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Five-Year Review Report

Third Five-Year Review Report

Army Creek Landfill Superfund Site
New Castle, Delaware

September 2009

PREPARED BY:

United States Environmental Protection Agency
Region 3
Philadelphia, Pennsylvania

Approved by: Date:

9/30/09

Kathryn A Hodgkiss, Acting Director
Hazardous Site Cleanup Division
U.S. EPA, Region 3

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

SUBJECT: Five-Year Review Report
Army Creek Landfill Superfund Site

FROM: James Webb, Associate Director
Office of Superfund Site Remediation

TO: Kathryn Hodgkiss, Acting Director
Hazardous Site Cleanup Division

Attached for your signature is the Third Five-Year Review Report for the Army Creek Landfill Site in New Castle County, Delaware. I recommend that you sign the report. The trigger for this statutory five-year review was the signing of the Second Five-Year Review Report in September 2004.

As discussed in the report, the remedial action is expected to be protective in the long term. However, a protectiveness determination is being deferred until further information is obtained. Specifically, additional testing is required in order to evaluate the potential for offsite migration of landfill gas and soil vapor intrusion at buildings adjacent to the landfill.

Direct contact threats have been addressed through capping of contaminated soil and waste material, installation of a fence, and institutional controls restricting use of the landfill property. All of the groundwater cleanup standards, with the exception of the standard for lead, have been attained at the property boundary. State implementation of a Groundwater Management Zone is preventing exposure to lead near the property boundary, and will continue to prevent exposure to site-related contaminants (e.g, iron and manganese) in groundwater beneath the landfill property after all of the groundwater cleanup standards have been attained at the property boundary. It is expected that the soil vapor intrusion evaluation can be completed within one year, at which time a protectiveness determination will be made.

In order to be protective in the long term, the following steps must be taken to address issues identified in the report:

1. The Operation and Maintenance Plan must be modified so that groundwater and stream monitoring will continue following the termination of groundwater recovery operations.

2. A comprehensive assessment of the soil vapor intrusion pathway must be completed.

3. The fate and transport of lead in groundwater at monitoring well MW-40 must be evaluated.

4. Woody vegetation on the cap and within the drainage structures must be removed if it is interfering with the function of the cap system.

5. Agency contact information on Site identification signs should be updated.

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List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
BCEE	Bis(2-chloroethyl)ether
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DNREC	Department of Natural Resources and Environmental Control
DS&G	Delaware Sand & Gravel Landfill
EPA	United States Environmental Protection Agency
FS	Feasibility Study
GMZ	Groundwater Management Zone
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SVOC	Semi-volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
VOC	Volatile Organic Compound

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Executive Summary

The remedy for the Army Creek Landfill Superfund site (Site) in New Castle, Delaware, includes a landfill cap and the collection and on-site treatment of contaminated groundwater until cleanup levels are achieved. The Site achieved construction completion with the signing of the Preliminary Close Out Report on April 29, 1994. The trigger for this five-year review was the signing of the second five-year review report on September 30, 2004.

The remedial action is expected to achieve protectiveness in the long term. However, a protectiveness determination regarding the source control aspect of the remedy cannot be made based on existing data and is being deferred until further information is obtained. Specifically, additional testing is required in order to evaluate the potential for offsite migration of landfill gas and soil vapor intrusion at buildings adjacent to the landfill. Direct contact threats have been addressed through capping of contaminated soil and waste material, installation of a fence, and institutional controls restricting use of the landfill property. All of the groundwater cleanup standards, with the exception of the standard for lead, have been attained at the property boundary. State implementation of a Groundwater Management Zone is preventing exposure to lead near the property boundary, and will continue to prevent exposure to site-related contaminants (e.g, iron and manganese) in groundwater beneath the landfill property after all of the groundwater cleanup standards have been attained at the property boundary. It is expected that the soil vapor intrusion evaluation can be completed within one year, at which time a protectiveness determination will be made.

GPRA Measure Review

As part of this five-year review, the GPRA Measures have also been reviewed. The GPRA Measures and their status are as follows:

Environmental Indicators

Human Health: Current Human Exposure Controlled (HEUC)
Groundwater Migration: Contaminated Groundwater Migration Under Control (GMUC)

As a result of this five-year review, EPA plans to change the Human Health Environmental Indicator to: Insufficient Data to Determine Human Exposure Control Status

Site-Wide RAU

The Site was determined Site-Wide Ready for Anticipated Use (SWRAU) on June 27, 2006.

As a result of this five-year review and the change to the Human Health Environmental Indicator, the SWRAU determination will need to be retracted.

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Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name: Army Creek Landfill.		
EPA ID: DED980494496		
Region: 3	**State:** DE	**City/County:** New Castle/New Castle
SITE STATUS		
NPL status: ☒ Final ☐ Deleted ☐ Other (specify)		
Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☒ Complete		
Multiple OUs?* ☒ YES ☐ NO	**Construction completion date:** 04/29/94	
Has site been put into reuse? ☒ YES ☐ NO		
REVIEW STATUS		
Lead agency: ☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency		
Author name: Debra Rossi		
Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA, Region 3	
Review period: January 8, 2009 to August 2009		
Date(s) of site inspection: 05/22/09		
Type of review: ☐ Post-SARA ☒ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion		
Review number: ☐ 1 (first) ☐ 2 (second) ☒ 3 (third) ☐ Other (specify)		
Triggering action: ☐ Actual RA On-site Construction at OU # ☐ Actual RA Start at OU # ☐ Construction Completion ☒ Previous Five-Year Review Report ☐ Other (specify)		
Triggering action date: 9/30/04		
Due date: 9/30/09		

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Five-Year Review Summary Form (continued)

Issues:

Post-attainment groundwater and stream monitoring is not currently required under the Consent Decree.

A comprehensive assessment of the soil vapor intrusion pathway has not been performed.

Lead levels in groundwater samples collected from boundary well MW-40 regularly exceed the current drinking water standard for lead.

Woody vegetation on the cap and within the drainage structures may damage the cap liner or interfere with surface water drainage from the cap if not removed.

Tall vegetation present on the cap during the Site inspection did not allow a detailed inspection of the cover system.

Agency contact information on Site identification signs is out of date.

Recommendations and Follow-up Actions:

Finalize New Castle County's draft addendum to the 1992 O&M plan, which addresses long-term groundwater and stream monitoring. Upon approval, the addendum will become enforceable under the Consent Decree.

The potential for offsite migration of landfill gas and soil vapor intrusion at buildings adjacent to the landfill should be evaluated.

Woody vegetation should be removed from the cap and drainage structures as necessary to ensure adequate drainage.

Fate and transport of lead present in the Upper Potomac aquifer in the vicinity of well MW-40 should be evaluated.

EPA should conduct a follow-up inspection of the cap and perimeter fence after the next mowing which is scheduled for October 2009.

New signs with accurate contact information should be posted at the Site.

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Protectiveness Statement(s):

The remedial action is expected to achieve protectiveness in the long term. However, a protectiveness determination regarding the source control aspect of the remedy cannot be made based on existing data and is being deferred until further information is obtained. Specifically, additional testing is required in order to evaluate the potential for offsite migration of landfill gas and soil vapor intrusion at buildings adjacent to the landfill. Direct contact threats have been addressed through capping of contaminated soil and waste material, installation of a fence, and institutional controls restricting use of the landfill property. All of the groundwater cleanup standards, with the exception of the standard for lead, have been attained at the property boundary. State implementation of a Groundwater Management Zone is preventing exposure to lead near the property boundary, and will continue to prevent exposure to site-related contaminants (e.g, iron and manganese) in groundwater beneath the landfill property after all of the groundwater cleanup standards have been attained at the property boundary. It is expected that the soil vapor intrusion evaluation can be completed within one year, at which time a protectiveness determination will be made.

Army Creek Landfill Superfund Site
New Castle, Delaware
Third Five-Year Review Report

I. Introduction

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and identify recommendations to address them.

The United States Environmental Protection Agency (EPA) is preparing this five-year review report pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

EPA Region 3 conducted the five-year review of the remedy implemented at the Army Creek Landfill Superfund site (Site) in New Castle, Delaware. This review was conducted by the Remedial Project Manager (RPM) for the Site from January through September 2009. This report documents the results of the review.

This is the third five-year review for the Site. The triggering action for this policy review was the issuance of the second five-year review on September 30, 2004. The five-year review is required because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

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II. Site Chronology

Table 1 - Chronology of Site Events

EVENT	DATE
New Castle County operated a municipal and industrial waste landfill at the former sand and gravel quarry.	1960 - 1968
A Llangollen Estates residential well was determined to be impacted by contaminants from the landfill.	1971
Public water supply lines extended to Llangollen Estates and other communities in the vicinity of the Army Creek Landfill site	1970-75
New Castle County installed groundwater recovery wells in the Upper Potomac aquifer in order to prevent landfill leachate from reaching Artesian Water Company's Llangollen well field.	1973
Final listing on EPA National Priorities List (NPL)	9/8/1983
New Castle County and EPA entered into an Administrative Order on Consent setting out the terms under which the County would perform a Feasibility Study (FS) to evaluate cleanup options for the Site.	8/1/1984
Operable Unit One (OU1) Feasibility Study (FS) made available to public	8/21/1986
Record of Decision (ROD) documenting selection of OU1 cleanup plan signed	9/30/1986
EPA initiated Remedial Design (RD) for the landfill cap component of the OU1 cleanup plan	3/31/1988
EPA initiated the Operable Unit Two (OU2) focused Remedial Investigation/ Feasibility Study (RI/FS)	8/6/1989
EPA completed RD for the landfill cap	8/8/1989
OU2 RI/FS and proposed remedial action plan made available to public	3/18/1990
ROD documenting selection of OU2 cleanup plan signed	6/29/1990
PRPs initiated OU2 RD	10/1/1990
RD for OU2 treatment plant approved by EPA	7/23/1991
18 PRPs entered into a Consent Decree with EPA and the State, agreeing to implement the remedies selected in the OU1 and OU2 RODs.	9/12/1991
EPA accepted PRPs' value engineering-driven modifications to EPA's landfill cap design	January 1992
PRP contractor mobilized to Site to begin OU1 cap construction	5/11/1992
PRP contractor mobilized to Site to begin OU2 groundwater treatment plant construction	6/1/1992
Final inspection of landfill cap conducted by EPA, the Delaware Department of Natural Resources and Environmental Control (DNREC) and PRP group	11/18/1993

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EVENT	DATE
Final inspection of treatment plant conducted by EPA, DNREC and PRP group	12/21/1993
Preliminary Close Out Report for OU1 and OU2 signed	4/29/1994
EPA approved Cap System Operation and Maintenance Plan (Cap System O&M Plan)	9/14/94
EPA accepted Remedial Action (RA) Report documenting completion of landfill cap construction (OU1 RA complete)	11/1/94
EPA approved Army Creek Treatment Plant Operations & Maintenance Manual	6/12/1995
EPA accepted RA Report documenting completion of treatment plant construction (OU2 RA complete)	9/29/1995
EPA completed first five-year review	11/25/1998
EPA completed second five-year review	9/30/2004
Pilot study initiated and groundwater recovery operations shifted to adjacent Delaware Sand and Gravel Landfill (DS&G) Superfund site	October 2004
DNREC established a groundwater management zone (GMZ) at the Site and the adjacent DS&G site.	June 2006
EPA conditionally approved New Castle County's request to terminate Army Creek Remediation Scope of Work-2.	5/4/2009

III. Background

Physical Characteristics

The Army Creek Landfill Superfund site (Site) is located in New Castle, Delaware just east of the US Highway 13 (Dupont Highway) Penn Central railroad overpass and west of Delaware Route 9 (River Road) (Attachment 1). The landfill is bordered immediately to the north and west by the Penn Central railroad tracks and to the south and east by Army Creek. Another federal Superfund site, the Delaware Sand and Gravel Landfill (DS&G), is located immediately east of the Site, on the opposite side of Army Creek. In addition to the landfill, itself, the Site includes areas to the south and east where groundwater has become contaminated due to releases of hazardous substances from the Army Creek Landfill. Artesian Water Company's Llangollen well field is located one half mile south of the two sites.

Land and Resource Use

The Army Creek Landfill property is currently used as wildlife habitat. As part of the response actions undertaken at the Site, a mix of annual and perennial grasses and wild flowers were planted in order to promote this use. Prominent visible features on the property include a security fence along the landfill perimeter, landfill gas vents, a drainage ditch and sedimentation basins, groundwater monitoring and recovery wells and a groundwater treatment plant.

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EPA recently approved New Castle County's proposal to place fill material upon a low lying portion of the Site property located south of the landfill. The fill material, which the County generates during utility excavations, maintenance of stormwater management ponds, etc, will be tested to ensure that it meets EPA's standards for protection of human health and the environment. Trees will be planted upon completion of the filling operation in order to reforest the area.

The current land use for the surrounding area is residential and commercial. The Llangollen Estates housing development is located southwest of Llangollen Boulevard, between Dupont Highway and River Road. Additional private homes are located along River Road and Grantham Lane. It is anticipated that a mix of land uses similar to that described will continue into the future.

The Upper Potomac aquifer underlying the two Superfund sites is a primary source of water for Artesian Water Company. The natural groundwater flow direction in the Upper Potomac aquifer is toward the Delaware River. Near the Site, the groundwater flow direction is toward Artesian's Llangollen well field which is the largest pumping center in the area. Artesian Water Company supplies water to all area homes and businesses

History of Contamination

The 50-acre Army Creek Landfill is an abandoned sand and gravel quarry that was operated by New Castle County (the County) from 1960 through 1968 for the disposal of two million cubic yards of municipal and industrial waste. Groundwater contamination was initially detected in 1971, when landfill leachate constituents were discovered in a residential well in the Llangollen Estates housing development which lies south of, and adjacent to, the landfill. In 1972, the County embarked on a groundwater monitoring program that identified a plume of landfill leachate indicator chemicals and hazardous substances migrating toward receptors downgradient of the landfill.

Initial Response

New Castle County initiated a groundwater monitoring program to determine the nature and extent of groundwater contamination in the Upper Potomac aquifer in 1972. In 1973, the County installed a series of groundwater recovery wells in the Upper Potomac aquifer between the landfills and the public water supply wells in order to intercept and contain the contaminant plume. In 1980, the County replaced some of these wells with new recovery wells located closer to the landfills in an effort to increase the rate of contaminant removal while reducing the rate of withdrawal of uncontaminated groundwater. In addition, Artesian's State-permitted withdrawal rate was reduced and capped and Artesian's water supply lines were extended to residences in Langollen Estates and along Grantham Lane.

The Site was proposed for the National Priorities List (NPL) in October of 1981 and finalized on the NPL on September 8, 1983. In August 1984, New Castle County entered into an

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Administrative Order on Consent with EPA, under which the County performed a Feasibility Study (FS) for the Site. The purpose of the FS was to review the data collected during prior investigations at the Site and to evaluate alternatives for controlling the sources of contamination as well as additional options for controlling the groundwater plume. In August 1986, the FS was made available to the public, starting the period for public comment. EPA identified its preferred remedial alternative for OU1 during a public meeting on September 10, 1986.

Basis for Taking Action

Hazardous substances that have been released or detected at the Site during investigations include:

Groundwater

Benzene
Bis(2-chloroethyl)ether
Chlorodibromomethane
1,2-Dichloroethane
1,2-Dichloropropane
2,4-Dinitrotoluene
Methylene chloride
N-Nitrosodimethylamine
2,4,6-Trichlorophenol
Beryllium
Cadmium
Chromium
Lead
Mercury
Nickel
Iron
Manganese

Recovery Well Discharge

Benzene
Bis(2-chloroethyl)ether
Bis(2-ethylhexyl)phthalate
Chlorobenzene
Chloroform
1,4-Dichlorobenzene
1,2-Dichloroethane
Ethylbenzene
Tetrachloroethene
Toluene
Trichloroethene
Xylenes

Aluminum
Arsenic
Barium
Calcium
Cobalt
Iron
Magnesium
Manganese
Nickel
Potassium
Selenium
Sodium

Stream Water

Bis(2-chloroethyl)ether
1,2-Dichloroethane
Phenol
Cadmium
Chromium
Iron
Mercury
Nickel
Thallium
Zinc

Sediments

Polynuclear aromatic hydrocarbons
Phenol
Arsenic
Cadmium
Chromium
Iron
Lead
Manganese
Mercury
Nickel
Zinc

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The groundwater constituents listed above were detected in samples collected by New Castle County and EPA from 1983 through 1984, at levels exceeding federal drinking water standards and/or water quality criteria.[1]

Stream sampling was conducted by EPA in 1981 and 1988; by New Castle County in 1983, and by the Delaware Department of Natural Resources and Environmental Control (DNREC) in 1985 and 1986. The following constituents were found in the water of Army Creek at levels exceeding Water Quality Criteria established under the Clean Water Act (CWA)[2] and/or Delaware Surface Water Quality Standards, as amended on February 2, 1990:[3] BCEE, cadmium, iron, mercury and zinc. Among these substances, only the elevated levels of iron and BCEE were found to be attributable to discharges from the County's groundwater recovery wells. Leachate and runoff from the Army Creek Landfill and runoff from off-site areas were identified as additional potential sources of surface water contamination.

IV. Remedial Actions

The Remedial Action Objectives (RAOs) established for the Site are to:

1. Prevent direct contact with buried wastes;

2. Reduce infiltration of precipitation and resulting generation of leachate and contamination of groundwater;

3. Intercept contaminated groundwater as it moves from the landfill and prevent the migration of groundwater contaminants to Artesian Water Company's Llangollen well field;

4. Restore groundwater to its beneficial use as a potential drinking water source by reducing contaminant levels to Maximum Contaminant Levels (MCLs) established under the federal Safe Drinking Water Act beyond the Army Creek Landfill property boundary; and

5. Ensure that groundwater recovery well discharges do not exceed the Delaware Surface Water Quality Standards that are protective of the designated uses of Army Creek/Pond.

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[1]Groundwater monitoring data were evaluated against the following criteria: proposed Maximum Contaminant Levels (MCLs) for public drinking water supplies, Secondary MCLs, and CWA Water Quality Criteria for Human Health.

[2]Surface water data were evaluated against CWA Toxicity Criteria for Freshwater Aquatic Life.

[3]Surface water data were compared with Water Quality Criteria for Protection of Aquatic Life (Fresh Acute and Fresh Chronic criteria) and Human Health (Freshwater Fish and Water Ingestion).

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Remedy Selection

EPA managed the cleanup in two phases, issuing two RODs. The OU1 ROD, signed on September 30, 1986, selected a source control and aquifer restoration remedy. The OU2 ROD, signed on June 29, 1990, selected an appropriate treatment level for recovered groundwater prior to its discharge to Army Creek. The major components of the selected remedies include:

1. Installation of a multilayer cap over the Army Creek Landfill;

2. Continued collection of groundwater using recovery wells until the cleanup levels are achieved;

3. Construction, operation and maintenance of a water treatment plant capable of reducing the level of iron in the recovered groundwater to a concentration of 1 milligram per liter (mg/L) or less; and

4. Groundwater and effluent quality monitoring.

The OU1 ROD specified a two-phased approach to remediation:

Phase I

(1) Install a cap over the landfill
(2) Continue operation of the recovery well network
(3) Evaluate the effect of capping the landfill on leachate generation and groundwater quality over a five year period

Phase II

If necessary to control leachate generation, install upgradient groundwater controls in order to eliminate the lateral influx of groundwater into the western end of the landfill.

Remedy Implementation

In August 1989, EPA completed a Remedial Design (RD) for the landfill cap. The United States and the State of Delaware entered into a Consent Decree with 18 cooperating PRPs (Settling Defendants) on September 12, 1991 (United States v. BP America , et al., Civil Action No. 91-409). In accordance with the Consent Decree, the Settling Defendants implemented the OU1 Remedial Action (RA) and OU2 RD and RA. The RD for the groundwater treatment plant was completed by the Settling Defendants and approved by EPA on July 23, 1991. In January of 1992, EPA accepted a revised landfill cap design prepared by the Settling Defendants following a value engineering analysis of EPA's 1989 cap design. The contractor for cap construction, Sevenson Environmental Services, mobilized to the Site on May 11, 1992. The construction of the treatment plant was initiated on June 1, 1992 when C&T Associates, mobilized to the Site. RA contractors conducted construction activities as planned, with one notable exception. During

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the grading activities in preparation for cap construction, buried drums were unearthed along the north side of the western end of the landfill. A drum detection and removal plan was prepared, approved by EPA and implemented.

The major components of the cap construction work were the following:

- Site filling and grading necessary to achieve design contours and slopes for the cap system;
- Installation of 8 settlement markers
- Installation of 82 gas vents
- Placement of a 12-inch thick low permeability base layer for the geomembrane;
- Installation of 40 mil LLDPE (linear low density polyethylene) geomembrane (barrier layer);
- Installation of continuous polyetheylene web geonet above the geomembrane (drainage layer);
- Placement of 18 inches of select fill material and 6 inches of top soil over the geosynthetic layers; and
- Seeding with annual and perennial grasses and a wildflower mix.
- A security fence was erected around the perimeter of the landfill.

The major components of the treatment plant construction work were the following:

- Construction of treatment plant building and influent pump station;
- Installation of underground header piping to reroute the recovery well discharge water from Army Creek to the new pump station;
- Installation of cone aerators, chemical oxidant (hydrogen peroxide) tank, pH control tanks, lime tanks, polymer feed system, in-line mixers, upflow filters, Lamella thickener, sludge storage tank, filter press and flow meter; and
- Start-up and testing.

On October 14, 1993, EPA, the State and the PRPs conducted a pre-final inspection of the landfill cap, which generated a short list of punch list items. The parties returned for a final inspection on November 18, 1993 and verified that all items had been satisfactorily completed. EPA, the State and the PRPs conducted a pre-final inspection of the treatment plant on December

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2, 1993. A final inspection of the treatment plant was conducted on December 21, 1993 and all punch list items discussed during the pre-final inspection were completed by January 3, 1994. Treatment plant effluent laboratory results submitted to EPA by letter report dated January 6, 1994 indicated that the system was achieving performance standards and effluent was meeting the 1 mg/L discharge limit for iron. The Site achieved construction completion status when the Preliminary Close Out Report was signed on April 29, 1994.

EPA and the State have determined that all RA construction activities performed to date were performed according to specifications. As discussed in Section V, below, groundwater cleanup standards have been met at the property boundary for all Site-related contaminants except lead. In addition, a screening evaluation has shown that shallow groundwater is not a potential source of air pollution in buildings adjacent to the landfill. In order to complete the soil vapor intrusion pathway analysis, the potential for off-site migration of methane gas will need to be evaluated. EPA expects to issue a Final Close Out Report once the soil vapor intrusion pathway has been fully evaluated and the groundwater cleanup standard for lead is attained at the property boundary.

System Operation/Operation and Maintenance

The Settling Defendants are conducting long-term operation and maintenance (O&M) activities in accordance with the plans, including any modifications, approved by EPA. The primary activities associated with O&M have included the following:

- Collection of groundwater from a series of recovery wells located within the Upper Potomac aquifer, down gradient from the Army Creek Landfill and DS&G sites;
- Regular recovery well maintenance including pump inspection and repair or replacement;
- Treatment of recovered groundwater to remove iron;
- Testing and disposal of solids, primarily iron and lime, removed from the groundwater;
- Discharge of treated groundwater to Army Creek;
- Effluent testing to ensure compliance with Delaware Surface Water Quality Standards;[4]
- Groundwater monitoring – Approximately three dozen groundwater monitoring wells in the Upper Potomac aquifer at the Army Creek Landfill and adjacent DS&G site (see

[4] Effluent testing has not been conducted since October 2004 when the Army Creek Landfill treatment plant was shut down in accordance with a pilot study proposal submitted by New Castle County (New Castle County Department of Special Services, 2004) and approved by EPA.

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Attachment 2) have been regularly tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides and metals;[5]

- Regular inspection of the landfill cap, including vegetation, gas vents, surface water control features, and security fence;
- Annual mowing of grass/wild flowers;
- Annual survey of landfill settlement monuments;[6] and
- Annual perimeter air monitoring.[7]

Since EPA's last five-year review for the Site, O&M costs have been incurred for the following activities: groundwater modeling and remedy optimization studies; installation of two new groundwater recovery wells; operation and maintenance of the groundwater recovery and treatment system; groundwater and stream sampling and testing; and cap maintenance activities. The average annual O&M costs for the past five years are presented in Table 2. Accounting for inflation, the annual O&M costs for 2004 and 2005 are generally consistent with the originally estimated annual cost of $600,000. The steep decline in costs reported for 2006 is attributable to the initiation of a pilot study in October 2004 which entailed the shut down of the Army Creek Landfill treatment plant and a shift from high volume area wide pumping to low volume hot spot pumping. Continued cost reductions through 2008 were due primarily to authorized reductions in groundwater and stream monitoring activities.

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[5] On July 12, 2007, EPA approved the discontinuation of pesticides, herbicides and metals (with the exception of manganese and iron) analyses for groundwater samples.

[6] On September 24, 2007, EPA approved 5-year cycle for monument surveys. The last survey was conducted in December 2006 and the next survey will be conducted during the fourth quarter of 2011.

[7] On July 16, 2002, EPA approved Settling Defendants' request to discontinue air monitoring based on the results of eight years of monitoring. The monitoring data indicate that the landfill is contributing only minimal amounts of VOCs to the ambient air and that the VOC concentrations in ambient air do not present an unacceptable risk to human health.

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Table 2 - Annual System Operation and Maintenance Costs

Year	Total Annual Cost Rounded to Nearest $10,000
2004	$710,000
2005	$850,000
2006	$500,000
2007	$280,000
2008	$160,000

V. Progress since the Last Five-Year Review

EPA determined, based on its last five-year review, that the OU1 remedy was protective in the short-term because additional treatment is provided by Artesian Water Company to address BCEE in the groundwater at the Llangollen well field. A protectiveness determination regarding the OU2 remedy was deferred until further information could be obtained concerning levels of BCEE and pesticides in the fish that inhabit Army Creek and patterns of human consumption of fish from the creek.

In connection with these determinations, EPA's Second Five-Year Review Report identified several issues requiring follow-up which are identified in Table 3, below.

Table 3 – Issues Identified during EPA's Second Five-Year Review

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
The groundwater cleanup standards established in the Consent Decree are not sufficiently protective.	N	Y
BCEE is present in the Llangollen well field at concentrations that exceed the State's interim advisory level for BCEE in drinking water supplies.	N	Y
When groundwater recovery operations are terminated, groundwater elevations will rise. Potential impacts on Army Creek Landfill and DS&G, groundwater quality and Army Creek are not known.	N	Y

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Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
BCEE and pesticides are present in treatment plant effluent at concentrations that exceed State water quality standards for the protection of human health (based on ingestion of contaminated fish).	Y	Y
The groundwater monitoring program currently being implemented at the Site in accordance with the O&M plan is inadequate.	N	Y
Land and groundwater use restrictions are not specified in the RODs and are not in effect.	N	Y
The effluent Toxicity Reduction Evaluation has not been concluded.	N	N

These issues have been addressed or resolved as described in the following summary.

Resolution of Issues Identified in EPA's Second Five-Year Review Report

The Agency's Second Five-Year Review Report recommended a ROD amendment in order to establish risk-based cleanup standards for groundwater in the Upper Potomac Aquifer. The Report states, "In order to be protective, the remedy must prevent exposure to site-related contaminants at levels which, in aggregate, exceed the acceptable 1×10^{-6} to 1×10^{-4} cancer risk range or present unacceptable non-cancer health risks (i.e., levels which are associated with a Hazard Index greater than 1.0)." This recommendation was intended to address the absence of a site-specific groundwater cleanup standard for BCEE, which is present in the Upper Potomac aquifer. Groundwater monitoring data obtained since EPA conducted its last five-year review has made it apparent that the BCEE plume in the Upper Potomac aquifer is the result of uncontrolled releases from the Drum Disposal Area at the adjacent DS&G site where additional response actions are being planned and undertaken in order to address the concern. Therefore, EPA has withdrawn its recommendation to amend the Army Creek Landfill ROD.

It was further recommended that Artesian Water Company continue to treat groundwater extracted from its Llangollen well field with granular activated carbon in order to remove BCEE from the water that enters its distribution system. Artesian has continued to provide treatment of water obtained from the Llangollen well field in compliance with the State's interim advisory level for BCEE in public drinking water supplies.

In addition, EPA recommended that New Castle County implement its proposal (New Castle County Department of Special Services, 2004) to suspend operation of the Army Creek

Landfill groundwater recovery and treatment system for a one-year period, while pumping a substantially smaller volume of highly contaminated groundwater from extraction well PW-1 at the DS&G site. The primary purpose of this pilot study was to determine whether rising groundwater elevations following the termination of pumping at the Army Creek Landfill well field would cause new releases of contaminants to groundwater or Army Creek. An additional objective was to evaluate focused source control measures as an alternative to the high-volume groundwater extraction needed to maintain a groundwater divide between the Superfund sites and Artesian Water Company's Llangollen well field.

The pilot study began in October 2004 and EPA approved several extensions through May 4, 2009, when EPA notified New Castle County that renewed operation of the Army Creek Landfill groundwater collection and treatment system would not be required. Based on the results of extensive groundwater and stream monitoring programs in effect during the course of the pilot study, the suspension of pumping at the Army Creek Landfill well field has not resulted in new releases of contamination from the Army Creek Landfill waste management area.

However, BCEE and other contaminants, including benzene, continue to be released from the Drum Disposal Area of the DS&G site into the Upper Potomac Aquifer where they are captured by well PW-1. In addition, a down gradient portion of the BCEE plume, which was previously captured by the Army Creek Landfill recovery wells, is now migrating, unimpeded, toward the Llangollen well field where extracted groundwater is treated with activated carbon to remove BCEE prior to distribution. Renewed pumping from the Army Creek Landfill well field is not considered an effective means of addressing this contamination. Stakeholders, including Artesian Water Company, the State of Delaware, Settling Defendants at the DS&G and Army Creek Landfill sites and EPA, have discussed the option of addressing the BCEE treatment that Artesian Water Company is providing through the Superfund program.

As specified in the Second Five-Year Review Report, EPA deferred a protectiveness statement for the OU2 remedy until further information could be obtained concerning levels of BCEE and pesticides in the fish that inhabit Army Creek, and patterns of human consumption of fish from the creek. This information was to be collected one year following the initiation of New Castle County's pilot study, when it was expected that the extraction and treatment of groundwater from the Army Creek Landfill recovery well network would be resumed and the treated groundwater would be discharged to Army Creek. Pumping from the Army Creek Landfill well field has not been resumed and, as discussed below, will not resume in the future. Consequently, groundwater containing BCEE and the pesticide dieldrin will not be discharged from the Army Creek Landfill treatment plant to Army Creek. Since effluent discharge to Army Creek was discontinued, BCEE concentrations in surface water have fallen to levels which do not pose a threat to human health. Both dieldrin and heptachlor epoxide continue to be detected in surface water at levels which exceed State Water Quality Criteria. However, upstream and downstream concentrations of these contaminants have been generally consistent and it does not appear that these exceedances are associated with the Site. Therefore, EPA has withdrawn its recommendation to assess human health risks associated with the consumption of fish in Army Creek.

The Second Five-Year Review Report recommended that the O&M plan for Scope of Work-2 (Roy F. Weston, February 1992) be modified to incorporate additional groundwater monitoring locations and analytical parameters, i.e., BCEE. Although New Castle County declined to amend the O&M plan for Scope of Work-2, the County submitted a comprehensive groundwater monitoring plan with its 2004 pilot study proposal. This plan, and subsequent modifications approved by EPA, have provided for a robust groundwater monitoring program and adequately address the Agency's concern about this matter.

The Second Five-Year Review Report states that land and groundwater use restrictions were not specified in the RODs and were not in effect, and recommended that the ROD be amended in order to establish these institutional controls. After issuing the report, EPA recognized that Section XIII (Site Access) of the 1991 Consent Decree established land use and property conveyance restrictions which are sufficient to protect the landfill cap and other remedial components and prevent exposure to contaminated materials in the waste management area. In addition, groundwater use restrictions have been in effect at the Site since June 2006, when DNREC's Division of Air and Waste Management and Division of Water Resources entered into a Memorandum of Agreement establishing a groundwater management zone (GMZ) at the Site. The GMZ places restrictions on the installation of new public or domestic water supply wells in order to prevent exposure to contaminated groundwater.

Finally, the Second Five-Second Five-Year Review Report recommended that New Castle County continue its effluent Toxicity Reduction Evaluation (TRE) upon recommissioning of the Army Creek Landfill groundwater recovery and treatment system. As discussed below, the Army Creek Landfill groundwater recovery and treatment system will not be operated in the future. Therefore, the TRE recommendation is no longer relevant.

In addition to the follow-up actions summarized above, the following progress has been made at the Site:

1. Since October of 2005, groundwater in the Upper Potomac aquifer at the Army Creek Landfill property boundary has met the cleanup levels specified in the OU1 ROD and the Consent Decree. EPA approved New Castle County's request to terminate groundwater collection, treatment and monitoring activities under Scope of Work-2 of the Consent Decree on May 4, 2009.

2. New Castle County agreed to continue groundwater and stream monitoring following the termination of Scope of Work-2 and, in June of 2009, submitted a draft addendum to the 1992 O&M plan in order to provide for long-term monitoring. EPA is currently reviewing this document.

3. Shallow groundwater samples were collected from wells along the northwest landfill boundary in order to assess the potential for soil vapor intrusion at buildings adjacent to the landfill. EPA determined that shallow groundwater at the Site is not a potential source of indoor air pollution.

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VI. Five-Year Review Process

Administrative Components

The Settling Defendants and DNREC were notified that EPA was conducting a five-year review of the Army Creek Landfill site in January 2009. The five-year review team was led by Debra Rossi, EPA's RPM for the Site, and included EPA's oversight contractor and members of EPA's technical advisory staff with expertise in hydrogeology, air pathway analysis, ecology and risk assessment. State Project Manager John Cargill assisted in the review as the representative for the support agency.

EPA began the five-year review for the Site in January of 2009. The components of the five-year review include:

- community involvement;
- document review;
- data review;
- Site inspection; and
- report preparation

Community Involvement

EPA distributed a fact sheet to the local community, elected officials and other stakeholders in July of 2009. The fact sheet explained the five-year review process, provided point of contact information and a website address for additional Site information, and invited comments and questions regarding the Site. Upon completion of the review, EPA will send an additional fact sheet announcing the online availability of this Third Five-Year Review Report and summarizing the results of the review.

Following distribution of the fact sheet, several local residents contacted EPA to inquire about groundwater and drinking water sampling frequency and results and the health effects of contaminants found in groundwater at or near the Site. Questions were referred to EPA's RPM who contacted each of the residents to answer questions and provide data.

Document Review

This five-year review consisted of an examination of relevant documents including facility inspection reports, groundwater and stream monitoring reports and Artesian's annual water quality report (available at www.artesianwater.com). The groundwater cleanup standards (see Attachment 3) established in the Consent Decree and Delaware Water Quality Criteria listed in the OU2 ROD were also reviewed.

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Data Review

Facility Inspections

Facility inspection reports have documented routine maintenance activities, such as mowing, removal of shrubby vegetation from the landfill cap, minor fence and gate repairs and clearing of vegetation from drainage ditches.

In addition, annual settlement monument surveys conducted through 2006 have documented uniform settlement across the cap with relatively little settlement occurring since 1998. The most recent settlement monument survey report documented that one of the monuments was reported destroyed during the 2006 survey. In 2007, EPA approved a reduction in the frequency of settlement monument surveys to once every five years.

Groundwater Elevations and Potentiometric Surface Maps

Groundwater elevations and potentiometric surface maps for the Upper Potomac aquifer are generated by New Castle County's contractor each quarter, and submitted to EPA and the State in the pilot test quarterly status reports.

Groundwater flow patterns in the Upper Potomac aquifer in the vicinity of the Site are controlled by regional pumping. For more than 30 years, until the pilot test began in 2004, the principal regional pumping was from the Army Creek Landfill groundwater recovery well field and Artesian's Llangollen well field. Suspension of pumping from the Army Creek Landfill recovery wells has had two principal effects on regional groundwater:

1. The vertical leakage rates have decreased at locations where there is hydraulic communication between contaminant source areas in the Columbia aquifer, and the underlying Upper Potomac aquifer. There has been a corresponding reduction in the release of contaminants from the source areas into the Upper Potomac aquifer;

2. The direction of groundwater flow in the Upper Potomac has generally become more southward to southeastward toward the Delaware River, which is the natural discharge point, and toward the Llangollen well field, instead of westward toward the Army Creek Landfill recovery wells.

Water level measurements in the Columbia Formation show some locations where there appears to be direct hydraulic communication between the Columbia Formation and the underlying Upper Potomac Formation, with water levels within the Columbia rising and falling in tandem with changes in the Upper Potomac. However, water levels measured at the Army Creek Landfill gas vents showed only a minimal response to wide fluctuations in pumping and potentiometric head within the Upper Potomac. This observation may suggest restricted hydraulic communication between the landfill and the Upper Potomac aquifer.

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Groundwater Monitoring

Approximately three dozen wells screened in the Upper Potomac aquifer have been monitored in connection with the Army Creek Landfill and DS&G Superfund sites. The Army Creek Landfill Consent Decree requires the attainment of site-specific groundwater cleanup standards at four wells located near the Army Creek Landfill property boundary. The "boundary" wells, BW-1, BW-2, BW-3 and MW-40, have been sampled and tested for VOCs, herbicides, pesticides and metals on a quarterly basis since June of 1994.[8] During the last five-year review period (1999 – 2004), benzene and 1,2-dichloroethane were found in groundwater samples collected from the boundary wells at concentrations that exceeded the cleanup levels. In addition, BCEE was found at the boundary wells at levels well above EPA's risk-based standard and the State's interim advisory level. Since October 2005, the groundwater quality at the boundary wells has consistently met the cleanup standards specified in the Consent Decree. However, levels of BCEE at boundary wells BW-1 and BW-2 continue to exceed the State's interim advisory level, and dissolved manganese concentrations (wells BW-1 and BW-2) and iron concentrations (well BW-1) exceed EPA health-based standards. In addition, lead levels in samples collected from boundary well MW-40 have repeatedly exceeded the current drinking water standard for lead since 2002. The BCEE in the groundwater of the Upper Potomac aquifer has been traced back to an inadequately controlled source area at the DS&G site. Additional response actions are being implemented at that site in order to address the release and EPA will conduct a five-year review of that site in 2010. Elevated levels of iron and/or manganese are present primarily at the eastern lobe of the Army Creek Landfill (monitoring wells MW-28, MW-29, MW-31) and within the plume of organic (benzene and BCEE) contaminants originating from the Drum Disposal Area at the DS&G site. Fluctuating levels of iron and manganese have been observed at monitoring well P4, near the western end of the Army Creek Landfill. Iron and manganese occur naturally in the aquifer matrix. These metals dissolved into groundwater under the anaerobic conditions which rapidly developed as waste in the landfill decomposed and aerobic biodegradation of organic materials depleted oxygen levels within the aquifer. The migration of these metals is expected to be inhibited as the impacted groundwater flows into aerobic zones where the iron and manganese will become oxidized and form precipitates which will be incorporated into the geologic material.

EPA's Second Five-Year Review Report identified several metals (aluminum, antimony, arsenic, barium, chromium, mercury, thallium and vanadium) which were found in groundwater samples collected from specific monitoring wells (MW-20, MW-28 and 18) at concentrations which exceed the groundwater cleanup standards specified in the Consent Decree (Attachment 3) or EPA health-based standards. Among these metals, only arsenic and thallium were found at concentrations exceeding cleanup standards and/or health-based standards during this five-year review period.[9] Samples containing levels of concern were obtained from wells located on the

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[8]EPA approved the discontinuation of pesticide monitoring at the boundary wells in March of 2006. In July of 2007, EPA approved New Castle County's proposal to discontinue testing for metals other than iron and manganese at the boundary wells, and to reduce the groundwater monitoring frequency.

[9]These constituents were found at concentrations that would present an excess lifetime cancer risk greater than 1 in 10,000 or an unacceptable non-cancer risk (i.e., levels that

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Army Creek Landfill property (wells MW-28 and/or 18), an area which is not subject to the attainment of groundwater cleanup standards under the Consent Decree. Groundwater monitoring results for this review period are included in Attachment 4.

Effluent Monitoring

While the groundwater treatment plant was operating, BCEE and the pesticide dieldrin were detected in the treatment plant effluent at concentrations exceeding the State Water Quality Criteria for Protection of Human Health (Freshwater Fish Ingestion). Effluent monitoring has not been conducted since 2004 when the treatment plant was shut down for the pilot study.

Artesian Monitoring Reports/Data

Artesian's 2004 through 2008 Water Quality Reports were reviewed. The Water Quality Reports for northern New Castle County show that the water meets State and federal drinking water standards for regulated contaminants.[10] Treated water collected at the Llangollen pump station consistently met the State interim standard for BCEE in drinking water.

Surface Water and Sediment Monitoring

During the course of the pilot study, water levels within Army Creek and Army Pond have not changed significantly and no effects on habitat have been observed.

Surface water and sediment samples were collected from seven locations (A through G) in Army Creek from October 2004 though April 2007 (see results and sample locations in Attachment 5), and tested for TCL/TAL parameters. For the purpose of this five-year review, test results for water were compared with Delaware Water Quality Criteria for Protection of Aquatic Life and Delaware Water Quality Criteria for Protection of Human Health (based on fish ingestion). Delaware Water Quality Criteria for contaminants with concentrations exceeding the standards are presented in Table 4a. The test results that exceeded water quality standards at each sampling location are presented in Table 4b.

Since effluent discharge to Army Creek was discontinued in 2004, BCEE concentrations in surface water have fallen to acceptable levels. BCEE concentrations in Army Creek have met the Delaware Water Quality Criterion since April of 2005. Both dieldrin and heptachlor epoxide continue to be detected in surface water at levels which exceed Delaware Water Quality Criteria for protection of human health (based on fish consumption). However, the contaminants identified are consistent with what would be expected in an area formerly used for agriculture and in the vicinity of wetlands which were likely historically treated for mosquito control. In

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correspond to a Hazard Quotient greater than 1).

[10] In 2004, Artesian reported a violation for fluoride which is added to drinking water in order to help prevent tooth decay. A short-term spike in the fluoride concentration caused by an equipment malfunction was resolved within one day. Artesian issued a public notice to the affected areas.

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addition, the upstream and downstream concentrations have been generally consistent and it does not appear that the exceedances are associated with the Site Storm water run-off is a likely contributor of these contaminants to the surface water in Army Creek. Lead, which was detected in surface water during the last five-year review period at concentrations exceeding a Delaware Water Quality Criterion for the protection of aquatic life, was not detected at levels of concern in any of the 70 surface water samples collected during this five-year review period.

Sediment samples were collected from seven locations in Army Creek immediately after the surface water samples were collected, and were analyzed for TCL/TAL parameters. For the purpose of this five-year review, test results were compared with EPA Region 3 BTAG Freshwater Sediment Screening Benchmarks (2005).

Several polynuclear aromatic hydrocarbons and pesticides were present in sediment samples collected from Army Creek at concentrations exceeding the screening levels. The frequency and magnitude of these detections were greatest at sampling stations D, E, F and G. Station G is the upstream, or background, sampling location and station D is adjacent to an outfall which receives run-off from Route 13. Metals were also present in sediments at concentrations that exceed the screening levels. Arsenic, cadmium, copper, lead, manganese, nickel and/or zinc were detected above screening levels at multiple sample locations. Mercury concentrations exceeded the screening level in samples collected from station A. Iron concentrations exceeded the screening level in samples collected at all of the sampling stations. The exceedances were minimal and upstream and downstream concentrations were generally consistent. It does not appear that these exceedances are associated with the Site.

Table 4a - 2004 State Water Quality Criteria (µg/L)

Analytical Parameter	Acute[1]	Chronic[1]	Human Health – Systemic[2]	Human Health – Carcinogenic[2,3]
Alpha-BHC	NA	NA	NA	0.0048
Beta-BHC	NA	NA	NA	0.017
BCEE	NA	NA	NA	0.53
Bis(2-ethylhexyl)phthalate	NA	NA	620	2.2
4,4'-DDD	1.1	0.0010	0.037	0.00022
4,4'-DDE	1.1	0.0010	0.037	0.00022
4,4'-DDT	1.1	0.0010	0.037	0.00022
Dieldrin	0.24	0.056	0.043	0.000054
Heptachlor Epoxide	NA	NA	0.0046	0.000039
Iron	NA	1,000	NA	NA

[1] Criterion for protection of freshwater organisms
[2] Criterion for protection of human health based on fish consumption
[3] Concentration translates to an upper bound worst case risk management level of one excess cancer in a population of one million (1×10^{-6}) over a 70 year lifetime.
NA - Not applicable or not available

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Table 4b – Surface Water Contaminant Concentrations Exceeding State Water Quality Criteria (µg/L) (October 2004 – April 2007)

Analytical Parameter	Sample Location						
	SWA	SWB	SWC	SWD[a]	SWE	SWF	SWG[b]
Alpha- BHC						0.011	
Beta - BHC				0.024	0.017		
BCEE	1.8	2.2	0.93			0.69	
Bis(2-ethylhexyl)phthalate	7.6	54 4.5	7.2 4.1	12 8.2 6.4 4.8 4.5 4.8	48 4.6	16	
DDD			0.002	0.026	0.002		
DDE	0.0084	0.013 0.012	0.0039 0.015 0.0047	0.036 0.0075	0.0027 0.01	0.0016	0.0039 0.0077
DDT						0.0033	
Dieldrin	0.0039	0.0027	0.0025	0.0044	0.0068 0.0073	0.0076 0.011 0.0078 0.0053	0.0083 0.0071
Heptachlor Epoxide	0.011 0.014 0.008		0.0022 0.012	0.01 0.011 0.061	0.016	0.017	0.025
Iron	1,310	46,900		1,170 10,100	1,060	1,070	1,290

Notes:
1. At each location, six quarterly samples were analyzed for pesticides and eleven quarterly samples were analyzed for SVOCs and metals during the review period.
2. Data qualifiers are given in Attachment 5 of this report.
[a] Sample location SWD is adjacent to an outfall which collects run-off from Route 13.
[b] Sample location SWG is a background location upgradient of the landfill.

Additionally, EPA completed a screening-level risk assessment for a swimmer exposed to surface water and sediment in Army Creek, based on test results for surface water and sediment samples collected from October 2004 through October 2005. No unacceptable risks were found for this exposure scenario.

Site Inspection

EPA's remedial action oversight contractor, CDM, conducted a Site inspection on May 22, 2009. The purpose of the inspection was to assess the protectiveness of the remedy by

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evaluating the integrity of the landfill cap system.

The landfill cover generally appeared to be in good condition, although tall, dense vegetation prevented a detailed inspection of the cap system. The Cap System O&M plan calls for annual mowing of the landfill cap in order to facilitate use of the Site as wildlife habitat. During the Site inspection, thick, high vegetation, including woody brush and small trees (three to five feet tall) was observed on the landfill cover. Trees up to eight feet tall, as well as phragmites and shrubs, were observed within the drainage swales. Areas of the perimeter fence were also covered with thick vegetation. A temporary repair of a gap in the fence was observed along the northern fence segment in the eastern lobe of the landfill. An animal burrow was observed at the eastern toe of the landfill.[11] Methane monitoring at selected gas vents indicated that the vents were properly functioning. Signage for the Site is out of date, providing regulatory agency phone numbers which are no longer valid.

Interviews

Mr. Joseph DiNunzio of Artesian Water Company was interviewed on July 20, 2009 regarding the configuration of the carbon treatment system at the Llangollen well field and Artesian's water testing program. Mr. DiNunzio explained that the carbon filtration system consists of three filter sets, each comprised of a lead filter and a polishing filter. Effluent from the lead filter is tested monthly for BCEE. Once break-through is detected at the lead filter, the polishing filter is moved to the lead position and a new polishing filter is installed. Water quality is tested quarterly at the Llangollen pump station.

State Project Manager John Cargill was interviewed in June 2009 regarding the existence of any private water supply wells in the vicinity of the Army Creek Landfill. State records indicate that, until recently, a residence located southeast of the Army Creek Landfill and east of Route 9 was served by a private water supply well. The State installed a household water treatment system there in 2000 after BCEE was detected in a water sample. In 2008, the affected well was taken out of service and the household began obtaining water from Artesian Water Company. The other homes and businesses in the vicinity of the Site are also served by Artesian,

VII. Technical Assessment

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

EPA's review of documents, ARARs and risk assumptions, as well as the results of the Site inspection, indicate that the remedy is functioning as intended by the RODs.

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[11] Settling Defendants excavated the soil around two burrows in the landfill cover in 1994 and determined that the liner beneath the burrows had not been damaged. In a letter dated July 16, 2002, EPA approved the Army Creek Landfill Trust Fund Technical Steering Committee's request to discontinue a groundhog control program provided that the integrity and effectiveness of the landfill cover system is maintained.

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The landfill cap has achieved the remedial objectives of preventing direct contact with buried wastes and reducing infiltration of precipitation and resulting leachate generation and groundwater contamination. The Site fence is maintained and is limiting access to the Site. The effective implementation of institutional controls has prevented uses of the landfill property that could compromise the effectiveness of the remedy. Maintenance of the cap, drainage structures and fence has, for the most part, been effective. Recommendations for improving the effectiveness of the maintenance activities are given in Section IX, below.

Since October 2005, the groundwater quality at the boundary wells has consistently met the cleanup standards specified in the Consent Decree. However, levels of BCEE at boundary wells BW-1 and BW-2 continue to exceed the State's interim advisory level, and dissolved manganese concentrations at wells BW-1 and BW-2 exceed EPA's health-based standard. In addition, lead levels in samples collected from boundary well MW-40 have repeatedly exceeded the current drinking water standard for lead since 2002. The BCEE contamination has been traced back to the Drum Disposal Area of the DS&G site where additional response actions are being implemented in order to contain the source area. Elevated levels of manganese at the boundary wells appear to be associated with the plume of organic contaminants emanating from the DS&G site.

In 2006, the State established a groundwater management zone which will prevent exposure to BCEE originating from the DS&G site and elevated levels of metals (arsenic, iron, lead, manganese, thallium) present in groundwater near the Army Creek Landfill property. Groundwater and stream monitoring should be continued in order to monitor the continued protectiveness of the remedial action.

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

Changes in Exposure Pathways or Assumptions and RAOs:

In selecting the OU1 and OU2 remedial actions, EPA considered the following potential human exposure scenarios: residential use of contaminated groundwater in the Upper Potomac aquifer; exposure to surface water and sediment in Army Creek; and ingestion of contaminated fish. Exposure of aquatic organisms to contaminated surface water and sediment in Army Creek was also considered. These exposure scenarios continue to be relevant. However, during the remedy selection process, EPA did not consider the potential for exposure to Site-related contaminants as a result of soil vapor intrusion. As discussed in Section VIII of this report, additional studies are necessary in order to fully evaluate this potential exposure pathway.

During the OU1 RI, a formal baseline human health risk assessment was not conducted. Consequently, risk- and health-based cleanup standards were not developed and the cleanup standards for groundwater, which are to be met beyond the Army Creek Landfill property boundary, are MCLs. The RODs and the Consent Decree do not specify groundwater cleanup standards for contaminants which lacked MCLs. However, in order to be protective, the remedy

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must prevent exposure to site-related contaminants at levels which, in aggregate, present a risk that exceeds EPA's cancer benchmark value of 1 in 10,000 or unacceptable non-cancer health risks (i.e., levels which are associated with a Hazard Index greater than 1.0).

As part of this five-year review, a simple risk assessment was performed using laboratory analytical results for groundwater samples collected from the boundary wells from July 2006 through April 2009. Risks were estimated assuming that residents would come into contact with groundwater through ingestion, dermal contact and inhalation via showering.

The risk assessment shows that exposure to the levels of BCEE found at boundary wells BW-1 and BW-2 would result in a cancer risk that exceeds EPA's cancer benchmark value of 1 in 10,000; exposure to the levels of iron and/or manganese found at these wells would result in adult and child non-cancer risks that exceed EPA's non-cancer threshold value of 1.0. For boundary wells BW-3 and MW-40, all risks are below EPA's threshold and benchmark criteria. As discussed above, groundwater contamination at boundary wells BW-1 and BW-2 has been attributed to a source at the DS&G site.

Lead levels in groundwater samples collected from boundary well MW-40 have repeatedly exceeded the current 15 µg/L drinking water standard for lead, as stated above. Lead at Superfund sites is regulated based on blood lead concentration. EPA and the Centers for Disease Control and Prevention have determined that childhood blood lead concentrations at or above 10 micrograms of lead per deciliter of blood (µg/dL) present risks to children's health. The EPA risk reduction goal for contaminated sites is to limit the probability of a child's blood lead concentration exceeding 10 µg/dL (the P10) to 5% or less after cleanup. The Integrated Exposure Uptake Biokinetic (IEUBK) model was used to determine if consuming drinking water with the average lead concentration found in groundwater samples from well MW-40 would cause the P10 to exceed 5%. According to the model, 4.1% of the child population may have blood lead concentrations above 10 µg/dL if exposed to this level of lead in drinking water plus default lead levels in soil, dust and air. This predicted percentage is below EPA's cut-off value of 5%. The IEUBK model also offers the ability to predict blood lead levels based on exposure to a single medium, e.g., drinking water. Based on this analysis, exposure to drinking water containing the average lead level in the groundwater samples collected from well MW-40 would yield a blood lead concentration of 4.4 µg/dL which is below the current blood lead standard of 10 µg/dL.

Changes in Standards and Toxicity Data:

EPA compared the boundary well groundwater test results from October 2004 through April 2009 with current federal and State drinking water standards and EPA Region 3 risk-based screening levels. During this period, the following metals and compounds were detected in at least one sample at a concentration exceeding the drinking water standard or an acceptable risk-based concentration (see footnote 9): iron, lead, manganese, benzene, BCEE, bis(2-ethylhexyl)-phthalate (BEHP) and 1,2-dichloroethane. Benzene and 1,2-dichloroethane concentrations at the boundary wells have remained below these standards since October of 2005. Updated MCLs or

State drinking water standards for the remaining contaminants are given in Table 5; EPA Region 3's risk-based screening levels are given in Table 6.

Table 5 - Current Drinking Water Standards for Selected Contaminants

Contaminant	MCL (μg/L)[1]	MCLG (μg/L)[1]	State Standard (μg/L)
Lead	15	0	15
BEHP	6	0	6
BCEE	NA	NA	0.096[2]

[1] EPA 816-F-09-0004, May 2009
[2] Drinking water interim advisory level
NA - Not available

Table 6 – Region 3 Screening Levels for Contaminants without MCLs

Contaminant	Screening Level (μg/L)[1]	Key
BCEE	0.012	c
Iron	26,000	n
Manganese	880	n

[1] Screening levels correspond to either a 1 in 1,000,000 risk level for carcinogens or a Hazard Quotient of 1 for noncarcinogens.
Source: Regional Screening Level (RSL) Table Master April 2009
c = cancer
n = noncancer

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

Several contaminants which are present in the groundwater of the Upper Potomac aquifer have been traced back to the DS&G site. No releases of contaminants from the Army Creek Landfill into groundwater or surface water have been identified since the operation of the Army Creek Landfill groundwater recovery wells was suspended in 2004. There is no information that calls into question the protectiveness of the remedy at the Army Creek Landfill site.

Technical Assessment Summary

Based on the evaluation of data, documents and ARARs conducted for this five-year review, as well as the Site inspection, the remedy is functioning as intended by the ROD. There have been no significant changes in the physical conditions of the Site that would affect the protectiveness of the remedy. Most of the groundwater cleanup levels have been met at the boundary wells. BCEE, iron and manganese, which are present at levels of concern at boundary

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wells BW-1 and BW-2, have been traced back to the DS&G site. Additional response actions are being undertaken at that site in order to address this concern. The persistence of lead at boundary well MW-40 should continue to be monitored as discussed in Section IX, below. The GMZ instituted by the State in 2006 will prevent exposure to contaminated groundwater in the Upper Potomac aquifer until all of the cleanup standards have been met.

VIII. Issues

Table 7 – Issues

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Post-attainment groundwater and stream monitoring is not currently required under the Consent Decree.	N	Y
A comprehensive assessment of the soil vapor intrusion pathway has not been performed.	N	Y
Lead levels in groundwater samples collected from boundary well MW-40 regularly exceed the current drinking water standard for lead.	N	Y
Woody vegetation on the cap and within the drainage structures may damage the cap liner or interfere with surface water drainage from the cap if not removed.	N	Y
Tall vegetation present on the cap during the Site inspection did not allow a detailed inspection of the cover system.	N	N
Agency contact information on Site identification signs is out of date.	N	N

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IX. Recommendations and Follow-up Actions

Table 8 - Recommendations and Follow-up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Post-attainment groundwater and stream monitoring is not currently required under the Consent Decree.	On June 17, 2009, New Castle County provided EPA with a draft addendum to the 1992 O&M plan which addresses long-term groundwater and stream monitoring. EPA is currently reviewing the addendum which, upon approval, will become enforceable under the Consent Decree.	Settling Defendants	EPA	12/30/09	N	Y
A comprehensive assessment of the soil vapor intrusion pathway has not been performed.	The potential for offsite migration of landfill gas and soil vapor intrusion at buildings adjacent to the landfill should be evaluated.	Settling Defendants/EPA	EPA	7/30/10	N	Y
Woody vegetation on the cap and within the drainage structures may damage the cap liner or interfere with surface water drainage from the cap if not removed.	Woody vegetation should be removed from the cap and drainage structures and vegetation should be removed from the perimeter fence.	Settling Defendants	EPA	12/30/09	N	Y

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Lead levels in groundwater samples collected from boundary well MW-40 regularly exceed the current drinking water standard for lead.	Fate and transport of lead present in the Upper Potomac aquifer in the vicinity of well MW-40 should be evaluated. The evaluation should include monitoring at MW-40 and suitable downgradient locations.	Settling Defendants	EPA	12/30/12	N	Y
Tall vegetation present on the cap during the Site inspection did not allow a detailed inspection of the cover system.	EPA should conduct a follow-up inspection of the cap and perimeter fence after the next mowing which is scheduled for October 2009.	EPA	EPA	11/30/09	N	N
Agency contact information on Site identification signs is out of date.	New signs with accurate contact information should be posted around the Site.	Settling Defendants	EPA	12/30/09	N	N

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X. Protectiveness Statement

The remedial action is expected to achieve protectiveness in the long term. However, a protectiveness determination regarding the source control aspect of the remedy cannot be made based on existing data and is being deferred until further information is obtained. Specifically, additional testing is required in order to evaluate the potential for offsite migration of landfill gas and soil vapor intrusion at buildings adjacent to the landfill. Direct contact threats have been addressed through capping of contaminated soil and waste material, installation of a fence, and institutional controls restricting use of the landfill property. All of the groundwater cleanup standards, with the exception of the standard for lead, have been attained at the property boundary. State implementation of a Groundwater Management Zone is preventing exposure to lead near the property boundary, and will continue to prevent exposure to site-related contaminants (e.g, iron and manganese) in groundwater beneath the landfill property after all of the groundwater cleanup standards have been attained at the property boundary. It is expected that the soil vapor intrusion evaluation can be completed within one year, at which time a protectiveness determination will be made.

XI. Next Review

The next five-year review for the Army Creek Landfill Superfund site is required by September 2014, five years from the date of this review.

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ATTACHMENTS

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ATTACHMENT 1

Site Location Map

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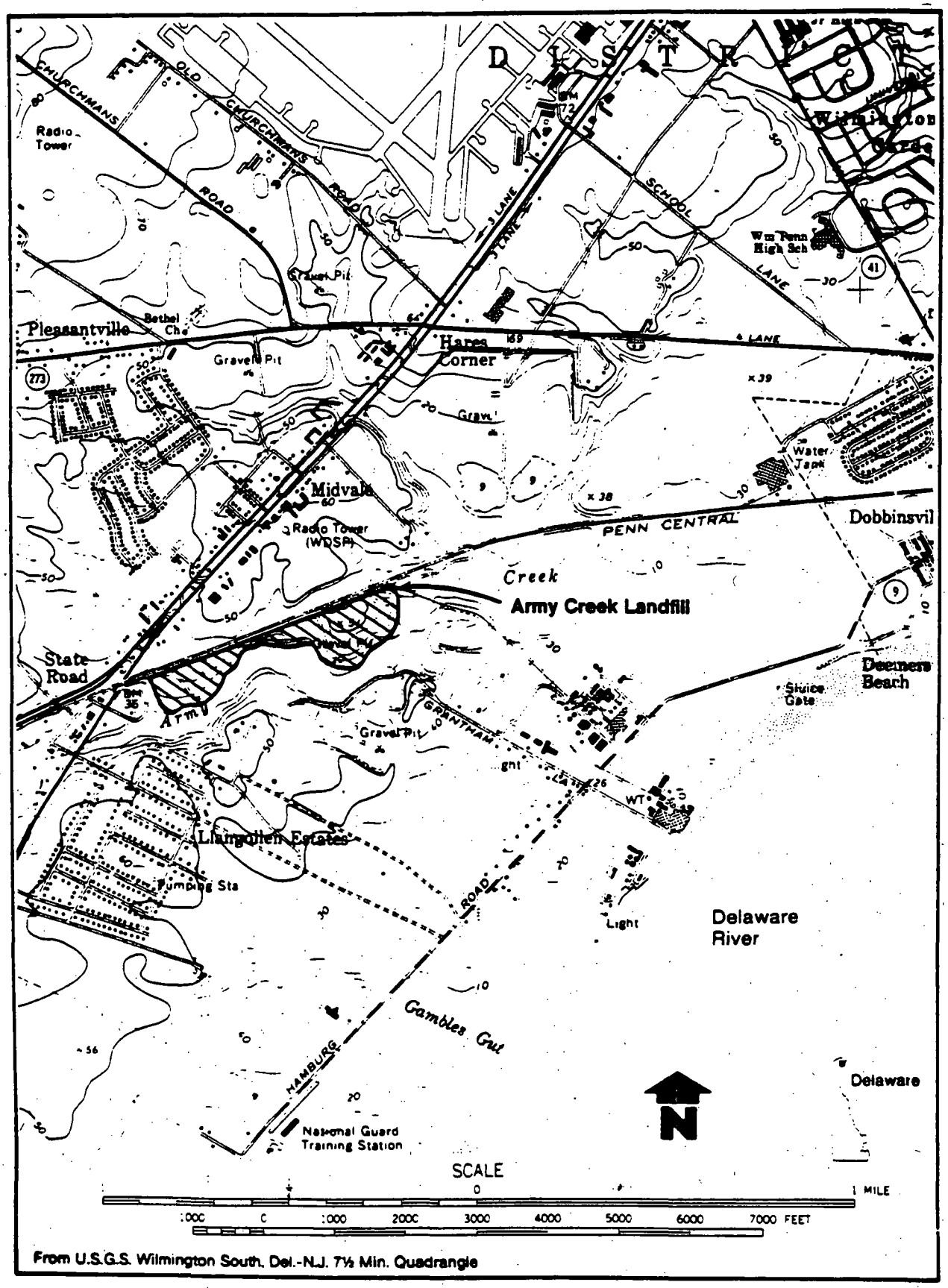

From U.S.G.S. Wilmington South, Del.-N.J. 7½ Min. Quadrangle

FIGURE 1-1 SITE LOCATION OF THE ARMY CREEK LANDFILL

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ATTACHMENT 2

Site Plan

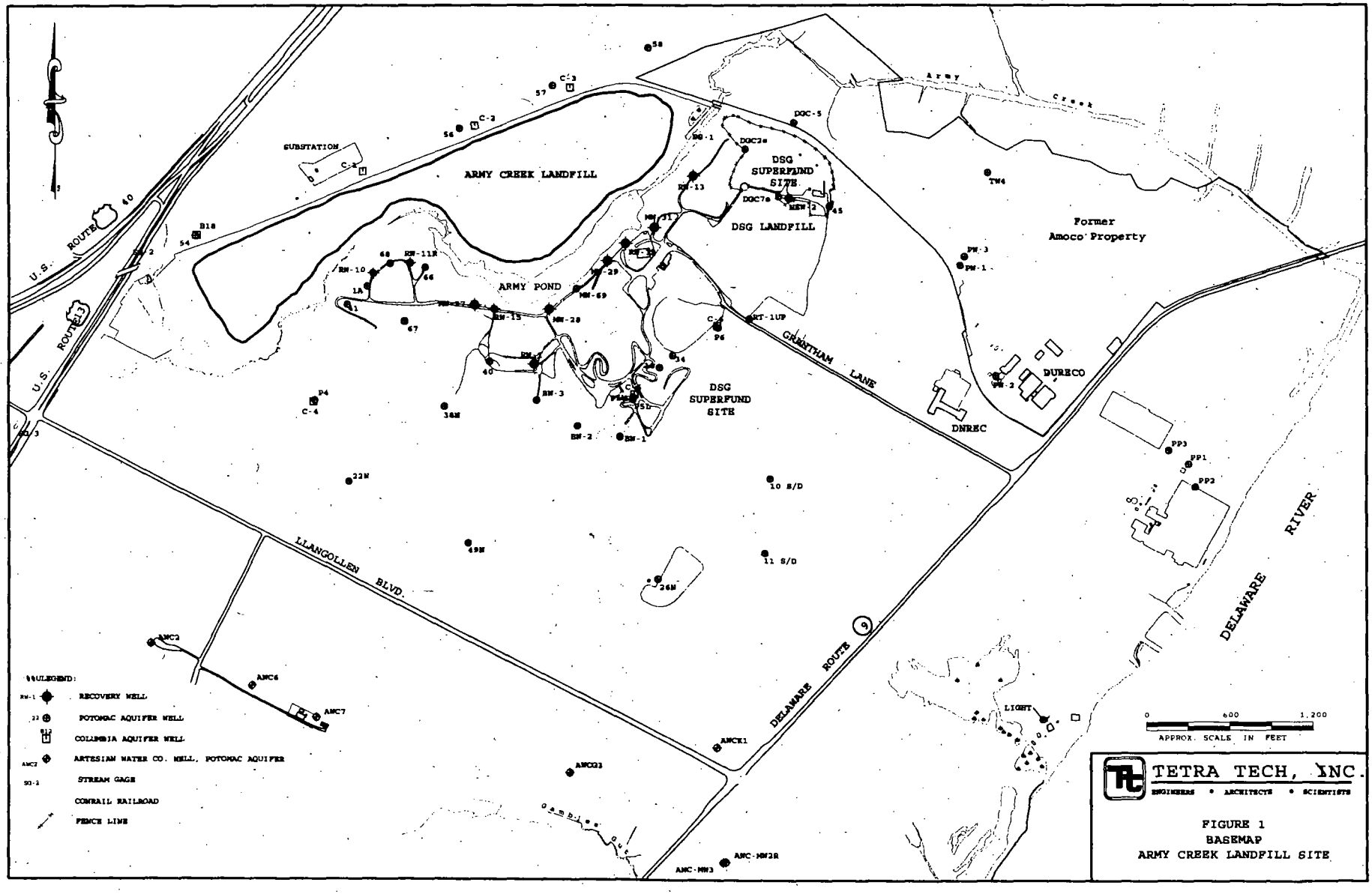

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FIGURE 1
BASEMAP
ARMY CREEK LANDFILL SITE

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ATTACHMENT 3

Groundwater Cleanup Standards

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Primary Drinking Water Standards

Inorganics:

Contaminant	Level (µg/L)
Arsenic	0.05
Barium	1
Cadmium	0.010
Chromium	0.05
Lead	0.05
Mercury	0.002
Nitrate (as N)	10
Selenium	0.01
Silver	0.05

Organics:

Contaminant	Level (µg/L)
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.1
Toxaphene	0.005
2,4-D (2,4-Dichlorophenoxyacetic acid)	0.1
2,4,5-TP Silvex (2,4,5-Trichlorophenoxypropionic acid)	0.01
Total trihalomethanes	0.10
Benzene	0.005
Vinyl chloride	0.002
Carbon tetrachloride	0.005
1,2-Dichloroethane	0.005
Trichloroethylene	0.005
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.20
1,4-Dichlorobenzene	0.075

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ATTACHMENT 4

Quarterly Groundwater Monitoring Results

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STATUS REPORT

FOURTH QUARTER OF 2008

PILOT TEST PROGRAM FOR THE SUSPENSION OF ARMY CREEK LANDFILL PUMP & TREAT SYSTEM

January 2009

Prepared by:

Ruth Associates, Inc.
8 East High Point Road
Stuart, Florida 34996
(772) 283-0959

RUTH ASSOCIATES, INC.

Table 4

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	RW-10																																	
	6/93	6/94	6/95	6/96	6/97	6/98	6/99	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	10/08
Non-Halogenated VOCs (µg/l)																																		
Benzene	5 U	5 U	0.2 J	0.2 J	0.5 U	0.2 J	0.1 J	0.5 U	–	–	0.2 J	0.2 J	–	–	–	0.5 U	–	–	–	0.2 J	0.1 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	–	–	–	–	–	–	–	–	–	–	0.2 B	0.5 J	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.29 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	1.0 U	1.0 U	1	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 R	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	20 U	20 R	20 R	20 R	10 U	5 UJ	6.6 U	5 U	5 U	5 U	5 UJ	5 U
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.2	–	–	–	–	10 U	0.49 J	0.85 J	1 U	1 U	0.40 J	0.33 J	0.56 J
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 UJ	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																																		
Bromoform	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 UJ	1 U	1 U
Bromodichloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	0.5 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	–	–	–	–	–	–	–	–	–	–	0.4 J	0.3 J	–	–	–	–	–	–	–	0.3 J	0.2 J	0.22 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	–	–	–	–	–	–	–	–	–	–	1 U	0.2 J	–	–	–	–	–	–	–	0.5 U	0.5 U	0.13 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	0.21 J	1 U	1 UJ	1 U
Dibromochloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	55	28	18	19	0.5 U	3.8	3.8	5.1	–	–	4	3	–	–	–	6	–	–	–	1.7	0.8	0.64	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.1 J	0.5 U	0.22 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	–	–	–	–	–	–	–	–	–	–	2 U	2 U	–	–	–	–	–	–	–	1.0 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	5 U		0.5 U	0.2 J	0.5 U	0.1 J	0.1 J	0.5 U	–	–	0.1 B	0.2 J	–	–	–	0.5 U	–	–	–	0.1 J	0.5 U	0.14 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	–	–	–	–	–	–	–	–	–	–	1 U	0.1 UJ	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 UJ	1 R	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	–	–	–	–	–	–	–	–	–	–	7	6	–	–	–	–	–	–	–	4.4	2.7	6.3	7	7	5 U	5 U	10 U	0.53 J	0.49 J	0.32 J	0.53 J	0.39 J	0.29 J	0.27 J
1,1,1-Trichloroethane	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.2 J	0.58	1 J	0.8 J	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.1 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)																																		
Bis(2-chloroethyl)Ether	–	–	–	–	–	–	–	0.0241 J	0.024 U	0.03 U	0.02 J	0.024 U	0.025 U	0.026 U	0.018	0.04 U	0.05 U	0.02 J	0.05 U	0.05 U	–	0.054 U	0.019 U	0.02 U	0.02 U	0.018 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5.9	160 D	5 UL	5 UL	5 U	5 UL	5 UL	5 U	5 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5 U	5 U	5 UL	5 U	5 U	5 UL	5 UL	5 U	5 UL	5 UL	5 U	5 UJ
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Inorganics																																		
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.145	–	0.241	0.806	1.50	3.69	5.12	2.68	3.69	2.03	0.250	0.124	0.0424	0.0336	0.0165
Dissolved Iron (mg/l)	1.15	0.60	0.25	0.29	1.90	0.40	5.40	0.11	–	–	0.138 B	0.141	–	–	–	0.23	–	–	0.296	0.221	–	0.511	2.35	7.61	3.88	0.269	2.85	0.146	1.46	0.0075 U	0.0153 U	0.010 U	0.009 U	0.0177 U
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	1.7	< 1	1.4	< 2	< 2	< 2	–	–	–	–
Field Parameters																																		
Temperature (Degrees Celcius)	–	–	–	–	–	–	–	–	–	–	–	–	–	12.39	–	–	–	–	14.2	14.07	–	14.5	13.43	14.15	15.65	13.88	13.1	14.1	14.6	14.2	13.0	14.7	15.3	13.9
Conductivity (µs/cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	180	–	–	–	–	185	192.2	–	269	165	203	261	292	439	381	551	401	366	177	140	302
pH (standard units)	5.80	5.51	5.53	5.96	6.63	5.88	5.92	5.84	–	–	–	5.75	–	6.52	–	6.26	–	–	5.47	5.55	–	6.66	5.50	5.67	5.13	5.83	5.66	5.81	5.61	5.50	5.89	3.70	6.45	5.73
Dissolved Oxygen (mg/l)	–	–	–	–	–	–	–	–	–	10.04	–	–	–	–	–	–	–	–	2.27	0.27	–	–	8.80	3.59	2.19	0.70	0.00	1.20	1.20	1.23	0.77	0.83	4.56	3.94
ORP (mV)	–	–	–	–	–	–	–	–	–	–	–	–	–	251.0	–	–	–	–	121.1	96.5	–	57.1	150.7	68.7	183.6	231.2	63	232	98	240	218	259	191	255
Water-Level Elevation (ft. MSL)	–	–	–	–	–	–	–	–	–	-56.54	-59.04	-60.51	-61.94	-60.01	-30.33	-30.46	-31.13	-29.98	-26.93	-27.74	-26.17	-16.05	-11.30	-0.17	-6.95	-11.35	-0.96	-4.59	-8.21	-9.49	-6.20	-7.06	-11.30	-9.90

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	RW-10																														
	6/93	6/94	6/95	6/96	6/97	6/98	6/99	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07
Inorganics **(µg/l)**																															
Nitrate Nitrogen (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.60	3.84	–	–	–	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	20900	19700	19900	–
Cobalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11200	10900	11000	–
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/l as CaCO3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	40.0	38	32.0	–
Dissolved Gases																															
Oxygen (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7.04	6.72	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7 B	2 B	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.7 JB	0.2 B	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2 U	0.06 B	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	23	72	–	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides **(µg/l)**																															
4,4'-DDD	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 U	0.04	0.020 U	–	0.020 U	–	0.020 U
4,4'-DDE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.0022 J	0.012 J	0.020 U	–	0.020 U	–	0.020 U
4,4'-DDT	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U
Aldrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U
alpha-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U
Alpha-Chlordane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0054J	0.0077 J	0.0067 J	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U
beta-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U
delta-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.0058 J	0.0062 JN	0.010 U	–	0.010 U	–	0.010 U
Dieldrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.011 J	0.012 J	0.018 J	0.0069 J	0.0046 JN	0.0045 J	–	0.0072 J	–	0.0056 J
Endosulfan I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U
Endosulfan II	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U
Endosulfan sulfate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U
Endrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U
Endrin Aldehyde	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U
Endrin Ketone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U
gamma-BHC (Lindane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U
gamma-Chlordane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0049 J	0.0018 J	0.01 U	0.010 U	–	0.010 U	–	0.010 U
Heptachlor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.012 JN	0.01 U	0.010 U	–	0.010 U	–	0.010 U
Heptachlor Epoxide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.018 JN	0.016 J	0.031 JN	0.010 U	–	0.027 J	–	0.01 U
Methoxychlor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1 U	0.1 U	0.095 U	0.1 U	0.1 U	0.10 U	–	0.10 U	–	0.10 U
Toxaphene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	1.0 U	–	1.0 U

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-28																															
	6/93	6/94	6/95	6/96	6/97	6/98	6/99	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	4/08	10/08
Non-Halogenated VOCs (µg/l)																																
Benzene	5 U	5 U	1.5	1.7	1.2	1.3	1.6	0.5 J	–	–	0.2 J	0.6 J	–	–	–	0.8 J	–	–	0.5 U	5 U	5 U	5 U	1 J	10 U	1 U	1 U	1.9	1 U	1 U	2.8	0.58 J	2.8
Toluene	–	–	–	–	–	–	–	–	–	–	0.1 B	0.2 J	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 R	10 U	10 UJ	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	20 R	20 U	20 R	20 R	10 UJ	5 UJ	5.9 U	5 U	5 U	5 U	5 UJ	5 U	5 U
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.48 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.16 J	0.13 J	1 U
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																																
Bromoform	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	0.25 J	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U
Chlorobenzene	–	–	–	–	–	–	–	–	–	–	1	5	–	–	–	–	–	–	0.11 J	5 U	5 U	5 U	6	10 U	1 U	0.37 J	11	0.33 J	1 U	16	4.1	17
Chloroform	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	5 UJ	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5 U	5 U	0.5 U	0.2 J	1.3	5.3	0.5 J	0.1 J	–	–	3	1 U	–	–	–	0.5 U	–	–	0.16 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	0.15 J	1 U	1 U	0.33 J	1 U	0.23 J
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-*Dichloroethane*	–	–	–	–	–	–	–	–	–	–	1 U	0.2 J	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	1 J	10 U	1 U	1 U	1.4	1 U	1 U	1.7	0.53 J	1.5
cis-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	1 U	0.1 J	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	0.26 J	1 U	1 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.1 J	–	–	1 U	1 U	–	–	–	0.5 U	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	–	–	–	–	–	–	–	–	–	–	2 U	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	1 U	0.2 JB	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	0.43 J	1 U	1 U	0.7 J	0.20 J	0.75 J
1,3-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	5 U	–	3.1	2.9	2.2	3.3	3.6	1.5	–	–	0.3 B	2	–	–	–	0.5 U	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	2.9	1 U	1 U	4.8	1.4	5.1
Chloroethane	–	–	–	–	–	–	–	–	–	–	1 U	0.2 J	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 R	1 U	0.57 J	1 U	1 U	1 U	1 U	0.38 J
Tetrachloroethene	–	–	–	–	–	–	–	–	–	–	3	0.3 J	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	0.7 J	–	–	–	0.5 U	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.62 U	5 U	5 U	5 U	5 U	10 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
Semi-Volatiles (µg/l)																																
Bis(2-chloroethyl)Ether	–	–	–	–	–	–	–	1.0900	0.81	1	2 J	2.2	1.3	0.96	0.98	0.37	0.23	0.2	0.076	0.06	0.046	0.02 U	0.3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6.9	5 U
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.1	4.4 J	5 U	5 U	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5 U	5 U	5 U	5 UJ	5 UL	2.3 L	5 U	5.5	5 UL	2.7 R	5 UL	5 UL	5 UJ
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Inorganics																																
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.09	1.16	1.25	0.954	1.51	1.11	1.10	0.997	1.68	1.18	0.958	1.5	1.49	1.42
Dissolved Iron (mg/l)	17.03	19	26.50	16	6.20	16	18	13.47	–	–	25.7	24.8	–	–	–	18.64	–	–	18.3	19.7	20.3	18.9	33.0	19.6	20.0	18.1	31.3	20.2	17.0	28.4	27.1	23.7
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.6	2.3	2.3	2.2	< 2	< 2	< 2	–	–	–	–	–
Field Parameters																																
Temperature (Degrees Celcius)	–	–	–	–	–	–	–	–	–	–	–	–	–	12.17	14.30	–	14.27	13.67	13.73	13.21	13.14	14.07	13.44	13.9	15.5	16.2	15.1	13.8	14.5	15.2	14.8	14.0
Conductivity (µs/cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	280	320.2	–	318.2	339	281	231	214	468	653	284	287	387	657	218	134	920	479	1350
pH (standard units)	6.60	6.02	6.55	6.55	6.63	6.80	6.61	6.41	–	–	–	6.34	–	6.37	6.32	6.31	6.65	6.31	6.08	6.28	5.88	5.46	6.60	5.93	5.72	6.06	6.81	5.75	7.97	6.67	6.17	8.08
Dissolved Oxygen (mg/l)	–	–	–	–	–	–	–	–	–	10.61	–	–	–	–	0.17	–	0.09	0.02	0.17	0.06	0.13	0.69	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.09	0.00
ORP (mV)	–	–	–	–	–	–	–	–	–	–	–	–	–	272.1	301.3	–	106.2	40.5	-14.1	-7.0	43.3	74.1	-45	-18	-8	-36	-189	-48	-21	-226	-94	-163
Water-Level Elevation (ft, MSL)	–	–	–	–	–	–	–	–	–	-27.47	-20.37	-25.98	-28.56	-30.63	-23.63	–	-29.18	-26.88	-15.65	-10.25	0.46	-5.43	-11.82	-0.58	-3.59	-6.74	-8.88	-5.36	-5.23	-11.34	-7.14	-9.80

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-28																												
	6/93	6/94	6/95	6/96	6/97	6/98	6/99	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
***Inorganics* (µg/l)**																													
Nitrate Nitrogen (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	200 U	24.3 U	11.9 U	13 U	8.1 U	16.6 U	30.9 U	26.5	34.3 U	33.4 U	11.1 U
Arsenic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10 U	5.4	3.9	7	22.2	5.6	1.6 U	5.6	30.8	7.5 B	4.6
Barium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	171	178	190	156	210	173	179	141	203	184 B	154
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1 U	0.2 U	0.1 U	0.66 U	0.1 U	0.19 U	0.57 U	0.61 U	0.38 U	0.37 U	0.20 U
Cadmium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.59 U	0.5 U	0.2 U	0.20 U	0.20 U	0.40 U	0.54 U	0.20 U	0.40 U
Calcium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15000	13700	13500	10900	19500	11100	11400	10200	20800	12800	10600
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9340	9340	20300	–	–
Chromium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.52 J	0.60 U	0.30 U
Cobalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	51.6	61.7	73.3	58.2	94.4	70.9	68.7	61.4	133	76.9	57.6
Copper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U	0.9 U	0.6 U	0.6 U	0.30 U	0.40 U	1.5 U	1.1 U	0.50 U	0.60 U
Lead	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.9 U	-1.7 U	1.2 U	1.6 U	1.2 U	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	1.2 U
Magnesium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5990	6070	5920	4960 J	11000	5220	5330	4970	13800	6150	4830
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4140	4390	13100	–	–
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	6.6	9.5 U	8.8	26.3	8.5	7.8	6.9	38.4	8.5	6.1
Potassium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3910	3840	4530 J	4640 J	17100	4010	5250	5170	27000	5550	3740 J
Selenium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.6 U	3.9 U	1.7 U	4.5 U	4.3 U	3.6	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.7 U	0.7 U	1.4 U	1.3 U	0.2 U	0.50 U	0.50 U	0.30 U	0.50 U	0.40 U	1.2 U
Sodium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	21400	19800	22000	23300	54700	18500	19700	20600	74600	22400	16500
Thallium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.9 U	6.2 U	2.9 U	4 U	4.5 U	3.9 U	2.1 U	3.6 U	3.2 U	3.4 U	2.9 U
Vanadium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.4 U	0.4 U	1 U	0.8 U	0.5 U	0.30 U	0.40 U	0.51	1.0 U	0.40 U	0.50 U
Zinc	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	260 J	13	23.7 U	28.5 U	14.8	22.5	17.6	22.6	15.4 U	16.1	35.7
Alkalinity, Total (mg/l as CaCO3)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	41.0	52	335	–	–
Dissolved Gases																													
Oxygen (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
***Pesticides/Herbicides* (µg/l)**																													
4,4'-DDD	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.002U	0.02 UL	0.02 U	0.02 U	0.0022 JN	0.020 U	0.020 U	0.020 U	–	–	–
4,4'-DDE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.002U	0.02 UL	0.02 U	0.02 U	0.0038 J	0.020 U	0.020 U	0.020 U	–	–	–
4,4'-DDT	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.002U	0.02 UL	0.02 U	0.02 U	0.0028 J	0.020 U	0.020 U	0.020 U	–	–	–
Aldrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.01 U	0.010 U	0.010 U	0.010 U	–	–	–
alpha-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.01 U	0.010 U	0.010 U	0.010 U	–	–	–
Alpha-Chlordane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.01 U	0.010 U	0.010 U	0.010 U	–	–	–
beta-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	0.010 U	0.010 U	–	–	–
delta-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.0081 JN	0.010 U	0.010 U	0.010 U	–	–	–
Dieldrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.02 UL	0.02 U	0.02 U	0.02 U	0.020 U	0.020 U	0.020 U	–	–	–
Endosulfan I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.002 J	0.010 U	0.010 U	0.010 U	–	–	–
Endosulfan II	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.002U	0.02 UL	0.02 U	0.02 U	0.02 U	0.020 U	0.020 U	0.020 U	–	–	–
Endosulfan sulfate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.002U	0.02 UL	0.02 U	0.02 U	0.02 U	0.020 U	0.020 U	0.020 U	–	–	–
Endrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.002U	0.02 UL	0.02 U	0.02 U	0.0028 J	0.020 U	0.020 U	0.020 U	–	–	–
Endrin Aldehyde	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.002U	0.02 UL	0.02 U	0.02 U	0.02 U	0.020 U	0.020 U	0.020 U	–	–	–
Endrin Ketone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.002U	0.02 UL	0.02 U	0.02 U	0.02 U	0.020 U	0.020 U	0.020 U	–	–	–
gamma-BHC (Lindane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.01 U	0.010 U	0.010 U	0.010 U	–	–	–
gamma-Chlordane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.0028 J	0.010 U	0.010 U	0.010 U	–	–	–
Heptachlor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.01 U	0.010 U	0.010 U	0.010 U	–	–	–
Heptachlor Epoxide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01U	0.01 UL	0.01 U	0.01 U	0.01 U	0.010 U	0.010 U	0.010 U	–	–	–
Methoxychlor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1U	0.1 UL	0.1 U	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	–	–	–
Toxaphene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	1.0 U	1.0 U	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.

D - Sample diluted in the lab for analysis
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-29																																		
	6/93	6/94	6/95	6/96	6/97	6/98	6/99	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	4/08	10/08
Non-Halogenated VOCs(µg/l)																																			
Benzene	5	13	2.2	0.5 U	0.6	0.6	0.7	0.3 J	–	–	0.7 J	0.6 J	–	–	–	0.8 J	–	–	–	5	5.3	0.43 J	0.6 J	5 U	5 U	5 U	10 U	0.20 J	0.16 J	1 U	1 U	1 U	1 U	1 U	8.4
Toluene	–	–	–	–	–	–	–	–	–	–	0.2 B	0.3 B	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	1.1 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	9.7
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	1 U	–	–	–	–	–	–	–	–	0.5 U	0.2 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.26 J
Xylene (total)	–	–	–	–	–	–	–	–	–	–	1 U	–	–	–	–	–	–	–	–	1.0 U	1.0 U	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	2.4 J
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 R	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	20 U	20 R	20 R	20 R	1.1 J	5 U	5.8 U	5 U	5 U	5 U	5 UJ	5 U	2.6 J
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.23 J
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.95	–	–	–	–	10 U	0.62 J	0.63 J	0.67 J	0.69 J	1.2	1.6	1.2	1.5
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 UJ	10 U	10 UJ	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																																			
Bromoform	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 UJ	5 UJ	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U
Chlorobenzene	–	–	–	–	–	–	–	–	–	–	9	1 U	–	–	–	–	–	–	–	16	24	4.2	6	4 J	5	6	3.1 J	3.9	3.2	2.1	2.1	2.1	3.1	5.0	2.8
Chloroform	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Dibromochloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.8	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.3 J	0.3 J	0.14 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.1 J	0.2 J	0.15 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	–	–	–	–	–	–	–	–	–	–	2 U	2 U	–	–	–	–	–	–	–	1.0 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	0.7 J	0.7 J	–	–	–	–	–	–	–	0.5 U	0.7	0.22 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	0.11 J	
1,3-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	1 U	0.1 J	–	–	–	–	–	–	–	0.9	0.7	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	5 U	–	6.1	1.0	3.0	3.3	4.5	1.6	–	–	2	2	–	–	–	0.5 U	–	–	–	1.7	2.8	1.3	–	–	–	–	1.2 J	1.7	1.6	0.83 J	0.93 J	0.77 J	1.3	2.0	0.71 J
Chloroethane	–	–	–	–	–	–	–	–	–	–	1 U	0.1 J	–	–	–	–	–	–	–	0.2 J	0.2 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.1 J	0.39 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	0.16 J	0.2 J	0.34 J	
1,1,1-Trichloroethane	5 U	5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5 U	5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.1 J	0.12 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	5 U	5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U
Trichlorofluoromethane	5 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
Semi-Volatiles (µg/l)																																			
Bis(2-chloroethyl)Ether	–	–	–	–	–	–	–	0.1282	4 D	13 D	10	9	5.5	1.7	11	12	9.3	10	14	14 D	–	0.67	0.89	0.29	0.4	0.29	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	3.9 L	5 U	5 U	5 U	5 U	5 U	5 U	5.7 J
2,2-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5.3 UJ
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Inorganics (µg/l)																																			
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.480	–	0.944	0.835	0.857	1.15	0.912	0.802	0.735	0.662	0.443	0.445	0.452	0.385	0.514	0.526
Dissolved Iron (mg/l)	28.50	21.30	37.80	35.60	17.20	23.60	33.20	28.49	–	–	33.9	46.0	–	–	–	25.50	–	–	32.6	31.9	–	26.5	25.2	29.9	34.5	31.7	34.7	36.1	31.1	26.9	33.1	38.4	40.7	52.7	55.1
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5.0	10.5	8.7	10.1	< 2	< 2	< 2	–	–	–	–	–
Field Parameters																																			
Temperature (Degrees Celcius)	–	–	–	–	–	–	–	–	–	–	–	–	–	12.15	13.94	–	–	–	14.96	14.49	–	15.70	13.90	14.52	14.64	14.10	14.3	15.3	14.9	15.0	13.1	14.6	16.0	15.6	14.4
Conductivity (us/cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	320	393.1	–	–	–	337.2	374.6	–	319	278	293	601	430	444	494	624	491	530	360	218	427	415
pH (standard units)	6.00	6.31	6.56	6.42	6.63	6.66	6.38	6.39	–	–	–	6.58	–	8.43	6.28	6.54	–	–	5.74	5.75	–	6.56	6.02	6.04	5.80	6.38	6.21	6.32	6.09	6.08	6.77	6.97	6.83	6.33	7.64
Dissolved Oxygen (mg/l)	–	–	–	–	–	–	–	–	–	6.95	–	–	–	–	0.04	–	–	–	0.3	0.01	–	–	0.15	0.50	0.93	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
ORP (mV)	–	–	–	–	–	–	–	–	–	–	–	–	–	266.5	280.9	–	–	–	38.2	0.7	–	-14.7	15.4	-66.1	-1.4	-35.3	-97	-133	-100	-95	-112	-128	-91	-152	-122
Water-Level Elevation (ft. MSL)	–	–	–	–	–	–	–	–	–	-20.94	-24.49	-21.39	-30.96	-25.98	-24.62	-26.14	–	-27.23	-25.43	-26.41	-22.82	-14.35	-8.62	1.11	-3.64	-8.45	0.24	-2.22	-4.78	-5.98	-3.58	-3.52	-8.72	-5.13	-7.53

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills.

Parameter	MW-29																													
	6/93	6/94	6/95	6/96	6/97	6/98	6/99	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06
Inorganics (µg/l)																														
Nitrate Nitrogen (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.315	0.335	–	–	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11400	11000	10400
Cobalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8490	7440	6220
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/l as CaCO3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	103	89	156
Dissolved Gases																														
Oxygen (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.5	4.48	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	86	0.4 B	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.6 JB	2 U	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2 U	0.05 J	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	96	110	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides (µg/l)																														
4,4'-DDD	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
4,4'-DDE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.02 U	0.02 U	0.0038 J	0.020 U	–	–	–
4,4'-DDT	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.02 U	0.0023 J	0.02 U	0.020 U	–	–	–
Aldrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.0087 U	0.0098 U	0.01 U	0.01 U	0.010 U	–	–	–
alpha-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.087 U	0.0098 U	0.01 U	0.01 U	0.010 U	–	–	–
Alpha-Chlorodane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.00067 J	0.0098 U	0.0057 J	0.008 J	0.010 U	–	–	–
beta-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.0087 U	0.0098 U	0.01 U	0.01 U	0.012 JN	–	–	–
delta-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.0087 U	0.0098 U	0.01 U	0.01 U	0.010 U	–	–	–
Dieldrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.0041 J	0.02 U	0.0057 J	0.020 U	–	–	–
Endosulfan I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.0087 U	0.0098 U	0.0023 J	0.01 U	0.01 U	–	–	–
Endosulfan II	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endosulfan sulfate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin Aldehyde	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin Ketone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.017 U	0.024	0.02 U	0.02 U	0.020 U	–	–	–
gamma-BHC (Lindane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.0087 U	0.0098 U	0.01 U	0.01 U	0.010 U	–	–	–
gamma-Chlorodane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.0087 U	0.0033 J	0.0019 J	0.0045 J	0.010 U	–	–	–
Heptachlor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.0087 U	0.0098 U	0.01 U	0.01 U	0.010 U	–	–	–
Heptachlor Epoxide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.0087 U	0.0085 J	0.01 U	0.01 U	0.010 U	–	–	–
Methoxychlor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1 U	0.087 U	0.098 U	0.1 U	0.1 U	0.10 U	–	–	–
Toxaphene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-31																																	
	6/93	6/94	6/95	6/96	6/97	6/98	6/99	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	10/08
Non-Halogenated VOCs (µg/l)																																		
Benzene	5 U	5 U	0.3 J	43	0.5 U	0.5 U	0.5 U	0.1 J	–	–	0.8 J	0.6 J	–	–	–	0.5 U	–	–	–	0.5 U	0.4 J	6.1	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	–	–	–	–	–	–	–	–	–	–	1 U	0.5 J	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	1 0 U	1 0 U	0.46 J	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	20 R	20 U	20 R	20 R	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.14 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.25 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 9	–	–	–	–	25	24	24	25	21	22	0.38 J	0.36 J
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 UJ	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–													
Halogenated VOCs (µg/l)																																		
Bromoform	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
Bromodichloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	–	–	–	–	–	–	–	–	–	–	5	2	–	–	–	–	–	–	–	0.1 J	0.1 J	3.9	5 U	5 U	5 U	5 U	10 U	1 U	1 U	0.41 J	0.31 J	1 U	0.92 J	1.1
Chloroform	–	–	–	–	–	–	–	–	–	–	1 U	0.2 J	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 UJ	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	–	–	–	–	–	–	–	–	–	0.2 J	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.22 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.11 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1 2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.14 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1 2-Dichloroethene (total)	–	–	–	–	–	–	–	–	–	–	2 U	2 U	–	–	–	–	–	–	–	1.0 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1 2-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	0.1 J	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.15 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1 3-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	5 U	–	0 2 J	0 4 J	0 5 U	0.5 U	0.4 J	0 5 J	–	–	0.7 B	0.6 J	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.31 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.39 J	0.47 J
Chloroethane	–	–	–	–	–	–	–	–	–	–	1 U	0 1 J	–	–	–	–	–	–	–	0.5 U	0.5 U	0 18 K	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–	0.5 U	0 1 J	0.17 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	0 39 J	0.37 J	0.34 J	0.61 J	1 2
1,1,1-Trichloroethane	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0 1 J	0.13 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U	–	–	–	0.5 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1 2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0 1 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 U	1 U	1 UJ	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Semi-Volatiles (µg/l)																																		
Bis(2-chloroethyl)Ether	–	–	–	–	–	–	–	0.1272	0.13	16 D	21	4 NP	20	0.053	0.16	0.23	0 079	0.1	0.1	0 1	–	13	0 0095 J	0.019 J	0.099	0.018 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5.3 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5.3 UJ
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Inorganics (µg/l)																																		
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.47	–	1.00	0.021	0.0218	0.324	0.400	0.276	0.491	0.585	0.504	0.566	0.914	1.22	0.792
Dissolved Iron (mg/l)	10.90	0.45	3.30	9.30	7.60	0 24	0.56	3 36	–	–	17.2	7.12	–	–	–	6 08	–	–	12.9	25.4	–	16 9	0.376	0.170	7.47	9.37	5.64	14.5	16.0	12.4	12.1	15.6	23 0	20 0
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0	1.2	< 1	1.3	< 2	< 2	< 2	–	–	–	–
Field Parameters																																		
Temperature (Degrees Celcius)	–	–	–	–	–	–	–	–	–	–	–	–	–	12.36	14.95	–	–	–	24 26	18 36	–	14 20	13.00	13.47	14.13	13.31	14 2	14 5	14.6	14.4	14.0	14.3	14.5	14.2
Conductivity (µs/cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	130	189.2	–	–	–	166	278 6	–	281	140	144	236	262	298	383	365	382	216	287	212	326
pH (standard units)	5.90	6.29	5.87	6.50	6.63	5.79	6.17	6.32	–	–	–	6.29	–	8 43	6.38	6.83	–	–	5.67	5.02	–	6.46	5 74	5.48	5.56	5.91	5.73	6.08	5 90	6.04	5.90	6.01	6.58	6.88
Dissolved Oxygen (mg/l)	–	–	–	–	–	–	–	–	2	–	–	–	–	–	1.19	–	–	–	3 46	0 76	–	–	2.95	3 16	0.84	1.26	0.36	0.00	0.00	0 88	0 77	0.00	0.00	0.96
ORP (mV)	–	–	–	–	–	–	–	–	–	–	–	–	–	282	259.7	–	–	–	36.1	74 6	–	14	140	177	62.5	77.0	51	25	-29	-40	3	-62	-33	-30
Water-Level Elevation (ft. MSL)	–	–	–	–	–	–	–	–	–	-18.5	-23.97	-18.26	-40.35	-24.85	-21.55	-21.07	-71.01	-30.25	-23.51	-24 13	-23.72	-12.60	-8.26	0.75	-3 50	-7 54	-0.21	-2.07	-4.40	-6 15	-3 40	-3 27	-8.08	-7 04

– Not analyzed or data not available to RAI as of February 7, 2008

U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-31																													
	6/93	6/94	6/95	6/96	6/97	6/98	6/99	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06
Inorganics **(µg/l)**																														
Nitrate Nitrogen (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.305	0.11	–	–	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	13400	12800	13900
Cobalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6600	6140	6840
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/l as CaCO3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	53 0	49	135
Dissolved Gases																														
Oxygen (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5.85	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2 B	5	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.07 JB	0.04 J	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.04 JB	0.04 J	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	34	54	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides **(µg/l)**																														
4,4'-DDD	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0 02 U	0 02 U	0.018 U	0.02 U	0.02 U	0 020 U	–	–	–
4,4'-DDE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0 020 U	–	–	–
4 4'-DDT	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0 02 U	0.02 U	0 018 U	0.02 U	0.02 U	0 020 U	–	–	–
Aldrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	–	–	–
alpha-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0091 U	0.01 U	0 01 U	0 010 U	–	–	–
Alpha-Chlordane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	–	–	–
beta-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0 01 U	0.01 U	0.0091 U	0 01 U	0.01 U	0.010 U	–	–	–
delta-BHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	–	–	–
Dieldrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0 02 U	0.02 U	0 018 U	0.02 U	0.02 U	0.020 U	–	–	–
Endosulfan I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	–	–	–
Endosulfan II	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.018 U	0 02 U	0.02 U	0.020 U	–	–	–
Endosulfan sulfate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.018 U	0.02 U	0 02 U	0.020 U	–	–	–
Endrin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin Aldehyde	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin Ketone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.018 U	0.02 U	0 02 U	0 020 U	–	–	–
gamma-BHC (Lindane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	–	–	–
gamma-Chlordane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0 0091 U	0.01 U	0.01 U	0 010 U	–	–	–
Heptachlor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	–	–	–
Heptachlor Epoxide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0 01 U	0.01 U	0.0045 J	0 01 U	0.019 JN	0.010 U	–	–	–
Methoxychlor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1 U	0.1 U	0.091 U	0 1 U	0.1 U	0.10 U	–	–	–
Toxaphene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	–	–

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D - Sample diluted in the lab for analysis.
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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-1																					
		6/94	10/94	1/95	3/95	6/95	10/95	1/96	3/96	6/96	9/96	12/96	3/97	6/97	9/97	12/97	3/98	6/98	10/98	12/98	3/99	6/99
Non-Halogenated VOCs (µg/l)																							
Benzene	5	0.5 U	0.5 U	0.7	0.7	1.0 B	1.4 B	1.0	0.5	0.5 U	0.5 U	0.2 J	0.2 J	0.2 J	0.8	0.3 J	0.8 J	1.3	0.8	0.7	0.8	1.0 B
Toluene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Xylene (total)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Butanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acetone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Disulfide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Isopropylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methy-tert-butyl ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methylcyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methy-2-pentanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Halogenated VOCs (µg/l)																							
Bromoform	100*	–	–	–	2 U	2 U	0.2 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromodichloromethane	100*	–	–	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chloroform	100*	–	–	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	100*	–	–	–	1 U	1 U	0.11 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	0.5 U	0.5 U	0.7	0.7	0.7	0.6	0.5 J	0.5 J	0.4 J	0.3 J	0.2 J	0.5 U	0.5 U	0.7	0.3 J	0.5 U	0.5 J	0.6	1.0	1.8	2.1
1,3 Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cis-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
trans-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U
1,2-Dichloroethene (total)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,3-Dichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,4-Dichlorobenzene	75	–	0.5 U	0.1 J	0.1 JB	0.1 J	0.4 J	0.5	0.4 J	0.4 J	0.4 J	0.3 J	0.4 J	0.6	1.2	1.6	1.6	2.0	1.1	0.9	1.1	1.0
Chloroethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tetrachloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.5 U	0.5 U	0.2 J	0.3 J	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.1 J	0.5 U	0.5 U	0.5 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cis-1,3-Dichloropropene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methylene Chloride		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Trichlorofluoromethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Semi-Volatiles (µg/l)																							
Bis(2-chloroethyl)Ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bis(2-ethylhexyl)phthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,2'-oxybis (1-Chloropropane)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-Dimethylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylnaphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acetophenone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Caprolactam		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diethylphthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
N-Nitrosodiphenylamine		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Naphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Phenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inorganics (µg/l)																							
Dissolved Manganese (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dissolved Iron (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Biological Oxygen Demand (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Field Parameters																							
Temperature (Degrees Celcius)		13.9	13.5	12.3	13.4	13.8	13.3	12.0	12.8	13.6	13.0	13.2	12.2	13.1	11.0	12.9	13.4	14.1	13.5	13.4	13.4	13.6
Conductivity (µs/cm)		120	115	148	154	139	160	190	168	167	178	144	118	172	235	179	218	240	231	185	197	224
pH (standard units)		6.12	5.71	7.94	6.37	5.99	5.93	6.66	6.05	7.49	6.24	6.27	5.80	5.98	5.97	6.24	6.10	6.28	6.02	6.26	6.21	6.21
Dissolved Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ORP (mV)		-118	88	96	140	119	72	110	84	8	107	–	-91	82	–	-44	50	–	-291	6	146.1	187.9
Water-Level Elevation (ft. MSL)		–	–	–	–	-23.79	–	–	–	-23.88	–	–	–	-20.15	–	–	–	-20.36	–	–	–	-23.50

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U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
* - 100 µg/l is the Criteria for Total trihalomethanes
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
UL - Not detected, quantitation limit is probably higher

Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-1																				
		6/94	10/94	1/95	3/95	6/95	10/95	1/96	3/96	6/96	9/96	12/96	3/97	6/97	9/97	12/97	3/98	6/98	10/98	12/98	3/99	6/99
Inorganics (µg/l)																						
Nitrate Nitrogen (mg/l)	10	–	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U	0.044 J	0.05 U	0.065 JB	0.038 J	0.05 U	0.05 U	0.05 U	0.054 JB	0.05 U	0.05 U
Aluminum		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	1000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cadmium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chromium	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cobalt		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mercury	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dissolved Gases																						
Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides (µg/l)																						
4,4'-DDD		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDE		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDT		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
alpha-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alpha-Chlorodane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
beta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
delta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dieldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan I		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan II		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan sulfate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Aldehyde		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Ketone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-BHC (Lindane)	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-Chlorodane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor Epoxide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methoxychlor	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toxaphene	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-D	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-TP (Silvex)	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.

Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-1 (continued) 9/99	12/99	3/00	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	4/08	10/08
Non-Halogenated VOCs (µg/l)																																			
Benzene	5	1.0	4.3	2.8	8.2	14.0	68	12	2	9.2	5.4	2.4	4.4	3.1	2.7	2 J	2.8 B	4.6	4.6	3.7	6.2	7.8	12	20	24	4 J	1.9 J	1.2	0.47 J	0.25 J	0.22 J	0.23 J	0.3 J	0.84 J	0.69 J
Toluene		–	–	–	–	–	–	–	0.5 U	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene		–	–	–	–	–	–	–	–	–	0.1 J	–	–	–	–	5 U	0.076 J	–	0.7	–	0.5 U	0.12 J	4 J	13	15	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)		–	–	–	–	–	–	–	–	–	1 U	–	–	–	–	5 U	0.17 J	–	1.0 U	–	1.0 U	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 R	10 R	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U
Acetone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	20 R	20 R	20 R	20 R	10 U	5 U	5 U	5 U	5 U	5 U	4 J	5 U	5 U
Carbon Disulfide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.35 J
Cyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U
Isopropylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.5	–	–	–	–	10 U	0.32 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.1	–	–	–	–	10 U	0.68 J	0.75 J	0.37 J	1 U	1 U	0.2 J	0.34 J	0.47 J
Methylcyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
4-Methy-2-pentanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Halogenated VOCs (µg/l)																																			
Bromoform	100*	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	5 U	0.5 U	2 U	0.5 U	2 U	0.5 U	0.17 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	100*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 UJ	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U
Chlorobenzene		–	–	–	–	–	–	–	–	–	31	–	–	–	–	19	22	–	29	–	21 D	24 D	30	32	32	18	13	10	5.2	3.1	2.8	2.0	2.4	6.2	6.8
Chloroform	100*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	100*	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	2.3	5.0	4.8	3.9	3.4	5.4	5.8	12 J	11 J	11	11.0	18.0	16.0	12.0	7	9.1	17.0	13	7.0	14	6.5	5 U	7	2 J	5 U	10 U	0.49 J	0.36 J	0.22 J	0.12 J	1 U	1 U	1 U	1 U
1,3 Chlorobenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane		–	–	–	–	–	–	–	–	–	1.6	–	–	–	–	0.7 J	1	–	1.7	–	1.4	1.2 L	2 J	3 J	3 J	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene		–	–	–	–	–	–	–	0.5 U	–	2.1	–	–	–	–	1 J	1.7	–	2.5	–	2.0	1.4	3 J	2 J	2 J	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.22 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	7	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.1 B	0.2 J	0.1 J	0.1 J	0.5 U	0.1 J	0.5 U	5 U	0.5 U	0.1 J	0.1 J	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)		–	–	–	–	–	–	–	–	–	2.2 J	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene		–	–	–	–	–	–	–	–	–	1.7	–	–	–	–	5 U	1.2	–	1.9	–	1.2	1.2	–	–	–	–	10 U	0.67 J	0.40 J	1 U	1 U	0.12 J	0.17 J	0.26 J	0.28 J
1,3-Dichlorobenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	0.3 J	0.63	–	0.9	–	0.7	0.79	–	–	–	–	10 U	0.28 J	0.22 J	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	75	1.2	3.8	3.7	2.0	3.4	4.9	3.0	4.8	4.9	3.8	4.0	3.9	4.9	3.2	5 U	2.3	3.7	3.3	1.8	2.0	2.3	–	–	–	–	1.1 J	1 U	0.59 J	0.27 J	0.25 J	0.17 J	0.36 J	1.1	1.1
Chloroethane		–	–	–	–	–	–	–	–	–	0.8	–	–	–	–	5 U	0.85	–	0.9	–	1.0	0.89	5 U	1 J	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene		0.5 U	0.2 J	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.13 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	0.2 J	0.7	0.7	0.3 J	0.3 J	0.6	0.4 J	0.7	0.7	0.6	0.7	0.7	0.8	0.6	5 U	0.5 U	0.6	0.4 J	0.2 J	0.3 J	0.24 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.2 J	0.3 J	0.5 J	0.2 J	0.3 J	0.3 J	0.3 J	0.3 J	0.2 J	0.3 J	0.3 J	5 U	0.19 J	0.4 J	0.3 J	0.2 J	0.3 J	0.18 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.17 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U
Trichlorofluoromethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.26 J	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
Semi-Volatiles (µg/l)																																			
Bis(2-chloroethyl)Ether		–	–	–	23.47 D	23 D	46 D	32	22	37	28	21	40	31	30 D	31	60 D	–	–	–	–	31	43	58	77	17	15	11	5.1	3.8 J	4.4 J	2.9 J	3.7 J	5.3	8.7
Bis(2-ethylhexyl)phthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	4.6 J	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 UL	8.3 J
2,2'-oxybis (1-Chloropropane)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5 U	5 U	5.1 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 UL	5 U	5 U	5 UL	11 L	5 U	5 U	5 U	2.4 J	5 UL	5 UJ
Diethylphthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U
N-Nitrosodiphenylamine		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	1.8 J	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Inorganics (µg/l)																																			
Dissolved Manganese (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.30	–	–	–	–	1.03	2.12	2.67 J	2.65	2.53	2.58	2.3	1.98	1.65	1.33	1.17	1.15	1.78	1.85
Dissolved Iron (mg/l)		–	–	–	–	–	–	0.270	0.264	–	–	–	–	–	–	0.609	0.357	–	–	–	–	1.01	0.775	1.09 J	4.83	20.3	16.6	19.4	18.1	18.3	20.5	18.5	16.8	24.5	20.9
Biological Oxygen Demand (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10.2	5.2	< 1	3.2	< 2	< 2	< 2	–	–	–	–	–
Field Parameters																																			
Temperature (Degrees Celcius)		13.5	13.3	14.2	13.8	14.0	13.6	13.7	13.6	–	13.8	13.8	14.8	15.0	13.6	14.42	15.0	14.5	13.7	13.71	14.63	13.65	13.26	13.35	13.88	14.0	13.1	13.7	16.4	15.0	12.7	14.0	15.5	14.4	12.3
Conductivity us/cm)		178	190	290	211	254	38	251	322	–	306	322	318	311	343	241.3	320.2	393	346	258	–	285	332	408	575	468	411	467	409	380	194	202	747	328	328
pH (standard units)		6.21	7.63	6.11	6.23	7.65	6.09	6.42	6.22	–	6.15	6.08	6.82	6.26	6.29	5.43	6.0	5.73	6.90	6.39	6.87	6.08	6.46	6.33	6.10	6.62	6.61	6.65	6.57	6.55	6.51	6.84	6.38	6.44	7.15
Dissolved Oxygen (mg/l)		–	–	–	–	0.3	0.22	0.16	–	–	–	0.09	0.01	0.17	0.05	0.05	0.04	–	–	–	–	0.35	–	0.25	1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.11	0.04
ORP (mV)		33.6	286.4	86	124.3	129.2	107	346.9	229.6	–	349.3	256.1	223.1	94.2	79.5	93.4	8.1	80.5	47.8	79.3	107.6	44.9	-3.5	13.4	25.9	-148	-101	-99	-165	-152	-156	-197	-182	-129	-58
Water-Level Elevation (ft. MSL)		–	–	–	-26.28	–	-18.03	-21.02	-28.09	-31.86	-29.00	-25.42	-32.66	-28.73	-31.54	-26.4	-30.63	-30.81	-28.72	-24.08	-26.69	-22.22	–	-2.26	-14.17	-19.33	-3.21	-9.38	-15.07	-14.21	-11.94	-11.87	-19.36	-14.32	-15.85

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration
K - Analyte present, reported value may be biased high.
L - Analyte present reported value may be biased low.
* - 100 mg/l is the Criteria for Total trihalomethanes
UL - Not detected, quantitation limit is probably higher
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected
Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-1 (continued) 9/99	12/99	3/00	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Inorganics (µg/l)																																
Nitrate Nitrogen (mg/l)	10	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.05 U	0.05 U	0.10 U	0.05 U	0.10 U	–	–	–	0.295	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aluminum		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.7 U	2 U	3.9 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U
Barium	1000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	52.9	49.6	44.4	51.3	51.5	48.7	52.0	49.3
Beryllium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	20700	19900	16900	–	–
Cadmium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	0.2 U	0.40 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U
Chromium	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.1 U	0.6 U	0.50 U	0.60 U	0.50 U	0.40 U	0.60 U	0.30 U
Cobalt		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.6 U	1.2	2.0 U	1.0 U	1.9 U	1.6 U	1.2 U	2.4 U
Magnesium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7870	6600	5860	–	–
Mercury	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4.5 U	4.3 U	4.6 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	0.2 U	0.70 U	0.50 U	0.30 U	0.50 U	0.40 U	1.2 U
Sodium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/l as CaCO3)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	113	108	170	–	–
Dissolved Gases																																
Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.32	< 1.00	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	54 JB	33 DL	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	9	13	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.05 JB	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	68	110	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides (µg/l)																																
4,4'-DDD		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
4,4'-DDE		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
4,4'-DDT		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Aldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.01U	0.01U	0.0013 J	0.01 U	0.010 U	–	–	–	–	–
alpha-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.01U	0.01U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Alpha-Chlordane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.01U	0.01U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
beta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.01U	0.01U	0.036 JN	0.01 U	0.026 JN	–	–	–	–	–
delta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Dieldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.02U	0.02U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endosulfan I		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.0044 J	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Endosulfan II		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.02U	0.02U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endosulfan sulfate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.02U	0.02U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endrin	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.02U	0.02 U	0.0016 J	0.02 U	0.020 U	–	–	–	–	–
Endrin Aldehyde		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.019U	0.02U	0.02U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endrin Ketone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.02U	0.02U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
gamma-BHC (Lindane)	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.01 U	0.01 U	0.01 U	0.01U	0.010 U	–	–	–	–	–
gamma-Chlordane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.01U	0.01U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Heptachlor		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.011JN	0.01U	0.01U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Heptachlor Epoxide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0095U	0.01U	0.01U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Methoxychlor	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.095U	0.1U	0.1U	0.1 U	0.1 U	0.10 U	–	–	–	–	–
Toxaphene	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	–	–	–	–
2,4-D	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-TP (Silver)	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-2																					
		6/94	10/94	1/95	3/95	6/95	10/95	1/96	3/96	6/96	9/96	12/96	3/97	6/97	9/97	12/97	3/98	6/98	10/98	12/98	3/99	6/99
Non-Halogenated VOCs **(µg/l)**																							
Benzene	5	0.5 U	0.5 U	0.3 J	0.2 J	0.5 B	0.2 JB	0.4 J	0.6	0.5 U	0.5 U	0.6	0.7	1.1	0.9	2.8	1.4	1.9	1.3	2.2	3.8	3.0
Toluene	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Xylene (total)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Halogenated VOCs **(µg/l)**																							
Bromoform	100*	–	–	–	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromodichloromethane	100*	–	–	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chloroform	100*	–	–	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	100*	–	–	–	1 U	1 U	0.10 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1 2-Dichloroethane	5	0.5 U	0.7	0.9	0.5 U	0.9	0.8	0.5 U	0.6	0.8	0.9	0.8	0.8	1.0	0.4 J	1.0	3.2	2.4	3.7	3.2	4.7	5.3
1 3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cis-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,3-Dichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,4-Dichlorobenzene	75	–	0.5 U	0.1 J	0.2 JB	0.2 J	0.4 J	0.6	0.6	1.0	0.9	0.9	1.0	1.3	0.9	1.4	1.7	2.1	2.1	2.1	2.7	2.4
Chloroethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tetrachloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.1 J	0.5 J	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.5 U	0.5 U	0.5 U	0.2 J	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.4 J	0.3 J	0.3 J	0.3 J	0.4 J	0.5
Vinyl Chloride	2	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Semi-Volatiles **(µg/l)**																							
Bis(2-chloroethyl)Ether	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2 2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2 4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Phenol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inorganics **(µg/l)**																							
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dissolved Iron (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Field Parameters																							
Temperature (Degrees Celcius)		14.5	13.9	13.3	14.0	14.6	13.8	12.5	13.7	14.2	13.4	13.4	12.6	13.4	12.0	13.2	13.5	14.5	13.6	13.4	13.4	13.8
Conductivity (µs/cm)		127	126	163	169	141	150	171	198	203	189	229	181	245	228	183	173	219	232	218	226	277
pH (standard units)		6.07	5.82	6.66	6.33	6.28	6.55	6.73	6.43	6.91	5.90	6.26	6.55	6.18	5.89	6.17	6.19	6.19	6.12	6.08	6.03	6.08
Dissolved Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ORP (mV)		-76	58	61	140	70	33	146	81	49	32	–	-109	-75	–	-39	24	–	-333	3	81.3	64
Water-Level Elevation (ft. MSL)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
* - 100 mg/l is the Criteria for Total trihalomethanes
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
UL - Not detected, quantitation limit is probably higher
Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-2																				
		6/94	10/94	1/95	3/95	6/95	10/95	1/96	3/96	6/96	9/96	12/96	3/97	6/97	9/97	12/97	3/98	6/98	10/98	12/98	3/99	6/99
Inorganics **(µg/l)**																						
Nitrate Nitrogen (mg/l)	10	–	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.06	0.05 U	0.05 U	0.05 U	0.05 U	0.031 JB	0.05 U	0.098 J	0.094 JR	0.05 U	0.041 JB	0.05 U	0.034 J
Aluminum		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	1000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cadmium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chromium	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cobalt		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mercury	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dissolved Gases																						
Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides **(µg/l)**																						
4,4'-DDD		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDE		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDT		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
alpha-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alpha-Chlorodane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
beta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
delta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dieldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan I		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan II		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan sulfate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Aldehyde		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Ketone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-BHC (Lindane)	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-Chlorodane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor Epoxide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methoxychlor	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toxaphene	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-D	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-TP (Silvex)	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

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Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-2 (continued)																																
		11/99	12/99	3/00	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	10/08
Non-Halogenated VOCs (µg/l)																																		
Benzene	5	0.9	4.3	1.1	1.4	4.9	2.4	2.1	2.2	3.3	5.2	3.5	7.1	6.2	5.7	7	18	6.3	2.8	2.8	4.3	2.9	1 J	0.8 J	0.5 J	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	0.28 J
Toluene		–	–	–	–	–	–	–	0.5 U	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	1.3 U	5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	0.36 J
Ethylbenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.56	–	0.5 U	–	0.1 J	1.3 U	5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)		–	–	–	–	–	–	–	–	–	1 U	–	–	–	–	5 U	0.24 J	–	1.0 U	–	1.0 U	1.3 U	5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	13 U	10 U	10 R	10 R	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Acetone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	12.5 R	20 U	20 R	20 R	20 R	10 U	4.3 J	5.0 U	5 U	5 U	5 U	5.2 J	5 U
Carbon Disulfide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	0.27 J	0.33 J	1 U	1 U	0.50 J
Cyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 UJ	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Isopropylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.32 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.74 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.25 J	0.44 J
Methylcyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
4-Methy-2-pentanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	13 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Halogenated VOCs (µg/l)																																		
Bromoform	100*	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	2 U	2 U	2 U	5 UJ	0.5 U	2 U	0.5 U	2 U	0.5 U	1.3 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
Bromodichloromethane	100*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3 U	5 UJ	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene		–	–	–	–	–	–	–	–	–	31	–	–	–	–	28	30 D	–	22	–	21 D	24	17	11	9	3 J	2.0 J	1.8	1.4	1.1	1.2	1.3	1.7	2.5
Chloroform	100*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	100*	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	1.3 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	4.9	5.0	3.1	2.6	1.8	2.2	2.8	2.2	1.6	2.0	1.4	1.6	1.3	1.3	5 U	1.3	1.3	0.9	1.1	1.2	1.3	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane		–	–	–	–	–	–	–	–	–	1	–	–	–	–	5 U	0.92	–	0.6	–	0.7	0.93 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene		–	–	–	–	–	–	–	1 U	–	0.6	–	–	–	–	0.5 J	0.82	–	0.5 U	–	0.6	0.82 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.27 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	0.1 J	0.5 U	0.2 JB	0.7	0.5 U	0.5 U	0.1 J	0.1 B	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)		–	–	–	–	–	–	–	–	–	0.7 J	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene		–	–	–	–	–	–	–	–	–	2.5	–	–	–	–	1 J	1.8	–	1.3	–	1.5	1.6	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene		–	–	–	–	–	–	–	–	–	0.9	–	–	–	–	0.6 J	0.92	–	0.5	–	0.6	0.75 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	75	3.1	3.8	1.7	2.5	2.6	2.4	2.9	3.2	2.8	3.0	2.8	3.1	2.4	2.5	5 U	3.2	2.5	1.9	1.8	2.1	2.5	–	–	–	–	10 U	0.28 J	0.34 J	0.27 J	0.30 J	0.32 J	0.43 J	0.81 J
Chloroethane		–	–	–	–	–	–	–	–	–	0.6	–	–	–	–	5 U	1.5	–	0.3 J	–	0.4 J	0.37 J	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene		0.2 J	0.2 J	0.2 J	0.3 J	0.2 J	0.2 J	0.3 J	0.3 J	0.1 J	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J	5 U	0.5 U	0.2 J	0.2 J	0.2 J	0.2 J	0.41 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	0.6	0.7	0.3 J	0.3 J	0.3 J	0.3 J	0.45	0.3 J	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J	5 U	0.5 U	0.2 J	0.2 J	0.2 J	0.2 J	0.35 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	5 U	0.17 J	0.5 U	0.5 U	0.5 U	0.5 U	1.3 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.6 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 U	1 U	1 UJ	1 U
Trichlorofluoromethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Semi-Volatiles (µg/l)																																		
Bis(2-chloroethyl)Ether		–	–	–	30.82 D	37 D	47 D	36	25	43	25	30	34	38	54 D	43	42 D	–	–	–	–	25	24	20	21	7.4	5.6	4.9 J	4.8 J	3.3 J	3.6 J	3.1 J	2.3 J	1.7 J
Bis(2-ethylhexyl)phthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	7.9	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5.3 U
2,2'-oxybis (1-Chloropropane)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2,4-Dimethylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2-Methylnaphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
4-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Acetophenone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Caprolactam		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UL	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5.5	5.3 UJ
Diethylphthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
N-Nitrosodiphenylamine		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Naphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Phenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Inorganics (µg/l)																																		
Dissolved Manganese (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.21	–	–	–	–	0.969	0.972	1.02 J	1.2	1.17	1.13	1.04	1.19	1.34	1.40	1.47	1.43	1.82
Dissolved Iron (mg/l)		–	–	–	–	–	–	0.779	1.05	–	–	–	–	–	–	1.10	2.40	–	–	–	–	1.21	2.33	1.87 J	2.1	1.81	1.87	1.60	2.05	1.34	1.79	1.07	0.428	1.62
Biological Oxygen Demand (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	1.4	< 1	1.4	< 2	< 2	< 2	–	–	–	–
Field Parameters																																		
Temperature (Degrees Celcius)		13.2	13.3	14.0	13.5	13.8	14.1	13.7	–	–	13.6	14.1	14.3	15.1	13.1	13.59	14.34	14.2	13.2	13.65	14.4	13.75	12.90	13.28	13.84	15.0	14.5	16.4	18.0	16.0	14.2	14.6	17.0	14.7
Conductivity us/cm)		255	272	410	271	370	45	290	–	–	376	361	341	312	414	316	361.4	424	168.0	324	105	389	262	258	318	302	280	395	351	313	217	270	163	312
pH (standard units)		6.37	6.02	6.10	6.20	7.81	6.06	6.35	–	–	6.14	5.75	6.25	6.17	6.28	5.86	6.26	5.73	6.5	6.51	6.93	6.23	6.46	6.41	5.12	6.36	6.49	6.44	6.53	6.33	6.93	6.79	6.81	6.81
Dissolved Oxygen (mg/l)		–	–	–	–	–	1.41	0.40	–	–	–	0.03	0.02	0.16	0.07	0.01	0.01	–	–	–	–	0.14	0.17	0.49	0.04	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
ORP (mV)		116.7	178.3	41	95.4	54.4	79	309	–	–	302.4	353.2	271.7	42.6	40.3	77.6	27.6	53.3	41.6	41.2	78.2	31.6	22.9	14.5	51.3	-44	-60	-68	-74	-40	-43	-46	4	-15
Water-Level Elevation (ft. MSL)		–	–	–	–	–	-18.58	21.83	-26.11	-32.05	-29.91	-29.51	-32.32	-29.66	-31.23	-26.9	-30.62	-33.76	-28.48	-24.61	-27.13	-21.56	-16.00	-2.18	-13.27	-18.06	-3.07	-8.83	-14.11	-13.78	-11.28	-12.89	-18.30	-15.20

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
* - 100 mg/l is the Criteria for Total trihalomethanes
Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
UL - Not detected, quantitation limit is probably higher

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-2 (continued) 11/99	12/99	3/00	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Inorganics (µg/l)																																
Nitrate Nitrogen (mg/l)	10	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.10 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.05 U	0.05 U	0.10 U	0.05 U	0.10 U	–	–	–	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aluminum		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.7 U	2 U	3.9 U	1.6 U	2.6 U	2.6 U	2.2 U	2.8 U
Barium	1000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	86.8	84.2	73.6	74.2	75.5	82	95.7	95.6
Beryllium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15400	15500	18500	–	–
Cadmium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	0.2 U	0.40 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U
Chromium	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.1 U	0.6 U	0.50 U	0.60 U	0.50 U	0.40 U	0.60 U	0.30 U
Cobalt		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.6 U	1.1 U	2.0 U	1.0 U	1.9 U	1.6 U	1.2 U	1.7 U
Magnesium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6260	6060	6430	–	–
Mercury	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4.5 U	4.3 U	4.6 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	0.2 U	0.70 U	0.50 U	0.30 U	0.50 U	0.40 U	1.2 U
Sodium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/l as CaCO3)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	79.0	83	94.0	–	–
Dissolved Gases																																
Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.93	< 1.00	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	74 JB	0.4 B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	6 B	0.06 J	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.04 JB	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	62	120	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides (µg/l)																																
4,4'-DDD		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
4,4'-DDE		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.0017 J	0.02 U	0.020 U	–	–	–	–	–
4,4'-DDT		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.0038 J	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Aldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
alpha-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.01U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Alpha-Chlordane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.098U	0.01U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
beta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.01U	0.01 U	0.025 JN	0.01 U	0.020 JN	–	–	–	–	–
delta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.01U	0.01 U	0.01 U	0.0091 J	0.010 U	–	–	–	–	–
Dieldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02U	0.02U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endosulfan I		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.01U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Endosulfan II		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02U	0.02U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endosulfan sulfate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02U	0.02U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endrin	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02U	0.02U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endrin Aldehyde		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02U	0.0011J	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endrin Ketone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02U	0.02U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
gamma-BHC (Lindane)	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.01U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
gamma-Chlordane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.01U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Heptachlor		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.02U	0.01U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Heptachlor Epoxide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0098U	0.0026 J	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Methoxychlor		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.098U	0.1U	0.1 U	0.1 U	0.1 U	0.10 U	–	–	–	–	–
Toxaphene	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	–	–	–	–
2,4-D	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-TP (Silvex)	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.

Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-3																					
		6/94	10/94	1/95	3/95	6/95	10/95	1/96	3/96	6/96	9/96	12/96	3/97	6/97	9/97	12/97	3/98	6/98	10/98	12/98	3/99	6/99
Non-Halogenated VOCs **(µg/l)**																							
Benzene	5	0.5 U	0.5 U	0.4 J	0.5 U	0.1 JB	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U
Toluene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Xylene (total)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Butanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acetone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Disulfide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Isopropylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methy-tert-butyl ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methylcyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methy-2-pentanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Halogenated VOCs **(µg/l)**																							
Bromoform	100*	–	–	–	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromodichloromethane	100*	–	–	–	0.5 U	0.5 U	0.05 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chloroform	100*	–	–	–	0.9 J	0.06 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	100*	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 J	0.5 U	0.5 U	0.5 U	9.1	2.1	0.5 U	0.5 U	0.5 U
1,3 Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cis-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
trans-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,3-Dichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,4-Dichlorobenzene	75	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tetrachloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.1 J
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.7	0.3 J	0.1 J	0.5 U	0.5 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cis-1,3-Dichloropropene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methylene Chloride		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Trichlorofluoromethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Semi-Volatiles **(µg/l)**																							
Bis(2-chloroethyl)Ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bis(2-ethylhexyl)phthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,2'-oxybis (1-Chloropropane)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-Dimethylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylnaphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acetophenone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Caprolactam		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diethylphthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
N-Nitrosodiphenylamine		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Naphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pheno		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inorganics **(µg/l)**																							
Dissolved Manganese (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dissolved Iron (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Biological Oxygen Demand (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Field Parameters																							
Temperature (Degrees Celcius)		14.0	13.3	13.4	13.7	13.4	13.4	13.0	13.0	12.7	13.0	13.0	12.9	13.0	11.0	13.2	13.1	14.6	13.2	13.2	13.1	13.3
Conductivity (µs/cm)		190	113	161	119	107	113	102	97	108	183	104	82	157	83	71	62	165	153	105	99	144
pH (standard units)		9.91	9.11	6.51	7.79	6.86	6.11	7.57	6.20	6.48	6.32	7.01	6.18	5.85	7.10	6.08	6.72	6.22	6.00	5.99	6.07	5.99
Dissolved Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ORP (mV)		-12	49	105	180	74	58	297	176	108	96	–	105	159	–	163	114	–	-92	102	269.3	189.1
Water-Level Elevation (ft. MSL)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
* - 100 mg/l is the Criteria for Total trihalomethanes
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
UL - Not detected, quantitation limit is probably higher
Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-3																				
		6/94	10/94	1/95	3/95	6/95	10/95	1/96	3/96	6/96	9/96	12/96	3/97	6/97	9/97	12/97	3/98	6/98	10/98	12/98	3/99	6/99
***Inorganics* (µg/l)**																						
Nitrate Nitrogen (mg/l)	10	–	0.47	0.05 U	0.15	0.05 J	0.22	0.09	0.07	0.10	0.22	0.16	0.195	0.077	0.21 B	0.18	0.11	0.05 U	0.093 J	0.14 B	0.075 J	0.21
Aluminum		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	1000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cadmium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chromium	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cobalt		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mercury	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dissolved Gases																						
Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
***Pesticides/Herbicides* (µg/l)**																						
4,4'-DDD		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDE		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDT		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
alpha-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alpha-Chlorodane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
beta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
delta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dieldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan I		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan II		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan sulfate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Aldehyde		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Ketone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-BHC (Lindane)	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-Chlorodane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor Epoxide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methoxychlor	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toxaphene	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-D	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-TP (Silvex)	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-3 (continued) 9/99	12/99	3/00	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	10/08
Non-Halogenated VOCs (µg/l)																																		
Benzene	5	0.5 U	0.7	0.3 J	0.5 U	1.5	1.2	0.3 J	0.6	0.1 J	0.5 U	4.4	2.6	0.5 J	1.7	0.8 J	0.5 U	0.3 J	0.2 J	0.6	0.6	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene		–	–	–	–	–	–	–	0.5 U	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	0.64 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)		–	–	–	–	–	–	–	–	–	1 U	–	–	–	–	5 U	0.11 JB	–	1.0 U	–	1.0 U	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 R	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Acetone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	20 R	20 U	20 R	20 R	10 U	4.6 J	14 U	5 U	5 U	5 U	5 UJ	3.8 J
Carbon Disulfide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Isopropylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
4-Methy-2-pentanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Halogenated VOCs (µg/l)																																		
Bromoform	100*	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.5 U	2 U	2 U	2 U	2 U	5 U	0.5 U	2 U	0.5 U	2 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
Bromodichloromethane	100*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 UJ	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene		–	–	–	–	–	–	–	–	–	0.4 J	–	–	–	–	6	4.8	–	1	–	7.6	0.82	0.9 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	100*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	100*	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.3 J	0.5	0.1 J	0.5 U	1.3	0.8	0.2 J	0.7	5 U	0.32 J	0.2 J	0.2 J	0.5 J	0.5	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3 Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	0.3 J	0.26 J	–	0.2 J	–	0.4 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene		–	–	–	–	–	–	–	1 U	–	0.5 U	–	–	–	–	5 U	0.14 J	–	0.1 J	–	0.2 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	0.5 U	0.1 J	0.3 JB	0.5 U	0.5 U	0.5 U	0.5 U	0.2 B	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.21 J	–	0.5 U	–	0.4 J	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.087 J	–	0.5 U	–	0.1 J	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	75	0.5 U	0.5 U	0.5 J	0.5 U	2.1	1.4	0.5 U	0.2 J	0.5 J	0.2 J	0.7	0.5	0.2 J	0.4 J	0.5 J	0.37 J	0.2 J	0.2 J	0.5 J	0.6	0.13 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.17 J	–	0.5 U	–	0.3 J	0.5 U	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.1 J	0.2 J	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 U	1 U	1 UJ	1 U
Chloromethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	0.19 J	1 U	1 UJ	1 U
Trichlorofluoromethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Semi-Volatiles (µg/l)																																		
Bis(2-chloroethyl)Ether		–	–	–	1.135	3.3 D	3 D	2 J	5	1	0.58	22	78	4.5	19	26	16 D	–	–	–	–	2.7 J	3.7 J	2.3 J	0.14	0.02 U	5 U	0.099	0.020 U	0.053	0.048	0.019 U	5 U	5.3 U
Bis(2-ethylhexyl)phthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	4.7 J	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 UJ	5 U	5 UL	5.3 UL
2,2'-oxybis (1-Chloropropane)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
2,4-Dimethylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 UL	5.3 UL
2-Methylnaphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 UL
2-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 UL	5.3 UL
4-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 UL	5.3 UL
Acetophenone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Caprolactam		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5.3 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UJ	5 U	5 UL	5.3 UL
Diethylphthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 UL	5.3 UL
N-Nitrosodiphenylamine		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Naphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 UL
Phenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Inorganics (µg/l)																																		
Dissolved Manganese (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0432	–	–	–	–	0.0197	0.28	0.223	0.0216	0.0238	0.0277	0.0370	0.0405	0.0460	0.0994	0.109	0.104	0.133
Dissolved Iron (mg/l)		–	–	–	–	–	–	0.0263 B	0.011 U	–	–	–	–	–	–	0.0192 U	0.0234 U	–	–	–	–	0.011 U	0.021 B	0.0273 U	0.028 U	0.0122 U	0.0153 U	0.0101 U	0.0124 U	0.0075 U	0.0091 U	0.010 U	0.009 U	0.0177 U
Biological Oxygen Demand (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0	< 1	1.2	2.0	< 2	< 2	< 2	–	–	–	–
Field Parameters																																		
Temperature (Degrees Celcius)		13.4	13.1	13.8	13.5	13.8	13.6	12.8	13.5	–	13.3	13.3	13.4	13.5	13.2	13.18	13.48	13.5	13.2	13.3	13.2	13.05	13.33	13.37	13.66	13.9	12.8	15.2	16.1	14.9	13.0	14.5	15.2	13.6
Conductivity (µs/cm)		218	240	350	271	321	370	280	140	–	179	199	184	110	172	146.9	139.1	167	130.0	182	–	115	107	125	290	112	146	152	194	126	99	90	79	144
pH (standard units)		6.51	8.16	6.26	6.20	7.96	6.31	6.41	6.34	–	6.29	–	6.30	6.48	6.52	5.4	6.06	5.72	6.13	6.07	6.98	5.94	5.89	6.57	5.36	5.65	5.85	5.99	5.72	5.59	6.18	6.23	6.02	5.79
Dissolved Oxygen (mg/l)		–	–	–	–	0.30	2.57	–	0.11	–	2.39	–	0.05	1.6	0.24	1.01	0.19	–	–	–	–	5.93	0.50	0.28	0.79	0.00	0.00	0.04	0.50	2.49	1.92	2.20	0.90	0.07
ORP (mV)		185.5	286.9	153	95.4	157.4	124	154.9	155.6	–	299.8	620	181.1	153.6	153.2	189.1	76	86.6	165.8	126.5	135.3	166	172.6	114.4	183.8	197	146	115	125	242	188	154	202	137
Water-Level Elevation (ft, MSL)		–	–	–	–	–	-18.88	-22.12	-23.95	-28.57	-28.73	–	-30.62	-30.98	-30.64	-26.96	-28.65	-28.95	-27.69	-24.52	-26.03	-18.90	-13.58	-1.06	-9.88	-14.96	-1.95	-6.55	-10.97	-11.88	-8.92	-9.85	-15.34	-12.74

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
* - 100 mg/l is the Criteria for Total trihalomethanes
Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded

UL - Not detected, quantitation limit is probably higher
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	BW-3 (continued)																															
		9/99	12/99	3/00	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Inorganics (µg/l)																																	
Nitrate Nitrogen (mg/l)	10	0.05 U	0.05 U	0.05 U	0.5 L	0.12	0.100 J	0.60 L	0.2	0.69	0.41	0.36	0.41	0.56	0.16	0.365	0.27	0.05 U	0.43	0.31	0.11	--	--	--	0.180	0.948	0.770	0.225	0.330	1.36	0.315	0.24
Aluminum		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.7 U	2 U	3.9 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U
Barium	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	39.2	49.5	46.1	52.1	53.1	53	61.4	59.9
Beryllium		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Total		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11700	11700	20900	--	--
Cadmium	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.5 U	0.2 U	0.40 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U
Chromium	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.1 U	0.6 U	0.50 U	0.60 U	0.50 U	0.40 U	0.60 U	0.30 U
Cobalt		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.6 U	1.1 U	2.0 U	1.0 U	1.9 U	1.6 U	1.2 U	2.2 U
Magnesium		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium, Total		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4010	3880	5080	--	--
Mercury	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.5 U	4.3 U	4.6 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.3 U	0.2 U	0.70 U	0.50 U	0.30 U	0.50 U	0.40 U	1.2 U
Sodium		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, Total (mg/l as CaCO3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	39.0	41	72.0	--	--
Dissolved Gases																																	
Oxygen (mg/l)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.56	3.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methane (mg/l)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	3 B	6 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethane (µg/l)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.7 JB	1 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethene (µg/l)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.05 JB	0.04 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide (mg/l)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	63	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pesticides/Herbicides (µg/l)																																	
4,4'-DDD		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.013 J	0.018 U	0.02 U	0.02 U	0.080 P	--	--	--	--	--
4,4'-DDE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.017 J	0.018 U	0.02 U	0.0014 J	0.020 U	--	--	--	--	--
4,4'-DDT		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.026 J	0.018 U	0.02 U	0.02 U	0.016 J	--	--	--	--	--
Aldrin		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	--	--	--	--
alpha-BHC		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	--	--	--	--
Alpha-Chlorodane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	--	--	--	--
beta-BHC		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 JN	0.0035 J	0.01 U	0.010 U	--	--	--	--	--
delta-BHC		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.0023 J	0.0091 U	0.01 U	0.01 U	0.010 U	--	--	--	--	--
Dieldrin		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	--	--	--	--
Endosulfan I		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.01 U	--	--	--	--	--
Endosulfan II		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.02 U	--	--	--	--	--
Endosulfan sulfate		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 UL	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	--	--	--	--
Endrin	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.10	--	--	--	--	--
Endrin Aldehyde		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	--	--	--	--
Endrin Ketone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	--	--	--	--
gamma-BHC (Lindane)	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	--	--	--	--
gamma-Chlorodane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	--	--	--	--
Heptachlor		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.0018 J	0.0091 U	0.01 U	0.01 U	0.010 U	--	--	--	--	--
Heptachlor Epoxide		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.00087 J	0.010 U	--	--	--	--	--
Methoxychlor	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.1 U	0.1 U	0.091 U	0.1 U	0.1 U	0.10 U	--	--	--	--	--
Toxaphene	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1.0 U	--	--	--	--	--
2,4-D	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5 U	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-TP (Silvex)	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

-- Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.

Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	MW-40																				
		6/94	10/94	1/95	3/95	6/95	10/95	1/96	3/96	6/96	9/96	12/96	3/97	6/97	9/97	12/97	3/98	6/98	10/98	12/98	3/99	6/99
Non-Halogenated VOCs (µg/l)																						
Benzene	5	0.5 U	0.5 U	0.4 J	1.0	1.2 B	0.8 B	0.5	0.2 J	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Xylene (total)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Butanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acetone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Disulfide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Isopropylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methy-tert-butyl ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methylcyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methy-2-pentanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Halogenated VOCs (µg/l)																						
Bromoform	100*	–	–	–	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Bromodichloromethane	100*	–	–	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chloroform	100*	–	–	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.07 J	0.1 J	0.5 U	0.2 J	0.2 J	0.2 J	0.2 J
Chloromethane		–	–	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	100*	–	–	–	1 U	1 U	0.15 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	120	40	48	69	98	30	14	1.9	0.7	0.3 J	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	1.1	0.3 J	0.5 U
1,3-Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cis-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
trans-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,3-Dichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,4-Dichlorobenzene	75	–	0.5 U	0.2 J	0.2 JB	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J	0.2 J	0.3 J	0.3 J	0.1 J	0.1 J	0.5 U	0.1 J	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U
Chloroethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tetrachloroethene		0.5 U	0.5 U	0.2 J	0.3 J	0.4 J	0.2 J	0.5 U	0.5 U	0.1 J	0.5 U	0.2 J	0.4 J	1.7	0.9	0.6	0.7	0.9	0.8	0.7	0.8	0.7
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.5 U	0.6	1.7	2.4	2.6	1.1	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	2	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cis-1,3-Dichloropropene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methylene Chloride		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Trichlorofluoromethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Semi-Volatiles (µg/l)																						
Bis(2-chloroethyl)Ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bis(2-ethylhexyl)phthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,2'-oxybis (1-Chloropropane)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-Dimethylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylnaphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acetophenone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Caprolactam		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diethylphthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
N-Nitrosodiphenylamine		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Naphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pheno		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inorganics (µg/l)																						
Dissolved Manganese (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dissolved Iron (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Biological Oxygen Demand (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Field Parameters																						
Temperature (Degrees Celcius)		15.5	13.2	13.1	13.5	13.6	15.4	12.2	13.3	12.8	12.9	12.9	12.9	13.0	11.0	12.9	13.3	14.4	13.3	13.3	13.3	13.8
Conductivity (µs/cm)		200	192	219	243	243	601	168	163	158	145	131	136	177	173	128	138	146	149	135	133	151
pH (standard units)		6.04	6.03	6.61	6.35	6.40	6.59	6.64	6.17	6.69	5.73	6.97	5.95	6.13	5.61	5.66	5.71	5.42	5.25	5.21	5.23	5.27
Dissolved Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ORP (mV)		-94	-55	-34	5	-36	-54	9	90	13	26	–	-21	-52	–	74	122	–	-56	96	258.9	262.4
Water-Level Elevation (ft, MSL)		-18.94	–	–	–	-24.77	–	–	–	-23.68	–	–	–	-19.27	–	–	–	-21.18	–	–	–	-23.60

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
* - 100 mg/l is the Criteria for Total trihalomethanes
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
UL - Not detected, quantitation limit is probably higher
Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	MW-40																				
		6/94	10/94	1/95	3/95	6/95	10/95	1/96	3/96	6/96	9/96	12/96	3/97	6/97	9/97	12/97	3/98	6/98	10/98	12/98	3/99	6/99
***Inorganics* (µg/l)**																						
Nitrate Nitrogen (mg/l)	10	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.11	0.22	0 37	0.877	1.49	2.17	1.97	2.26	2.37	2.79	2.41	2.54	2.65	2.38
Aluminum		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	1000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cadmium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chromium	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cobalt		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mercury	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dissolved Gases																						
Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
***Pesticides/Herbicides* (µg/l)**																						
4,4'-DDD		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDE		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4,4'-DDT		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Aldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
alpha-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alpha-Chlorodane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
beta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
delta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dieldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan I		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan II		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endosulfan sulfate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Aldehyde		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Endrin Ketone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-BHC (Lindane)	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
gamma-Chlorodane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Heptachlor Epoxide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methoxychlor	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toxaphene	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-D	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2,4-TP (Silvex)	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.

Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	MW-40 (continued)																																	
		9/99	12/99	3/00	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	10/08
Non-Halogenated VOCs (µg/l)																																			
Benzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	1 U	0.5 U	0.3 J	0.1 J	0.5 U	0.2 J	0.3 J	0.5 U	0.5 U	0.5 U	0.6	0.5	0.23 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene		–	–	–	–	–	–	–	0.5 U	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	0.46 J	0.49 J	0.65 J	1 U	0.55 J
Ethylbenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)		–	–	–	–	–	–	–	–	–	1 U	–	–	–	–	5 U	0.075 J	–	1.0 U	–	1.0 U	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 R	10 U	10 R	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Acetone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	20 R	20 U	20 R	20 R	10 U	5 U	5 U	4.1 J	3.6 U	5 U	6.5 J	5 U
Carbon Disulfide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	0.24 J
Cyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Isopropylbenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.7	–	–	–	–	2.3 J	1.7	0.86 J	0.86 J	0.45 J	0.52 J	0.53 J	1 U
Methylcyclohexane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
4-Methy-2-pentanone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Halogenated VOCs (µg/l)																																			
Bromoform	100*	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	5 U	0.5 U	2 U	0.5 U	2 U	0.5 U	0.16 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
Bromodichloromethane	100*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.1 J	0.34 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	100*	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.1 B	0.1 J	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.074 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.14 J	5 U	5 U	5 U	5 U	10 U	0.43 J	1 U	1 U	0.20 J	1 U	1 UJ	1 U
Dibromochloromethane	100*	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	0.5 U	0.5 U	5.0	0.1 J	0.5 U	0.5 U	0.2 J	0.1 J	0.5 U	0.5 U	37.0	13.0	0.5 U	24.0	19	0.5 U	1.8	0.5 U	73	68 D	32 D	7	5 J	5 U	5 UJ	10 U	1 U	1 U	0.21 J	0.12 J	1 U	1 U	1 U
1,3 Chlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.3 J	0.32 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	0.4 J	0.5 U	–	0.5 U	–	0.7	0.58	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.18 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	0.5 U	0.5 U	0.2 JB	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	0.13 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	75	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.1 J	0.2 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane		–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	5 U	0.5 U	–	0.5 U	–	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene		0.5	0.3 J	0.4 J	0.3 J	0.3 J	0.5	0.6	0.6	0.6	0.6	0.6	0.4 J	0.6	0.6	0.7 J	0.82 B	1	1.1	0.6	0.5 J	0.78	0.6 J	1 J	1 J	1 J	10 U	0.31 J	0.60 J	0.69 J	0.72 J	0.70 J	0.59 J	0.31 J
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.21 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	0.5 U	0.5 U	0.3 J	0.1 J	0.5 U	0.6	0.1 J	0.5 U	0.5 U	0.5 U	1.1	0.4 J	0.5 U	0.7	1 J	0.5 U	0.3 J	0.1 J	2	1.9	1.7	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.1 J	0.16 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 U	1 U	1 UJ	1 U
Trichlorofluoromethane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.6	–	–	–	–	1.2 J	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Semi-Volatiles (µg/l)																																			
Bis(2-chloroethyl)Ether		–	–	–	0.05592	0.022 J	0.67	0.1	0.077	0.024 U	0.024 U	0.97	1.1	0.041 J	0.7	0.8	0.2	–	–	–	–	2.5 J	0.26 B	0.14	0.083	0.019 U	0.67	0.46	0.33	0.24	0.043	0.018 U	5 U	5.3 U
Bis(2-ethylhexyl)phthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	64	5 U	6.2	16 J	5 UL	5 U	5 U	5 UJ	5 U	5 U	5.3 U
2,2'-oxybis (1-Chloropropane)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
2,4-Dimethylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
2-Methylnaphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
2-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
4-Methylphenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Acetophenone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Caprolactam		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UJ	5 U	4.4 J	5.3 U
Diethylphthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Di-n-octyl phthalate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	60	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
N-Nitrosodiphenylamine		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Naphthalene		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Phenol		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5.3 U
Inorganics (µg/l)																																			
Dissolved Manganese (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1	–	–	–	–	0.242	0.248	0.323	0.341	0.0947	0.0447	0.131	0.157	0.0726	0.0329	0.0287	0.0779	0.0036
Dissolved Iron (mg/l)	5	–	–	–	–	–	–	0.106 B	0.075 B	–	–	–	–	–	–	0.0633 B	0.135	–	–	–	–	0.295	0.164	0.0637	0.0569	0.127	0.171	0.0959	0.823	0.730	0.226	0.313	2.1	0.0177 U
Biological Oxygen Demand (mg/l)	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	< 1	< 1	1.1	< 2	< 2	< 2	–	–	–	–
Field Parameters																																			
Temperature (Degrees Celcius)		13.4	13.3	14.0	13.5	13.8	13.8	13.9	13.8	–	13.5	13.7	14.0	14.4	14.2	14.65	14.68	14.1	13.6	13.8	14.4	13.44	12.87	12.95	13.32	13.74	14.2	15.9	15.7	14.1	12.9	13.8	14.8	13.2
Conductivity µs/cm)		119	125	180	271	129	18	54	149	–	149	140	140	135	148	144	165.2	171	147	126	–	146	124	130	364	182	206	208	229	350	171	197	195	105
pH (standard units)		5.65	7.56	5.21	6.2	6.35	5.22	5.29	5.53	–	4.53	5.27	5.25	5.51	5.35	4.56	5.62	5.24	6.00	5.99	6.87	5.38	5.62	5.36	4.82	5.55	5.51	5.67	5.58	5.81	5.35	5.42	5.64	6.13
Dissolved Oxygen (mg/l)		–	–	–	–	0.83	0.9	0.57	0.38	–	–	0.3	0.05	0.42	0.16	0.15	0.10	–	–	–	–	0.17	0.10	0.05	0.82	0.77	0.00	0.00	2.41	0.15	0.00	0.00	0.00	0.58
ORP (mV)		152.1	334.5	236	65.4	210.4	260	346.2	196.8	–	401.2	297.2	281.6	180.7	189.1	221.8	65.8	127.8	123.4	148.1	128	109.8	184.1	192.0	218.3	215.1	114	118	36	9	147	72	-20	105
Water-Level Elevation (ft. MSL)		–	–	–	-24.55	–	-19.76	-22.17	-25.09	-29.62	-26.43	-26.95	-32.1	-31.29	-30.4	-26.77	-28.44	-28.80	-27.34	-24.46	-26.14	-17.90	-12.84	-0.73	-8.76	-13.90	-1.50	-5.97	-10.23	-11.23	-7.97	-8.86	-13.94	-11.78

– Not analyzed or data not available to RAI as of February 7 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present reported value may be biased high.
L - Analyte present, reported value may be biased low.
* - 100 mg/l is the Criteria for Total trihalomethanes
Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded

UL - Not detected quantitation limit is probably higher
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	Criteria	MW-40 (continued) 9/99	12/99	3/00	7/00	10/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/03	1/04	4/04	7/04	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Inorganics (µg/l)																																
Nitrate Nitrogen (mg/l)	10	2.15	2.33	2.16	1.49	1.81	2.24	2.36	2.45	2.68	–	1.11	1.73	2.54	1.48	1.68	2.31	2.3	2.6	0.25	0.10 U	–	–	–	2.46	2.33	1.04	0.210	0.365	0.53	1.81	1.60
Aluminum		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.7 U	2 U	3.9 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U
Barium	1000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	112	122	98.1	106	113	128	138	137
Beryllium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11800	11400	15000	–	–
Cadmium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	0.2 U	0.40 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U
Chromium	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.1 U	0.6 U	0.50 U	0.60 U	0.50 U	0.40 U	0.60 U	0.30 U
Cobalt		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	13.8	26	12.8	9.3	16.3	15.4	24.1	25.8
Magnesium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4500	4300	5840	–	–
Mercury	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4.5 U	4.3 U	4.6 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	0.2 U	0.70 U	0.50 U	0.30 U	0.50 U	0.40 U	1.2 U
Sodium		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity Total (mg/l as CaCO3)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	30.0	31	26.0	–	–
Dissolved Gases																																
Oxygen (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.22	1.81	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.4 JB	0.4 B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethane (ug/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.04 J	0.05J	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethene (ug/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	2 U	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)		–	–	–	–	–	–	–	–	–	–	–	–	–	–	77	98.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides (µg/l)																																
4,4'-DDD		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
4,4'-DDE		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
4,4'-DDT		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
Aldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U	–
alpha-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U	–
Alpha-Chlordane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.0035 J	0.0096 J	0.0086 J	0.0075 J	0.010 U	–	0.010 U	–	0.010 U	–
beta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.0095 U	0.003 JP	0.01 U	0.010 U	–	0.01 U	–	0.010 U	–
delta-BHC		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.0095 U	0.01 U	0.0018 J	0.010 U	–	0.010 U	–	0.010 U	–
Dieldrin		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
Endosulfan I		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.0095 U	0.01 U	0.01 U	0.0027 J	–	0.0015 J	–	0.0055 JN	–
Endosulfan II		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
Endosulfan sulfate		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
Endrin	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
Endrin Aldehyde		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
Endrin Ketone		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	–	0.020 U	–	0.020 U	–
gamma-BHC (Lindane)	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U	–
gamma-Chlordane		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0025J	0.0017 J	0.0095 U	0.003 J	0.005 J	0.010 U	–	0.010 U	–	0.010 U	–
Heptachlor		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.0095 U	0.01 U	0.01 U	0.010 U	–	0.010 U	–	0.010 U	–
Heptachlor Epoxide		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.023J	0.01 U	0.015 JN	0.006 J	0.024 JN	0.010 U	–	0.014 JN	–	0.010 U	–
Methoxychlor	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.091U	0.1 U	0.095 U	0.1 U	0.1 U	0.10 U	–	0.10 U	–	0.10 U	–
Toxaphene	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	1.0 U	–	1.0 U	–
2,4-D	100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-TP (Silvex)	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Criteria are Groundwater concentrations specified in the Consent Decree for compliance at the Boundary Wells - exceedances shaded
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	C-4																			
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	10/08
Non-Halogenated VOCs **(µg/l)**																				
Benzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1.4	0.42 J	0.66 J	0.73 J	0.30 J	2.4 U	1.8
Ethylbenzene	1 U	1 U	–	–	–	0.5 U	0.035 B	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	1 U	1 U	–	–	–	0.5 U	0.12 JB	0.5 U	5 U	5 U	5 UJ	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	5 U	10 R	10 R	10 R	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
Acetone	–	–	–	–	–	–	–	5 U	20 R	20 R	20 R	20 R	2.1 J	4.0 J	6.5 U	5 U	3.6 U	5 U	8.9 J	5 U
Carbon Disulfide	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	0.22 J
Cyclohexane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Isopropylbenzene	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1
Methylcyclohexane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	5 U	10 U	10 U	10 UJ	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Halogenated VOCs **(µg/l)**																				
Bromoform	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 UJ	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U
Bromodichloromethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	0.30 J	1 U	1 U	1 U	1 U
Chloroform	0.3 J	0.3 J	–	–	–	0.2 J	0.23 J	0.74	5 U	5 U	5 UJ	5 UJ	10 U	0.30 J	0.36 J	0.35 J	0.23 J	1 U	0.082 J	1 U
Dibromochloromethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U	–	–	–	0.04 J	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	2 U	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane										–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ
Chloroethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	0.4 J	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U
Semi-Volatiles **(µg/l)**																				
Bis(2-chloroethyl)Ether	0.03 U	0.025 U	5 U	0.05 U	0.05 U	0.025 J	0.05 U	0.02 U	0.028 B	0.02 U	0.019 UJ	0.019 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Bis(2-ethylhexyl)phthalate	5 U	–	–	–	–	–	–	5 U	8.2	5 UL	5 UJ	5 U	5 U	5 UL	5 UL	5 UL	5 U	5 U	5 UL	5.3 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
2-Methylnaphthalene	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5.3 U
2-Methylphenol	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
4-Methylphenol	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Acetophenone	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Caprolactam	–	–	–	–	–	–	–	5 UJ	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 UL	5.3 UJ
Diethylphthalate	–	–	–	–	–	–	–	5 U	5 U	5 UL	5 UJ	5 U	5 U	5 U	5 UL	5 UL	5 U	5 U	5 UL	5.3 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Naphthalene	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5.3 U
Pheno	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 U
Inorganics **(µg/l)**																				
Dissolved Manganese (mg/l)	–	–	–	–	–	–	0.257	0.229	0.531	0.448	0.348 J	0.290	0.268	0.225	0.231	0.279	0.288	0.540	0.321	0.788
Dissolved Iron (mg/l)	3.34	35.3	–	–	–	0.0142 U	0.0234 U	0.011 U	0.0286 B	0.162	0.028 UJ	0.0122 U	0.123 U	0.0101 U	0.0124 U	0.0144 U	0.0369 U	0.652	0.540	0.142 U
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	0	< 1	< 1	< 1	< 2	< 2	< 2	–	–	–	–
Field Parameters																				
Temperature (Degrees Celcius)	16.27	14.79	–	16.6	14.4	15.51	15.4	14.24	14.65	15.28	15.16	14.61	14.8	16.4	16.9	17.0	14.9	15.4	16.5	16.2
Conductivity (µs/cm)	202.1	5.16	–	145	163	133.5	168.5	160	116	121	295	168	213	196	272	240	99	87	74	140
pH (standard units)	5.7	213.1	–	5.51	5.68	4.79	4.78	5.22	5.74	5.63	4.90	5.58	5.50	5.29	4.95	5.49	5.40	6.63	6.32	6.23
Dissolved Oxygen (mg/l)	3.11	0.68	–	0.88	2.95	2.49	1.29	5.95	3.92	3.77	5.82	2.92	4.60	4.90	3.77	1.71	1.26	0.67	0.00	0.76
ORP (mV)	275.2	279.2	–	238.5	182.7	215.6	70.6	190	195.9	92.6	214.7	231.6	139	169	208	111	52	51	8	32
Water-Level Elevation (ft. MSL)	5.46	6.46	4.81	4.44	5.09	7.69	14.29	9.34	9.44	10.72	10.12	7.62	8.06	8.17	7.91	7.49	7.95	8.87	7.92	6.74

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	C-4																
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07
Inorganics **(µg/l)**																	
Nitrate Nitrogen (mg/l)	–	–	–	–	–	5.60	6.51	–	–	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	11400	13300	11800	–
Cobalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	6390	7920	7480	–
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/L as CaCO3)	–	–	–	–	–	–	–	–	–	–	–	–	–	20.0	20.0	23.0	–
Dissolved Gases																	
Oxygen (mg/l)	–	–	–	–	–	6.26	5.50	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	0.2 JB	0.2 JB	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	2 U	2 U	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	2 U	0.05 JB	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	71	93 L	–	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides **(µg/l)**																	
4,4'-DDD	–	–	–	–	–	–	–	0.02 U	0.0096 J	0.019 U	0.02 UJ	0.02 U	0.020 U	–	0.02 U	–	0.02 U
4,4'-DDE	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.0035 J	0.0067 J	0.020 U	–	0.02 U	–	0.02 U
4,4'-DDT	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 UJ	0.02 U	0.020 U	–	0.02 U	–	0.02 U
Aldrin	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 UJ	0.01 U	0.010 U	–	0.01 U	–	0.01 U
alpha-BHC	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 UJ	0.01 U	0.010 U	–	0.01 U	–	0.01 U
Alpha-Chlorodane	–	–	–	–	–	–	–	0.034 JN	0.044 JN	0.038 J	0.03 J	0.072 J	0.023 J	–	0.032 J	–	0.015
beta-BHC	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 UJ	0.01 U	0.010 U	–	0.01 U	–	0.01 U
delta-BHC	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 UJ	0.01 U	0.010 U	–	0.01 U	–	0.01 U
Dieldrin	–	–	–	–	–	–	–	0.15	0.11	0.1	0.048 J	0.087	0.058	–	0.050	–	0.049
Endosulfan I	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 UJ	0.01 U	0.0097 J	–	0.01 U	–	0.01 U
Endosulfan II	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 UJ	0.02 U	0.020 U	–	0.02 U	–	0.02 U
Endosulfan sulfate	–	–	–	–	–	–	–	0.02 UL	0.02 U	0.019 U	0.02 UJ	0.02 U	0.020 U	–	0.02 U	–	0.02 U
Endrin	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 UJ	0.02 U	0.020 U	–	0.02 U	–	0.02 U
Endrin Aldehyde	–	–	–	–	–	–	–	0.02 U	0.02 U	0.019 U	0.02 UJ	0.02 U	0.020 U	–	0.02 U	–	0.02 U
Endrin Ketone	–	–	–	–	–	–	–	0.02 U	0.0047 J	0.02 JN	0.02 UJ	0.02 U	0.020 U	–	0.02 U	–	0.02 U
gamma-BHC (Lindane)	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 UJ	0.01 U	0.010 U	–	0.01 U	–	0.01 U
gamma-Chlorodane	–	–	–	–	–	–	–	0.035	0.034	0.024	0.014 UJ	0.035	0.019 J	–	0.016	–	0.012 J
Heptachlor	–	–	–	–	–	–	–	0.01 U	0.01 U	0.0095 U	0.01 UJ	0.01 U	0.010 U	–	0.01 U	–	0.01 U
Heptachlor Epoxide	–	–	–	–	–	–	–	0.011JN	0.011 JN	0.0095 U	0.01 UJ	0.01 U	0.0058 J	–	0.01 U	–	0.01 U
Methoxychlor	–	–	–	–	–	–	–	0.1 U	0.1 U	0.095 U	0.1 UJ	0.1 U	0.10 U	–	0.1 U	–	0.1 U
Toxaphene	–	–	–	–	–	–	–	–	–	–	1 UJ	1 U	1.0 U	–	1 U	–	1 U

-- Not analyzed or data not available to RAI as of February 7, 2008

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

K - Analyte present, reported value may be biased high.

L - Analyte present, reported value may be biased low.

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.

NP - Well not pumping

P - Discrepency in GC analysis. Lower value reported

B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	C-5														
	2/02	4/02	7/02	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	10/08
Non-Halogenated VOCs (µg/l)															
Benzene	1 U	1 U	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	1 U	–	–	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	10 R	10 R	10 R	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ
Acetone	–	–	–	20 R	20 R	20 R	20 R	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ
Carbon Disulfide	–	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	–	–	–	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Isopropylbenzene	–	–	–	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	–	–	–	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
4-Methy-2-pentanone	–	–	–	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)															
Bromoform	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 UJ	1 UJ	1 U	1 UJ	1 U	1 U
Bromodichloromethane	1 U	1 U	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	1 U	1 U	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3 Chlorobenzene	–	1 U	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1 2-Dichloroethene	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	1 U	–	–	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	–	–	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	1 U	–	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	–	–	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	0.24 J	1 U	1 UJ	1 U
Tetrachloroethene	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	1 U	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 UJ	1 U	1 UJ	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)															
Bis(2-chloroethyl)Ether	0.03 U	0.0091	0.05 U	0.028 B	0.018 U	0.02 U	0.02 U	5 U	5 U	10	5 U	5 U	5 UL	5 UL	5.3 U
Bis(2-ethylhexyl)phthalate	5 U	–	–	5 U	8.6	6.7	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UL	5.3 U
2,2'-oxybis (1-Chloropropane)	–	–	–	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5.3 U
2,4-Dimethylphenol	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5.3 U
2-Methylnaphthalene	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5.3 U
2-Methylphenol	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5.3 U
4-Methylphenol	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5.3 U
Acetophenone	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5.3 U
Caprolactam	–	–	–	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UL	5.3 UJ
Diethylphthalate	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	1.4 L	5.3 U
N-Nitrosodiphenylamine	–	–	–	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5.3 U
Naphthalene	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5.3 U
Pheno	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5.3 U
Inorganics (µg/l)															
Dissolved Manganese (mg/l)	–	–	–	0.0013 B	0.0017 UJ	0.00062	0.00033 B	0.002 U	0.0051 U	0.00021	0.00082 U	0.00071 U	0.0001 U	0.0001 U	0.0017 U
Dissolved Iron (mg/l)	0.934	–	–	0.0112 U	0.0536 J	0.028 U	0.0122 U	0.0153 U	0.0143 U	0.0124 U	0.0075 U	0.0091 U	0.010 U	0.009 U	0.0177 U
Biological Oxygen Demand (mg/l)	–	–	–	–	0.5	1.0	< 1	2.3	< 2	< 2	< 2	–	–	–	–
Field Parameters															
Temperature (Degrees Celcius)	15.20	–	–	14.35	13.60	13.75	14.5	13.9	14.1	15.4	15.2	15.0	15.1	15.6	16.6
Conductivity (µs/cm)	61.6	–	–	52.00	50	241	71	174	85	74	80	49	46	58	74
pH (standard units)	5.77	–	–	5.60	5.50	4.98	5.49	5.25	5.56	5.16	5.49	5.30	5.61	5.19	5.58
Dissolved Oxygen (mg/l)	15.4	–	–	7.68	6.31	11.48	8.87	4.65	9.21	9.21	8.87	10.57	9.42	8.76	9.10
ORP (mV)	375.9	–	–	252.6	147.0	189.5	209	255	212	212	200	188	274	159	258
Water-Level Elevation (ft. MSL)	-20.22	-19.22	-21.11	-7.83	2.33	-1.14	-7.23	0.64	-0.79	-3.06	-6.62	-2.87	-1.66	-7.68	-7.56

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	C-5							
	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06
Inorganics **(µg/l)**								
Nitrate Nitrogen (mg/l)	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–
Arsenic	–	–	–	–	–	–	–	–
Barium	–	–	–	–	–	–	–	–
Beryllium	–	–	–	–	–	–	–	–
Calcium	–	–	–	–	–	–	–	–
Calcium, Total	–	–	–	–	–	4940	5040	4930
Cobalt	–	–	–	–	–	–	–	–
Copper	–	–	–	–	–	–	–	–
Lead	–	–	–	–	–	–	–	–
Magnesium	–	–	–	–	–	–	–	–
Magnesium, Total	–	–	–	–	–	2220	2200	2220
Mercury	–	–	–	–	–	–	–	–
Nickel	–	–	–	–	–	–	–	–
Potassium	–	–	–	–	–	–	–	–
Selenium	–	–	–	–	–	–	–	–
Silver	–	–	–	–	–	–	–	–
Sodium	–	–	–	–	–	–	–	–
Zinc	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/L as CaCO3)	–	–	–	–	–	16.0	15.0	17.0
Dissolved Gases								
Oxygen (mg/l)	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	–	–	–
Pesticides/Herbicides **(µg/l)**								
4,4'-DDD	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
4,4'-DDE	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
4,4'-DDT	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Aldrin	0.01 U	0.01 U	0.01 U	0.02 U	0.010 U	–	–	–
alpha-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Alpha-Chlorodane	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
beta-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
delta-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Dieldrin	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endosulfan I	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Endosulfan II	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endosulfan sulfate	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin Aldehyde	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin Ketone	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
gamma-BHC (Lindane)	0.01 U	0.01 U	0.01 U	0.0017 J	0.010 U	–	–	–
gamma-Chlorodane	0.01 U	0.01 U	0.01 U	0.00073 J	0.010 U	–	–	–
Heptachlor	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Heptachlor Epoxide	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Methoxychlor	0.1 U	0.1 U	0.1 U	0.1 U	0.10 U	–	–	–
Toxaphene	–	–	1 U	1 U	1.0 U	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	C-6
	4/06
Non-Halogenated VOCs **(µg/l)**	
Benzene	2 U
Toluene	2 U
Ethylbenzene	2 U
Xylene (total)	6 U
2-Butanone	10 U
Acetone	130
Carbon Disulfide	2 U
Cyclohexane	2 U
Isopropylbenzene	2 U
Methy-tert-butyl ether	2 U
Methylcyclohexane	2 U
4-Methy-2-pentanone	10 U
Halogenated VOCs **(µg/l)**	
Bromoform	2 U
Bromodichloromethane	2 U
Carbon Tetrachloride	2 U
Chlorobenzene	2 U
Chloroform	2 U
Dibromochloromethane	2 U
1,2-Dichloroethane	2 U
1,3 Chlorobenzene	–
1,1-Dichloroethane	2 U
cis-1,2-Dichloroethene	2 U
trans-1,2-Dichloroethene	2 U
1,1-Dichloroethene	2 U
1,2-Dichloroethene (total)	–
1,2-Dichlorobenzene	2 U
1,3-Dichlorobenzene	2 U
1,4-Dichlorobenzene	2 U
Chloroethane	2 U
Tetrachloroethene	2 U
1,1,1-Trichloroethane	2 U
Trichloroethene	2 U
Vinyl Chloride	2 U
1,2,4-Trichlorobenzene	2 U
cis-1,3-Dichloropropene	2 U
Methylene Chloride	2 UJ
Trichlorofluoromethane	2 U
Semi-Volatiles **(µg/l)**	
Bis(2-chloroethyl)Ether	–
Bis(2-ethylhexyl)phthalate	–
2,2'-oxybis (1-Chloropropane)	–
2,4-Dimethylphenol	–
2-Methylnaphthalene	–
2-Methylphenol	–
4-Methylphenol	–
Acetophenone	–
Caprolactam	–
Diethylphthalate	–
N-Nitrosodiphenylamine	–
Naphthalene	–
Pheno	–
Inorganics **(µg/l)**	
Dissolved Manganese (mg/l)	–
Dissolved Iron (mg/l)	–
Biological Oxygen Demand (mg/l)	–
Field Parameters	
Temperature (Degrees Celcius)	–
Conductivity (µs/cm)	–
pH (standard units)	–
Dissolved Oxygen (mg/l)	–
ORP (mV)	–
Water-Level Elevation (ft. MSL)	3.73

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	P-4																							
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	7/07	10/07	1/08	4/08	7/08	10/08
Non-Halogenated VOCs (µg/l)																								
Benzene	1 U	1 U	–	–	–	0.5 U	0.065 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	0.22 J	1.0	1.3	1.2	0.92 J	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylene (total)	1 U	1 U	–	–	–	0.5 U	0.14 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	–	–	–	–	–	–	–	5 U	10 R	10 R	10 R	10 U	10 U	5.0 U	2.3 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	–	–	–	–	–	–	–	5 U	20 R	20 R	20 R	20 R	10 U	5.0 UJ	17 U	6.2 J	5.0 U	5.0 U	4.1 J	5 UJ	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Disulfide	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Cyclohexane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	0.59	–	–	–	–	3.1 J	1.0 U	0.89 J	0.86 J	0.63 J	1.0 U	1.0 U	1.0 U	1.0 U	3.3	0.65 J	7.0
Methylcyclohexane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ
Halogenated VOCs (µg/l)																								
Bromoform	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U
Chlorobenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	0.9 J	0.8 J	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.37 J	1.0 U	0.59 J
Chloroform	0.3 J	0.2 J	–	–	–	0.2 J	0.12 J	0.36 J	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1 U	1 U	–	–	–	0.5	2.7	0.5 U	30	15	21	13	9.1 J	1.0	1.4	1.0 U	0.91 J	0.21 J	1.0 U	0.3 J	0.28 JB	18	3.6	19
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	1 U	1 U	–	–	–	0.1 J	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	2 U	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.22 J	1.0 U	0.21 J
Chloroethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.56 J	1.0 U	1.0 UJ
Tetrachloroethene	1 U	1 U	–	–	–	0.08 J	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	1 U	1 U	–	–	–	0.1 J	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	1 U	1 U	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Semi-Volatiles (µg/l)																								
Bis(2-chloroethyl)Ether	0.03 U	0.025 U	0.04 U	0.05 U	0.05 U	0.05 U	0.05 U	0.02 U	0.034 B	0.059	0.021 U	0.019 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
Bis(2-ethylhexyl)phthalate	5 U	–	–	–	–	–	–	5 U	5 U	5.3 U	4.6 J	4.3 J	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5.3 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
2-Methylnaphthalene	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
2-Methylphenol	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
4-Methylphenol	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
Acetophenone	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
Caprolactam	–	–	–	–	–	–	–	5 UJ	5 U	5.3 U	5.3 U	5 U	5 UL	5 UL	5 U	5 U	5 U	2.9 R	5 UJ	5 UL	5 UJ	5 UL	5 U	5.3 UJ
Diethylphthalate	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5.3 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	5 U	5 U	5.3 UJ	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
Naphthalene	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
Phenol	–	–	–	–	–	–	–	5 U	5 U	5.3 U	5.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5.3 U
Inorganics (mg/l)																								
Dissolved Manganese (mg/l)	–	–	–	–	–	–	0.315	0.0429	2.87	1.69	2.57	2.38	1.37	2.85	0.255	0.251	0.234	0.0511	0.0606	0.0437	0.0532	0.997	0.593	1.11
Dissolved Iron (mg/l)	0.403	0.047 B	–	–	–	0.0142 U	0.101 B	0.011 U	5.35	20.1	34.8	25.7	42.6	0.596	0.0135 U	0.0263 U	0.102	0.924	1.61	0.18	0.160 U	28.9	12.7	36.4
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	0	< 1	3.2	4.3	3	4	3	–	–	–	–	2	–	–	–
Field Parameters																								
Temperature (Degrees Celcius)	14.1	14.36	–	15.5	13.8	13.78	15.46	13.56	13.42	13.77	13.92	13.50	14.3	15.5	15.9	15.6	13.6	14.8	18.3	15.1	13.4	14.8	15.0	14.4
Conductivity (µs/cm)	85.4	87.4	–	87.40	81	92.64	286.7	66	326	480	609	640	640	252	291	516	156	92	305	257	309	306	172	433
pH (standard units)	5.18	4.42	–	5.04	4.99	4.12	6.99	4.8	5.98	6.27	5.91	6.43	6.34	8.22	6.29	6.44	6.40	6.18	6.55	6.46	6.47	6.38	5.69	7.37
Dissolved Oxygen (mg/l)	4.48	1.08	–	0.72	3.96	2.5	0.08	3.9	0.06	0.18	0.06	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.00
ORP (mV)	334.3	408.2	–	303.5	312.6	272.7	63.7	232.8	71.4	-18.5	-17.5	-13.9	-97	-8	19	31	-45	-75	6	19	145	-93	159	-93
Water-Level Elevation (ft. MSL)	-27.11	-27.11	-34.41	-31.42	-30.97	-27.73	-19.39	-19.53	-15.63	-2.53	-11.38	-15.90	-2.84	-6.25	-13.00	-13.69	-10.41	-11.95	-14.15	-15.12	-11.49	-12.36	-15.97	-13.69

-- Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	P-4																		
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	1/08
Inorganics (µg/l)																			
Nitrate Nitrogen (mg/l)	--	--	--	--	--	3.15	0.22	--	--	--	--	--	--	--	--	--	--	--	2.16
Aluminum	--	--	--	--	--	--	--	4.4 U	13.5 U	11.9 U	13 U	14.7	12.4 U	34.4 U	20.5 U	35.4 U	37.6 U	11.1 U	--
Antimony	--	--	--	--	--	--	--	2 U	2.1 U	3.8 U	3.7 U	1.6 U	2.2 U	1.8	1.8 U	2.2	1.7 U	2.1 U	--
Arsenic	--	--	--	--	--	--	--	1.8 U	2.1 U	3 U	3.7 U	2 U	1.4 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U	--
Barium	--	--	--	--	--	--	--	29.8	520	497	886	773	569	88.6	79.7	79.3	82.4	19.5	--
Beryllium	--	--	--	--	--	--	--	.5 U	0.1 U	0.77 U	0.61 U	0.17	0.19 U	0.60 U	0.46 U	0.33 U	0.45 U	0.20 U	--
Cadmium	--	--	--	--	--	--	--	--	--	0.6 U	0.5 U	0.2 U	0.20 U	0.32 U	0.40 U	0.20 U	0.20 U	0.40 U	--
Calcium	--	--	--	--	--	--	--	5320	20300	17500	25100	22500	21100	16200	17700	18000	17100	9580	--
Calcium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	13900	17200	16000	--	--	--
Cobalt	--	--	--	--	--	--	--	8.1	84.5	77.5	162	198	137	13.8	11.7	12.5	11.6	1.5 U	--
Copper	--	--	--	--	--	--	--	2.1 B	2.3 B	44.5	0.8 U	0.83	0.30 U	2.0 U	1.7	1.4	0.88	3.3 U	--
Lead	--	--	--	--	--	--	--	0.9 U	1.3 U	1.2 U	1.6 U	1.1 U	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	1.4 U	--
Magnesium	--	--	--	--	--	--	--	1660	10400	9130	14500 J	13300	12000	2430	2310	2370	2230	1700	--
Magnesium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	1990	2110	2050	--	--	--
Mercury	--	--	--	--	--	--	--	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--
Nickel	--	--	--	--	--	--	--	9.1	30.7 B	10.5 U	14.3	14.4	9.9	3.8	3.4	3.9	3.3	4.3	--
Potassium	--	--	--	--	--	--	--	1250	6880	8690 J	11600 J	9870	7260	11000	9850	10100	9470	9420 J	--
Selenium	--	--	--	--	--	--	--	2.6 U	2.7 U	1.7 U	4.5 U	4.3 U	4.9	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U	--
Silver	--	--	--	--	--	--	--	0.7 U	0.8 U	1.4 U	1.3 U	0.2 U	0.50 U	0.50 U	0.30 U	0.50 U	0.40 U	1.2 U	--
Sodium	--	--	--	--	--	--	--	6590	37000	34700	57000	51300	45500	7840	8160	7510	7250	3240	--
Thallium	--	--	--	--	--	--	--	1.9 U	3 U	2.9 U	4 U	4.5 U	3.9 U	2.1 U	3.6 U	3.4 U	3.4 U	2.9 U	--
Vanadium	--	--	--	--	--	--	--	0.4 U	0.5 U	1 U	1.2	0.5 U	0.31	0.40 U	0.30 U	0.40 U	0.40 U	0.50 U	--
Zinc	--	--	--	--	--	--	--	16.5	28.3	91	27.4 U	20.8	10.5	1010	998	937	772	386	--
Alkalinity, Total (mg/L as CaCO3)	--	--	--	--	--	--	--	--	--	--	--	--	--	55.0	63.0	24.0	--	--	--
Dissolved Gases																			
Oxygen (mg/l)	--	--	--	--	--	4.51	1.00 U	--	--	--	--	--	--	--	--	--	--	--	--
Methane (mg/l)	--	--	--	--	--	0.6 JB	4	--	--	--	--	--	--	--	--	--	--	--	--
Ethane (µg/l)	--	--	--	--	--	0.05 JB	0.05 B	--	--	--	--	--	--	--	--	--	--	--	--
Ethene (µg/l)	--	--	--	--	--	2 U	0.04 B	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide (mg/l)	--	--	--	--	--	86	90 L	--	--	--	--	--	--	--	--	--	--	--	--
Pesticides/Herbicides (µg/l)																			
4,4'-DDD	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.2 U	--	0.02 U	--	0.02 U	--	--
4,4'-DDE	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.2 U	--	0.02 U	--	0.02 U	--	--
4,4'-DDT	--	--	--	--	--	--	--	0.02 U	0.0015 J	0.02 U	0.02 U	0.02 U	0.2 U	--	0.02 U	--	0.02 U	--	--
Aldrin	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	--	0.015 KN	--	0.01 U	--	--
alpha-BHC	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	--	0.01 U	--	0.0043 JN	--	--
Alpha-Chlorodane	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	--	0.01 U	--	0.01 U	--	--
beta-BHC	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.015 JN	0.01 U	0.011 J	--	0.0078 KN	--	0.0075 JN	--	--
delta-BHC	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.0044 J	0.1 U	--	0.008 KN	--	0.02 U	--	--
Dieldrin	--	--	--	--	--	--	--	0.0092 J	0.0084 J	0.02 U	0.0028 J	0.0051 J	0.2 U	--	0.02 U	--	0.02 U	--	--
Endosulfan I	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	--	0.01 U	--	0.01 U	--	--
Endosulfan II	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.2 U	--	0.02 U	--	0.02 U	--	--
Endosulfan sulfate	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.2 U	--	0.02 U	--	0.02 U	--	--
Endrin	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.2 U	--	0.02 U	--	0.02 U	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.2 U	--	0.02 U	--	0.02 U	--	--
Endrin Ketone	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.2 U	--	0.02 U	--	0.02 U	--	--
gamma-BHC (Lindane)	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	--	0.01 U	--	0.02 U	--	--
gamma-Chlorodane	--	--	--	--	--	--	--	0.01 U	0.0018 J	0.01 U	0.01 U	0.0022 J	0.1 U	--	0.01 U	--	0.01 U	--	--
Heptachlor	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	--	0.01 U	--	0.01 U	--	--
Heptachlor Epoxide	--	--	--	--	--	--	--	0.01 U	0.0034 J	0.01 U	0.01 U	0.011 J	0.0076 J	--	0.01 U	--	0.01 U	--	--
Methoxychlor	--	--	--	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	--	0.1 U	--	--
Toxaphene	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1 U	--	1.0 U	--	1.0 U	--	--

-- Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	P-5U																	
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Non-Halogenated VOCs (µg/l)																		
Benzene	3	3	–	–	–	23	58	1 9	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	1 U	–	–	–	5 U	3 U	0.5 U	5 U	5 U	5 U	0.8 J	10 U	0.67 J	0.37 J	1.2	1.6	0.97 J
Ethylbenzene	1 U	1 U	–	–	–	5	4.5 B	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	1 U	1 U	–	–	–	5 U	1 4 JB	0 5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	5 U	10 U	10 R	10 R	10 U	10 U	1.8 J	5 U	5 U	1.3 J	5 U
Acetone	–	–	–	–	–	–	–	5 U	20 R	20 R	20 R	20 R	10 U	15	5.6 U	8.0 J	6 7 U	13 U
Carbon Disulfide	–	–	–	–	–	–	–	0 5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	–	–	–	–	–	–	–	0.5 UL	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
Isopropylbenzene	–	–	–	–	–	–	–	0.89	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	0.73	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	–	–	–	–	–	–	–	0.5 UL	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
4-Methy-2-pentanone	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																		
Bromoform	1 U	1 U	–	–	–	5 U	3 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 UJ
Bromodichloromethane	1 U	1 U	–	–	–	5 U	3 U	0.5 UL	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1 U	1 U	–	–	–	5 U	3 U	0.5 U	5 UJ	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	9	16	–	–	–	58	100	43 D	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Chloroform	1 U	1 U	–	–	–	5 U	3 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	1 U	–	–	–	5 U	3 U	0 5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
1 2-Dichloroethane	7	8	–	–	–	10	12	2.9	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	0.4 J	0.6 J	–	–	–	2 J	3 U	0.56	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
cis-1 2-Dichloroethene	0.6 J	0.7 J	–	–	–	2 J	2.9 J	3	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	–	–	–	5 U	2.5 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	0.6 J	0.7 J	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	0.4 J	0.7 J	–	–	–	3 JB	5.8 B	2 4	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	0.3 J	0.5 J	–	–	–	1 J	2 0 J	1 1	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	2	2	–	–	–	7	11 B	4.1	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	0.3 J	0 3 J	–	–	–	1 J	0.81 J	0 5 U	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	1 U	1 U	–	–	–	5 U	3 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U	–	–	–	5 U	3 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.2 J	0.2 J	–	–	–	0.6 J	0.78 J	7.6	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	1 U	1 U	–	–	–	5 U	3 U	0.29 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 UJ	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)																		
Bis(2-chloroethyl)Ether	16	19	13	18	41 D	35	51 D	11	0.093	0.017 U	0.02 UJ	0.018 U	5 U	5 U	5 U	5 U	5 U	5 UL
Bis(2-ethylhexyl)phthalate	5 U	–	–	–	–	–	–	5.1 U	5 U	5 U	5 UJ	6.8	5 U	3.9 L	5 U	5 U	5 UL	5 UL
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	5.1 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
2,4-Dimethylphenol	–	–	–	–	–	–	–	5 1 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylnaphthalene	–	–	–	–	–	–	–	5.1 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylphenol	–	–	–	–	–	–	–	5 1 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
4-Methylphenol	–	–	–	–	–	–	–	5.1 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Acetophenone	–	–	–	–	–	–	–	5.1 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Caprolactam	–	–	–	–	–	–	–	5 1 UJ	5 UL	5 U	5 UJ	5 UJ	5 U	5 UL	5 UL	5 U	5 UL	5 UL
Diethylphthalate	–	–	–	–	–	–	–	5 1 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	5.1 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Naphthalene	–	–	–	–	–	–	–	5.1 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Pheno	–	–	–	–	–	–	–	5 1 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
Inorganics (µg/l)																		
Dissolved Manganese (mg/l)	–	–	–	–	–	–	6 53	4 7	2.04	0.0011J	1.56 J	0.899	1.71	2.65	1.82	0 570	0.451	0.658
Dissolved Iron (mg/l)	2.24	2.42	–	–	–	5.87	10 4	8 36	3.16	0.045 J	0 0375 J	0 0122 U	0.0153 U	0.0380 U	0.0124 U	0.0701 U	0.0091 U	0 010 U
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	1 0	7 5	< 1	1.2	< 2	6	< 2	–	–
Field Parameters																		
Temperature (Degrees Celcius)	153 2	14.6	14.94	15.35	14.1	14.48	16.87	14.42	13.96	14.31	16.38	14.5	14 2	14 6	15 6	15.2	14 6	16.2
Conductivity (µs/cm)	346.1	314.1	334.1	346.9	485	396.3	639 7	392	77	57	56	88	113	178	177	138	84	105
pH (standard units)	6.42	6.04	6.9	5.96	6.25	5.58	5.34	6 17	5.93	5.55	5 29	5 44	5 47	5.69	5.36	5.38	5.31	5.27
Dissolved Oxygen (mg/l)	0.23	0 22	0.01	0	0.11	0	0.00	0.06	1.89	3.71	8 59	4.96	4.70	3.62	3.47	4.45	0 81	4.70
ORP (mV)	235.7	304.2	200	56.3	40.4	31.7	30 3	29 4	102.6	154.9	184	224	166	165	127	161	43	178
Water-Level Elevation (ft. MSL)	-25.29	-24.29	-30.19	-28 47	-30.07	-25 54	-27.88	-18.84	-13.75	-1.31	-10 36	-15.53	-2.33	-6.88	-11.38	-11.86	-8.12	-10.13

-- Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	P-5U															
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06
Inorganics (µg/l)																
Nitrate Nitrogen (mg/l)	–	–	–	–	–	0.050 U	0.05 U	–	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	10500	13900	9140
Cobalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	4760	6740	4660
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/l as CaCO3)	–	–	–	–	–	–	–	–	–	–	–	–	–	30.0	34.0	23.0
Dissolved Gases																
Oxygen (mg/l)	–	–	–	–	–	0.91	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	210 JB	130	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	13 B	10 B	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	0 7 JB	5 B	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	120	240 L	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides (µg/l)																
4,4'-DDD	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–
4,4'-DDE	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–
4,4'-DDT	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.0022 J	0.020 U	–	–	–
Aldrin	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–
alpha-BHC	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–
Alpha-Chlorodane	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0 01 U	0.010 U	–	–	–
beta-BHC	–	–	–	–	–	–	–	0.022 JN	0.01 U	0.01 U	0.01 UJ	0.014	0.010 U	–	–	–
delta-BHC	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–
Dieldrin	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–
Endosulfan I	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.0033 J	–	–	–
Endosulfan I	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–
Endosulfan sulfate	–	–	–	–	–	–	–	0.02 UL	0.02 U	0.02 U	0.02 UJ	0 02 U	0.020 U	–	–	–
Endrin	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–
Endrin Aldehyde	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–
Endrin Ketone	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–
gamma-BHC (Lindane)	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.0019 J	0.010 U	–	–	–
gamma-Chlorodane	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–
Heptachlor	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–
Heptachlor Epoxide	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0 010 U	–	–	–
Methoxychlor	–	–	–	–	–	–	–	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.10 U	–	–	–
Toxaphene	–	–	–	–	–	–	–	–	–	–	1 UJ	1 U	1.0 U	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008

U - Analyte was not detected above the reporting limit

J - Estimated concentration.

K - Analyte present, reported value may be biased high.

L - Analyte present, reported value may be biased low.

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.

NP - Well not pumping

P - Discrepency in GC analysis. Lower value reported

B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	P-5L																			
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	10/08
Non-Halogenated VOCs (µg/l)																				
Benzene	0.2 J	0.8 J	–	–	–	1 J	0.78 B	1.3	5 U	5 U	5 U	5 U	10 U	0.35 J	0.24 J	0.16 J	0.19 J	0.25 J	0.31 J	1 U
Toluene	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	1.1 J	0.20 J	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	1 U	1 U	–	–	–	5 U	0.18 JB	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	5 U	10 U	10 R	10 R	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UL
Acetone	–	–	–	–	–	–	–	5 U	20 R	20 R	20 R	20 R	10 U	5 U	5 U	5 U	5 U	5 U	2.7 J	6.2 UJ
Carbon Disulfide	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Isopropylbenzene	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	0.48 J	–	–	–	–	10 U	0.40 J	0.29 J	1 U	1 U	0.17 J	0.36 J	1 U
Methylcyclohexane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																				
Bromoform	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 UJ	1 U	1 U
Bromodichloromethane	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 UJ	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	0.8 J	4	–	–	–	5	4.9	4.1	3 J	4 J	5 U	3 J	6.8 J	6.1	4.8	3.4	3.8	4.2	3.9	1 U
Chloroform	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	–	–	–	0.4 J	0.27 J	0.5 U	5 U	5 U	5 U	5 U	10 U	0.21 J	0.29 J	0.20 J	0.15 J	0.22 J	1 U	1 U
1,3-Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	1 U	0.2 J	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U	–	–	–	5 U	0.1 J	0.17 J	5 U	5 U	5 U	5 U	10 U	1 U	0.35 J	1 U	1 U	0.19 J	0.26 J	1 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	2 U	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	1 U	0.2 J	–	–	–	5 U	0.5 U	0.21 J	–	–	–	–	10 U	0.32 J	0.40 J	1 U	0.27 J	0.27 J	0.35 J	1 U
1,3-Dichlorobenzene	1 U	1 U	–	–	–	5 U	0.12 J	0.5 U	–	–	–	–	10 U	0.13 J	1 U	0.10 J	1 U	0.11 J	0.17 J	1 U
1,4-Dichlorobenzene	0.6 J	0.6 J	–	–	–	5 U	0.5 U	0.44 J	–	–	–	–	10 U	0.50 J	0.66 J	0.51 J	0.56 J	0.62 J	0.66 J	1 U
Chloroethane	1 U	1 U	–	–	–	5 U	0.5 U	0.5 UJ	5 U	5 U	5 U	5 U	10 U	1 U	1 U	0.29 J	1 U	1 U	1 U	1 U
Chloromethane	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	0.18 J	1 U	1 UJ	1 U
Tetrachloroethene	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	0.29 J	0.27 J	1 U
1,1,1-Trichloroethane	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 UJ	1 U	1 UJ	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	0.5 UJ	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)																				
Bis(2-chloroethyl)Ether	11	4.5	6.3	3.2 J	9	6	8 D	9.8	5.1	5.6	0.57 UJ	10	10	11	6.6	3.3 J	3.8 J	5.7 L	3.7 J	5 U
Bis(2-ethylhexyl)phthalate	5 U	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	4.4 J	5 UL	5.8 L	5 UL	5 U	5 UL	5 UL	5 U	5 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
2-Methylnaphthalene	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
2-Methylphenol	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
4-Methylphenol	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
Acetophenone	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
Caprolactam	–	–	–	–	–	–	–	5 UJ	5 UL	5 U	5 UJ	5 UJ	5 UL	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 UJ
Diethylphthalate	–	–	–	–	–	–	–	5 U	5 UL	5 U	5 UJ	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
Naphthalene	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
Pheno	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 U
Inorganics (µg/l)																				
Dissolved Manganese (mg/l)	–	–	–	–	–	–	0.979	0.766	0.965	1.43 J	0.829 J	0.575	1.33	1.15	1.13	1.02	0.977	0.937	0.78	0.00028 U
Dissolved Iron (mg/l)	0.236	1.27	–	–	–	4.30	5.07	3.63	2.58	5.55 J	2.04 J	0.789	4.55	3.11	2.04	1.07	2.12	2.22	1.57	0.0177 U
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	0.2	1.8	2.2	1.9	< 2	5	2	–	–	–	–
Field Parameters																				
Temperature (Degrees Celcius)	13.7	15.1	16	15.7	13.4	15.9	15.86	15.44	13.59	14.43	16.18	14.45	14.2	14.5	17.6	15.2	14.0	16.8	15.9	14.8
Conductivity (µs/cm)	279.6	244.2	239.2	222.2	230	201.3	224.7	191	132	162	176	192	294	340	290	279	178	178	367	181
pH (standard units)	7.21	6.19	4.87	6.18	6.41	5.62	6.18	6.13	6.16	6.26	5.96	6.35	6.03	6.19	6.01	6.11	5.95	5.96	5.91	6.56
Dissolved Oxygen (mg/l)	0.59	0.32	0.05	0.45	0.04	0.45	0.23	0.33	0.14	0.05	3.62	1.07	0.00	0.00	0.00	0.02	0.00	0.00	4.41	3.86
ORP (mV)	267.5	177.1	231.3	16.4	62.1	50.9	91.7	59.4	-59.8	-20.8	106	174.8	-25	-75	-50	-3	-33	-145	-80	177
Water-Level Elevation (ft. MSL)	-25.66	-24.66	-31.66	-28.98	-31.78	-27.46	-30.83	-19.48	-16.58	-1.98	-13.20	-18.23	-3.04	-8.61	-14.03	-13.45	-11.06	-12.76	-18.17	-14.98

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
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D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	P-5L															
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06
Inorganics (µg/l)																
Nitrate Nitrogen (mg/l)	–	–	–	–	–	0.050 U	0.05 U	–	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	13700	14400	13500
Cobalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	4450	4700	4430
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/l as CaCO3)	–	–	–	–	–	–	–	–	–	–	–	–	–	80.0	72.0	71.0
Dissolved Gases																
Oxygen (mg/l)	–	–	–	–	–	2.24	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	18 B	0.4 B	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	2	0.05 B	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	0.2 JB	0.06 B	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	39	62 L	–	–	–	–	–	–	–	–	–
Pesticides/Herbicides (µg/l)																
4,4'-DDD	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–
4,4'-DDE	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 U	0.0043 J	0.020 U	–	–	–
4,4'-DDT	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Aldrin	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
alpha-BHC	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Alpha-Chlorodane	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
beta-BHC	–	–	–	–	–	–	–	0.024	0.01 U	0.01 U	0.013	0.01 U	0.020 JN	–	–	–
delta-BHC	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Dieldrin	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endosulfan I	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 U	0.0023 J	0.0019 J	–	–	–
Endosulfan II	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endosulfan sulfate	–	–	–	–	–	–	–	0.02 UL	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin Aldehyde	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
Endrin Ketone	–	–	–	–	–	–	–	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–
gamma-BHC (Lindane)	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 U	0.0027 JN	0.010 U	–	–	–
gamma-Chlorodane	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Heptachlor	–	–	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–
Heptachlor Epoxide	–	–	–	–	–	–	–	0.01 U	0.01 U	0.013 JN	0.01 U	0.01 U	0.010 U	–	–	–
Methoxychlor	–	–	–	–	–	–	–	0.1 U	0.1 U	0.1 U	0.1 U	0.0071 J	0.10 U	–	–	–
Toxaphene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	–	–

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U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	P-6																							
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	7/07	10/07	1/08	4/08	7/08	10/08
Non-Halogenated VOCs **(µg/l)**																								
Benzene	76 J	55 J	–	–	–	32	12 B	24	91	150	170	290	340 D	380	450	600	520	700	570	710	420	730	590	330
Toluene	0.9 J	0.6 J	–	–	–	5 U	1.2 B	0.5 U	3 J	11	17	20	20	22	47	240	270	410	390	260	220	460	570	24
Ethylbenzene	19	11	–	–	–	5 U	5.9 B	0.34 J	55	74	140	270	300 D	340	390	520	570	590	430	510	320	720	520	290
Xylene (total)	6	4	–	–	–	5 U	10 B	0.35 J	110	160	250	530	510	690	770	980	1100	1200	860	1000	650	1400	1100	590
2-Butanone	–	–	–	–	–	–	–	5 U	10 U	10 R	10 R	10 U	10 U	100 U	100 U	100 U	100 U	100 U	75 U	200 U	100 U	100 U	250 U	100 U
Acetone	–	–	–	–	–	–	–	5 UJR	20 U	20 R	20 R	20 R	8.5 J	100 U	100 U	100 U	100 U	100 U	75 U	200 U	100 U	100 U	250 U	100 U
Carbon Disulfide	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 UJ	40 U	20 U	20 U	50 U	20 U
Cyclohexane	–	–	–	–	–	–	–	0.36 J	–	–	–	–	3.5 J	20 U	20 U	20 U	20 U	9.5 J	8.8 J	9.1 J	8.6 J	13 J	9.1 J	6.8 J
Isopropylbenzene	–	–	–	–	–	–	–	1.3	–	–	–	–	7.5 J	7.0 J	9.5 J	11 J	13 J	9.6 J	8.9 J	40 U	8.5 J	15 J	50 U	9.2 J
Methy-tert-butyl ether	–	–	–	–	–	–	–	0.5	–	–	–	–	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Methylcyclohexane	–	–	–	–	–	–	–	0.5 U	–	–	–	–	2.5 J	4.5 J	5.5 J	6.9 J	9.2 J	8.8 J	6.7 J	40 U	7.2 J	12 J	9.4 J	7.4 J
4-Methy-2-pentanone	–	–	–	–	–	–	–	5 U	10 UJ	10 U	10 U	10 U	2.0 J	100 U	100 U	100 U	100 U	100 U	75 U	200 U	100 U	100 U	250 U	100 U
Halogenated VOCs **(µg/l)**																								
Bromoform	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 UJ	20 U	20 U	15 U	40 U	20 UJ	20 U	50 U	20 U
Bromodichloromethane	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Carbon Tetrachloride	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 UJ	20 UJ	50 U	20 U
Chlorobenzene	1	1	–	–	–	5 U	0.5 U	0.74	1 J	2 J	2 J	4 J	3.7 J	4.8 J	6.6 J	6.3 J	6.4 J	7.4 J	5.7 J	40 U	20 U	8.5 J	50 U	4.5 J
Chloroform	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Dibromochloromethane	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
1,2-Dichloroethane	1 U	1 U	–	–	–	5 U	0.5 U	0.22 J	5 U	5 U	5 U	5 U	7.3 J	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
1,3 Chlorobenzene	–	1 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	1	1	–	–	–	0.8 J	0.5 U	0.77	5 U	5 U	1 J	2 J	2.1 J	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
cis-1,2-Dichloroethene	2	2	–	–	–	0.7 J	0.15 J	0.59	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
1,1-Dichloroethene	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
1,2-Dichloroethene (total)	2 J	2 J	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	0.4 JB	0.4 J	–	–	–	5 U	0.073 J	0.29 J	–	–	–	–	1.3 J	20 U	20 U	20 U	20 U	2.2 J	2.1 J	40 U	1.7 J	3.2 J	50 U	20 U
1,3-Dichlorobenzene	1 U	1 U	–	–	–	5 U	0.051 J	0.5 U	–	–	–	–	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
1,4-Dichlorobenzene	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	–	–	–	–	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Chloroethane	1 U	0.2 J	–	–	–	5 U	0.5 U	0.32 J	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Tetrachloroethene	1 U	1 U	–	–	–	5 U	0.007 J	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
1,1,1-Trichloroethane	1 U	1 U	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Trichloroethene	0.2 J	1 U	–	–	–	5 U	0.043 J	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Vinyl Chloride	1	0.9 J	–	–	–	5 U	0.5 U	0.14 J	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Methylene Chloride	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	20 UJ	20 UJ	20 U	20 U	20 U	15 UJ	40 UJ	8.6 J	20 U	50 U	20 U
Trichlorofluoromethane	–	–	–	–	–	–	–	0.16 J	–	–	–	–	10 UJ	20 U	20 U	20 U	20 U	20 U	15 U	40 U	20 U	20 U	50 U	20 U
Semi-Volatiles **(µg/l)**																								
Bis(2-chloroethyl)Ether	5 U	45	97	59	45	22	82 D	18	47	56	41	130 D	150 D	140 D	250 D	220 D	260 D	320	320 D	340 D	170	210	290 D	210 D
Bis(2-ethylhexyl)phthalate	5 U	–	–	–	–	–	–	5 U	5 U	5 U	19	5.7	6.2 U	30 L	19 L	5.7 J	7.3 J	36 U	5 U	5 U	14 U	5.0 U	5.0 U	5.1 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	36 U	5 U	5 U	14 U	5.0 U	5.0 U	5.1 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	5 U	5 U	1 J	5 U	6.2	5 U	4.5 J	6.3	6.6	12	13 J	14	15	17	7.6	10	9.2
2-Methylnaphthalene	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U	5 U	14 U	5.0 U	5.0 U	5.1 U
2-Methylphenol	–	–	–	–	–	–	–	5 U	5 U	17	13	31	5 U	11	27	73	110 D	92	64	32	33	5.0 U	28	5.1 U
4-Methylphenol	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U	5 U	14 U	5.0 U	5.0 U	5.1 U
Acetophenone	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5	5 U	3.9 J	5.2	7.2	5 U	36 U	5 U	5 U	5.8 J	5.0 U	5.0 U	5.1 U
Caprolactam	–	–	–	–	–	–	–	5 UJ	5.6	7.2	5.4 L	30 J	33	25 L	31 L	46	64 D	75	73 J	65	110 J	44 J	150 D	210 DJ
Diethylphthalate	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UL	5 U	5 U	5 UL	5 UL	5 U	5 U	36 U	5 U	5 U	14 U	5.0 U	5.0 U	5.1 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U	5 U	14 U	5.0 U	5.0 U	5.1 U
Naphthalene	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	2.2 J	2.0 J	5 U	2.0 J	5 U	3.0 K	36 U	5 U	4.0 J	4.1 J	3.1 J	5.3	5.1 U
Phenol	–	–	–	–	–	–	–	5 U	5 U	1.8 J	5 U	5 U	5 UL	5 U	7.0	5 U	5 U	36 U	4.6 J	5 U	14 U	2.2 J	5.0 U	5.1 U
Inorganics **(µg/l)**																								
Dissolved Manganese (mg/l)	–	–	–	–	–	–	0.656	0.943	0.367	0.394	0.294	0.264	0.244	0.253	0.277	0.307	0.312	0.301	0.313	0.269	0.237	0.297	0.263	0.189
Dissolved Iron (mg/l)	11	14.8	–	–	–	13.6	9.89	14.5	11.6	12.4	10.7	12.5	12.9	12.4	12.5	15.8	16.1	14.1	15.1	14.9	12.4	15.5	13.7	10.6
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	11.1	12.4	18.7	14.4	20	< 2	31	–	–	–	–	37	–	–	–
Field Parameters																								
Temperature (Degrees Celcius)	15.57	15.28	15.44	15.94	14.47	14.92	–	14.67	14.58	14.03	15.21	15.5	15.6	17.0	17.2	18.4	14.2	14.6	15.1	15.4	14.7	15.0	14.8	14.5
Conductivity (µs/cm)	235	238.4	253.1	218.1	256	206.1	–	263	251	269	517	393	421	611	591	674	248	468	467	997	405	459	318	356
pH (standard units)	6.67	5.97	6.74	6.18	6.88	6.28	–	6.97	6.85	7.09	6.97	6.86	7.12	6.82	7.06	6.86	7.46	6.64	6.71	6.96	6.79	6.97	6.35	8.17
Dissolved Oxygen (mg/l)	0.88	0.19	0.19	0.81	0.22	0.06	–	0.13	0.18	0.27	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00
ORP (mV)	26.6	240.2	258.9	7.5	81.6	-70.9	–	-118.6	-110.4	-175.9	-108.1	-231	-220	-224	-187	-221	-176	-214	-220	-249	-227	-215	-180	-170
Water-Level Elevation (ft, MSL)	-23.61	-22.61	-25.73	-26.29	-27.16	-23.49	-25.58	-15.95	-10.73	-0.53	-6.59	-11.02	-1.39	-4.37	-7.54	-8.74	-6.01	-6.25	-9.71	-11.30	-7.59	-7.50	-10.63	-9.76

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U - Analyte was not detected above the reporting limit
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Parameter	P-6																
	2/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/08
***Inorganics* (µg/l)**																	
Nitrate Nitrogen (mg/l)	–	–	–	–	–	0.080	0.2	–	–	–	–	–	–	–	–	–	0.05 U
Aluminum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arsenic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Barium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	25300	24800	29900	–
Cobalt	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	12800	12700	15200	–
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nickel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Potassium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Selenium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sodium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Alkalinity, Total (mg/l as CaCO3)	–	–	–	–	–	–	–	–	–	–	–	–	–	73	72	156	–
Dissolved Gases																	
Oxygen (mg/l)	–	–	–	–	–	0.8	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	230 JB	0.4 B	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	8 B	2 U	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	0 04 JB	0.05 J	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	26	59 L	–	–	–	–	–	–	–	–	–	–
***Pesticides/Herbicides* (µg/l)**																	
4,4'-DDD	–	–	–	–	–	–	–	0.02 U	0.018U	0.02 U	0.02 U	0.0033 JN	0.0081 J	–	–	–	–
4,4'-DDE	–	–	–	–	–	–	–	0.02 U	0.0021J	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–
4,4'-DDT	–	–	–	–	–	–	–	0.02 U	0.018U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–
Aldrin	–	–	–	–	–	–	–	0.01 U	0.0091U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–
alpha-BHC	–	–	–	–	–	–	–	0.01 U	0.0037J	0.0086 J	0.01	0.028	0.010 U	–	–	–	–
Alpha-Chlorodane	–	–	–	–	–	–	–	0 01 U	0.0091U	0.01 U	0.01 U	0.0007 J	0.010 U	–	–	–	–
beta-BHC	–	–	–	–	–	–	–	0.01 U	0.0091U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–
delta-BHC	–	–	–	–	–	–	–	0.01 U	0.0091U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–
Dieldrin	–	–	–	–	–	–	–	0.02 U	0.018 U	0.02 U	0.02 U	0.02 U	0.0078 J	–	–	–	–
Endosulfan I	–	–	–	–	–	–	–	0.01 U	0.0091U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–
Endosulfan II	–	–	–	–	–	–	–	0.02 U	0.018 U	0.02 U	0.02 U	0.0035 J	0.082	–	–	–	–
Endosulfan sulfate	–	–	–	–	–	–	–	0.02 U	0.018 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–
Endrin	–	–	–	–	–	–	–	0.02 U	0.018 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–
Endrin Aldehyde	–	–	–	–	–	–	–	0.02 U	0.018 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–
Endrin Ketone	–	–	–	–	–	–	–	0.02 U	0.018 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–
gamma-BHC (Lindane)	–	–	–	–	–	–	–	0.01 U	0.0091U	0.01 U	0.01 U	0.0053 J	0.010 U	–	–	–	–
gamma-Chlorodane	–	–	–	–	–	–	–	0.01 U	0.0091U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–
Heptachlor	–	–	–	–	–	–	–	0.01 U	0.0091U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–
Heptachlor Epoxide	–	–	–	–	–	–	–	0.01 U	0.0091U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–
Methoxychlor	–	–	–	–	–	–	–	0.1 U	0.091U	0.1 U	0.1 J	0.012 J	0.10 U	–	–	–	–
Toxaphene	–	–	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-18																								
	1/01	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/07	4/08	10/08
Non-Halogenated VOCs (µg/l)																									
Benzene	–	8	15 D	–	–	–	–	–	–	10	2.4 B	6.1	4 J	16	4 J	0.8 J	10 U	3.8	3.9	5.8	2.9	2.5	1.5 J	1.3 J	0.65 J
Toluene	–	0.5 B	3.1 U	–	–	–	–	–	–	5 U	0.5 U	2.9	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
Ethylbenzene	–	2	0.8 JD	–	–	–	–	–	–	5 U	0.27 JB	0.32 J	2 J	2 J	1 J	2	10 U	0.74 J	8.6	1.4 J	0.34 J	0.71 J	5 U	5 U	2 U
Xylene (total)	–	0.1 J	3.1 U	–	–	–	–	–	–	5 U	1.7 B	0.46 J	5 U	3 J	5 U	5 U	10 U	3 U	6 U	6 U	3 U	6 U	15 U	15 U	6 U
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	19	10 U	10 R	10 R	10 U	10 U	5 U	10 U	10 U	5 U	10 U	25 UJ	25 U	10 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	6.4 U	20 U	20 R	20 R	20 R	10 U	5 U	9.9 U	10 U	5 UJ	10 UJ	25 UJ	25 U	10 U
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 UJ	5 U	5 U	0.41 J
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	0.62 L	–	–	–	–	10 U	1 U	2 U	2 U	1 U	2 U	5 UJ	5 U	2 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	4.2	–	–	–	–	1.2 J	1.4	3.4	2.1	1.6	1.0 J	5 U	5 U	2 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	0.93	–	–	–	–	10 U	0.88 J	1.0 J	2 U	0.45 J	0.44 J	1.3 J	2.2 J	2.5
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	0.27 L	–	–	–	–	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 UJ	10 U	10 U	5 U	10 U	10 U	5 U	10 U	25 U	25 U	10 U
Halogenated VOCs (µg/l)																									
Bromoform	–	1 U	3.1 U	–	–	–	–	–	–	5 UJ	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 UJ	1 U	2 U	5 U	5 U	2 U
Bromodichloromethane	–	1 U	3.1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
Carbon Tetrachloride	–	1 U	3.1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 UJ	2 U
Chlorobenzene	–	50	33	–	–	–	–	–	–	28	19 B	37	34	48	22	14	10	31	53	57	89 D	120 D	64	50	25
Chloroform	–	1 U	3.1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
Dibromochloromethane	–	1 U	3.1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 UJ	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
1,2-Dichloroethane	–	49	69	–	–	–	–	–	–	20	52 D	10	8	4 J	5 U	9	1.2 J	1 B	5.1 J	3 B	2.8	3.2	2.3 J	1.4 J	2 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	3	3 JD	–	–	–	–	–	–	1 J	2.4	2.7	4 J	4 J	1 J	5 U	10 U	0.79 J	2.2	1.9 J	1.7	1.6 J	5 U	5 U	2 U
cis-1,2-Dichloroethene	–	5	7 J	–	–	–	–	–	–	2 J	7.6	2.3 L	3 J	2 J	5 U	1 J	10 U	0.57 J	0.97 J	0.96 J	0.97 J	0.94 J	5 U	5 U	2 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	0.33 L	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
1,1-Dichloroethene	–	0.2 J	0.4 JD	–	–	–	–	–	–	5 U	0.25 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
1,2-Dichloroethene (total)	–	5.3 J	7 D	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	3	2 JD	–	–	–	–	–	–	0.9 J	1.7	1.4	–	–	–	–	10 U	1.9	3.2	1.7 J	1.6	1.5 J	1.2 J	0.97 J	0.58 J
1,3-Dichlorobenzene	–	2	0.9 B	–	–	–	–	–	–	0.6 J	0.48 J	0.96	–	–	–	–	10 U	0.81 J	1.3 J	1.2 J	1.8	2.0	1.4 J	1.4 J	0.59 J
1,4-Dichlorobenzene	–	7	5 D	–	–	–	–	–	–	2 J	3 R	2.8	–	–	–	–	10 U	3.0	5.3	4.4	6.7	6.9	4.6 J	3.8 J	1.8 J
Chloroethane	–	2	2 JD	–	–	–	–	–	–	5 U	2.3	1.7	3 J	2 J	5 U	5 U	10 UJ	1 U	2 U	2 U	0.68 J	2 U	5 U	5 U	2 U
Chloromethane	–	1 U	3.1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	0.18 J	2 U	5 UJ	5 U	2 U
Tetrachloroethene	–	1 U	3.1 U	–	–	–	–	–	–	5 U	0.12 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
1,1,1-Trichloroethane	–	1 U	3.1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
Trichloroethene	–	2	2 JD	–	–	–	–	–	–	5 U	1	0.5 U	5 U	5 U	5 U	5 U	10 U	0.25 J	0.50 J	2 U	0.41 J	2 U	5 U	5 U	2 U
Vinyl Chloride	–	1	1 L	–	–	–	–	–	–	5 U	1.1	0.46 J	5 U	5 U	5 U	5 U	10 U	0.17 J	2 U	0.47 J	0.51 J	0.51 J	5 U	5 U	2 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	0.19 J	–	–	–	–	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	2 U	2 U	1 U	2 U	5 U	5 U	2 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	0.54 U	5 U	5 U	5 U	5 U	10 U	1 UJ	2 UJ	2 U	1 UJ	2 U	5 UJ	5 U	2 U
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 UJ	1 U	2 U	2 U	0.22 J	2 U	5 U	5 U	2 U
Semi-Volatiles (µg/l)																									
Bis(2-chloroethyl)Ether	39 D	72	46	30 D	39	70	70	60	97 D	100 D	180 D	120	90 D	120 D	41 J	15	17	19	46	33	39	34	23	13	24
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	27 J	6.7	5 U	6.5 L	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	10 UJ	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	10 UJ	5 U	5 U	5 UJ	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	2.1 J	5 UL	5.4 UJ
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5.4 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	10 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.4 U
Inorganics (µg/l)																									
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	11.7	4.4	11.3	0.211	9.74 J	8.73	7.54	8.45	10.0	13.0	12.1	8.43	4.53	3.94	2.65
Dissolved Iron (mg/l)	–	194	156	–	–	–	–	–	–	2.20	4.18	5.53	8.36	0.0273 U	4.57 J	9.31	13.4	11.6	13.6	30.2	46.7	45.8	36.9	40.0	34.9
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	2.1	< 1	1.1	3.9	< 2	4	6	–	–	–	–	–
Field Parameters																									
Temperature (Degrees Celcius)	12.49	13.43	15.97	–	12.2	13.51	14.35	14.52	12.87	13.76	14.28	13.82	11.30	13.28	14.50	14.0	13.1	14.5	14.5	14.2	13.5	14.5	15.0	14.1	13.4
Conductivity (µs/cm)	0.562	535.1	310	–	490.9	358.1	344.3	389	468	299.4	476	411	350	435	497	440	810	418	906	417	403	261	425	660	513
pH (standard units)	7.42	6.93	6.18	–	6.24	6.32	7.35	6.3	6.3	5.67	6.42	6.26	6.69	6.21	6.00	6.28	6.37	6.28	6.04	6.06	6.41	6.93	6.71	6.46	7.33
Dissolved Oxygen (mg/l)	4.39	0	0.24	–	0	0.07	0	0	5.3	0.12	0.00	1.08	–	0.44	7.79	0.00	1.57	0.00	0.00	0.00	0.25	0.00	0.00	0.22	0.17
ORP (mV)	21.8	377.1	134.2	–	318	280.1	196.2	19.9	60.7	49.5	9.4	8.1	46.8	-19.2	37.3	-74	-77	-82	-62	-89	-71	-109	-86	-127	-100
Water-Level Elevation (ft, MSL)	-23.00	-19.63	-22.96	-28.91	-26.55	–	-28.98	-26.7	-29.05	-24.42	-27.88	-18.82	-21.30	-0.88	-10.43	-15.48	-1.48	-6.22	-11.06	-10.96	-8.47	-10.32	-15.23	-10.50	-12.46

– Not analyzed or data not available to RAI as of February 7, 2008
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J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

R - Data Rejected
D - Sample diluted in the lab for analysis.
NP - Well not pumping
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Table 4 (continued)

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Parameter	MW-18																					
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***Inorganics* (µg/l)**																						
Nitrate Nitrogen (mg/l)	–	–	–	–	–	–	–	–	–	0.050 U	0.05 U	–	–	–	–	–	–	–	–	–	–	–
Aluminum	–	–	–	–	–	–	–	–	–	–	–	200 U	31 U	11.9 U	20.4 UJ	8.4 U	19 U	34.9 U	32.1 J	20.0 U	30.3 U	11.1 U
Arsenic	–	–	–	–	–	–	–	–	–	–	–	1.8 U	5 U	3 U	3.7 UJ	3.1	6.0	2.1	5.2	3.7	6.4	3.7
Barium	–	–	–	–	–	–	–	–	–	–	–	1380	1390	58.1	895 J	696	627	693	721	738	795	654
Beryllium	–	–	–	–	–	–	–	–	–	–	–	0.1 U	0.35 U	0.1 U	0.73 UJ	0.1 U	0.21 U	0.56 U	0.64 U	0.39 U	0.30 U	0.20 U
Calcium	–	–	–	–	–	–	–	–	–	–	–	27100	33000	14400	26500 J	25000	21700	22100	24200	25200	27800	27500
Calcium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	19200	24600	23800	–	–
Chromium	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3 U	1.4 UJ	0.6 U	0.40 U	0.60 U	0.50 U	0.5	0.85	0.63 U
Cobalt	–	–	–	–	–	–	–	–	–	–	–	13.3	19.4	4.9 U	12.3 J	18	21.9	20.1	26.1	50.9	75.1	66.0
Copper	–	–	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U	0.9 U	0.8 UJ	0.6 U	0.30 U	0.40 U	1.5 U	1.1 U	1.0 U	0.60 U
Lead	–	–	–	–	–	–	–	–	–	–	–	0.9 U	1.7 U	1.2 U	1.6 UJ	1.1 U	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	2.6 U
Magnesium	–	–	–	–	–	–	–	–	–	–	–	12400	14500	3700	13300 J	11700	9920	10100	11400	12000	14700	15800
Magnesium, Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8450	11200	11000	–	–
Mercury	–	–	–	–	–	–	–	–	–	–	–	0.2 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel	–	–	–	–	–	–	–	–	–	–	–	3.1	8.2	2.9 U	11.4 J	9.2	6.9	7.8	7.9	8.7	9.8 U	8.6
Potassium	–	–	–	–	–	–	–	–	–	–	–	3110	3610	2310 J	5950 J	4540	3400	4720	4310	5070	6110	6600
Selenium	–	–	–	–	–	–	–	–	–	–	–	2.7	3.9 U	1.7 U	4.5 UJ	4.3 U	3.7	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	–	–	–	–	–	–	–	–	–	–	–	0.95	0.7 U	1.4 U	1.3 UJ	0.2 U	0.50 U	0.50 U	0.95	0.50 U	1.2 U	1.2 U
Sodium	–	–	–	–	–	–	–	–	–	–	–	31300	39900	8830	38800 J	29900	22600	39000	69400	70000	76600	67800
Thallium	–	–	–	–	–	–	–	–	–	–	–	1.9 U	6.2 U	2.9 U	4 U	7.3	4.3	2.9 U	3.6 U	3.2 U	10.5 U	6.1 U
Vanadium	–	–	–	–	–	–	–	–	–	–	–	0.4 U	0.4 U	1 U	0.8 U	0.5 U	0.30 U	0.40 U	0.30 U	0.40 U	0.40 U	0.50 U
Zinc	–	–	–	–	–	–	–	–	–	–	–	4.1	3.6 U	4.2 U	1.3 UJ	2.8	0.44 U	0.80 U	6.2 U	4.4 U	5.9 U	4.9 U
Alkalinity, Total (mg/l as CaCO3)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	109	164	261	–	–
Dissolved Gases																						
Oxygen (mg/l)	–	–	–	–	–	–	–	–	–	0.5	2.37	–	–	–	–	–	–	–	–	–	–	–
Methane (mg/l)	–	–	–	–	–	–	–	–	–	–	35 DL	–	–	–	–	–	–	–	–	–	–	–
Ethane (µg/l)	–	–	–	–	–	–	–	–	–	–	15	–	–	–	–	–	–	–	–	–	–	–
Ethene (µg/l)	–	–	–	–	–	–	–	–	–	–	0.2 J	–	–	–	–	–	–	–	–	–	–	–
Carbon Dioxide (mg/l)	–	–	–	–	–	–	–	–	–	–	140 L	–	–	–	–	–	–	–	–	–	–	–
***Pesticides/Herbicides* (µg/l)**																						
4,4'-DDD	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.02 U	0.02 U	0.003 J	0.02 U	0.02 U	–	–	–	–	–
4,4'-DDE	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.02 U	0.015 J	0.02 UJ	0.02 U	0.02 U	–	–	–	–	–
4,4'-DDT	–	–	–	–	–	–	–	–	–	–	–	0.0041J	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 U	–	–	–	–	–
Aldrin	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.02 U	0.01 U	–	–	–	–	–
alpha-BHC	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 U	–	–	–	–	–
Alpha-Chlorodane	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 U	–	–	–	–	–
beta-BHC	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.068 J	0.01 U	0.007 J	0.01 U	0.022 J	–	–	–	–	–
delta-BHC	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 U	–	–	–	–	–
Dieldrin	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.0061 J	0.02 U	0.02 UJ	0.02 U	0.02 U	–	–	–	–	–
Endosulfan I	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 U	–	–	–	–	–
Endosulfan II	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 U	–	–	–	–	–
Endosulfan sulfate	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 U	–	–	–	–	–
Endrin	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.0054 J	0.02 U	0.02 UJ	0.02 U	0.02 U	–	–	–	–	–
Endrin Aldehyde	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 U	–	–	–	–	–
Endrin Ketone	–	–	–	–	–	–	–	–	–	–	–	0.018U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 U	–	–	–	–	–
gamma-BHC (Lindane)	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.0022 J	0.01 U	–	–	–	–	–
gamma-Chlorodane	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 U	–	–	–	–	–
Heptachlor	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 U	–	–	–	–	–
Heptachlor Epoxide	–	–	–	–	–	–	–	–	–	–	–	0.0091U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 U	–	–	–	–	–
Methoxychlor	–	–	–	–	–	–	–	–	–	–	–	0.0098J	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	–	–	–	–	–
Toxaphene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 UJ	1 U	1 U	–	–	–	–	–

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.

R - Data Rejected
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-22N																													
	7/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	7/07	10/07	1/08	4/08	7/08	10/08
Non-Halogenated VOCs (µg/l)																														
Benzene	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.41 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	–	–	0.1 B	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	0.23 J	1 U	1 U	1 U	0.22 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.24 JB	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	1.9 J	10 R	10 R	10 R	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	20 R	20 R	20 R	20 R	10 U	5 UJ	7.8 U	5 U	5 U	5 U	2.8 J	3.1 J	5 U	5 U	8.9 U	5 U
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	–	0.56	–	–	–	–	10 U	1 U	1 U	1 U	1 U	0.31 J	0.28 J	0.37 J	0.24 J	0.63 J	0.75 J	0.36 J
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																														
Bromoform	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.14 J	5 U	5 U	5 U	5 U	10 UJ	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 U	1 U	1 U
BromodichloromethaneC	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U
Chlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	1.4	0.9 J	5 U	5 U	5 U	10 U	1 U	1 U	0.22 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	–	–	1 U	0.2 J	–	–	–	–	–	–	0.2 J	6.2 J	0.13 J	5 U	5 U	5 U	5 U	10 U	0.11 J	1 U	0.11 J	1 U	1 U	0.11 J	0.18 J	1 U	1 U	1 U	1 U
Dibromochloromethane	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	–	–	0.8 J	3	–	–	–	–	–	–	0.5	0.16 J	19.0	17	5 U	5 U	5 U	10 U	1 U	0.28 J	1 U	2.4	4.4	1.5	3.2	5.9	3.4	1 U	1 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.17 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	0.29 J	0.35 J	0.35 J	1 U	0.27 J
cis-1,2-Dichloroethene	–	–	1 U	1 U	–	–	–	–	–	–	0.09 J	0.04 J	0.36 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.14 J	0.14 J	1 U	1 U
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	0.12 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	–	–	2 U	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.12 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	–	–	1 U	0.2 B	–	–	–	–	–	–	0.5 U	0.5 U	0.66	–	–	–	–	10 U	1 U	1 U	1 U	1 U	0.12 J	1 U	0.16 J	0.13 J	0.26 J	0.13 J	1 U
Chloroethane	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.16 K	5 U	5 U	5 U	5 U	10 U	1 R	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.37 J	1 U	1 U
Tetrachloroethene	–	–	1 U	1 U	–	–	–	–	–	–	0.05 J	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.19 J	0.35 J	1 U
1,1,1-Trichloroethane	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	–	–	0.2 J	0.3 J	–	–	–	–	–	–	0.2 J	0.5 U	0.32 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	–	–	1 U	1 U	–	–	–	–	–	–	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	10 U	1 UJ	1 U	0.65 J	1 U	1 UJ	1 U	1 U	0.62 J	0.39 J	1 U	0.24 J
Semi-Volatiles (µg/l)																														
Bis(2-chloroethyl)Ether	0.05 U	0.024 U	0.02 U	0.024 U	0.025 U	0.024 U	0.014 J	0.04 U	0.05 U	0.05 J	0.05 U	0.05 U	0.017 J	0.053 B	0.039	0.02 U	0.018 U	0.018 U	0.018 U	0.019 U	0.019 U	0.020 U	0.018 U	0.020 U	0.020 U	0.020 U	0.019 U	0.019 U	0.020 U
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	17	5 U	23 U	8.0 L	70 J	86 DK	6.2 J	120 JD	27 J	15 J	5 U	5 U	14	5 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Inorganics (µg/l)																														
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	–	0.799	1.53	1.83	0.852	0.975	0.004 B	0.807	0.782	0.641	0.498	0.587	0.550	0.136	0.541	0.107	0.380	0.459	0.348
Dissolved Iron (mg/l)	–	–	0.023 B	0.011 U	–	–	–	–	–	–	0.0142 U	0.0234 U	0.132	0.0112 U	0.0273 U	0.028 U	0.027 U	0.0153 U	0.0101 U	0.0124 U	0.011 U	0.0091 U	0.010 U	0.0153 U	0.009 U	0.0212 U	0.100 U	0.0126 U	0.0217 U
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	<1	<1	<1	<2	3	<2	–	–	–	–	2	–	–	–
Field Parameters																														
Temperature (Degrees Celcius)	13.4	13.35	13.35	13.47	–	13.13	14.14	–	15.28	14.48	14.4	14.69	13.58	13.99	13.37	14.94	13.80	13.8	15.0	17.6	16.6	14.9	20.5	18.2	15.7	14.6	16.8	17.2	15.7
Conductivity (µs/cm)	0.081	0.073	82.11	126	–	148.3	146.1	–	129.4	165	145.7	160.4	226	161	158	120	55	171	229	208	195	194	141	198	181	416	429	313	244
pH (standard units)	5.28	6.21	5.22	5.62	–	6.12	5.33	–	5.55	5.89	5.1	5.16	6.52	5.88	6.15	4.89	5.19	5.40	6.08	6.01	6.02	6.46	6.26	9.47	7.39	9.61	6.43	6.55	6.40
Dissolved Oxygen (mg/l)	–	1.3	0.76	0.56	–	2.4	0.72	0.92	0	0.05	0.2	0.33	0.12	0.04	1.15	1.54	3.12	0.01	0.55	0.57	1.16	0.00	0.04	0.00	0.19	0.92	1.08	0.83	0.32
ORP (mV)	260	223.8	402.9	226.4	–	268.9	307.5	–	283.2	220.5	232.4	8.3	129.8	114.3	146.5	218	279.5	227	225	143	146	147	152	-29	99	21	150	126	120
Water-Level Elevation (ft, MSL)	-27.66	-18.17	-23.44	-27.05	-31.74	-30.03	-28.29	-35.08	-31.93	-32.62	-29.33	-22.39	-22.20	-17.93	-3.71	-14.10	-21.39	-3.93	-10.68	-15.95	-15.60	-11.09	-14.97	-16.99	-18.22	-14.25	-15.35	-19.04	-15.94

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank
R - Data Rejected

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-22N																						
	7/00	12/00	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	1/08
Inorganics (µg/l)																							
Nitrate Nitrogen (mg/l)	--	--	--	--	--	--	--	--	--	--	1.76	2.22	--	--	--	--	--	--	--	--	--	--	1.01
Aluminum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15700	13700	10400	--	--
Cobalt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1980	1700	1600	--	--
Mercury	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, Total (mg/l as CaCO3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	46.0	31.0	32.0	--	--
Dissolved Gases																							
Oxygen (mg/l)	--	--	--	--	--	--	--	--	--	--	1.31	--	--	--	--	--	--	--	--	--	--	--	--
Methane (mg/l)	--	--	--	--	--	--	--	--	--	--	0.4 JB	0.3 B	--	--	--	--	--	--	--	--	--	--	--
Ethane (µg/l)	--	--	--	--	--	--	--	--	--	--	0.04 JB	2 U	--	--	--	--	--	--	--	--	--	--	--
Ethene (µg/l)	--	--	--	--	--	--	--	--	--	--	0.05 JB	2 U	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide (mg/l)	--	--	--	--	--	--	--	--	--	--	55	73 L	--	--	--	--	--	--	--	--	--	--	--
Pesticides/Herbicides (µg/l)																							
4,4'-DDD	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
4,4'-DDE	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.0015 JP	0.020 U	--	0.020 U	--	0.020 U	--
4,4'-DDT	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
Aldrin	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
alpha-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
Alpha-Chlorodane	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
beta-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.015	0.011 J	0.01 U	0.0033 J	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
delta-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.00092 J	0.010 U	--	0.010 U	--	0.010 U	--
Dieldrin	--	--	--	--	--	--	--	--	--	--	--	--	0.022	0.028	0.023	0.005 J	0.0056 J	0.0094 J	--	0.0062 J	--	0.0065 J	--
Endosulfan I	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.0032 J	0.01 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
Endosulfan II	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
Endosulfan sulfate	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
Endrin	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
gamma-BHC (Lindane)	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.0012 J	0.010 U	--	0.010 U	--	0.010 U	--
gamma-Chlorodane	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.0013 J	0.010 U	--	0.010 U	--	0.010 U	--
Heptachlor	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
Heptachlor Epoxide	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
Methoxychlor	--	--	--	--	--	--	--	--	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.10 U	--	0.10 U	--	0.10 U	--
Toxaphene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1.0 U	--	1.0 U	--	1.0 U	--

-- Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-26N																												
	10/00	1/01	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	7/07	10/07	1/08	4/08	7/08	10/08
Non-Halogenated VOCs (µg/l)																													
Benzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.11 J	5 U	5 U	5 U	5 U	10 U	0.18 J	0.64 J	0.38 J	0.38 J	5.8	0.97 J	0.46 J	0.85 J	1.5	0.53 J	0.39 J
Toluene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	1.4 J	0.76 J	0.47 J	1 U	1 U	1 U	0.22 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	–	–	*1 U*	*1 U*	–	–	–	–	–	–	*5 U*	*0.2 JB*	*0.5 U*	*5 U*	*5 U*	*5 U*	*5 U*	*10 U*	*3 U*	*3 U*	*3 U*	*3 U*	*3 U*	*3 U*	*3 U*	*3 U*	*3 U*	*3 U*	*3 U*
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 R	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	20 R	20 U	20 R	20 R	10 U	5 UJ	5.0 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	–	0.34 J	–	–	–	–	10 U	1 U	0.30 J	1 U	1 U	0.14 J	1 U	0.23 J	1 U	1 U	1 U	1 U
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Halogenated VOCs (µg/l)																													
Bromoform	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.11 J	5 U	5 U	5 U	5 U	10 UJ	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
Bromodichloromethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	–	–	1 UJ	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U
Chlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	0.64 J	1.3	0.34 J	1 U	1 U	1 U
Chloroform	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.03 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.055 J	0.15 J	5 U	5 U	5 U	5 U	10 U	1 U	0.48 J	1 U	0.16 J	1 U	2.5	2	1.5	1.0	1 U	0.54 J
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.11 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.32 J	0.28 J	1 U	0.27 J
cis-1,2-Dichloroethene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.11 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	0.45 J	0.61 J	0.31 J	0.43 J	0.39 J	0.24 J	0.30 J
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	–	–	2 U	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.32 J	0.11 J	0.15 J	0.12 J	1 U	1 U
1,3-Dichlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	0.19 J	1 U	1 U	1 U	1 U
Chloroethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	0.15 J	1 UJ	0.15 J	1 U	1 U	1 U
Tetrachloroethene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 R	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.11 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	–	–	1	1	–	–	–	–	–	–	5 U	0.5 U	0.67	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	0.28 J	1 U	1 U	0.76 J	0.69 J	1.7	1.2 U	0.70 J
Vinyl Chloride	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)																													
Bis(2-chloroethyl)Ether	0.32	0.38	0.4	0.21	0.21	0.098	0.12	0.13	0.1	0.07	0.1	0.07	0.11	0.2 B	0.15	0.2	0.78	0.59	2.8 D	3.6 J	1.5 J	2.0 J	19	42	11	20	9.6	9.4	9.5 L
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 UL	5 U	6.9 L	5.0 J	7.7 J	8.4 J	4.2 L	5 U	12	5 U	5 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5 UL	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 UL	5 U	5 UL	5 U	5 U	5 UJ	5 UL	5 UJ	5 U	5 U	14 J
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Inorganics (µg/l)																													
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	–	0.0044 B	0.0029 J	0.0042 B	0.0043	0.0054	0.0054	0.0035	0.0079 U	0.0043	0.003	0.0035 U	0.0035	0.004 U	0.0021	0.0013 J	0.0022	0.0022	0.0016 U
Dissolved Iron (mg/l)	–	–	0.0157 B	0.011 U	–	–	–	–	–	–	0.0192 U	0.0234 U	0.011 U	0.0112 U	0.0273 U	0.028 U	0.0122 U	0.0153 U	0.0101 U	0.0124 U	0.0075 U	0.0101 U	0.010 U	0.0153 U	0.009 U	0.0212 U	0.100 U	0.0126 U	0.0177 U
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	11	< 1	< 1	< 2	8	< 2	–	–	–	–	1	–	–	–
Field Parameters																													
Temperature (Degrees Celcius)	13.69	13.5	13.23	13.43	–	13.38	14.09	14.23	14.88	13.85	14.02	17.74	13.66	13.96	13.59	14.59	15.7	14.1	15.3	17.5	16.0	15.0	14.6	16.4	15.6	15.3	16.9	16.7	15.9
Conductivity (µs/cm)	85.04	0.082	82.81	93.78	–	95.67	96.62	93.68	81.45	103	103.2	115.7	115	78	84	105	130	147	162	188	244	124	121	375	511	451	295	203	211
pH (standard units)	7.18	7.23	5.62	3.85	–	5.65	4.93	5.44	5.24	5.67	4.75	4.97	5.39	5.63	5.57	5.03	5.62	5.24	5.80	5.75	5.92	5.47	5.39	6.05	6.31	6.51	6.35	5.85	6.90
Dissolved Oxygen (mg/l)	0.18	0.17	0.34	–	–	1.6	0.77	0.22	1.66	0.08	0.13	6.70	0.30	2.71	2.40	2.63	0.00	0.44	1.08	1.30	1.03	0.81	0.00	0.00	0.00	1.21	1.94	1.67	1.15
ORP (mV)	188.8	194.1	373.3	374	–	377.2	395.1	309.6	332.4	338.6	231.2	121.2	152.5	196.2	227.4	248.4	198	249	254	178	174	199	163	122	96	130	107	183	100
Water-Level Elevation (ft. MSL)	–	27.96	-21.94	-30.74	-36.42	-31.31	–	-39.04	-28.84	-34.23	-28.56	-35.3	-27.19	-20.74	-4.03	-19.74	-24.97	-4.79	-13.27	-20.72	-17.65	-16.17	-19.06	-23.27	-24.91	-18.21	-18.78	-24.79	-19.81

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

R - Data Rejected
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-26N																					
	10/00	1/01	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/08
***Inorganics* (µg/l)**																						
Nitrate Nitrogen (mg/l)	--	--	--	--	--	--	--	--	--	--	1.42	1.56	--	--	--	--	--	--	--	--	--	0.415
Aluminum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7790	7050	8880	--
Cobalt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3340	3770	4400	--
Mercury	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, Total (mg/l as CaCO3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	23.0	16.0	30.0	--
Dissolved Gases																						
Oxygen (mg/l)	--	--	--	--	--	--	--	--	--	--	1.3	--	--	--	--	--	--	--	--	--	--	--
Methane (mg/l)	--	--	--	--	--	--	--	--	--	--	0.3 JB	0.3 B	--	--	--	--	--	--	--	--	--	--
Ethane (µg/l)	--	--	--	--	--	--	--	--	--	--	2 U	2 U	--	--	--	--	--	--	--	--	--	--
Ethene (µg/l)	--	--	--	--	--	--	--	--	--	--	0.04 JB	0.04 B	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide (mg/l)	--	--	--	--	--	--	--	--	--	--	71	82 L	--	--	--	--	--	--	--	--	--	--
***Pesticides/Herbicides* (µg/l)**																						
4,4'-DDD	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	--	--	--	--
4,4'-DDE	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	--	--	--	--
4,4'-DDT	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.019 U	0.0055 J	0.02 U	0.020 U	--	--	--	--
Aldrin	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0093 U	0.01 U	0.01 U	0.010 U	--	--	--	--
alpha-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0093 U	0.01 U	0.01 U	0.010 U	--	--	--	--
Alpha-Chlorodane	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0093 U	0.01 U	0.01 U	0.010 U	--	--	--	--
beta-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0093 U	0.01 U	0.01 U	0.010 U	--	--	--	--
delta-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0093 U	0.01 U	0.01 U	0.010 U	--	--	--	--
Dieldrin	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.02 U	--	--	--	--
Endosulfan I	--	--	--	--	--	--	--	--	--	--	--	--	0.0063 J	0.01 U	0.0093 U	0.01 U	0.01 U	0.0015 J	--	--	--	--
Endosulfan II	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.020 U	--	--	--	--
Endosulfan sulfate	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.0062 J	0.019 U	0.02 U	0.02 U	0.020 U	--	--	--	--
Endrin	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.019 U	0.0015 J	0.02 U	0.020 U	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.019 U	0.02 U	0.0028 J	0.020 U	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.012 J	0.02 U	0.02 U	0.020 U	--	--	--	--
gamma-BHC (Lindane)	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0093 U	0.01 U	0.01 U	0.010 U	--	--	--	--
gamma-Chlorodane	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.0065 J	0.0018 J	0.01 U	0.0016 J	0.010 U	--	--	--	--
Heptachlor	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0093 U	0.011 JN	0.01 U	0.010 U	--	--	--	--
Heptachlor Epoxide	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0093 U	0.011 JN	0.01 U	0.010 U	--	--	--	--
Methoxychlor	--	--	--	--	--	--	--	--	--	--	--	--	0.1 U	0.1 U	0.093 U	0.1 U	0.1 U	0.10 U	--	--	--	--
Toxaphene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1.0 U	--	--	--	--

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P - Discrepency in GC analysis. Lower value reported
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ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-34																					
	1/01	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Non-Halogenated VOCs (µg/l)																						
Benzene	–	11	32	–	–	–	–	–	–	20	24 D	27 D	2 J	1 J	2 J	15	3.2 J	5.5	7.7	5.4	4.2	3.6
Toluene	–	1 U	1.4 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	–	0.2 J	1.4 U	–	–	–	–	–	–	5 U	0.45 JB	11	5 U	5 U	5 U	5 U	10 U	1 U	0.23 J	1 U	1 U	1 U
Xylene (total)	–	0.1 J	1.4 U	–	–	–	–	–	–	5 U	0.39 JB	0.4 J	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 R	10 R	10 U	10 U	5 U	5 U	5 U	5 U	5 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	5 U	20 R	20 R	20 R	20 R	10 U	5 U	6.1 U	5 U	2.5 U	5 UJ
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	0.51	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 UJ
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	4.3	–	–	–	–	10 U	0.65 J	0.43 J	0.43 J	0.31 J	1 U
Methy-tert-butyl ether	–	–	–	–	–	–	–	–	–	–	–	0.37 J	–	–	–	–	10 U	0.43 J	0.95 J	2.1	2.9	5.3
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 UJ	10 U	10 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																						
Bromoform	–	1 U	1.4 U	–	–	–	–	–	–	5 UJ	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 UJ	1 U	1 U
Bromodichloromethane	–	1 U	1.4 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	–	1 UJ	1.4 U	–	–	–	–	–	–	5 U	0.037 J	0.5 U	5 UJ	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	–	3	16	–	–	–	–	–	–	36	17	22 D	12	7	6	10	7.6 J	9.0	9.7	8.9	8.7	6.5
Chloroform	–	1 U	1.4 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	–	1 U	1.4 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	–	17	2	–	–	–	–	–	–	5 U	0.85	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 UJ	1 U	1 U	1 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	0.8 J	0.5 J	–	–	–	–	–	–	2 J	1.3	2.8	5 U	5 U	5 U	5 U	10 U	0.58 J	0.61 J	0.66 J	0.61 J	0.53 J
cis-1,2-Dichloroethene	–	2	0.4 J	–	–	–	–	–	–	0.6 J	0.85	0.74	5 U	5 U	5 U	5 U	10 U	0.27 J	1 U	1 U	1 U	0.14 J
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	0.24 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	–	1 U	1.4 U	–	–	–	–	–	–	5 U	0.083 J	0.17 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	–	2.3 J	0.4 J	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	0.5 J	0.5 B	–	–	–	–	–	–	1 J	0.73	2	–	–	–	–	10 U	0.83 J	0.84 J	0.72 J	0.74 J	0.62 J
1,3-Dichlorobenzene	–	1 U	0.3 B	–	–	–	–	–	–	0.6 J	0.42 J	0.39 J	–	–	–	–	10 U	0.20 J	0.19 J	0.15 J	0.17 J	0.12 J
1,4-Dichlorobenzene	–	0.2 B	1 J	–	–	–	–	–	–	2 J	3 R	1.3	–	–	–	–	10 U	0.72 J	0.75 J	0.57 J	0.56 J	0.44 J
Chloroethane	–	0.7 J	0.5 J	–	–	–	–	–	–	5 U	0.61	0.94	5 U	5 U	5 U	5 U	10 UJ	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	–	1 U	1.4 U	–	–	–	–	–	–	5 U	0.21 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	0.12 J
1,1,1-Trichloroethane	–	1 U	1.4 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	–	0.5 J	0.2 J	–	–	–	–	–	–	5 U	0.25 J	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	–	0.6 JK	0.1 L	–	–	–	–	–	–	5 U	0.5 U	0.28 J	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 U	10 U	1 UJ	1 UJ	1 U	1 UJ	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	0.5 UJ	–	–	–	–	10 UJ	1 U	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)																						
Bis(2-chloroethyl)Ether	370 K	75	30	200	80	74	140	72 J	73 D	80 D	63 D	140 D	30	23	23	37	24	27	22	17	15	14
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 UL	5 U	6.1 J	5 U	5 U	3.9 L	5 UL	5 U	5 UL	5 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	5.4 UJ	5 UL	5 U	5 UJ	5 U	5 UL	5 UL	5 UL	5 U	5 UL	5 U
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 UL	5 U	5 UJ	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	5.4 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Inorganics (µg/l)																						
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	2.22	5.26	2.01	1.91 J	2.01	2.31	2.33	2.38	2.41	2.57	2.30	2.11
Dissolved Iron (mg/l)	–	9.31	27.4	–	–	–	–	–	–	15.8	45.3	28.8	29.3	21.5 J	17.5	16.9	16.5	17.7	16.1	17.2	16.6	14.1
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	1.3	< 1	1.9	3.2	< 2	4	3	–	–
Field Parameters																						
Temperature (Degrees Celcius)	14.18	14.16	14.17	–	13.96	13.87	14.13	14.27	14.11	14.09	15.23	13.86	14.07	13.55	13.84	14.0	12.5	14.4	14.0	14.0	13.4	14.2
Conductivity (µs/cm)	0.443	302.1	297.4	–	323.2	319.6	384.4	269.7	416	323.2	350.1	489	286	256	398	397	892	530	534	469	211	414
pH (standard units)	6.97	5.93	6.5	–	6.15	5.5	6.67	6.74	6.39	5.83	6.32	6.47	6.59	6.39	5.99	6.28	6.24	6.28	6.38	6.13	6.52	7.88
Dissolved Oxygen (mg/l)	0.95	0.13	0.01	–	0.33	–	0	0.37	0.01	0.01	0.01	0.07	0.03	0.35	1.47	0.00	0.00	0.00	0.00	0.00	0.02	0.00
ORP (mV)	-32.8	192.7	35.1	–	73.7	129.7	-85	126.8	26.9	-58	78.2	-95.1	-126.9	-70.5	1.2	-84	-74	-85	-87	-75	-68	-57
Water-Level Elevation (ft. MSL)	-24.85	-20.33	-31.48	-29.52	-27.33	–	-29.19	-27.79	-29.67	-24.92	-28.18	-19.96	-14.36	-1.67	-11.47	-16.41	-2.70	-7.52	-12.42	-12.21	-9.80	-11.26

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

R - Data Rejected
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-34																			
	1/01	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06
Inorganics **(µg/l)**																				
Nitrate Nitrogen (mg/l)	--	--	--	--	--	--	--	--	--	0.050 U	0.05 U	--	--	--	--	--	--	--	--	--
Aluminum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18600	19500	18800
Cobalt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8500	8820	8680
Mercury	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, Total (mg/l as CaCO3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84.0	92.0	190
Dissolved Gases																				
Oxygen (mg/l)	--	--	--	--	--	--	--	--	--	1.05	< 1.00	--	--	--	--	--	--	--	--	--
Methane (mg/l)	--	--	--	--	--	--	--	--	--	571 JB	130 DL	--	--	--	--	--	--	--	--	--
Ethane (µg/l)	--	--	--	--	--	--	--	--	--	37 B	13	--	--	--	--	--	--	--	--	--
Ethene (µg/l)	--	--	--	--	--	--	--	--	--	0.06 JB	2 U	--	--	--	--	--	--	--	--	--
Carbon Dioxide (mg/l)	--	--	--	--	--	--	--	--	--	77	110	--	--	--	--	--	--	--	--	--
Pesticides/Herbicides **(µg/l)**																				
4,4'-DDD	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--
4,4'-DDE	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.0086 J	0.020 U	--	--	--
4,4'-DDT	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--
Aldrin	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
alpha-BHC	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
Alpha-Chlorodane	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
beta-BHC	--	--	--	--	--	--	--	--	--	--	--	0.023JN	0.01 U	0.01 U	0.072 J	0.01 U	0.014 JN	--	--	--
delta-BHC	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
Dieldrin	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--
Endosulfan I	--	--	--	--	--	--	--	--	--	--	--	0.0034J	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
Endosulfan II	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.0066 J	--	--	--
Endosulfan sulfate	--	--	--	--	--	--	--	--	--	--	--	0.02 UL	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--
Endrin	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--
gamma-BHC (Lindane)	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
gamma-Chlorodane	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
Heptachlor	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
Heptachlor Epoxide	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--
Methoxychlor	--	--	--	--	--	--	--	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.10 U	--	--	--
Toxaphene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 UJ	1 U	1.0 U	--	--	--

-- Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
R - Data Rejected
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

ORIGINAL

Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-49N 7/00	1/01	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	7/07	10/07	1/08	4/08	7/08	10/08
Non-Halogenated VOCs (µg/l)																													
Benzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1.7	1 U	0.64 J	0.78 J	1 U	0.48 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.27 JB	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 R	10 U	10 R	10 UJ	10 U	2.2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	20 R	20 U	20 R	20 R	10 U	10 J	9.3 U	5 U	2.9 U	5 U	5 U	4.4 J	5 U	5 U	5 U	5 U
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Cyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
4-Methy-2-pentanone	–	–	–	–	–	–	–	–	–	–	–	–	5 U	10 U	10 U	10 U	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Halogenated VOCs (µg/l)																													
Bromoform	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.14 J	5 U	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	1 U	1 U
Bromodichloromethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	–	–	1 UJ	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U
Chlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	–	–	0.6 J	0.8 J	–	–	–	–	–	–	5 U	0.5 U	0.3 J	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	–	–	5	0.8 J	–	–	–	–	–	–	5 U	0.5 U	1.1	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3 Chlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,1-Dichloroethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.61	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	–	–	0.1 J	0.1 J	–	–	–	–	–	–	5 U	0.11 J	0.22 J	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.43 J	0.42 J	0.34 J
trans-1,2-Dichloroethene	–	–	–	–	–	–	–	–	–	–	–	–	0.11 J	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	–	–	2 U	2 U	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,2-Dichlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.12 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.99	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 u	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.14 J	1 U	1 UJ
Tetrachloroethene	–	–	0.2 J	1 U	–	–	–	–	–	–	5 U	0.5 U	0.41 J	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	–	–	0.3 J	0.3 J	–	–	–	–	–	–	0.7 J	0.5 U	0.41 J	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.24 J	0.22 J	1 U	0.86 J	1 U	0.83 J
Vinyl Chloride	–	–	1 U	1 U	–	–	–	–	–	–	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	–	–	–	–	–	–	–	–	–	–	–	–	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U
Trichlorofluoromethane	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	18	1 UJ	1 U	1 U	1 U	2.8 J	3.1	2.3	1.6	9.3	8.5	7.1
Semi-Volatiles (µg/l)																													
Bis(2-chloroethyl)Ether	0.05 U	0.018 J	0.7 J	0.026 U	0.025 U	0.024 U	1.7	0.032 J	0.05 U	0.04 J	0.037 J	0.05 U	0.87	0.032 B	0.017 U	0.021 U	0.02 UL	0.019 U	0.018 U	0.019 U	0.059	0.018 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.021 U
Bis(2-ethylhexyl)phthalate	–	–	–	–	–	–	–	–	–	–	–	–	17	5 U	5 U	5.1 UL	8.2	5.2 U	5 UL	5 U	5 U	5 U	21 J	5 UL	5 UL	5 U	5 UL	5 U	5.1 U
Benzo (a) Anthracene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	1.3 J	5 U	5 U	5 U	5 U	5 U	5.1 U
Benzo (a) Pyrene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	2.4 L	5 UL	5 UL	5 UL	5 UL	5 UL	5.1 U
Benzo (b) Fluoranthene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5.3 L	5 UL	5 UL	5 UL	5 UL	5 UL	5.1 U
Benzo (k) Fluoranthene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	2.8 L	5 UL	5 UL	5 UL	5 UL	5 UL	5.1 U
Benzo (g,h,i) Perylene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	3.5 L	5 UL	5 UL	5 UL	5 UL	5 UL	5.1 U
Chrysene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	4.4 J	5 U	5 U	5 U	5 U	5 U	5.1 U
Indeno (1,2,3-cd) Pyrene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	3.3 L	5 UL	5 UL	5 UL	5 UL	5 UL	5.1 U
2,2'-oxybis (1-Chloropropane)	–	–	–	–	–	–	–	–	–	–	–	–	5 UJ	5 U	5 U	5.1 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5.1 U
2,4-Dimethylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5.1 U
2-Methylnaphthalene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5.1 U
2-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5.1 U
4-Methylphenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5.1 U
Acetophenone	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5.1 U
Caprolactam	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 UL	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UJ	5 UL	5 U	5.1 UJ
Diethylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UL	5 U	5.1 U
N-Nitrosodiphenylamine	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 UJ	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5.1 U
Naphthalene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5.1 U
Phenol	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
Phenanthrene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	1.8 J	5 UL	5 U	5 U	5 UL	5 U	5.1 U
Di-n-octylphthalate	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	2.4 J	5 U	5 UL	5 UL	5 U	5 UL	5 U	5.1 U
Pyrene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	6 0	5 U	5 U	5 U	5 U	5 U	5.1 U
Fluoranthene	–	–	–	–	–	–	–	–	–	–	–	–	5 U	5 U	5 U	5.1 U	5 U	5 U	1.4 J	5 U	5 U	5 U	8.5	5 U	1.5 J	5 U	5 U	5 U	5.1 U
Inorganics (µg/l)																													
Dissolved Manganese (mg/l)	–	–	–	–	–	–	–	–	–	–	–	0.0041 B	0.0973	0.0023 B	0.0026	0.0048	0.942	0.0002 U	0.0082 U	0.00029 U	0.0013 U	0.00051 U	0.0012 U	0.0089	0.0129	0.0009	0.0026	0.0012	0.0016 U
Dissolved Iron (mg/l)	–	–	0.0188 B	0.011 U	–	–	–	–	–	–	0.0142 U	0.0244 U	0.011 U	0.0524 B	0.0273 U	0.028 U	0.0131 U	0.0153 U	0.0101 U	0.0124 U	0.0116 U	0.0458 U	0.0327 U	0.0988	0.009 U	0.155 U	0.0419 U	0.0126 U	0.0207 U
Biological Oxygen Demand (mg/l)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0	2.3	2.3	< 1	< 2	< 2	< 2	–	–	–	–	1	–	–	–
Field Parameters																													
Temperature (Degrees Celcius)	13.14	13.48	12.81	13.4	–	13.4	15.01	14.53	16.47	14.57	14.84	17.49	13.66	13.41	13.03	14.73	13.60	13.5	15.3	18.2	17.3	15.1	15.7	17.6	16.0	14.0	16.1	16.1	15.9
Conductivity (µs/cm)	0.087	0.081	70.57	87.16	–	88	137.1	77.92	46.02	82	71.72	78.05	146	42	57	56	134	68	33	12	25	10	48	69	51	63	79	67	58
pH (standard units)	5.59	6.45	5.55	5.05	–	5.26	5.34	4.13	5.31	5.41	4.49	4.98	5.53	5.57	5.13	4.19	5.94	4.75	6.19	6.32	6.42	6.52	6.04	5.55	5.98	7.85	5.41	4.64	5.53
Dissolved Oxygen (mg/l)	–	1.64	1.18	0.89	–	4.22	0.72	0.75	2.6	2.49	3.12	1.71	0.31	3.84	4.43	2.97	1.37	0.99	6.01	5.07	4.73	7.24	6.06	0.95	0.00	2.04	4.38	4.41	3.47
ORP (mV)	219.2	241.9	435	281.7	–	347.1	353.2	344.8	309.2	263.8	261.4	73.1	164.3	220.8	249.4	249.4	115.3	249	202	94	109	77	99	61	102	141	180	239	234
Water-Level Elevation (ft, MSL)	-30.05	-27.69	-23.20	-29.17	-32.73	-31.32	-28.04	-37.43	-36.04	-33.66	-29.73	-33.83	-24.64	-18.99	-3.46	-16.64	-18.41	-3.69	-11.65	-17.96	-16.12	-14.45	-16.69	-19.51	-21.19	-16.06	-16.90	-21.53	-17.32

– Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.
UL - Not detected, quantitation limit is probably higher

R - Data Rejected
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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Table 4 (continued)

Historical Summary of Groundwater Quality Data Collected by New Castle County for the Vicinity of the Army Creek and Delaware Sand & Gravel Landfills

Parameter	MW-49N																						
	7/00	1/01	4/01	7/01	10/01	1/02	4/02	7/02	10/02	1/03	4/03	7/03	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	1/08
Inorganics **(µg/l)**																							
Nitrate Nitrogen (mg/l)	--	--	--	--	--	--	--	--	--	--	1.38	1.42	--	--	--	--	--	--	--	--	--	--	0.610
Aluminum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1680	803	1530	--	--
Cobalt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	518	270	468	--	--
Mercury	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, Total (mg/l as CaCO3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.0	2.8	7.2	--	--
Dissolved Gases																							
Oxygen (mg/l)	--	--	--	--	--	--	--	--	--	--	5.3	--	--	--	--	--	--	--	--	--	--	--	--
Methane (mg/l)	--	--	--	--	--	--	--	--	--	--	0.3 JB	0.2 B	--	--	--	--	--	--	--	--	--	--	--
Ethane (µg/l)	--	--	--	--	--	--	--	--	--	--	0.08 J	2 U	--	--	--	--	--	--	--	--	--	--	--
Ethene (µg/l)	--	--	--	--	--	--	--	--	--	--	0.05 JB	2 U	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide (mg/l)	--	--	--	--	--	--	--	--	--	--	62.0	56 L	--	--	--	--	--	--	--	--	--	--	--
Pesticides/Herbicides **(µg/l)**																							
4,4'-DDD	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
4,4'-DDE	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
4,4'-DDT	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
Aldrin	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
alpha-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
Alpha-Chlorodane	--	--	--	--	--	--	--	--	--	--	--	--	0.011 J	0.01 U	0.0049 J	0.01 U	0.0025 J	0.010 U	--	0.010 U	--	0.010 U	--
beta-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.0046 J	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
delta-BHC	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	0.01 U	--	0.010 U	--
Dieldrin	--	--	--	--	--	--	--	--	--	--	--	--	0.023	0.02 U	0.0086 J	0.02 U	0.0096 J	0.020 U	--	0.020 U	--	0.020 U	--
Endosulfan I	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	0.01 U	--	0.010 U	--
Endosulfan II	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
Endosulfan sulfate	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
Endrin	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	0.02 U	--	0.020 U	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.0028 J	0.02 U	0.020 U	--	0.012 J	--	0.020 U	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	0.02 U	0.02 U	0.018 U	0.02 U	0.02 U	0.020 U	--	0.020 U	--	0.020 U	--
gamma-BHC (Lindane)	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
gamma-Chlorodane	--	--	--	--	--	--	--	--	--	--	--	--	0.0089 J	0.01 U	0.0091 U	0.01 U	0.0025 J	0.010 U	--	0.010 U	--	0.010 U	--
Heptachlor	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	0.010 U	--	0.010 U	--
Heptachlor Epoxide	--	--	--	--	--	--	--	--	--	--	--	--	0.01 U	0.01 U	0.0091 U	0.01 U	0.01 U	0.010 U	--	0.015 JN	--	0.010 U	--
Methoxychlor	--	--	--	--	--	--	--	--	--	--	--	--	0.1 U	0.1 U	0.091 U	0.1 U	0.1 U	0.10 U	--	0.10 U	--	0.10 U	--
Toxaphene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1.0 U	--	1.0 U	--	1.0 U	--

-- Not analyzed or data not available to RAI as of February 7, 2008
U - Analyte was not detected above the reporting limit
J - Estimated concentration.
K - Analyte present, reported value may be biased high.
L - Analyte present, reported value may be biased low.

R - Data Rejected
D - Sample diluted in the lab for analysis.
NP - Well not pumping
P - Discrepency in GC analysis. Lower value reported
B - Analyte Detected in Method Blank

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ATTACHMENT 5

Surface Water and Sediment Sample Location Mapand Test Results

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STATUS REPORT

SECOND QUARTER OF 2007

PILOT TEST PROGRAM FOR THE SUSPENSION OF ARMY CREEK LANDFILL PUMP & TREAT SYSTEM

August 1, 2007

Prepared by:

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8 East High Point Road
Stuart, Florida 34996
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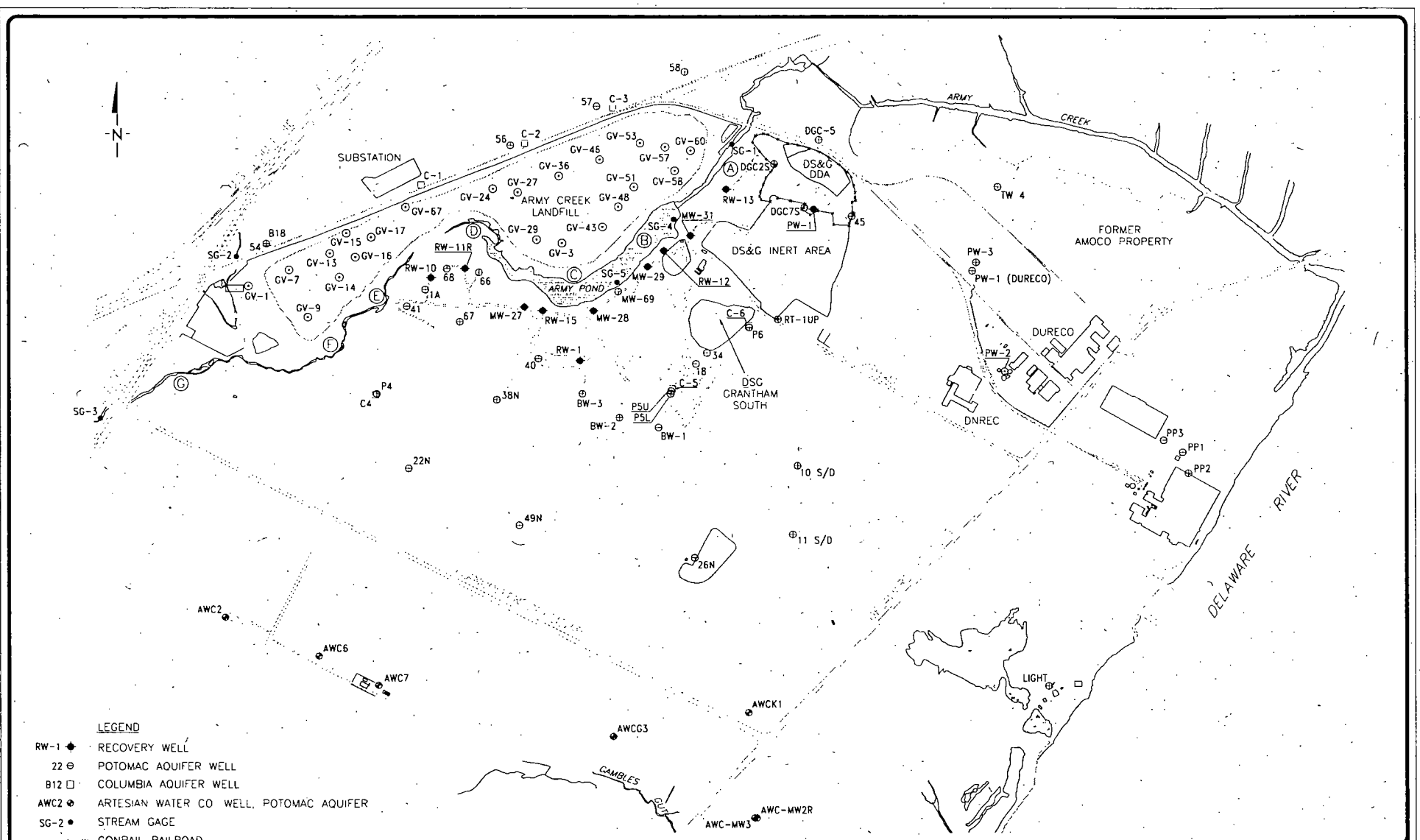

RUTH ASSOCIATES, INC
8 East High Point Road
Stuart, Florida 34996

MONITORING LOCATIONS
Vicinity of Army Creek and
Delaware Sand & Gravel Superfund Sites

FIGURE 2

DWG DATE 7-6-05 | PROJECT NO ACL | FILE NAME: ACL-003A.DWG | DRAFTER CP | CHECKED MR

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Table 4

Summary of Surface-Water Quality Data for Army Creek and Army Pond

Parameter	SWA											SWB										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Non-Halogenated VOCs (µg/l)																						
Benzene	0.44 J	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.51	2 J	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Toluene	0.25	5 U	5 U	5 UJ	5 UJ	10 U	0.30 J	1 U	1 U	1 U	1 U	0.2	0.8 J	5 U	5 U	5 UJ	10 U	0.28 J	0.19 J	1 U	1 U	1 U
Ethylbenzene	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	5 U	5 U	5 UJ	5 U	10 U	3 U	3 U	3 U	3 U	3 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	5 U	10 R	10 R	10 R	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 U	10 R	10 R	10 R	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U
Acetone	5.8 U	20 R	20 R	20 R	20 R	1.5 J	5 UJ	8.7 U	5 U	5 UJ	5 U	9.6	20 R	20 R	7 J	20 R	1.5 J	5 UJ	8.2 U	5 U	5 UJ	5 U
Carbon Disulfide	0.21 J	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.23 J	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
Isopropylbenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	0.5	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.52	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
4-Methy-2-pentanone	5 U	10 U	10 U	10 UJ	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 UJ	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																						
Bromoform	0.5 U	5 U	5 U	5 UJ	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 UJ	0.5 U	5 U	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 UJ
Bromodichloromethane	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1.4	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	1.7	6	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	0.11 J	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	0.2 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.22 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U
Tetrachloroethene	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	0.5 U	5 U	5 U	5 UJ	5 UJ	10 U	1 U	1 UJ	1 UJ	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 UJ	1 UJ	1 U	1 U
Trichlorofluoromethane	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)																						
1,1'-Biphenyl	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2,2'-oxybis (1-Chloropropane)	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
2,4-Dimethylphenol	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2,4-Dinitrophenol	20 U	20 U	20 J	20 UJ	20 U	20 UL	20 U	20 UL	20 U	20 U	20 UL	20 U	20 U	20 UJ	20 U	20 U	20 UL	20 U	20 UL	20 U	20 U	20 UL
2,6-Dinitrotoluene	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylnaphthalene	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylphenol	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
4,6-Dinitro-2-methylphenol	20 U	20 U	20 U	20 UJ	20 U	20 UL	20 U	20 U	20 U	20 U	20 UL	20 U	20 U	20 U	20 U	20 U	20 UL	20 U	20 U	20 U	20 U	20 UL
4-Methylphenol	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Acetophenone	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Atrazine	5 UJ	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 UL	5 UJ	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 UL
Benzaldehyde	5 UJ	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL
Benzo (a) pyrene	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 UL
Benzo (b) Fluoranthene	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 UL
Benzo (g,h,i) Perylene	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 UL
Benzo (k) Fluoranthene	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 UL
Bis(2-chloroethyl)Ether	1.8 J	0.04 B	0.081	0.02 UJ	0.02 UL	5 U	5 U	5 U	5 UL	5 U	5 UL	2.2 J	0.095 B	0.065	0.02 U	0.019 U	5 U	5 U	5 U	5 U	5 U	5 UL
Bis(2-ethylhexyl)phthalate	5 U	5 U	5 U	7.6 J	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 U	54	5 U	5 U	5 U	5 U	5 UL	4.5 J	5 U	5 UL	5 UL
Caprolactam	5 UJ	5 U	5 U	5 UJ	5 U	5 UL	5 UL	5 U	5 UL	5 UL	5 UL	5 UJ	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 UL
Di-n-butyl phthalate	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL
Di-n-octyl phthalate	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 UL	5 UL
Dibenzo (a,h) Anthracene	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL	5 U	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 UL
Diethylphthalate	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UL
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 R	5 U	5 UL	5 U	5 U	5 R	5 U	5 UL
Indeno (1,2,3-cd) Pyrene	5 U	5 U	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 U	5 U	5 UL	5 UL	5 UL
N-Nitrosodiphenylamine	5 U	5 U	5 UJ	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 UJ	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
Naphthalene	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Pentachlorophenol	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Phenol	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Biological Oxygen Demand (mg/l)	–	–	3.9	3.7	2.1	4.2	4	7	6	–	–	–	–	2.9	8.0	3.3	3.7	5	9	4	–	–
Field Parameters																						
Temperature (Degrees Celcius)	16.12	–	14.04	31.7	12.9	8.2	16.0	32.1	16.8	6.5	19.1	17.67	–	13.0	29.1	11.0	7.0	16.3	33.7	25.1	5.5	23.6
Conductivity (µs/cm)	383	–	267	283	233	402	350	362	400	243	379	318	–	263	453	238	342	306	514	297	136	307
pH (standard units)	11.24	–	8.24	8.19	6.87	8.30	7.36	7.25	7.20	7.37	7.24	7.98	–	8.53	6.78	6.93	7.17	7.20	8.71	7.45	6.58	8.69
Dissolved Oxygen (mg/l)	6.18	–	8.68	8.20	6.04	9.85	5.66	9.23	7.30	8.53	10.79	3.64	–	9.38	3.09	5.34	9.45	4.91	10.25	8.89	5.85	9.37
ORP (mV)	-8.9	–	30.5	-4.0	50	77	133	45	39	88	155	-161.4	–	62.9	11.2	130	118	69	70	79	94	49

U - Analyte was not detected above the reporting limit.
J - Estimated concentration.
B - Analyte Detected in Method Blank
– Not analyzed

D - Sample diluted in the lab for analysis.
K - Analyte present. May be biased High.
L - Analyte present. May be biased low
R - Data Rejected

7/20/2007

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Table 4 (continued)

Summary of Surface-Water Quality Data for Army Creek and Army Pond

Parameter	SWA											SWB										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
***Inorganics* (µg/l)**																						
Aluminum	200 U	–	17 U	38.5 UJ	18.9 U	23.5 U	48.8 U	35.2 U	20.0 U	1100	11.1 U	200 U	–	26.8 U	44.6 U	14 U	16.6 U	46.3 U	66.1 U	20.0 U	30.3 U	29.6 U
Antimony	2.9	–	3.8 U	5.2 UJ	1.6 U	1.5 U	1.1 U	1.8 U	1.4 J	1.7	2.1 U	2 U	–	3.8 U	3.7 U	1.6 U	1.2 U	1.1 U	1.8 U	1.2 U	1.7 U	2.1 U
Arsenic	1.8 U	–	3 U	3.7 UJ	2 U	1.4 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U	1.8 U	–	3 U	3.7 U	2 U	3.3	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U
Barium	38.8	–	44.7	53.9 J	66.1	33.7	52.7	62.4	62.8	37.3	53.1	29.5	–	26.3 B	55.5	47.9	49	57.2	42.4	44.5	47.4	21.8
Beryllium	0.1 U	–	0.1 U	0.55 UJ	0.18 U	0.13 U	0.69 U	0.40 U	0.10 U	0.32 U	0.20 U	0.1 U	–	0.1 U	0.56 U	0.13 U	0.15 U	0.67 U	0.68 U	0.10 U	0.30 U	0.20 U
Cadmium	0.2 U	–	0.4 U	0.5 UJ	0.2 U	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U	0.2 U	–	0.4 U	0.5 U	0.2 U	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U
Calcium	41200	–	17900	16400 J	15400	10100	13800	18600	16400	9760	20700	31200	–	17900	16200	14800	15200	12400	17100	15300	12900	20400
Chromium	0.5 U	–	2 U	1.1 UJ	0.6 U	0.40 U	0.60 U	0.50 U	0.73 U	1.9	0.30 U	0.5 U	–	1.2 U	1.1 U	0.6 U	0.40 U	0.60 U	0.50 U	0.45 U	0.60 U	0.37 U
Cobalt	0.74	–	1.5 U	1.1 UJ	2.3	0.74	1.0	0.75	1.9 U	0.76 U	0.90 U	50 U	–	1.2 U	1.3	0.5 U	1.4	0.73	0.70 U	0.54 U	0.40 U	0.90 U
Copper	0.5 U	–	1.1	1.2 J	1.5	2.5	1.5 U	1.9 J	4.3 U	4.1 U	1.9 U	0.5 U	–	1.2	0.8 U	1.1	0.65	0.67 U	1.5 U	3.5 U	2.9 U	2.2 U
Lead	0.9 U	–	1.3	1.6 UJ	1.1 U	1.0 U	1.0 U	1.9 U	1.6 U	1.3	2.3 U	0.9 U	–	1.2 U	1.6 U	1.1	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	2.2 U
Magnesium	2010	–	5780	4190 J	4690	3910	4750	5640	5450	3520	7750	2100	–	5980	4530	4970	6000	4410	5080	5570	4580	8050
Mercury	0.2 U	–	0.1 U	0.1 UJ	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.1 U	–	0.1 U	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel	0.5 U	–	3.6 U	2.3 J	2.5	1.6	2.5	1.1	2.2 U	2.9 U	1.9	0.5 U	–	3.1 U	2	2.5	1.5	1.9	1.3	2.1 U	1.6 U	1.7
Potassium	4850	–	3580 J	4260 J	4460	2110	4120	4670	5080	3110	3530 J	5110	–	3290 J	4390	4140	2980	3780	4530	3290	4290	2500 J
Selenium	2.7	–	2.5 U	4.5 UJ	4.3 U	3.3 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U	2.6 U	–	1.7 U	4.5 U	4.3 U	3.3 UJ	1.8 U	2.2 U	2.5 U	3.1	2.7 U
Silver	0.7 U	–	1.4 U	1.3 UJ	0.2 U	0.50 U	0.50 U	0.30 U	0.65 U	0.40 U	1.2 U	0.7 U	–	1.4 U	1.3 U	0.2 U	0.50 U	0.50 U	0.30 U	0.50 U	0.40 U	1.2 U
Sodium	18800	–	39900	28400 J	13900	16700	22700	20000	16200	8280	43700	17500	–	40600	30900	15300	29500	20500	20200	16000	10800	47000
Thallium	1.9 U	–	3.2 U	4 UJ	4.5 U	5.5	2.1 U	5.2 U	3.2 U	4.2 U	3.3 U	1.9 U	–	2.9 U	4 U	4.5 U	3.9 U	2.1 U	3.6 U	3.2 U	3.4 U	2.9 U
Vanadium	50 U	–	1 U	2 J	0.5 U	0.52	0.84	1.3	0.49 U	2.8 U	0.50 U	50 U	–	1.2 U	2.8	0.5 U	0.30 U	0.98 U	2.8	0.49 U	0.40 U	2.2 U
Zinc	2.4	–	13.3 U	2.7 UJ	7.9	11.3	2.3	3.6 U	4.5	14.9 U	1.7 U	0.7 U	–	11 U	3.9 U	3.9	4.3	0.80 U	4.6 U	2.6	10.3 U	1.9 U
Dissolved Manganese (mg/l)	0.0057	0.271	0.273	0.030 J	*0.0931	0.0871	0.167	0.111	0.123	0.0519	0.195	0.0066	1.56	0.136	0.172	0.0209	0.104	0.189	0.0387	0.0546	0.0416	0.0294
Dissolved Iron (mg/l)	0.024	0.846 L	0.387	0.331 J	0.0634	0.159	0.316	0.298	0.0763 U	1.31	0.0445 U	0.0697	46.9	0.479 K	0.484	0.0466	0.104	0.249	0.405	0.0688 U	0.118 U	0.262
***Pesticides/Herbicides* (µg/l)**																						
4,4'-DDD	0.018 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–	0.018 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
4,4'-DDE	0.0091 U	0.02 U	0.02 U	0.02 UJ	0.0084 J	0.020 U	–	–	–	–	–	0.0091 U	0.02 U	0.02 U	0.013 J	0.012 J	0.020 U	–	–	–	–	–
4,4'-DDT	0.0091 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–	0.0091 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Aldrin	0.0091 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
alpha-BHC	0.0091 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Alpha-Chlorodane	0.0091 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.0013 J	0.010 U	–	–	–	–	–
beta-BHC	0.0091 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
delta-BHC	0.0091 U	0.01 U	0.01 U	0.0019 JN	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Dieldrin	0.018 U	0.02 U	0.02 U	0.02 U	0.0039 J	0.020 U	–	–	–	–	–	0.018 U	0.0027 J	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endosulfan I	0.0091 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.0038 J	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Endosulfan II	0.018 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–	0.018 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endosulfan sulfate	0.018 U	0.02 U	0.02 U	0.02 UJ	0.0064 J	0.020 U	–	–	–	–	–	0.0042 J	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endrin	0.018 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–	0.018 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endrin Aldehyde	0.0029 J	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–	0.018 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
Endrin Ketone	0.018 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–	0.018 U	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–
gamma-BHC (Lindane)	0.0068 J	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
gamma-Chlorodane	0.0091 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Heptachlor	0.0091 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Heptachlor Epoxide	0.011 J	0.01 U	0.014 JN	0.008 J	0.01 U	0.010 U	–	–	–	–	–	0.0091 U	0.01 U	0.01 UJ	0.01 U	0.01 U	0.010 U	–	–	–	–	–
Methoxychlor	0.091 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.10 U	–	–	–	–	–	0.091 U	0.1 U	0.1 U	0.1 U	0.0047 J	0.10 U	–	–	–	–	–
Toxaphene	–	–	–	1 UJ	1 U	1.0 U	–	–	–	–	–	–	–	–	1 U	1 U	1.0 U	–	–	–	–	–

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

B - Analyte Detected in Method Blank

– Not analyzed

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.

K - Analyte present. May be biased High.

L - Analyte present. May be biased low

R - Data Rejected

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Table 4 (continued)

Summary of Surface-Water Quality Data for Army Creek and Army Pond

Parameter	SWC											SWD										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Non-Halogenated VOCs (µg/l)																						
Benzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Toluene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	5 U	5 U	5 U	5 UJ	10 U	3 U	3 U	3 U	3 U	3 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	5 U	10 U	10 R	10 R	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 R	10 R	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U
Acetone	5 U	10 J	20 R	20 R	20 R	10 U	5 UJ	10 U	5 U	5 UJ	6.8 U	5 U	20 R	20 R	20 R	20 R	10 U	5 UJ	9.7 U	5 U	5 UJ	5 U
Carbon Disulfide	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
Isopropylbenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	0.27 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.44 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
4-Methy-2-pentanone	5 U	10 U	10 U	10 U	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																						
Bromoform	0.5 U	5 U	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 UJ	0.5 U	5 U	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 UJ
Bromodichloromethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	0.5 U	5 UJ	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 UJ	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	0.11 J	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U
Tetrachloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 UJ	1 UJ	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 UJ	1 UJ	1 U	1 U
Trichlorofluoromethane	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)																						
1,1'-Biphenyl	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
2,2'-oxybis (1-Chloropropane)	5 UJ	5 U	5.1 U	5 U	5 U	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 UJ	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 UL	5 U	5 UL
2,4-Dimethylphenol	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
2,4-Dinitrophenol	20 U	20 U	21 UJ	20 U	20 U	20 UL	20 U	20 UL	20 UL	20 U	20 UL	20 U	20 U	20 UJ	20 UJ	20 U	20 UL	20 U	20 UL	20 UL	20 U	20 UL
2,6-Dinitrotoluene	5 UJ	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylnaphthalene	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylphenol	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
4,6-Dinitro-2-methylphenol	20 U	20 U	21 U	20 U	20 U	20 UL	20 U	20 U	20 U	20 U	20 UL	20 U	20 U	20 U	20 UJ	20 U	20 UL	20 U	20 U	20 U	20 U	20 UL
4-Methylphenol	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
Acetophenone	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Atrazine	5 U	5 U	5.1 U	5 U	5 U	5 UL	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 UL	5 UL	5 UL
Benzaldehyde	5 UJ	5 U	5.1 UL	5 UL	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL
Benzo (a) pyrene	5 U	5 UL	5.1 UL	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (b) Fluoranthene	5 U	5 UL	5.1 UL	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (g,h,i) Perylene	5 U	5 UL	5.1 UL	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (k) Fluoranthene	5 U	5 UL	5.1 UL	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Bis(2-chloroethyl)Ether	0.93	0.043 B	0.073	0.019 U	0.02 UL	5 U	5 U	5 U	5 UL	5 U	5 UL	0.053	0.059	0.037	0.02 UJ	0.02 UL	5 U	5 U	5 U	5 UL	5 U	5 UL
Bis(2-ethylhexyl)phthalate	5 U	5 U	5.1 U	5 U	5 U	5 U	5 UL	7.2 J	5 UL	5 U	4.1 L	12	8.2	5 U	6.4 J	5 U	5 U	4.8 L	4.5 L	5 UL	4.8 L	5 UL
Caprolactam	5 UJ	5 U	5.1 U	5 U	5 U	5 UL	5 UL	5 U	5 UL	5 U	5 UL	5 UJ	5 U	5 U	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Di-n-butyl phthalate	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL
Di-n-octyl phthalate	5 U	5 U	5.1 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL
Dibenzo (a,h) Anthracene	5 UJ	5 UL	5.1 UL	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 UJ	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Diethylphthalate	5 U	5 U	5.1 U	5 U	5 U	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL
Hexachlorocyclopentadiene	5 U	5 U	5.1 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
Indeno (1,2,3-cd) Pyrene	5 UJ	5 UL	5.1 UL	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 UJ	5 UL	5 UL	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
N-Nitrosodiphenylamine	5 U	5 U	5.1 UJ	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 UJ	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
Naphthalene	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Pentachlorophenol	5 U	5 U	5.1 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
Phenol	5 U	5 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	1.7 J	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Biological Oxygen Demand (mg/l)	–	–	5.9	7.2	1.8	2.5	< 2	10	12	–	–	–	–	1.5	5.3	3.3	6.3	5	6	5	–	–
Field Parameters																						
Temperature (Degrees Celcius)	15.8	–	16.8	30.9	13.1	7.1	17.0	33.2	28.8	7.4	28.2	17.52	–	14.19	24.8	11.9	7.4	16.3	28.5	19.1	6.4	19.6
Conductivity (µs/cm)	305	–	289	462	100	127	192	370	270	64	327	328	–	308	500	253	196	290	484	313	118	350
pH (standard units)	8.61	–	10.1	8.40	7.14	7.43	7.12	8.77	7.07	6.33	9.83	8.39	–	7.8	6.41	8.69	7.29	6.97	7.52	6.78	6.31	8.51
Dissolved Oxygen (mg/l)	8.29	–	11.63	7.92	5.74	8.54	6.20	10.28	8.92	6.84	9.29	4.04	–	7.54	2.46	4.51	10.50	6.91	5.95	7.04	8.81	8.15
ORP (mV)	63.9	–	68.8	50.6	-80	149	32	84	64	39	2	-42.9	–	31.8	40.6	121	168	65	156	-11	34	58

U - Analyte was not detected above the reporting limit.
J - Estimated concentration.
B - Analyte Detected in Method Blank
-- Not analyzed

D - Sample diluted in the lab for analysis.
K - Analyte present. May be biased High.
L - Analyte present. May be biased low
R - Data Rejected

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Table 4 (continued)

Summary of Surface-Water Quality Data for Army Creek and Army Pond

Parameter	SWC											SWD										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Inorganics (µg/l)																						
Aluminum	4.4 U	–	38.1 U	53.6 U	15.1 U	54.6	43.2 U	48.2 U	20.0 U	30.3 U	102 U	200 U	–	112 U	13.5 UJ	22.7 U	42.2 U	62.6 U	27.0 U	20.0 U	30.3 U	11.1 U
Antimony	2 U	–	3.8 U	3.7 U	1.6 U	1.2 U	1.1 U	1.8 U	1.2 U	1.7 U	2.1 U	2 U	–	32.7	3.7 UJ	1.6 U	1.2 U	1.1 U	1.8 U	1.4 J	1.7 U	2.1 I
Arsenic	1.8 U	–	3 U	3.7 U	2 U	1.4 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U	1.8 U	–	7.1	3.7 UJ	2 U	1.4 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U
Barium	66.2	–	4.7	52.5	21.5	21.7	40.8	45.0	50.8	22.6	7.6	66.1	–	172	65.7 J	65.7	47.1	40.4	63.9	56.1	33.2	76.5
Beryllium	0.1 U	–	0.1 U	0.61 U	0.11 U	0.17 U	0.70 U	0.40 U	0.10 U	0.30 U	0.20 U	0.1 U	–	2.7 U	0.6 UJ	0.13 U	0.18 U	0.74 U	0.54 U	0.10 U	0.30 U	0.20 U
Cadmium	0.2 U	–	0.4 U	0.5 U	0.2 U	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U	0.2 U	–	2.5 U	0.5 UJ	0.2 U	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U
Calcium	19100	–	14500	15800	5820	5220	9830	16800	16300	6210	25800	19500	–	21000	19200 J	16900	11300	12800	19900	18300	11800	22700
Chromium	0.5 U	–	1.2 U	1.1 U	0.6 U	0.40 U	0.60 U	0.50 U	0.42 U	0.60 U	0.30 U	0.5 U	–	7.7 U	1.1 UJ	0.6 U	0.40 U	0.64	0.50 U	0.52 U	0.60 U	0.30 U
Cobalt	50 U	–	1.1 U	1.1 U	0.5 U	0.62	0.88	0.70 U	0.93 U	1.6 U	1.1 U	50 U	–	27.1	1.1 UJ	0.5 U	0.50 U	0.40 U	1.5	0.96 U	0.40 U	0.90 U
Copper	0.5 U	–	0.9 U	0.8 U	0.6 U	1.6	0.40 U	1.5 U	3.2 U	0.86 U	3.8 U	0.5 U	–	13	0.8 UJ	2.5	1.3	2.4 U	1.5 U	3.7 U	2.8 U	1.4 U
Lead	0.9 U	–	1.2 U	1.6 U	1.1 U	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	2 U	0.9 U	–	2.3	1.6 UJ	1.1 U	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	1.0 U
Magnesium	7080	–	4810	4550 J	4080	2940	4910	5550	6090	3390	8430	7390	–	8440	241 J	5960	5100	4510	7390	7180	4420	9200
Mercury	0.1 U	–	0.1 U	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U	–	0.1 U	0.1 UJ	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel	0.5 U	–	2.7 U	1.8	3.9	1.2	2.2	1.4	2.3 U	2.4 U	3.8	0.68	–	25.1 U	2.2 J	2.7	2	2.1	1.3	2.1 U	1.7 U	2.2
Potassium	3620	–	2480 J	4210 J	1830	1340	1980	4590	3350	1270	2410 J	3440	–	3860 J	4790 J	4290	4110	3460	4670	3770	2720	2920 J
Selenium	2.6 U	–	1.7 U	4.5 U	4.3 U	3.3 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U	2.6 U	–	4.4 U	4.5 UJ	4.3 U	3.3 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	0.7 U	–	1.4 U	1.3 U	0.2 U	0.50 U	0.50 U	0.30 U	0.51 U	0.40 U	1.2 U	0.7 U	–	5.1	1.3 UJ	0.2 U	0.50 U	0.50 U	0.30 U	0.50 U	0.40 U	1.2 U
Sodium	25400	–	33400	32300	2880	6400	7720	21900	17900	2580	49000	28600	–	49400	41500 J	15400	7090	20100	28600	23000	12600	53100
Thallium	1.9 U	–	2.9 U	4 U	4.5 U	3.9 U	2.1 U	3.6 U	3.2 U	3.4 U	2.9 U	1.9 U	–	6.4 U	4 UJ	4.5 U	4	2.1 U	3.6 U	3.2 U	3.4 U	2.9 U
Vanadium	50 U	–	1.7 U	2.7	0.5 U	0.53	0.40 U	2.1	0.46 U	0.40 U	4.2	50 U	–	25.8	0.8 UJ	0.5 U	0.30 U	0.62 U	0.30 U	0.40 U	0.46 U	0.50 U
Zinc	5.1	–	34.7	2.8 U	4	7.3	0.80 U	4.8 U	3.3	8.4 U	2.3 U	7.6	–	22.3 U	10.3 UJ	29.3	11.4	10.2	8.3 U	6.7	11.9 U	10.7
Dissolved Manganese (mg/l)	0.508	0.416	0.0347	0.0435	0.0269	0.0713	0.214	0.0551	0.0999	0.0553	0.0723	0.368	1.99	0.352	7.15 J	0.0158	0.0244	0.0850	0.217	0.209	0.0745	0.243
Dissolved Iron (mg/l)	0.226	0.322	0.363	0.499	0.0345	0.112	0.487	0.385	0.0618 U	0.537	0.760	1.17	10.1	0.422	0.743 J	0.0371	0.0952 U	0.338	0.0413 U	0.730	0.396	0.403
Pesticides/Herbicides (µg/l)																						
4,4'-DDD	0.02 UJ	0.002 J	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–	0.02 UJ	0.026	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–
4,4'-DDE	0.02 UJ	0.0039 J	0.02 U	0.015 J	0.0047 J	0.020 U	–	–	–	–	–	0.02 UJ	0.036	0.02 U	0.02 UJ	0.0075 J	0.020 U	–	–	–	–	–
4,4'-DDT	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–
Aldrin	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–
alpha-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–
Alpha-Chlorodane	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 UJ	0.046 JN	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–
beta-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.024 JN	0.01 U	0.010 U	–	–	–	–	–
delta-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–
Dieldrin	0.02 UJ	0.0025 J	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–	0.02 UJ	0.02 U	0.0044 J	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–
Endosulfan I	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 UJ	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–
Endosulfan II	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–
Endosulfan sulfate	0.02 UJ	0.0016 J	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–	0.02 UJ	0.03	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–
Endrin	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–
Endrin Aldehyde	0.02 UJ	0.02 U	0.02 U	0.02 U	0.0025 J	0.020 U	–	–	–	–	–	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–
Endrin Ketone	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.020 U	–	–	–	–	–	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	–	–	–	–	–
gamma-BHC (Lindane)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–
gamma-Chlorodane	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 UJ	0.038 JN	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–
Heptachlor	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	–	–	–	–	–
Heptachlor Epoxide	0.01 UJ	0.0022 J	0.012 JN	0.01 U	0.01 U	0.010 U	–	–	–	–	–	0.01 UJ	0.01 J	0.011 JN	0.061 J	0.01 U	0.010 U	–	–	–	–	–
Methoxychlor	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.10 U	–	–	–	–	–	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.10 U	–	–	–	–	–
Toxaphene	–	–	–	1 U	1 U	1.0 U	–	–	–	–	–	–	–	–	1 UJ	1 U	1.0 U	–	–	–	–	–

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

B - Analyte Detected in Method Blank

– Not analyzed

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.

K - Analyte present. May be biased High.

L - Analyte present. May be biased low

R - Data Rejected

P - Discrepency in GC analysis. Lower value reported.

ORIGINAL

Table 4 (continued)

Summary of Surface-Water Quality Data for Army Creek and Army Pond

Parameter	SWE											SWF										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Non-Halogenated VOCs (µg/l)																						
Benzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.14 J	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Toluene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	5 U	5 U	5 U	5 UJ	10 U	3 U	3 U	3 U	3 U	3 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	5 U	10 U	10 R	10 R	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 R	10 R	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U
Acetone	5 U	20 R	20 R	20 R	20 R	1.6 J	5 UJ	8.4 U	5 U	5 UJ	5 U	5 U	20 R	20 R	20 R	20 R	10 U	5 UJ	6.0 U	5 U	5 UJ	5 U
Carbon Disulfide	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
Isopropylbenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	0.34 J	–	–	–	–	10 U	0.57 J	1 U	1 U	1 U	1 U	0.5 J	–	–	–	–	10 U	0.42 J	1 U	1 U	1 U	1 U
Methylcyclohexane	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
4-Methy-2-pentanone	5 U	10 U	10 U	10 U	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 UJ	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)																						
Bromoform	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 UJ	1 U	1 U	1 UJ	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 UJ
Bromodichloromethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	0.5 U	5 UJ	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 U	0.5 U	5 UJ	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U
Tetrachloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 UJ	1 UJ	1 U	1 U	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 UJ	1 UJ	1 U	1 U
Trichlorofluoromethane	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 U	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)																						
1,1'-Biphenyl	5 U	5 UL	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
2,2'-oxybis (1-Chloropropane)	5 UJ	5 U	5 U	5.3 UJ	5 U	5 UL	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 UL	5 U	5 UL
2,4-Dimethylphenol	5 U	5 U	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2,4-Dinitrophenol	20 U	20 U	20 UJ	21 UJ	20 U	20 UL	20 U	20 UL	20 UL	20 U	20 UL	20 U	20 U	20 UJ	20 UJ	20 U	20 UL	20 U	20 UL	20 U	20 U	20 UL
2,6-Dinitrotoluene	5 UJ	5 U	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylnaphthalene	5 U	5 U	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylphenol	5 U	5 U	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
4,6-Dinitro-2-methylphenol	20 U	20 U	20 U	21 UJ	20 U	20 UL	20 U	20 U	20 U	20 U	20 UL	20 U	20 U	20 U	20 UJ	20 U	20 UL	20 U	20 U	20 U	20 U	20 UL
4-Methylphenol	5 U	5 U	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Acetophenone	5 U	5 U	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Atrazine	5 U	5 U	5 U	5.3 UL	5 U	5 UL	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UJ	5 UL	5 UL	5 U	5 UL	5 U	5 UL
Benzaldehyde	5 UJ	5 U	5 UL	5.3 UL	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL
Benzo (a) pyrene	5 UL	5 UL	5 U	5.3 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (b) Fluoranthene	5 UL	5 UL	5 U	5.3 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (g,h,i) Perylene	5 UL	5 UL	5 U	5.3 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (k) Fluoranthene	5 UL	5 UL	5 U	5.3 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Bis(2-chloroethyl)Ether	0.021	0.025	0.043	0.021 UJ	0.02 UL	5 U	5 U	5 U	5 UL	5 U	5 UL	0.019 U	0.69	0.037	0.02 UJ	0.02 UL	5 U	5 U	5 U	5 UL	5 U	5 UL
Bis(2-ethylhexyl)phthalate	5 U	5 U	48	4.6 J	5 U	5 U	5 UL	5 UL	5 UL	5 U	5 UL	5 U	5 U	5 U	16 J	5 U	5 U	5 UL	5 UL	5 UL	5 UL	5 UL
Caprolactam	5 UJ	5 UL	5 U	5.3 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 U	5 UL	5 UJ	5 UL	5 U	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	2.3 L	5 UL
Di-n-butyl phthalate	5 U	5 UL	5 U	5.3 UJ	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 UJ	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL
Di-n-octyl phthalate	5 U	5 UL	5 U	5.3 UL	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 UL	5 UL
Dibenzo (a,h) Anthracene	5 UL	5 UL	5 U	5.3 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Diethylphthalate	5 U	5 UL	5 U	5.3 UJ	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 UL	5 U	5 UL	5 U	5 UJ	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL
Hexachlorocyclopentadiene	5 U	5 U	5 U	5.3 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
Indeno (1,2,3-cd) Pyrene	5 UL	5 UL	5 U	5.3 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL	5 U	5 U	5 UL	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
N-Nitrosodiphenylamine	5 U	5 U	5 UJ	5.3 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 UJ	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
Naphthalene	5 U	5 U	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Pentachlorophenol	5 U	5 U	5 UJ	5.3 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Phenol	5 U	5 U	5 U	5.3 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Biological Oxygen Demand (mg/l)	–	–	1.1	5.8	1.6	3.4	< 2	5	5	–	–	–	–	1.2	2.9	2.1	3.3	3	6	7	–	–
Field Parameters																						
Temperature (Degrees Celcius)	14.58	–	11.5	25.2	12.1	7.3	16.0	25.9	21.2	6.7	19.5	16.1	–	14.12	21.2	12.3	6.7	16.5	25.9	19.9	6.8	21.7
Conductivity (µs/cm)	288	–	309	507	308	117	288	477	303	121	352	329	–	335	458	324	133	291	504	343	86	370
pH (standard units)	8.35	–	8.07	6.56	6.92	7.44	6.97	7.02	6.84	6.72	8.27	8.44	–	7.95	5.95	6.84	7.34	7.02	7.26	6.90	7.22	7.37
Dissolved Oxygen (mg/l)	4.95	–	7.69	5.18	5.89	8.73	6.82	5.85	7.31	9.10	10.10	4.74	–	8.14	4.50	4.94	9.59	7.22	5.05	5.36	10.51	9.72
ORP (mV)	35.1	–	93.3	108.3	36	160	98	151	54	51	81	26.2	–	42.2	201	40	159	96	143	8	-11	98

U - Analyte was not detected above the reporting limit.
J - Estimated concentration.
B - Analyte Detected in Method Blank
– Not analyzed

D - Sample diluted in the lab for analysis
K - Analyte present. May be biased High.
L - Analyte present. May be biased low
R - Data Rejected

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Table 4 (continued)

Summary of Surface-Water Quality Data for Army Creek and Army Pond

Parameter	SWE											SWF										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
***Inorganics* (µg/l)**																						
Aluminum	200 U	--	11.9 U	15.6 UJ	10.9 U	48.3 U	50.6 U	22.4 U	20.0 U	65.3 U	11.1 U	200 U	--	11.9 U	13 U	15.1	53.5 U	49.6 U	19.9 U	20.0 U	36.7 U	11.1 U
Antimony	2 U	--	3.8 U	3.7 UJ	1.6 U	1.2 U	1.1 U	1.8 U	1.2 U	1.7 U	2.1 U	2 U	--	3.8 U	3.7 U	1.6 U	1.2 U	1.1 U	1.8 U	1.2 U	1.7 U	2.1 U
Arsenic	1.8 U	--	3 U	3.7 UJ	2 U	1.4 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U	1.8 U	--	3 U	3.7 U	2 U	1.4 U	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U
Barium	61	--	71.5	57.9 J	58	20.5	40.9	59.2	51.3	34.2	73.2	63.7	--	68	53.7	62.3	19.8	39.8	60.1	62.8	36.6	71.3
Beryllium	0.1 U	--	0.1 U	0.62 UJ	0.11 U	0.16 U	0.64 U	0.45 U	0.10 U	0.47 U	0.20 U	0.1 U	--	0.1 U	0.38 U	0.12 U	0.17 U	0.66 U	0.41 J	0.10 U	0.30 U	0.20 U
Cadmium	0.2 U	--	0.4 U	0.5 UJ	0.2 U	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U	0.2 U	--	0.4 U	0.5 U	0.2 U	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U
Calcium	20200	--	21400	18500 J	17800	6280	13300	19200	19500	12300	22100	21000	--	20400	17600	19200	6720	13100	19300	19900	13000	22000
Chromium	0.5 U	--	1.5 U	1.1 UJ	0.6 U	0.43 U	0.60 U	0.50 U	0.52 U	0.60 U	0.30 U	0.5 U	--	1.2 U	1.3 U	0.6 U	0.58 U	0.60 U	0.50 U	0.55 U	0.66	0.30 U
Cobalt	50 U	--	1.3 U	1.1 UJ	0.5 U	0.50 U	0.46	0.93	1.4 U	0.62 U	0.90 U	50 U	--	1.1 U	1.6	0.5 U	0.50 U	0.53	0.71	1.1 U	0.61 U	0.90 U
Copper	0.5 U	--	0.9 U	1.1 J	1.3	1.8	2.5 U	1.5 U	3.5 U	3.1 U	1.6 U	0.5 U	--	0.9 U	1.4	1.6	2.2	2.6 U	1.5 U	3.8 U	3.2 U	1 U
Lead	0.9 U	--	1.2 U	1.6 UJ	1.1 U	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	1.3 U	0.9 U	--	1.2 U	1.6 U	1.1 U	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	1.8 U
Magnesium	7660	--	8600	6960 J	6760	2870	4660	7220	7270	4660	8970	7950	--	8250	6460 J	7370	2540	4520	7310	8150	5030	8930
Mercury	0.1 U	--	0.1 U	0.1 UJ	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U	--	0.1 U	0.1 U	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel	0.5 U	--	3.1 U	2.4 J	3.3	1.5	2.5	1.4	2.8 U	2.0 U	2.2	0.5 U	--	3.4 U	3.1	3	1.4	2.4	1.5	2.7 U	2.3 U	2.2
Potassium	3730	--	3530 J	4610 J	4330	1990	3430	4600	3160	2790	2710 J	3580	--	3380 J	4520 J	5800	1980	3450	4510	4370	3070	2880 J
Selenium	2.6 U	--	2.3 U	4.5 UJ	4.3 U	3.3 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U	3.1	--	4.1 U	4.5 U	4.3 U	3.3 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	0.7 U	--	1.4 U	1.3 UJ	0.2 U	0.50 U	0.50 U	0.30 U	0.59 U	0.40 U	1.2 U	0.7 U	--	1.4 U	1.3 U	0.2 U	0.50 U	0.50 U	0.30 U	0.59 U	0.40 U	1.2 U
Sodium	30300	--	54600	41500 J	22300	6050	20600	30300	21400	13200	52900	32300	--	53600	46400	23300	9120	20000	31700	26600	13800	53000
Thallium	1.9 U	--	2.9 U	4 UJ	4.5 U	3.9 U	2.1 U	3.6 U	3.2 U	3.4 U	2.9 U	1.9 U	--	2.9 U	4 U	4.5 U	3.9 U	2.1 U	3.6 U	3.2 U	3.4 U	2.9 U
Vanadium	0.4 U	--	1 U	0.8 UJ	0.5 U	0.31	0.74 U	0.30 U	0.40 U	0.81 U	0.50 U	0.4 U	--	1 U	1	0.5 U	0.57	0.77 U	0.30 U	0.61 U	0.79 U	0.50 U
Zinc	8.1	--	14.3 U	8.3 UJ	15.5	9.2	11.8	9.7 U	7.1	13.1 U	10	10.3	--	13.6 U	10.9 UJ	15.2	11.4	13.8	8.9 U	8.6	12.6 U	9
Dissolved Manganese (mg/l)	0.236	0.288	0.309	0.177 J	0.148	0.0246	0.103	0.144	0.423	0.0814	0.224	0.220	0.283	0.254	0.150	0.0691	0.0369	0.0979	0.129	0.397	0.093	0.209
Dissolved Iron (mg/l)	0.011 U	1.06	0.335	0.139 UJ	0.122	0.108	0.310	0.0124 U	0.141	0.324	0.0586 U	0.337	1.07	0.621	0.0914 U	0.0841	0.139	0.287	0.0124 U	0.784	0.382	0.021 U
***Pesticides/Herbicides* (µg/l)**																						
4,4'-DDD	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.002 J	0.020 U	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
4,4'-DDE	0.02 UJ	0.02 U	0.02 U	0.0027 JN	0.01 J	0.020 U	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.0016 J	0.02 U	0.020 U	--	--	--	--	--
4,4'-DDT	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--	0.02 U	0.0033 J	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Aldrin	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
alpha-BHC	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.011 J	0.010 U	--	--	--	--	--
Alpha-Chlorodane	0.01 UJ	0.01 U	0.01 U	0.01 UJ	0.0049 J	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
beta-BHC	0.01 U	0.01 U	0.01 U	0.017 J	0.01 U	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.0067 J	0.01 U	0.010 U	--	--	--	--	--
delta-BHC	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Dieldrin	0.02 UJ	0.02 U	0.0068 J	0.02 UJ	0.0073 J	0.020 U	--	--	--	--	--	0.0076 J	0.011 J	0.0078 J	0.02 UJ	0.0053 J	0.020 U	--	--	--	--	--
Endosulfan I	0.01 UJ	0.01 U	0.01 U	0.01 UJ	0.01 U	0.0014 J	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.0023 J	--	--	--	--	--
Endosulfan II	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Endosulfan sulfate	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.0073 J	0.020 U	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Endrin	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.0077 J	0.020 U	--	--	--	--	--
Endrin Aldehyde	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Endrin Ketone	0.02 UJ	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
gamma-BHC (Lindane)	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
gamma-Chlorodane	0.01 UJ	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Heptachlor	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Heptachlor Epoxide	0.01 UJ	0.01 U	0.016 JN	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--	0.01 U	0.01 U	0.017	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Methoxychlor.	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.10 U	--	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 UJ	0.0047 J	0.10 U	--	--	--	--	--
Toxaphene	--	--	--	1 UJ	1 U	1.0 U	--	--	--	--	--	--	--	--	1 UJ	1 U	1.0 U	--	--	--	--	--

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

B - Analyte Detected in Method Blank

-- Not analyzed

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.

K - Analyte present. May be biased High.

L - Analyte present. May be biased low

R - Data Rejected

P - Discrepency in GC analysis. Lower value reported.

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Table 4 (continued)

Summary of Surface-Water Quality Data for Army Creek and Army Pond

Parameter	SWG										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Non-Halogenated VOCs (µg/l)											
Benzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Toluene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	0.19 J	1 U	1 U	1 U	1 U
Ethylbenzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	0.5 U	5 U	5 U	5 U	5 U	10 U	3 U	3 U	3 U	3 U	3 U
2-Butanone	5 U	10 U	10 R	10 R	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U
Acetone	5 U	20 R	20 R	20 R	20 R	10 U	5 UJ	11 U	5 U	5 UJ	5 U
Carbon Disulfide	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
Isopropylbenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Methy-tert-butyl ether	0.5 K	–	–	–	–	1.1 J	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 UJ
4-Methy-2-pentanone	5 U	10 U	10 U	10 U	10 UJ	10 U	5 U	5 U	5 U	5 U	5 U
Halogenated VOCs (µg/l)											
Bromoform	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 UJ
Bromodichloromethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	0.5 U	5 UJ	5 U	5 U	5 UJ	10 UJ	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	0.18 J	1 U	1 U
Dibromochloromethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 R	1 U	1 U	1 U	1 U
Tetrachloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	0.5 U	–	–	–	–	10 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	0.5 U	5 U	5 U	5 U	5 UJ	10 U	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	0.27 K	5 U	5 U	5 U	5 UJ	10 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ
Trichlorofluoromethane	0.5 U	–	–	–	–	10 U	1 UJ	1 U	1 U	1 U	1 U
Semi-Volatiles (µg/l)											
1,1'-Biphenyl	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
2,2'-oxybis (1-Chloropropane)	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 UL	5 U	5 UL
2,4-Dimethylphenol	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
2,4-Dinitrophenol	20 U	20 U	20 UJ	20 UL	20 U	20 UL	20 U	20 UL	20 UL	20 U	20 UL
2,6-Dinitrotoluene	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
2-Methylnaphthalene	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UL
2-Methylphenol	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
4,6-Dinitro-2-methylphenol	20 U	20 U	20 U	20 UJ	20 U	20 UL	20 U	20 U	20 U	20 U	20 UL
4-Methylphenol	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
Acetophenone	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Atrazine	5 UJ	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 UL	5 U	5 UL
Benzaldehyde	5 UJ	5 U	5 UL	5 UL	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL
Benzo (a) pyrene	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (b) Fluoranthene	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (g,h,i) Perylene	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Benzo (k) Fluoranthene	5 UJ	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Bis(2-chloroethyl)Ether	0.019 U	0.021	0.041	0.02 UJ	0.019 UL	5 U	5 U	5 U	5 UL	5 U	5 UL
Bis(2-ethylhexyl)phthalate	5 U	5 U	5 U	5 UL	5 U	5 U	5 UL	5 UL	5 UL	5 U	5 UL
Caprolactam	5 UJ	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 U	5 UL
Di-n-butyl phthalate	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UL
Di-n-octyl phthalate	5 U	5 U	5 U	5 UL	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UL
Dibenzo (a,h) Anthracene	5 U	5 U	5 U	5 UL	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
Diethylphthalate	5 U	5 U	5 U	5 UL	5 U	5 UL	5 U	5 UL	5 UL	5 U	5 UL
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
Indeno (1,2,3-cd) Pyrene	5 U	5 U	5 U	5 UJ	5 U	5 UL	5 UL	5 UL	5 UL	5 UL	5 UL
N-Nitrosodiphenylamine	5 U	5 U	5 UJ	5 UJ	5 U	5 UL	5 U	5 U	5 U	5 U	5 UL
Naphthalene	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UL	5 UL	5 U	5 UL
Pentachlorophenol	5 U	5 U	5 UJ	5 UL	5 U	5 U	5 U	5 U	5 UL	5 U	5 UL
Phenol	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 UL
Biological Oxygen Demand (mg/l)	–	–	1.8	4.4	2.4	3.9	3	10	5	–	–
Field Parameters											
Temperature (Degrees Celcius)	16.2	–	11.7	23.01	12.3	7.1	19.2	29.6	19.0	-6.3	20.4
Conductivity µs/cm)	338	–	291	299	294	105	273	270	278	107	334
pH (standard units)	8.25	–	5.89	6.40	6.76	7.40	7.08	6.93	6.94	6.62	7.66
Dissolved Oxygen (mg/l)	5.38	–	7.55	1.78	3.83	9.93	7.45	7.44	7.03	9.36	10.55
ORP (mV)	-7.3	–	51	76.9	-24	180	82	55	37	42	77

U - Analyte was not detected above the reporting limit.
J - Estimated concentration.
B - Analyte Detected in Method Blank
-- Not analyzed.
UL - Not detected, quantitation limit is probably higher

D - Sample diluted in the lab for analysis
K - Analyte present. May be biased High.
L - Analyte present. May be biased low
R - Data Rejected

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Table 4 (continued)

Summary of Surface-Water Quality Data for Army Creek and Army Pond

Parameter	SWG										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Inorganics (µg/l)											
Aluminum	4.4 U	--	11.9 U	18.7 UJ	27.1 U	83.7 U	50.5 U	37.6 U	20.0 U	43.0 U	11.1 U
Antimony	2 U	--	3.8 U	3.7 UJ	1.6 U	1.2 U	1.1 U	1.8 U	1.2 U	1.7 U	2.1 U
Arsenic	1.8 U	--	3 U	3.7 UJ	2 U	2.4	1.6 U	2.8 U	2.6 U	2.2 U	2.8 U
Barium	52.6	--	51.1	59.4 J	70.5	17.9	48.3	47.3	55.1	30.6	67.5
Beryllium	0.1 U	--	0.1 U	0.59 UJ	0.2 U	0.38 U	0.65 U	0.62 U	0.10 U	0.30 U	0.20 U
Cadmium	0.2 U	--	0.4 U	0.5 UJ	0.2 U	0.23 U	0.20 U	0.40 U	0.20 U	0.20 U	0.40 U
Calcium	18600	--	17200	20100 J	18000	6150	13500	17800	19000	11100	22300
Chromium	0.5 U	--	1.6 U	1.1 UJ	0.6 U	0.72 U	0.60 U	0.50 U	0.77 U	0.60 U	0.30 U
Cobalt	50 U	--	1.1 U	1.1 UJ	0.75	0.50 U	0.40	2.4	0.65 U	0.40 U	0.90 U
Copper	0.5 U	--	0.99	0.83 J	1.2	2.4	2.2 U	1.7	3.4 U	3.3 U	1.2 U
Lead	0.9 U	--	1.2 U	1.6 UJ	1.1 U	1.0 U	1.0 U	1.9 U	1.6 U	1.2 U	1.5 U
Magnesium	7060	--	6240	8780 J	7410	2090	5070	6760	7090	3950	8610
Mercury	0.2 U	--	0.1 U	0.1 UJ	0.1 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel	0.5 U	--	3.6 U	2.9 J	2.6	1.5	2.0	1.4	1.9 U	2.2 U	2.5
Potassium	3560	--	3140 J	3580 J	4270	1810	3520	4390	4160	2910	2420 J
Selenium	2.6 U	--	1.7 U	4.5 J	4.3 U	3.3 U	1.8 U	2.2 U	2.5 U	2.1 U	2.7 U
Silver	0.7 U	--	1.4 U	1.3 UJ	0.2 U	0.50 U	0.50 U	0.30 U	0.53 U	0.40 U	1.2 U
Sodium	24100	--	26900	26800 J	18700	6130	17300	17700	17900	11300	43300
Thallium	1.9 U	--	2.9 U	4 UJ	4.5 U	3.9 U	2.1 U	3.6 U	3.3 U	3.4 U	2.9 U
Vanadium	0.4 U	--	1 U	0.96 J	0.5 U	0.85	0.59 U	0.78	0.40 U	0.67 U	0.50 U
Zinc	8.7	--	10.7 U	5.3 UJ	13.1	11	6.1	7.7 U	6.2	10.7 U	8.8
Dissolved Manganese (mg/l)	0.173	0.339	0.263	0.190 J	0.322	0.0404	0.188	0.126	0.163	0.0787	0.164
Dissolved Iron (mg/l)	0.011 U	0.713	0.207 U	0.571 J	1.29	0.159	0.390	0.112	0.0663 U	0.295	0.108 U
Pesticides/Herbicides (µg/l)											
4,4'-DDD	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
4,4'-DDE	0.02 U	0.02 U	0.02 U	0.0039 J	0.0077 J	0.020 U	--	--	--	--	--
4,4'-DDT	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Aldrin	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
alpha-BHC	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Alpha-Chlorodane	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
beta-BHC	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
delta-BHC	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Dieldrin	0.02 U	0.0083 J	0.02 U	0.0071 JN	0.02 U	0.020 U	--	--	--	--	--
Endosulfan I	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.0035 J	--	--	--	--	--
Endosulfan II	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Endosulfan sulfate	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Endrin	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Endrin Aldehyde	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
Endrin Ketone	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.020 U	--	--	--	--	--
gamma-BHC (Lindane)	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
gamma-Chlorodane	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Heptachlor	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Heptachlor Epoxide	0.01 U	0.01 U	0.025 J	0.01 UJ	0.01 U	0.010 U	--	--	--	--	--
Methoxychlor	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.10 U	--	--	--	--	--
Toxaphene	--	--	--	1 UJ	1 U	1.0 U	--	--	--	--	--

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
U - Analyte was not detected above the reporting limit.
J - Estimated concentration.
B - Analyte Detected in Method Blank
-- Not analyzed
D - Sample diluted in the lab for analysis.
K - Analyte present. May be biased High.
L - Analyte present. May be biased low
R - Data Rejected
P - Discrepency in GC analysis. Lower value reported.

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Table 5

Summary of Sediment Data for Army Creek and Army Pond

Parameter	SEDA											SEDB										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Semi-Volatiles **(µg/kg)**																						
1,1'-Biphenyl	410 U	520 U	520 UJ	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 UJ	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
2,2'-oxybis (1-Chloropropane)	410 U	520 UL	520 UJ	520 UL	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 UL	470 UJ	410 UL	450 U	730 U	650 U	410 U	450 U	750 U	460 U
2,4-Dimethylphenol	410 U	520 UL	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 UL	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
2,4-Dinitrophenol	1000 UJ	1300 U	1300 UL	1300 UJ	1300 UL	1400 UL	1200 UL	1300 R	1200 UL	1300 UL	1300 U	1300 UJ	1200 U	1200 UL	1000 UJ	1100 UL	1800 UL	1600 UL	1000 R	1100 UL	1900 UL	1200 U
2,6-Dinitrotoluene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
2-Methylnaphthalene	410 U	520 U	520 UJ	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 UJ	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
2-Methylphenol	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
4,6-Dinitro-2-methylphenol	1000 UJ	1300 UL	1300 U	1300 UJ	1300 U	1400 UL	1200 U	1300 UL	1200 U	1300 UL	1300 U	1300 UJ	1200 UL	1200 U	1000 UJ	1100 U	1800 UL	1600 U	1000 UL	1100 U	1900 UL	1200 U
4-Methylphenol	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	520 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Acetophenone	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	520 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Atrazine	410 U	520 U	520 UJ	520 UL	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	520 UJ	410 UL	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Benzaldehyde	410 UJ	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 UJ	490 U	520 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Benzo (a) anthracene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Benzo (a) pyrene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Benzo (b) Fluoranthene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	140 J	410 U	450 U	180 J	460 U
Benzo (g,h,i) Perylene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 UL	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 UL	460 U
Benzo (k) Fluoranthene	410 UJ	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 UJ	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Bis(2-chloroethyl)Ether	0.41 UJ	1.1	0.52 U	2.1 UJ	2 U	540 U	480 U	530 U	460 U	510 U	500 U	0.79 J	0.5	0.48 U	1.6 UJ	1.8 U	730 U	650 U	410 U	450 U	750 U	460 U
Bis(2-ethylhexyl)phthalate	410 U	520 U	520 UJ	520 UJ	500 U	540 U	110 J	530 U	460 U	510 U	500 U	520 U	490 U	470 UJ	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Caprolactam	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Di-n-butyl phthalate	410 U	520 UL	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 UL	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Di-n-octyl phthalate	410 UJ	520 U	520 UJ	520 UJ	500 U	540 U	480 UJ	530 U	460 U	510 U	500 U	520 UJ	490 U	470 UJ	410 UJ	450 U	730 U	650 UJ	410 U	450 U	750 U	460 U
Dibenzo (a,h) Anthracene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Diethylphthalate	410 U	520 U	520 U	520 UJ	500 U	540 U	480 UJ	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 UJ	410 U	450 U	750 U	460 U
Hexachlorocyclopentadiene	410 UJ	520 U	520 U	520 UJ	500 U	540 U	480 U	530 UL	460 UL	510 UL	500 UL	520 UJ	490 U	470 U	410 UJ	450 U	730 U	650 U	410 UL	450 UL	750 UL	460 UL
Indeno (1,2,3-cd) Pyrene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
N-Nitrosodiphenylamine	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Naphthalene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Pentachlorophenol	1000 UJ	1300 U	1300 U	1300 UJ	1300 UL	1400 U	1200 U	1300 UL	1200 UL	1300 U	1300 UL	1300 UJ	1200 U	1200 U	1000 UJ	1100 UL	1800 U	1600 U	1000 UL	1100 UL	1900 U	1200 UL
Phenol	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Chrysne	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Fluoranthene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	150 J	410 U	450 U	170 J	460 U
Phenanthrene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U
Carbazole	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 UL	460 UL	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 UL	450 UL	750 U	460 U
Pyrene	410 U	520 U	520 U	520 UJ	500 U	540 U	480 U	530 U	460 U	510 U	500 U	520 U	490 U	470 U	410 UJ	450 U	730 U	650 U	410 U	450 U	750 U	460 U

U - Analyte was not detected above the reporting limit.
J - Estimated concentration.
-- Not analyzed

UL - Not detected, quantitation limit is probably higher

K - Analyte present. May be biased High.
L - Analyte present. May be biased low
R - Data Rejected

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Table 5 (continued)

Summary of Sediment Data for Army Creek and Army Pond

Parameter	SEDA											SEDB										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
***Inorganics* (mg/kg)**																						
Aluminum	28300	48100	22900	25100 J	23000	24000	28100	22700	23500	34600	32500	25900	29900	11400 L	1840 J	4330	16700	13200	1340	2270	18400	1730
Antimony	*0.48 U*	*0.9 J*	*1.2 UL*	*1.1 UJ*	*0.86 UJ*	*0.98 J*	*0.74 L*	*1.1 UJ*	*0.99 UJ*	*1.3 L*	*0.64 R*	*0.59 U*	*0.85 J*	*1 UL*	*0.86 UJ*	*0.42 UJ*	*1.1 J*	*0.53 L*	*0.74 UJ*	*0.30 UJ*	*0.77 UL*	*0.57 R*
Arsenic	3	4.3	4.5	2.9 J	3.2	5.7	3.8	3.9	3.9	5.9	4.1 L	3.9	4.8	2.8 L	0.86 UJ	0.79	5.0	1.7 J	0.69 U	0.65 U	4.2	0.76 UL
Barium	66.2	137	75.9	67.5 J	93.3	92.6	131	84.7	87.9	129	87.0	96.6	103	55.4 U	10.4 J	25.6	137	106	7.7	19.5	156	10.4
Beryllium	0.84	1.4	0.74 U	0.83 J	0.51	0.93	1.1	0.72 U	0.95 U	1.4	1.3	1	0.95	0.4 U	0.13 J	0.17	0.83	0.92	0.15 U	0.22 U	1.1	0.13 U
Cadmium	0.23	0.86	1.1 U	0.2 J	0.12	0.082	0.058 U	0.13 U	0.48 U	0.062 U	0.12 U	0.21	0.73	0.71 U	0.12 UJ	0.053 U	0.088 U	0.18	0.099 U	0.050 U	0.15 U	0.11 U
Calcium	698	794	1070 J	687 J	980	1310	1120	580 J	650 J	1120 J	795	696	786	644 UJ	137 UJ	347	2690	2940	108 J	734 J	2850 J	152
Chromium	20.5	42 J	19.3	20.1 J	21.6	23.8	23.6	21.0	21.5	30.1	28.8	26.3	29.6 J	11.9 L	3.6 J	8.7	20.8	15.3	2.4	4.0	27.2	5.0
Cobalt	14.9	12.5 J	10.9 U	12.4 J	16.7	17.7	18.9	21.0 J	15.5	25.8	14.8	12.3	18.7 J	11.1 L	4.1 J	5.7	18.4	10	2.2 J	6.1	23.6	6.4
Copper	9.1	17.9	9.1	8.7 J	12.3	14.2	14.0	11.4	12.5	15.5	12.3	12.9	14.2	7.7 L	1.8 J	3.8	16.3	17.2	1.4	3.4	24.8	6.4
Iron	25500	38100 J	30900	24400 J	26800	33400	30600	36100	30500	47800	56900 J	26400	29700 J	16500 L	2990 J	5910	22100	11300	2050	4090	22200	3050 J
Lead	18.4	31.4 J	21.2 J	18.9 J	30.1	57.2	43.1	20.5 J	24.8	33.9	23.7 K	45	33 J	18 L	5.3 J	11.8	56.8	27.8	4.3 J	7.5	57.9	7.7 K
Magnesium	783	1480 J	716	711 J	1060	1300	1180	766 J	827 J	1200 J	902	1050	1150 J	556 L	113 J	315	1620	1460	87.6 J	192 J	1880 J	146 U
Manganese	343	242 J	520 K	264 J	358 J	439	348 L	387 J	374 J	608 L	247	186	179 J	103 L	24.1 J	46.5 J	418	170 L	13.6 J	37.8 J	302 L	22.9
Mercury	3.2	0.89 J	0.078 U	0.058 UJ	0.075 U	0.082 U	0.072 U	0.081 U	0.070 U	0.077 U	0.15 U	0.079 U	0.061 UJ	0.068 U	0.056 UJ	0.064 U	0.10 U	0.079	0.063 U	0.061 U	0.099 U	0.070 U
Nickel	10.9	21.2	11.2	11.6 J	13.8	15.5 J	14.6	12.6	12.1	18.6 J	15.1 J	13.1	16.7	8.5 L	3 J	5.1	17.2 J	15.2	1.9	3.9	24.6 J	3.2 J
Potassium	710	1600	657	651 J	839	947 J	1150	596 J	801 J	1040 J	703 J	819	1090	411 L	72.7 J	192	838 J	737	46.4 J	83.2 J	885 J	54.5 J
Selenium	0.63 U	1.2 UJ	0.52 UL	1.3 UJ	1.3 UJ	1.4	0.52 UL	0.71 UJ	0.70 U	0.65 UL	0.82 UL	0.77 U	1.1 UJ	0.49 UL	1 UJ	1.1 UJ	1.9	1.9 L	0.55 UJ	0.63 U	3.0 L	0.73 UL
Silver	0.17 U	0.22 U	0.43 U	0.38 UJ	0.06 U	0.16 U	0.14 U	0.097 U	0.14 U	0.12 U	0.36 U	0.21 U	0.2 U	0.37 U	0.3 UJ	0.053 U	0.22 U	0.19 U	0.074 U	0.13 U	0.18 U	0.32 U
Sodium	152 U	141	126 U	69.1 UJ	126	112 U	341	155 U	260	94.9 U	130 U	193 U	92	57.4 U	55.1 UJ	112	223 J	190	216 U	99.3	175 U	169 U
Thallium	0.54	2 U	5.2	1.2 UJ	1.6 J	1.3 U	0.61 U	1.2 U	0.90 U	1.1 U	2 U	0.56 U	1.7 U	1.2 L	0.93 UJ	1.2 UJ	1.7 U	0.80 U	0.89 U	0.81 U	1.5 U	0.78 U
Vanadium	37.6	77.1	35.1	36.7 J	40.7	46.2	46.1	41.8	43.4	60.5	57.2	48.5	58.2	22.4 L	4.6 J	9.8	46.4	27.0	3.7	6.3	48.7	5.9
Zinc	38.2	68.7	50.7 J	39.8 J	59.8	72.1	56.5	42.8 J	36.9	61.2	61.0	47.5	57.7	43.9 L	16.6 UJ	20.7	78.9	90.8	13.1 J	21.6	124	20.0
***Pesticides/Herbicides* (µg/kg)**																						
4,4'-DDD	6.8	5.2 U	5.2 U	5.2 UJ	5 U	5.4 U	–	–	–	–	–	6.3	4.9 U	4.7 U	4.1 UJ	4.5 U	7.3 U	–	–	–	–	–
4,4'-DDE	1.8 J	5.2 U	1.7 J	5.2 UJ	2.3 J	1.6 J	–	–	–	–	–	1.3 J	4.9 U	1.2 J	4.1 UJ	1.6 J	1.7 J	–	–	–	–	–
4,4'-DDT	4.1 U	5.2 U	5.2 U	5.2 UJ	5 U	5.4 U	–	–	–	–	–	5.2 U	4.9 U	4.7 U	4.1 UJ	4.5 U	7.3 U	–	–	–	–	–
Aldrin	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	2.8 U	–	–	–	–	–	2.7 U	2.5 U	2.4 U	2.1 UJ	2.3 U	3.8 U	–	–	–	–	–
alpha-BHC	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	2.8 U	–	–	–	–	–	2.7 U	2.5 U	2.4 U	2.1 UJ	2.3 U	3.8 U	–	–	–	–	–
Alpha-Chlorodane	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	2.8 U	–	–	–	–	–	2.7 U	0.94 J	2.4 U	2.1 UJ	1.5 J	3.8 U	–	–	–	–	–
beta-BHC	2.1 U	2.7 U	2.7 U	2.7 UJ	1.4 J	2.8 U	–	–	–	–	–	2.7 U	2.5 U	2.4 U	2.1 UJ	2.3 U	1.2 J	–	–	–	–	–
delta-BHC	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	2.8 U	–	–	–	–	–	2.7 U	2.5 U	2.4 U	2.1 UJ	2.3 U	3.8 U	–	–	–	–	–
Dieldrin	4.1 U	5.2 U	5.2 U	5.2 UJ	5 U	5.4 U	–	–	–	–	–	5.2 U	4.9 U	4.7 U	4.1 UJ	4.5 U	7.3 U	–	–	–	–	–
Endosulfan I	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	2.8 U	–	–	–	–	–	2.7 U	2.5 U	2.4 U	2.1 UJ	2.3 U	3.8 U	–	–	–	–	–
Endosulfan II	4.1 U	5.2 U	5.2 U	5.2 UJ	5 U	5.4 U	–	–	–	–	–	5.2 U	4.9 U	4.7 U	4.1 UJ	4.5 U	7.3 U	–	–	–	–	–
Endosulfan sulfate	4.1 U	5.2 U	5.2 U	5.2 UJ	5 U	5.4 U	–	–	–	–	–	5.2 U	4.9 U	4.7 U	4.1 UJ	6	7.3 U	–	–	–	–	–
Endrin	4.1 U	5.2 U	5.2 U	5.2 UJ	5 U	5.4 U	–	–	–	–	–	5.2 U	4.9 U	4.7 U	4.1 UJ	4.5 U	7.3 U	–	–	–	–	–
Endrin Aldehyde	4.1 U	5.2 U	5.2 U	5.2 UJ	5 U	5.4 U	–	–	–	–	–	5.2 U	4.9 U	4.7 U	4.1 UJ	4.5 U	1.7 J	–	–	–	–	–
Endrin Ketone	4.1 U	5.2 U	5.2 U	5.2 UJ	5 U	5.4 U	–	–	–	–	–	5.2 U	4.9 U	4.7 U	4.1 UJ	4.5 U	7.3 U	–	–	–	–	–
gamma-BHC (Lindane)	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	2.8 U	–	–	–	–	–	2.7 U	2.5 U	2.4 U	2.1 UJ	2.3 U	3.8 U	–	–	–	–	–
gamma-Chlorodane	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	0.62 J	–	–	–	–	–	2.7 U	0.72 J	2.4 U	2.1 UJ	2.3 U	3.8 U	–	–	–	–	–
Heptachlor	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	2.8 U	–	–	–	–	–	2.7 U	2.5 U	2.4 U	2.1 UJ	2.3 U	3.8 U	–	–	–	–	–
Heptachlor Epoxide	2.1 U	2.7 U	2.7 U	2.7 UJ	2.6 U	2.8 U	–	–	–	–	–	2.7 U	2.5 U	2.4 U	2.1 UJ	2.3 U	3.8 U	–	–	–	–	–
Methoxychlor	21 U	27 U	27 U	27 UJ	26 U	28 U	–	–	–	–	–	27 U	25 U	24 U	21 UJ	23 U	38 U	–	–	–	–	–
Toxaphene	–	–	–	270 UJ	260 U	280 U	–	–	–	–	–	–	–	–	210 UJ	230 U	380 U	–	–	–	–	–

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

– Not analyzed.

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.

K - Analyte present. May be biased High.

L - Analyte present. May be biased low

R - Data Rejected

P - Discrepency in GC analysis. Lower value reported.

S - Sample spike recovery is outside of control limits

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Table 5 (continued)

Summary of Sediment Data for Army Creek and Army Pond

Parameter	SEDC											SEDD										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Semi-Volatiles **(µg/kg)**																						
1,1'-Biphenyl	1400 U	470 U	790 UJ	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 UJ	940 UJ	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
2,2'-oxybis (1-Chloropropane)	1400 U	470 UL	790 UJ	520 UL	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 UL	920 UJ	940 UL	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
2,4-Dimethylphenol	1400 U	470 UL	790 U	520 UJ	530 U	410 U	400 U	920 U	670 U	770 U	830 U	570 U	1000 UL	920 U	940 UJ	750 U	700 U	700 U	920 U	850 U	790 U	730 U
2,4-Dinitrophenol	3600 UJ	1200 U	2000 UL	1300 UJ	1300 UL	1000 UL	1000 UL	2300 R	1700 UL	1900 U	2100 U	1400 UJ	2600 U	2300 UL	2400 UJ	1900 UL	1800 UL	1800 UL	2300 R	2100 UL	2000 U	1800 U
2,6-Dinitrotoluene	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
2-Methylnaphthalene	1400 U	470 U	790 UJ	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 UJ	940 UJ	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
2-Methylphenol	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 U	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 U	850 U	790 U	730 U
4,6-Dinitro-2-methylphenol	3600 UJ	1200 UL	2000 U	1300 UJ	1300 U	1000 UL	1000 U	2300 UL	1700 U	1900 UL	2100 U	1400 UJ	2600 UL	2300 U	2400 UJ	1900 U	1800 UL	1800 U	2300 UL	2100 U	2000 UL	1800 U
4-Methylphenol	430 J	470 U	790 U	520 UJ	530 U	410 U	400 U	920 U	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 U	850 U	790 U	730 U
Acetophenone	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	1200 L	850 U	790 U	730 U
Atrazine	1400 U	470 U	790 UJ	520 UL	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 UJ	940 UL	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
Benzaldehyde	*1400 UJ*	*470 U*	*790 U*	*520 UJ*	*530 U*	*410 U*	*400 U*	*920 UL*	*670 U*	*770 U*	*830 U*	*570 UJ*	*1000 U*	*920 U*	*940 UJ*	*750 U*	*700 U*	*700 U*	*920 UL*	*850 U*	*790 U*	*730 U*
Benzo (a) anthracene	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	300 J	470 J	700 U	430 J	250 L	850 U	280 J	260 J
Benzo (a) pyrene	1400 U	470 U	300 J	520 UJ	530 U	410 U	400 U	290 L	670 U	180 J	190 J	570 U	1000 U	330 J	550 J	730 J	190 J	850	410 L	190 J	490 J	420 J
Benzo (b) Fluoranthene	1400 U	470 U	440 J	520 UJ	530 U	410 U	400 U	410 L	190 J	280 J	330 J	570 U	1000 U	460 J	730 J	1200	300 J	1500	680 L	330 J	700 J	700 J
Benzo (g,h,i) Perylene	1400 U	470 U	280 J	520 UJ	530 U	410 U	400 U	300 L	670 U	770 UL	230 J	570 U	1000 U	350 J	590 J	880	700 U	870	920 UL	850 U	260 L	420 J
Benzo (k) Fluoranthene	1400 U	470 U	370 J	520 UJ	530 U	410 U	400 U	390 L	170 J	230 J	230 J	570 UJ	1000 U	450 J	680 J	820	230 J	890	470 L	220 J	640 J	430 J
Bis(2-chloroethyl)Ether	1.4 U	0.64	7.9	2 UJ	2.1 U	410 U	400 U	920 UL	670 U	770 U	830 U	0.57 U	1.5	6.8	3.7 UJ	3 U	700 U	700 U	920 UL	850 U	790 U	730 U
Bis(2-ethylhexyl)phthalate	420 J	470 U	470 J	520 UJ	530 U	410 U	99 J	920 UL	230 J	770 U	320 J	570 U	1000 U	410 J	390 J	750 U	160 J	520 J	1200 UL	270 J	790 U	360 J
Caprolactam	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
Di-n-butyl phthalate	1400 U	470 UL	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 UL	920 U	940 UJ	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
Di-n-octyl phthalate	1400 UJ	470 U	790 UJ	520 UJ	530 U	410 U	400 UJ	920 UL	670 U	770 U	830 U	570 UJ	1000 U	920 UJ	940 UJ	750 UL	700 U	700 UJ	920 UL	850 U	790 U	730 U
Dibenzo (a,h) Anthracene	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	200 J	700 U	330 J	920 UL	850 U	180 J	730 U
Diethylphthalate	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 UJ	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 UJ	920 UL	850 U	790 U	730 U
Hexachlorocyclopentadiene	1400 UJ	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 UL	770 UL	830 UL	570 UJ	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 R	850 UL	790 UL	730 UL
Indeno (1,2,3-cd) Pyrene	1400 U	470 U	290 J	520 UJ	530 U	410 U	400 U	330 L	160 J	240 J	240 J	570 U	1000 U	320 J	580 J	840	700 U	1100	430 L	240 J	630 J	460 J
N-Nitrosodiphenylamine	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
Naphthalene	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 UL	850 U	790 U	730 U
Pentachlorophenol	3600 U	1200 U	2000 U	1300 UJ	1300 UL	1000 U	1000 U	2300 UL	1700 UL	1900 U	2100 UL	1400 U	2600 U	2300 U	2400 UJ	1900 U	1800 U	1800 U	2300 U	2100 UL	2000 U	1800 UL
Phenol	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 U	850 U	790 U	730 U
Chrysne	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	420 L	180 J	240 J	270 J	570 U	1000 U	920 U	680 J	990	240 J	1100	610 L	300 J	590 J	520 J
Fluoranthene	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	590 L	200 J	350 J	340 J	570 U	1000 U	920 U	1000 J	1400	360 J	1400	920 L	380 J	980	740
Phenanthrene	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 U	770 U	830 U	570 U	1000 U	920 U	330 J	410 J	700 U	440 J	260 L	850 U	310 J	200 J
Carbazole	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	920 UL	670 UL	770 U	830 U	570 U	1000 U	920 U	940 UJ	750 U	700 U	700 U	920 UL	850 UL	790 U	730 U
Pyrene	1400 U	470 U	790 U	520 UJ	530 U	410 U	400 U	490 L	260 J	240 J	300 J	570 U	1000 U	920 U	800 J	1400	260 J	1200	740 L	420 J	640 J	630 J

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

-- Not analyzed

UL - Not detected, quantitation limit is probably higher

K - Analyte present. May be biased High.

L - Analyte present. May be biased low

R - Data Rejected

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Table 5 (continued)

Summary of Sediment Data for Army Creek and Army Pond

Parameter	SEDC											SEDD										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
***Inorganics* (mg/kg)**																						
Aluminum	15800	13600	16800	10600 J	6420	13500	5080	18500	16400	14700	19500	15800	28400	26900	24000 J	22600	24700	27300	16300	20500	17300	16700
Antimony	1.6 U	1 J	1.5 UL	1.1 UJ	0.51 UJ	0.28 UJ	0.27 R	2.3 UJ	0.90 UJ	0.74 UL	1 R	0.65 U	1.7 J	2 UL	2 UJ	1.4 UJ	1.4 J	0.95 L	2.5 UJ	1.2 UJ	1.1 L	0.96 R
Arsenic	13.1	4.1	3.7	1.8 J	0.85	3.7	0.39 U	6.2	3.8	4.8	6.7 L	7.9	11.8	9.9	11.5 J	10.7	8.1	11.0	9.4	10.8	10.6	10.6 L
Barium	140	91.7	81.6	66.4 J	35	68.5	20.3	143	107	121	147	119	194	165	170 J	183	196	176	127	159	152	144
Beryllium	1	0.54	0.58 U	0.52 J	0.2	0.57	0.34	1.1	1.0 U	0.72	1.2	1	1.4	1.2 U	1.4 J	0.81	1.1	1.6	1.2	1.5 U	1.0	1.2
Cadmium	2.2	0.56	0.98 U	0.3 J	0.064 U	0.047 U	0.048 U	0.20 U	0.95 U	0.55	0.20 U	0.44	2.7	2.9 U	1.5 J	1	0.57	0.7	0.31 U	1.9 U	0.87	1.4
Calcium	3180	872	946 J	1200 J	657	163	221	2340 J	1310 J	2490 J	1480	889	2000	2420 J	4310 J	3560	2370	3200	1470 J	2200 J	2680 J	2370
Chromium	24.9	19.3 J	17.6	14.9 J	8.7	16.3	6.8	29.0	24.3	24.4	30.3	19.1	42.4 J	39.4	38.6 J	37.1	34.4	41.7	27.8	33.8	30.7	30.9
Cobalt	30.3	11.3 J	16.3	7.4 J	4.3	5.4	1.9	17.9 J	20.6	14.1	14	14.7	36.8 J	18.6	17.3 J	19.3	14.6	17.6	15.4 J	20.1	14.7	12.7
Copper	40.9	15.2	11.4	10.9 J	5.9	6.5	2.7	34.4	26.2	23.2	31.6	14.5	42.8	40.1	40.5 J	36.6	27.8	40.5	37.6	43.4	36.3	42.2
Iron	30500	22600 J	24200	13200 J	8660	14700	5910	33400	25300	25000	36600 J	20900	46500 J	39500	41400 J	38800	38200	41500	30100	32500	36900	30400 J
Lead	90.6	57 J	26.2 J	23.5 J	11.8	10.2	4.3	79.3 J	57.0	49.7	74.3 K	32.2	152 J	97.6 J	110 J	89.9	87.3	105	88.3 J	111	84.8	92.7 K
Magnesium	1780	1100 J	819	1050 J	594	1440	416	2220 J	1620 J	1760 J	2050	1620	2840 J	2820	2950 J	3110	2870	3490	2000 J	2520 J	2410 J	2310
Manganese	671	157 J	150 K	126 J	64.8 J	61.4	42.3 L	374 J	199 J	232 L	210	355	404 J	442 K	636 J	1390 J	568	867 L	300 J	373 J	569 L	368
Mercury	0.21 U	0.074 UJ	0.095 U	0.063 UJ	0.067 U	0.060 U	0.049 U	0.14 U	0.10 U	0.080 U	0.28	0.2 U	0.14 UJ	0.13 U	0.12 J	0.15	0.092 U	0.17	0.14 U	0.13	0.18	0.22
Nickel	25.4	11.7	12.6	12.6 J	9	8.8 J	5.1	24.6	23.4	24.5 J	22.2 J	14.8	34.2	30.4	31.8 J	31.2	24.7 J	33.4	24.2	28.6	26.3 J	27.0 J
Potassium	939	649	605	493 J	319	445 J	216	690 J	661 J	600 J	603 J	557	1200	1180	1220 J	1330 UJ	1830 J	1530	671 J	985 J	806 J	661 J
Selenium	2.1	1.1 UJ	0.91 UL	1.3 UJ	1.4 UJ	0.78 U	0.44 UL	1.1 UJ	0.94 U	1.0 L	1.3 UL	0.85 U	2.4 UJ	2.6 UL	2.5 UJ	2 UJ	2.4	0.75 UL	1.2 UJ	1.3 U	0.98 UL	2.1 L
Silver	0.56 U	0.19 U	0.55 U	0.37 UJ	0.064 U	0.12 U	0.12 U	0.15 U	0.19 U	0.21 U	0.60 U	0.23 U	0.42 U	0.75 U	0.71 UJ	0.091 U	0.20 U	0.21 U	0.17 U	0.26 U	0.19 U	0.54 U
Sodium	366	111	94.2 U	67.9 UJ	86.3	71.3 U	40.4 U	293 U	166	142 U	162 U	210 U	254	476 U	221 J	194	176 U	209	344 U	260	178 U	447
Thallium	1.5 U	1.7 U	3.4	1.1 UJ	1.4 UJ	0.92 U	0.51 U	1.8 U	1.2 U	1.5 U	1.4 U	0.62 U	3.8 U	4.9	2.2 UJ	2.1 UJ	1.6 U	0.87 U	2.0 U	1.6 U	1.6 U	1.8 U
Vanadium	59.3	43.9	33	21.4 J	13.8	27.6	9.6	44.7	36.3	35.6	46.5	31.9	79.8	61.4	63.7 J	60.1	60.2	66.7	53.3	59.2	50.4	53.0
Zinc	398	42.6	64.3 J	74.7 J	32.1	25.2	10.2	258 J	176	163	131	117	310	330 J	283 J	272	158	294	282 J	313	270	335
***Pesticides/Herbicides* (µg/kg)**																						
4,4'-DDD	14 U	4.7 U	7.9 U	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	10 U	2.5 J	9.4 UJ	7.5 U	7.0 U	–	–	–	–	–
4,4'-DDE	14 U	1.4 J	7.9 U	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	10 U	9.2 U	3.3 J	7.5 U	2.6 J	–	–	–	–	–
4,4'-DDT	14 U	4.7 U	7.9 U	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	8.4 J	2.8 J	9.4 UJ	7.5 U	7.0 U	–	–	–	–	–
Aldrin	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	1.7 J	4.7 U	4.9 UJ	3.9 U	3.6 U	–	–	–	–	–
alpha-BHC	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	5.3 U	4.7 U	4.9 UJ	3.9 U	3.6 U	–	–	–	–	–
Alpha-Chlorodane	6 J	2.4 U	4.3 J	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	3 J	8.8 J	8.1 J	13 JN	3.2 U	–	–	–	–	–
beta-BHC	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	5.3 U	4.7 U	9.1 JN	3.9 U	3.6 U	–	–	–	–	–
delta-BHC	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	5.3 U	4.7 U	4.9 UJ	3.9 U	3.6 U	–	–	–	–	–
Dieldrin	14 U	4.7 U	7.9 U	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	7.2 J	3.7 J	3.7 J	11 J	7.0 U	–	–	–	–	–
Endosulfan I	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	5.3 U	4.7 U	4.9 UJ	3.9 U	3.6 U	–	–	–	–	–
Endosulfan II	14 U	4.7 U	7.9 U	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	10 U	9.2 U	9.4 UJ	7.5 U	7.0 U	–	–	–	–	–
Endosulfan sulfate	14 U	4.7 U	7.9 U	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	10 U	9.2 U	9.4 UJ	7.5 U	7.0 U	–	–	–	–	–
Endrin	14 U	4.7 U	7.9 U	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	7.9 J	9.2 U	9.4 UJ	7.5 U	7.0 U	–	–	–	–	–
Endrin Aldehyde	14 U	4.7 U	7.9 U	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	10 U	9.2 U	9.4 UJ	7.5 U	3.3 J	–	–	–	–	–
Endrin Ketone	3.4 J	4.7 U	3.2 J	5.2 UJ	5.3 U	4.1 U	–	–	–	–	–	5.7 U	10 U	9.2 U	9.4 UJ	7.7 JN	7.0 U	–	–	–	–	–
gamma-BHC (Lindane)	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	4.1 J	4.7 U	4.9 UJ	3.9 U	3.6 U	–	–	–	–	–
gamma-Chlorodane	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	2.1 J	5.4 JN	4.9 UJ	6.1 J	2.2 J	–	–	–	–	–
Heptachlor	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	3.8 J	4.7 U	4.9 UJ	3.9 U	3.6 U	–	–	–	–	–
Heptachlor Epoxide	7.4 U	2.4 U	4 U	2.7 UJ	2.7 U	2.1 U	–	–	–	–	–	2.9 U	5.3 U	2.6 JN	4.9 UJ	3.9 U	3.6 U	–	–	–	–	–
Methoxychlor	74 U	24 U	40 U	27 UJ	27 U	21 U	–	–	–	–	–	29 U	53 U	47 U	49 UJ	12 J	36 U	–	–	–	–	–
Toxaphene	–	–	–	270 UJ	270 U	210 U	–	–	–	–	–	–	–	–	490 UJ	390 U	360 U	–	–	–	–	–

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

– Not analyzed.

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.

K - Analyte present. May be biased High.

L - Analyte present. May be biased low

R - Data Rejected

P - Discrepency in GC analysis. Lower value reported.

S - Sample spike recovery is outside of control limits

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Table 5 (continued)

Summary of Sediment Data for Army Creek and Army Pond

Parameter	SEDE											SEDF										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
Semi-Volatiles **(µg/kg)**																						
1,1'-Biphenyl	690 U	630 U	750 UJ	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 UJ	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
2,2'-oxybis (1-Chloropropane)	690 U	630 UL	750 UJ	690 UL	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 UL	600 UJ	560 UL	540 U	490 U	450 U	510 U	490 U	500 U	480 U
2,4-Dimethylphenol	690 U	630 UL	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 UL	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
2,4-Dinitrophenol	1700 UJ	1600 U	1900 UL	1700 UJ	3000 UL	1400 R	1900 UL	2400 R	1300 UL	1600 UL	1600 U	1100 UJ	1200 U	1500 UL	1400 UJ	1400 UL	1200 R	1100 UL	1300 R	1200 UL	1300 UL	1200 U
2,6-Dinitrotoluene	690 U	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
2-Methylnaphthalene	690 U	630 U	750 UJ	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 UJ	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
2-Methylphenol	690 U	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
4,6-Dinitro-2-methylphenol	1700 UJ	1600 UL	1900 U	1700 UJ	3000 U	1400 UL	1900 U	2400 UL	1300 U	1600 UL	1600 U	1100 UJ	1200 UL	1500 U	1400 UJ	1400 U	1200 UL	1100 U	1300 UL	1200 U	1300 UL	1200 U
4-Methylphenol	690 U	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Acetophenone	690 U	630 U	750 U	690 UJ	1200 U	540 U	700 U	970 U	520 U	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Atrazine	690 U	630 U	750 UJ	690 UL	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 UJ	560 UL	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Benzaldehyde	690 UJ	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 UJ	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Benzo (a) anthracene	690 U	630 U	750 U	420 J	710 J	540 U	680 J	770 J	520 U	300 J	410 J	430 U	460 U	600 U	120 J	270 J	130 J	110 J	510 U	490 U	120 J	480 U
Benzo (a) pyrene	180 J	630 U	630 J	750 J	1100 J	120 J	1200	1300	110 J	480 J	660	160 J	110 J	1600	180 J	490 J	190 J	170 J	510 U	490 U	190 J	480 U
Benzo (b) Fluoranthene	220 J	630 U	860	1100 J	2100 J	170 J	1800	2000	160 J	830	890	160 J	140 J	2300	220 J	760	270 J	220 J	110 J	490 U	310 J	100 J
Benzo (g,h,i) Perylene	190 J	630 U	570 J	720 J	1400	540 U	1200	1200	130 J	370 L	640 J	100 J	460 U	1300	160 J	350 J	190 J	140 J	510 U	490 U	500 UL	480 U
Benzo (k) Fluoranthene	200 J	630 U	770	850 J	1300 J	160 J	1500	1300	140 J	480 J	800	190 J	140 J	1300	210 J	780	210 J	210 J	510 U	490 U	200 J	480 U
Bis(2-chloroethyl)Ether	0.69 U	0.66	5.2	2.7 UJ	4.6 U	540 U	770 U	970 U	520 U	630 U	650 U	0.43 U	1.2	5	2.2 UJ	2.1 U	490 U	450 U	510 U	490 U	500 U	480 U
Bis(2-ethylhexyl)phthalate	470 J	250 J	240 J	410 J	2300 U	120 J	750 J	1200 U	110 J	630 U	190 J	150 J	460 U	320 J	150 J	540 UL	490 U	200 J	510 U	490 U	500 U	480 U
Caprolactam	690 U	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Di-n-butyl phthalate	690 U	630 UL	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 UL	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Di-n-octyl phthalate	690 UJ	630 U	750 UJ	690 UJ	1200 U	540 U	770 UJ	970 U	520 U	630 U	650 U	430 UJ	460 U	600 UJ	560 UJ	540 UL	490 U	450 UJ	510 U	490 U	500 U	480 U
Dibenzo (a,h) Anthracene	690 U	630 U	750 U	180 J	280 J	540 U	470 J	450 J	520 U	130 J	190 J	430 U	460 U	330 J	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Diethylphthalate	690 U	630 U	750 U	690 UJ	1200 U	540 U	770 UJ	970 U	520 U	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 UJ	510 U	490 U	500 U	480 U
Hexachlorocyclopentadiene	690 UJ	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 UL	520 UL	630 UL	650 UL	430 UJ	460 U	600 U	560 UJ	540 U	490 U	450 U	510 UL	490 UL	500 UL	480 UL
Indeno (1,2,3-cd) Pyrene	200 J	630 U	560 J	730 J	1300	110 J	1500	970 U	130 J	390 J	720	160 J	100 J	1300	160 J	360 J	200 J	180 J	510 U	490 U	220 J	480 U
N-Nitrosodiphenylamine	690 U	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Naphthalene	690 U	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Pentachlorophenol	1700 U	1600 U	1900 U	1700 UJ	3000 U	1400 U	1900 U	2400 UL	1300 UL	1600 U	1600 UL	1100 U	1200 U	1500 U	1400 UJ	1400 U	1200 U	1100 U	1300 UL	1200 UL	1300 U	1200 UL
Phenol	690 U	630 U	750 U	690 UJ	1200 U	540 U	770 U	970 U	520 U	140 J	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 U	490 U	500 U	480 U
Chrysne	690 U	630 U	750 U	940 J	1800 J	140 J	1500	1700	150 J	660	780	430 U	460 U	600 U	250 J	610	260 J	220 J	110 J	490 U	250 J	110 J
Fluoranthene	690 U	630 U	750 U	1400 J	2100	230 J	2000	2600	200 J	1200	1200	430 U	460 U	600 U	360 J	840	340 J	300 J	130 J	100 J	390 J	130 J
Phenanthrene	690 U	630 U	750 U	420 J	670 J	540 U	680 J	850 J	520 U	370 J	370 J	430 U	460 U	600 U	130 J	260 J	100 J	100 J	510 U	490 U	120 J	480 U
Carbazole	690 U	630 U	750 U	690 UJ	1200 U	540 U	180 J	970 UL	520 UL	630 U	650 U	430 U	460 U	600 U	560 UJ	540 U	490 U	450 U	510 UL	490 UL	500 U	480 U
Pyrene	690 U	630 U	750 U	1100 J	2300	180 J	1800	2100	240 J	710	980	430 U	460 U	600 U	310 J	680	280 J	250 J	140 J	130 J	260 J	140 J

U - Analyte was not detected above the reporting limit.
J - Estimated concentration.
– Not analyzed
UL - Not detected, quantitation limit is probably higher

K - Analyte present. May be biased High.
L - Analyte present. May be biased low
R - Data Rejected

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Table 5 (continued)

Summary of Sediment Data for Army Creek and Army Pond

Parameter	SEDE											SEDF										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
***Inorganics* (mg/kg)**																						
Aluminum	22000	22500	22700	20700 J	14100	13000	20500	21700	11000	27400	14900	2970	2950	8270	17000 J	19500	15700	9280	17900	18300	10200	16700
Antimony	0.78 U	1.2 J	1.6 UL	1.5 UJ	1.8 UJ	1 J	0.66 L	2.3 UJ	0.67 UJ	0.82 L	0.78 R	0.49 U	0.64 UJ	1.3 UL	1.2 UJ	1.1 UJ	1.3 J	0.38 L	1.7 UJ	1 UJ	0.51 UL	0.61 R
Arsenic	7.7	7.8	10.4	11 J	7.4	6.1	8.3	9.7	4.3	8.7	8.4 L	1.8	2.4	4.7	5.6 J	6.2	6.5	2.9	9.6	7.3	4.1	8.9 L
Banum	127	142	167	164 J	170	106	164	190	91.1	189	146	21.2	35.8	66.1	110 J	114	99.1	60.4	179	108	73.8	143
Beryllium	1.1	0.9	1.1 U	1.1 J	0.57	0.75	1.3	1.5	0.89 U	1.3	0.96	0.22	0.2	0.41 U	1.1 J	0.65	0.87	0.59	1.3	1.1 U	0.56 U	1.1
Cadmium	1.1	1.6	2.6 U	1.3 J	0.92	0.2	0.57	0.37 U	0.43 U	0.91	0.5	0.3	0.31	0.97 U	0.36 J	0.22	0.18	0.13	0.12 U	0.73 U	0.089 U	0.12 U
Calcium	1300	1420	1700 J	2510 J	9540	2050	3690	2560 J	2250 J	2120 J	3090	9.4	533	3510 J	1380 J	2410	1410	766	1450 J	1570 J	1000 J	934
Chromium	35.8	36 J	40.2	37.2 J	26.2	19.6	36.0	45.5	17.9	42.8	29.7	6.7	5.8 J	17.7	24.4 J	31.2	24.9	14.3	26.3	26.9	18.7	25.5
Cobalt	10.1	10.6 J	10.6 U	14.6 J	14.6	10.6	13	17.0 J	6.9	20.8	10.9	1.7	1.9 J	5.3 U	9.2 J	9.7	9.7	5.1	7.4 J	9.7	6.1	9.1
Copper	31.5	32.1	40.5	37.6 J	32.2	16.4	36.3	52.3	18.4	39.0	33.2	7.7	4.8	14.8	19.1 J	28.5	19.6	11.5	32.6	24.6	17.0	32.5
Iron	25500	27500 J	40000	38500 J	29800	19100	34800	37700	16800	36000	31300 J	5650	8530 J	18400	23700 J	25400	25400	15500	35700	27800	18400	29000 J
Lead	80	80.8 J	84.3 J	74.4 J	59.6	74.7	66.5	94.9 J	54.0	101	61.0 K	14.8	10.8 J	29.7 J	68.7 J	102	97.6	42.3	151 J	132	66.0	175 K
Magnesium	2910	2650 J	2810	2700 J	2190	1690	3100	3360 J	1500 J	3400 J	2390	514	502 J	1520	1880 J	2680	2110	1170	2040 J	2300 J	1450 J	2110
Manganese	199	262 J	426 K	835 J	2570 J	310	1100 L	544 J	210 J	467 L	1260	51.2	76.5 J	542 K	242 J	305 J	434	196 L	176 J	489 J	185 L	328
Mercury	0.1 U	0.18 UJ	0.14	0.1 J	0.14 U	0.12	0.12	0.15 U	0.074 U	0.14	0.11 U	0.065 U	0.055 UJ	0.093 U	0.66 UJ	0.12	0.095	0.068 U	0.11	0.082	0.12	0.20
Nickel	35.3	24.1	30.4	30.7 J	22.5	16 J	28.1	37.6	14.6	29.2 J	24.2 J	6.3	4.4	13.1	17.3 J	22.7	17.8 J	10.3	17.5	18.9	13.0 J	17.8 J
Potassium	950	1220	1070	957 J	1380	751 J	1100	1030 J	706 J	1350 J	519 J	128	209	423	802 J	1020	829 J	517	597 J	1160 J	604 J	727 J
Selenium	1.4	1.4 UJ	1.1 UL	1.8 UJ	3 UJ	2.0	0.81 L	1.3 UJ	0.76 U	0.79 UL	1.0 UL	0.74	1 UJ	0.81 UL	1.4 UJ	1.3 UJ	1.5	0.47 UL	0.66 UJ	0.98 U	0.62 UL	1.1 L
Silver	0.27 U	0.25U	0.6 U	0.52 UJ	0.14 U	0.15 U	0.23 U	0.17 U	0.15 U	0.15 U	0.45 U	0.17 U	0.18 U	0.49 U	0.41 UJ	0.062 U	0.14 U	0.13 U	0.089 U	0.14 U	0.12 U	0.35 U
Sodium	254	197	229 U	200 J	415	111 U	297	392 U	283	195 U	287	159 U	94.1	142 U	127 J	181	116 U	138 U	215 U	272	127 U	155 U
Thallium	0.74 U	2.2U	6.7	1.6 UJ	3.2 UJ	1.2 U	0.95 U	2.1 U	0.98 U	1.3 U	1.1 U	0.47 U	1.6 U	1.8	1.3 UJ	1.4 UJ	1.1 U	0.55 U	1.1 U	0.87 U	1.0 U	1.4 U
Vanadium	54.8	56.5	58.9	55.1 J	40.8	42.9	53.2	67.8	33.4	68.7	46.4	9.9	8.8	24.1	39 J	51.6	48.2	22.9	52.2	55.5	36.1	59.3
Zinc	212	229	307 J	295 J	272	80.2	272	456 J	92.8	290	254	70.6	69.4	137 J	125 J	173	116	93.0	128 J	126	91.7	140
***Pesticides/Herbicides* (µg/kg)**																						
4,4'-DDD	6.9 U	6.3 U	7.5 U	6.9 UJ	2.9 JP	5.4 U	–	–	–	–	–	4.3 U	4.6 U	6 U	1.6 J	5.4 U	2.5 U	–	–	–	–	–
4,4'-DDE	6.9 U	6.3 U	7.5 U	6.9 UJ	12 U	12	–	–	–	–	–	4.3 U	4.6 U	6 U	2.6 J	5.4 U	15	–	–	–	–	–
4,4'-DDT	6.9 U	6.3 U	7.5 U	6.9 UJ	4.1 JP	8.7 J	–	–	–	–	–	4.3 U	4.6 U	6 U	5.6 UJ	5.4 U	8.5 J	–	–	–	–	–
Aldrin	3.5 U	3.3 U	2.6 JN	4.4 J	6.1 U	2.8 U	–	–	–	–	–	2.2 U	2.4 U	3.1 U	2.9 UJ	2.8 U	2.5 U	–	–	–	–	–
alpha-BHC	3.5 U	3.3 U	3.9 U	3.5 UJ	6.1 U	2.8 U	–	–	–	–	–	2.2 U	2.4 U	3.1 U	2.9 UJ	2.8 U	2.5 U	–	–	–	–	–
Alpha-Chlorodane	4.5	3 J	9.7	15 J	22 JP	2.8 U	–	–	–	–	–	2.4	1.7 J	8.1	2.9 UJ	3.9 JN	2.5 U	–	–	–	–	–
beta-BHC	3.5 U	3.3 U	3.9 U	6.9 UJ	6.1 U	2.8 U	–	–	–	–	–	2.2 U	2.9 JN	3.1 U	5.3 J	2.8 U	2.5 U	–	–	–	–	–
delta-BHC	3.5 U	3.3 U	3.9 U	3.5 UJ	6.1 U	2.8 U	–	–	–	–	–	2.2 U	2.4 U	3.1 U	2.9 UJ	2.8 U	2.5 U	–	–	–	–	–
Dieldrin	6.9 U	6.3 U	2.4 J	4.9 J	12 U	5.4 U	–	–	–	–	–	4.3 U	1.4 J	5.6 J	2.7 J	5.4 U	4.9 U	–	–	–	–	–
Endosulfan I	3.5 U	3.3 U	3.9 U	3.5 UJ	6.1 U	2.8 U	–	–	–	–	–	2.2 U	2.4 U	3.1 U	2.9 UJ	2.8 U	2.5 U	–	–	–	–	–
Endosulfan II	6.9 U	6.3 U	7.5 U	6.9 UJ	12 U	5.4 U	–	–	–	–	–	4.3 U	4.6 U	6 U	5.6 UJ	5.4 U	4.9 U	–	–	–	–	–
Endosulfan sulfate	6.9 U	6.3 U	7.5 U	6.9 UJ	12 U	5.4 U	–	–	–	–	–	4.3 U	4.6 U	6 U	5.6 UJ	2.4 J	4.9 U	–	–	–	–	–
Endrin	6.9 U	6.3 U	7.5 U	6.9 UJ	12 U	5.4 U	–	–	–	–	–	4.3 U	4.6 U	6 U	5.6 UJ	5.4 U	4.9 U	–	–	–	–	–
Endrin Aldehyde	6.9 U	6.3 U	7.5 U	6.9 UJ	12 U	5.4 U	–	–	–	–	–	4.3 U	4.6 U	6 U	5.6 UJ	5.4 U	5.3	–	–	–	–	–
Endrin Ketone	6.9 U	6.3 U	7.5 U	6.9 UJ	12 U	5.4 U	–	–	–	–	–	4.3 U	4.6 U	6 U	5.6 UJ	6.1 JN	1.5 J	–	–	–	–	–
gamma-BHC (Lindane)	3.5 U	3.3 U	3.9 U	3.5 UJ	6.1 U	2.8 U	–	–	–	–	–	2.2 U	2.4 U	3.1 U	2.9 UJ	2.8 U	2.5 U	–	–	–	–	–
gamma-Chlorodane	3.5 U	3.3 U	4.2 JN	6.7 JN	6.8 JN	0.94 J	–	–	–	–	–	2.2 U	2.4 U	3.1 U	2.9 UJ	2.8 U	1.4 J	–	–	–	–	–
Heptachlor	3.5 U	3.3 U	3.9 U	3.5 UJ	6.1 U	2.8 U	–	–	–	–	–	2.2 U	2.4 U	3.1 U	2.9 UJ	2.8 U	2.5 U	–	–	–	–	–
Heptachlor Epoxide	3.5 U	3.3 U	3.9 U	3.5 UJ	6.1 U	2.8 U	–	–	–	–	–	2.2 U	2.4 U	3.1 U	2.9 UJ	2.8 U	2.5 U	–	–	–	–	–
Methoxychlor	35 U	33 U	39 U	12 J	14 J	28 U	–	–	–	–	–	22 U	24 U	8.2 J	29 UJ	28 U	25 U	–	–	–	–	–
Toxaphene	–	–	–	350 UJ	610 U	280 U	–	–	–	–	–	–	–	–	290 UJ	280 U	250 U	–	–	–	–	–

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

– Not analyzed.

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

D - Sample diluted in the lab for analysis.

K - Analyte present. May be biased High.

L - Analyte present. May be biased low

R - Data Rejected

P - Discrepency in GC analysis. Lower value reported.

S - Sample spike recovery is outside of control limits

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Table 5 (continued)

Summary of Sediment Data for Army Creek and Army Pond

Parameter	SEDG										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
***Semi-Volatiles* (µg/kg)**											
1,1'-Biphenyl	550 U	520 U	1100 UJ	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
2,2'-oxybis (1-Chloropropane)	550 U	520 UL	1100 UJ	800 UL	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
2,4-Dimethylphenol	550 U	520 UL	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
2,4-Dinitrophenol	1400 UJ	1300 U	2900 UL	2000 UJ	2700 UL	1200 UL	1700 UL	2400 R	1500 UL	1600 UL	1300 U
2,6-Dinitrotoluene	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
2-Methylnaphthalene	550 U	520 U	1100 UJ	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
2-Methylphenol	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
4,6-Dinitro-2-methylphenol	1400 UJ	1300 UL	2900 U	2000 UJ	2700 U	1200 UL	1700 U	2400 UL	1500 U	1600 UL	1300 U
4-Methylphenol	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
Acetophenone	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
Anthracene	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	200 L
Atrazine	550 U	520 U	1100 UJ	800 UL	1100 U	490 UL	690 U	940 U	610 U	630 U	520 U
Benzaldehyde	550 UJ	520 U	1100 U	800 UJ	1100 U	490 UL	690 U	940 U	610 U	630 U	520 U
Benzo (a) anthracene	550 U	520 U	1100 U	690 J	1200	120 J	2000	1200	810	700	1400
Benzo (a) pyrene	350 J	520 U	2200	1000 J	1500	160 J	2600	1600	1100	990	1600
Benzo (b) Fluoranthene	380 J	520 U	2600	1300 J	2300	220 J	4200	2100	1700	1300	1900
Benzo (g,h,i) Perylene	300 J	520 U	1600	890 J	870 J	100 J	1700	1300	570 J	500 L	1100
Benzo (k) Fluoranthene	400 J	520 U	2100	1000 J	1800	160 J	2900	1900	1200	1100	1700
Bis(2-chloroethyl)Ether	0.56 U	0.53 U	0.57 U	3.2 UJ	4.2 U	490 U	690 U	940 U	610 U	630 U	520 U
Bis(2-ethylhexyl)phthalate	190 J	520 U	1700 J	780 J	1700 U	490 U	1100	1300 U	400 J	630 U	810
Caprolactam	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
Di-n-butyl phthalate	550 U	520 UL	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
Di-n-octyl phthalate	550 UJ	520 U	1100 UJ	800 UJ	1100 U	490 U	690 UJ	940 U	610 U	630 U	520 U
Dibenzo (a,h) Anthracene	550 U	520 U	410 J	230 J	220 J	490 U	820	490 J	250 J	220 J	390 J
Diethylphthalate	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 UJ	940 U	610 U	630 U	520 U
Hexachlorocyclopentadiene	550 UJ	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 UL	610 UL	630 UL	520 UL
Indeno (1,2,3-cd) Pyrene	360 J	520 U	1700	870 J	910 J	120 J	2400	1500	940	980	1300
N-Nitrosodiphenylamine	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
Naphthalene	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
Pentachlorophenol	1400 U	1300 U	2900 U	2000 UJ	2700 UL	1200 U	1700 U	2400 UL	1500 UL	1600 U	1300 UL
Phenol	550 U	520 U	1100 U	800 UJ	1100 U	490 U	690 U	940 U	610 U	630 U	520 U
Chrysne	550 U	520 U	1100 U	1300 J	1900	180 J	3200	2200	1400	1200	1900
Fluoranthene	550 U	520 U	1100 U	2100 J	3100	320 J	4600	3300	2000	2100	3200
Phenanthrene	550 U	520 U	1100 U	760 J	1100	110 J	1500	1200	720	690	1200
Carbazole	550 U	520 U	1100 U	800 UJ	1100 U	490 U	350 J	230 L	610 UL	630 U	180 J
Pyrene	550 U	520 U	1100 U	1600 J	3100	250 J	4000	2700	2000	1400	2600

U - Analyte was not detected above the reporting limit.
J - Estimated concentration.
– Not analyzed.
UL - Not detected, quantitation limit is probably higher

K - Analyte present. May be biased High.
L - Analyte present. May be biased low
R - Data Rejected

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Table 5 (continued)

Summary of Sediment Data for Army Creek and Army Pond

Parameter	SEDG										
	10/04	1/05	4/05	7/05	10/05	1/06	4/06	7/06	10/06	1/07	4/07
***Inorganics* (mg/kg)**											
Aluminum	10900	9240	8000	21000 J	19000	5950	19600	11800	16100	14200	5680
Antimony	0.61 U	0.87 J	1.2 UL	1.8 UJ	2 UJ	0.5 J	0.69 L	2.0 UJ	1.3 UJ	0.99 L	0.73 R
Arsenic	5.4	3.7	4.3	8.2 J	8.9	2.2	5.8	5.4	7.6	7.4	2.9 L
Barium	89.3	82.3	70.2	171 J	193	55.5	169	135	156	146	50.7
Beryllium	0.64	0.58	0.39 U	1.2 J	0.71	0.41	1.2	0.91 U	1.0 U	0.95	0.39 U
Cadmium	0.64	0.56	0.96 U	1.3 J	1	0.14	0.70	0.23 U	1.2 U	0.5	0.4
Calcium	3110	1660	4700 J	4160 J	5430	2580	3980	4890 J	4030 J	4080 J	1980
Chromium	23.3	16.4 J	18.3	39.1 J	39.6	10.5	34.5	25.7	32.8	28.2	15.4
Cobalt	6.7	3.2 J	4.8 U	11.8 J	11.9	2.8	11.3	11.5 J	11.7	12.1	4
Copper	23.9	13.2	20.5	41.7 J	49.7	8.6	160	32.6	37.9	33.7	15.4
Iron	20200	11700 J	15500	30900 J	34200	8860	28100	25100	29100	27200	12300 J
Lead	61.3	73.2 J	42.5 J	101 J	113	27.1	90.5	58.7 J	72.1	70.5	62.3 K
Magnesium	2340	1260 J	1750	3530 J	3540	995	3420	2200 J	2930 J	2470 J	1570
Manganese	635	110 J	371 K	402 J	566 J	149	934 L	505 J	1240 J	559 L	284
Mercury	0.2 U	0.15 UJ	0.086	0.12 UJ	0.16	0.067 U	0.14	0.14 U	0.089	0.13	0.19
Nickel	18.6	10	14.3	32.5 J	33	6.9 J	29.7	21.8	27.4	23.3 J	11.2 J
Potassium	525	561	458	1190 J	1250	455 J	1200	593 J	808 J	749 J	261 J
Selenium	0.79 U	1.1 UJ	0.77 UL	2.2 UJ	2.7 UJ	0.97 U	0.75 UL	1.2 UJ	0.86 U	0.78 UL	0.85 UL
Silver	0.21 U	0.2 U	0.45 U	0.63 UJ	0.13 U	0.15 U	0.21 U	0.17 U	0.17 U	0.15 U	0.38 U
Sodium	202 U	119	133 U	163 J	331	89.6 U	257	3.6 U	180	102 U	163 U
Thallium	0.58 U	1.8 U	1.8	2 UJ	2.9 UJ	1.1 U	0.87 U	2.0 U	1.1 U	1.3 U	0.92 U
Vanadium	37.2	37.5	26.1	64.2 J	63.2	19.6	53.2	40.7	50.0	46.2	21.6
Zinc	143	66.7	132 J	285 J	295	46.4	256	207 J	243	212	99.9
***Pesticides/Herbicides* (µg/kg)**											
4,4'-DDD	5.5 U	3 J	5.7 U	8 UJ	11 U	1.6 J	–	–	–	–	–
4,4'-DDE	5.5 U	6.6	5.7 U	5.2 J	11 U	3.8 J	–	–	–	–	–
4,4'-DDT	5.5 U	5.2 U	5.7 U	8 UJ	11 U	2.6 J	–	–	–	–	–
Aldrin	2.8 U	2.7 U	2.9 U	4.1 UJ	5.5 U	2.5 U	–	–	–	–	–
alpha-BHC	2.8 U	2.7 U	2.9 U	4.1 UJ	5.5 U	2.5 U	–	–	–	–	–
Alpha-Chlorodane	6.7 JN	1.3 J	16	17 J	21 JN	3.1 J	–	–	–	–	–
beta-BHC	15 JN	2.7 U	2.9 U	20 J	5.5 U	2.5 U	–	–	–	–	–
delta-BHC	2.8 U	2.7 U	2.9 U	4.1 UJ	5.5 U	2.5 U	–	–	–	–	–
Dieldrin	5.5 U	5.2 U	5.7	4 J	11 U	1.4 J	–	–	–	–	–
Endosulfan I	2.8 U	2.7 U	2.9 U	4.1 UJ	5.5 U	2.5 U	–	–	–	–	–
Endosulfan II	5.5 U	5.2 U	5.7 U	8 UJ	11 U	4.9 U	–	–	–	–	–
Endosulfan sulfate	5.5 U	5.2 U	5.7 U	8 UJ	11 U	1.5 J	–	–	–	–	–
Endrin	5.5 U	5.2 U	5.7 U	4.1 UJ	11 U	4.9 U	–	–	–	–	–
Endrin Aldehyde	5.5 U	5.2 U	5.7 U	4.5 J	3.2 J	1.5 J	–	–	–	–	–
Endrin Ketone	5.5 U	5.2 U	5.7 U	8 UJ	10 J	4.9 U	–	–	–	–	–
gamma-BHC (Lindane)	2.8 U	2.7 U	2.9 U	4.1 UJ	5.5 U	2.5 U	–	–	–	–	–
gamma-Chlorodane	4.2 JN	1.4 J	7.5 JN	6.3 JN	5.5 U	2.5 U	–	–	–	–	–
Heptachlor	2.8 U	2.7 U	2.9 U	4.1 UJ	5.5 U	2.5 U	–	–	–	–	–
Heptachlor Epoxide	5.2 JN	2.7 U	2.9 U	2.1 J	5.5 U	2.5 U	–	–	–	–	–
Methoxychlor	28 U	27 U	7.7 J	12 J	14 J	25 U	–	–	–	–	–
Toxaphene	–	–	–	410 UJ	550 U	250 U	–	–	–	–	–

N - Analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

U - Analyte was not detected above the reporting limit.

J - Estimated concentration.

– Not analyzed.

D - Sample diluted in the lab for analysis.

K - Analyte present. May be biased High.

L - Analyte present. May be biased low

R - Data Rejected

P - Discrepency in GC analysis. Lower value reported.

S - Sample spike recovery is outside of control limits

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ATTACHMENT 6

List of Documents Reviewed

Record of Decision, Remedial Alternative Selection, Site: Army Creek Landfill Site, New Castle County, Delaware, U.S. EPA, September 30, 1986.

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Email communication from Michele Ruth to Debra Rossi Re: Request, March 17, 2006.

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Facility Inspection Report (1Q06 and 2Q06), Army Creek Landfill Trust Fund Steering Committee, August 22, 2006.

Army Creek Landfill Trust Fund Semi-Annual Report, Army Creek Landfill Trust Fund Steering Committee, January 10, 2007.

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Email communication from Mindi Snoparsky to Michael Harris Re: Army Creek groundwater monitoring proposal, July 12, 2007.

Email communication from Susanna A. Mays to Debra Rossi Re: Semi-Annual Facility Inspection Report – Army Creek Landfill Site, July 30, 2007.

Status Report Second Quarter of 2007 through First *Quarter of 2009, Pilot Test Program for the Suspension of Army Creek Landfill Pump & Treat System,* Ruth Associates, Inc., August 1, 2007 through April 2009.

Letter re: Army Creek Landfill Trust Fund Annual Settlement Monument Survey, from Michael A. Barbara to Debra Rossi, August 23, 2007.

Email communication from Debra Rossi to Michael Barbara Re: Army Creek Landfill Cap

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Elevation Survey, September 24, 2007.

Email communication from Susanna A. Mays to Debra Rossi Re: Quarterly Facility Inspection Reports – 3rd & 4th Quarter 2007 – Army Creek Landfill Site, January 30, 2008.

The Artesian Pipeline, Spring 2008, Artesian Water Company.

Letter re: Army Creek Landfill Trust Fund Site Inspections, from Michael A. Barbara to Debra Rossi, May 1, 2008.

Army Creek Landfill Trust Fund Semi-annual Inspection Report, January 1, 2008 thru June 30, 2008, Army Creek Landfill Trust Fund Steering Committee, July 21, 2008.++

Email communication from Debra Rossi to Michael Barbara Re: Army Creek Inspection Frequency, July 22, 2008.

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Email communication from Michael Harris to Debra Rossi Re: Army Creek Landfill annual O&M costs, April 21, 2009.

Email communication from Michael Barbara to Debra Rossi Re: Army Creek Landfill – Summary of O&M Costs (Landfill Cap) 2004-2008, April 27, 2009.

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