Median	6.5	< 30.	28.7	3.4	2.2	---
Max	7.7	47.	116.	6.4	4.3	---
Min	4.5	< 30.	15.5	2.1	---	<8.0

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The 19 January 2001 sample is the initial sample collected after the Arch Chemicals building system was put into operation in December 2000.

4. The 17 December 2003 sample is the initial sample collected after the combined recharge system was made fully operational on 01 October 2003.

5. This table is part of a report titled "Fujifilm Imaging Colorants, Inc., Combined Recharge System, Monitoring Report No. 10", prepared by Duffield Associates, Inc. and dated January 2009, and must be evaluated within the context of that report.

Project No. 4065.CB
Duffield Associates, Inc
January 2009

EXCEL4065CB.TABLE.XLS

**FUJIFILM IMAGING COLORANTS, INC.
COMBINED STORMWATER RECHARGE SYSTEM MONITORING**

TABLE 4

**SUMMARY OF ANNUAL ANALYSES
GROUNDWATER MONITOR WELL, MW-2**

Date Sampled	Analysis ^{(1) (2)}									
	Inorganics					Organics				
	Indicators		Metals (mg/l)		Regulated Pesticides/PCBs (mg/l)	Regulated Herbicides (mg/l)	Drinking Water Volatiles (mg/l)		Purgeable Aromatics	Purgeable Halocarbons
	Turbidity (NTU)	Nitrate (mg/l as N)	Barium	Chromium						
05 Dec 2008	10.1	1.2	0.0706	ND	ND	ND	ND	ND	ND	ND
14 Dec 2007	18.6	1.4	0.0140	ND	ND	ND	ND	ND	ND	ND
12 Dec 2006	56.8	1.2	0.0126	0.0030	ND	ND	ND	ND	ND	ND
08 Dec 2005	13.7	1.5	0.0264	ND	ND	ND	ND	ND	ND	ND
07 Aug 2002	164.0	1.27	—	ND	ND	ND	ND	ND	ND	ND
Drinking Water MCL ⁽³⁾	1.	10.	2.0	0.1	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)

NOTES:

- Listed are those specific analyses with reported detections at concentrations equal to or exceeding the laboratory minimum limit of quantification (MLQ).
- Abbreviations and Symbols:
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter (approximately parts per million (ppm))
ND = None detected at a concentration equal to or exceeding the MLQ
— = Not Analyzed
- Maximum Contaminant Level (MCL), based on the State of Delaware and US EPA Primary Drinking Water Standards.
- The 07 August 2002 sample was the last annual sample collected from MW-2 before the recharge systems were combined.
- This table is part of a report titled "Fujifilm Imaging Colorants, Inc., Combined Recharge System, Monitoring Report No. 10," prepared by Duffield Associates, Inc. and dated January 2009, and must be evaluated within the context of that report.

COMBINED STORMWATER RECHARGE SYSTEM MONITORING

TABLE 5

SUMMARY OF ANNUAL ANALYSES
COMBINED RECHARGE SYSTEM INFLOW WATER

Date Sampled	Analysis ^{(1) (2)}									
	Inorganics					Organics				
	Indicators		Metals (mg/l)		Regulated Pesticides/PCBs (mg/l)	Regulated Herbicides (mg/l)	Purgeable Aromatics	Drinking Water Volatiles (mg/l)		Varies (Compound Specific)
	Turbidity (NTU)	Nitrate (mg/l as N)	Barium	Lead				Purgeable Halocarbons 1,1-Dichloroethene	Other	
16 Dec 2008	13.6	0.26	0.0174	ND	ND	ND	ND	ND	ND	ND
13 Dec 2007	3.6	1.90	0.0434	0.0022	ND	ND	ND	ND	ND	ND
08 Jan 2007	6.6	ND	0.0075	ND	ND	ND	ND	ND	ND	ND
18 Jan 2006	2.5	0.22	0.0148	ND	ND	ND	ND	ND	ND	ND
10 Oct 2002 ⁽⁴⁾	0.82	0.14	ND	ND	ND	0.51	ND	ND	ND	ND
10 Oct 2002 ⁽⁵⁾	2.92	0.31	ND	ND	ND	ND	ND	0.0005	ND	ND
Drinking Water MCL ⁽³⁾	1.	10.	2.	0.015	Varies (Compound Specific)	0.001	Varies (Compound Specific)	0.007	Varies (Compound Specific)	

NOTES:

- Listed are those specific analyses with reported detections at concentrations equal to or exceeding the laboratory minimum limit of quantification (MLQ). See Appendix A, attached to this report, for complete list of analyses.
- Abbreviations and Symbols:
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter (approximately parts per million (ppm))
ND = None detected at a concentration equal to or exceeding the MLQ
- Maximum Contaminant Level (MCL), based on the State of Delaware and US EPA Primary Drinking Water Standards.
- The 10 October 2002 sample is the last annual sample collected for Recharge System #1 before the recharge systems were combined.
- The 10 October 2002 sample is the last annual sample collected for Recharge System #2 before the recharge systems were combined.
- This table is part of a report titled "Fujifilm Imaging Colorants, Inc., Combined Recharge System, Monitoring Report No. 10," prepared by Duffield Associates, Inc. and dated January 2009, and must be evaluated within the context of that report.

AVECIA INC.
WATER RESOURCE MANAGEMENT

TABLE 1
SUMMARY OF QUARTERLY/SEMI-ANNUAL GROUNDWATER ANALYSES(4)
MONITOR WELL #1

Sample Date	pH	Conductivity (umhos/cm) ⁽¹⁾	Total Dissolved Solids (mg/l) ⁽²⁾	Chemical Oxygen Demand (mg/l)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)
07 Aug 2000	5.79	105.	60.	<8.	<1.	13.7
03 Feb 2000	5.47	166.	110.	<8.	1.2	8.5
18 Nov 1999	5.73	82.4	55.	9.4	1.2	15.5
17 Aug 1999	5.38	130.	77.	<8.	<1.	25.
12 May 1999	5.58	164.	117.	<8.	<1.	30.3
19 Feb 1999	6.25	83.5	51.	10.2	<1.	10.
10 Nov 1998	7.40	97.7	72.	<8.	<1.	14.
07 Aug 1998	5.61	136.	77.	<8.	<1.	21.5
07 May 1998	5.49	108.	87.	<8.	<1.	24.5
27 Feb 1998	6.52	98.4	57.	<8.	<1.	9.8
24 Nov 1997	5.58	76.9	59.	<8.	<1.	12.2
11 Aug 1997	6.26	95.1	60.	<8.	<1.	14.7
08 May 1997	6.60	119.	77.	<8.	<1.	13.7
11 Feb 1997	5.38	91.9	46.	14.8	<1.	10.1
22 Nov 1996	5.71	198.	115.	<8.	<1.	24.9
14 Aug 1996	5.62	121.	80.	<7.	<1.	19.
17 May 1996	6.24	112.	70.	<7.	2.	17.
13 Feb 1996	5.62	121.	80.	<7.	<1.	21.
21 Nov 1995	5.60	136.	90.	<7.	<1.	23.
23 Aug 1995	5.61	181.	110.	<7.	<1.	22.
09 May 1995	5.69	164.	100.	<7.	1.	19.
10 Feb 1995	5.68	156.	110.	<7.	<1.	21.
09 Nov 1994	5.49	175.	110.	<7.	1.	25.
19 Aug 1994	5.53	171.	120.	7.	1.	25.
23 May 1994	5.57	320.	170.	<50.	2.	31.
18 Feb 1994 ⁽⁴⁾	6.31	371.	220.	N/A ⁽³⁾	1.	33.
14 Dec 1993 ⁽⁴⁾	5.35	262.	160.	<50.	<1.	28.
27 Aug 1993 ⁽⁴⁾	5.82	219.	150.	12.	<1.	25.
Pre-Recharge Basin						
Average (mean)	5.83	284.	177.	---	---	28.7
Minimum	5.35	219.	150.	---	<1.	25.
Maximum	6.31	371.	220.	---	1.	33.
Post-Recharge Basin						
Average (mean)	5.78	136.4	86.	---	---	18.9
Minimum	5.38	76.9	46.	<7.	<1.	8.5
Maximum	7.40	320.	170.	14.8	2.	31.

NOTES:

1. umhos/cm = umhos per centimeter
2. mg/l = milligrams per liter [approximate parts per million (ppm)]
3. N/A = Not Analyzed
4. Recharge system completed and brought on line in May 1994. Samples collected prior to May 1994 are indicative of pre-recharge groundwater conditions.
5. This table is part of a report entitled, "Water Resource Management Plan, Water Resource Monitoring, October 2000 Reporting Period, Report No. 13", for Avecia Inc. and should be viewed only in the context of that report.

**AVECIA INC.
WATER RESOURCE MANAGEMENT**

**TABLE 2
SUMMARY OF QUARTERLY/SEMI-ANNUAL RECHARGE WATER ANALYSES(5)
RECHARGE BASIN #1**

Sample Date	pH	Conductivity (umhos/cm) ⁽¹⁾	Total Dissolved Solids (mg/l) ⁽²⁾	Chemical Oxygen Demand (mg/l)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)
19 Sep 2000	4.97	21.3	<30.	<8.	1.7	<2.
17 Mar 2000	6.17	8.7	<30.	<8.	<1.	2.4
12 Dec 1999	5.85	10.1	<30.	<8.	2.	2.2
16 Sep 1999	5.79	17.3	<30.	<8.	<1.	<2.
24 May 1999	5.14	13.1	<30.	<8.	1.9	2.6
18 Feb 1999	7.68	17.0	<30.	<8.	1.2	2.4
30 Dec 1998	7.00	23.2	<30.	9.1	2.8	3.1
08 Oct 1998	6.10	23.9	<30.	9.2	2.7	3.8
08 May 1998	6.21	14.1	<30.	<8.	1.9	2.7
23 Feb 1998	4.66	19.6	<30.	8.3	2.0	2.4
10 Dec 1997	4.80	70.6	46.	32.2	9.8	9.9
20 Aug 1997	7.91	6.4	<30.	<8.	1.1	<2.
03 June 1997	4.26	46.3	<30.	<8.	2.1	2.6
25 Feb 1997	8.25	11.5	<30.	<8.	<1.	<2.
26 Nov 1996	7.16	87.7	60.	8.5	2.8	11.5
13 Aug 1996	9.29	193.	130.	18.	4.	15.
28 May 1996	4.65	34.	<30.	18.	7.	8.
06 Mar 1996	5.71	38.	<30.	21.	6.	6.
07 Nov 1995	5.70	45.	<30.	37.	11.	11.
22 Sep 1995	7.16	16.	<30.	19.	6.	7.
02 May 1995	5.68	10.	<30.	<7.	2.	2.
23 Feb 1995	5.29	102.	90.	68.	23.	21.
16 Nov 1994	5.23	19.	<30.	<7.	3.	3.
01 Nov 1994	6.62	18.	<30.	15.	4.	4.
28 July 1994	4.76	27.	<30.	<50.	9.	8.
06 May 1994 ⁽³⁾	4.84	54.	<30.	<50.	12.	10.
Average (mean)	6.03	36.4	---	---	---	---
Minimum	4.26	6.4	<30.	<7.	<1.	<2.
Maximum	9.29	193.	130.	68.	23.	21.

NOTES:

1. umhos/cm = umhos per centimeter
2. mg/l = milligrams per liter [approximate parts per million (ppm)]
3. Recharge basin background sample collected May 1994, when recharge system from building was connected.
4. This table is part of a report entitled, "Water Resource Management Plan, Water Resource Monitoring, October 2000 Reporting Period, Report No. 13," for AVECIA Inc. and should be viewed only in the context of that report.

TABLE 3
DATA SUMMARY OF ANNUAL SAMPLING ANALYSES⁽¹⁾⁽⁷⁾

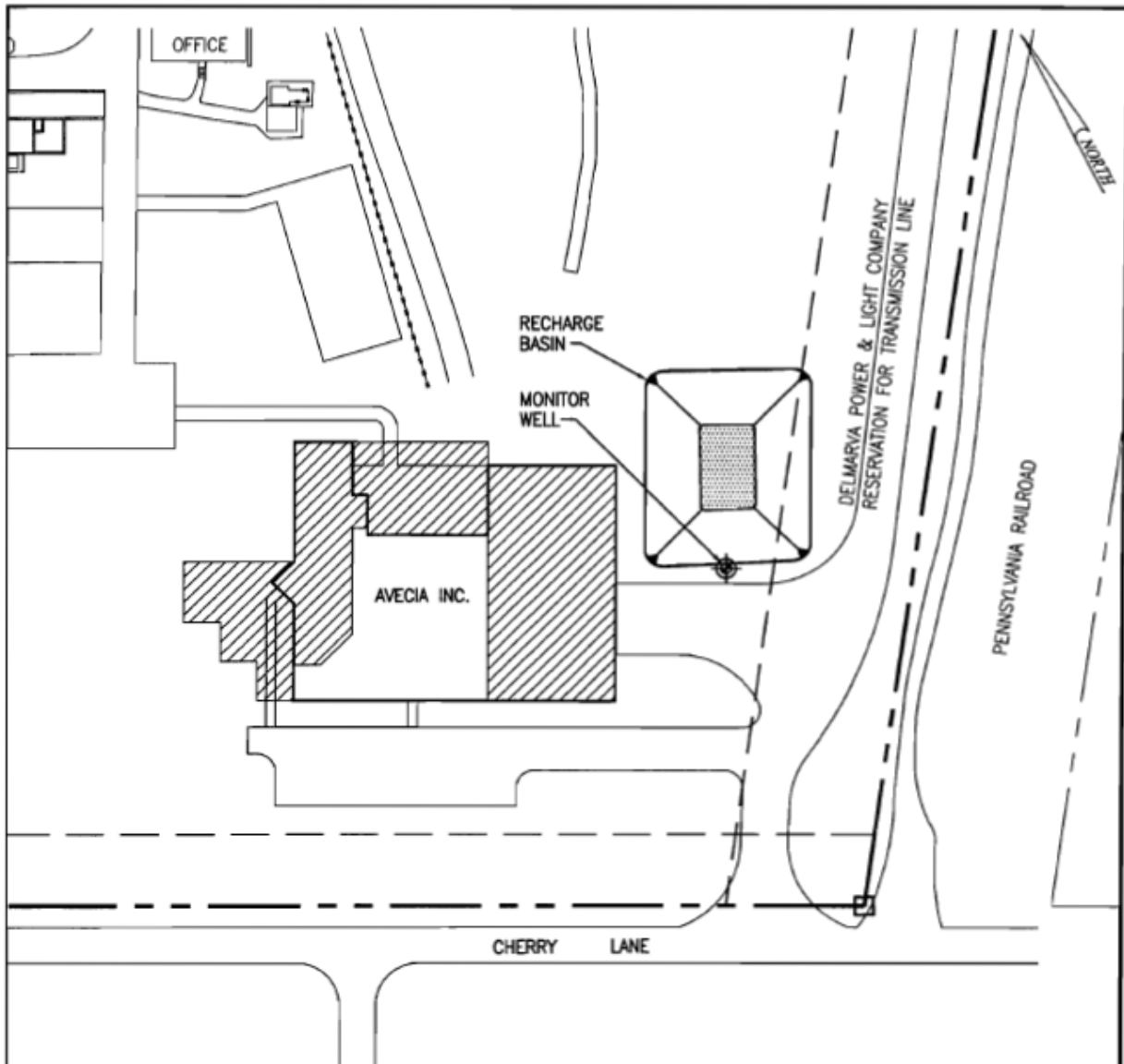
ANALYSES ⁽¹⁾										
Well Location and Sampling Dates	Metals					Nitrogen		Volatile Organic Compounds Chloroform (mg/l)	Turbidity (NTU) ⁽³⁾	Total Coliform /100 ml
	Primary Drinking Water					Nitrite (mg/l)	Nitrate (mg/l)			
	Barium (mg/l) ⁽²⁾	Cadmium (mg/l)	Chromium (mg/l)	Lead (mg/l)						
Well #1										
Annual August 2000	ND	ND	ND	ND	ND	ND	1.17	ND	20.4	negative
Annual August 1999	ND	ND	ND	ND	ND	ND	0.79	ND	45.6	positive
Annual August 1998	ND	ND	ND	ND	ND	ND	0.96	ND	181.	negative
Annual August 1997	ND	ND	ND	ND	ND	ND	0.864	ND	282.	positive
Annual August 1996 ⁽¹⁾	ND	ND	ND	ND	ND	ND	0.68	ND	243.	positive
Annual August 1995	ND	ND	ND	0.0034	ND	ND	1.7	ND	42.	positive
Annual August 1994 ^(*)	ND	ND	ND	ND	ND	ND	2.4	0.001	410.	positive
Baseline August 1993	ND	0.00076	0.0014	ND	0.03	4.5	ND	ND	670.	ND ^(*)
Recharge Basin #1										
Annual September 2000	ND	ND	ND	ND	ND	0.40	ND	ND	2.42	positive
Annual September 1999	ND	ND	ND	ND	ND	0.11	ND	ND	1.91	positive
Annual October 1998	ND	ND	ND	ND	ND	0.24	ND	ND	1.95	positive
Annual August 1997	0.10	ND	ND	ND	ND	0.106	ND	ND	2.33	positive
Annual August 1996 ⁽¹⁾	ND	ND	ND	ND	ND	0.50	ND	ND	73.3	positive
Annual September 1995	ND	ND	(5)	ND	0.03	0.36	0.03	ND	1.6	positive
Annual November 1994 ^(*)	ND	ND	ND	ND	0.02	0.25	0.02	ND	0.7	positive
Baseline May 1994	ND	ND	ND	ND	0.02	1.50	0.02	ND	0.7	(6)
State of DE Drinking Water Standards	2.	0.01	0.05	0.015	1	10	0.1	0.1	1.0	Zero
Primary Maximum Contaminant Levels										

NOTES:

- Listed in this table are those analyses which were reported at or above the laboratory method limit of quantitation for 1 or more of the samples.
- mg/l = milligrams per liter; NTU = Nephelometric Turbidity Units
- ND = None Detected at a concentration equal to or exceeding the laboratory minimum quantification limit
- An actual count of coliform bacteria could not be performed due to excessive growth of non-coliform bacteria. After well disinfection, a re-test (December 1993) indicated that coliforms were not detected in the sample.
- Analysis for iron, manganese and total coliform was not performed due to laboratory error. Reported results are for a water sample obtained November 1994.
- Not analyzed due to error on chain of custody form.
- An actual count of coliform bacteria could not be performed due to excessive growth of non-coliform bacteria.
- Analysis for chromium was not performed due to laboratory error. Reported result is for a water sample obtained November 1996.
- This table is part of a report entitled, "Water Resource Management Plan, Water Resource Monitoring, October 2000 Reporting Period, Report No. 13," for Avecia Inc. and should be viewed only in the context of that report.

EXCEL2631CO.XLS

W.O. 2631.CO
Duffield Associates, Inc.
October 2000



NOTE:
 THIS LOCATION PLAN IS BASED ADAPTED FROM "PROPOSED SITE PLAN FOR REPROGRAPHICS FACILITY - INK DYE RESITE PROJECT," PREPARED BY A E & C, DRAWING NO. 9370, C-1 AND DATED 5/25/93 (REV. 6/1/93) AND "PRELIMINARY MAJOR AND SUBDIVISION LAND DEVELOPMENT PLAN, PROPERTY OF ZENECA INC./ICI AMERICAS INC.," PREPARED BY ICI ENGINEERING NORTH AMERICA, W.O. 29999 AND DATED FEB. 12, 1993.

 ROOF AREA RECHARGED

RECHARGE BASIN LOCATION SKETCH
AVECIA INC.
 WILMINGTON
 NEW CASTLE COUNTY - DELAWARE

DUFFIELD ASSOCIATES
 CONSULTANTS IN THE GEOSCIENCES

5400 LIMESTONE ROAD
 WILMINGTON, DE 19868-1232
 TEL. (302)239-6634 FAX (302)239-8485
 1528 WALNUT STREET, SUITE 725
 PHILADELPHIA, PA 19102
 E-MAIL: DUFFIELD@DUFFNET.COM

Drawn: DSH Chk'd: *DLB*
 Scale: 1" = 80'
 Drawing No: A-4065CA-02

Date: 23 SEPTEMBER 1999
 W.O.: 4065.CA
FIGURE 2

© 1999 DUFFIELD ASSOCIATES, INC.

**AVECIA - BIOCIDES LABORATORY AND COLOURS BUILDING
COMBINED STORMWATER RECHARGE SYSTEM MONITORING**

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL, MW-2

Date Measured ⁽¹⁾⁽⁴⁾	Depth to Groundwater (Feet)		Height of Water In Well (Feet) ⁽³⁾
	Below Top of Casing	Below Grade ⁽²⁾	
26 Apr 2005	32.25	30.0	14.65
14 Dec 2004	33.2	30.95	13.7
09 Aug 2004	33.3	31.05	13.6
08 Apr 2004	34.4	32.15	12.5
16 Dec 2003	34.65	32.4	12.25
08 Aug 2003	34.45	32.2	12.45
04 Apr 2003	35.45	33.2	11.45
04 Dec 2002	37.2	34.95	9.7
07 Aug 2002	37.25	35.0	9.65
15 Apr 2002	37.0	34.75	9.9
21 Dec 2001	36.4	34.15	10.5
21 Aug 2001	35.55	33.3	11.35
04 Apr 2001	35.85	33.6	11.05
04 Jan 2001	36.25	34.0	10.65
29 Nov 2000	36.0	33.75	10.9
Average (mean)	35.3	33.0	11.6
High (04/26/05)	33.25	30.0	14.65
Low (08/07/02)	37.25	35.0	9.65

NOTES:

1. The period of record for depth to groundwater monitoring commenced 29 November 2000, prior to the Biocides Laboratory building recharge system being put into operation in December 2000.
2. Based on well casing stick-up = 2.25± feet above ground surface grade at well site.
3. Based on well bottom depth = 46.9± feet below top of well casing.
4. The 16 December 2003 water level is the initial water level measured after the combined recharge system was made fully operational on 01 October 2003.
5. This table is part of a report titled "Avecia Inc., Biocides Laboratory and Colours Building, Combined Recharge System, Monitoring Report No. 4," prepared by Duffield Associates, Inc. and dated September 2005, and must be evaluated within the context of that report.

**AVECIA - BIOCIDES LABORATORY AND COLOURS BUILDING
COMBINED STORMWATER RECHARGE SYSTEM MONITORING**

Table 2

**SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL, MW-2**

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
26 Apr 2005	6.1	43.0	61.9	3.3	<2.0	<8.0
14 Dec 2004	5.9	73.0	101.	8.2	<2.0	<8.0
09 Aug 2004	6.4	98.5	156.	8.4	<2.0	<8.0
08 Apr 2004	6.2	68.0	91.3	5.7	<2.0	<8.0
16 Dec 2003 ⁽⁴⁾	5.8	92.5	136.	6.0	<2.0	<8.0
08 Aug 2003	5.4	210.	357.	5.6	<2.0	<8.0
04 Apr 2003	5.6	64.5	96.6	6.1	<2.0	<8.0
04 Dec 2002	5.84	69.	109.	9.7	< 2.0	<8.0
07 Aug 2002	5.70	73.	99.4	7.6	< 2.0	< 8.0
15 Apr 2002	5.65	84.	137.	7.6	< 2.0	< 8.0
21 Dec 2001	5.66	75.	109.	7.5	< 2.0	< 8.0
21 Aug 2001	5.74	85.	114.	8.4	< 2.0	< 8.0
04 Apr 2001	5.66	81.	122.	17.8	< 1.0	< 8.0
04 Jan 2001 ⁽³⁾	5.69	86.	117.	20.2	1.1	< 8.0
Pre-Recharge 29 Nov 2000 ⁽³⁾	5.68	75.	126.	13.9	< 1.0	< 8.0
Post Recharge Mean	5.81	86.	129.	8.7	---	---
Median	5.72	78.	112.	7.6	< 2.0	< 8.0
Max.	6.4	210.	357.	20.2	< 2.0	< 8.0
Min.	5.4	43.0	61.9	3.3	---	---

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ);
Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The 29 November 2000 sample was obtained before the Biocides Laboratory building recharge system was put into operation in December 2000. The 04 January 2001 sample is the initial sample, collected after the system was put into operation.

4. Combined recharge system made fully operational 01 October 2003. The 16 December 2003 sample is the initial sample, collected after the combined recharge system was made fully operational.

5. This table is part of a report titled "Avecia Inc., Biocides Laboratory and Colours Building, Combined Recharge System, Monitoring Report No. 4," prepared by Duffield Associates, Inc. and dated September 2005, and must be evaluated within the context of that report.

**AVECIA - BIOCIDES LABORATORY AND COLOURS BUILDING
COMBINED STORMWATER RECHARGE SYSTEM MONITORING**

Table 3

**SUMMARY OF INDICATOR ANALYSES
COMBINED RECHARGE SYSTEM INFLOW WATER**

Sample Date	Analysis ⁽¹⁾					
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
20 May 2005	6.8	<30.	32.2	3.8	2.5	<8.0
14 Jan 2005	6.7	<30.	18.0	2.5	<2.0	<8.0
12 Nov 2004	6.2	<30.	20.4	3.4	2.8	8.8
02 Apr 2004	5.1	<30.	31.4	2.6	2.2	<8.0
17 Dec 2003 ⁽⁴⁾	6.6	<30.	25.7	2.5	2.2	<8.0
04 Sep 2003	6.8	<30.	53.4	6.4	<2.0	8.5
11 Apr 2003	7.7	38.5	79.4	5.9	<2.0	8.9
11 Dec 2002	6.32	47.	62.9	6.3	4.15	14.6
10 Oct 2002	6.91	< 30.	45.3	5.0	4.2	10.5
14 Jun 2002	5.85	< 30.	15.5	2.4	2.5	< 8.0
14 Dec 2001	4.93	< 30.	20.0	4.5	2.0	8.6
24 Sep 2001	5.74	< 30.	16.3	3.0	2.6	9.7
22 May 2001	4.59	< 30.	35.4	3.5	3.2	8.7
19 Jan 2001 ⁽³⁾	4.82	< 30.	19.7	2.5	1.7	< 8.0
Mean	6.08	---	34.0	3.9	---	---
Median	6.3	< 30.	28.6	3.5	2.4	---
Max	7.7	47.	79.4	6.4	4.2	14.6
Min	4.59	< 30.	15.5	2.4	<2.0	<8.0

AVECIA INC.
WATER RESOURCE MANAGEMENT

TABLE 1
SUMMARY OF QUARTERLY/SEMI-ANNUAL GROUNDWATER ANALYSES⁽⁴⁾
MONITOR WELL #1

Sample Date	pH	Conductivity (umhos/cm) ⁽¹⁾	Total Dissolved Solids (mg/l) ⁽²⁾	Chemical Oxygen Demand (mg/l)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)
07 Aug 2002	5.64	191.	122.	<8.	<2.	14.
05 Feb 2002	5.73	76.9	53.	<8.	<2.	9.8
21 Aug 2001	5.60	128.	85.	<8.	<2.	9.1
07 Feb 2001	5.70	108.	76.	<8.	1. 2	10.1
07 Aug 2000	5.79	105.	60.	<8.	<1.	13.7
03 Feb 2000	5.47	166.	110.	<8.	1. 2	8.5
18 Nov 1999	5.73	82.4	55.	9.4	1. 2	15.5
17 Aug 1999	5.38	130.	77.	<8.	<1.	25.
12 May 1999	5.58	164.	117.	<8.	<1.	30.3
19 Feb 1999	6.25	83.5	51.	10.2	<1.	10.
10 Nov 1998	7.40	97.7	72.	<8.	<1.	14.
07 Aug 1998	5.61	136.	77.	<8.	<1.	21.5
07 May 1998	5.49	108.	87.	<8.	<1.	24.5
27 Feb 1998	6.52	98.4	57.	<8.	<1.	9.8
24 Nov 1997	5.58	76.9	59.	<8.	<1.	12.2
11 Aug 1997	6.26	95.1	60.	<8.	<1.	14.7
08 May 1997	6.60	119.	77.	<8.	<1.	13.7
11 Feb 1997	5.38	91.9	46.	14.8	<1.	10.1
22 Nov 1996	5.71	198.	115.	<8.	<1.	24.9
14 Aug 1996	5.62	121.	80.	<7.	<1.	19.
17 May 1996	6.24	112.	70.	<7.	2.	17.
13 Feb 1996	5.62	121.	80.	<7.	<1.	21.
21 Nov 1995	5.60	136.	90.	<7.	<1.	23.
23 Aug 1995	5.61	181.	110.	<7.	<1.	22.
09 May 1995	5.69	164.	100.	<7.	1.	19.
10 Feb 1995	5.68	156.	110.	<7.	<1.	21.
09 Nov 1994	5.49	175.	110.	<7.	1.	25.
19 Aug 1994	5.53	171.	120.	7.	1.	25.
23 May 1994	5.57	320.	170.	<50.	2.	31.
18 Feb 1994 ⁽⁴⁾	6.31	371.	220.	N/A ⁽³⁾	1.	33.
14 Dec 1993 ⁽⁴⁾	5.35	262.	160.	<50.	<1.	28.
27 Aug 1993 ⁽⁴⁾	5.82	219.	150.	12.	<1.	25.
Pre-Recharge Basin						
Average (mean)	5.83	284.	177.	---	---	28.7
Minimum	5.35	219.	150.	---	<1.	25.
Maximum	6.31	371.	220.	---	1.	33.
Post-Recharge Basin						
Average (mean)	5.80	135.	86.	---	---	17.7
Minimum	5.38	76.9	46.	<7.	<1.	8.5
Maximum	7.40	320.	170.	14.8	2.	31.

AVECIA INC.
WATER RESOURCE MANAGEMENT

TABLE 2
SUMMARY OF QUARTERLY/SEMI-ANNUAL RECHARGE WATER ANALYSES⁽⁸⁾
RECHARGE BASIN #1

Sample Date	pH	Conductivity (umhos/cm) ⁽¹⁾	Total Dissolved Solids (mg/l) ⁽²⁾	Chemical Oxygen Demand (mg/l)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)
10 Oct 2002	6.11	9.6	<30.	<8.	2.6	2.2
18 Mar 2002	5.86	15.3	<30.	<8.	<2.	2.4
24 Sep 2001	9.90	90.7	77.	33.5	8.9	9.4
05 Feb 2001	5.64	6.6	<30.	<8.	<1.	<2.
19 Sep 2000	4.97	21.3	<30.	<8.	1.7	<2.
17 Mar 2000	6.17	8.7	<30.	<8.	<1.	2.4
12 Dec 1999	5.85	10.1	<30.	<8.	2.	2.2
16 Sep 1999	5.79	17.3	<30.	<8.	<1.	<2.
24 May 1999	5.14	13.1	<30.	<8.	1.9	2.6
18 Feb 1999	7.68	17.0	<30.	<8.	1.2	2.4
30 Dec 1998	7.00	23.2	<30.	9.1	2.8	3.1
08 Oct 1998	6.10	23.9	<30.	9.2	2.7	3.8
08 May 1998	6.21	14.1	<30.	<8.	1.9	2.7
23 Feb 1998	4.66	19.6	<30.	8.3	2.0	2.4
10 Dec 1997	4.80	70.6	46.	32.2	9.8	9.9
20 Aug 1997	7.91	6.4	<30.	<8.	1.1	<2.
03 June 1997	4.26	46.3	<30.	<8.	2.1	2.6
25 Feb 1997	8.25	11.5	<30.	<8.	<1.	<2.
26 Nov 1996	7.16	87.7	60.	8.5	2.8	11.5
13 Aug 1996	9.29	193.	130.	18.	4.	15.
28 May 1996	4.65	34.	<30.	18.	7.	8.
06 Mar 1996	5.71	38.	<30.	21.	6.	6.
07 Nov 1995	5.70	45.	<30.	37.	11.	11.
22 Sep 1995	7.16	16.	<30.	19.	6.	7.
02 May 1995	5.68	10.	<30.	<7.	2.	2.
23 Feb 1995	5.29	102.	90.	68.	23.	21.
16 Nov 1994	5.23	19.	<30.	<7.	3.	3.
01 Nov 1994	6.62	18.	<30.	15.	4.	4.
28 July 1994	4.76	27.	<30.	<50.	9.	8.
06 May 1994 ⁽³⁾	4.84	54.	<30.	<50.	12.	10.
Average (mean)	6.15	35.6	—	—	—	—
Minimum	4.26	6.4	<30.	<7.	<1.	<2.
Maximum	9.90	193.	130.	68.	23.	21.

WATER RESOURCE MANAGEMENT
TABLE 3

SUMMARY OF ANNUAL SAMPLING ANALYSES⁽¹⁾⁽²⁾

Well Location and Sampling Dates	ANALYSES ⁽¹⁾									
	Metals					Nitrogen		Herbicides	Turbidity (NTU)	Total Coliform ⁽³⁾ /100 ml
	Barium (mg/l) ⁽⁴⁾	Cadmium (mg/l)	Chromium (mg/l)	Lead (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	Chloroform (mg/l)			
Well #1										
Annual August 2002	(5)	ND	ND	ND	ND	1.23	ND	ND	63.2	negative
Annual August 2001	ND	0.00084	ND	0.0111	ND	0.89	ND	ND	36.6	positive
Annual August 2000	ND	ND	ND	ND	ND	1.17	ND	ND	20.4	negative
Annual August 1999	ND	ND	ND	ND	ND	0.79	ND	ND	45.6	positive
Annual August 1998	ND	ND	ND	ND	ND	0.96	ND	ND	181.	negative
Annual August 1997	ND	ND	ND	ND	ND	0.864	ND	ND	282.	positive
Annual August 1996 ⁽¹⁾	ND	ND	ND	ND	ND	0.68	ND	ND	243.	positive
Annual August 1995	ND	ND	ND	0.0034	ND	1.7	ND	ND	42.	positive
Annual August 1994 ⁽¹⁾	ND	ND	ND	ND	ND	2.4	0.001	ND	410.	positive
Baseline August 1993	ND	0.00076	0.0014	ND	0.03	4.5	ND	ND	670.	ND ⁽²⁾
Recharge Basin #1										
Annual October 2002	ND	ND	ND	ND	ND	0.14	ND	0.00051	0.82	positive
Annual September 2001	ND	ND	ND	ND	ND	0.68	ND	ND	14.0	positive
Annual September 2000	ND	ND	ND	ND	ND	0.40	ND	ND	2.42	positive
Annual September 1999	ND	ND	ND	ND	ND	0.11	ND	ND	1.91	positive
Annual October 1998	ND	ND	ND	ND	ND	0.24	ND	ND	1.95	positive
Annual August 1997	0.10	ND	ND	ND	ND	0.106	ND	ND	2.33	positive
Annual August 1996 ⁽¹⁾	ND	ND	ND	ND	ND	0.50	ND	ND	73.3	positive
Annual September 1995	ND	ND	(5)	ND	0.03	0.36	ND	ND	1.6	positive
Annual November 1994 ⁽¹⁾	ND	ND	ND	ND	0.02	0.25	ND	ND	0.7	positive
Baseline May 1994	ND	ND	ND	ND	0.02	1.50	ND	ND	0.7	(6)
State of DE Drinking Water Standards	2.	0.01	0.05	0.015	1	10	0.1	0.001	---	Zero
Primary Maximum Contaminant Levels										

NOTES:

- Listed in this table are those analyses which were reported as detected at or above the laboratory method limit of quantitation for 1 or more of the samples.
- mg/l = milligrams per liter; NTU = Nephelometric Turbidity Units. /100 ml = colonies per 100 milliliters
- ND = None Detected at a concentration equal to or exceeding the laboratory minimum quantification limit (MQL)
- An actual count of coliform bacteria could not be performed due to excessive growth of non-coliform bacteria. After well disinfection, a re-test (December 1993) indicated that coliforms were not detected in the sample.
- Analysis for iron, manganese and total coliform was not performed due to laboratory error. Reported results are for a water sample obtained November 1994.
- Not analyzed due to error on chain of custody form.
- An actual count of coliform bacteria could not be performed due to excessive growth of non-coliform bacteria.
- Analysis for chromium was not performed due to laboratory error. Reported result is for a water sample obtained November 1996.
- This table is part of a report entitled, "Avecia Colours Water Resource Management Plan, Semi-Annual Monitoring, October 2002 Reporting Period, Report No. 15," for Avecia Inc. and should be viewed only in the context of that report.

**AVECIA - BIOCIDES LABORATORY BUILDING
STORMWATER RECHARGE SYSTEM MONITORING**

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL, MW-2

Date Measured ⁽¹⁾	Depth to Groundwater (Feet)		Height of Water In Well (Feet) ⁽³⁾
	Below Top of Casing	Below Grade ⁽²⁾	
21 Dec 2001	36.4	34.15	10.5
21 Aug 2001	35.55	33.3	11.35
04 Apr 2001	35.85	33.6	11.05
04 Jan 2001	36.25	34.0	10.65
29 Nov 2000	36.0	33.75	10.9

NOTES:

1. The period of record for depth to groundwater monitoring commenced 29 November 2000.
2. Based on well casing stick-up = 2.25± feet above ground surface grade at well site.
3. Based on well bottom depth = 46.9± feet below top of well casing.
4. This table is part of a report titled "Avecia Inc., Biocides Laboratory Building, Monitoring Report No. 2 (November 2001)," prepared by Duffield Associates, Inc. and dated January 2002, and must be evaluated within the context of that report.

**AVECIA - BIOCIDES LABORATORY BUILDING
STORMWATER RECHARGE SYSTEM MONITORING**

Table 2

**SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL, MW-2**

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
21 Dec 2001	5.66	75.	109.	7.5	< 2.0	< 8.0
21 Aug 2001	5.74	85.	114.	8.4	< 2.0	< 8.0
04 Apr 2001	5.66	81.	122.	17.8	< 1.0	< 8.0
04 Jan 2001 ⁽³⁾	5.69	86.	117.	20.2	1.1	< 8.0
29 Nov 2000 ⁽³⁾	5.68	75.	126.	13.9	< 1.0	< 8.0

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the method limit of quantification (MLQ);
Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The 29 November 2000 sample was obtained before the recharge system was put into operation in December 2000. The 04 January 2001 sample is the initial sample, collected after the system was put into operation.

4. This table is part of a report titled "Avecia Inc., Biocides Laboratory Building, Monitoring Report No. 2 (November 2001)," prepared by Duffield Associates, Inc. and dated January 2002, and must be evaluated within the context of that report.

**AVECIA - BIOCIDES LABORATORY BUILDING
STORMWATER RECHARGE SYSTEM MONITORING**

Table 3

SUMMARY OF INDICATOR ANALYSES RECHARGE SYSTEM No. 2 INFLOW WATER

[illegible]

**AVECIA - BIOCIDES LABORATORY BUILDING
STORMWATER RECHARGE SYSTEM MONITORING**

TABLE 4

**SUMMARY OF ANNUAL ANALYSES
GROUNDWATER MONITOR WELL, MW-2**

Date Sampled	Analysis ⁽¹⁾⁽²⁾									
	Inorganics				Organics					
	Indicators		Metals (mg/l)		Regulated Pesticides/PCBs (mg/l)	Regulated Herbicides (mg/l)	Drinking Water Volatiles (mg/l)		Purgeable Aromatics	Purgeable Halocarbons
	Turbidity (NTU)	Nitrate (mg/l as N)	Lead	Cadmium						
21 Aug 2001	10.8	0.67	0.0064	0.0052	ND	ND	ND	ND	ND	ND
29 Nov 2000 ⁽¹⁾	13.6	1.50	ND	ND	ND	ND	ND	ND	ND	ND
Drinking Water MCL ⁽³⁾	1.	10.	0.015	0.005	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)

NOTES:

- Listed are those specific analyses with reported detections at concentrations equal to or exceeding the laboratory minimum limit of quantification (MLQ).
- Abbreviations and Symbols:
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter [approximately parts per million (ppm)]
ND = None detected at a concentration equal to or exceeding the MLQ
- Maximum Containment Level (MCL), based on the State of Delaware and US EPA Primary Drinking Water Standards.
- The 29 November 2000 sample was obtained before the recharge system was made operational about 01 December 2000.
- This table is part of a report titled "Avecia Inc., Biocides Laboratory Building, Monitoring Report No. 2 (November 2001)," prepared by Duffield Associates, Inc. and dated January 2002, and must be evaluated within the context of that report.

**ZENECA REPROGRAPHICS FACILITY
WATER RESOURCE MANAGEMENT**

TABLE 1

**SUMMARY OF QUARTERLY GROUNDWATER ANALYSES⁽⁴⁾
MONITOR WELL #1**

Sample Date	pH	Conductivity (umhos/cm) ⁽¹⁾	Total Dissolved Solids (mg/l) ⁽²⁾	Chemical Oxygen Demand (mg/l)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)
11 Feb 1997	5.38	91.9	46.	14.8	<1.	10.1
22 Nov 1996	5.71	198.	115.	<8.	<1.	24.9
14 Aug 1996	5.62	121.	80.	<7.	<1.	19.
17 May 1996	6.24	112.	70.	<7.	2.	17.
13 Feb 1996	5.62	121.	80.	<7.	<1.	21.
21 Nov 1995	5.60	136.	90.	<7.	<1.	23.
23 Aug 1995	5.61	181.	110.	<7.	<1.	22.
09 May 1995	5.69	164.	100.	<7.	1.	19.
10 Feb 1995	5.68	156.	110.	<7.	<1.	21.
09 Nov 1994	5.49	175.	110.	<7.	1.	25.
19 Aug 1994	5.53	171.	120.	7.	1.	25.
23 May 1994	5.57	320.	170.	<50.	2.	31.
18 Feb 1994 ⁽⁴⁾	6.31	371.	220.	N/A ⁽³⁾	1.	33.
14 Dec 1993 ⁽⁴⁾	5.35	262.	160.	<50.	<1.	28.
27 Aug 1993 ⁽⁴⁾	5.82	219.	150.	12.	<1.	25.
Average (Mean)	5.68	187.	115.	---	---	23.
Minimum	5.35	91.9	46.	<7.	<1.	10.1
Maximum	6.31	371.	220.	14.8	2.	33.

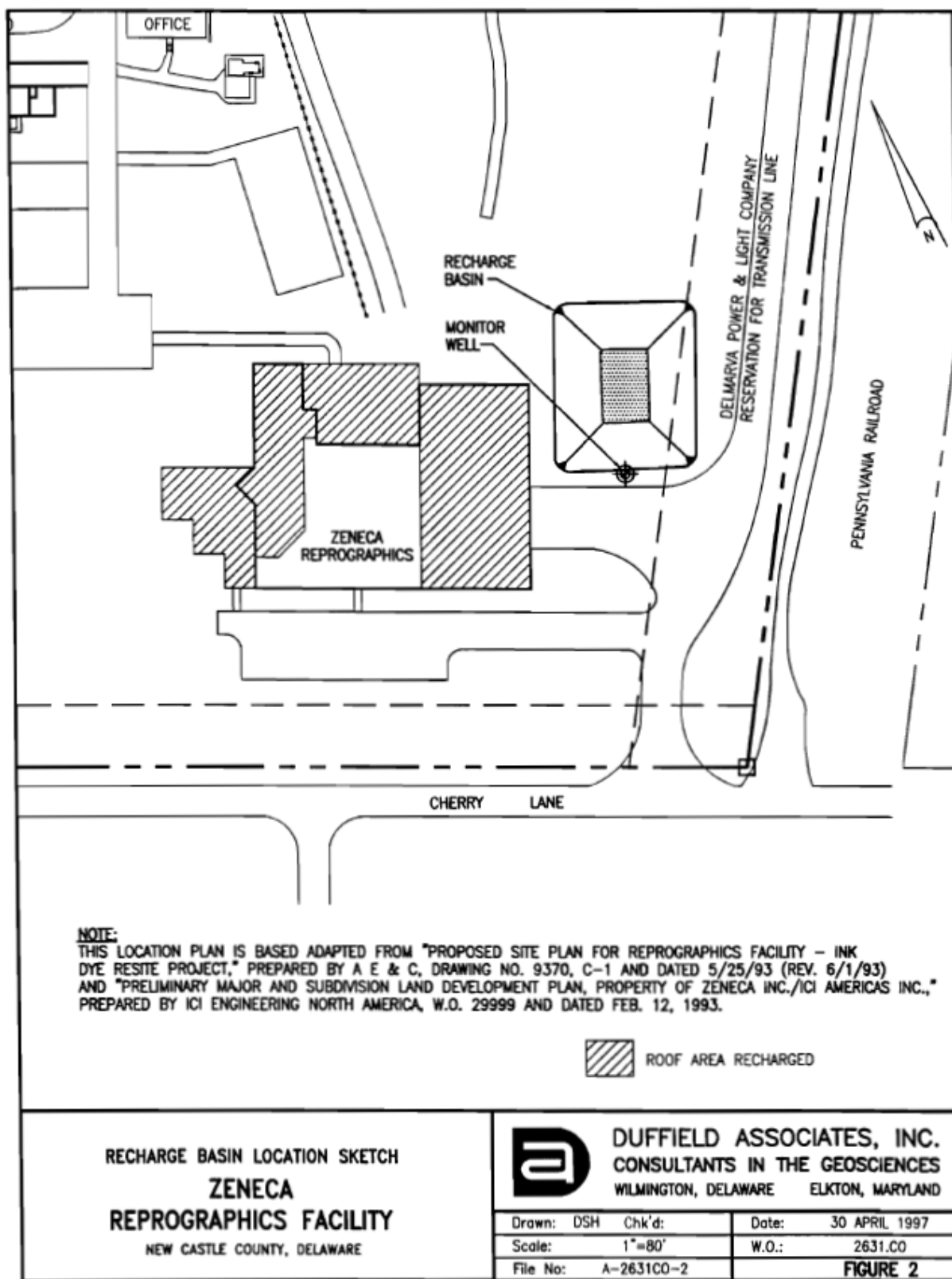
- NOTES:
1. umhos/cm = umhos per centimeter
 2. mg/l = milligrams per liter [approximate parts per million (ppm)]
 3. N/A = Not Analyzed
 4. Recharge system completed and brought on line in May 1994. Samples collected prior to May 1994 are indicative of pre-recharge groundwater conditions.
 5. This table is part of a report entitled, "Water Resource Management Plan, Water Resource Monitoring, May 1997 Reporting Period, Report No. 7", for the Zeneca Reprographics Facility and should be viewed only in the context of that report.

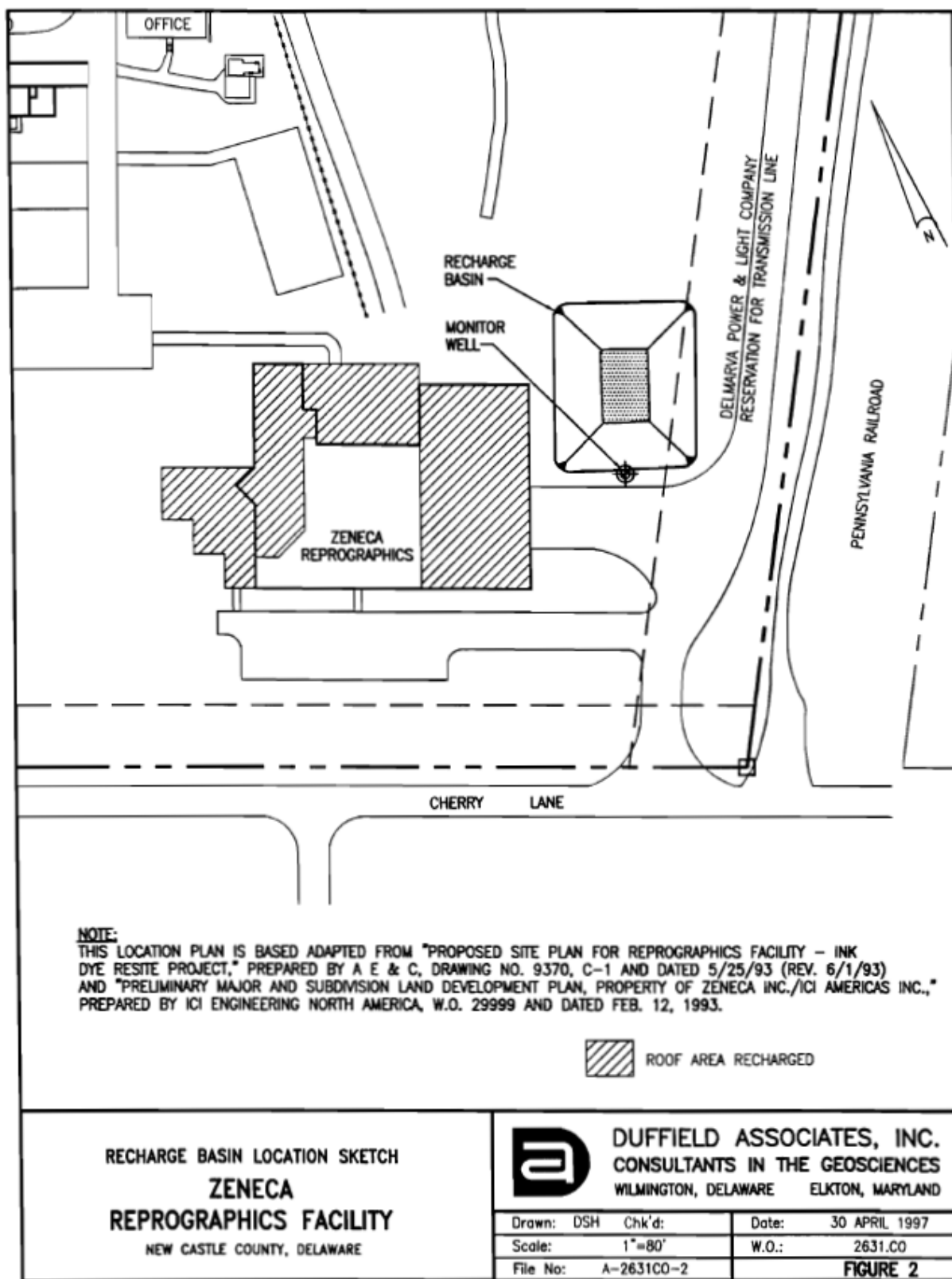
**ZENACA REPROGRAPHICS FACILITY
WATER RESOURCE MANAGEMENT**

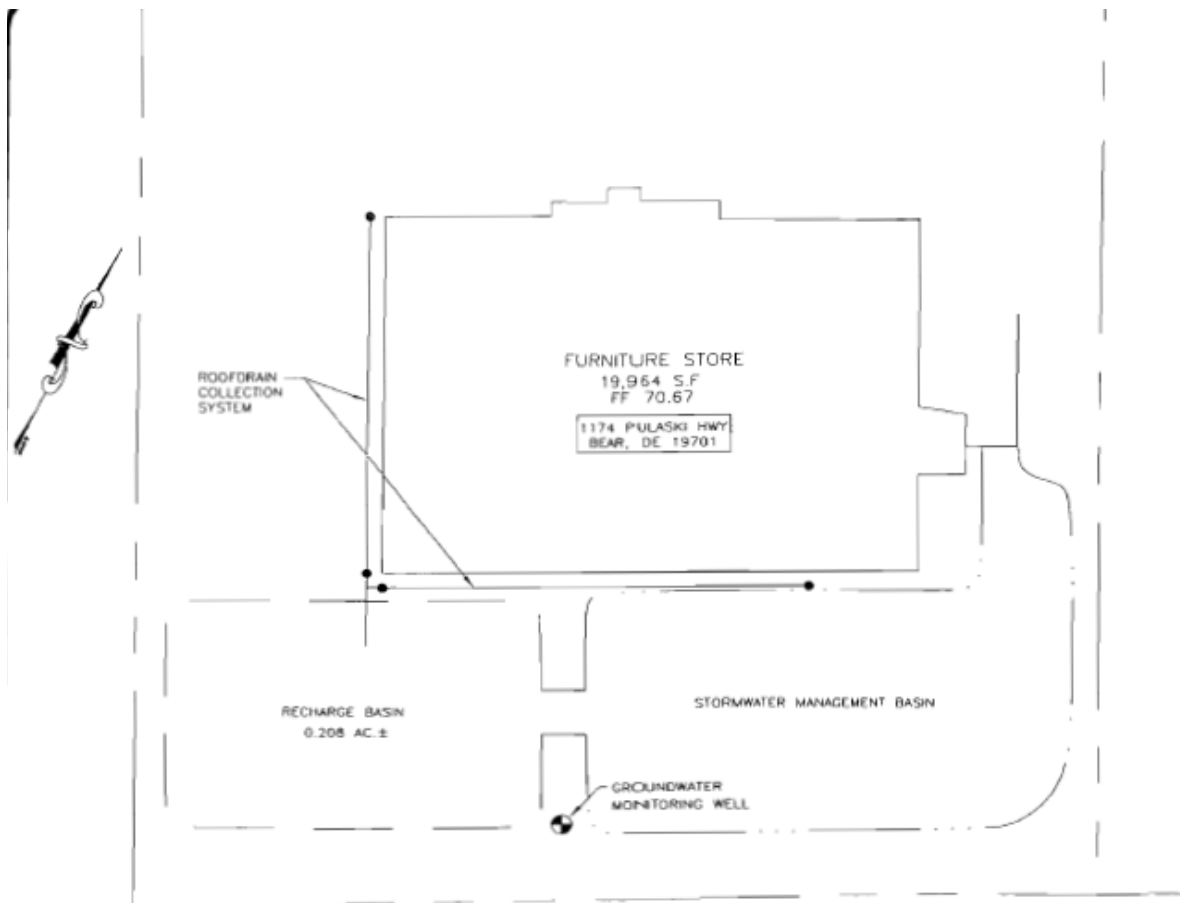
TABLE 2

**SUMMARY OF QUARTERLY RECHARGE WATER ANALYSES⁽⁵⁾
RECHARGE BASIN #1**

Sample Date	pH	Conductivity (umhos/cm) ⁽¹⁾	Total Dissolved Solids (mg/l) ⁽²⁾	Chemical Oxygen Demand (mg/l)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)
25 Feb 1997	8.25	11.5	<30.	<8.	<1.	<2.
26 Nov 1996	7.16	87.7	60.	8.5	2.8	11.5
13 Aug 1996	9.29	193.	130.	18.	4.	15.
28 May 1996	4.65	34.	<30.	18.	7.	8.
06 Mar 1996	5.71	38.	<30.	21.	6.	6.
07 Nov 1995	5.70	45.	<30.	37.	11.	11.
22 Sep 1995	7.16	16.	<30.	19.	6.	7.
02 May 1995	5.68	10.	<30.	<7.	2.	2.
23 Feb 1995	5.29	102.	90.	68.	23.	21.
16 Nov 1994	5.23	19.	<30.	<7.	3.	3.
01 Nov 1994	6.62	18.	<30.	15.	4.	4.
28 July 1994	4.76	27.	<30.	<50.	9.	8.
06 May 1994 ⁽³⁾	4.84	54.	<30.	<50.	12.	10.
Average (Mean)	6.18	50.	---	---	7.	8.
Minimum	4.65	10.	<30.	<7.	<1.	<2.
Maximum	9.29	193.	130.	68.	23.	21.








NOTES:

1. THIS SKETCH IS BASED ON THE FOLLOWING: "INDEX PLAN FOR GLENDALE WEST," PREPARED BY LANDMARK ENGINEERING, AND DATED 10 APRIL 2000, AND "GROUNDWATER MONITORING WELL PLAN FOR GLENDALE WEST," PREPARED BY LANDMARK ENGINEERING AND DATED 01 JULY 2003.
2. THE ENTIRE PARCEL IS LOCATED WITHIN A DESIGNATED WELLHEAD WATER RESOURCE PROTECTION AREA (WRPA) OVERLAY DISTRICT, AS ESTABLISHED BY THE NEW CASTLE COUNTY UNIFIED DEVELOPMENT CODE (UDC, CHAPTER 13, ARTICLE 10, DIVISION 10.380).

DATE: 26 MARCH 2004	<p>SKETCH</p> <p>STORMWATER RECHARGE BASIN</p> <p>GLENDALE WEST</p> <p>NEW CASTLE COUNTY-DELAWARE</p>	DESIGNED BY: ---	 <p>4801 E. 10th Street, Suite 210 Tulsa, Oklahoma 74116 P: 918.466.1111 F: 918.466.1112 www.duffieldassociates.com</p>
SCALE: 1"=50' ±		DRAWN BY: GLT	
W.O. NO. 4266.CE		CHECKED BY: MJG	
SHEET: FIGURE 2		FILE: A-4266.CE-01	

**GLENDALE WEST
STORMWATER RECHARGE SYSTEM MONITORING**

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL

Date Measured ⁽¹⁾	Depth to Groundwater (Feet)		Height of Water In Well (Feet) ⁽³⁾
	Below Top of Casing	Below Grade ⁽²⁾	
16 Nov 2004	41.25	39.1	16.5
11 Aug 2004	44.55	42.4	13.2
29 May 2004	46.1	43.95	11.6
01 Mar 2004	46.75	44.6	10.95
14 Nov 2003	47.65	45.5	10.05
30 Jul 2003 ⁽⁴⁾	48.1	45.95	9.6

NOTES:

1. The period of record for depth to groundwater monitoring commenced 30 July 2004
2. Based on well casing stick-up = 2.15± feet above ground surface grade at well site.
3. Based on well bottom depth = 57.7± feet below top of well casing.
4. The 30 July 2004 sample was collected prior to the stormwater recharge system was put into operation
5. This Table is part of a report, titled "Glendale West, Stormwater Recharge System, Monitoring Report No. 3," prepared by Duffield Associates, Inc. and dated May 2005, and must be evaluated within the context of that report.

**GLENDALE WEST
STORMWATER RECHARGE SYSTEM MONITORING**

Table 2

**SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL**

Sample Date	Analysis ⁽¹⁾					
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
16 Nov 2004	5.7	51	76.6	5.3	<2.0	<8.0
11 Aug 2004	6.1	171	308	8.5	<2.0	<8.0
27 May 2004	6.0	259	392	12.4	<2.0	<8.0
01 Mar 2004	5.8	254	421	13.9	<2.0	<8.0
14 Nov 2003	6.0	141	222	13.8	<2.0	<50.0
30 Jul 2003 ⁽³⁾	5.7	193	339	18.3	<2.0	63.6

NOTES:

1 Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2 Standard pH units.

3. The 30 July 2003 sample was obtained before the recharge system was made operational.

4. This Table is part of a report, titled "Glendale West, Stormwater Recharge System, Monitoring Report No. 3," prepared by Duffield Associates, Inc. and dated May 2005, and must be evaluated within the context of that report.

**GLENDALE WEST
STORMWATER RECHARGE SYSTEM MONITORING**

Table 3

**SUMMARY OF INDICATOR ANALYSES
RECHARGE SYSTEM INFLOW**

Sample Date ⁽¹⁾	Analysis ⁽²⁾					
	pH ⁽³⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
12 Nov 2004	4.5	<30.0	20.1	2.3	2.5	8.4
12 Jul 2004	4.2	<30.0	65.8	7.6	7.5	18.6
03 Feb 2004	5.1	<30.0	21.3	<2.0	<2.0	<8.0
11 Dec 2003	6.1	<30.0	14.4	<2.0	<2.0	<50.0
27 Oct 2003	6.6	<30.0	44.4	5.1	3.0	<50.0

NOTES:

1. The period of record commenced with the initial water sample, collected on 27 October 2003.
2. Abbreviations and Symbols
 - mg/l milligrams per liter [approximately parts per million (ppm)]
 - µmhos/cm micromhos per centimeter
 - < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]
3. Standard pH units.
4. This Table is part of a report, titled "Glendale West, Stormwater Recharge System, Monitoring Report No. 3," prepared by Duffield Associates, Inc. and dated May 2005 and must be evaluated within the context of that report.

**GLENDALE WEST
STORMWATER RECHARGE SYSTEM MONITORING**

Table 3

**SUMMARY OF INDICATOR ANALYSES
RECHARGE SYSTEM INFLOW**

Sample Date ⁽¹⁾	Analysis ⁽²⁾					
	pH ⁽³⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
12 Nov 2004	4.5	<30.0	20.1	2.3	2.5	8.4
12 Jul 2004	4.2	<30.0	65.8	7.6	7.5	18.6
03 Feb 2004	5.1	<30.0	21.3	<2.0	<2.0	<8.0
11 Dec 2003	6.1	<30.0	14.4	<2.0	<2.0	<50.0
27 Oct 2003	6.6	<30.0	44.4	5.1	3.0	<50.0

NOTES:

1. The period of record commenced with the initial water sample, collected on 27 October 2003.
2. Abbreviations and Symbols
 - mg/l milligrams per liter [approximately parts per million (ppm)]
 - µmhos/cm micromhos per centimeter
 - < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]
3. Standard pH units.
4. This Table is part of a report, titled "Glendale West, Stormwater Recharge System, Monitoring Report No. 3," prepared by Duffield Associates, Inc. and dated May 2005 and must be evaluated within the context of that report.

**GOVERNOR'S SQUARE
WATER RESOURCE MANAGEMENT**

Table 1
**SUMMARY OF ROUTINE GROUNDWATER ANALYSES
MONITOR WELL #1**

Sample Date	pH	Total Dissolved Solids (mg/l)	Conductivity (umhos/cm)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)	Barium (mg/l)
Apr 2003	6.7	83.5	179.	<2.0	2.7	0.14
Apr 2002	5.89	162.	286.	<2.0	5.7	0.185
Apr 2001	6.13	73.	133.	<1.0	5.9	
Oct 2000	5.77	69.	118.	<1.0	4.6	ND
Apr 2000	5.91	65.	127.	<1.0	3.2	
Oct 1999	6.12	40.	77.1	<1.0	3.0	ND
Apr 1999	6.20	62.	127.	<1.0	4.2	
Oct 1998	5.90	43.	96.6	<1.0	3.2	ND
Apr 1998	5.73	84.	88.4	<1.0	4.7	
Oct 1997	6.64	87.	144.	<1.0	6.6	ND
Apr 1997	5.93	65.	123.	1.0	4.0	
Oct 1996	7.45	60.	98.	<1.0	4.	ND
Apr 1996	6.22	130.	230.	1.	2.	
Oct 1995	6.57	50.	53.	<1.	<2.	ND
Apr 1995	5.93	50.	64.	<1.	3.	
Jan 1995	6.09	<30.	42.	<1.	<2.	
Oct 1994	5.85	60.	87.	<1.	4.	ND
Jul 1994	5.98	60.	87.	<1.	9.	
Apr 1994	5.94	60.	94.	2.	2.	
Feb 1994	5.75	30.	66.	<1.	3.	
Oct 1993	5.61	<30.	49.	1.	<2.	ND
Jul 1993	6.12	40.	63.	1.8	3.	
Apr 1993	5.76	50.	65.	0.8	7.	
Jan 1993	6.15	50.	75.	<0.5	3.	
Oct 1992	5.97	40.	83.	<0.5	2.	ND
Jul 1992	5.92	60.	103.	1.2	2.	
Apr 1992	6.17	60.	137.	1.3	7.	
Jan 1992	5.65	90.	132.	1.6	5.	
Oct 1991	5.68	60.	80.	<0.5	3.	ND
Jul 1991	6.12	40.	82.	1.3	4.	
Apr 1991	5.71	70.	103.	0.9	4.	
Pre-Recharge Basin #3						
Average (mean)	5.98	88.	143.	1.	7.	ND
Minimum	5.72	70.	118.	1.	3.	
Maximum	6.51	125.	199.	2.	11.	ND
Post-Recharge Basin #3						
Average (mean)	6.05	61.	106.	--	3.7	ND
Minimum	5.61	<30.	42.	<0.5	<2.	ND
Maximum	7.45	162.	286.	2.	9.	0.185

- Notes:
1. umhos/cm = umhos per centimeter, mg/l = milligrams per liter, ND/< = not detected at the laboratory minimum quantification limit.
 2. Pre-Recharge Basin #3 summary is based on 7 samples, collected prior to February 1991, when Recharge Basin #3 came on-line. Post-Recharge Basin #3 summary is based on 31 samples, obtained on a quarterly interval, between April 1991 and April 1995, on a semi-annual (April and October) interval between April 1995 and April 2001, and an annual interval after April 2001.
 3. Average (mean) value shown for Total Dissolved Solids, Total Organic Carbon, and Total Carbon is calculated using < (less than) levels equal to zero.
 4. This table is part of a report entitled, "Water Resource Management Plan, Water Resource Monitoring, April 2003 Reporting Period, Report No. 38, for Governor's Square," and should be viewed only in that context.

Project No. 3937.CC
Duffield Associates, Inc.
August 2003

**GOVERNOR'S SQUARE
WATER RESOURCE MANAGEMENT**
Table 2
**SUMMARY OF ROUTINE GROUNDWATER ANALYSES
MONITOR WELL #2**

Sample Date	pH	Total Dissolved Solids (mg/l)	Conductivity (umhos/cm)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)	Barium (mg/l)
Apr 2003	6.2	188.	336.	<2.0	19.6	0.22
Apr 2002	5.76	211.	346.	<2.0	12.3	0.221
Apr 2001	5.85	209.	380.	<1.0	16.5	
Oct 2000	5.74	173.	302.	<1.0	11.7	0.200
Apr 2000	5.77	167.	312.	<1.0	11.6	
Oct 1999	5.82	136.	209.	<1.0	10.6	0.13
Apr 1999	5.90	137.	244.	<1.0	13.6	
Oct 1998	5.84	138.	299.	<1.0	13.6	0.11
Apr 1998	5.68	161.	198.	<1.0	16.0	
Oct 1997	6.22	174.	229.	<1.0	10.7	0.10
Apr 1997	5.99	94.	172.	<1.0	11.5	
Oct 1996	6.20	100.	161.	<1.0	13.	0.11
Apr 1996	6.00	100.	146.	1.	14.	
Oct 1995	5.96	100.	162.	<1.	12.	0.11
Apr 1995	5.70	110.	149.	<1.	12.	
Jan 1995	5.88	100.	157.	2.	12.	
Oct 1994	5.81	100.	164.	<1.	12.	ND
Jul 1994	5.88	90.	140.	<1.	13.	
Apr 1994	5.88	100.	146.	2.	8.	
Feb 1994	5.74	80.	148.	<1.	10.	
Oct 1993	5.83	80.	146.	1.	9.	0.056
Jul 1993	6.01	100.	138.	3.5	10.	
Apr 1993	5.78	90.	134.	0.8	6.	
Jan 1993	5.97	90.	134.	0.9	6.	
Oct 1992	5.81	70.	143.	<0.5	8.	0.05
Jul 1992	5.94	90.	157.	0.7	5.	
Apr 1992	6.08	90.	144.	3.4	9.	
Jan 1992	5.76	110.	142.	1.2	4.	
Oct 1991	5.83	100.	137.	<0.5	6.	0.07
Jul 1991	6.04	100.	151.	0.8	7.	
Apr 1991	5.85	100.	153.	0.6	9.	
Pre-Recharge Basin #3						
Average (mean)	6.08	161.	183.	0.6	7.	
Minimum	5.78	100.	151.	<0.5	4.	ND
Maximum	6.34	270.	266.	1.5	9.	0.06
Post-Recharge Basin #3						
Average (mean)	5.89	119.	193.	--	10.7	0.11
Minimum	5.68	70.	134.	<0.5	4.	ND
Maximum	6.22	211.	380.	3.5	19.6	0.221

- Notes:
1. umhos/cm = umhos per centimeter, mg/l = milligrams per liter, ND/< = not detected at the laboratory minimum quantification limit.
 2. Pre-Recharge Basin #3 summary is based on 7 samples, collected prior to February 1991, when Recharge Basin #3 came on-line. Post-Recharge Basin #3 summary is based on 31 samples, obtained on a quarterly interval between April 1991 and April 1995, on a semi-annual (April and October) interval between April 1995 and April 2001, and on an annual basis after April 2001.
 3. Average (mean) value shown for Total Dissolved Solids, Total Organic Carbon, and Total Carbon is calculated using < (less than) levels equal to zero.
 4. This table is part of a report entitled, "Water Resource Management Plan, Water Resource Monitoring, April 2003 Reporting Period, Report No. 38, for Governor's Square," and should be viewed only in that context.

Project No. 3937.CC
Duffield Associates, Inc.
August 2003

**GOVERNOR'S SQUARE
WATER RESOURCE MANAGEMENT
Table 3**

**SUMMARY OF ROUTINE STORMWATER INFLOW ANALYSES
RECHARGE BASIN #3**

Sample Date	pH	Total Dissolved Solids (mg/l)	Conductivity (umhos/cm)	Total Organic Carbon (mg/l)	Total Carbon (mg/l)	Barium (mg/l)
Apr 2003	6.6	<30.	47.2	2.3	4.3	ND
May 2002	4.33	<30.	34.3	2.2	2.4	ND
May 2001	6.74	<30.	38.1	5.2	6.6	
Nov 2000	5.94	52.	80.	8.3	8.8	ND
Apr 2000	7.85	<30.	43.5	4.9	6.1	
Oct 1999	6.45	<30.	39.8	4.7	5.6	ND
May 1999	5.86	<30.	50.3	6.8	8.2	
Oct 1998	6.43	37.	44.1	6.9	8.7	ND
May 1998	6.85	<30.	32.8	6.7	9.3	
Oct 1997	6.24	<30.	48.1	4.8	7.9	ND
May 1997	6.17	37.	74.7	8.5	11.6	
Oct 1996	7.55	<30.	36.	5.	7.	ND
Apr 1996	7.60	100.	156.	5.	10.	
Oct 1995	7.05	30.	21.	3.	4.	ND
May 1995	6.62	<30.	27.	4.	5.	
Jan 1995	7.08	<30.	17.	2.	3.	
Oct 1994	5.59	40.	55.	7.	7.	ND
Jul 1994	7.33	60.	25.	4.	4.	
May 1994	6.41	40.	54.	5.	5.	
Feb 1994	5.85	<30.	12.	<1.	<2.	
Oct 1993	4.42	<30.	25.	3.	<2.	ND
Jul 1993	NS	NS	NS	NS	NS	
Apr 1993	5.76	20.	26.	1.7	<2.	
Jan 1993	4.41	20.	44.	1.4	<2.	
Nov 1992	5.73	20.	62.	3.8	4.	ND
Aug 1992	7.41	40.	59.	2.4	5.	
Apr 1992	5.24	30.	63.	3.5	4.	
Jan 1992	4.75	40.	74.	3.9	5.	
Nov 1991	5.78	<10.	42.	2.9	3.	ND
Jul 1991	6.41	20.	73.	7.8	8.	
Apr 1991	NS	NS	NS	NS	NS	
Feb 1991	5.99	60.	102.	7.2	7.	0.01
Average (mean)	6.21	22.	50.	4.6	5.7	ND
Minimum	4.33	<10.	12.	<1.	<2.	ND
Maximum	7.85	100.	156.	8.5	11.6	0.01

- Notes:
1. umhos/cm = umhos per centimeter, mg/l = milligrams per liter, NS = not sampled, ND/< = not detected at the laboratory minimum quantification limit.
 2. Monitoring commenced in February 1991, when Recharge Basin #3 came on-line.
 3. Average (mean) value shown for Total Dissolved Solids, Total Organic Carbon, and Total Carbon is calculated using < (less than) levels equal to zero.
 4. This table is part of a report entitled, "Water Resource Management Plan, Water Resource Monitoring, April 2003 Reporting Period, Report No. 38, for Governor's Square," and should be viewed only in that context.

Project No. 3937.CC
Duffield Associates, Inc.
August 2003

EXCEL/3937CC.xls

**GOVERNOR'S SQUARE II
STORMWATER RECHARGE SYSTEM MONITORING**

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL

Date Measured ⁽¹⁾	Depth to Groundwater (Feet)		Height of Water in Well (Feet) ⁽³⁾
	Below Top of Casing	Below Grade ⁽²⁾	
02 Nov 2006	35.3	32.8	11.2
08 Aug 2006	35.15	32.65	11.35
17 May 2006	35.3	32.8	11.2
02 Feb 2006	34.8	32.3	11.7
14 Nov 2005	33.85	31.35	12.65
29 Jul 2005	31.85	29.35	14.65
26 May 2005	31.5	29.0	15.0
23 Feb 2005	32.7	30.2	13.8
14 Nov 2004	34.05	31.55	12.45
28 Oct 2004 (4)	34.45	31.95	12.05

NOTES:

1. The period of record for depth to groundwater monitoring commenced 28 October 2004.
2. Based on well casing stick-up = 2.5± feet above ground surface grade at well site.
3. Based on well bottom depth = 46.5± feet below top of well casing.
4. The 28 October 2004 measurement was performed before the recharge system was made operational.
5. This Table is part of a report, titled "Governor's Square II, Stormwater Recharge System, Monitoring Report No. 5," prepared by Duffield Associates, Inc. and dated January 2007, and must be evaluated within the context of that report.

**GOVERNOR'S SQUARE II
STORMWATER RECHARGE SYSTEM MONITORING**

Table 2

**SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL**

Sample Date	Analysis ⁽¹⁾					
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
02 Nov 2006	6.0	96.0	165.	6.0	4.3	<8.0
08 Aug 2006	5.9	102.	178.	14.0	<2.0	<8.0
17 May 2006	5.9	157.	230.	11.7	<2.0	<8.0
02 Feb 2006	5.6	168.	289.	14.0	<2.0	<8.0
14 Nov 2005	5.9	103.	164.	10.8	<2.0	<8.0
29 July 2005	5.6	72.5	125.	7.7	<2.0	<8.0
26 May 2005	5.6	76.5	125.	7.1	<2.0	<8.0
23 Feb 2005	5.7	71.0	122.	13.6	<2.0	<8.0
11 Nov 2004	5.7	101.	178.	13.7	<2.0	<8.0
Pre-Recharge 28 Oct 2004 ⁽³⁾	5.6	121.	207.	9.7	<2.0	<8.0
Post Recharge Mean	5.8	105.	175.	11.0	---	---
Median	5.7	101.	165.	11.7	<2.0	<8.0
Max.	6.0	168.	289.	14.0	4.3	<8.0
Min.	5.6	71.0	122.	6.0	<2.0	---

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The period of record commenced with the sample collected on 28 October 2004, before the recharge system was made operational in October 2004.

4. This Table is part of a report, titled "Governor's Square II, Stormwater Recharge System, Monitoring Report No. 5," prepared by Duffield Associates, Inc. and dated January 2007, and must be evaluated within the context of that report.

**GOVERNOR'S SQUARE II
STORMWATER RECHARGE SYSTEM MONITORING**

Table 3

**SUMMARY OF INDICATOR ANALYSES
RECHARGE SYSTEM INFLOW**

Sample Date ⁽¹⁾	Analysis ⁽²⁾					
	pH ⁽³⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
08 Nov 2006	5.8	<30.0	11.2	<2.0	<2.0	<8.0
01 Sep 2006	6.1	<30.0	21.3	2.7	2.3	<8.0
26 June 2006	4.9	<30.0	16.7	5.0	<2.0	<8.0
Feb 2006	--	--	--	--	--	--
29 Dec 2005	5.9	<30.0	19.8	4.1	3.7	8.9
15 Sep 2005	5.7	<30.0	15.2	4.1	2.7	10.7
08 July 2005	5.8	<30.0	16.9	5.6	4.0	13.0
23 Mar 2005	5.5	<30.0	20.0	<2.0	<2.0	<8.0
12 Nov 2004	6.1	<30.0	15.4	3.9	3.8	12.0
Mean	5.7	--	17.1	--	--	--
Median	5.8	<30.0	16.8	4.0	2.5	---
Max.	6.1	<30.0	21.3	5.6	4.0	13.0
Min.	4.9	--	11.2	<2.0	<2.0	<8.0

December 2009 Quarterly Sampling Event

Hockessin Crossing

On December 31, 2009, Atlantic Hydrologic, Inc. reviewed the condition of the sumps and manways of the stormwater handling system and collected a stormwater sample for laboratory analysis. As indicated on the field summary table, the monitoring well did not contain groundwater. Accordingly, a sample was not collected for laboratory analysis.

The stormwater conveyance system appeared to be operational and did not contain any debris or obstructions. Water was flowing through the system and collecting within the infiltration chamber. Approximately 0.35 feet of water was measured in the chamber through the inspection port. The water flowing through the system was described as clear to partly cloudy. The New Castle County Airport reported 0.36 inches of precipitation on the day of sampling. However, a large stockpile of melting snow on the east side of the parking lot was also contributing some run-off into the stormwater handling system.

A table summarizing our field observations follows this page. The water sample was collected from a port that was recently installed in the infiltration chamber of the water handling system. The sample was collected using a peristaltic pump and placed directly into laboratory prepared bottle ware. The sample was submitted to Atlantic Coast Laboratories, Inc. for analysis of the quarterly parameters included in the water management agreement:

- o pH (EPA Method 150.1)
- o Specific Conductance (EPA Method 120.1)
- o Total Dissolved Solids (EPA Method 160.1)
- o Total Carbon (EPA Method 415.1)
- o Total Organic Carbon (EPA Method 415.1)
- o Chemical Oxygen Demand (EPA Method 410.4).

A copy of the laboratory report is attached and the results are summarized as follows, along with the results collected to date.

Laboratory Parameters	Results Dec 2009	Results Sept 2009	Results June 2009	Results March 2009	EPA MCL
pH	8.37	7.40	7.95	5.75	6.5-8.5*
Conductivity (umhos)	1,193	174	224	2,380	-
Total Carbon (Mg/L)	40	15	19	22	-
TOC (Mg/L)	7.0	2.7	3.8	5.5	-
TDS (Mg/L)	614	102	161	1,300	500*
COD (Mg/L)	52	26	15	46	-
Notes:	<ol style="list-style-type: none">1. Mg/L = milligrams per liter.2. * Indicates Secondary Standard, non enforceable, for aesthetic effects (i.e. taste, odor)3. TOC = Total Organic Carbon4. TDS = Total Dissolved Solids5. COD = Chemical Oxygen Demand (COD)				

**LANTANA SQUARE
STORMWATER RECHARGE SYSTEM MONITORING**

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL

Date Measured ⁽¹⁾	Depth to Groundwater (Feet)		Height of Water In Well (Feet) ⁽³⁾
	Below Top of Casing	Below Grade ⁽²⁾	
06 Jul 2009	37.15	35.15	34.85
08 Apr 2009	42.45	40.45	29.55
15 Jan 2009	42.5	40.5	29.5
08 Oct 2008	39.15	37.15	32.85
11 Jul 2008	36.4	34.4	35.6
01 Apr 2008	37.45	35.45	34.55
04 Jan 2008	39.55	37.55	32.45
02 Oct 2007	36.9	34.9	35.1
09 July 2007	34.05	32.05	37.95
05 April 2007	34.3	32.3	37.7
01 Feb 2007	34.25	32.25	37.75
10 Oct 2006	35.0	33.0	37.0
10 July 2006	34.0	32.0	38.0
21 May 1999 ⁽⁴⁾⁽⁵⁾	40.0	38.0	32.0

NOTES:

1. The period of record for depth to groundwater monitoring commenced 21 May 1999.
2. Based on well casing stick-up = 2.0± feet above ground surface grade at well site.
3. Based on well bottom depth = 72.0± feet below top of well casing.
4. Measurement performed by Roy F. Weston, Inc. All other samples collected by Duffield Associates, Inc.
5. Water level measurements were not provided to Duffield Associates for the 09 January 1998 and 10 July 1997 samples collected by Roy F. Weston, Inc.
6. This table is part of a letter to the New Castle County, Department of Land Use, prepared by Duffield Associates, Inc. and dated August 5, 2009, and must be evaluated within the context of that letter.

**LANTANA SQUARE
STORMWATER RECHARGE SYSTEM MONITORING**

Table 2

**SUMMARY OF ANALYSES
GROUNDWATER MONITOR WELL**

Sample Date	Analyses ⁽¹⁾					
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
06 Jul 2009	6.0	38.0	58.0	9.0	<1.0	<50.0
08 Apr 2009	5.8	32.5	46.2	8.9	<1.0	<50.0
15 Jan 2009	6.1	39.5	57.9	8.8	<1.0	<50.0
08 Oct 2008	6.0	42.5	59.0	8.7	<1.0	<50.0
11 Jul 2008	6.3	50.5	71.8	8.1	<1.0	<50.0
01 Apr 2008	6.3	45.0	109.	5.8	<2.0	<50.0
04 Jan 2008	6.4	35.0	59.0	7.1	<2.0	<50.0
02 Oct 2007	6.0	36.0	87.3	9.0	<2.0	<50.0
09 July 2007	6.2	43.5	69.2	7.3	<2.0	<8.0
05 April 2007	6.2	51.0	71.4	9.8	<2.0	<8.0
01 Feb 2007	6.3	34.5	67.0	8.8	<2.0	<8.0
10 Oct 2006	6.9	44.5	65.8	8.7	<2.0	<8.0
10 Jul 2006	6.7	54.5	83.0	11.0	<2.0	<8.0
21 May 1999 ⁽³⁾	6.3	45.0	N.A.	11.0	1.1	<20.0
09 Jan 1998 ⁽³⁾	6.8	56.0	N.A.	9.0	3.4	<5.0
Pre-Recharge 10 Jul 1997 ⁽³⁾⁽⁴⁾	4.6	60.0	N.A.	4.6	<0.5	29.0
Post-Recharge Median	6.3	43.5	67.0	8.8	<2.0	---
Mean	6.3	43.2	69.6	8.7	---	---
Minimum	5.8	32.5	46.2	5.8	---	---
Maximum	6.9	56.0	109.	11.0	3.4	---

NOTES:

1. Abbreviations and Symbols

mg/l	milligrams per liter [approximately parts per million (ppm)]
µmhos/cm	micromhos per centimeter
<	less than [The number that follows is the laboratory method limit of quantification (MLQ)]
N.A.	Not Analyzed

2. Standard pH units.

3. Samples collected by Roy F. Weston, Inc. All other samples collected by Duffield Associates, Inc.

4. The 10 July 1997 sample was obtained before the recharge system was made operational.

5. Per the Water Management Agreement, dated April 1996, the monitor well samples are not required to be tested for total suspended solids.

6. This table is part of a letter to the New Castle County, Department of Land Use, prepared by Duffield Associates, Inc. and dated August 5, 2009, and must be evaluated within the context of that letter.

**LANTANA SQUARE
STORMWATER RECHARGE SYSTEM MONITORING**

Table 3

**SUMMARY OF ANALYSES
RECHARGE SYSTEM INFLOW**

Sample Date	Analyses ⁽¹⁾						
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Total Suspended Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l) ⁽³⁾
					Total	Total Organic	
14 Apr 2009	7.2	<30.0	33.6	44.5	4.4	3.4	<50.0
07 Jan 2009	6.8	<30.0	13.2	31.9	2.5	1.0	<50.0
13 Nov 2008	6.6	<30.0	<12.0	14.2	2.0	<1.0	<50.0
14 Jul 2008	6.9	<30.0	<12.0	10.5	2.6	1.7	<50.0
09 May 2008	6.1	<30.0	<12.0	16.4	2.3	1.1	<50.0
11 Jan 2008	5.9	<30.0	14.4	33.8	5.1	3.8	<50.0
11 Oct 2007	5.4	<30.0	<12.0	43.3	4.3	4.0	<50.0
11 June 2007	6.5	<30.0	<12.0	46.3	10.5	5.1	17.7
16 Mar 2007	6.4	<30.0	<12.0	29.8	<2.0	<2.0	<8.0
17 Oct 2006	6.4	<30.0	<12.0	41.3	<2.0	<2.0	11.1
01 Sept 2006	5.9	<30.0	<12.0	16.5	3.5	2.7	9.6
Median	6.4	<30.0	<12.0	31.9	3.5	<2.0	---
Mean	6.4	---	---	29.9	4.1	---	---
Minimum	5.4	---	---	10.5	2.0	---	---
Maximum	7.2	---	33.6	46.3	10.5	10.5	---

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter (approximately parts per million (ppm))
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ)]

2. Standard pH units.

3. This Table is part of a report, titled "Lantana Square, Stormwater Recharge System, Monitoring Report No. 6," prepared by Duffield Associates, Inc. and dated May 2009, and must be evaluated within the context of that report.

**MAY B. LEASURE SCHOOL
STORMWATER RECHARGE SYSTEM MONITORING**

**TABLE 1
SUMMARY OF GROUNDWATER LEVELS**

Date	Groundwater Level	
	Elevation (Feet, Project Datum)	Approximate Depth Below Basin Bottom (Feet)
14 Nov 03	59.15	6.4 ±
22 May 03	57.2	8.3 ±
21 Nov 02	53.5	12.0 ±
24 May 02	52.55	13.0 ±
14 Feb 02	52.7	12.8 ±
12 Nov 01	54.1	11.4 ±
14 Aug 01	56.25	9.3 ±
01 May 01	55.1	10.4 ±
21 Feb 01	54.1	11.4 ±
10 Nov 00	54.4	11.1 ±
02 Aug 00	55.7	9.8 ±
01 May 00	56.7	8.8 ±
11 Feb 00	53.4	12.1 ±
12 Nov 99	53.6	11.9 ±
16 Aug 99	52.8	12.7 ±
12 May 99	53.8	11.7 ±
22 Feb 99	53.3	12.2 ±
15 Jan 99	53.4	12.1 ±
25 Nov 98	54.3	11.2 ±
15 Jan 98	54.6	10.9 ±
29 Dec 97	54.75	10.8 ±
Average (mean)	54.5	10.95 ±
High (shallowest)	59.15	6.4 ±
Low (deepest)	52.55	13.0 ±

NOTES:

1. Approximate basin bottom = Elevation 65.5 ft.
2. The period of record for groundwater level monitoring commenced 29 December 1997.
3. The recharge basin was brought on line in November 1998.
4. This table is part of a report, titled "May B. Leasure School, Stormwater Recharge System, November 2003 Reporting Period, Monitoring Report No. 10," prepared by Duffield Associates, Inc., and must be evaluated within the context of that report.

**MAY B. LEASURE SCHOOL
STORMWATER RECHARGE SYSTEM MONITORING
TABLE 2
SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL**

Sample Date	Analysis ⁽¹⁾⁽²⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (umhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
14 Nov 03	6.2	35.	48.4	<2.0	<2.0	<50.0 ⁽⁴⁾
22 May 03	6.2	62.5	92.3	3.3	<2.0	<8.0
21 Nov 02	5.42	49.	80.1	<2.0	<2.0	<8.0
24 May 02	5.33	121.	206.	8.0	<2.0	<8.0
14 Feb 02	5.34	132.	238.	8.3	<2.0	<8.0
12 Nov 01	5.75	45.	60.7	2.7	<2.0	<8.0
14 Aug 01	5.60	69.	131.	2.8	<2.0	<8.0
01 May 01	5.48	69.	161.	5.7	<1.0	<8.0
21 Feb 01	5.40	94.	170.	5.5	<1.0	<8.0
10 Nov 00	5.68	59.	77.6	2.5	<1.0	<8.0
02 Aug 00	6.03	56.	83.7	3.9	1.1	<8.0
01 May 00	5.67	71.	124.	4.3	1.1	<8.0
11 Feb 00	5.69	59.	86.7	3.1	4.0	<8.0
12 Nov 99	6.58	58.	93.8	3.3	<1.0	<8.0
16 Aug 99	5.79	70.	122.	3.3	1.1	<8.0
12 May 99	5.65	97.	155.	7.0	<1.0	<8.0
22 Feb 99	5.59	139.	279.	10.8	<1.0	<8.0
15 Jan 99	6.11	163.	267.	16.6	<1.0	<8.0
25-Nov-98	6.06	151.	261.	15.	<1.0	<8.0
Pre-Recharge						
15-Jan-98	6.11	163.	267.	16.6	<1.0	<8.0
Post Recharge						
Mean	5.77	84.	144.1	--	--	<8.0
Median	5.68	69.	124.	3.6	<2.0	<8.0
Max	6.58	163.	279.	16.6	4.0	---
Min	5.33	35.	48.4	<2.0	<1.0	<8.0

NOTES:

- Abbreviations and Symbols:
mg/l milligrams per liter [approximately parts per million (ppm)]
umhos/cm micromhos per centimeter
< less than [The number that follows is the laboratory method limit of quantification (MLQ).
Same as "none detected" at a concentration equal to or exceeding the MLQ.]
- Standard pH units
- The period of record for recharge operations monitoring commenced with the sample collected 15 January 1999.
- Due to chain-of-custody misinterpretation, chemical oxygen demand was reported using the "high" detection limit method.
- This table is part of a report, titled "May B. Leasure School, Stormwater Recharge System, November 2003 Reporting Period, Monitoring Report No. 10," prepared by Duffield Associates, Inc., and must be evaluated within the context of that report.

**MAY B. LEASURE SCHOOL
STORMWATER RECHARGE SYSTEM MONITORING
TABLE 3
SUMMARY OF INDICATOR ANALYSES
RECHARGE BASIN INFLOW WATER**

Sample Date	Analysis ^{(1) (3)}					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (umhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
11 Dec 03	6.7	<30.	30.4	2.3	<2.0	<50.0 ⁽⁴⁾
04 Jun 03	7.0	<30.	38.1	4.7	2.1	<8.0
12 Nov 02	7.01	33.	38.1	4.1	3.91	14.4
May 02	NS	NS	NS	NS	NS	NS
18 Mar 02	6.73	<30.	12.5	2.1	<2.0	<8.0
11 Dec 01	6.85	<30.	19.6	3.1	2.4	<8.0
25 Sep 01	7.70	<30.	17.8	2.9	2.8	<8.0
22 May 01	4.74	<30.	10.0	<2.0	<2.0	<8.0
05 Feb 01	6.32	<30.	9.0	<2.0	<1.0	<8.0
10 Nov 00	6.40	<30.	19.9	3.6	3.0	11.8
20 Sep 00	6.38	<30.	14.3	<2.0	1.4	<8.0
22 May 00	6.60	<30.	17.0	2.4	1.8	18.1
17 Mar 00	6.80	<30.	15.7	2.4	<1.0	<8.0
10 Dec 99	6.72	<30.	13.4	2.5	1.6	<8.0
16 Sep 99	7.15	<30.	5.7	<2.0	1.4	<8.0
24 May 99	5.61	<30.	14.1	5.9	5.4	18.7
18 Feb 99	6.02	<30.	19.6	<2.0	<1.0	<8.0
15 Jan 99	7.12	<30.	6.4	<2.0	<1.0	<8.0
Mean	6.58	--	17.7	--	--	--
Median	6.72	<30.	15.7	2.4	<2.0	<8.0
Max	7.70	33.	38.1	5.9	5.4	18.7
Min	4.74	<30.	5.7	<2.0	<1.0	<8.0

NOTES:

- Abbreviations and Symbols:
mg/l milligrams per liter [approximately parts per million (ppm)]
umhos/cm micromhos per centimeter
< less than [The number that follows is the laboratory method limit of quantification (MLQ), same as "none detected" at a concentration equal to or exceeding the MLQ.]
NS not sampled
- Standard pH units
- The period of record commenced with the sample collected 15 January 1999.
- Due to chain-of-custody misinterpretation, chemical oxygen demand was reported using the "high" detection unit method.
- This table is part of a report, titled "May B. Leasure School, Stormwater Recharge System, November 2003 Reporting Period, Monitoring Report No. 10," prepared by Duffield Associates, Inc., and must be evaluated within the context of that report.

**MAY B. LEASURE SCHOOL
STORMWATER RECHARGE SYSTEM MONITORING**

TABLE 4

**SUMMARY OF ANNUAL ANALYSES
GROUNDWATER MONITOR WELL**

Date Sampled	Analysis ^{(1) (2)}									
	Inorganics					Organics				
	Indicators			Metals (mg/l)		Regulated Pesticides/PCBs (mg/l)	Regulated Herbicides (mg/l)	Drinking Water Volatiles (mg/l)		Purgeable Halocarbons
	Turbidity (NTU)	Nitrite	Nitrate	Barium	Selenium			Purgeable Aromatics	Volatiles	
14 Nov 03	51.6	ND	0.24	0.0222	ND	0.0070	ND	ND	ND	ND
21 Nov 02	4.54	ND	1.47	ND	ND	ND	ND	ND	ND	ND
12 Nov 01	51.6	ND	0.70	ND	ND	ND	ND	ND	ND	ND
10 Nov 00	51.6	ND	1.17	ND	ND	ND	ND	ND	ND	ND
12 Nov 99	68.0	ND	1.45	ND	0.0092	ND	ND	ND	ND	ND
25 Nov 98	96.1	ND	9.50	0.16	0.0110	ND	ND	ND	ND	ND
Pre-Recharge 29 Dec 97	136.	0.033	10.5	0.18	0.0090	ND	ND	ND	ND	ND
Drinking Water MCL ⁽³⁾	1.	1.	10.	2.0	0.05	0.05	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)

Notes:

- Listed are those specific analyses with reported detections at concentrations equal to or exceeding the respective laboratory method limits of quantification (MLQ). See Appendix A, attached to this report, for complete list of analyses.
- Abbreviations and Symbols:
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter [approximately parts per million (ppm)]
ND = None detected at a concentration equal to or exceeding the MLQ
- Maximum Containment Level (MCL), based on the State of Delaware and US EPA Drinking Water Standards.
- This table is part of a report, titled "May B. Leasure School, Stormwater Recharge System, November 2003 Reporting Period, Monitoring Report No. 10," prepared by Duffield Associates, Inc., and must be evaluated within the context of that report.

**MAY B. LEASURE SCHOOL
STORMWATER RECHARGE SYSTEM MONITORING**

TABLE 5

**SUMMARY OF ANNUAL ANALYSES
RECHARGE BASIN INFLOW WATER**

Date Sampled	Analysis ⁽¹⁾⁽²⁾						
	Inorganics			Organics			
	Indicators		Metals (mg/l)	Regulated Pesticides/PCBs (mg/l)	Regulated Herbicides Picloram (mg/l)	Drinking Water Volatiles (mg/l)	
	Turbidity (NTU)	Nitrate (mg/l as N)				Purgeable Aromatics	Purgeable Halocarbons
11 Dec 03	5.00	ND	ND	ND	ND	ND	ND
12 Nov 02	3.62	0.92	ND	ND	ND	ND	ND
11 Dec 01	0.72	0.13	ND	ND	ND	ND	ND
10 Nov 00	7.60	0.18	ND	ND	0.0016	ND	ND
10 Dec 99	1.65	ND	ND	ND	ND	ND	ND
15 Jan 99	1.25	ND	ND	ND	ND	ND	ND
Drinking Water MCL ⁽³⁾	1. Surface Water	10.	Varies (Element Specific)	Varies (Compound Specific)	0.5	Varies (Compound Specific)	Varies (Compound Specific)

Notes:

1. Listed are those specific analyses with reported detections at concentrations equal to or exceeding the respective laboratory method limit of quantification (MLQ). See Appendix A, attached to this report, for complete list of analyses.

2. Abbreviations and Symbols:

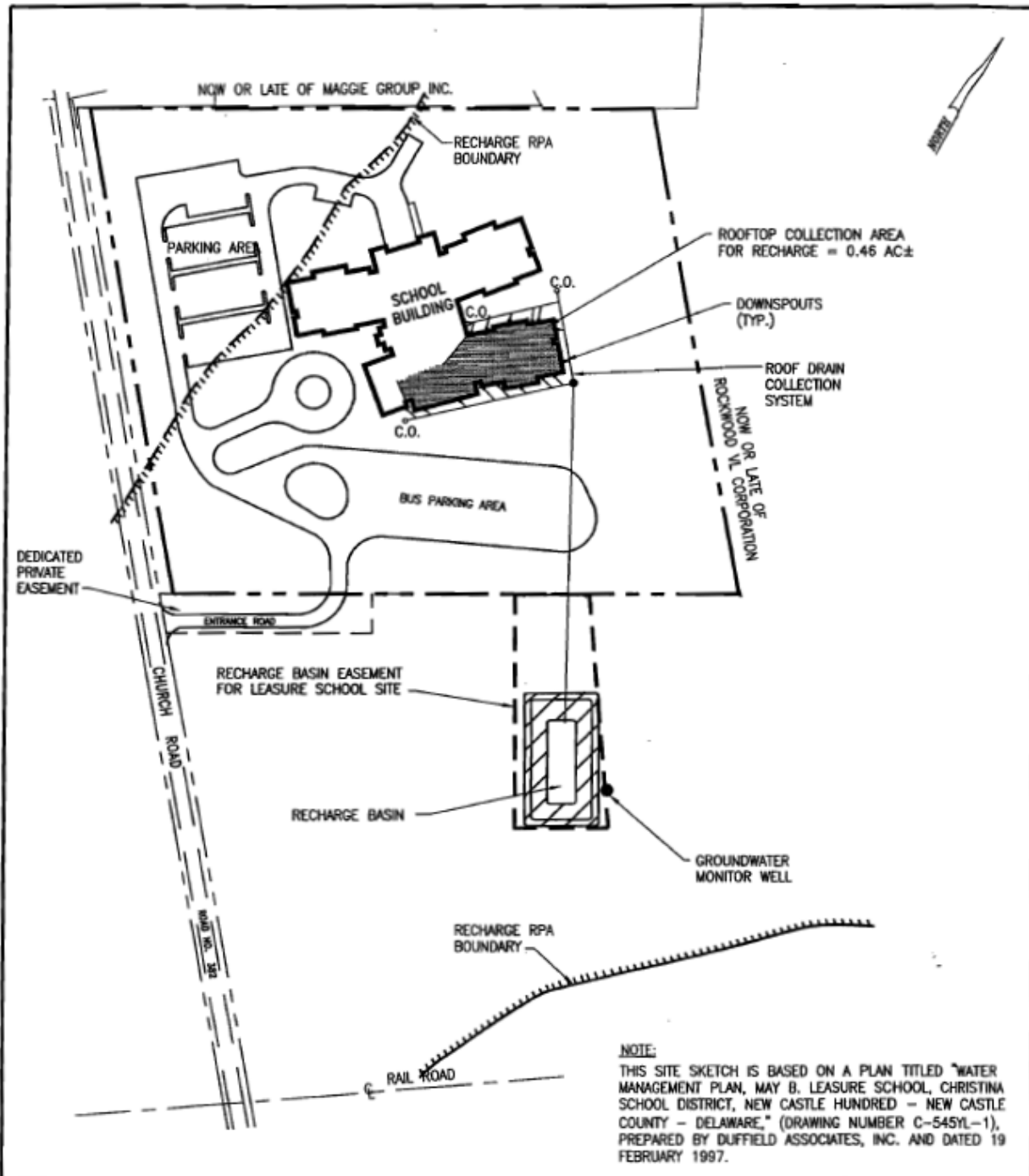
NTU = Nephelometric Turbidity Units

mg/l = milligrams per liter [approximately parts per million (ppm)]

ND = None detected at a concentration equal to or exceeding the MLQ

3. Maximum Containment Level (MCL), based on the State of Delaware and US EPA Primary Drinking Water Standards.

4. This table is part of a report, titled "May B. Leasure School, Stormwater Recharge System, November 2003 Reporting Period, Monitoring Report No. 10," prepared by Duffield Associates, Inc. and must be evaluated within the context of that report.



SITE SKETCH
MAY B. LEASURE SCHOOL
CHRISTINA SCHOOL DISTRICT
NEW CASTLE HUNDRED
NEW CASTLE COUNTY ~ DELAWARE

DUFFIELD ASSOCIATES

DUFFIELD ASSOCIATES, INC.
CONSULTANTS IN THE GEOSCIENCES
5400 LIMESTONE ROAD
WILMINGTON, DELAWARE 19808-1232
TEL. (302)239-6634 FAX (302)239-6465
E-MAIL: DUFFIELD@DUFFNET.COM

Drawn: DSH	Chk'd: <i>DSH</i>	Date: 25 JANUARY 1999
Scale: 1" = 200'±	W.O.: 545.CO	
Drawing No: A-545CO-2	FIGURE 2	

TABLE 2
GROUNDWATER QUALITY RESULTS SUMMARY
MIDDLE RUN CROSSING
NEW CASTLE COUNTY, DELAWARE

	pH EPA Method 150.1	Nitrate-Nitrogen EPA Method 353.2	Chemical Oxygen Demand EPA Method 410.4	Biochemical Oxygen Demand EPA Method 405.1	Fecal Coliform "Std. Method" 16th Ed. 909c	Alkalinity EPA Method 310.1	Total Dissolved Solids EPA Method 160.1
Delaware Drinking Water Standards November 10, 1993	6.5 - 8.5	10 mg/L	N/A	N/A	N/A	N/A	500 mg/L
MW-1							
March 27, 1995	6.2	0.8 mg/L as N	21.2 mg/L	1.0 mg/L	>23 MPN/100 ml	76 mg/L as CaCO ₃	138 mg/L
June 14, 1995	6.1	1.1 mg/L as N	139 mg/L	5.4 mg/L	2 MPN/100 ml	83 mg/L as CaCO ₃	177 mg/L
September 20, 1995	5.7	1.0 mg/L as N	35 mg/L	<10 mg/L	<2 MPN/100 ml	92 mg/L as CaCO ₃	110 mg/L
Fourth Quarter							
MW-4							
March 27, 1995	6.0	1.2 mg/L as N	44.9 mg/L	1.0 mg/L	>23 MPN/100 ml	61 mg/L as CaCO ₃	141 mg/L
June 14, 1995	6.2	1.7 mg/L as N	72.5 mg/L	5.6 mg/L	8 MPN/100 ml	77 mg/L as CaCO ₃	138 mg/L
September 20, 1995	5.8	2.2 mg/L as N	25 mg/L	<10 mg/L	<2 MPN/100 ml	74 mg/L as CaCO ₃	130 mg/L
Fourth Quarter							
MW-5							
March 27, 1995	6.2	0.7 mg/L as N	22.1 mg/L	<1.0 mg/L	<1.1 MPN/100 ml	80 mg/L as CaCO ₃	119 mg/L
June 14, 1995	5.7	0.7 mg/L as N	129 mg/L	2.4 mg/L	4 MPN/100 ml	42 mg/L as CaCO ₃	120 mg/L
September 20, 1995	5.8	0.8 mg/L as N	20 mg/L	<10 mg/L	< 2 MPN/100 ml	68 mg/L as CaCO ₃	97 mg/L
Fourth Quarter							

mg/L = milligrams per liter
MPN - Most Probable Number

**PENCADER CORPORATE CENTER - LOT 30
STORMWATER RECHARGE SYSTEM MONITORING**

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL

Date Measured	Depth to Groundwater (Feet)			Height of Water In Well (Feet) ⁽³⁾
	Below Top of Casing	Below Grade ⁽¹⁾	Below Basin Bottom ⁽²⁾	
13 Feb 2004	25.4	23.05	9.05	17.4
07 Aug 2003	25.8	23.45	9.45	17.0
05 Feb 2003	29.05	26.7	12.7	13.75
07 Nov 2002	31.05	28.7	14.7	11.75
09 Aug 2002	32.6	30.25	16.25	10.2
14 May 2002	32.15	29.8	15.8	10.65
07 Feb 2002	32.6	30.25	16.25	10.2
12 Nov 2001	32.25	29.9	15.9	10.55
14 Aug 2001	29.05	26.7	12.7	13.75
02 May 2001	29.15	26.8	12.8	13.65
08 Feb 2001	29.4	27.05	13.05	13.4
16 Nov 2000	31.4	29.05	15.05	11.4
20 Oct 2000	30.45	28.1	14.1	12.35
03 Aug 2000 ⁽⁴⁾	29.15	26.8	12.8	13.65
Period of Record Data Summary ⁽⁵⁾				
Median	29.93	27.58	13.58	12.88
Mean (Average)	29.96	27.61	13.61	12.84
Standard Deviation	2.3	2.3	2.3	2.3
Shallowest (2/13/04)	25.4	23.05	9.05	17.4
Deepest (2/07/02) ⁽⁶⁾	32.6	30.25	16.25	10.2

NOTES:

1. Based on well casing stick-up = 2.35 ± feet above ground surface grade at well site.
2. Based on ground surface grade elevation at well site = 70 ± feet, and basin bottom elevation = 56 + feet (project datum).
3. Based on well bottom depth = 42.8 ± feet below top of well casing.
4. The 03 August 2000 measurement was performed before the recharge system was made operational.
5. The period of record for depth to groundwater monitoring commenced 03 August 2000, prior to the recharge system being made operational.
6. This level observed on more than one (1) occasion. The indicated date is the first observation.
7. This table is part of a report, titled "Pencader Corporate Center - Lot 30, Monitoring Report No. 7", which was prepared by Duffield Associates, Inc. and dated August 2004, and must be evaluated within the context of that report.

**PENCADER CORPORATE CENTER - LOT 30
STORMWATER RECHARGE SYSTEM MONITORING**

Table 2

**SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL**

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
13 Feb 2004	5.4	81.0	159.	19.2	<2.0	<8.0
07 Aug 2003	5.4	80.5	155.	13.	<2.0	<8.0
05 Feb 2003	5.3	74	121.	10.2	<2.0	<8.0
07 Nov 2002	5.33	62.	105.	12.2	<2.0	<8.0
09 Aug 2002	5.34	62.	95.8	9.1	<2.0	<8.0
14 May 2002	5.40	67.	96.4	12.3	<2.0	<8.0
07 Feb 2002	5.36	74.	102.	12.5	<2.0	<8.0
12 Nov 2001	5.35	77.	103.	11.6	<2.0	<8.0
14 Aug 2001	5.53	68.	116.	12.4	<2.0	<8.0
02 May 2001	5.40	57.	116.	11.1	3.0	10.2
08 Feb 2001	5.35	70.	116.	10.5	<1.0	<8.0
16 Nov 2000	5.43	66.	119.	7.0	<1.0	<8.0
03 Aug 2000 ⁽³⁾	5.52	90.	138.	15.7	<1.0	<8.0
Period of Record Data Summary ⁽⁴⁾						
Median	5.40	70.	116.	12.2	<2.0	<8.0
Mean (Average)	5.39	71.	119.	12.1	-	-
Standard Deviation	0.07	9.18	20.57	3.0	-	-
Maximum	5.53	90.	159.	19.2	3.0	10.2
Minimum	5.3	57.	95.8	7.0	<1.0	<8.0

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the method limit of quantification (MLQ);
Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The 03 August 2000 sample was obtained before the recharge system was made operational on 28 September 2000.

4. The period of record commenced with the initial groundwater sample collected on 03 August 2000, prior to the recharge system being made operational.

5. This table is part of a report, titled "Pencader Corporate Center - Lot 30, Monitoring Report No. 7", which was prepared by Duffield Associates, Inc. and dated August 2004, and must be evaluated within the context of that report.

**PENCADER CORPORATE CENTER - LOT 30
STORMWATER RECHARGE SYSTEM MONITORING**

Table 3

**SUMMARY OF INDICATOR ANALYSES
RECHARGE SYSTEM INFLOW
MINI-STORAGE AREA ROOFTOPS**

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
06 Feb 2004	7.0	<30.0	46.5	<2.0	<2.0	<8.0
04 Sep 2003	5.5	<30.0	6.6	<2.0	<2.0	<8.0
06 Mar 2003	6.7	<30.0	68.4	3.9	2.3	<8.0
12 Nov 2002	5.30	<30.	10.0	<2.0	<2.0	<8.0
29 Aug 2002	8.80	<30.	46.0	5.4	<2.0	<8.0
14 June 2002	6.43	<30.	24.3	2.2	<2.0	<8.0
20 Mar 2002	4.49	<30.	24.4	<2.0	<2.0	<8.0
11 Dec 2001	6.46	<30.	17.1	<2.0	<2.0	<8.0
25 Sep 2001	7.61	<30.	41.0	3.6	2.1	<8.0
22 May 2001	6.26	<30.	12.8	2.5	<2.0	<8.0
05 Feb 2001	6.27	<30.	8.9	<2.0	<1.0	<8.0
10 Nov 2000	5.71	<30.	15.1	3.9	3.9	15.0
Period of Record Data Summary ⁽³⁾						
Median	6.35	<30.	20.7	2.2	<2.0	<8.0
Mean (Average)	6.38	<30.	26.8	-	-	-
Standard Deviation	1.12	-	19.4	-	-	-
Maximum	8.80	<30	68.4	5.4	3.9	15.0
Minimum	4.49	---	6.6	<2.0	<1.0	<8.0

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The period of record commenced with the initial water sample collected on 10 November 2000.

4. This table is part of a report, titled "Pencader Corporate Center - Lot 30, Monitoring Report No. 7", which was prepared by Duffield Associates, Inc. and dated August 2004, and must be evaluated within the context of that report.

**PENCADER CORPORATE CENTER - LOT 30
STORMWATER RECHARGE SYSTEM MONITORING**

Table 4

**SUMMARY OF INDICATOR ANALYSES
RECHARGE SYSTEM INFLOW
WETLANDS MANAGEMENT AREA**

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conducance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
06 Feb 2004	6.7	191.	324.	6.9	4.9	15.0
04 Sep 2003	6.6	56.0	83.3	20.8	11.4	47.9
06 Mar 2003	6.8	56.5	92.9	8.0	3.7	12.6
12 Nov 2002	6.94	59.	87.0	11.5	7.42	17.8
29 Aug 2002	7.20	76.	108.	14.2	11.9	35.3
14 June 2002	6.59	45.	74.3	11.6	8.9	27
20 Mar 2002	6.82	157.	277.	18.0	12.6	32.8
Nov/Dec 2001	---	---	---	---	---	---
25 Sep 2001	7.07	56.	70.2	13.2	11.9	42
22 May 2001	5.51	41.0	51.7	21.0	17.0	53.6
05 Feb 2001	6.72	103.	164.0	7.1	4.4	14
Nov 2000	---	---	---	---	---	---
Period of Record Data Summary ⁽³⁾						
Median	6.76	57.8	90.0	12.4	10.15	29.9
Mean (Average)	6.70	84.1	133.2	13.2	9.4	29.8
Standard Deviation	0.46	51.1	93.7	5.3	4.3	14.9
Maximum	7.20	191.	324.	21.0	17.0	53.6
Minimum	5.51	41.	51.7	6.9	3.7	12.6

NOTES:

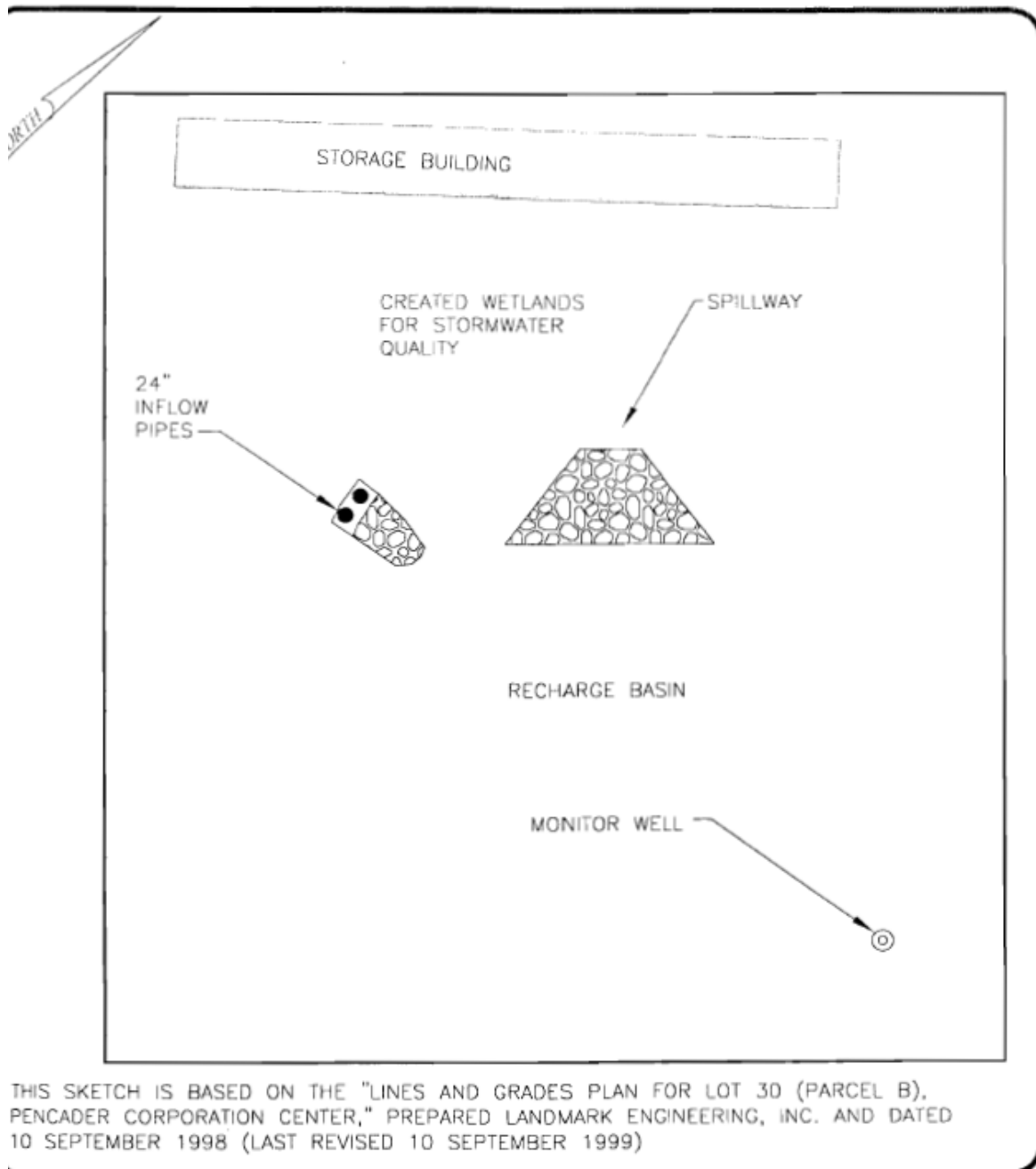
1. Abbreviations and Symbols


- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the method limit of quantification (MLQ);
Same as "none detected" at a concentration equal to or exceeding the MLQ.]
-
-
- No sample - No observed discharge during site visits. Water level below spillway invert.

2. Standard pH units.

3. The period of record commenced with the initial water sample collected on 05 February 2001.

4. This table is part of a report, titled "Pencader Corporate Center - Lot 30, Monitoring Report No. 7", which was prepared by Duffield Associates, Inc. and dated August 2004, and must be evaluated within the context of that report.



DATE: 04 DECEMBER 2000	LOCATION SKETCH STORMWATER RECHARGE BASIN PENCADER CORPORATION CENTER PENCADER HUNDRED-NEW CASTLE COUNTY-DELAWARE	DESIGNED BY: GKE	 DUFFIELD ASSOCIATES <i>Consultants in the Geosciences</i> 5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL: (302)219-6634 FAX: (302)219-8185 1528 WALNUT STREET, SUITE 725 PHILADELPHIA, PA 19102 E-MAIL: DUFFIELD@DUFFIELD.COM
SCALE: 1"=50'		DRAWN BY: JMW	
W.O. NO. 3007.CD		CHECKED BY: GKE	
SHEET: FIGURE_1		FILE: A3007CD01	

Chemistry	MCL	Unit	Initial Sample**		Quarterly Samples			Annual Sample		Annual Sample
			7-Jul-04	1-Dec-04	17-Mar-05	9-Jun-05				
Chemistry										
Colorimetric										
Cyanide, Free	0.2	mg/L	---	---	---	<2				
Ion Chromatics										
Fluoride	4	mg/L	---	---	---	<5				
Nitrogen, Nitrate	10	mg/L	0.77	---	---	1.8				
Nitrogen, Nitrite	1	mg/L	ND	---	---	<1				
Nitrogen										
Total Nitrogen	---	mg/L	0.77	---	---	---				
Other										
Chemical Oxygen Demand	---	mg/L	<8.0	<25	ND	25				
Total Carbon	---	mg/L	<2.0	<5	ND	1.8				
Total Organic Carbon	---	mg/L	<2.0	<5	ND	<5				
Physical										
pH	6.5 - 8.5*		5.5	5.14	6.41	5.4				
Specific conductance	---	microhm/cm	89.7	58.5	55.1	78				
Turbidity	---		1.130	---	---	3.8				
Residues										
TDS	500*	mg/L	55.5	82	26	21				
Inorganics										
Aluminum	.05 to 2*	mg/L	ND	---	---	0.03				
Antimony	0.006	mg/L	ND	---	---	<0.003				
Arsenic	0.01	mg/L	ND	---	---	<0.005				
Asbestos	MFL	Fibers	ND	---	---	<49				
Barium	2	mg/L	0.0576	---	---	<4				
Beryllium	0.004	mg/L	ND	---	---	<0.008				
Cadmium	0.005	mg/L	ND	---	---	<0.001				
Chromium	0.1	mg/L	ND	---	---	<0.02				
Copper	1*	mg/L	ND	---	---	<0.003				
Lead	0.015	mg/L	ND	---	---	<0.001				
Mercury	0.002	mg/L	ND	---	---	<0.0004				
Nickel	---	mg/L	ND	---	---	<0.005				
Selenium	0.05	mg/L	ND	---	---	<0				
Thallium	0.002	mg/L	ND	---	---	<0.001				
Organic, Base Neutrals										
Base Neutrals										
Benzo(a)pyrene	0.0002	mg/L	ND	---	---	<0.0001				
Bis(2-Ethylhexyl) phthalate	0.006	mg/L	ND	---	---	<0.001				
Di(2-ethylhexyl)adipate	0.4	mg/L	ND	---	---	<0.001				
Organic, GC										
1,2-Dibromo-3-chloropropane	0.0002	mg/L	ND	---	---	<0.00001				
Ethylene Dibromide (1,2-Di)	0.00005	mg/L	ND	---	---	<0.00001				
Organic, Herbicides										
2,4,5-TP, Silvex	0.05	mg/L	ND	---	---	<0.0002				
2,4-D	0.07	mg/L	ND	---	---	<0.0001				
Dalapon	0.2	mg/L	ND	---	---	<0.001				
Dinoseb	0.007	mg/L	ND	---	---	<0.0002				
Pentachlorophenol	0.001	mg/L	ND	---	---	<0.0004				
Picloram	0.5	mg/L	ND	---	---	<0.0001				

Chemistry	MCL	Unit	Initial Sample**	Quarterly Samples			Annual Sample	Quarterly Samples			Annual Sample	
				7-Jul-04	1-Dec-04	17-Mar-05		9-Jun-05	9-Jun-05	9-Jun-05		
Organic, Pesticides												
Alachlor	0.002	mg/L	ND	---	---	---	< 0.002	---	---	---	< 0.002	
Atrazine	0.003	mg/L	ND	---	---	---	< 0.001	---	---	---	< 0.001	
Carbofuran	0.04	mg/L	ND	---	---	---	< 8	---	---	---	< 8	
Chlordane	0.002	mg/L	ND	---	---	---	< 0.01	---	---	---	< 0.01	
Endosulfan	0.1	mg/L	ND	---	---	---	< 0.03	---	---	---	< 0.03	
Endrin	0.002	mg/L	ND	---	---	---	< 0.0001	---	---	---	< 0.0001	
Heptachlor	0.0004	mg/L	ND	---	---	---	< 0.0004	---	---	---	< 0.0004	
Heptachlor Epoxide	0.0002	mg/L	ND	---	---	---	< 0.0002	---	---	---	< 0.0002	
Hexachlorobenzene	0.001	mg/L	ND	---	---	---	< 0.001	---	---	---	< 0.001	
Hexachlorocyclopentadiene	0.05	mg/L	ND	---	---	---	< 0.001	---	---	---	< 0.001	
Lindane (Gamma BHC)	0.0002	mg/L	ND	---	---	---	< 0.0002	---	---	---	< 0.0002	
Methoxychlor	0.04	mg/L	ND	---	---	---	< 0.001	---	---	---	< 0.001	
Oxamyl (Vydate)	0.2	mg/L	ND	---	---	---	< 2	---	---	---	< 2	
Decachlorobiphenyl (Total)	0.0005	mg/L	ND	---	---	---	< 0.0005	---	---	---	< 0.0005	
Simazine	0.004	mg/L	ND	---	---	---	< 0.0007	---	---	---	< 0.0007	
Toxaphene	0.003	mg/L	ND	---	---	---	< 0.01	---	---	---	< 0.01	
Organic, Volatiles												
1,1,1-Trichloroethane	0.2	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
1,1,2-Trichloroethane	0.005	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
1,1-Dichloroethylene	0.007	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
1,2,4-Trichlorobenzene	0.07	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
1,2-Dichlorobenzene	0.075	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
1,2-Dichloroethane	0.005	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
1,2-Dichloropropane	0.005	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
1,4-Dichlorobenzene	0.6	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Benzene	0.005	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Carbon Tetrachloride	0.005	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Chlorobenzene	0.1	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
cis-1,2-Dichloroethylene	0.07	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Ethylbenzene	0.7	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Methylene Chloride	---	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Styrene	0.1	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Tetrachloroethylene	0.005	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Toluene	1	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
trans-1,2-Dichloroethylene	0.1	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Trichloroethylene	0.005	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Vinyl Chloride	0.002	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	
Xylenes (Total)	10	mg/L	ND	---	---	---	< 0.005	---	---	---	< 0.005	

** - National Secondary Drinking Water Standard

** - Performed by Duffield Associates

ND - None Detected

Laboratory Results Inflow Waters at OF-1

Chemistry	MCL	Unit	Quarterly Samples		Annual Sample	Quarterly Samples		Annual Sample
			1-Dec-04	9-Mar-05				
Organic, Pesticides								
Alachlor	0.002	mg/L	ND	ND	< 0.002			
Atrazine	0.003	mg/L	ND	ND	< 0.001			
Carbofuran	0.04	mg/L	ND	ND	< 8			
Chlordane	0.002	mg/L	ND	ND	< 0.01			
Endosulf	0.1	mg/L	ND	ND	< 0.09			
Endrin	0.002	mg/L	ND	ND	< 0.0001			
Heptachlor	0.0004	mg/L	ND	ND	< 0.0004			
Heptachlor Epoxide	0.0002	mg/L	ND	ND	< 0.0002			
Hexachlorobenzene	0.001	mg/L	ND	ND	< 0.0001			
Hexachlorocyclopentadiene	0.05	mg/L	ND	ND	< 0.0002			
Lindane (Gamma BHC)	0.0002	mg/L	ND	ND	< 0.001			
Methoxychlor	0.04	mg/L	ND	ND	< 2			
Oxamyl (Vydate)	0.2	mg/L	ND	ND	2			
Decachlorobiphenyl (Total PCB's)	0.0005	mg/L	ND	ND	< 0.005			
Simazine	0.004	mg/L	ND	ND	< 0.0007			
Toxaphene	0.003	mg/L	ND	ND	< 0.01			
Organic, Volatiles								
1,1,1-Trichloroethane	0.2	mg/L	ND	ND	< 0.005			
1,1,2-Trichloroethane	0.005	mg/L	ND	ND	< 0.005			
1,1-Dichloroethylene	0.007	mg/L	ND	ND	< 0.005			
1,2,4-Trichlorobenzene	0.07	mg/L	ND	ND	< 0.005			
1,2-Dichlorobenzene	0.075	mg/L	ND	ND	< 0.005			
1,2-Dichloroethane	0.005	mg/L	ND	ND	< 0.005			
1,2-Dichloropropane	0.005	mg/L	ND	ND	< 0.005			
1,4-Dichlorobenzene	0.6	mg/L	ND	ND	< 0.005			
Benzene	0.005	mg/L	ND	ND	< 0.005			
Carbon Tetrachloride	0.005	mg/L	ND	ND	< 0.005			
Chlorobenzene	0.1	mg/L	ND	ND	< 0.005			
cis-1,2-Dichloroethylene	0.07	mg/L	ND	ND	< 0.005			
Ethylbenzene	0.7	mg/L	ND	ND	< 0.005			
Methylene Chloride	---	mg/L	ND	ND	< 0.005			
Styrene	0.1	mg/L	ND	ND	< 0.005			
Tetrachloroethylene	0.005	mg/L	ND	ND	< 0.005			
Toluene	1	mg/L	ND	ND	< 0.005			
trans-1,2-Dichloroethylene	0.1	mg/L	ND	ND	< 0.005			
Trichloroethylene	0.005	mg/L	ND	ND	< 0.005			
Vinyl Chloride	0.002	mg/L	ND	ND	< 0.005			
Xylenes (Total)	10	mg/L	ND	ND	< 0.005			

* - National Secondary Drinking Water Standard

Laboratory Results Inflow Waters at OF-1

Chemistry	MCL	Unit	Quarterly Samples		Annual Sample	Quarterly Samples		Annual Sample
			1-Dec-04	9-Mar-05		Quarterly Samples		
Chemistry								
Colorimetric								
Cyanide, Free	0.2	mg/L	---	---			0.04	
Ion Chromatolics								
Fluoride	4	mg/L	---	---			0.5	
Nitrogen, Nitrate	10	mg/L	---	---			1	
Nitrogen, Nitrite	1	mg/L	---	---			0.1	
Nitrogens								
Total Nitrogen	---	mg/L	---	---			---	
Other								
Chemical Oxygen Demand	---	mg/L	<35	ND			27	
Total Carbon	---	mg/L	1.04	6.2			3.3	
Total Organic Carbon	---	mg/L	<5	4.71			1.9	
Physical								
pH	6.5 - 8.5*		6.11	6.88			6.42	
Specific conductance	---	umhos/cm	18.6	49.5			16	
Turbidity	---		---	---			3	
Residues								
TDS	500*	mg/L	32	ND			1	
Inorganics								
Aluminum	0.05 to 2*	mg/L	---	---			0.09	
Antimony	0.006	mg/L	---	---			<0.003	
Arsenic	0.01	mg/L	---	---			<0.005	
Asbestos	MFL	Fibers	---	---			<2	
Barium	2	mg/L	---	---			<4	
Beryllium	0.004	mg/L	---	---			<0.0008	
Cadmium	0.005	mg/L	---	---			<0.001	
Chromium	0.1	mg/L	---	---			<0.02	
Copper	0.001	mg/L	---	---			0.032	
Lead	0.015	mg/L	---	---			<0.001	
Mercury	0.002	mg/L	---	---			<0.0004	
Nickel	---	mg/L	---	---			<0.005	
Selenium	0.05	mg/L	---	---			<0.01	
Thallium	0.002	mg/L	---	---			<0.001	
Organic, Base Neutrals								
Base Neutrals								
Benzo(a)pyrene	0.0002	mg/L	---	---			<0.0001	
Bis(2-Ethylhexyl) phthalate	0.006	mg/L	---	---			0.001	
Di(2-ethylhexyl) adipate	0.4	mg/L	---	---			<0.001	
Organic, GC								
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	mg/L	---	---			<0.00001	
Ethylene Dibromide (1,2-Dibromethane)	0.00005	mg/L	---	---			<0.00001	
Organic, Herbicides								
2,4,5-TP, Silver	0.05	mg/L	---	---			<0.0002	
2,4-D	0.07	mg/L	---	---			<0.0001	
Dalapon	0.2	mg/L	---	---			<0.001	
Dinoseb	0.007	mg/L	---	---			<0.0002	
Pentachlorophenol	0.001	mg/L	---	---			<0.00004	
Picloram	0.5	mg/L	---	---			<0.0001	

* - National Secondary Drinking Water Standard

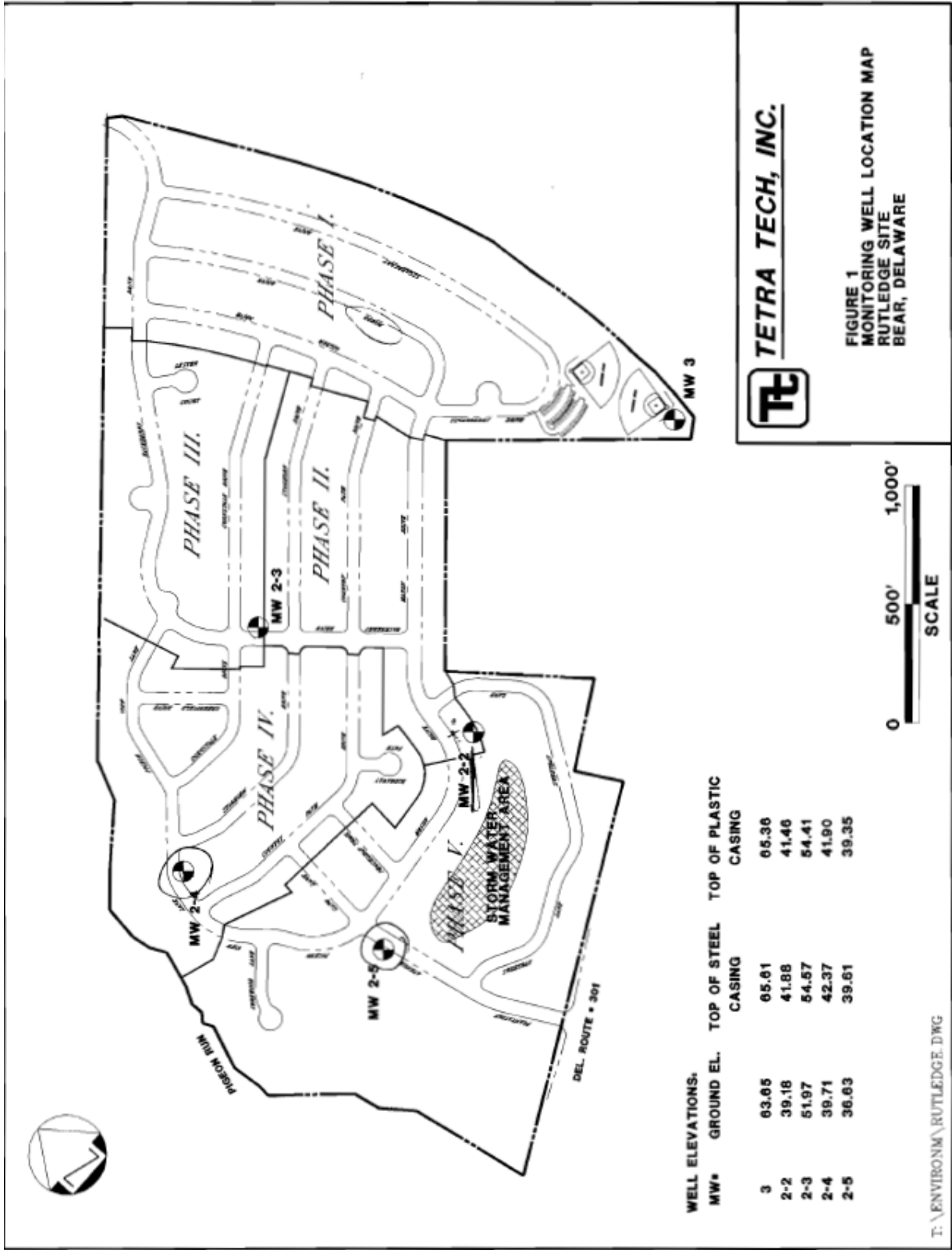


TABLE 1
GROUND-WATER/ELEVATION DATA
Rutledge Site

Well #	Total Depth(a)	Elevation (top of PVC casing)(b)	11/4/94		1/26/95		5/3/95		8/8/95		11/28/95		3/11/96	
			Water Level(a)	Elevation(b)	Water Level(a)	Elevation(b)	Water Level(a)	Elevation(b)	Water Level(a)	Elevation(b)	Water Level(a)	Elevation(b)	Water Level(a)	Elevation(b)
MW-3	30.75	65.36	25.50	39.86	26.10	39.26	25.76	39.60	(c)	-	26.81	38.55	24.61	40.75
MW-2-2	27.20	41.46	9.55	31.91	9.62	31.84	9.89	31.57	(c)	-	11.40	30.06	9.69	31.77
MW-2-3	32.43	54.41	20.26	34.15	20.67	33.74	21.22	33.19	(c)	-	20.31	34.10	20.91	33.50
MW-2-4	27.40	41.90	11.47	30.43	10.94	30.96	11.45	30.45	11.78	30.12	11.45	30.45	10.70	31.20
MW-2-5	27.33	39.35	10.43	28.92	10.22	29.13	10.54	28.81	10.72	28.63	10.70	28.65	10.25	29.10

(a) Field measured by Tetra Tech in feet below top of PVC casing.

(b) Referenced to site survey performed by Kidde Consultants, NVGD.

(c) Measurements not taken at this location because the well was not developed/sampled on this date.

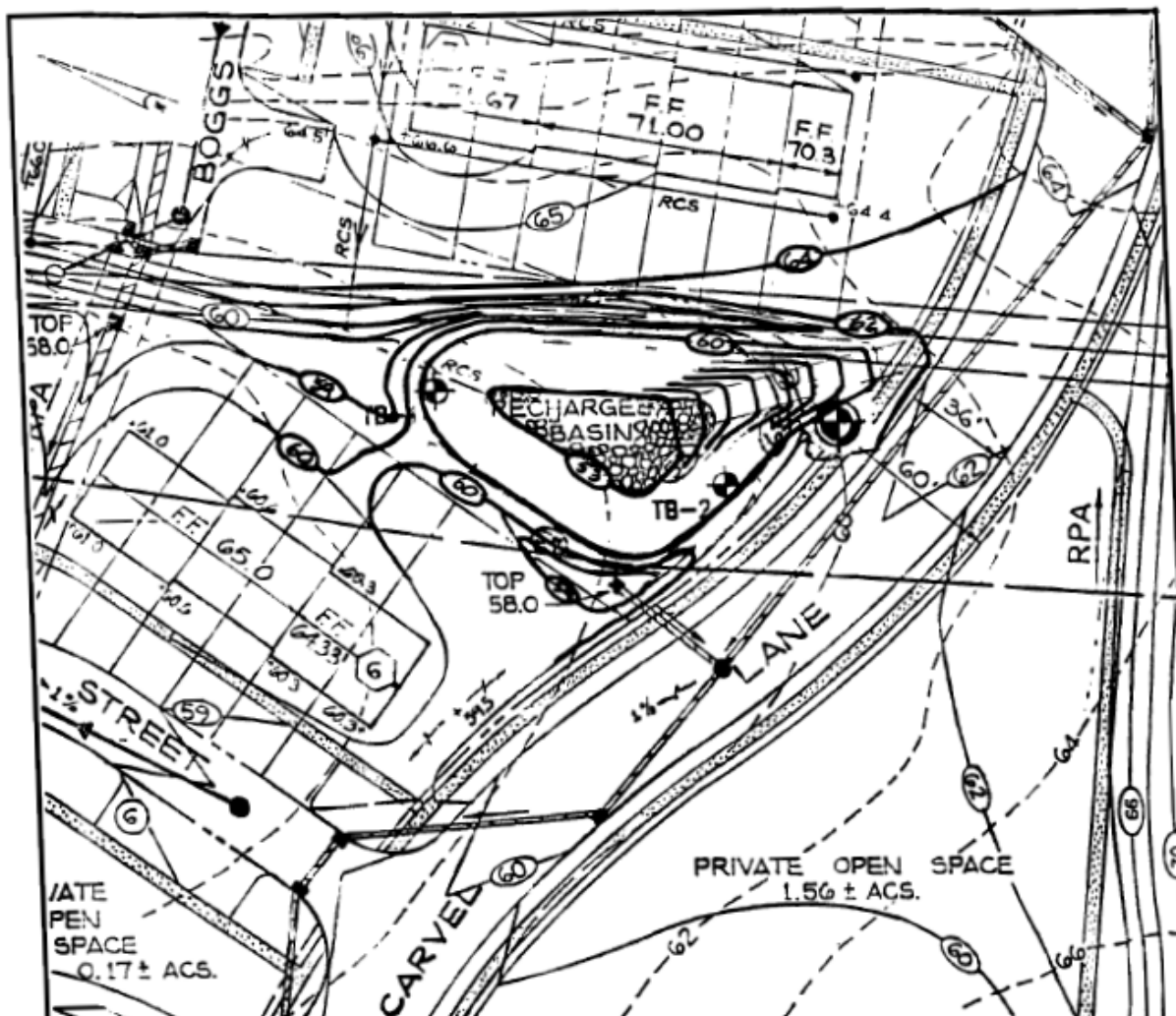
TABLE 2
WATER QUALITY SUMMARY
RUTLEDGE SITE, BEAR, DELAWARE

	Chloride Ion (mg/l)	Total Carbon (mg/l)	Total Organic Carbon (mg/l)	Dissolved Solids (mg/l)	pH	Temperature (°C)	Conductivity (mS/cm ²)	Redox Potential (mv)
SW-1								
2/04/91	NT	NT	NT	NT	NT	NT	NT	NT
2/03/92	NT	15.4	3.4	144	7.56	8.3	.146	194
5/05/92	NT	9.4	3.8	184	7.16	13.8	.162	98
8/03/92	NT	8.6	6.3	153	6.34	28.5	.189	99
10/15/92	NT	17	2.8	147	7.9	18.3	.183	NT*
9/30/93	NT	25	8.0	66	6.32	13.5	.117	NT*
1/10/94	NT	14	3	220	6.97	3.0	.145	109
3/11/94	NT	NT	NT	NT	NT	NT	NT	NT
4/18/94	NT	16	5	144	7.04	17.0	.086	154
7/13/94	NT	20.69*	13.26*	157	6.34	23.2	.090	128
10/25/94	NT	15	3	98	7.64	15.1	.048	125
01/26/95	8	9	3	120	6.60	3.8	.041	-1227**
05/03/95	NT	15	4	100	6.61	16.0	.179	194
08/08/95	NT	16	6	110	7.85	22.7	.125	43
11/28/95	NT	16	3	110	7.27	12.1	.148	135
03/11/96	NT	14	3	150	6.71	5.2	.280	184
MW 2-2								
10/24/94		8	ND	48	5.72	15.2	.098	265
01/26/95	3	22	<1	70	5.80	13.2	.112	227
05/03/95	NT	NT	NT	NT	NT	NT	NT	NT
08/08/95	NT	NT	NT	NT	NT	NT	NT	NT
11/28/95	NT	NT	NT	NT	NT	NT	NT	NT
03/11/96	NT	NT	NT	NT	NT	NT	NT	NT


NT - Not tested
 *As reported by Accurate Testing for re-analysis of samples; however, data are considered suspect and are judged unreliable.
 **Water very turbid; see sampling logs in Appendix 2.

TABLE 2 (continued)
WATER QUALITY SUMMARY
RUTLEDGE SITE, BEAR, DELAWARE

	Chloride Ion (mg/l)	Total Carbon (mg/l)	Total Organic Carbon (mg/l)	Dissolved Solids (mg/l)	pH	Temperature (°C)	Conductivity (mc/cm²)	Redox Potential (mv)
MW 2-3								
10/24/94		8	4	139	6.05	13.9	.163	267
01/26/95	14	22	<1	150	6.97	14.4	.248	187
05/03/95	NT	14	<1	150	5.03	14.0	.226	200
08/08/95	NT	NT	NT	NT	NT	NT	NT	NT
11/28/95	NT	NT	NT	NT	NT	NT	NT	NT
03/11/96	NT	NT	NT	NT	NT	NT	NT	NT
MW 2-4								
10/24/94		7	ND	108	5.75	15.0	.162	267
01/26/95	10	22	<1	120	7.10	14.2	.198	217
05/03/95	NT	18	<1	110	5.05	13.0	.161	240
08/08/95	NT	20	<1	120	5.66	14.2	.193	189
11/28/95	NT	20	<1	100	6.02	15.4	.143	195
03/11/96	NT	18	<1	100	5.65	13.3	.196	237
MW 2-5								
10/24/94		45	ND	272	7.24	19.0	.499	145
01/26/95	10	53	<1	300	7.64	13.3	.513	148
05/03/95	NT	51	1	290	7.16	14.6	.439	141
08/08/95	NT	52	1	310	7.72	20.8	.496	54
11/28/95	NT	52	<1	310	7.58	17.4	.435	140
03/11/96	NT	47	<1	280	6.70	12.1	.455	178



KEY:

TB-1  TEST BORING (APPROXIMATE LOCATION)

 PROPOSED MONITOR WELL LOCATION

NOTE:

THIS LOCATION SKETCH IS ADAPTED FROM A PLAN ENTITLED "PRELIMINARY MAJOR SUBDIVISION PLAN FOR STONE MILL," PREPARED BY LANDMARK ENGINEERING, COMM. NO. C331-1, AND DATED 10-7-94.

SITE LOCATION SKETCH
STONE MILL
 NEW CASTLE HUNDRED
 NEW CASTLE COUNTY, DELAWARE



DUFFIELD ASSOCIATES, INC.
 CONSULTANTS IN THE GEOSCIENCES
 WILMINGTON, DELAWARE PORT DEPOSIT, MARYLAND

Drawn: DSH	Chk'd: DRT	Date: 29 JUNE 1995
Scale: 1" = 50' ±	W.O.: 980.YY	
Drawing No: A-980YY-1		FIGURE 1

UNIQEMA OFFICE AND LABORATORY BUILDINGS
ATLAS POINT SITE
STORMWATER RECHARGE SYSTEMS MONITORING

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL, MW-1

[illegible]

NOTES:

1. The period of record for depth to groundwater monitoring commenced 24 August 2000.
2. Based on well casing stick-up = 1.95 +/- feet above ground surface grade at well site.
3. Based on well bottom depth = 46.75 +/- feet below top of well casing.
4. This table is part of a report, titled "Uniqema Office And Laboratory Buildings, Atlas Point Site, Stormwater Recharge Systems, Monitoring Report No. 3," and dated August 2002, and must be evaluated within the context of that report.

UNIQEMA OFFICE AND LABORATORY BUILDINGS
ATLAS POINT SITE
STORMWATER RECHARGE SYSTEMS MONITORING

Table 2

DEPTH TO GROUNDWATER IN MONITOR WELL, MW-2

[illegible]

NOTES:

1. The period of record for depth to groundwater monitoring commenced 24 August 2000.
2. Based on well casing stick-up = 2.0 +/- feet above ground surface grade at well site.
3. Based on well bottom depth = 31.4 +/- feet below top of well casing.
4. This table is part of a report, titled "Uniqema Office And Laboratory Buildings, Atlas Point Site, Stormwater Recharge Systems, Monitoring Report No. 3," and dated August 2002, and must be evaluated within the context of that report.

UNIQEMA OFFICE AND LABORATORY BUILDINGS
ATLAS POINT SITE
STORMWATER RECHARGE SYSTEMS MONITORING

Table 3

SUMMARY OF INDICATOR ANALYSES

GROUNDWATER MONITOR WELL, MW-1

[illegible]

NOTES:

1. Abbreviations and Symbols

mg/l milligrams per liter [approximately parts per million (ppm)]

μmhos/cm micromhos per centimeter

< less than [The number that follows is the method limit of quantification (MLQ); same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The period of record commenced with the initial pre-operational sample, collected on 24 August 2000. The recharge system was put into operation in October 2000.

4. This table is part of a report, titled "Uniqema Office And Laboratory Buildings, Atlas Point Site, Stormwater Recharge Systems, Monitoring Report No. 3," and dated August 2002, and must be evaluated within the context of that report.

UNIQEMA OFFICE AND LABORATORY BUILDINGS
ATLAS POINT SITE
STORMWATER RECHARGE SYSTEMS MONITORING

Table 4

SUMMARY OF INDICATOR ANALYSES

GROUNDWATER MONITOR WELL, MW-2

[illegible]

NOTES:

1. Abbreviations and Symbols

mg/l	milligrams per liter [approximately parts per million (ppm)]
μmhos/cm	micromhos per centimeter
<	less than [The number that follows is the method limit of quantification (MLQ); same as "none detected" at a concentration equal to or exceeding the MLQ.]
2. Standard pH units.
3. The period of record commenced with the initial pre-operational sample, collected on 24 August 2000. The recharge system was put into operation in October 2000.
4. This table is part of a report, titled "Uniqema Office and Laboratory Buildings, Atlas Point Site, Stormwater Recharge Systems, Monitoring Report No. 3," and dated August 2002, and must be evaluated within the context of that report.

UNIQEMA OFFICE AND LABORATORY BUILDINGS
ATLAS POINT SITE
STORMWATER RECHARGE SYSTEMS MONITORING

Table 5

SUMMARY OF INDICATOR ANALYSES
LAB. BUILDING RECHARGE SYSTEM (NO. 1) STORMWATER INFLOW

[illegible]

NOTES:

1. Abbreviations and Symbols
mg/l milligrams per liter [approximately parts per million (ppm)]
µmhos/cm micromhos per centimeter
< less than [The number that follows is the method limit of quantification (MLQ); same as "none detected" at a concentration equal to or exceeding the MLQ.]
--- not sampled - inadequate sampling access
2. Standard pH units.
3. The period of record commenced with the initial sample, collected on 19 January 2001.
4. This table is part of a report, titled "Uniqema Office And Laboratory Buildings, Atlas Point Site, Stormwater Recharge Systems, Monitoring Report No.3," and dated August 2002, and must be evaluated within the context of that report.

UNIQEMA OFFICE AND LABORATORY BUILDINGS
ATLAS POINT SITE
STORMWATER RECHARGE SYSTEMS MONITORING

Table 6

SUMMARY OF INDICATOR ANALYSES
OFFICE BUILDING RECHARGE SYSTEM (NO. 2) STORMWATER INFLOW

[illegible]

NOTES:

1. Abbreviations and Symbols

mg/l milligrams per liter [approximately parts per million (ppm)]

$\mu\text{mhos/cm}$ micromhos per centimeter

< less than [The number that follows is the method limit of quantification (MLQ); same as "none detected" at a concentration equal to or exceeding the MLQ.]

not sampled - inadequate sampling access

2. Standard pH units.

3. The period of record commenced with the initial sample, collected on 19 January 2001.

4. This table is part of a report, titled "Uniqema Office And Laboratory Buildings, Atlas Point Site, Stormwater Recharge Systems, Monitoring Report No. 3," and dated August 2002, and must be evaluated within the context of that report.

ATLAS POINT SITE
STORMWATER RECHARGE SYSTEMS MONITORING

TABLE 7

SUMMARY OF ANNUAL ANALYSES
GROUNDWATER MONITOR WELL, MW-1

Date Sampled	Analysis ^{(1) (2)}						
	Inorganics			Organics			
	Indicators		Metals (mg/l)	Regulated Pesticides/PCBs (mg/l)	Regulated Herbicides (mg/l)	Drinking Water	
	Turbidity (NTU)	Nitrate (mg/l as N)				Purgeable Aromatics	Purgeable Halocarbons
28 May 02	158.	3.51	ND	ND	ND	ND	ND
03 May 01	91.5	2.78	ND	ND	ND	ND	ND
24 Aug 00	321.	3.09	ND	ND	ND	ND	ND
Drinking Water MCL ⁽³⁾	1.	10.	Varies (Element Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)

NOTES:

1. Listed are those specific analyses with reported detections at concentrations equal to or exceeding the laboratory minimum limit of quantification (MLQ). See Appendix A, attached to this report, for complete list of analyses.
2. Abbreviations and Symbols:
 NTU = Nephelometric Turbidity Units
 mg/l = milligrams per liter [approximately parts per million (ppm)]
 ND = None detected at a concentration equal to or exceeding the MLQ
3. Maximum Containment Level (MCL), based on the State of Delaware and US EPA Primary Drinking Water Standards.
4. The period of record commenced with the initial pre-operational sample collected 24 August 2000.
5. This table is part of a report, titled "Uniqema Office And Laboratory Buildings, Atlas Point Site, Stormwater Recharge Systems, Monitoring Report No. 3," and dated August 2002, and must be evaluated within the context of that report.

**UNIQEMA OFFICE AND LABORATORY BUILDINGS
ATLAS POINT SITE
STORMWATER RECHARGE SYSTEMS MONITORING**

TABLE 8

**SUMMARY OF ANNUAL ANALYSES
GROUNDWATER MONITOR WELL, MW-2**

Date Sampled	Analysis ^{(1) (2)}									
	Inorganics					Organics				
	Indicators			Metals (mg/l)		Regulated Pesticides/PCBs (mg/l)	Regulated Herbicides (mg/l)	Drinking Water Volatiles (mg/l)		Purgeable Halocarbons
	Turbidity (NTU)	Nitrate (mg/l as N)	Fluoride (mg/l)	Barium	Lead			Purgeable Aromatics	Purgeable Volatiles	
28 May 02	35.3	ND	0.19	0.132	ND	ND	ND	ND	ND	ND
03 May 01	109.	0.28	0.18	0.110	0.117	ND	ND	ND	ND	ND
24 Aug 00	186.	1.74	0.13	0.150	ND	ND	ND	ND	ND	ND
Drinking Water MCL ⁽³⁾	1.	10.	2.0	2.0	0.05	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)	Varies (Compound Specific)

NOTES:

- Listed are those specific analyses with reported detection at concentrations equal to or exceeding the laboratory minimum limit of quantification (MLQ). See Appendix A, attached to this report, for complete list of analyses.
- Abbreviations and Symbols:
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter [approximately parts per million (ppm)]
ND = None detected at a concentration equal to or exceeding the MLQ
- Maximum Containment Level (MCL), based on the State of Delaware and US EPA Primary Drinking Water Standards.
- The period of record commenced with the initial pre-operational sample collected 24 August 2000.
- This table is part of a report, titled "Uniqema Office And Laboratory Buildings, Atlas Point Site, Stormwater Recharge Systems, Monitoring Report No. 3," and dated August 2002, and must be evaluated within the context of that report.

WILMINGTON UNIVERSITY
STORMWATER RECHARGE SYSTEMS NO. 1 AND NO. 2

Table 6

DEPTH TO GROUNDWATER IN MONITOR WELL, MW-2

Date Measured	Depth to Groundwater (Feet)		Height of Water In Well (Feet) ⁽²⁾
	Below Top of Casing	Below Grade ⁽¹⁾	
07-Dec-2010	43.7	41.25	12.55
13-May-2010	45.0	42.55	11.25
09-Nov-2009	44.0	41.55	12.25
12-May-2009	45.1	42.65	11.15
24-Nov-2008	44.65	42.2	11.6
08-May-2008	44.35	41.9	11.9
12-Nov-2007	43.25	40.8	13.0
04-May-2007	41.4	38.95	14.85
03-Nov-2006	43.15	40.7	13.1
05-May-2006	43.0	40.55	13.25
08-Feb-2006	43.25	40.8	13.0
14-Nov-2005	43.25	40.8	13.0
29-Jul-2005	41.6	39.15	14.65
27-May-2005	40.25	37.8	16.0
24-Feb-2005	41.05	38.6	15.2
18-Nov-2004	41.7	39.25	14.55
06-Aug-2004	41.35	38.9	14.9
11-May-2004	42.55	40.1	13.7
23-Feb-2004	42.3	39.85	13.95
11-Nov-2003	42.35	39.9	13.9
05-Sep-2003	41.55	39.1	14.7
23-May-2003	43.25	40.8	13.0
14-Feb-2003	46.1	43.65	10.15
14-Nov-2002	46.8	44.35	9.45
12-Aug-2002	46.75	44.3	9.5
23-May-2002	46.3	43.85	9.95
14-Feb-2002	45.6	43.15	10.65
13-Nov-2001	44.6	42.15	11.65
30-Aug-2001	43.9	41.45	12.35
10-May-2001	44.3	41.85	11.95
22-Feb-2001	44.85	42.4	11.4
20-Nov-2000	44.15	41.7	12.1
20-Oct-2000	44.	41.55	12.25
16-Oct-2000 ⁽³⁾	43.5	41.05	12.75
Period of Record Data Summary ⁽⁴⁾			
Median	43.6	40.8	13.0
Mean (Average)	43.6	41.1	12.7
Std. Deviation	1.67	1.74	1.74
Shallowest (05/27/05)	40.25	37.8	16.0
Deepest (11/14/02)	46.8	44.35	9.45

NOTES:

1. Based on top of well casing stick-up = 2.45 +/- feet above ground surface grade.
2. Based on well bottom depth = 56.25 +/- feet below top of well casing.
3. The 16 August 2000 measurement was performed before the recharge system was made operational.
4. The period record for depth to groundwater monitoring commenced 16 August 2000, prior to the recharge system being made operational.
5. This table is part of a report, titled "Wilmington University Stormwater Recharge Systems No. 1 and No. 2, Combined Monitoring Report No. 5," which was prepared by Duffield Associates, Inc. and dated January 2011, and must be evaluated within the context of that report.

WILMINGTON UNIVERSITY
STORMWATER RECHARGE SYSTEMS NO. 1 AND NO. 2

Table 7

SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL, MW-2

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l) ⁵
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
07-Dec-2010	7.0	128	271	7.4	<1.0	<50.0
13-May-2010	5.7	144	251	8.2	<1.0	<50.0
09-Nov-2009	5.7	117	203	8.5	<1.0	<50.0
12-May-2009	5.5	106	191	8.6	<1.0	<50.0
24-Nov-2008	5.6	125	236	6.5	<1.0	<50.0
08-May-2008	5.7	161	324	7.1	<1.0	<50.0
12-Nov-2007	5.6	128	230	12.6	<2.0	<50.0
04-May-2007	5.6	76.5	133	10.9	<2.0	<8.0
03-Nov-2006	5.8	73.5	125	3.5	<2.0	<8.0
05-May-2006	5.8	87.0	131	6.2	<2.0	<8.0
08-Feb-2006	5.6	69.0	118	9.7	<2.0	<8.0
14-Nov-2005	5.8	80.5	138	7.5	<2.0	<8.0
29-Jul-2005	5.7	93.5	149	7.6	<2.0	<8.0
27-May-2005	6.1	68.0	102	6.4	<2.0	<8.0
24-Feb-2005	5.7	48.0	87.2	5.4	<2.0	<8.0
18-Nov-2004	5.7	80.0	113	8.2	<2.0	<8.0
06-Aug-2004	6.3	110	174	4.4	<2.0	<8.0
11-May-2004	5.9	81.5	123	6.9	<2.0	<8.0
23-Feb-2004	5.6	52.0	83.1	5.8	<2.0	<8.0
11-Nov-2003	5.6	87.0	117	4.8	<2.0	<8.0
05-Sep-2003	5.7	96.5	148	6.0	<2.0	<8.0
23-May-2003	5.8	158	242	8.0	<2.0	<8.0
14-Feb-2003	6.0	56	78.4	7.0	<2.0	<8.0
14-Nov-2002	5.51	54	90.1	6.6	<2.0	<8.0
12-Aug-2002	5.50	75	119	5.3	<2.0	<8.0
23-May-2002	5.48	94	146	7.2	<2.0	<8.0
14-Feb-2002	5.52	100	162	7.4	<2.0	<8.0
13-Nov-2001	6.14	89	147	8.0	<2.0	<8.0
30-Aug-2001	5.61	98	172	10.0	<2.0	<8.0
10-May-2001	5.85	152	257	11.8	1.3	<8.0
22-Feb-2001	5.60	186	328	17.5	1.5	<8.0
20-Nov-2000	5.78	190	297	11.0	<1.0	<8.0
20-Oct-2000	5.60	174	264	14.2	<1.0	<8.0
16-Oct-2000 ⁽³⁾	5.65	158	254	20.1	1.1	<8.0
Period of Record Data Summary ⁽⁴⁾						
Median	5.7	95	149	7.5	<2.0	<8.0
Mean (Average)	5.76	106	177	8.4	---	---
Std. Deviation	0.29	40	73	3.5	---	---
Maximum	7.0	190	328	20.1	---	<50.0
Minimum	5.48	48.0	78.4	3.5	<1.0	---

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ); same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The 16 August 2000 sample was obtained before the recharge system was made operational.

4. The period of record commenced with the initial groundwater sample collected 16 August 2000, prior to the recharge system being made operational.

5. Due to an EPA laboratory method revision prior to August 2007, the MLQ for COD changed from 8.0 mg/l to 50.0 mg/l.

6. This table is part of a report, titled "Wilmington University Stormwater Recharge Systems No. 1 and No. 2, Combined Monitoring Report No. 5," which was prepared by Duffield Associates, Inc. and dated January 2011, and must be evaluated within the context of that report.

**WILMINGTON COLLEGE
STORMWATER RECHARGE SYSTEM NO. 2**

Table 3

**SUMMARY OF INDICATOR ANALYSES
INFLOW WATER RECHARGE SYSTEM NO. 2**

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
01/18/06 ⁽⁴⁾	6.5	< 30.	54.6	2.5	2.1	< 8.0
12/29/05	9.5	168.	302.	110.	88.2	326.
10/21/05	6.8	75.0	144.	8.8	8.0	22.
07/08/05	6.6	54.0	94.8	7.5	3.3	< 8.0
03/23/05	6.4	231.	437.	3.1	<2.0	< 8.0
11/12/04	6.1	< 30.	23.4	2.9	2.6	8.8
07/12/04	6.6	86.	142.	13.0	7.3	11.0
02/03/04	6.1	519.	912.	3.6	4.4	18.9
12/11/03	6.5	208.	343.	7.2	3.4	< 8.0
09/04/03	6.3	< 30.	45.8	6.3	4.7	13.5
06/04/03	4.9	35.	58.1	4.3	3.2	9.7
03/05/03	6.6	38.	89.6	2.3	< 2.0	< 8.0
11/11/02	6.24	< 30.	12.8	2.4	2.05	< 8.0
10/10/02	6.58	< 30.	13.4	3.7	3.4	9.4
06/14/02	6.84	81.	150.	8.4	3.9	9.5
03/18/02	6.45	< 30.	30.8	2.3	< 2.0	< 8.0
12/14/01	6.48	31.	49.6	7.1	5.8	19.1
09/24/01	6.56	< 30.	23.7	3.0	2.8	8.9
05/22/01	6.43	32.	61.2	4.6	3.1	< 8.0
02/05/01	6.50	77.	165.0	2.8	1.6	< 8.0
11/14/00	6.22	< 30.	40.0	5.6	5.1	15.7
Period of Record Data Summary ⁽³⁾						
Median	6.50	77.0	61.2	4.3	3.4	12.3
Mean (Average)	6.53	—	152.0	10.1	—	—
Std. Deviation	0.78	—	208.9	23.1	—	—
Maximum	9.5	519.	912.	110.0	88.2	326.0
Minimum	4.9	< 30.	12.8	2.3	< 2.0	< 8.0

NOTES:

- Abbreviations and Symbols:
 mg/l milligrams per liter [approximately parts per million (ppm)]
 µmhos/cm micromhos per centimeter
 < less than [The number that follows is the laboratory method limit of quantification (MLQ);
 same as "none detected" at a concentration equal to or exceeding the MLQ.]
- Standard pH units.
- The period of record commenced with the initial water sample collected on 14 November 2000.
- Supplemental sample collected on 01/18/06.
- This table is part of a report, titled "Wilmington College, Stormwater Recharge System No. 2, Monitoring Report No. 10," which was prepared by Duffield Associates, Inc. and dated February 2006, and must be evaluated within the context of that report.

WILMINGTON UNIVERSITY
STORMWATER RECHARGE SYSTEMS NO. 1 AND NO. 2
COMBINED MONITORING

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL, MW-1

Date Measured ⁽²⁾	Depth to Groundwater (Feet)		Indicated Saturated Thickness (Feet) ^{(4) (5)}
	Below Top of Casing	Below Grade ⁽³⁾	
07-Dec-2010	45.95	44.1	1.9
13-May-2010	46.4	44.55	1.45
09-Nov-2009	46.2	44.35	1.65
12-May-2009	46.45	44.6	1.4
24-Nov-2008	46.85	45.0	1.0
08-May-2008	46.8	44.95	1.1
12-Nov-2007	45.75	43.9	2.1
04-May-2007	44.65	42.8	3.2
03-Nov-2006	45.7	43.85	2.15
05-May-2006	46.05	44.2	1.80
14-Nov-2005	45.5	43.65	2.35
27-May-2005	43.2	41.35	4.65
18-Nov-2004	44.0	42.15	3.85
11-May-2004	44.85	43.0	3.0
11-Nov-2003	44.8	42.95	3.05
22-May-2003	45.95	44.1	1.9
14-Nov-2002	46.1	44.25	1.75
23-May-2002	46.95	45.1	0.9
13-Nov-2001	47.15	45.3	0.7
19-Sep-2001*	46.45	44.6	1.4
10-May-2001	46.75	44.9	1.1
21-Dec-2000*	45.95	44.1	1.9
20-Nov-2000	46.6	44.75	1.25
25-May-2000	45.7	43.85	2.15
09-Nov-1999	46.9	45.05	0.95
04-Jun-1999	47.2	45.35	0.65
25-Nov-1998	47.25	45.4	0.6
07-May-1998	46.2	44.35	1.65
26-Feb-1998	46.1	44.25	1.75
20-Nov-1997	46.1	44.25	1.75
05-Aug-1997	45.0	43.15	2.85
13-May-1997	44.6	42.75	3.25
24-Feb-1997	45.25	43.4	2.6
21-Nov-1996	46.05	44.2	1.8
16-Aug-1996	44.8	42.95	3.05
29-May-1996	45.9	44.05	1.95
13-Feb-1996	46.9	45.05	0.95
17-Nov-1995	46.05	44.2	1.8
21-Aug-1995	47.5	45.65	0.35
14-Jul-1995	>47.85	>46.0	"Dry"
Period of Record Data Summary ⁽¹⁾			
Median	46.05	44.2	1.8
Mean (Average)	45.96	44.11	1.89
Std. Deviation ⁽⁵⁾	0.94	0.94	0.94
Shallow (05/27/05)	43.2	41.35	4.65
Deep (07/14/95)	>47.85	>46.0	"Dry"

NOTES:

1. The period of record for depth to groundwater monitoring commenced 14 July 1995.
2. * supplemental measurement
3. Based on well casing stick-up = 1.85 +/- feet above ground surface grade.
4. Height of groundwater in well above top of Potomac Formation clay-silt layer, which was encountered at a depth of 46 +/- feet below ground surface grade during drilling for well installation. This represents the thickness of the water-table or unconfined hydrogeologic zone at this location. (Monitor well bottom constructed at a depth of 50.5 +/- feet below grade, approximately 4.5 feet into the clay-silt layer, which allows purging of the well and sampling of the groundwater when saturated thickness is limited.)
5. For purposes of calculating standard deviation and mean (average) indicated saturated thickness, "Dry" = 0.0 feet.
6. This table is part of a report, titled "Wilmington University Stormwater Recharge Systems No. 1 and No. 2, Combined Monitoring Report No. 5," which was prepared by Duffield Associates, Inc. and dated January 2011, and must be evaluated within the context of that report.

Project No. 2760.CF.01
Duffield Associates, Inc.
January 2011

WILMINGTON UNIVERSITY
STORMWATER RECHARGE SYSTEMS NO. 1 AND 2
COMBINED MONITORING

Table 2

SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL, MW-1

Sample Date ⁽¹⁾	Analysis ⁽¹⁾							
	pH ⁽²⁾	Chlorides (mg/l)	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l) ⁴	Nitrate (mg/l as N)
					Total	Total Organic		
07-Dec-2010	5.7	265	572	1130	27.1	1.0	<50.0	10.8
13-May-2010	5.7	404	984	1400	26.2	1.8	<50.0	9.1
09-Nov-2009	5.5	---	540	956	21.9	1.2	<50.0	4.2
12-May-2009	5.6	108	297	436	17.2	1.0	<50.0	3.1
24-Nov-2008	5.5	305	769	1020	7.5	<1.0	<50.0	7.0
08-May-2008	5.6	252	463	934	19.9	<1.0	<50.0	9.7
12-Nov-2007	5.5	80.5	316	431	29.6	<2.0	<50.0	8.2
04-May-2007	5.6	16.1	102	164	<2.0	<2.0	<8.0	2.8
03-Nov-2006	5.5	68.8	211	359	9.9	2.0	<8.0	8.4
05-May-2006	5.7	118	420	536	15.7	3.7	<8.0	11.5
14-Nov-2005	5.4	67.5	279	368	27.3	<2.0	<8.0	9.8
27-May-2005	6.0	130	448	609	19.4	<2.0	<8.0	16.1
18-Nov-2004	5.4	---	363	581	30.1	<2.0	<8.0	---
11-May-2004	5.8	40.2	179	270	22.5	<2.0	<8.0	9.2
11-Nov-2003	5.6	---	392	553	18.0	<2.0	<8.0	---
23-May-2003	5.7	322	610	1110	28.5	<2.0	<8.0	5.3
24-Nov-2002	5.62	21.1	87	143	15.6	<2.0	<8.0	2.36
23-May-2002	5.56	67	191	332	15.1	<2.0	<8.0	3.28
13-Nov-2001	5.60	317	787	1200	19.3	<2.0	<8.0	8.43
19-Sep-2001*	5.65	251	576	989	15.0	<2.0	<8.0	9.44
10-May-2001	5.73	---	394	728	21.3	4.6	<8.0	9.97
21-Dec-2000*	5.81	141	306	616	---	---	---	10.3
20-Nov-2000	5.69	---	470	907	11.8	1.5	<8.0	---
25-May-2000	5.74	---	183	303	21.0	1.1	<8.0	5.88
09-Nov-1999	5.62	---	103	180	11.7	1.2	<8.0	---
04-Jun-1999	5.64	---	112	188	31.1	<1.0	<8.0	5.03
25-Nov-1998	5.92	---	331	549	33.1	<1.0	<8.0	---
07-May-1998	5.52	---	67	88.6	26.3	<1.0	<8.0	3.60
26-Feb-1998	5.88	---	71	103	25.5	<1.0	<8.0	---
20-Nov-1997	5.38	---	76	113	27.4	1.4	<8.0	---
05-Aug-1997	5.84	---	87	138	38.2	1.1	<8.0	---
13-May-1997	6.38	---	88	160	34.0	<1.0	<8.0	3.99
24-Feb-1997	6.00	---	89	151	35.2	1.1	<8.0	---
21-Nov-1996	5.99	---	104	181	35.9	<1.0	<8.0	---
16-Aug-1996	5.98	---	80	120	29	1	<7.0	---
20-May-1996	6.65	---	90	147	30	3	<7.0	0.76
13-Feb-1996	6.30	---	130	207	47	1	<7.0	---
17-Nov-1995	6.61	---	150	291	37	2	13.0	0.25
09-Oct-1995	6.12	---	280	473	41	3	<7.0	---
Period of Record Data Summary ⁽³⁾								
Median	5.7	124	279	368	26.2	<2.0	<8.0	7.6
Mean (Average)	5.8	165	302	491	25	---	---	6.9
Std. Deviation	0.31	121	231	369	9.3	---	---	3.8
Maximum	6.65	404	984	1400	47	4.6	<50.0	16.1
Minimum	5.38	16.1	67	88.6	<2.0	<1	<7.0	0.25

NOTES:

- Abbreviations and Symbols:
mg/l milligrams per liter [approximately parts per million (ppm)]
µmhos/cm micromhos per centimeter
< less than [The number that follows is the method limit of quantification (MLQ); same as "none detected" at a concentration equal to or exceeding the MLQ.]
--- no analysis
* supplemental or additional sample
- Standard pH units.
- The period of record commenced with the initial groundwater sample, collected on 09 October 1995.
- Due to an EPA laboratory method revision prior to August 2007, the MLQ for COD changed from 8.0 mg/l to 50.0 mg/l.
- This table is part of a report, titled "Wilmington University Stormwater Recharge Systems No. 1 and 2, Combined Monitoring Report No. 2760CF.01", which was prepared by Duffield Associates, Inc. and dated January 2011, and must be evaluated within the context of that report.

Project No. 2760.CF.01
Duffield Associates, Inc.
January 2011

WILMINGTON COLLEGE
ROBERT C. AND DOROTHY M. PEOPLES LIBRARY
STORMWATER RECHARGE SYSTEM MONITORING

Table 3

SUMMARY OF INDICATOR ANALYSES
INFLOW WATER RECHARGE SYSTEM NO. 1

Sample Date	Analysis ⁽¹⁾					Chemical Oxygen Demand (mg/l)
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		
				Total	Total Organic	
12 Nov 2004	5.5	<30.0	26.5	3.2	2.8	8.0
12 Jul 2004	4.4	<30.0	32.1	2.6	2.3	<8.0
11 Dec 2003	6.4	<30.0	11.7	2.1	<2.0	<8.0
04 Jun 2003	5.7	<30.0	30.1	3.5	2.1	<8.0
11 Nov 2002	5.88	41.	15.4	3.6	3.38	9.6
14 Jun 2002	6.01	<30.	7.5	<2.0	<2.0	<8.0
14 Dec 2001	5.99	<30.	66.2	9.8	6.8	20.2
22 May 2001	5.45	<30.	16.5	2.8	2.2	<8.0
14 Nov 2000	5.85	<30.	38.4	5.2	4.7	12.6
22 May 2000	5.95	<30.	26.1	4.4	3.7	20.4
10 Dec 1999	6.20	<30.	13.1	2.8	2.0	<8.0
24 May 1999	5.28	<30.	25.7	4.7	3.8	12.8
30 Dec 1998	7.29	32	64.7	5.6	4.0	12.7
08 May 1998	4.99	<30.	9.0	<2.0	1.4	<8.0
23 Feb 1998	5.52	<30.	26.9	3.3	2.6	9.8
10 Dec 1997	4.52	34.	60.8	4.7	3.9	12.
20 Aug 1997	8.29	<30.	6.9	<2.0	1.0	<8.0
02 Jun 1997	6.29	<30.	13.3	4.5	3.2	9.8
05 Feb 1997	6.97	<30.	8.6	<2.0	<1.0	<8.0
26 Nov 1996	7.85	<30.	14.4	4.	2.2	<8.0
13 Aug 1996	6.82	<30.	23.	4.	2.	8.
29 May 1996	6.99	<30.	21.	4.	3.	8.
06 Mar 1996	6.23	70.	106.	11.	8.	30.
14 Nov 1995	6.44	<30.	14.	2.	1.	<7.
01 Nov 1995	7.42	40.	63.	11.	8.	32.
Period of Record						
Data Summary ⁽³⁾						
Median	6.01	<30.	23.0	4.	2.6	8.
Mean (Average)	6.17	---	29.6	---	---	---
Std. Deviation	0.96	---	24.4	---	---	---
Maximum	8.29	70.	106.	11.	8.	32.
Minimum	4.4	<30.	6.9	<2.0	<1.0	<7

NOTES:

- Abbreviations and Symbols:
 mg/l milligrams per liter [approximately parts per million (ppm)]
 µmhos/cm micromhos per centimeter
 < less than [The number that follows is the laboratory method limit of quantification (MLQ); same as "none detected" at a concentration equal to or exceeding the MLQ.]
- Standard pH units.
- The period of record commenced with the initial water sample collected on 01 November 1995.
- This table is part of a report, titled "Wilmington College, Stormwater Recharge System No. 1, Monitoring Report No. 13," which was prepared by Duffield Associates, Inc. and dated February 2005, and must be evaluated within the context of that report.

WILMINGTON COLLEGE
ROBERT C. AND DOROTHY M. PEOPLES LIBRARY
STORMWATER RECHARGE SYSTEM MONITORING

TABLE 4

SUMMARY OF ANNUAL ANALYSES
GROUNDWATER MONITOR WELL, MW-1

Date Sampled	Analysis (1)(2)										
	Inorganics				Organics						
	Indicators		Metals (mg/l)		Regulated Pesticides/PCBs (mg/l)			Regulated Herbicides (mg/l)		Drinking Water	
	Turbidity (NTU)	Nitrate (mg/l as N)	Barium	Selenium	Antimony	Cadmium	Dieldrin	Lindane	Hexachloro-benzene	Purgeable Aromatics	Purgeable Halocarbons
11 May 2004	61.9	9.2	0.265	ND	ND	ND	0.00044	ND	ND	ND	ND
23 May 2003	9.6	5.3	0.749	ND	ND	ND	0.00015	ND	ND	ND	ND
23 May 2002	0.93	3.28	0.235	ND	ND	ND	0.000260	ND	ND	ND	ND
10 May 2001	16.9	9.97	0.420	0.0067	ND	0.00092	0.000138	ND	ND	ND	ND
25 May 2000	5.54	5.88	0.180	ND	ND	ND	0.000185	ND	ND	ND	ND
04 June 1999	1.23	5.03	0.140	ND	ND	ND	0.000173	ND	ND	ND	ND
07 May 1998	20.5	3.60	ND	ND	0.0055	ND	0.000177	ND	ND	ND	ND
13 May 1997	13.9	3.99	0.100	0.0058	ND	ND	0.00044	ND	ND	ND	ND
20 May 1996	158.	0.76	ND	0.0144	ND	ND	---	ND	ND	ND	ND
17 Nov. 1995	330.	0.25	ND	ND	ND	ND	---	0.00014	0.00002	ND	ND
Drinking Water MCL (3)	1.	10.	2.0	0.05	0.006	0.005	NA	0.0002	0.001	Varies (Compound Specific)	Varies (Compound Specific)

NOTES:

1. Listed are those specific analyses with reported detection at concentrations equal to or exceeding the laboratory method limit of quantification (MLQ). See Appendix A, attached to this report, for complete list of analyses.

2. Abbreviations and Symbols:

NTU = Nephelometric Turbidity Units

mg/l = milligrams per liter (approximately parts per million (ppm))

ND = None detected at a concentration equal to or exceeding the MLQ

--- = No test

3. Maximum Contaminant Level (MCL), based on the State of Delaware and US EPA Primary Drinking Water Standards.

4. This table is part of a report, titled "Wilmington College, Stormwater Recharge System No. 1, Monitoring Report No. 13," which was prepared by Duffield Associates, Inc., and dated February 2005, and must be evaluated within the context of that report.

Project No. 2760.CF.01
Duffield Associates, Inc.

WILMINGTON COLLEGE
ROBERT C. AND DOROTHY M. PEOPLES LIBRARY
STORMWATER RECHARGE SYSTEM MONITORING

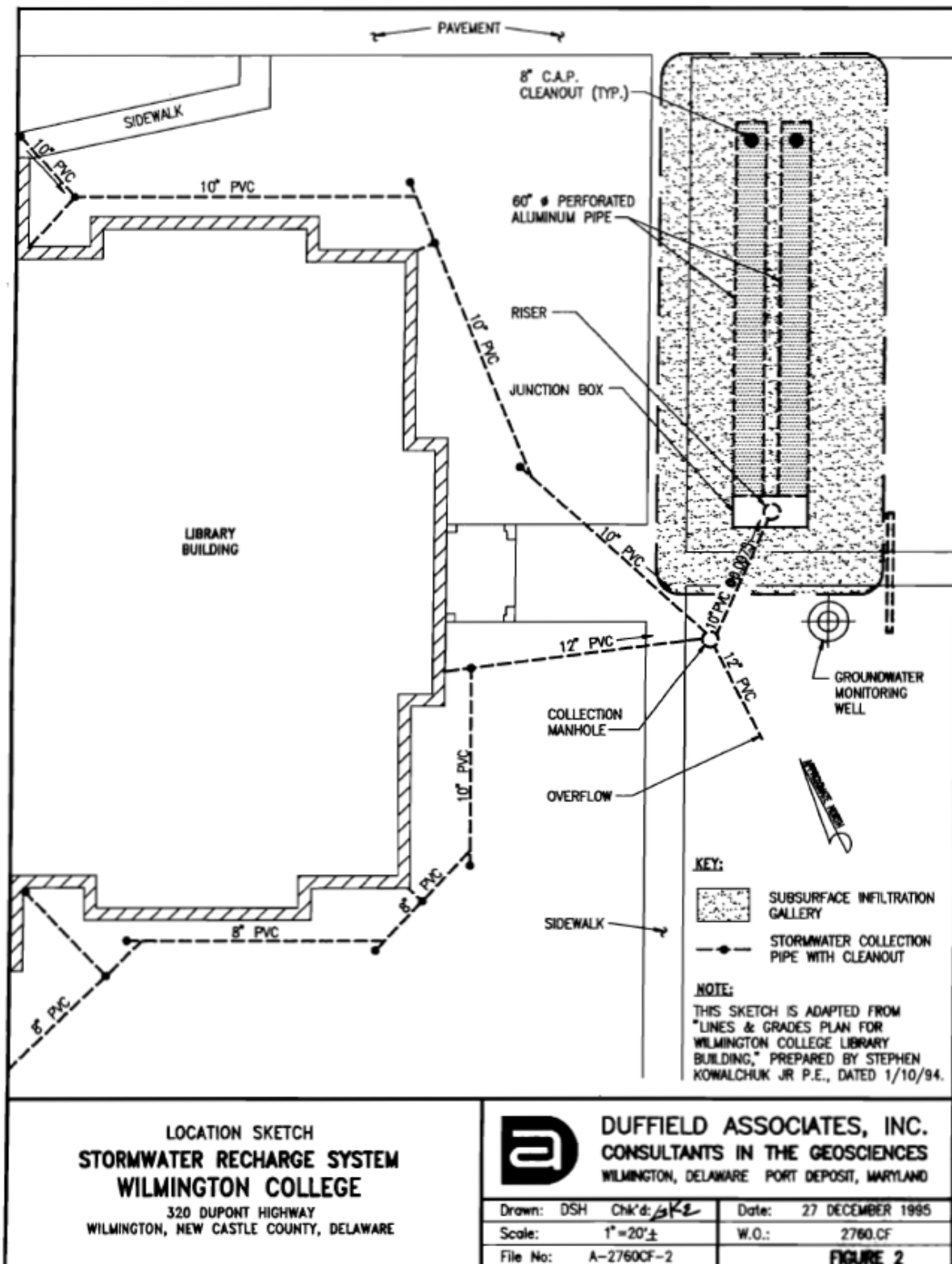
TABLE 5

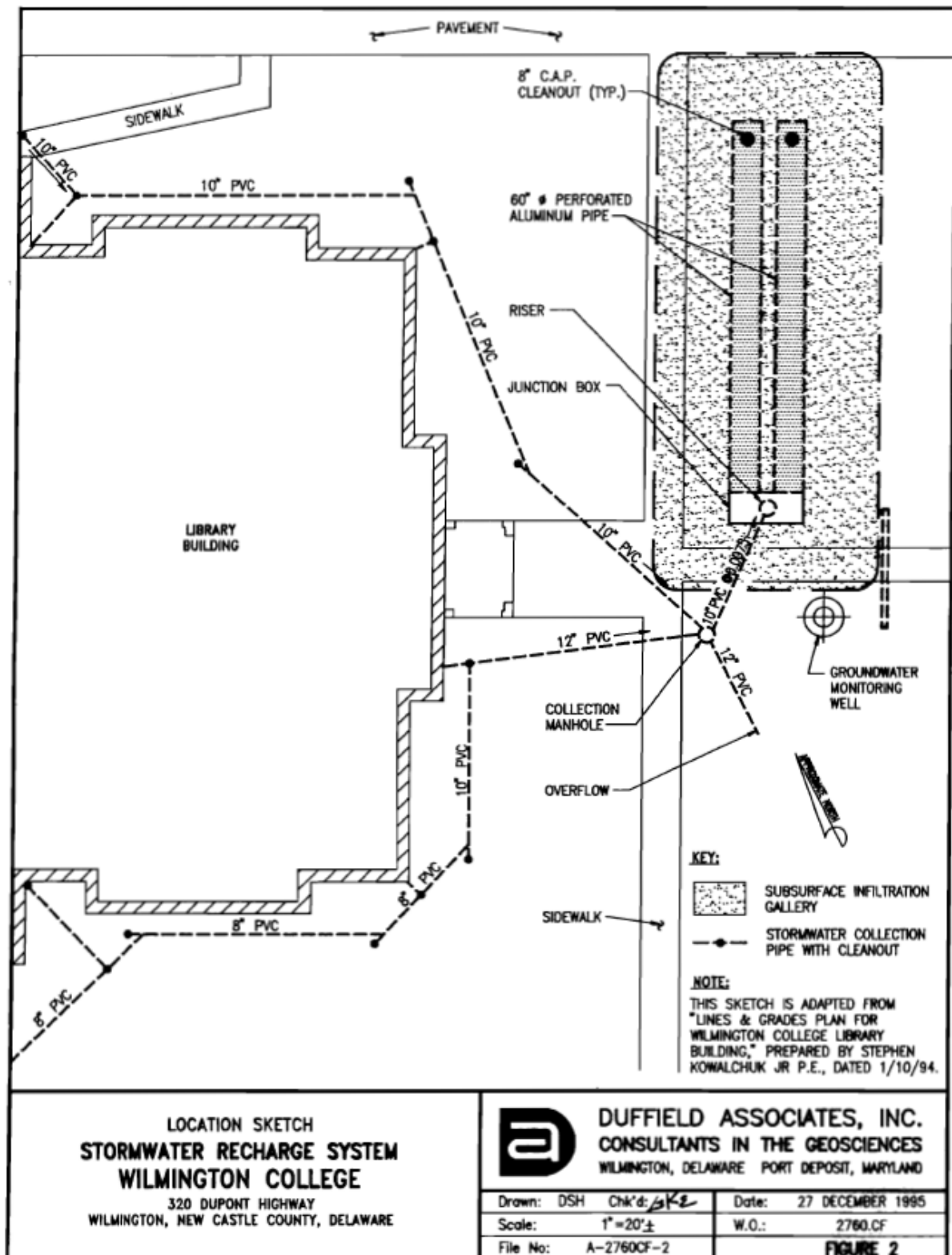
SUMMARY OF ANNUAL ANALYSES
INFLOW WATER RECHARGE SYSTEM NO. 1

Date Sampled	Analysis ⁽¹⁾⁽²⁾					
	Inorganics			Organics		
	Indicators		Metals (mg/l)	Regulated Pesticides/PCBs (mg/l)	Regulated Herbicides (mg/l)	Drinking Water Volatiles (mg/l)
	Turbidity (NTU)	Nitrate (mg/l as N)				
12 July 2004	0.95	0.38	ND	ND	0.00012	ND
04 June 2003	0.65	0.39	0.233	ND	ND	ND
14 June 2002	1.39	ND	ND	ND	ND	ND
22 May 2001	2.06	0.44	ND	ND	ND	0.0006
22 May 2000	3.04	0.35	ND	ND	ND	ND
24 May 1999	1.73	0.57	ND	ND	ND	ND
08 May 1998	1.02	0.12	ND	ND	ND	ND
02 June 1997	1.90	0.232	ND	ND	ND	ND
29 May 1996	2.4	0.34	ND	ND	ND	ND
Drinking Water MCL ⁽³⁾	1.	10.	0.002	Varies (Compound Specific)	0.001	Varies (Compound Specific)
						0.007

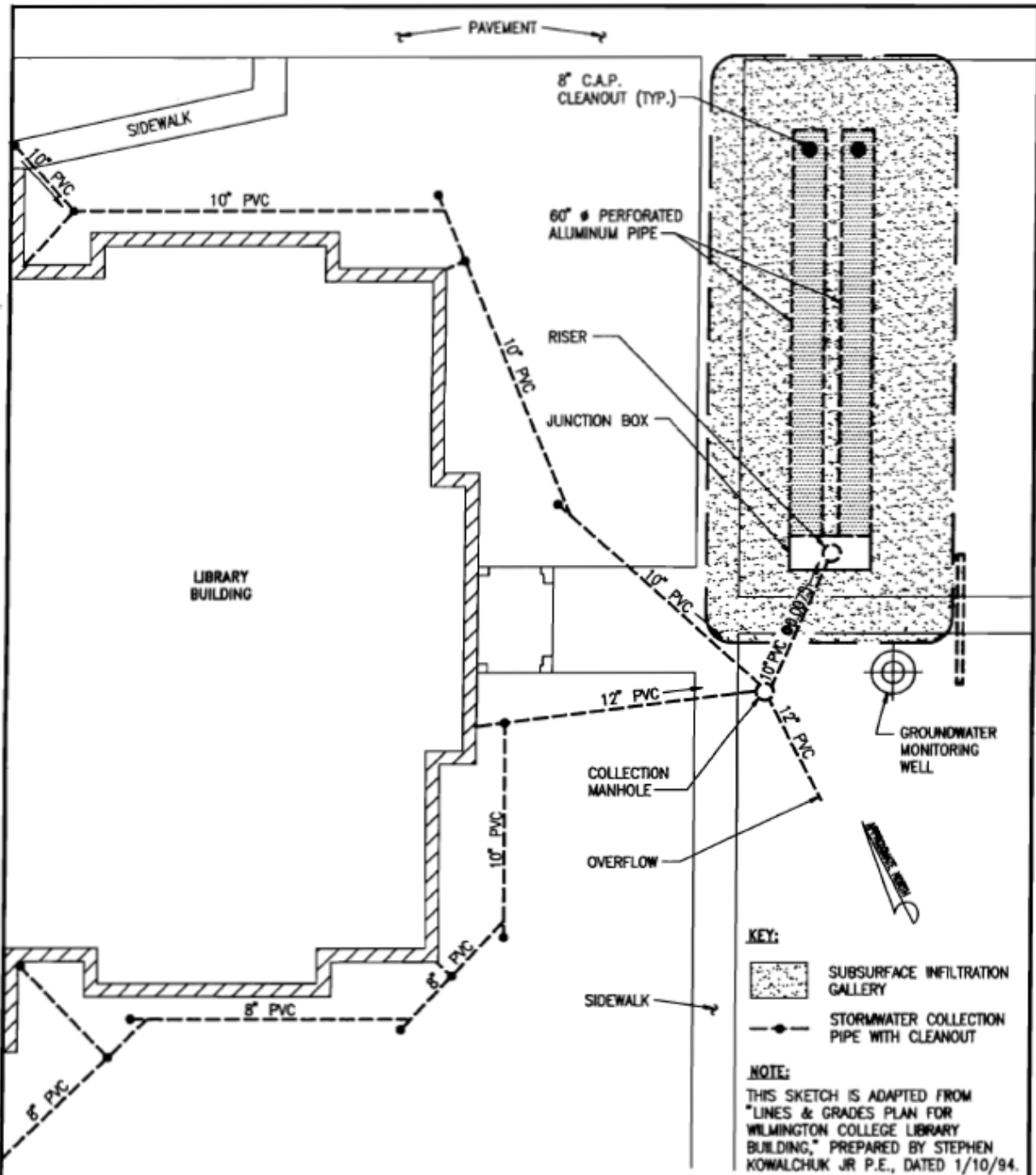
NOTES:

- Listed are those specific analyses with reported detections at concentrations equal to or exceeding the laboratory method limit of quantification (MLQ). See Appendix A, attached to this report, for complete list of analyses.
- Abbreviations and Symbols:
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter [approximately parts per million (ppm)]
ND = None detected at a concentration equal to or exceeding the MLQ
- Maximum Contaminant Level (MCL), based on the State of Delaware and US EPA Primary Drinking Water Standards.
- This table is part of a report, titled "Wilmington College, Stormwater Recharge System No. 1, Monitoring Report No. 13," which was prepared by Duffield Associates, Inc. and dated February 2005, and must be evaluated within the context of that report.





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LOCATION SKETCH
STORMWATER RECHARGE SYSTEM
WILMINGTON COLLEGE
 320 DUPONT HIGHWAY
 WILMINGTON, NEW CASTLE COUNTY, DELAWARE



DUFFIELD ASSOCIATES, INC.
 CONSULTANTS IN THE GEOSCIENCES
 WILMINGTON, DELAWARE PORT DEPOSIT, MARYLAND

Drawn: DSH	Chk'd: <i>SKZ</i>	Date: 27 DECEMBER 1985
Scale: 1"=20'±		W.O.: 2760.CF
File No: A-2760CF-2		FIGURE 2

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**WYNTHORPE
STORMWATER RECHARGE SYSTEM MONITORING**

Table 1

DEPTH TO GROUNDWATER IN MONITOR WELL

Date Measured	Depth to Groundwater (Feet)		Height of Water In Well (Feet) ⁽²⁾
	Below Top of Casing	Below Grade ⁽¹⁾	
27 Nov 2007	28.8	26.3	10.5
01 Aug 2007	27.85	25.35	11.45
01 May 2007	26.5	24.0	12.8
05 Feb 2007	27.85	25.35	11.5
07 Nov 2006	28.3	25.8	11.0
07 Aug 2006	28.3	25.8	11.0
19 May 2006	28.4	25.9	10.9
08 Feb 2006	28.0	25.5	11.3
11 Nov 2005	28.25	25.75	11.05
01 Aug 2005	27.35	24.85	11.95
05 May 2005	26.35	23.85	12.95
02 Mar 2005	26.8	24.3	12.5
10 Nov 2004	26.85	24.35	12.45
11 Aug 2004	26.6	24.1	12.7
27 May 2004	27.05	24.55	12.25
16 Feb 2004	27.0	24.5	12.3
17 Nov 2003	27.35	24.85	11.95
24 Oct 2003 ⁽³⁾	27.4	24.9	11.9
Median	27.38	24.88	11.93
Mean	27.5	25.0	11.62
Maximum (Deepest)	28.8	26.3	12.95
Minimum (Shallowest)	26.35	23.85	10.50

NOTES:

1. Based on well casing stick-up = 2.5± feet above ground surface grade at well site.
2. Based on well bottom depth = 39.3± feet below top of well casing.
3. The period of record for depth to groundwater monitoring commenced 27 October 2003. The 24 October 2003 measurement was performed prior to the recharge system being made operational.
4. This table is part of a report, titled "Wynthorpe, Stormwater Recharge System, Monitoring Report No. 8", prepared by Duffield Associates, Inc. and dated February 2008, and must be evaluated within the context of that report.

**WYNTHORPE
STORMWATER RECHARGE SYSTEM MONITORING**

Table 2

**SUMMARY OF INDICATOR ANALYSES
GROUNDWATER MONITOR WELL**

Sample Date	Analysis ⁽¹⁾					
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
27 Nov 2007	5.5	106	167.	9.8	<2.0	<50.0
01 Aug 2007	5.8	86.5	157.	19.8	<8.0	<8.0
01 May 2007	5.9	85.5	158.	16.2	<50.0	<8.0
05 Feb 2007	6.1	72.0	143.	13.4	<2.0	<8.0
07 Nov 2006	5.8	95.0	148.	5.0	<2.0	<8.0
07 Aug 2006	5.7	91.0	145.	14.9	<2.0	<8.0
19 May 2006	6.1	116.0	143.	16.6	<2.0	<8.0
08 Feb 2006	5.8	85.5	133.	14.3	<2.0	<8.0
11 Nov 2005	5.7	88.5	136.	13.5	<2.0	<8.0
01 Aug 2005	5.8	81.0	129.	10.9	<2.0	<8.0
05 May 2005	5.7	80.0	129.	13.5	<2.0	<8.0
02 Mar 2005	5.6	68.5	128.	15.5	<2.0	<8.0
10 Nov 2004	5.7	75.5	119.	12.2	2.6	<8.0
11 Aug 2004	6.3	82.0	137.	6.4	<2.0	<8.0
27 May 2004	5.8	90.5	149.	7.6	<2.0	<8.0
16 Feb 2004	5.7	80.5	122.	9.0	<2.0	<8.0
17 Nov 2003	6.0	84.5	104.	7.7	<2.0	<50.0
24 Oct 2003 ⁽³⁾	6.2	91.5	133.	6.8	<2.0	<50.0
Median	5.8	85.5	137.	12.8	<2.0	<8.0
Mean	5.8	86.7	138.	11.8	---	---
Maximum	6.3	116.0	167.	19.8	2.6	<50.0
Minimum	5.5	68.5	104.	5.0	<2.0	<8.0

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The 24 October 2003 sample was obtained before the recharge system was made operational.

4. This table is part of a report, titled "Wynthorpe, Stormwater Recharge System, Monitoring Report No. 8", prepared by Duffield Associates, Inc. and dated February 2008, and must be evaluated within the context of that report.

WYNTHORPE
STORMWATER RECHARGE SYSTEM MONITORING

Table 3

SUMMARY OF INDICATOR ANALYSES
RECHARGE SYSTEM INFLOW

Sample Date	Analysis ⁽¹⁾					
	pH ⁽²⁾	Total Dissolved Solids (mg/l)	Specific Conductance (µmhos/cm)	Carbon (mg/l)		Chemical Oxygen Demand (mg/l)
				Total	Total Organic	
19 Nov 2007	6.8	86.0	88.7	37.0	19.2	62.5
04 June 2007	6.9	149.0	102.0	69.4	42.0	133.0
02 Mar 2007	6.5	56.5	68.6	17.9	15.5	39.6
08 Nov 2006	6.8	37.0	50.4	13.8	9.2	29.2
05 Sep 2006	6.8	81.5	77.4	29.0	22.0	60.8
26 June 2006	7.1	59.0	63.2	24.7	13.4	43.7
25 Oct 2005	7.0	84.0	110.0	31.8	26.0	62.9
08 Jul 2005	6.6	58.0	66.8	24.9	14.5	47.8
23 Mar 2005	6.9	75.0	77.1	22.0	15.5	46.8
01 Dec 2004	7.1	69.5	113.0	23.3	16.5	41.7
12 Jul 2004	6.6	69.0	81.8	29.0	19.2	56.6
06 Feb 2004	6.1	<30.0	15.4	4.7	5.3	17.0
17 Dec 2003	6.8	36.5	47.2	9.0	8.6	<50.0
27 Oct 2003 ⁽³⁾	6.5	34.0	50.3	11.3	3.0	<50.0
Median	6.8	69.0	72.9	24.0	15.5	47.8
Mean	6.8	---	72.3	24.8	16.4	---
Maximum	7.1	149.0	113.0	69.4	42.0	133.0
Minimum	6.1	<30.0	15.4	4.7	3.0	17.0

NOTES:

1. Abbreviations and Symbols

- mg/l milligrams per liter [approximately parts per million (ppm)]
- µmhos/cm micromhos per centimeter
- < less than [The number that follows is the laboratory method limit of quantification (MLQ); Same as "none detected" at a concentration equal to or exceeding the MLQ.]

2. Standard pH units.

3. The period of record commenced with the initial water sample, collected on 27 October 2003, prior to the recharge system being made operational.

4. This table is part of a report, titled "Wynthorpe, Stormwater Recharge System, Monitoring Report No. 8", prepared by Duffield Associates, Inc. and dated February 2008, and must be evaluated within the context of that report.