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Investigation of Contaminated Groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, 2008

Scientific Investigations Report 2009–5166

U.S. Department of the Interior
U.S. Geological Survey

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Conversion Factors, Datums, and Abbreviated Water-Quality Units

Multiply	By	To obtain
	Length	
inch (in.)	2.54	centimeter (cm)
inch (in.)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
square foot (ft^2)	929.0	square centimeter (cm^2)
square foot (ft^2)	0.09290	square meter (m^2)
square inch (in^2)	6.452	square centimeter (cm^2)
section (640 acres or 1 square mile)	259.0	square hectometer (hm^2)
square mile (mi^2)	259.0	hectare (ha)
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
gallon (gal)	3.785	liter (L)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F=(1.8×°C)+32$$

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows:

$$°C=(°F–32)/1.8$$

Vertical coordinate information is referenced to the North American Vertical Datum of 1988 (NAVD 88).

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83).

Altitude, as used in this report, refers to distance above the vertical datum.

Specific conductance is given in microsiemens per centimeter at 25 degrees Celsius (µS/cm at 25 °C).

Concentrations of chemical constituents in water are given either in milligrams per liter (mg/L) or micrograms per liter (µg/L).

Abbreviations

1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,1,1-TCA	1,1,1-trichloroethane
1,2-DCA	1,2-dichloroethane
*c*DCE	*cis*-1,2-dichloroethene
mL/min	milliliter per minute
NAVFAC SE	Naval Facilities Engineering Command Southeast
NWS	Naval Weapons Station
PCE	tetrachloroethene
PCP	pentachlorophenol
PRB	permeable reactive barrier
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SWMU	Solid Waste Management Unit
TCE	trichloroethene
USGS	U.S. Geological Survey
UST	underground storage tank
VC	vinyl chloride
VOC	volatile organic compound
ZVI	zero-valent iron

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Abstract

The U.S. Geological Survey and the Naval Facilities Engineering Command Southeast investigated natural and engineered remediation of chlorinated volatile organic compound (VOC) groundwater contamination at Solid Waste Management Unit 12 at the Naval Weapons Station Charleston, North Charleston, South Carolina, beginning in 2000. The primary contaminants of interest in the study are tetrachloroethene, 1,1,1-trichloroethane, trichloroethene, *cis*-1,2-dichloroethene, vinyl chloride, 1,1-dichloroethane, and 1,1-dichloroethene. Engineered remediation aspects at the site consist of a zero-valent-iron permeable reactive barrier (PRB) installed in December 2002 intercepting the contamination plume and a phytoremediation test stand of loblolly pine trees planted in the source area in May 2003. The U.S. Geological Survey planted an additional phytoremediation test stand of loblolly pine trees on the upgradient side of the southern end of the PRB in February 2008. At least once during the summer, however, the trees were inadvertently mowed during lawn cutting activity.

The PRB along the main axis of the contaminant plume appears to be actively removing contamination. In contrast to the central area of the PRB, the data from the southern end of the PRB indicate that contaminants are moving around the PRB.

Concentrations in wells upgradient from the PRB showed a general decrease in VOC concentrations. VOC concentrations in some wells in the forest downgradient from the PRB showed a sharp increase in 2005, followed by a decrease in 2006. Farther downgradient in the forest, the VOC concentrations began to increase in 2007 and continued to increase into 2008. The VOC-concentration changes in groundwater beneath the forest appear to indicate movement of a groundwater-contaminant pulse through the forest. It also is possible that the data may represent lateral shifting of the plume in response to changes in groundwater-flow direction.

Introduction

Groundwater contamination by volatile organic compounds (VOCs) is present at Solid Waste Management Unit 12 (SWMU12) at the Naval Weapons Station (NWS) Charleston, North Charleston, which is approximately 10 miles north of Charleston, South Carolina (fig. 1). The U.S. Geological Survey (USGS) and the Naval Facilities Engineering Command Southeast (NAVFAC SE) began investigating and monitoring groundwater contamination at SWMU12 in 2000. The investigation presently focuses on monitoring engineered and natural attenuation. The engineered remediation consists of phytoremediation and a permeable reactive barrier (PRB) consisting of zero-valent iron (ZVI).

The primary VOCs of concern are chlorinated solvents. Chlorinated parent compounds, such as tetrachloroethene (PCE) and 1,1,1-trichloroethane (1,1,1-TCA), are suspected to have been released through several operationally related activities, including surface spills, drainage from floor drains at former building 88, and a leaking underground storage tank (UST; Tetra Tech NUS, Inc., 2000a). The suspected source area is in the vicinity of the former UST and along the southeastern side of former building 88 (fig. 2). Trichloroethene (TCE) probably is an original contaminant as well as a dechlorination or transformation product. Other VOCs present at SWMU12 as probable breakdown products include *cis*-1,2-dichloroethene (*c*DCE); vinyl chloride (VC); 1,1-dichloroethene (1,1-DCE); and 1,1-dichloroethane (1,1-DCA).

Purpose and Scope

The purpose of this report is to present the findings and field activities of the ongoing USGS and NAVFAC SE investigation of groundwater contamination at SWMU12 with emphasis on the period from February to August 2008. Appendixes 1 to 4 summarize well-construction, water-level, and water-quality data for SWMU12 from 1998 to August 2008.

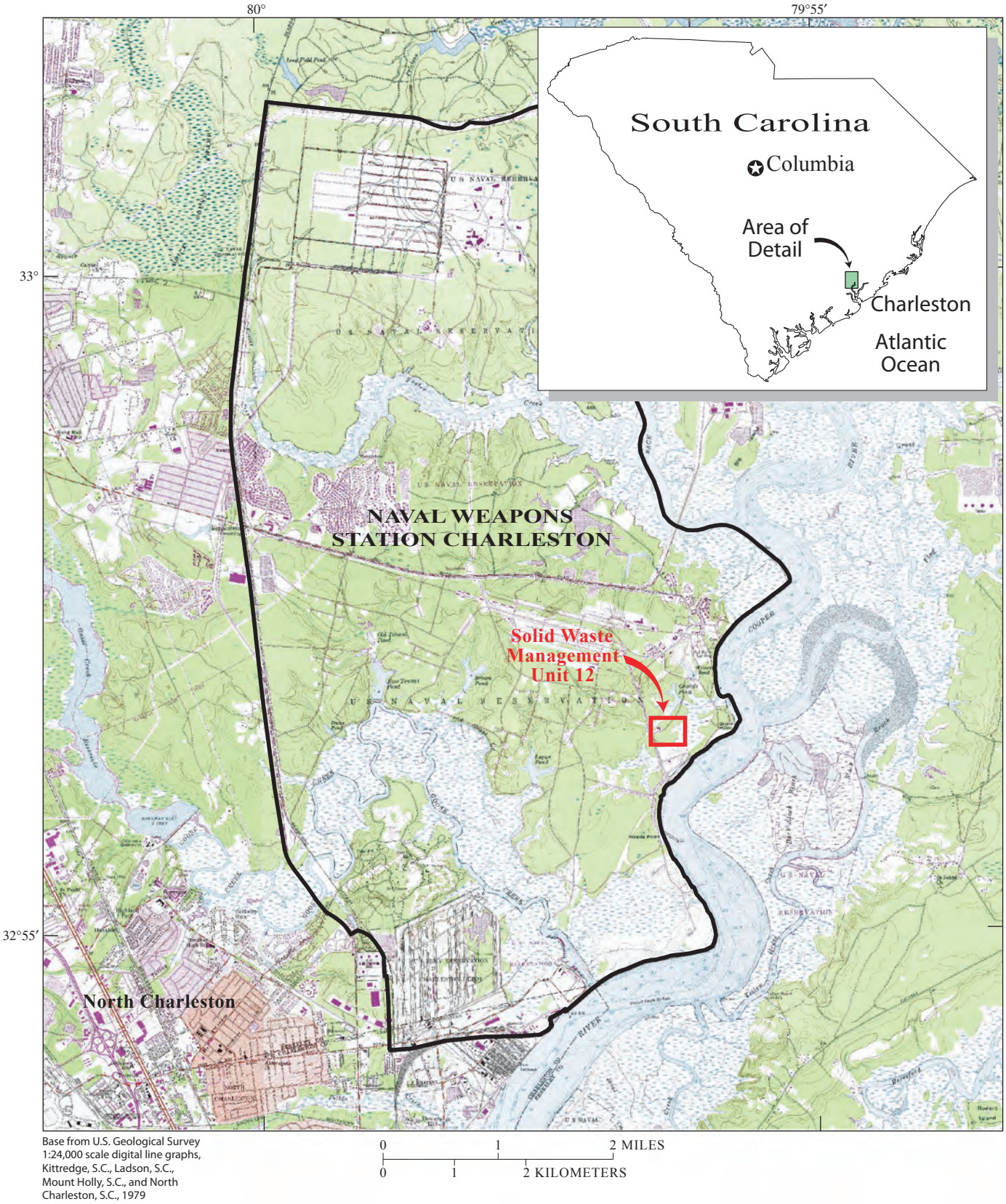

Figure 1. Location of Naval Weapons Station Charleston and Solid Waste Management Unit 12, North Charleston, South Carolina.

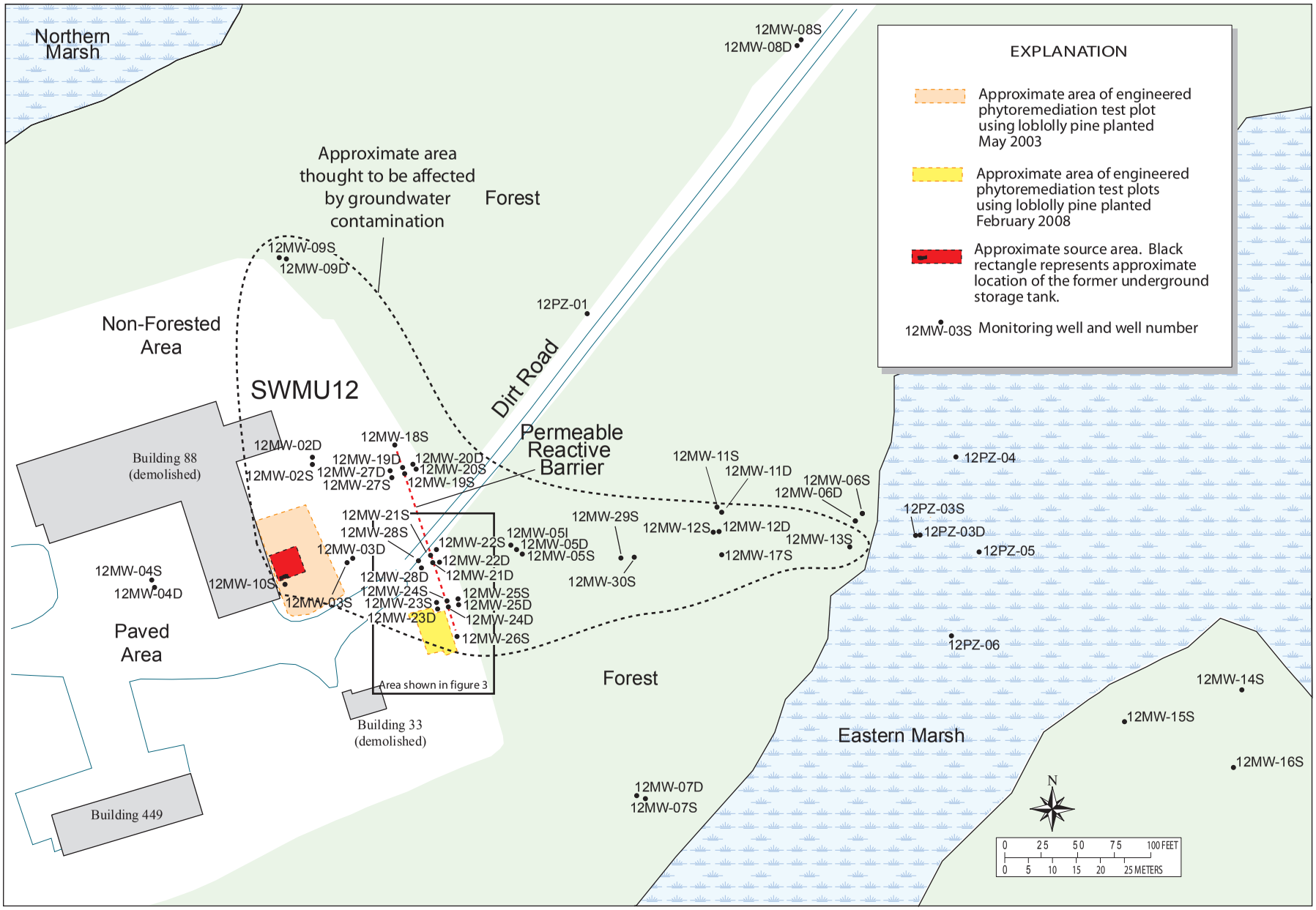

Figure 2. Locations of sampling points at Solid Waste Management Unit 12 (SWMU12), Naval Weapons Station Charleston, North Charleston, South Carolina.

Site History

Operations at SWMU12 from the early 1970s to 1981 consisted of preservation of wooden ammunition boxes by impregnation with pentachlorophenol (PCP) in dip tanks outside former building 88 (fig. 2). VOC contamination is present in the soil and groundwater, and appear to be related to former degreasing operations and a leaking UST located in the southeastern corner of former building 88 (fig. 2). The VOCs primarily are chlorinated ethanes and ethenes.

The last known use of the UST was to store solvents for wood preservation in 1979. The tank was pumped dry in 1998 and was removed and inspected in September 1999. Water in the excavation hole contained concentrations of total VOCs greater than 100 milligrams per liter (mg/L; Tetra Tech NUS, Inc., 2000a). The most concentrated constituents measured, listed in order of decreasing concentration, were 1,1-DCA at 84,300 micrograms per liter (µg/L); 1,1,1-TCA at 52,600 µg/L; 1,1-DCE at 9,950 µg/L; PCE at 7,630 µg/L; *c*DCE at 4,900 µg/L; 1,2-dichloroethane (1,2-DCA) at 830 µg/L; chloroethane at 500 µg/L; and TCE at an estimated value of 385 µg/L. The tank and associated pipes were corroded, and two holes were present near the bottom of the tank. The tank-fill pipe was not connected to the tank. The bottom of the tank extended to a depth of about 7 feet (ft) below ground surface (Tetra Tech NUS, Inc., 2000b).

Several site investigations have been conducted at SWMU12. Harmon Engineering and Testing (1984) completed an installation assessment study for NWS Charleston in January 1984. Although the study did not include an investigation of SWMU12, the report described ordinance-related activities that took place at building 88, which was located at SWMU12. A site-characterization study in 1987 (Environmental Science and Engineering, Inc., 1987) included collection of sediment and surface-water samples for PCP analysis. Because the study detected only low levels of PCP, the report did not recommend further investigation.

An interim Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was completed in 1988 because the NWS Charleston began operating under a RCRA interim status. During the assessment, building 88 and the vicinity were designated as SWMU12 (Kearney/Centaur, 1988).

As part of the RCRA Facility Investigation (RFI), Tetra Tech NUS, Inc., (2000a) conducted studies of groundwater between 1998 and 1999. These investigations included installation and sampling of 19 monitoring wells and 45 temporary well points. In addition, four separate tidal studies were conducted at the marshes east and north of SWMU12 and at monitoring wells 12MW-06S and 12MW-06D. The investigation also included collecting and analyzing 11 surface-water and sediment-sample pairs collected from drainage ditches and from the marshes, as well as soil samples from several locations. The investigations showed that groundwater contamination was moving eastward from a source area on the western side of building 88 and extended at least 400 ft toward the eastern marsh. Recommendations from the investigation included monitoring the groundwater for VOCs and PCP. Supplemental RFI work included installation and sampling of 3 monitoring wells and 12 temporary monitoring wells (Tetra Tech NUS, Inc., 2001).

The USGS and the NAVFAC SE began investigations of the groundwater contamination in 2000 following completion of a series of site-evaluation investigations by consulting firms. The purpose of the USGS/NAVFAC SE investigations was to evaluate effects of natural and engineered remediation at the site. One engineered remediation approach being used at the site is a PRB consisting of ZVI installed in December 2002. The PRB is hydraulically downgradient from the source area and is used to intercept and control concentrations of chlorinated solvents moving downgradient into a lowland forest and toward a freshwater wetland (fig. 2). A second engineered remediation approach is a grove of loblolly pine (*Pinus taeda*) saplings in the source area that were planted in May 2003. The USGS also planted hybrid poplar trees above the plume in the forest and near well 12MW-26S in March 2005 as a phytoremediation evaluation, but the hybrid poplars did not survive. In February 2008, the USGS planted 35 "fast-grow" loblolly pine trees on the southwestern side of the PRB (fig. 2). Summaries of investigative activities at the site are available for the periods 2000 to 2003 (Don Vroblesky, U.S. Geological Survey, written commun., 2003), October 2003 to October 2004 (Vroblesky and others, 2004), October 2004 to July 2006 (Vroblesky and others, 2007a), and October 2006 to November 2007 (Vroblesky and others, 2008). Table 1 contains a summary of field activities from February to August 2008.

Table 1. Summary of major field activities during February through August 2008 at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina.

Date	Activity
	Water-level monitoring
May 5, 2008	Synoptic water-level measurements.
August 28, 2008	Synoptic water-level measurements.
Monthly maintenance	Continuous monitoring over various time intervals in one well.
	Well leveling
June 12, 2008	A new measuring-point altitude at well 12PZ-01 was determined by differential leveling because of changes to the stand pipe. A recheck of the datum for nearby wells also was done.
	Monitoring groundwater chemistry
May 5–6, 2008	Sample collection.
August 14, 2008	Sample collection.
	Phytoremediation
February 20, 2008	Planted 35 loblolly pines on the upgradient side of the permeable reactive barrier at the southern end of the barrier.
May 5, 2008	Mulch was spread around the trees for weed control and to highlight their location.

Methods

This investigation used standard methods for data collection and tree installation during 2008. The following sections discuss specifics associated with the methodologies.

Data Collection

Multiple types of sampling points were used during this investigation to collect data at SWMU12 (fig. 2). Wells designated by a prefix of "12MW-" primarily are 2-inch-diameter wells used for monitoring groundwater chemistry and water levels. Exceptions are wells 12MW-14S, 12MW-15S, and 12MW-16S, which are 0.5-inch-diameter wells installed to monitor water levels but typically are not included on water-level maps because of questionable reliability. Additional exceptions are wells 12MW-19S,D; 12MW-21S,D; and 12MW-24S,D; which are 1-inch-diameter wells that the original contractor attempted to place within the PRB, but were later determined to be outside of the PRB (Vroblesky and others, 2007a). The nomenclature suffixes "S," "I," and "D" designate shallow, intermediate, and deep depths, respectively. The "S" wells generally are screened to total depths below ground surface of about 11.5 to 18 ft. The single "I" well is screened from a depth of 19 to 29 ft. The "D" wells typically have 10-ft-long screens with total depths ranging from about 31 to 45 ft. With the exception of well 12PZ-01 (a 2-inch-diameter well), wells designated with the prefix "12PZ-" indicate 1-inch-diameter wells. The "12PZ-" wells are used primarily for monitoring water levels, although VOC data have been collected from all of them, and well 12PZ-03D is routinely monitored for VOC content.

This investigation used low-flow sampling methods (Barcelona and others, 1994; Shanklin and others, 1995; Sevee and others, 2000) to collect groundwater samples from all of the wells near the PRB. In other wells, three or more casing volumes of water were purged prior to sampling because previous investigations at this site have shown that stabilization of dissolved-oxygen concentrations to environmentally realistic values during the low-flow sampling in some wells could not be achieved during the winter because of in-well convection (Vroblesky and others, 2007b). Three casing volumes of water also were purged routinely in some wells where previous sampling has shown that continued pumping produces continuously increasing VOC concentrations, possibly because the highest VOC concentrations in the aquifer are slightly offset from the well screen.

During low-flow sampling, the wells were purged at a rate of approximately 100–200 milliliters per minute (mL/min), using a peristaltic pump, until the water temperature, pH, dissolved-oxygen concentration, and specific conductance values stabilized and no additional water-level drawdowns were observed. Monitoring the stabilization of temperature, pH, dissolved oxygen, and specific conductance took place by passing the water through a flowthrough cell containing sensors. Field properties were considered to be stable during pumping when the observed changes over three 3-minute intervals were within ±3 percent for water temperature and specific conductance, within ±0.1 unit for pH, and within ±10 percent for dissolved oxygen. Solutes routinely analyzed are listed in table 2. Of these solutes, potassium provides relatively little information that aids in understanding the contamination at this site, making it a constituent that can be eliminated from future monitoring.

The USGS synoptically measured water levels by using an electric water-level sensor and using the top of the well casing as the reference point for determining depths to water. Water-level measurements were to the nearest 0.01 ft. Subtracting the depth to water from the previously surveyed altitudes of the top of the well casing provided water-level altitudes. Potentiometric maps generated from the data provided general directions of groundwater flow. One well (12MW-05S) contained a Solinst Levelogger, which measured continuous water levels.

Tree Planting

On February 20, 2008, the USGS planted 35 "fast-grow" loblolly pine whips (fig. 3). The tree locations were targeted at areas where groundwater contamination had not yet moved around the southern end of the PRB. A "ground-hog" boring tool was used to excavate each planting hole to a depth of 3 ft using 4-inch-diameter augers. The sediment consisted of silty sand to clay sand, underlain by clay at a depth of about 2 ft. Three planting holes near the PRB contained water above the clay. The rest of the boreholes were dry. A water sample collected from planting-hole A5 (fig. 3) showed no concentrations of target VOCs. Field personnel measured water levels in the boreholes and in nearby wells. Preplanting hole preparation consisted of scoring the sidewalls to roughen the surface

Table 2. Summary of routine sampling measurements for groundwater, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, February–August 2008.

[*, cations were calcium, magnesium, manganese, and potassium]

Solutes	Other field measurements
Carbon dioxide	Alkalinity
Cations*	pH
Chloride, sulfate	Pumping rate
Dissolved oxygen	Specific conductance
Ferrous iron	Temperature
Hydrogen sulfide	
Methane, ethane, ethene	
Total organic carbon	
Volatile organic compounds	

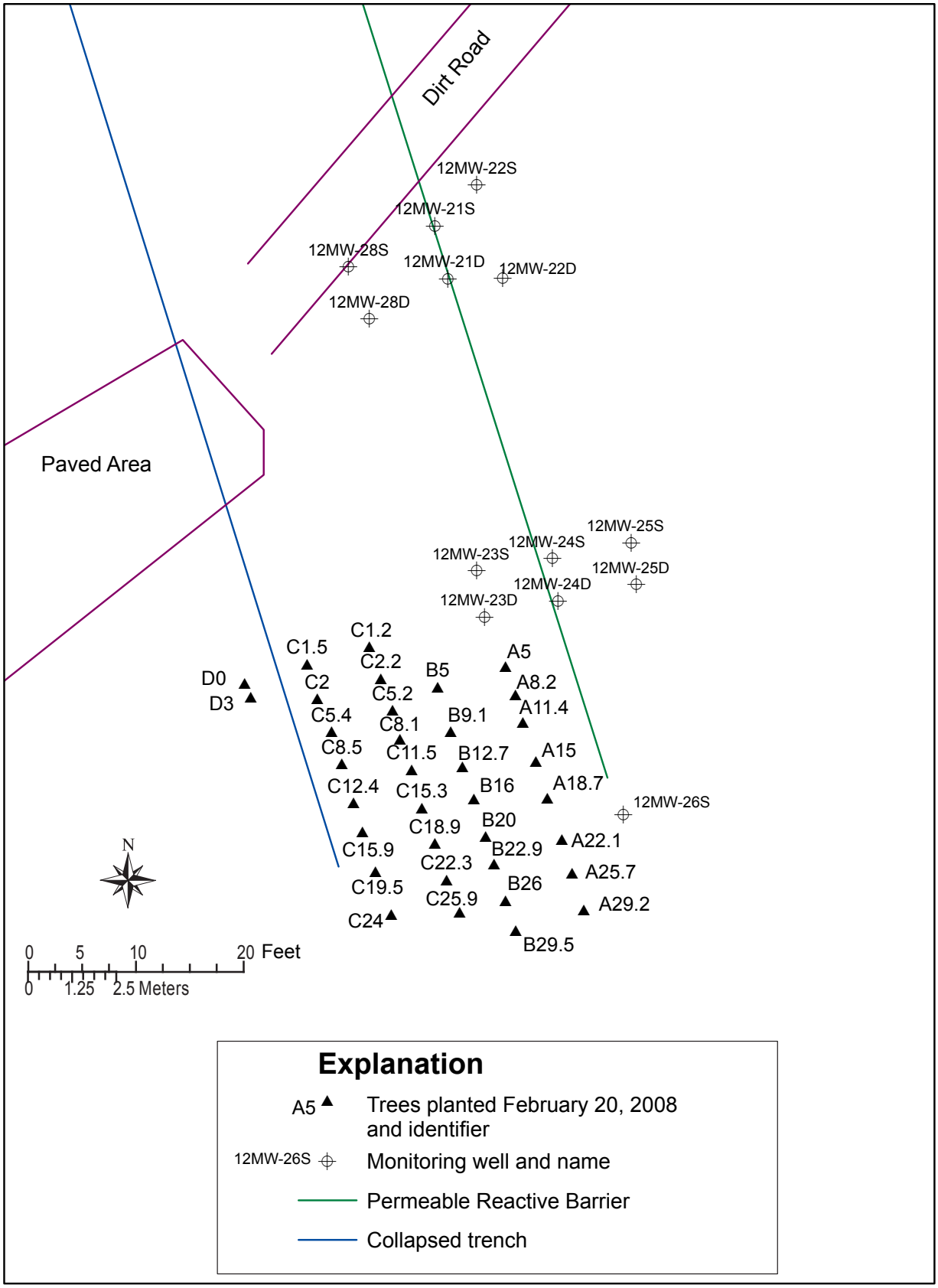

Figure 3. Locations of loblolly pine trees planted February 20, 2008, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina.

and then backfilling the holes with native soil to a depth of about 0.5 to 1 ft. Planting the trees involved placing a single tree in each hole and backfilling and watering each (fig. 3). At least once during the summer, the trees were inadvertenly mowed during lawn-cutting activity by non-USGS personnel. In response, additional mulch was placed around each tree and surveyor's flags were placed at the tree locations. By the end of the summer, some of the trees had not recovered.

Hydrology of Solid Waste Management Unit 12

SWMU12 is located on a topographically low area. Surface-water features nearly surround the site (fig. 4). Temporary borings from the shoreline to approximately 30 ft into the eastern marsh showed the presence of a confining bed separating the surface water from the aquifer, indicating that the degree of connectivity between groundwater at SWMU12 and the eastern marsh is low (Vroblesky and others, 2007a).

Marshes are present over much of the area surrounding SWMU12 (fig. 4). An investigation in 1999 determined that the surface water at the site is influenced by tides; however, the tidal influence is small (0.02 ft; Tetra Tech NUS, Inc., 2000a). The reason that the tidal influence is relatively small is that the marshes are separated from the tidal Cooper River by a retention wall that maintains marsh levels at a higher stage than the mean stage of the Cooper River. In addition, the marshes are a series of ponds separated from each other by berms, further limiting water exchange among the marshes. George Pond connects to a tidally influenced area farther southeast by a conduit through the berm. Rainfall runoff is the dominant influence on water levels in the marshes (Tetra Tech NUS, Inc., 2000a).

In general, the hydrogeologic framework of SWMU12 consists of a surficial aquifer, composed of sand to clayey sand, overlain by dense clay that extends from about land surface to a depth of about 10 to 11 ft in the source area and 8 to 10 ft in the forest. The surficial aquifer is about 13 to 20 ft thick in much of the study area (Tetra Tech NUS, Inc., 2001) with possible localized zones where it may be less than 5 ft thick (Vroblesky and others, 2007a). The overlying clay appears to be continuous over most of the site and functions as a confining bed for the surficial aquifer. A series of borings in the eastern marsh in 2003 showed that the clay was continuous beneath the marsh out to at least about 30 ft from the shore near well 12MW-13S (Vroblesky and others, 2007a). Beneath the surficial aquifer, clay layers with localized sand lenses extend to a depth of about 36 to 48.5 ft, where a dense olive-green clay encountered in the borings for wells 12MW-03D, 12MW-04D, and 12MW-05D (Tetra Tech NUS, Inc., 2000b) precludes potential for further downward transport of contamination.

Groundwater moves from recharge areas near former building 88 in an approximately eastward direction toward areas of lower groundwater levels (fig. 5). Prior to Hurricane Gaston in August 2004, water levels at well 12MW-08S were usually higher than in nearby wells, resulting in a trough-like configuration of the potentiometric suface in the surficial

Figure 4. Surface water at Solid Waste Management Unit 12 (SWMU12), Naval Weapons Station Charleston, North Charleston, South Carolina.

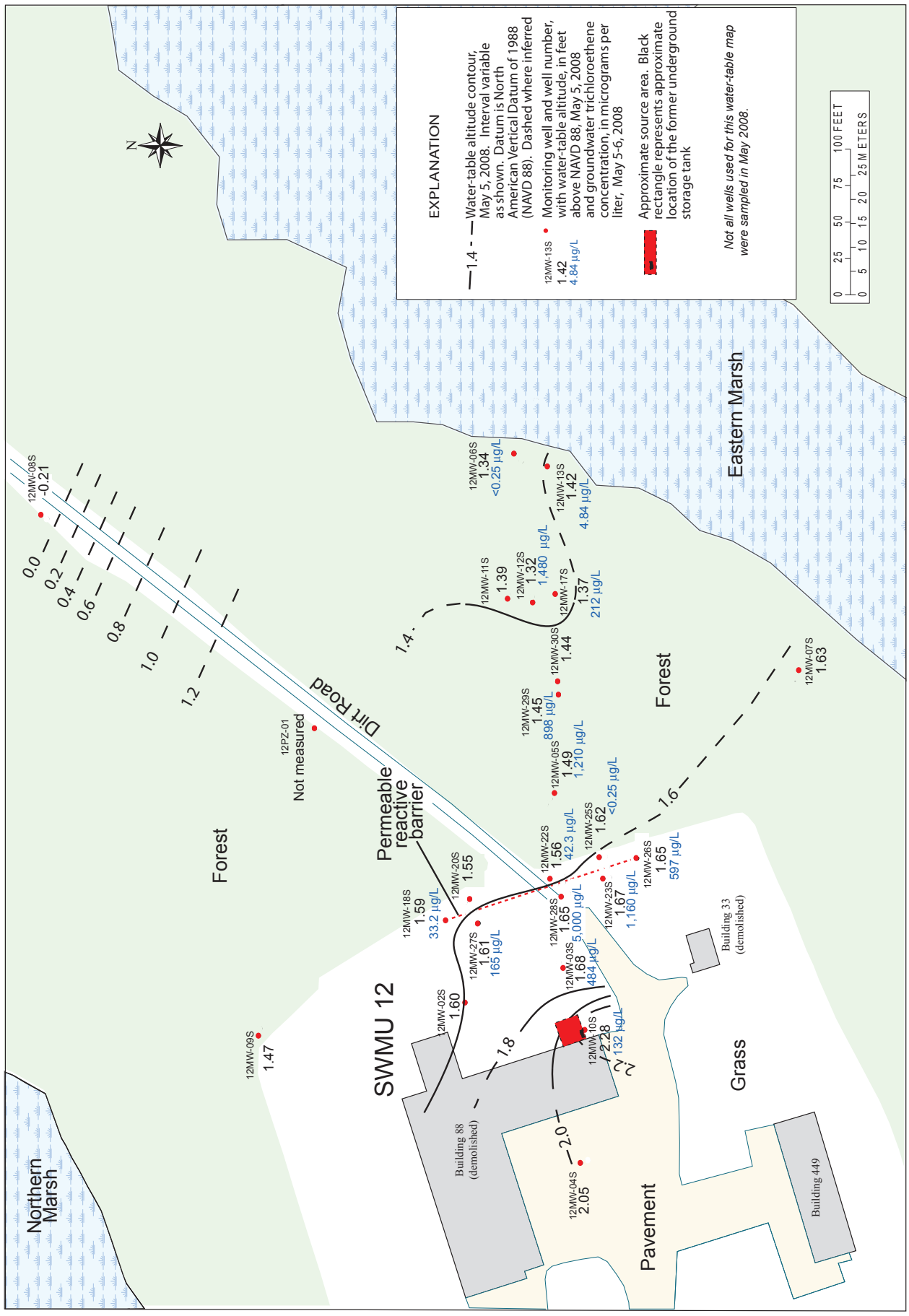

Figure 5. Groundwater levels (May 5, 2008) and trichloroethene (TCE) concentrations (May 5–6, 2008) in the surficial aquifer, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina.

aquifer, oriented approximately along the axis of groundwater contamination between wells 12MW-05S and 12MW-13S (Vroblesky and others, 2007a). Following Hurricane Gaston in August 2004, the ponds north of SWMU12 partly drained, and thereafter, well 12MW-08S typically had the lowest water level at the site (Vroblesky and others, 2007a; fig. 5). The change may have resulted in a shift to a more northeasterly direction of groundwater flow.

Groundwater Contamination

The groundwater contamination, consisting of chlorinated aliphatic VOCs, extends eastward in the surficial aquifer from former building 88 (fig. 5). The orientation and axis of the plume was determined from well sampling and from temporary push-technology wells installed during previous investigations. Plume maps are available for time periods in which more extensive sampling was available than during the time period that is focused on by this report (Tetra Tech NUS, Inc., 2000a,b; Don Vroblesky, U.S. Geological Survey, written commun., 2003; Vroblesky and others, 2007a,). 1,1,1-TCA and PCE are parent contaminants and were found in relatively high concentrations in groundwater adjacent to the eastern side of former building 88 and the former location of the UST. TCE probably is present both as a parent contaminant and as a dechlorination product. Many of the less chlorinated compounds, such as *c*DCE and VC, probably are transformation products of these parent compounds. At least one compound, however, 1,1-DCE, is an abiotic derivative of 1,1,1-TCA (Vogel, 1994).

The most areally extensive groundwater-quality data were collected in August 2001. During that period, the USGS collected groundwater samples from monitoring wells, and Tetra Tech NUS, Inc., collected groundwater samples from temporary wells. Data indicate that the highest concentrations of 1,1,1-TCA, PCE, and TCE in groundwater were near former building 88, approximately 10 to 30 ft north, northwest, and northeast of well 12MW-10S (David Beverly, CH2M Hill Constructors, Inc., written commun., 2003; Don Vroblesky, U.S. Geological Survey, written commun., 2003). Maximum measured concentrations were 443,000 µg/L of 1,1,1-TCA; 155,000 µg/L of 1,1-DCA; 20,300 µg/L of PCE; and 86,700 µg/L of TCE. VC was present at 2,500 µg/L; thus, the area near former building 88 likely is the source area (fig. 2). Groundwater contamination extends to a depth of at least 25.25 ft (the top of the well screen at 12MW-28D), as evidenced by consistent low concentrations of 1,1-DCA in groundwater at well 12MW-28D and possibly at well 12MW-03D along the axis of the contamination.

Although low concentrations of VOCs are present in the groundwater north of the source area at well 12MW-09S, the primary direction of groundwater-contamination transport is approximately eastward from the source area (figs. 2, 5). A PRB consisting of ZVI, installed in December 2002, intercepts the contamination. A trench upgradient from the present location of the PRB was originally intended as the PRB location (fig. 3), but the trench collapsed on November 11, 2002, possibly resulting in localized diversion of contaminated groundwater transport (Vroblesky and others, 2007a).

Changes in Contaminant Concentration at the Permeable Reactive Barrier

Contaminant concentrations changed in some wells during the study period near the PRB. The central part of the PRB along the main axis of the contaminant plume, as defined in previous investigations (Tetra Tech NUS, Inc., 2000a,b; David Beverly, CH2M Hill Constructors, Inc., written commun., 2003; Don Vroblesky, U.S. Geological Survey, written commun., 2003), appears to be actively mitigating the contamination. VOC concentrations decreased substantially on the downgradient edge of the PRB at well 12MW-22S (fig. 6*A*) along the major axis of the contaminant plume following installation of the PRB and continued to decrease into 2008. During much of this time (2003–2006), the VOC concentrations directly upgradient from the PRB along the approximate same axis of the contaminant plume did not change substantially (well 12MW-28S). VOC concentrations on the upgradient side of the PRB at well 12MW-28S generally began to decline in 2006 and continued to decline through 2008 (fig. 6*B*).

Although some level of PRB occlusion probably has taken place, there is no obvious evidence of groundwater mounding on the upgradient side near the center of the PRB. The lack of groundwater mounding is evidenced by the fact there has not been a consistent increase in water levels at upgradient well 12MW-28S relative to the surrounding wells since the wells were first measured in 2003 (12MW-21S, 12MW-22S, 12MW-23S, 12MW-27S, 12MW-28D, 12MW-21D, and 12MW-22D). In addition, the relatively consistent concentrations of contaminants in well 12MW-18S at the northern end of the PRB indicate that it is unlikely that additional contamination is being channeled around the northern of end of the PRB (fig. 7*C*).

In contrast to the center of the PRB, data from the southern end of the PRB indicate that contaminants are moving around the PRB. Evidence for movement of contamination around the southern end of the PRB is the sharp increase in concentrations of TCE, 1,1-DCE, and 1,1-DCA in groundwater south of the PRB at well 12MW-26S (figs. 7*A*, 6*C*) beginning in 2004. The occasional low concentrations found at well 12MW-26S (September 2006, May 2008) may reflect sampling bias or lateral shifts in the relatively narrow plume. A corresponding sharp decline in 1,1-DCE and TCE concentrations at well 12MW-23S (fig. 7*B*) in 2003–2004, along the southern upgradient side of the PRB, implies a relation between contaminant loss at well 12MW-23S and contaminant gain at well 12MW-26S. Following the initial concentration decline after construction of the PRB, concentrations of some

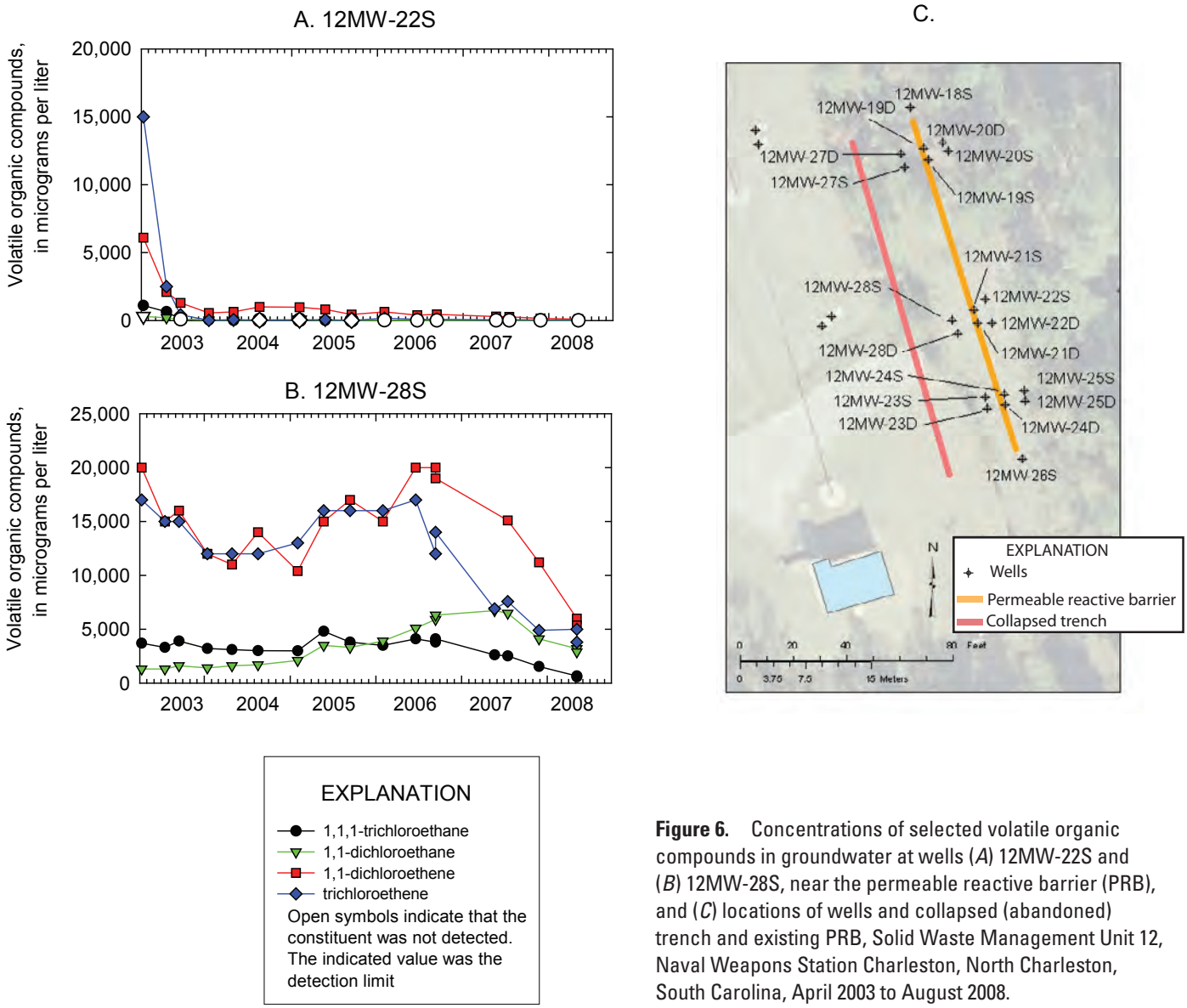

Figure 6. Concentrations of selected volatile organic compounds in groundwater at wells (*A*) 12MW-22S and (*B*) 12MW-28S, near the permeable reactive barrier (PRB), and (*C*) locations of wells and collapsed (abandoned) trench and existing PRB, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 2003 to August 2008.

VOCs increased at well 12MW-23S (fig. 7*B*). In particular, the 1,1-DCE concentration in groundwater at well 12MW-23S during May 2008 was almost twice the 1,1-DCE concentration immediately following PRB installation in 2003 (fig. 7*B*). The reason for the 1,1-DCE concentration increase on the upgradient side of the PRB at well 12MW-23S is not yet clear.

Changes in Contaminant Concentration Over Time in Areas Other Than the Permeable Reactive Barrier

Substantial changes in groundwater-contaminant concentrations took place in groundwater at some monitoring wells at SWMU12 during this investigation (figs. 8, 9, 10). The changes may be from a variety of influences, including pulse release from source areas, biodegradation, phytovolatilization, and possible reversal of groundwater flow in downgradient areas near the marsh (Vroblesky and others, 2004, 2007a).

Near the source area at well 12MW-10S, groundwater VOC concentrations of PCE and 1,1-DCE fluctuated during 2005 to 2008 (figs. 8*A*, 9*A*), possibly reflecting irregular releases of sorbed contaminants from the source area or lateral movement of the plume. Groundwater concentrations of 1,1-DCA, 1,1,1-TCA, *c*DCE, and VC continued an irregular decline from 2002 to 2008 (figs. 9*A*, 10*A*).

Immediately downgradient from the source area, VOC concentrations at well 12MW-03S have continued to decrease since about 2002 (figs. 8*B*, 9*B*, 10*B*). The highest measured VOC concentration at well 12MW-03S during 2008 was *c*DCE at 491 µg/L, which represents a substantial decrease from the maximum *c*DCE concentration of 15,000 µg/L in December 2001.

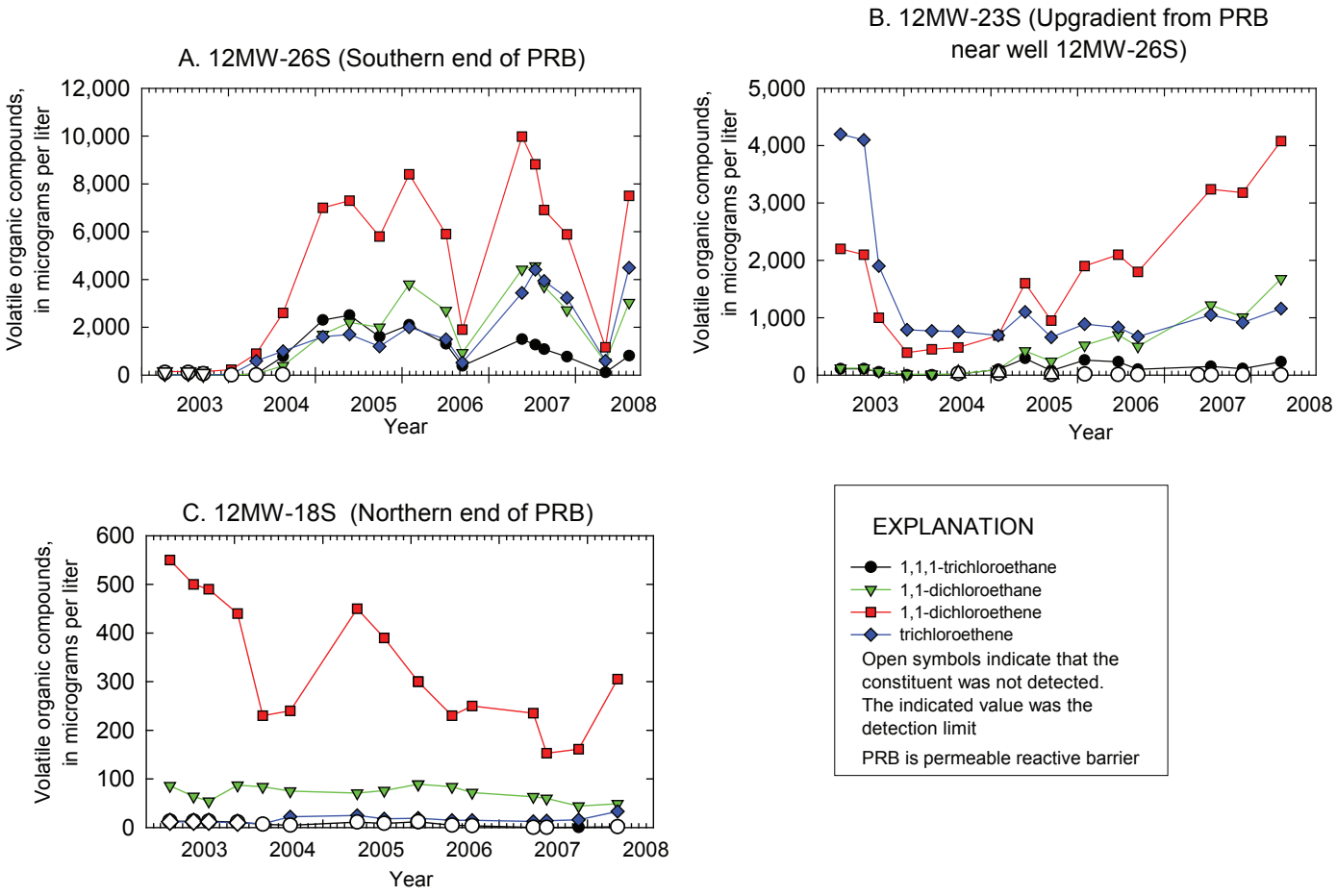

Figure 7. Concentrations of selected volatile organic compounds in groundwater at wells (*A*) 12MW-26S, (*B*) 12MW-23S, and (*C*) 12MW-18S, near the southern and northern ends of the permeable reactive barrier (PRB), Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 2003 to August 2008.

VOC concentrations in groundwater also changed in some wells in the forested area in the middle part of the plume. Despite the decrease in TCE and 1,1-DCE concentrations (figs. 8*C*, 9*C*) at well 12MW-05S, PCE concentrations, which had been relatively uniform since 2002 (usually between 300 and 700 µg/L), sharply increased in 2005 to greater than 2,000 µg/L before declining again in June 2006 and continuing the decline into 2008 (fig. 8*C*). Increasing PCE and decreasing TCE and 1,1-DCE concentrations also were observed at well 12MW-29S (figs. 8*F*, 9*F*), approximately 67 ft downgradient from well 12MW-05S, during about the same timeframe as well 12MW-05S. The PCE concentrations at well 12MW-29S began sharply declining in 2006 and continued to decline in 2008. The source of the change is unknown; however, the consistency of data implies that concentration changes in wells 12MW-05S and 12MW-29S share a similar cause. Further downgradient at well 12MW-12S, VOC concentrations began rising in late 2006 and continued to rise in 2008 (figs. 8*D*, 9*D*, 10*D*). The data appear to reflect migration of a contaminant pulse through the forest. It also is possible that the concentration changes may reflect a lateral shift in the axis of the contamination plume, as might be expected from the change in the piezometric surface (Vroblesky and others, 2007a). At the downgradient end of the plume, data collected at well 12MW-13S showed declines in TCE and 1,1-DCE concentrations from 2006 to 2008 (figs. 8*G*, 9*G*).

Well 12MW-09S was sampled in November 2007. Data from the sampling and a graph of the 1,1-DCE and 1,1-DCA concentrations in groundwater during 2000–2007 were presented in a previous report (Vroblesky and others, 2008). The data showed that concentrations for those constituents declined from greater than 100 µg/L in 2000 to approximately 20 to 30 µg/L in 2003, remained relatively constant between 2003 and 2005, and resumed the decline during 2006–2007 (Vroblesky and others, 2008). Concentrations in November 2007 were less than 10 µg/L.

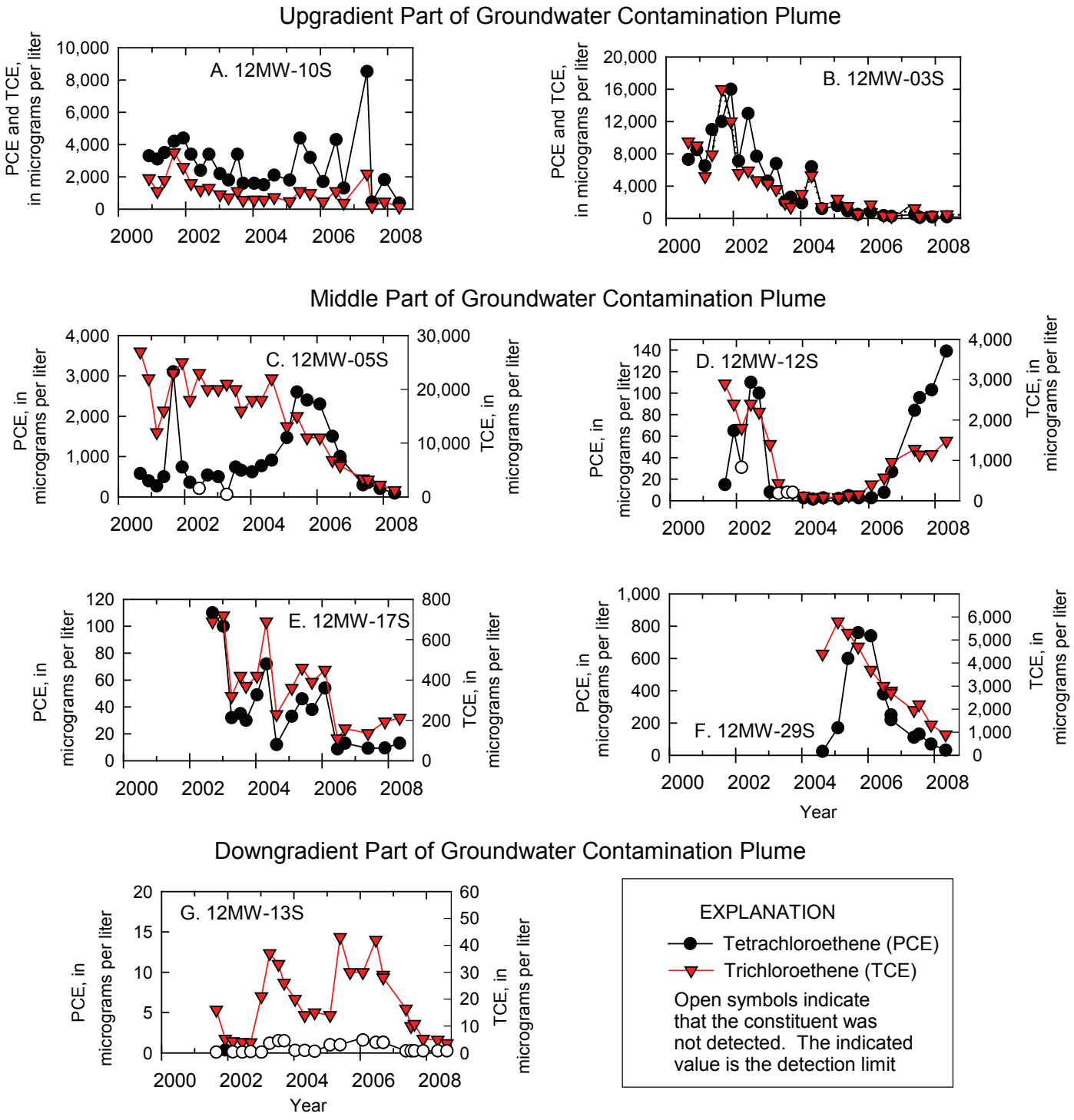

Figure 8. Concentrations of tetrachloroethene (PCE) and trichloroethene (TCE) in groundwater at selected wells in the groundwater contamination plume, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.

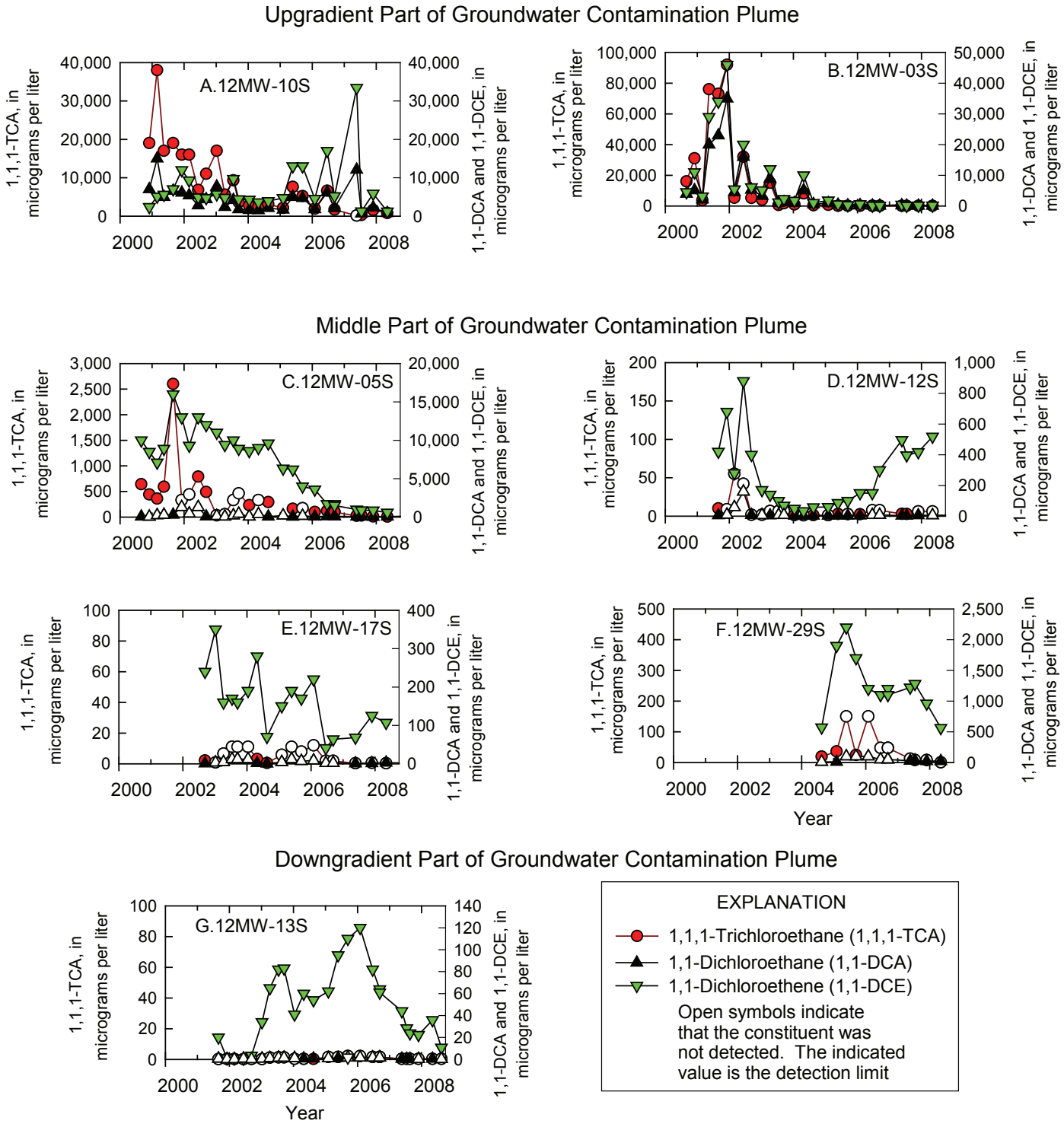

Figure 9. Concentrations of 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), and 1,1-dichloroethene (1,1-DCE) in groundwater at selected wells in the groundwater contamination plume, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.

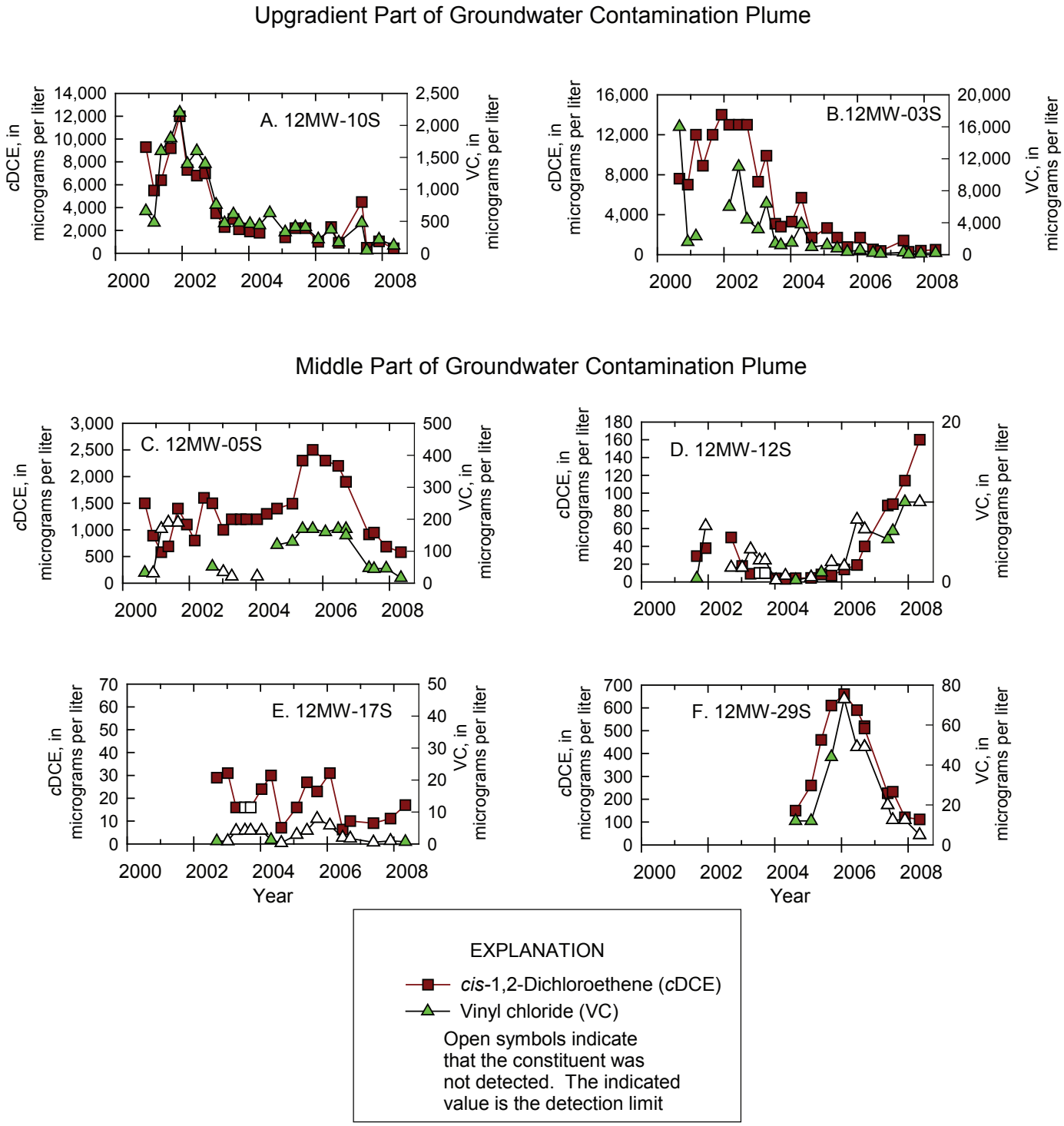

Figure 10. Concentrations of *cis*-1,2-dichloroethene (*c*DCE) and vinyl chloride (VC) in groundwater at selected wells in the groundwater contamination plume, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.

Summary

The U.S. Geological Survey and the Naval Facilities Engineering Command Southeast have investigated natural and engineered remediation of groundwater contamination since 2000 at Solid Waste Management Unit 12 at the Naval Weapons Station Charleston, North Charleston, South Carolina. The primary VOCs of concern are tetrachloroethene (PCE); 1,1,1-trichloroethane (1,1,1-TCA); trichloroethene (TCE); *cis*-1,2-dichloroethene (*c*DCE); vinyl chloride (VC); 1,1-dichloroethene (1,1-DCE); and 1,1-dichloroethane (1,1-DCA).

The groundwater contamination, consisting of chlorinated aliphatic VOCs, extends eastward at least 400 ft in the surficial aquifer from former building 88. 1,1,1-TCA and PCE are compounds that probably were original contaminants and are found in relatively high concentrations in groundwater adjacent to the eastern side of former building 88 and the former location of the UST. TCE probably is both an original contaminant and a transformation product. Many of the less chlorinated compounds, such as *c*DCE and VC, probably are transformation products of parent compounds. At least one compound, however, 1,1-DCE, is an abiotic derivative of 1,1,1-TCA.

The central part of the PRB, along the main axis of the contaminant plume, appears to be actively removing contamination. Evidence for the removal is that substantial concentration decreases have taken place on the downgradient edge of the PRB at well 12MW-22S along the major axis of the contaminant plume. In contrast to the central area of the PRB, the data from the southern end of the PRB indicate that contaminants are moving around the PRB. In addition, 1,1-DCE concentrations have shown a substantial increase since 2004 at well 12MW-23S, upgradient from the PRB near well 12MW-26S. In an effort to test low-cost alternatives to assist in remediating groundwater contamination along the southern part of the PRB, the USGS planted 35 loblolly pines in that area in February 2008.

Near the source area, at well 12MW-10S, concentrations of *c*DCE, VC, 1,1-DCA, and 1,1,1-TCA continued an irregular decline, while PCE and 1,1-DCE showed marked fluctuations in concentration during 2005 to 2008. VOC concentrations at well 12MW-03S, the next well downgradient from the source area, were substantially lower in 2008, compared with concentrations in 2000.

Groundwater VOC concentrations also changed in some wells in the forested area in the mid-part of the plume. An increase in VOC concentrations at wells 12MW-05S and 12MW-29S during 2005–2006 may represent movement of a contaminant pulse through the forest. Declining concentrations in those wells from 2006–2008 may represent passage of the pulse. At well 12MW-12S, 67 ft downgradient from well 12MW-29S, VOC concentrations began rising in late 2006 and continued to rise through 2008, providing further evidence for movement of a contaminant pulse through the forest. The data also may reflect a lateral shift in the axis of the contamination plume, as might occur from the observed change in the piezometric surface. At the downgradient end of the plume, well 12MW-13S showed continuous declines in TCE and 1,1-DCE concentrations from 2006 to August 2008.

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Vroblesky, D.A., Casey, C.C., Petkewich, M.D., Lowery, M.A., Conlon, K.J., and Harrelson, L.G., 2007a, Investigation of ground-water contamination at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina: U.S. Geological Survey Scientific Investigations Report 2006–5311, 81 p.

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Appendixes 1–4

Appendix 1. Well-construction data, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina.

[NAD 83, North American Datum of 1983; in., inches; ft, feet; rel., relative to; NAVD 88, North American Vertical Datum of 1988; bgs, below ground surface; btoc, below top of casing; —, data not available; Horizontal coordinates for all wells (except those with *) were determined by geodimeter. Vertical datum was determined by differential leveling on 8/3/2004 and tied into a benchmark on 9/15/2004. Arbitrary horizontal coordinates output by geodimeter were transformed to South Carolina State Plane Coordinate System by using wells 12MW-04D, 12MW-09S, 12MW-08S, and 12MW-07S as control. State Plane coordinates for these four wells and for wells marked by * are from Appendix 1 of Vroblesky and others, 2004]

Well name	Installation date	State Plane Northing coordinate (NAD 83, feet)	State Plane Easting coordinate (NAD 83, feet)	Well diameter (in.)	Top of riser elevaton (ft rel. NAVD 88)	Ground elevation (ft rel. NAVD 88)	Stand-pipe height (ft)	Screen length (ft)	Depth of screen top (ft bgs)	Depth of screen bottom (ft bgs)	Depth of screen top (ft btoc)	Depth of screen bottom (ft btoc)	Elevation of screen top (ft rel. NAVD 88)	Elevation of screen bottom (ft rel. NAVD 88)
12MW-01D	2/25/1998	405035.719	2324888.000	2	10.74	8.26	2.48	10.00	29.00	39.00	31.48	41.48	–20.74	–30.74
12MW-01S	2/25/1998	405033.531	2324882.500	2	10.73	8.46	2.27	10.00	4.00	14.00	6.27	16.27	4.46	–5.54
12MW-02D	2/26/1998	405183.281	2325292.250	2	8.93	7.02	1.91	10.00	21.00	31.00	22.91	32.91	–13.98	–23.98
12MW-02S	2/26/1998	405178.156	2325293.000	2	9.01	7.02	1.99	10.00	4.00	14.00	5.99	15.99	3.02	–6.98
12MW-03D	2/25/1998	405113.344	2325320.750	2	9.07	6.67	2.40	10.00	20.00	30.00	22.40	32.40	–13.33	–23.33
12MW-03S	2/25/1998	405109.594	2325317.000	2	9.05	6.72	2.33	10.00	4.00	14.00	6.33	16.33	2.72	–7.28
12MW-04D	2/26/1998	405091.906	2325183.250	2	7.41	7.71	–0.30	10.00	22.00	32.00	21.70	31.70	–14.29	–24.29
12MW-04S*	2/27/1998	405097.125	2325181.250	2	7.44	7.75	–0.31	10.00	4.00	14.00	3.69	13.69	3.75	–6.25
12MW-05D	8/7/1999	405119.781	2325434.250	2	8.00	5.89	2.11	10.00	38.50	48.50	40.61	50.61	–32.61	–42.61
12MW-05I	8/27/1999	405122.906	2325429.750	2	8.10	5.81	2.29	10.00	19.00	29.00	21.29	31.29	–13.19	–23.19
12MW-05S	8/6/1999	405116.594	2325438.000	2	7.95	5.92	2.03	10.00	4.00	14.00	6.03	16.03	1.92	–8.08
12MW-06D	8/4/1999	405143.969	2325670.000	2	4.92	3.05	1.87	10.00	32.00	42.00	33.87	43.87	–28.95	–38.95
12MW-06S	8/4/1999	405147.406	2325674.000	2	5.38	3.17	2.21	10.00	4.00	14.00	6.21	16.21	–0.83	–10.83
12MW-07D	8/6/1999	404949.625	2325517.750	2	5.37	3.44	1.93	10.00	35.00	45.00	36.93	46.93	–31.56	–41.56
12MW-07S	8/5/1999	404946.938	2325523.250	2	5.43	3.45	1.98	10.00	4.00	14.00	5.98	15.98	–0.55	–10.55
12MW-08D	8/3/1999	405471.406	2325630.500	2	7.41	5.28	2.13	10.00	29.00	39.00	31.13	41.13	–23.72	–33.72
12MW-08S	8/3/1999	405475.406	2325633.250	2	7.16	5.25	1.91	10.00	4.00	14.00	5.91	15.91	1.25	–8.75
12MW-09D	8/5/1999	405320.875	2325275.750	2	10.29	8.23	2.06	10.00	26.00	36.00	28.06	38.06	–17.77	–27.77
12MW-09S	8/5/1999	405322.406	2325270.000	2	10.52	8.37	2.15	10.00	4.00	14.00	6.15	16.15	4.37	–5.63
12MW-10S	6/22/2000	405094.469	2325274.000	2	9.58	7.24	2.34	11.00	4.50	15.50	6.84	17.84	2.74	–8.26
12MW-11D	6/23/2000	405146.969	2325576.500	2	7.99	5.10	2.89	11.00	22.00	33.00	24.89	35.89	–16.90	–27.90
12MW-11S	6/24/2000	405150.438	2325573.250	2	7.83	5.14	2.69	10.00	4.00	14.00	6.69	16.69	1.14	–8.86
12MW-12D	8/22/2001	405133.906	2325574.750	2	8.27	5.16	3.11	10.00	20.00	30.00	23.11	33.11	–14.84	–24.84
12MW-12S	8/23/2001	405133.500	2325571.000	2	8.47	5.16	3.31	5.00	8.00	13	11.31	16.31	–2.84	–7.84
12MW-13S	8/23/2001	405124.125	2325665.000	2	6.35	2.97	3.38	5.00	8.00	13.00	11.38	16.38	–5.03	–10.03
12MW-14S*	8/20/2001	405022.030	2325936.000	0.5	7.36	4.00	3.36	10.00	5.00	15.00	8.36	18.36		–11.00
12MW-15S*	8/20/2001	404999.770	2325854.880	0.5	7.62	4.40	3.22	10.00	5.00	15.00	8.22	18.22	–0.60	–10.60
12MW-16S*	8/23/2001	404968.200	2325930.330	0.5	8.23	4.69	3.39	10.00	5.00	15.00	8.54	18.54	–0.31	–10.31
12MW-17S	4/18/2002	405117.938	2325576.500	2	7.41	4.97	2.38	2.50	9	11.5	11.44	13.94	–4.03	–6.53

Appendix 1. Well-construction data, Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina.—Continued

[NAD 83, North American Datum of 1983; in., inches; ft, feet; rel., relative to; NAVD 88, North American Vertical Datum of 1988; bgs, below ground surface; btoc, below top of casing; —, data not available; Horizontal coordinates for all wells (except those with *) were determined by geodimeter. Vertical datum was determined by differential leveling on 8/3/2004 and tied into a benchmark on 9/15/2004. Arbitrary horizontal coordinates output by geodimeter were transformed to South Carolina State Plane Coordinate System by using wells 12MW-04D, 12MW-09S, 12MW-08S, and 12MW-07S as control. State Plane coordinates for these four wells and for wells marked by * are from Appendix 1 of Vroblesky and others, 2004]

Well name	Installation date	State Plane Northing coordinate (NAD 83, feet)	State Plane Easting coordinate (NAD 83, feet)	Well diameter (in.)	Top of riser elevaton (ft rel. NAVD 88)	Ground elevation (ft rel. NAVD 88)	Stand-pipe height (ft)	Screen length (ft)	Depth of screen top (ft bgs)	Depth of screen bottom (ft bgs)	Depth of screen top (ft btoc)	Depth of screen bottom (ft btoc)	Elevation of screen top (ft rel. NAVD 88)	Elevation of screen bottom (ft rel. NAVD 88)
12MW-18S	1/23/2003	405192.000	2325350.250	2	10.59	8.33	2.26	5.00	10	15	12.26	17.26	–1.67	–6.67
12MW-19D	1/16/2003	405176.531	2325355.500	1	10.86	8.49	2.37	10.00	25	35	27.37	37.37	–16.51	–26.51
12MW-19S	1/16/2003	405172.156	2325357.000	1	10.81	8.54	2.27	5.00	10	15	12.27	17.27	–1.46	–6.46
12MW-20D	1/24/2003	405178.656	2325362.500	2	10.54	8.30	2.24	10.00	23	33	25.24	35.24	–14.70	–24.70
12MW-20S	1/23/2003	405175.531	2325364.750	2	10.50	8.24	2.26	5.00	10	15	12.26	17.26	–1.76	–6.76
12MW-21D	1/16/2003	405110.750	2325375.750	1	9.90	7.85	2.05	10.00	24	34	26.05	36.05	–16.15	–26.15
12MW-21S	1/16/2003	405115.813	2325374.500	1	9.74	7.63	2.11	5.00	10	15	12.11	17.11	–2.37	–7.37
12MW-22D	1/27/2003	405110.844	2325381.000	2	10.13	7.88	2.25	10.00	24	34	26.25	36.25	–16.12	–26.12
12MW-22S	1/28/2003	405119.688	2325378.500	2	9.88	7.58	2.30	5.00	10	15	12.30	17.30	–2.42	–7.42
12MW-23D	1/22/2003	405078.469	2325379.250	2	9.62	7.37	2.25	10.00	26	36	28.25	38.25	–18.63	–28.63
12MW-23S	1/21/2003	405082.875	2325378.500	2	9.67	7.43	2.24	5.00	13	18	15.24	20.24	–5.57	–10.57
12MW-24D	1/15/2003	405079.969	2325386.250	1	9.73	7.45	2.28	10.00	25	35	27.28	37.28	–17.55	–27.55
12MW-24S	1/15/2003	405084.031	2325385.750	1	9.65	7.38	2.27	5.00	13	18	15.27	20.27	–5.62	–10.62
12MW-25D	1/21/2003	405081.594	2325393.750	2	9.17	6.96	2.21	10.00	26	36	28.21	38.21	–19.04	–29.04
12MW-25S	1/21/2003	405085.531	2325393.250	2	9.17	6.96	2.21	5.00	13	18	15.21	20.21	–6.04	–11.04
12MW-26S	1/21/2003	405059.594	2325392.500	2	9.11	6.90	2.21	5.00	13	18	15.21	20.21	–6.10	–11.10
12MW-27D	1/22/2003	405174.281	2325346.750	2	10.94	8.70	2.24	10.00	23	33	25.24	35.24	–14.30	–24.30
12MW-27S	1/23/2003	405169.531	2325348.250	2	11.01	8.80	2.21	5.00	10	15	12.21	17.21	–1.20	–6.20
12MW-28D	1/27/2003	405106.906	2325368.250	2	9.64	7.39	2.25	10.00	23	33	25.25	35.25	–15.61	–25.61
12MW-28S	1/28/2003	405111.875	2325366.250	2	9.60	7.32	2.28	5.00	10	15	12.28	17.28	–2.68	–7.68
12MW-29S	7/19/2004	405114.750	2325506.250	2	7.38	5.28	2.10	2.25	9.75	12	11.85	14.10	–4.47	–6.72
12MW-30S	7/22/2004	405115.438	2325515.500	2	8.64	5.22	3.42	2.25	9.75	12	13.17	15.42	–4.53	–6.78
12PZ-01*	8/15/2002	405261.850	2325470.420	2	6.32	6.16	0.16	10.00	4.5	14.5	4.66	14.66	1.66	–8.34
12PZ-03D	3/10/2004	405130.594	2325712.750	1	4.72	—	—	2.5	—	—	11.8	14.3	–7.08	–9.58
12PZ-03S	3/8/2004	405130.438	2325709.750	1	5.45	—	—	2.5	—	—	7.5	10	–2.05	–4.55
12PZ-04	2/20/2004	405184.625	2325737.500	1	5.55	—	—	2.5	—	—	15	17.5	–9.45	–11.95
12PZ-05	2/19/2004	405118.969	2325753.500	1	4.34	—	—	2.5	—	—	12.23	14.73	–7.89	–10.39
12PZ-06	2/20/2004	405060.969	2325734.500	1	4.87	—	—	2.5	—	—	14.9	17.4	–10.03	–12.53

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-01D	12MW-01S	12MW-02D	12MW-02S	12MW-03D	12MW-03S	12MW-04D	12MW-04S	12MW-05D	12MW-05I	12MW-05S
4/18/1998	4.33	4.33	4.26	4.26	4.25	4.25	4.39	4.33	—	—	—
5/18/1998	3.75	3.73	3.60	3.61	3.60	3.59	3.75	3.65	—	—	—
6/25/1998	2.32	2.31	2.16	2.16	2.15	2.14	2.20	2.21	—	—	—
8/11/1999	2.41	2.38	2.29	2.29	2.29	2.28	2.36	2.38	2.52	—	2.22
10/28/1999	4.19	4.19	4.16	4.11	4.12	4.13	4.22	4.20	3.95	—	4.06
8/3/2000	3.99	4.02	3.98	—	4.01	—	4.00	4.04	3.75	—	3.92
9/7/2000	—	—	—	—	—	—	—	—	—	—	5.31
10/12/2000	3.23	3.21	3.07	3.06	3.07	3.05	3.12	3.13	3.20	3.03	2.98
11/13/2000	2.28	2.27	2.08	2.07	2.07	2.05	2.14	2.14	2.30	2.03	1.98
1/12/2001	3.30	3.30	3.14	3.14	3.12	3.15	3.17	3.24	3.00	3.08	3.03
2/8/2001	3.15	3.15	2.99	3.00	2.99	2.99	3.07	3.10	2.86	2.94	2.89
3/14/2001	4.17	4.19	4.05	4.05	4.04	4.04	4.12	4.21	3.60	3.96	3.95
4/13/2001	3.61	3.59	3.43	3.43	3.43	3.43	3.60	3.51	3.45	3.39	3.35
5/14/2001	2.28	2.26	2.03	2.01	2.04	2.01	2.13	2.16	2.29	2.00	1.95
6/19/2001	2.50	2.48	2.43	2.44	2.43	2.44	2.41	2.43	2.19	2.55	2.25
7/19/2001	2.80	2.80	2.72	2.70	2.71	2.78	2.76	2.77	2.87	2.70	2.63
8/30/2001	2.25	2.24	2.15	2.14	2.14	2.13	2.21	2.22	2.43	2.11	2.06
9/27/2001	2.29	2.30	2.23	2.23	2.21	2.22	2.25	2.27	2.46	2.19	2.16
10/30/2001	1.29	1.27	1.21	1.20	1.20	1.20	1.28	1.25	1.69	1.20	1.17
11/27/2001	1.10	1.09	1.04	1.03	1.03	1.02	1.05	1.07	1.46	1.02	1.00
12/26/2001	1.38	1.36	1.32	1.31	1.30	1.30	1.33	1.34	1.67	1.30	1.27
1/22/2002	1.93	1.90	1.81	1.80	1.80	1.80	1.80	1.89	1.97	1.79	1.73
2/26/2002	2.26	2.25	2.08	2.07	2.09	2.07	2.22	2.21	2.19	2.04	1.99
5/3/2002	1.78	1.77	1.61	1.63	1.61	1.61	1.69	1.67	1.94	1.58	1.51
6/6/2002	0.96	0.95	0.83	0.83	0.83	0.83	0.85	0.86	1.32	0.81	0.76
7/12/2002	2.15	2.15	2.01	2.03	2.03	2.00	2.08	2.08	1.85	2.28	1.88
8/8/2002	1.53	1.51	1.41	1.40	1.41	1.42	1.45	1.29	1.81	1.39	1.32
8/26/2002	1.41	1.40	1.27	1.26	1.27	1.28	1.33	1.34	1.54	1.24	1.21
8/28/2002	1.86	1.88	1.78	1.69	1.75	1.77	1.84	1.89	1.90	1.71	1.68
9/9/2002	2.94	2.93	2.99	2.99	2.97	2.99	3.03	3.06	3.02	2.95	2.87
10/3/2002	4.23	4.24	4.22	4.23	4.28	4.20	4.27	4.31	3.95	4.15	4.16
11/21/2002	5.19	5.17	5.29	5.36	5.32	5.43	—	—	4.71	5.14	5.06
12/13/2002	4.72	4.72	4.68	4.69	4.68	4.70	4.77	4.74	4.25	4.56	4.50
2/4/2003	4.07	4.03	3.94	3.95	3.92	3.94	3.97	3.93	3.79	3.84	3.78
2/13/2003	4.00	3.98	3.92	3.94	3.95	3.96	3.92	3.95	3.72	3.85	3.79
2/20/2003	4.11	4.10	4.04	4.05	4.05	4.06	4.08	4.11	3.79	3.96	3.89
2/26/2003	4.10	3.99	4.10	4.10	4.19	4.08	4.12	4.15	3.83	4.01	3.94
3/25/2003	5.08	5.08	5.04	5.03	5.02	5.04	5.07	5.11	4.58	4.90	4.83
4/23/2003	3.96	3.94	3.86	3.84	3.87	3.87	3.87	3.89	3.84	3.77	3.67
5/27/2003	4.61	4.61	4.61	4.61	4.60	4.64	4.61	4.68	4.14	4.49	4.44
6/30/2003	3.56	3.55	3.45	3.45	3.45	3.47	3.54	3.50	3.49	3.38	3.28

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-01D	12MW-01S	12MW-02D	12MW-02S	12MW-03D	12MW-03S	12MW-04D	12MW-04S	12MW-05D	12MW-05I	12MW-05S
8/4/2003	4.66	4.71	4.61	4.64	4.56	4.60	4.52	4.62	4.17	4.43	4.39
8/29/2003	3.06	3.05	2.84	2.89	2.92	2.91	2.95	2.95	3.06	2.82	2.74
9/30/2003	2.76	2.73	2.63	2.63	2.65	2.65	2.70	2.69	2.90	2.58	2.50
11/3/2003	2.86	2.86	2.76	2.76	2.78	2.80	2.82	2.85	2.84	2.68	2.61
12/8/2003	2.77	2.77	2.63	2.65	2.64	2.64	2.62	2.76	2.69	2.54	2.49
1/15/2004	2.79	2.78	2.66	2.66	2.67	2.69	2.73	2.77	2.70	2.58	2.50
2/13/2004	3.80	3.83	3.65	3.65	3.65	3.68	3.48	3.96	3.22	3.47	3.41
3/15/2004	3.37	3.37	3.29	3.28	3.30	3.31	3.34	3.57	3.23	3.20	3.13
4/21/2004	2.87	2.86	2.77	2.77	2.78	2.80	2.84	3.04	2.82	2.70	2.63
5/20/2004	2.47	2.45	2.38	2.39	2.38	2.39	2.43	2.45	2.58	2.32	2.25
6/21/2004	2.06	2.05	1.98	1.99	2.01	2.03	2.02	2.06	2.16	1.94	1.87
7/26/2004	2.69	2.66	2.67	—	2.69	2.73	2.70	2.75	2.57	2.75	2.53
9/15/2004	4.22	4.21	4.10	4.13	4.13	4.16	4.27	4.24	3.83	4.04	4.00
10/21/2004	3.16	3.13	2.91	—	2.94	2.96	3.01	3.04	2.94	2.85	2.77
11/29/2004	2.41	2.37	2.09	—	2.12	2.11	2.21	2.19	2.15	1.98	1.93
12/27/2004	2.64	2.63	2.28	—	2.28	2.32	2.33	2.40	2.14	2.10	2.04
1/25/2005	2.77	2.76	2.53	2.52	2.55	2.57	2.67	2.66	2.44	2.43	2.37
2/17/2005	2.98	2.97	2.76	2.74	2.79	2.8	2.87	2.91	2.63	2.67	2.6
3/24/2005	4.06	4.07	3.84	3.82	3.84	3.88	3.92	4.18	3.29	3.71	3.67
4/25/2005	3.00	2.98	2.75	2.73	2.77	2.78	2.83	2.99	2.79	2.70	2.58
5/31/2005	2.29	2.28	2.00	2.00	2.05	2.07	2.08	2.14	2.02	1.89	1.79
6/17/2005	2.19	2.16	1.94	1.92	1.98	2.00	2.07	2.06	2.14	1.90	1.79
7/21/2005	3.09	3.08	2.86	2.85	2.89	2.91	2.96	3.20	2.73	2.96	2.70
8/16/2005	4.24	4.23	4.11	4.14	4.19	4.11	4.21	4.41	3.81	4.06	4.01
9/29/2005	2.42	2.38	2.12	2.11	2.16	2.15	2.21	2.40	2.33	2.05	2.00
10/17/2005	3.38	3.35	3.16	3.14	3.19	3.19	3.31	3.38	3.20	3.10	3.01
12/1/2005	3.17	3.15	2.94	2.93	2.96	2.99	3.04	3.34	2.84	2.86	2.79
12/19/2005	4.35	4.37	4.13	4.14	4.14	4.18	4.18	4.48	3.50	4.02	3.95
1/26/2006	3.83	3.82	3.66	3.65	3.70	3.73	3.74	4.04	3.40	3.61	3.55
3/2/2006	4.29	4.29	4.20	4.20	4.22	4.25	4.26	4.39	3.79	4.12	4.05
3/30/2006	2.97	2.94	2.68	2.67	2.69	2.71	2.75	3.08	2.71	2.62	2.51
5/1/2006	2.14	2.11	1.87	1.85	1.90	1.90	1.97	1.99	2.06	1.81	1.70
5/31/2006	1.66	1.64	1.38	1.39	1.45	1.45	1.51	1.53	1.68	1.35	1.27
6/29/2006	2.43	2.41	2.16	2.18	2.19	2.26	2.27	2.27	2.18	2.11	2.02
10/2/2006	2.32	2.29	2.08	2.09	2.12	2.14	2.20	2.21	2.31	2.07	1.99
5/21/2007	0.69	0.64	0.47	0.46	0.52	0.52	0.53	0.77	0.95	0.44	0.37
7/17/2007	0.84	0.85	—	0.69	0.71	0.72	0.74	0.76	1.05	0.65	0.59
11/26/2007	1.94	1.91	1.63	1.64	1.69	1.69	1.75	1.76	1.85	1.61	1.54
5/5/2008	1.91	1.87	1.63	1.60	1.70	1.68	1.71	2.05	1.91	1.63	1.49
8/28/2008	1.75	1.74	1.55	1.56	1.59	1.62	1.62	1.61	1.76	1.52	1.43

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-06D	12MW-06S	12MW-07D	12MW-07S	12MW-08D	12MW-08S	12MW-09D	12MW-09S	12MW-10S	12MW-11D	12MW-11S
4/18/1998	—	—	—	—	—	—	—	—	—	—	—
5/18/1998	—	—	—	—	—	—	—	—	—	—	—
6/25/1998	—	—	—	—	—	—	—	—	—	—	—
8/11/1999	2.41	1.63	2.66	2.13	2.43	2.58	2.30	2.26	—	—	—
10/28/1999	3.69	3.56	3.84	4.07	3.70	3.74	4.04	4.09	—	—	—
8/3/2000	3.40	3.42	3.56	3.88	—	—	3.86	3.92	—	—	—
9/7/2000	3.92	3.99	—	5.09	—	—	—	5.44	—	—	—
10/12/2000	3.04	2.56	3.23	2.94	3.06	2.84	3.07	3.02	3.13	3.05	2.74
11/13/2000	2.22	1.54	2.37	1.90	2.28	2.11	2.12	2.02	2.10	2.10	1.76
1/12/2001	2.76	2.78	2.89	2.93	2.83	3.59	3.03	3.12	3.40	2.98	2.78
2/8/2001	2.71	2.64	2.86	2.83	2.77	3.40	2.91	2.94	3.16	—	—
3/14/2001	3.24	3.33	3.37	3.81	3.31	3.96	3.79	4.07	4.08	3.74	3.70
4/13/2001	3.18	2.92	3.36	3.29	3.28	3.37	3.39	3.47	3.52	3.36	3.09
5/14/2001	2.14	1.26	2.36	1.86	2.17	2.15	2.04	1.98	2.12	2.12	1.69
6/19/2001	2.30	1.70	2.54	2.18	2.30	2.41	2.30	2.29	2.52	2.30	1.99
7/19/2001	2.73	2.38	2.95	2.63	2.72	3.09	2.70	2.64	2.79	2.74	2.41
8/30/2001	2.39	1.57	2.61	2.03	2.42	2.43	2.19	2.10	2.22	2.21	1.83
9/27/2001	2.42	2.23	2.71	2.20	2.36	2.81	2.33	2.21	2.30	2.35	1.99
10/30/2001	1.76	1.30	1.95	1.17	1.75	1.57	1.36	1.20	1.27	1.41	1.02
11/27/2001	1.57	1.21	1.72	1.01	1.56	1.60	1.18	1.05	1.08	1.21	0.85
12/26/2001	1.69	1.48	1.87	1.29	1.68	1.48	1.41	1.33	1.36	1.44	1.11
1/22/2002	1.88	1.93	2.07	1.71	1.88	2.21	1.81	1.78	1.91	1.82	1.53
2/26/2002	2.08	2.08	2.20	1.95	2.06	2.51	2.04	2.05	2.17	2.04	1.78
5/3/2002	1.92	1.36	2.13	1.51	1.91	1.82	1.65	1.54	1.68	1.68	1.27
6/6/2002	1.41	0.61	1.63	0.74	1.38	1.00	0.98	0.81	0.92	1.02	0.58
7/12/2002	2.15	1.83	2.35	1.85	2.16	2.96	2.00	1.97	2.13	2.01	1.70
8/8/2002	1.85	1.12	2.07	1.33	1.84	2.08	1.50	1.34	1.49	1.55	1.14
8/26/2002	1.68	1.53	1.85	1.19	1.62	2.40	1.34	1.29	1.38	1.37	1.07
8/28/2002	1.92	2.05	2.09	1.60	1.87	2.99	1.79	1.82	1.85	1.81	1.55
9/9/2002	2.87	2.76	3.06	2.88	2.90	—	2.95	2.95	3.04	2.93	2.73
10/3/2002	3.54	3.59	3.78	4.10	3.66	3.88	4.11	4.21	4.27	4.06	4.00
11/21/2002	4.11	4.08	4.31	5.02	4.26	4.16	4.88	5.14	5.33	4.84	4.83
12/13/2002	3.81	3.72	3.97	4.45	3.94	4.07	4.42	4.64	4.76	4.36	4.32
2/4/2003	3.44	3.27	3.57	3.75	3.54	3.85	3.83	3.93	4.01	3.77	3.66
2/13/2003	3.36	3.27	3.51	3.77	3.46	3.75	3.80	3.89	4.02	3.74	3.68
2/20/2003	3.42	3.34	3.55	3.86	3.51	3.71	3.88	4.00	4.17	3.83	3.79
2/26/2003	3.48	3.39	3.57	3.94	3.58	3.77	3.93	4.32	4.17	3.88	3.81
3/25/2003	4.07	3.91	4.23	4.80	4.15	4.07	4.74	4.99	5.10	4.70	4.64
4/23/2003	3.52	3.17	3.71	3.67	3.61	3.39	3.75	3.80	3.89	3.73	3.50
5/27/2003	3.69	3.67	3.86	4.38	3.76	4.09	4.32	4.59	3.66	4.77	4.29
6/30/2003	3.26	2.81	3.44	3.26	3.34	3.37	3.38	3.39	3.51	3.37	3.10

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-06D	12MW-06S	12MW-07D	12MW-07S	12MW-08D	12MW-08S	12MW-09D	12MW-09S	12MW-10S	12MW-11D	12MW-11S
8/4/2003	3.80	3.80	3.98	4.30	3.92	4.25	4.34	4.62	4.67	4.27	4.28
8/29/2003	2.91	2.22	3.10	2.76	2.97	2.85	2.89	2.85	2.95	2.87	2.57
9/30/2003	2.86	2.45	3.07	2.54	2.83	2.60	2.65	2.56	2.68	2.68	2.35
11/3/2003	2.71	2.53	2.92	2.61	2.69	3.27	2.71	2.72	2.84	2.70	2.45
12/8/2003	2.55	2.41	2.69	2.46	2.53	3.29	2.60	2.61	2.72	2.57	2.32
1/15/2004	2.56	2.39	2.71	2.50	2.56	3.33	2.62	2.63	2.73	2.60	2.33
2/13/2004	2.94	3.03	3.05	3.36	2.98	4.01	3.37	3.58	3.81	3.31	3.23
3/15/2004	2.99	2.76	3.14	3.13	3.09	3.76	3.21	3.25	3.36	3.17	2.98
4/21/2004	2.62	2.33	2.78	2.63	2.68	3.48	2.68	2.74	2.87	2.70	2.44
5/20/2004	2.46	1.76	2.60	2.24	2.54	3.18	2.41	2.37	2.42	2.39	2.03
6/21/2004	2.04	1.53	2.22	1.87	2.07	2.62	2.02	1.99	2.06	2.00	1.73
7/26/2004	2.59	2.47	2.71	2.53	2.67	3.81	2.65	2.67	2.78	2.62	2.41
9/15/2004	3.51	3.56	3.73	4.01	3.43	3.38	3.83	4.05	4.18	3.88	3.86
10/21/2004	2.78	2.61	3.07	2.84	2.60	1.91	2.70	2.79	3.03	2.80	2.65
11/29/2004	2.07	1.72	2.33	1.94	1.86	1.33	1.91	1.98	2.20	1.99	1.79
12/27/2004	2.01	2.01	2.26	2.05	1.74	1.98	2.01	2.17	2.48	2.04	1.91
1/25/2005	2.27	2.28	2.54	2.40	1.97	1.46	2.26	2.42	2.65	2.34	2.22
2/17/2005	2.45	2.53	2.71	2.66	2.2	1.86	2.49	2.63	2.91	2.57	2.44
3/24/2005	2.92	3.16	3.17	3.64	2.71	3.51	3.39	3.74	4.00	3.42	3.57
4/25/2005	2.64	2.25	2.91	2.67	2.43	1.34	2.56	2.62	2.82	2.64	2.47
5/31/2005	1.98	1.71	2.27	1.82	1.70	1.25	1.78	1.88	2.18	1.85	1.65
6/17/2005	2.12	1.55	2.45	1.88	1.79	0.51	1.76	1.80	2.05	1.91	1.66
7/21/2005	2.73	2.61	3.04	2.84	2.49	1.56	2.63	2.71	2.96	2.75	2.62
8/16/2005	3.47	3.65	3.74	4.07	3.46	3.06	3.78	4.02	4.20	3.88	3.94
9/29/2005	2.29	1.53	2.59	2.02	2.02	0.41	1.99	2.02	2.19	2.09	1.85
10/17/2005	3.02	2.93	3.32	3.10	2.82	2.03	2.96	3.02	3.23	3.07	2.92
12/1/2005	2.70	2.74	2.96	2.85	2.42	2.10	2.66	2.80	3.08	2.77	2.70
12/19/2005	3.17	3.35	3.38	3.88	2.99	3.69	3.64	4.00	4.31	3.68	3.84
1/26/2006	3.11	3.27	3.34	3.59	2.95	3.17	3.36	3.56	3.86	3.44	3.52
3/2/2006	3.42	3.57	3.61	4.07	3.31	3.43	3.87	4.11	4.38	3.90	3.97
3/30/2006	2.58	2.48	2.83	2.58	2.36	1.28	2.49	2.55	2.81	2.57	2.43
5/1/2006	2.01	1.49	2.29	1.76	1.75	0.36	1.74	1.74	1.95	1.81	1.58
5/31/2006	1.64	0.89	1.97	1.29	1.39	-0.26	1.31	1.30	1.50	1.41	1.14
6/29/2006	2.12	2.13	2.44	2.08	1.79	1.03	1.93	2.06	2.34	2.04	1.9
10/2/2006	1.43	2.78	2.65	2.11	2.01	0.58	1.97	1.97	2.17	2.11	1.93
5/21/2007	1.02	-0.13	1.34	0.43	0.79	-1.16	0.51	0.38	0.55	0.61	0.29
7/17/2007	1.13	0.22	1.46	0.67	0.84	-0.88	0.67	0.63	0.91	0.80	0.57
11/26/2007	1.85	1.37	2.15	1.58	1.61	-0.10	1.54	1.85	1.92	1.63	1.46
5/5/2008	2.66	1.34	2.23	1.63	1.60	-0.21	1.52	1.47	2.28	1.66	1.39
8/28/2008	2.74	1.37	2.17	1.55	1.43	-0.15	1.42	1.45	2.61	1.56	1.40

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-12D	12MW-12S	12MW-13S	12MW-14S	12MW-15S	12MW-16S	12MW-17S	12MW-18S	12MW-19D	12MW-19S	12MW-20D
4/18/1998	—	—	—	—	—	—	—	—	—	—	—
5/18/1998	—	—	—	—	—	—	—	—	—	—	—
6/25/1998	—	—	—	—	—	—	—	—	—	—	—
8/11/1999	—	—	—	—	—	—	—	—	—	—	—
10/28/1999	—	—	—	—	—	—	—	—	—	—	—
8/3/2000	—	—	—	—	—	—	—	—	—	—	—
9/7/2000	—	—	—	—	—	—	—	—	—	—	—
10/12/2000	—	—	—	—	—	—	—	—	—	—	—
11/13/2000	—	—	—	—	—	—	—	—	—	—	—
1/12/2001	—	—	—	—	—	—	—	—	—	—	—
2/8/2001	—	—	—	—	—	—	—	—	—	—	—
3/14/2001	—	—	—	—	—	—	—	—	—	—	—
4/13/2001	—	—	—	—	—	—	—	—	—	—	—
5/14/2001	—	—	—	—	—	—	—	—	—	—	—
6/19/2001	—	—	—	—	—	—	—	—	—	—	—
7/19/2001	—	—	—	—	—	—	—	—	—	—	—
8/30/2001	—	—	1.89	—	—	—	—	—	—	—	—
9/27/2001	2.47	2.00	2.11	—	—	—	—	—	—	—	—
10/30/2001	1.35	1.01	1.10	—	—	—	—	—	—	—	—
11/27/2001	1.19	0.86	0.95	1.75	0.64	0.81	—	—	—	—	—
12/26/2001	1.46	1.11	1.20	2.00	1.28	1.26	—	—	—	—	—
1/22/2002	1.81	1.56	1.61	2.07	1.70	1.35	—	—	—	—	—
2/26/2002	2.06	1.78	1.85	2.23	1.86	1.65	—	—	—	—	—
5/3/2002	1.70	1.29	1.36	—	—	—	—	—	—	—	—
6/6/2002	1.01	0.58	0.65	—	—	—	—	—	—	—	—
7/12/2002	2.01	1.69	1.74	2.22	0.07	1.60	—	—	—	—	—
8/8/2002	1.55	1.13	1.20	1.98	0.16	1.19	—	—	—	—	—
8/26/2002	1.32	1.04	1.10	1.89	1.20	0.99	1.10	—	—	—	—
8/28/2002	1.79	1.49	1.56	2.11	2.17	1.25	1.56	—	—	—	—
9/9/2002	2.95	2.75	2.77	2.97	2.26	2.66	—	—	—	—	—
10/3/2002	4.06	4.01	3.94	3.38	2.61	3.26	4.00	—	—	—	—
11/21/2002	4.85	4.88	5.72	3.91	3.28	3.91	4.85	—	—	—	—
12/13/2002	4.37	4.38	4.22	3.65	3.09	3.62	4.34	—	—	—	—
2/4/2003	3.79	3.69	3.61	3.27	2.66	3.08	3.66	—	—	—	—
2/13/2003	3.70	3.70	3.61	—	—	—	3.66	3.80	3.88	3.91	3.79
2/20/2003	3.71	3.83	3.68	2.62	2.52	4.14	3.80	—	—	—	—
2/26/2003	3.88	3.84	3.46	3.30	2.84	3.21	3.82	3.96	4.04	4.02	4.04
3/25/2003	4.68	4.69	4.52	3.85	3.22	3.86	4.67	4.96	4.93	4.95	4.92
4/23/2003	3.72	3.55	3.46	3.41	2.18	3.08	3.49	3.80	3.78	3.79	3.80
5/27/2003	4.27	4.35	4.18	3.55	3.37	3.60	4.31	4.56	4.55	4.56	4.54
6/30/2003	3.37	3.12	3.09	2.45	1.65	2.82	3.11	3.39	3.39	3.41	3.39

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-12D	12MW-12S	12MW-13S	12MW-14S	12MW-15S	12MW-16S	12MW-17S	12MW-18S	12MW-19D	12MW-19S	12MW-20D
8/4/2003	4.25	4.29	4.15	3.60	3.14	3.60	4.28	4.56	4.52	4.54	4.51
8/29/2003	2.88	2.60	2.58	2.88	1.05	2.47	2.59	2.84	2.87	2.84	2.85
9/30/2003	2.67	2.37	2.41	2.96	1.34	2.51	2.36	2.59	2.57	2.57	2.58
11/3/2003	2.71	2.46	2.49	1.63	1.86	2.30	2.45	2.69	2.70	2.70	2.71
12/8/2003	2.57	2.32	2.33	2.67	2.11	2.15	2.31	2.56	2.58	2.57	2.58
1/15/2004	2.60	2.36	2.36	2.61	2.12	2.21	2.36	2.60	2.62	2.61	2.60
2/13/2004	3.30	3.25	3.19	2.85	3.36	2.60	3.25	3.49	3.52	3.51	3.50
3/15/2004	3.17	2.99	3.07	2.86	2.11	2.55	2.99	3.23	3.73	3.26	3.24
4/21/2004	2.70	2.45	—	2.58	1.70	2.18	2.45	2.71	2.73	2.73	2.71
5/20/2004	2.39	2.06	2.08	2.39	1.03	2.01	2.06	2.32	2.33	2.34	2.35
6/21/2004	1.99	1.71	1.73	1.94	0.80	1.58	1.73	1.94	1.96	1.96	1.95
7/26/2004	2.62	2.39	2.42	2.59	2.14	3.31	2.41	2.63	2.64	2.64	2.65
9/15/2004	3.93	3.89	3.81	3.43	2.79	3.41	3.87	4.07	4.10	4.09	4.09
10/21/2004	2.80	2.67	2.67	2.88	2.12	2.66	2.64	2.84	2.87	2.87	2.87
11/29/2004	1.97	1.78	1.79	2.19	1.49	1.83	1.78	2.01	2.05	2.02	2.03
12/27/2004	2.04	1.91	1.90	2.17	2.46	1.78	1.86	2.16	2.19	2.16	2.17
1/25/2005	2.33	2.21	2.21	2.41	2.22	2.11	—	2.44	2.50	2.49	2.46
2/17/2005	2.55	2.47	2.48	2.57	2.4	2.33	2.47	2.67	2.71	2.7	2.69
3/24/2005	3.43	3.56	3.45	2.91	3.39	2.85	3.56	3.77	3.79	3.79	3.75
4/25/2005	2.64	2.47	2.46	2.69	1.64	2.40	2.47	2.67	2.74	2.73	2.70
5/31/2005	1.84	1.62	1.64	2.08	1.44	1.69	1.64	1.89	2.14	1.91	1.91
6/17/2005	1.89	1.66	1.71	2.32	1.08	2.00	1.64	1.86	1.92	1.90	1.90
7/21/2005	2.74	2.62	2.63	2.87	1.87	2.71	2.62	2.80	2.86	2.85	2.83
8/16/2005	3.87	3.93	3.87	3.45	2.93	3.47	3.93	4.08	4.13	4.11	4.09
9/29/2005	2.09	1.83	1.85	2.43	0.50	2.04	1.84	2.13	2.10	2.08	2.09
10/17/2005	3.06	2.91	2.92	3.11	2.10	2.89	2.91	3.10	3.16	3.14	3.12
12/1/2005	2.76	2.67	2.70	2.83	2.65	2.65	2.68	2.86	2.91	2.89	2.89
12/19/2005	3.67	3.84	3.70	3.05	3.55	3.61	3.81	4.06	4.10	4.10	4.06
1/26/2006	3.43	3.52	3.46	3.13	3.15	3.14	3.48	3.63	3.67	3.66	3.64
3/2/2006	3.89	3.98	3.88	3.34	3.18	3.37	3.97	4.18	4.22	4.23	4.18
3/30/2006	2.56	2.43	2.44	2.66	1.95	2.38	2.40	2.61	2.65	2.64	2.63
5/1/2006	1.81	1.54	1.60	2.14	1.07	1.79	1.54	1.78	1.84	1.80	1.82
5/31/2006	1.40	1.11	1.11	1.81	0.31	1.39	1.11	1.31	1.37	1.35	1.36
6/29/2006	2.04	1.85	1.91	2.27	1.05	2.08	1.88	2.09	2.14	2.1	2.12
10/2/2006	2.11	1.92	1.98	2.55	1.40	2.38	1.92	2.05	2.10	2.09	2.09
5/21/2007	0.60	0.21	0.22	1.11	-0.86	0.76	0.26	0.42	0.47	0.44	0.46
7/17/2007	0.77	0.47	0.51	1.39	-0.68	1.01	0.54	0.63	0.68	0.65	0.66
11/26/2007	1.64	1.43	1.45	2.08	1.17	1.88	1.46	1.59	1.63	1.59	1.63
5/5/2008	1.66	1.32	1.42	2.11	1.14	1.88	1.37	1.59	1.64	1.61	1.61
8/28/2008	1.55	1.28	1.37	2.10	0.67	1.79	1.40	1.49	1.55	1.52	1.54

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-20S	12MW-21D	12MW-21S	12MW-22D	12MW-22S	12MW-23D	12MW-23S	12MW-24D	12MW-24S	12MW-25D	12MW-25S
4/18/1998	—	—	—	—	—	—	—	—	—	—	—
5/18/1998	—	—	—	—	—	—	—	—	—	—	—
6/25/1998	—	—	—	—	—	—	—	—	—	—	—
8/11/1999	—	—	—	—	—	—	—	—	—	—	—
10/28/1999	—	—	—	—	—	—	—	—	—	—	—
8/3/2000	—	—	—	—	—	—	—	—	—	—	—
9/7/2000	—	—	—	—	—	—	—	—	—	—	—
10/12/2000	—	—	—	—	—	—	—	—	—	—	—
11/13/2000	—	—	—	—	—	—	—	—	—	—	—
1/12/2001	—	—	—	—	—	—	—	—	—	—	—
2/8/2001	—	—	—	—	—	—	—	—	—	—	—
3/14/2001	—	—	—	—	—	—	—	—	—	—	—
4/13/2001	—	—	—	—	—	—	—	—	—	—	—
5/14/2001	—	—	—	—	—	—	—	—	—	—	—
6/19/2001	—	—	—	—	—	—	—	—	—	—	—
7/19/2001	—	—	—	—	—	—	—	—	—	—	—
8/30/2001	—	—	—	—	—	—	—	—	—	—	—
9/27/2001	—	—	—	—	—	—	—	—	—	—	—
10/30/2001	—	—	—	—	—	—	—	—	—	—	—
11/27/2001	—	—	—	—	—	—	—	—	—	—	—
12/26/2001	—	—	—	—	—	—	—	—	—	—	—
1/22/2002	—	—	—	—	—	—	—	—	—	—	—
2/26/2002	—	—	—	—	—	—	—	—	—	—	—
5/3/2002	—	—	—	—	—	—	—	—	—	—	—
6/6/2002	—	—	—	—	—	—	—	—	—	—	—
7/12/2002	—	—	—	—	—	—	—	—	—	—	—
8/8/2002	—	—	—	—	—	—	—	—	—	—	—
8/26/2002	—	—	—	—	—	—	—	—	—	—	—
8/28/2002	—	—	—	—	—	—	—	—	—	—	—
9/9/2002	—	—	—	—	—	—	—	—	—	—	—
10/3/2002	—	—	—	—	—	—	—	—	—	—	—
11/21/2002	—	—	—	—	—	—	—	—	—	—	—
12/13/2002	—	—	—	—	—	—	—	—	—	—	—
2/4/2003	—	—	—	—	—	—	—	—	—	—	—
2/13/2003	3.85	3.89	3.86	3.84	3.83	3.91	3.81	3.84	3.85	3.83	3.85
2/20/2003	—	—	—	—	—	—	—	—	—	—	—
2/26/2003	4.01	4.02	4.03	4.03	3.99	3.94	3.98	3.86	4.02	3.96	3.96
3/25/2003	4.90	4.92	4.97	4.93	4.91	4.90	4.95	4.88	4.92	4.87	4.91
4/23/2003	3.77	3.79	3.81	3.79	3.74	3.80	3.79	3.79	3.77	3.78	3.76
5/27/2003	4.53	4.50	4.56	4.51	4.49	4.48	4.52	4.45	4.49	4.45	4.49
6/30/2003	3.38	3.39	3.43	3.38	3.34	3.40	3.40	3.39	3.36	3.39	3.34

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-20S	12MW-21D	12MW-21S	12MW-22D	12MW-22S	12MW-23D	12MW-23S	12MW-24D	12MW-24S	12MW-25D	12MW-25S
8/4/2003	4.53	4.46	4.48	4.45	4.46	4.42	4.49	4.40	4.42	4.41	4.45
8/29/2003	2.82	2.82	2.88	2.85	2.79	2.88	2.87	2.88	2.81	2.89	2.81
9/30/2003	2.54	2.59	2.61	2.58	2.53	2.64	2.59	2.62	2.56	2.64	2.57
11/3/2003	2.67	2.70	2.72	2.71	2.65	2.73	2.71	2.73	2.69	2.72	2.67
12/8/2003	2.56	2.58	2.56	2.56	2.51	2.59	2.58	2.58	2.54	2.57	2.53
1/15/2004	2.58	2.60	2.60	2.59	2.53	2.62	2.62	2.61	2.36	2.62	2.56
2/13/2004	3.50	3.48	3.44	3.48	3.44	3.48	3.51	3.46	3.47	3.46	3.46
3/15/2004	3.23	3.24	3.27	3.21	3.19	3.24	3.26	3.23	3.11	3.24	3.22
4/21/2004	2.69	2.72	2.75	2.70	2.66	2.73	2.72	2.72	2.67	2.73	2.69
5/20/2004	2.32	2.34	2.38	2.33	2.28	2.36	2.35	2.35	2.30	2.35	2.29
6/21/2004	1.93	1.95	1.96	1.94	1.90	1.98	1.96	1.99	1.93	1.98	1.95
7/26/2004	2.63	2.62	2.63	2.61	2.58	2.64	2.64	2.62	2.60	2.64	2.60
9/15/2004	4.03	4.10	3.98	4.05	4.04	4.07	4.08	4.03	4.03	4.02	4.03
10/21/2004	2.84	2.88	2.89	2.88	2.82	2.85	2.96	2.91	2.85	2.89	2.85
11/29/2004	2.00	2.05	2.06	2.05	1.97	2.08	2.06	2.09	2.00	2.06	2.02
12/27/2004	2.13	2.18	1.93	2.16	2.09	2.21	2.18	2.18	2.13	2.18	2.14
1/25/2005	2.43	2.49	2.34	2.48	2.44	2.46	2.56	2.50	2.44	2.50	2.47
2/17/2005	2.66	2.72	2.74	2.7	2.65	2.72	2.72	2.72	2.65	2.7	2.69
3/24/2005	3.74	3.86	3.60	3.72	3.70	3.71	3.75	3.70	3.71	3.62	3.71
4/25/2005	2.68	2.74	2.78	2.73	2.65	2.75	2.75	2.74	2.69	2.75	2.70
5/31/2005	1.87	1.95	1.89	1.91	1.82	1.97	1.94	1.93	1.87	1.94	1.87
6/17/2005	1.86	1.95	1.97	1.93	1.85	1.98	1.96	1.99	1.88	1.97	1.89
7/21/2005	2.79	2.86	2.93	3.04	2.60	2.88	2.87	2.88	2.79	2.85	2.81
8/16/2005	4.08	4.08	4.13	4.09	4.06	4.09	4.13	4.09	4.09	4.05	4.08
9/29/2005	2.05	2.20	2.12	2.10	2.02	2.16	2.11	2.14	2.05	2.14	2.06
10/17/2005	3.08	3.20	3.17	3.14	3.07	3.16	3.16	3.17	3.10	3.16	3.10
12/1/2005	2.85	2.92	2.91	2.91	2.84	2.92	2.93	2.93	2.87	2.89	2.90
12/19/2005	4.04	4.07	4.09	4.04	4.01	4.01	4.08	3.99	4.03	3.96	4.01
1/26/2006	3.62	3.65	3.69	3.65	3.62	3.64	3.66	3.63	3.63	3.61	3.63
3/2/2006	4.16	4.18	4.25	4.17	4.15	4.14	4.20	4.13	4.17	4.12	4.16
3/30/2006	2.59	2.67	2.68	2.65	2.59	2.67	2.67	2.67	2.62	2.66	2.61
5/1/2006	1.77	1.80	1.80	1.82	1.75	1.88	1.78	1.87	1.79	1.86	1.81
5/31/2006	1.30	1.38	1.39	1.38	1.31	1.44	1.40	1.42	1.34	1.44	1.35
6/29/2006	2.08	2.15	2.13	2.14	2.06	2.17	2.16	2.16	2.11	2.15	2.1
10/2/2006	2.05	2.13	2.12	2.12	2.06	2.16	2.14	2.75	2.10	2.17	2.09
5/21/2007	0.41	0.50	0.49	0.48	0.40	0.55	0.49	0.57	0.43	0.55	0.45
7/17/2007	0.62	0.72	0.70	0.69	0.62	0.75	0.70	0.76	0.66	0.76	0.66
11/26/2007	1.58	1.65	1.63	1.63	1.58	1.69	1.65	1.69	1.63	1.67	1.61
5/5/2008	1.55	1.65	1.66	1.65	1.56	1.70	1.67	1.71	1.62	1.70	1.62
8/28/2008	1.48	1.56	1.56	1.57	1.49	1.61	1.58	1.61	1.54	1.58	1.52

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-26S	12MW-27D	12MW-27S	12MW-28D	12MW-28S	12MW-29S	12MW-30S	12PZ-01	12PZ-03D	12PZ-03S	12PZ-04
4/18/1998	—	—	—	—	—	—	—	—	—	—	—
5/18/1998	—	—	—	—	—	—	—	—	—	—	—
6/25/1998	—	—	—	—	—	—	—	—	—	—	—
8/11/1999	—	—	—	—	—	—	—	—	—	—	—
10/28/1999	—	—	—	—	—	—	—	—	—	—	—
8/3/2000	—	—	—	—	—	—	—	—	—	—	—
9/7/2000	—	—	—	—	—	—	—	—	—	—	—
10/12/2000	—	—	—	—	—	—	—	—	—	—	—
11/13/2000	—	—	—	—	—	—	—	—	—	—	—
1/12/2001	—	—	—	—	—	—	—	—	—	—	—
2/8/2001	—	—	—	—	—	—	—	—	—	—	—
3/14/2001	—	—	—	—	—	—	—	—	—	—	—
4/13/2001	—	—	—	—	—	—	—	—	—	—	—
5/14/2001	—	—	—	—	—	—	—	—	—	—	—
6/19/2001	—	—	—	—	—	—	—	—	—	—	—
7/19/2001	—	—	—	—	—	—	—	—	—	—	—
8/30/2001	—	—	—	—	—	—	—	—	—	—	—
9/27/2001	—	—	—	—	—	—	—	—	—	—	—
10/30/2001	—	—	—	—	—	—	—	—	—	—	—
11/27/2001	—	—	—	—	—	—	—	—	—	—	—
12/26/2001	—	—	—	—	—	—	—	—	—	—	—
1/22/2002	—	—	—	—	—	—	—	—	—	—	—
2/26/2002	—	—	—	—	—	—	—	—	—	—	—
5/3/2002	—	—	—	—	—	—	—	—	—	—	—
6/6/2002	—	—	—	—	—	—	—	—	—	—	—
7/12/2002	—	—	—	—	—	—	—	—	—	—	—
8/8/2002	—	—	—	—	—	—	—	—	—	—	—
8/26/2002	—	—	—	—	—	—	—	—	—	—	—
8/28/2002	—	—	—	—	—	—	—	1.72	—	—	—
9/9/2002	—	—	—	—	—	—	—	—	—	—	—
10/3/2002	—	—	—	—	—	—	—	4.14	—	—	—
11/21/2002	—	—	—	—	—	—	—	5.03	—	—	—
12/13/2002	—	—	—	—	—	—	—	4.52	—	—	—
2/4/2003	—	—	—	—	—	—	—	3.86	—	—	—
2/13/2003	3.80	3.87	3.89	3.87	3.88	—	—	3.85	—	—	—
2/20/2003	—	—	—	—	—	—	—	3.96	—	—	—
2/26/2003	3.83	4.01	4.04	4.03	3.98	—	—	4	—	—	—
3/25/2003	4.88	4.95	4.95	4.94	4.98	—	—	4.87	—	—	—
4/23/2003	3.78	3.79	3.78	4.10	3.80	—	—	3.73	—	—	—
5/27/2003	4.50	4.55	4.54	4.52	4.54	—	—	4.49	—	—	—
6/30/2003	3.37	3.40	3.39	3.40	3.43	—	—	3.34	—	—	—

Appendix 2. Monthly water-level data from wells at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, April 1998 to August 2008.—Continued

[—, Not measured; all measurements are in feet relative to the North American Vertical Datum of 1988]

Date	12MW-26S	12MW-27D	12MW-27S	12MW-28D	12MW-28S	12MW-29S	12MW-30S	12PZ-01	12PZ-03D	12PZ-03S	12PZ-04
8/4/2003	4.47	4.51	4.54	4.47	4.50	—	—	4.47	—	—	—
8/29/2003	2.85	2.85	2.85	2.87	2.88	—	—	2.79	—	—	—
9/30/2003	2.59	2.58	2.57	2.61	2.61	—	—	2.54	—	—	—
11/3/2003	2.69	2.73	2.70	2.72	2.73	—	—	2.63	—	—	—
12/8/2003	2.56	2.59	2.57	2.59	2.58	—	—	—	—	—	—
1/15/2004	2.61	2.63	2.60	2.61	2.62	—	—	—	—	—	—
2/13/2004	3.50	3.54	3.50	3.51	3.50	—	—	—	—	—	—
3/15/2004	3.22	3.26	3.25	3.25	3.28	—	—	—	2.92	-4.18	2.97
4/21/2004	2.71	2.73	2.72	2.73	2.74	—	—	2.61	2.47	2.71	2.40
5/20/2004	2.28	2.36	2.34	2.35	2.37	—	—	2.22	2.08	1.99	2.00
6/21/2004	1.94	1.95	1.95	1.96	1.97	—	—	1.85	1.72	1.71	1.67
7/26/2004	2.63	2.65	2.64	2.64	2.63	—	—	2.55	2.47	2.92	2.40
9/15/2004	4.07	4.08	4.09	4.08	4.10	3.95	3.95	3.95	3.68	1.13	3.50
10/21/2004	2.88	2.89	2.87	2.89	2.89	2.73	2.72	2.72	2.68	2.36	2.62
11/29/2004	2.03	2.04	2.03	2.07	2.05	1.85	1.84	1.88	1.80	2.25	1.61
12/27/2004	2.16	2.20	2.17	2.20	2.17	1.98	1.97	2.01	1.88	2.16	1.77
1/25/2005	2.50	2.50	2.49	2.50	2.51	2.30	2.28	2.28	2.24	2.53	2.07
2/17/2005	2.72	2.72	2.69	2.74	2.73	2.54	2.53	2.52	2.48	2.64	2.42
3/24/2005	3.75	3.79	3.77	3.75	3.75	3.63	3.62	3.62	3.20	2.77	3.07
4/25/2005	2.74	2.73	2.72	2.74	2.76	2.55	2.53	2.55	2.47	2.78	2.41
5/31/2005	1.93	1.95	1.92	1.94	1.93	1.73	1.70	1.72	1.65	2.90	1.61
6/17/2005	1.95	1.91	1.90	1.95	1.96	1.73	1.70	1.67	1.81	2.50	1.77
7/21/2005	2.86	2.85	2.84	2.87	2.87	2.69	2.66	2.66	2.69	2.67	2.65
8/16/2005	4.12	4.12	4.11	4.10	4.13	4.00	3.99	3.97	2.11	4.44	4.11
9/29/2005	2.07	2.10	2.08	2.12	2.12	1.93	1.93	1.92	1.83	2.60	1.70
10/17/2005	3.13	3.15	3.13	3.15	3.17	2.96	3.00	2.97	2.92	2.63	2.88
12/1/2005	2.91	2.92	2.87	2.92	2.93	2.73	2.72	2.73	2.69	2.74	2.57
12/19/2005	4.04	4.11	4.10	4.06	4.10	3.88	3.86	3.90	3.41	2.81	3.21
1/26/2006	3.63	3.66	3.66	3.65	3.68	3.55	3.55	3.52	3.32	2.91	3.21
3/2/2006	4.15	4.21	4.21	4.16	4.22	4.04	4.03	4.05	3.67	2.98	—
3/30/2006	2.63	2.65	2.64	2.66	2.68	2.48	2.46	2.49	2.44	2.92	2.44
5/1/2006	1.82	1.82	1.81	1.86	1.82	1.66	1.66	1.64	1.64	2.64	1.59
5/31/2006	1.37	1.38	1.37	1.39	1.40	1.19	1.19	1.19	1.16	2.26	—
6/29/2006	2.15	2.15	2.13	2.16	2.15	1.96	1.95	1.92	1.98	2.93	—
10/2/2006	2.14	2.09	2.08	2.12	2.13	1.98	1.97	1.93	2.05	2.61	—
5/21/2007	0.47	0.46	0.45	0.50	0.50	0.36	0.31	—	0.25	1.33	—
7/17/2007	0.68	0.66	0.67	0.71	0.70	0.60	0.57	—	0.55	0.65	—
11/26/2007	1.50	1.62	—	1.63	1.62	1.51	1.50	1.50	1.56	2.46	—
5/5/2008	1.65	1.64	1.61	1.67	1.65	1.45	1.44	—	—	—	—
8/28/2008	1.56	1.56	1.53	1.57	1.57	1.43	1.42	1.33	—	—	—

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-02D	8/30/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<10	<10	38	<5	2.1	<5	<5	<5	<2
12MW-02D	11/29/2000	<0.18	<0.18	<0.21	0.22J	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	52	<0.18	2.7J	<0.21	<0.18	<0.17	<0.15
12MW-02D	2/27/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	11	<0.26	1.3J	<0.13	<0.13	<0.14	<0.17
12MW-02D	5/15/2001	<0.27	<0.29	<0.35	<0.26	—	—	<0.35	<0.27	<0.31	<0.5	<0.5	34	<0.33	2.3J	<0.38	<0.43	1.5	<0.19
12MW-02D	8/29/2001	<0.22	<0.23	<0.2	0.32J	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	29	<0.26	2.2J	<0.13	<0.13	<0.14	<0.17
12MW-02D	12/3/2001	<0.22	<0.23	<0.2	<0.16	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	44	<0.26	2.9J	<0.13	<0.13	<0.14	<0.17
12MW-02D	2/27/2002	<0.22	<0.23	<0.2	<0.16	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	7.8	<0.26	1.9J	<0.13	<0.13	<0.14	<0.17
12MW-02D	6/10/2002	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<5	<5	53	<0.24	3.6	<0.1	<0.17	<0.13	<0.18
12MW-02D	9/9/2002	0.52J	0.39J	<0.18	1.2	<5.4	—	<0.24	<0.24	0.25J	<10	<10	<10	<0.24	5.9	2.1	<0.19	1.2	<0.2
12MW-02D	1/8/2003	<0.17	<0.64	<0.15	0.35J	<8.8	—	<0.12	<0.15	<0.28	<10	<10	41	<0.24	3.2	0.2J	<0.17	0.36J	<0.18
12MW-02D	4/9/2003	<0.16	<0.11	<0.14	<0.17	<3.2	—	<0.11	<0.16	<0.22	<0.5	<0.5	6.5	<0.12	2.7	<0.17	<0.14	<0.12	<0.1
12MW-02D	7/16/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<5	<5	42	<0.43	2.4	<0.31	<0.34	<0.25	<0.11
12MW-02D	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	—	—	—	<0.43	—	<0.31	<0.34	<0.25	<0.11
12MW-02D	5/23/2005	<0.29	<0.21	<0.18	<0.17	<3.5	—	<0.22	<0.2	<0.23	<0.5	<0.5	20	<0.2	2	<0.21	<0.19	<0.28	<0.15
12MW-02D	6/20/2006	<0.19	<0.19	<0.19	<0.15	<7.7	—	<0.2	<0.21	<0.19	<0.4	<0.5	17	<0.36	1.3J	<0.16	<0.19	<0.3	<0.2
12MW-02S	8/30/2000	<5	12	<5	200	—	—	<5	<5	<5	<10	<10	67	<5	1.9	<5	<5	<5	<2
12MW-02S	11/29/2000	<0.18	5.7	<0.21	110	—	—	<0.18	<0.17	0.75	<0.5	<0.5	3.3	<0.18	<1	<0.21	<0.18	0.24J	<0.15
12MW-02S	2/27/2001	<2.2	8.6	<2	160	—	—	<1.6	<2.3	<2.4	<0.5	<0.5	37	<2.6	1.1J	<1.3	<1.3	<1.4	<1.7
12MW-02S	5/15/2001	<2.7	5.4J	<3.5	81	—	—	<3.5	<2.7	<3.1	<0.5	<0.5	6.3	<3.3	1.7J	<3.8	<4.3	6.4J	<1.9
12MW-02S	8/29/2001	<0.33	2.1J	<0.3	23	—	<0.2	<0.24	<0.3	<0.56	<0.5	<0.5	<0.5	<0.47	1.9J	<0.21	<0.35	4.8	<0.35
12MW-02S	12/3/2001	<0.44	5.5	<0.39	69	—	<0.2	<0.32	<0.46	0.66J	<0.5	<0.5	6.1	<0.51	2.3J	<0.25	<0.26	0.47J	<0.35
12MW-02S	2/27/2002	<1.1	2.8J	<0.98	46	—	<0.2	<0.81	<1.2	<1.2	<0.5	<0.5	1.2J	<1.3	1.2J	<0.63	<0.65	<0.68	<0.87
12MW-02S	6/10/2002	<0.84	6.7J	<0.76	84	<44	<1	<0.6	<0.75	<1.4	<5	<5	16	<1.2	2.7	<0.52	<0.87	<0.64	<0.88
12MW-02S	9/9/2002	<1.3	5.4	<0.88	58	<27	—	<1.2	<1.2	<1	<10	<10	11	<1.2	1.8	<0.82	<0.96	<0.83	<0.99
12MW-02S	1/8/2003	<0.84	15	<0.76	130	<44	<1	<0.6	<0.75	1.6J	<10	<10	24	<1.2	1.8	<0.52	<0.87	2.3	<0.88
12MW-02S	4/9/2003	<2.1	27	<1.8	250	<40	—	<1.4	<2	2.9J	<0.5	<0.5	21	<1.4	3.3	<2.2	<1.8	<1.5	<1.3
12MW-02S	7/15/2003	<2.7	14	<3.4	100	<64	—	<2.9	<3	<4	<50	<50	76	<4.3	1.3J	<3.1	<3.4	<2.5	<1.1
12MW-02S	9/17/2003	<1.6	26	<1.4	150	<32	—	<1.1	<1.6	<2.2	<5	<5	60	<1.2	1.2J	<1.7	<1.4	2.1J	2.8J
12MW-02S	1/14/2004	<2.1	29	<1.8	140	<40	—	<1.4	<2	<2.7	<10	<10	<10	<1.4	1.4J	<2.2	<1.8	<1.5	<1.3
12MW-02S	4/28/2004	<2.4	200	<2.7	530	69J	—	<2.3	<2.8	11	<20	<20	140	<2.2	4.1	<2.6	<2.6	11	3.4J
12MW-02S	8/16/2004	<0.27	<0.3	<0.34	1.9	<6.4	—	<0.29	<0.3	<0.4	<50	<50	670	<0.43	1.2J	<0.31	<0.34	<0.25	<0.11

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-02S	2/2/2005	<0.29	0.66J	<0.18	5.4	<3.5	—	<0.22	<0.2	0.29J	<0.5	<0.5	1.4J	<0.2	<0.54	<0.21	<0.19	0.36J	<0.15
12MW-02S	5/23/2005	<0.29	0.54J	<0.18	4.2	<3.5	—	<0.22	<0.2	<0.23	<0.5	<0.5	2.8	<0.2	1.4J	<0.21	<0.19	<0.28	<0.15
12MW-02S	9/12/2005	<0.21	1.1	<0.16	7.8	<7	—	<0.2	<0.23	0.18J	<0.5	<0.5	9.3	<0.25	1.6J	<0.16	<0.21	<0.19	0.37J
12MW-02S	1/30/2006	<0.21	11	0.17J	55	10J	—	<0.2	<0.23	0.84	<0.5	<0.5	10	<0.25	—	<0.16	<0.21	0.71	1.8
12MW-02S	6/20/2006	<0.19	0.8	<0.19	6.1	<7.7	—	<0.2	<0.21	<0.19	<0.4	<0.5	1.1	<0.36	<0.54	<0.16	<0.19	<0.3	<0.2
12MW-02S	9/11/2006	<0.19	0.66J	<0.21	4.1	<6.6	—	<0.21	<0.2	<0.34	<0.4	<0.5	1.2	<0.3	—	<0.16	<0.17	<0.19	<0.17
12MW-02S	5/21/2007	0.648J	4.55	31.3	<0.25	—	—	<0.3	<0.25	2.64	<2	<2	7.45J	<2	1.24	0.316J	<0.25	6.17	<0.5
12MW-02S	11/28/2007	7.98	15.7	90.8	<0.25	—	—	<0.3	<0.25	11.7	<2	<2	43.3	<2	1.41	7.2	<0.25	43.2	1.11
12MW-03D	8/30/2000	<5	<5	<5	<5	—	—	<5	<5	18	<10	<10	24	<5	1.6	<5	<5	6	<2
12MW-03D	11/30/2000	<0.36	<0.35	<0.42	0.99J	—	—	<0.37	<0.35	24	<0.5	<0.5	24	<0.36	2.1J	<0.41	<0.36	5.8	<0.31
12MW-03D	2/27/2001	<0.22	<0.23	<0.2	0.54	—	—	<0.16	<0.23	6.8	8.5	8.6	13	<0.26	<0.96	<0.13	<0.13	1.4	<0.17
12MW-03D	5/15/2001	9.8	1.6	<0.35	7.5	—	—	<0.35	<0.27	15	<0.5	<0.5	22	<0.33	1.5J	6	<0.43	15	0.88
12MW-03D	8/29/2001	<0.17	<0.64	<0.15	2.7	—	<0.2	<0.12	<0.15	19	<0.5	<0.5	21	<0.24	1.8J	<0.1	<0.17	12	0.73
12MW-03D	12/4/2001	<0.17	<0.64	<0.15	6.3	—	<0.2	<0.12	<0.15	44	<0.5	<0.5	47	<0.24	2.5J	<0.1	<0.17	33	1.3
12MW-03D	2/27/2002	<0.22	<0.23	<0.2	1.2	—	0.07J	<0.16	<0.23	13	<0.5	<0.5	15	<0.26	1.2J	<0.13	<0.13	3.3	0.2J
12MW-03D	6/11/2002	<0.17	<0.64	<0.15	3.2	<8.8	—	<0.12	<0.15	21	<5	<5	50	<0.24	1.4J	<0.1	<0.17	19	<0.18
12MW-03D	9/10/2002	0.57J	0.45J	<0.18	2.1	<5.4	—	<0.24	<0.24	14	<10	<10	16	<0.24	1.2J	0.7	<0.19	4.6	0.3J
12MW-03D	1/9/2003	<0.17	<0.64	<0.15	1.2	<8.8	<1	<0.12	<0.15	11	<10	<10	<10	<0.24	1.9	<0.1	<0.17	2	0.73
12MW-03D	4/9/2003	<0.27	1.8	<0.34	1.9	<6.4	—	<0.29	<0.3	11	<0.5	<0.5	3.4	<0.43	2.1	<0.31	<0.34	3.2	0.65
12MW-03D	7/15/2003	<0.16	1.5	<0.14	1.9	<3.2	—	<0.11	<0.16	13	<10	<10	68	<0.12	1.6J	<0.17	0.15J	3.3	0.82
12MW-03D	8/16/2004	<0.27	4.7	<0.34	4.3	<6.4	—	<0.29	<0.3	16	—	—	—	<0.43	—	<0.31	<0.34	4	1.8
12MW-03D	5/25/2005	<0.29	1.5	<0.18	2.3	<3.5	—	<0.22	<0.2	8.7	<0.5	<0.5	18	<0.2	1.7J	0.23J	<0.19	3.4	0.27J
12MW-03D	6/21/2006	<0.19	0.56J	<0.21	1.3	<6.6	—	<0.21	<0.2	6.9	<0.4	<0.5	2.7	<0.3	0.97J	<0.16	<0.17	1.8	0.19J
12MW-03D	5/21/2007	<0.3	<0.3	1.12	<0.25	—	—	<0.3	<0.25	10.1	<2	<2	32.1	<2	1.23	<0.25	<0.25	1.54	<0.5
12MW-03D	5/6/2008	<0.3	2.74	<0.25	2.17	—	—	<0.3	<0.25	2.74	<2	<2	<6	<2	1.73	<0.25	<0.25	0.492J	<0.5
12MW-03S	8/30/2000	16,000	4,000	2,300	4,500	—	—	<5	<5	7,600	39	<10	140	<5	3.6	7,300	<5	9,500	1,600
12MW-03SR	8/30/2000	19,000	2,000	1,100	5,200	—	—	<5	<5	8,500	<10	<10	190	<5	3.6	8,800	<5	12,000	850
12MW-03S	11/30/2000	31,000	5,100	<170	11,000	—	—	<150	<140	7,000	32	17	160	<140	7.8	8,500	<140	9,000	160J
12MW-03S	2/27/2001	3,700	2,100	<200	3,100	—	—	<160	<230	12,000	11	30	140	<260	3J	6,500	<130	5,200	230J
12MW-03SR	2/27/2001	3,800	2,100	<200	3,300	—	—	<160	<230	12,000	12	34	190	<260	2.4J	7,100	<130	5,700	210J
12MW-03S	5/15/2001	76,000	20,000	<1,700	29,000	—	—	<1700	<1,400	8,900	69	24	180	<1,700	24	11,000	<2100	7,900	<940

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-03S	8/29/2001	73,000	23,000	<760	34,000	—	51	<600	<750	12,000	75	53	190	<1,200	30	12,000	<870	16,000	<880
12MW-03SR	8/29/2001	74,000	24,000	<350	30,000		52	<350	<270	13,000	120	80	290	<330	28	12,000	<430	12,000	1,200
12MW-03S	12/5/2001	92,000	35,000	<760	46,000	—	71	<600	<750	14,000	120	200	410	<1,200	48	16,000	<870	12,000	<880
12MW-03SR	12/5/2001	93,000	36,000	<760	48,000	—	72	<600	<750	15,000	140	190	430	<1200	46	16,000	<870	13,000	<880
12MW-03S	2/27/2002	5,300	4,500	<200	5,400	—	1.2	<160	<230	13,000	14	44	130	<260	6.7	7,100	<130	5,600	600
12MW-03SR	2/27/2002	5,700	4,600	<200	5,800	—	0.98	<160	<230	13,000	45	45	140	<260	6.6	7,500	<130	6,000	620
12MW-03S	6/11/2002	32,000	16,000	260J	20,000	<8,800	26	<120	<150	13,000	64	140	400	<240	24	13,000	<170	5,900	1,100
12MW-03SR	6/11/2002	33,000	16,000	270J	20,000	<8,800	26	<120	<150	14,000	66	130	390	<240	25	13,000	<170	6,100	1,200
12MW-03S	9/10/2002	5,200	5,300	75	6,100	6,800	—	<6	<7.5	13,000	42	14	67	<12	10	7,700	<8.7	4,700	440
12MW-03SR	9/10/2002	5,300	5,300	<190	6,300	<11,000	—	<150	<190	13,000	15	<10	62	<300	12	7,700	<220	4,900	480J
12MW-03S	1/9/2003	4,000	3,300	45	5,100	2,700	4.1	<6	<7.5	7,300	17	<10	71	<12	7.7	4,600	<8.7	4,300	320
12MW-03SR	1/9/2003	3,700	3,100	<76	4,600	<4,400	4.6	<60	<75	7,000	20	<10	44	<120	7.7	4,500	<87	4,200	360
12MW-03S	4/10/2003	15,000	8,800	150J	12,000	12,000	12.4	<57	<80	9,900	15	51	64	<58	11	6,800	<72	3,600	640
12MW-03SR	4/10/2003	15,000	8,500	140J	11,000	9,900	—	<57	<80	9,900	13	20	87	<58	12	6,700	<72	3,800	590
12MW-03S	7/17/2003	580	960	<85	1,200	<1,600	0.094	<73	<74	3,100	<10	20	73	<110	<5	2,100	<84	1,900	140
12MW-03SR	7/17/2003	590	990	<85	1,300	<1,600	0.073	<73	<74	3,200	1.8	6.7	81	<110	<5	2,100	<84	2,200	140
12MW-03S	9/16/2003	1,700	1,200	<50	2,300	1,100J	1.35	<56	<53	2,800	<5	12	79	<59	5.2	2,600	<59	1,400	120J
12MW-03SR	9/16/2003	—	—	—	—	—	1.61	—	—	—	—	—	—	—	<5	—	—	—	—
12MW-03S	1/14/2004	940	1,000	<17	1,700	1,000J	0.166	<15	<15	3,300	10	<10	80	<21		1,900	<17	3,000	150
12MW-03SR	1/14/2004	—	—	—	—	—	0.471	—	—	—	—	—	—	—	—	—	—	—	—
12MW-03S	4/27/2004	8,100	5,100	65J	10,000	3,300	2.84	<29	<30	5,700	12J	28	170	<43	5.3	6,400	<34	5,300	380
12MW-03SR	4/27/2004	—	—	—	—	—	3.19	—	—	—	—	—	—	—	5.2	—	—	—	—
12MW-03S	8/18/2004	370	590	<27	1,000	<400	0.548	<23	<28	1,700	<5	<5	52	<22	2.8	1,200	<26	1,400	96
12MW-03SR	8/18/2004	1,120	1,050	13.5	1,820	722	0.508	<0.33	1.22	2,070	—	—	—	4.12J	3.1	1,710	<0.39	2,040	78.0J
12MW-03S	2/2/2005	650	890	10.4	1,820	593	0.262	1	1.13	2,670	2.7J	5.3	28	5	<5	1,550	1	2,400	120
12MW-03SR	2/2/2005	—	—	—	—	—	0.287	—	—	—	—	—	—	—	<5	—	—	—	—
12MW-03S	5/24/2005	67J	360	<85	540	<1,600	<0.07M	<73	<74	1,700	<2.5	2.7J	39	<110	7	910	<84	1,500	79J
12MW-03S	9/13/2005	29J	160	<13	270	940J	—	<16	<18	760	<0.5	<0.5	2.3	<20	1.5J	470	<16	560	36J
12MW-03S	1/31/2006	39J	260	<13	590	<560	—	<16	<18	1,700	<0.5	<0.5	5.1	<20	—	770	<16	1700	58
12MW-03S	6/21/2006	<9.4	92	<9.7	150	110	—	<9.8	<10	520	<0.4	<0.5	2.2	<18	1.6J	340	<9.6	370	23J
12MW-03S	9/12/2006	<9.4	78	<11	120	<330	—	<10	<10	370	<0.4	<0.5	1.9	<15	—	260	<8.5	260	13J
12MW-03S	5/21/2007	9.04	201H	407H	2.06	220	—	<0.3	<0.25	1,410H	<2	<2	11.0J	<2	1.88	500H	<0.25	1,220H	28.6

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-03S	7/16/2007	1.88	59.7	84	0.727J	<20	—	<0.3	<0.25	291	<2	<2	<6	<2	2.28	111	<0.25	232	3.61
12MW-03S	11/27/2007	3.74J	68.5	140	<1.25	—	—	<1.5	<1.25	393	<2	<2	41.0B	<10	1.89	166	<1.25	391	15.1
12MW-03S	5/6/2008	2.76J	77.5	<1.25	137	—	—	<1.5	<1.25	491	<2	<2	<6	<10	2.35	178	<1.25	484	21
12MW-04D	8/28/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	64	<5	2.7	<5	<5	<5	<2
12MW-04D	11/28/2000	<0.18	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	100	<0.18	3.3J	<0.21	<0.18	<0.17	<0.15
12MW-04D	2/26/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	46	<0.26	1.3J	<0.13	<0.13	<0.14	<0.17
12MW-04D	5/14/2001	<0.27	<0.29	<0.35	<0.26	—	—	<0.35	<0.27	<0.31	<0.5	<0.5	57	<0.33	3J	<0.38	<0.43	<0.34	<0.19
12MW-04D	8/27/2001	<0.27	<0.29	<0.35	<0.26	—	<0.2	<0.35	<0.27	<0.31	<0.5	<0.5	39	<0.33	1.9J	<0.38	<0.43	<0.34	<0.19
12MW-04D	12/3/2001	<0.17	<0.64	<0.15	<0.13	—	—	<0.12	<0.15	<0.28	<0.5	<0.5	73	<0.24	4.3	<0.1	<0.17	<0.13	<0.18
12MW-04D	2/26/2002	<0.22	<0.23	<0.2	<0.16	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	33	<0.26	1J	<0.13	<0.13	<0.14	<0.17
12MW-04D	6/11/2002	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<5	<5	62	<0.24	3	<0.1	<0.17	<0.13	<0.18
12MW-04D	9/9/2002	<0.26	<0.24	<0.18	<0.33	<5.4	—	<0.24	<0.24	<0.2	<10	<10	38	<0.24	2.9	<0.16	<0.19	<0.17	<0.2
12MW-04D	1/7/2003	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<10	<10	<10	<0.24	2	<0.1	<0.17	<0.13	<0.18
12MW-04D	4/7/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<0.5	<0.5	12	<0.43	2.1	<0.31	<0.34	0.28J	<0.11
12MW-04D	7/14/2003	<0.16	<0.11	<0.14	<0.17	<3.2	—	<0.11	<0.16	<0.22	<10	<10	53	<0.12	1.8	<0.17	<0.14	<0.12	<0.1
12MW-04D	8/18/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	<0.18	<0.22	<0.15	—	—	—	<0.18	—	<0.2	<0.21	<0.2	<0.15
12MW-04S	8/28/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	38	<5	6.4	<5	<5	<5	<2
12MW-04S	11/28/2000	<0.18	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	6.5	8.5	12	<0.18	7.7	<0.21	<0.18	<0.17	<0.15
12MW-04S	2/26/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	77	<0.26	6.8	<0.13	<0.13	<0.14	<0.17
12MW-04S	5/14/2001	<0.27	<0.29	<0.35	<0.26	—	—	<0.35	<0.27	<0.31	<0.5	<0.5	<0.5	<0.33	11	<0.38	<0.43	<0.34	<0.19
12MW-04S	8/27/2001	<0.27	<0.29	<0.35	<0.26	—	<0.2	<0.35	<0.27	<0.31	<0.5	<0.5	2.1	<0.33	7.2	<0.38	<0.43	<0.34	<0.19
12MW-04S	12/3/2001	<0.17	<0.64	<0.15	<0.13	—	—	<0.12	<0.15	<0.28	<0.5	<0.5	<0.5	<0.24	9.7	<0.1	<0.17	<0.13	<0.18
12MW-04S	2/26/2002	<0.22	<0.23	<0.2	<0.16	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	1.9	<0.26	5.2	<0.13	<0.13	<0.14	<0.17
12MW-04S	6/11/2002	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<5	<5	<5	<0.24	8	<0.1	<0.17	<0.13	<0.18
12MW-04S	9/9/2002	<0.26	<0.24	<0.18	<0.33	<5.4	—	<0.24	<0.24	<0.2	<10	<10	16	<0.24	11	<0.16	<0.19	<0.17	<0.2
12MW-04S	1/7/2003	<0.17	<0.64	<0.15	<0.13	<8.8	<1	<0.12	<0.15	<0.28	<10	<10	<10	<0.24	7.6	<0.1	<0.17	<0.13	<0.18
12MW-04S	4/7/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<0.5	<0.5	22	<0.43	7.5	<0.31	<0.34	<0.25	<0.11
12MW-04S	7/14/2003	<0.16	<0.11	<0.14	<0.17	<3.2	—	<0.11	<0.16	<0.22	<5	<5	25	<0.12	7.5	<0.17	<0.14	<0.12	<0.1
12MW-04S	9/16/2003	<0.16	<0.11	<0.14	<0.17	<3.2	—	<0.11	<0.16	<0.22	<5	<5	35	<0.12	11	<0.17	<0.14	<0.12	<0.1
12MW-04S	1/12/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<10	<10	<10	<0.43	7.2	<0.31	<0.34	<0.25	<0.11
12MW-04S	4/26/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<5	<5	29	<0.43	10	<0.31	<0.34	<0.25	<0.11
12MW-04S	8/18/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<5	<5	26	<0.43	9.1	<0.31	<0.34	<0.25	<0.11

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-04S	2/1/2005	<0.29	<0.21	<0.18	<0.17	3.9J	—	<0.22	<0.2	<0.23	<0.5	0.65J	30	<0.2	7.5	<0.21	<0.19	<0.28	<0.15
12MW-04S	5/23/2005	<0.29	<0.21	<0.18	<0.17	10J	—	<0.22	<0.2	<0.23	<0.5	<0.5	7.4	<0.2	8.3	<0.21	<0.19	<0.28	<0.15
12MW-04S	9/12/2005	<0.21	<0.17	<0.16	<0.2	<7	—	<0.2	<0.23	<0.18	<0.5	<0.5	18	<0.25	9.6	<0.16	<0.21	<0.19	<0.2
12MW-04S	1/30/2006	<0.21	<0.17	<0.16	<0.2	<7	—	<0.2	<0.23	<0.18	<0.5	<0.5	10	<0.25	—	<0.16	<0.21	<0.19	<0.2
12MW-04S	6/21/2006	<0.19	<0.21	<0.21	<0.14	<6.6	—	<0.21	<0.2	<0.34	<0.4	<0.5	3.7	<0.3	7.8	<0.16	<0.17	<0.19	<0.17
12MW-04S	9/11/2006	<0.19	<0.21	<0.21	<0.14	<6.6	—	<0.21	<0.2	<0.34	<0.4	<0.5	3.5	<0.3	—	<0.16	<0.17	<0.19	<0.17
12MW-04S	5/22/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	<2	<2	<6	<2	5.74	<0.25	<0.25	<0.25	<0.5
12MW-04S	11/28/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	<2	<2	50.3	<2	7.48	<0.25	<0.25	<0.25	<0.5
12MW-05D	8/30/2000	<5	<5	<5	<5	—	—	<5	<5	6.2	<10	<10	<10	<5	2.6	<5	<5	9.6	<2
12MW-05D	11/30/2000	1.4	<0.18	<0.21	2.6	—	—	<0.18	<0.17	2.5	<0.5	<0.5	5.9	<0.18	2.5J	3.1	<0.18	5.3	<0.15
12MW-05D	2/28/2001	<0.22	<0.23	<0.2	0.68	—	—	<0.16	<0.23	1.4	6.6	<0.5	10	<0.26	3.6	<0.13	<0.13	1.8	<0.17
12MW-05D	5/15/2001	<0.27	<0.29	<0.35	0.83J	—	—	<0.35	<0.27	2.1	<0.5	<0.5	13	<0.33	3.7	<0.38	<0.43	1.8	<0.19
12MW-05D	8/28/2001	<0.17	<0.64	<0.15	0.97	—	0.36	<0.12	<0.15	3.5	<0.5	5.1	34	<0.24	5.4	<0.1	<0.17	0.55	<0.18
12MW-05D	12/4/2001	<0.22	<0.23	<0.2	0.3J	—	<0.2	<0.16	<0.23	0.75J	<0.5	<0.5	6.4	<0.26	4.3	<0.13	<0.13	1	<0.17
12MW-05D	2/28/2002	<0.22	<0.23	<0.2	0.37J	—	—	<0.16	<0.23	0.76J	<0.5	<0.5	5.9	<0.26	2.9J	<0.13	<0.13	0.74	<0.17
12MW-05D	6/11/2002	<0.17	<0.64	<0.15	0.39J	<8.8	—	0.15J	<0.15	0.97J	<5	<5	6J	<0.24	4	<0.1	<0.17	0.89	<0.18
12MW-05D	9/10/2002	<0.26	<0.24	<0.18	<0.33	<5.4	—	<0.24	<0.24	0.54J	<10	<10	<10	<0.24	3.7	<0.16	<0.19	0.56J	<0.2
12MW-05D	1/8/2003	<0.17	<0.64	<0.15	0.34J	<8.8	—	<0.12	<0.15	0.39J	<10	<10	<10	<0.24	3	<0.1	<0.17	0.64	<0.18
12MW-05D	4/7/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<0.5	<0.5	6.8	<0.43	3.7	<0.31	<0.34	0.47J	<0.11
12MW-05I	8/30/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<10	<10	16	<5	1.8	<5	<5	<5	<2
12MW-05I	11/30/2000	23	3.3	<0.42	12	—	—	<0.37	<0.35	23	<0.5	<0.5	22	<0.36	2.1J	12	<0.36	20	0.43J
12MW-05I	2/28/2001	0.33J	<0.23	<0.2	0.46J	—	—	<0.16	<0.23	1.1	<0.5	<0.5	9.8	<0.26	<0.96	0.46	<0.13	0.73	<0.17
12MW-05I	5/16/2001	1.4	<0.29	<0.35	0.6J	—	—	<0.35	<0.27	0.31J	<0.5	<0.5	13	<0.33	1.2J	0.86J	<0.43	0.71J	<0.19
12MW-05I	8/29/2001	0.48J	<0.29	<0.35	0.59J	—	<0.2	<0.35	<0.27	<0.31	<0.5	<0.5	12	<0.33	<0.96	0.7J	<0.43	0.73J	<0.19
12MW-05I	12/4/2001	<0.22	<0.23	<0.2	0.25J	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	17	<0.26	3.5	<0.13	<0.13	1	<0.17
12MW-05I	2/27/2002	<0.22	<0.23	<0.2	0.4J	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	11	<0.26	1.3J	<0.13	<0.13	1.5	<0.17
12MW-05I	6/11/2002	<0.17	<0.64	<0.15	0.35J	<8.8	—	<0.12	<0.15	<0.28	<5	<5	14J	<0.24	1.1J	<0.1	<0.17	1	<0.18
12MW-05I	9/10/2002	<0.26	<0.24	<0.18	<0.33	<5.4	—	<0.24	<0.24	<0.2	<10	<10	<10	<0.24	1.4J	0.17J	<0.19	0.63	<0.2
12MW-05I	1/8/2003	<0.17	<0.64	<0.15	<0.13	<8.8	<1	<0.12	<0.15	<0.28	<10	<10	14	<0.24	0.99J	<0.1	<0.17	0.61	<0.18
12MW-05I	4/7/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<0.5	<0.5	7.9	<0.43	2	<0.31	<0.34	0.3J	<0.11
12MW-05I	7/14/2003	<0.16	<0.11	<0.14	<0.17	<3.2	—	<0.11	<0.16	<0.22	<1	<1	7.1	<0.12	0.69J	<0.17	<0.14	0.37J	<0.1
12MW-05I	8/18/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	—	—	—	<0.43	—	<0.31	<0.34	<0.25	<0.11

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-05I	5/25/2005	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<0.5	<0.5	8.1	<0.43	1.2J	<0.31	<0.34	0.61J	<0.11
12MW-05I	6/22/2006	<0.19	<0.21	<0.21	<0.14	<6.6	—	<0.21	<0.2	<0.34	<0.4	<0.5	8.1	<0.3	1.4J	<0.16	<0.17	<0.19	<0.17
12MW-05S	8/30/2000	640	66	13	10,000	—	—	<5	<5	1,500	<10	<10	170	<5	2.4	580	<5	27,000	33
12MW-05SR	8/30/2000	730	71	15	12,000	—	—	<5	<5	1,600	<10	<10	170	<5	2.4	670	<5	31,000	36
12MW-05S	11/30/2000	440	<35	<42	8,500	—	—	<37	<35	890	<0.5	8.8	170	<36	2.5J	400	<36	22,000	<31
12MW-05SR	11/30/2000	450J	<140	<170	8,400	—	—	<150	<140	710	<0.5	<0.5	150	<140	4.5J	260J	<140	21,000	<120
12MW-05S	2/28/2001	360J	<230	<200	7,100	—	—	<160	<230	580J	<0.5	6	130	<260	1.6J	270J	<130	12,000	<170
12MW-05SR	2/28/2001	360J	<230	<200	7,200	—	—	<160	<230	580J	8.6	6.6	140	<260	2.3J	280J	<130	12,000	<170
12MW-05S	5/16/2001	590J	<290	<350	8,900	—	—	<350	<270	690J	<0.5	<0.5	130	<330	3.7	500J	<430	16,000	<190
12MW-05SR	5/16/2001	510J	<290	<350	9,200	—	—	<350	<270	690J	<0.5	4.6	99	<330	3.2	440J	<430	17,000	<190
12MW-05S	8/29/2001	2,600	310J	<350	16,000	—	0.72	<350	<270	1,400	8.9	<0.5	110	<330	1.7J	3,100	<430	23,000	<190
12MW-05SR	8/29/2001	1,900	<290	<350	13,000	—	1.1	<350	<270	1,300	<0.5	<0.5	110	<330	1.8J	2,200	<430	21,000	<190
12MW-05S	12/4/2001	<330	<1300	<300	13,000	—	<0.2	<240	<300	1,100J	<0.5	<0.5	110	<470	4	740J	<350	25,000	<350
12MW-05SR	12/4/2001	<330	<1300	<300	14,000	—	<0.2	<240	<300	1,200J	<0.5	<0.5	140	<470	3.7	<210	<350	25,000	<350
12MW-05S	2/28/2002	<440	<460	<390	9,300	—	<0.2	<320	<460	800J	<0.5	<0.5	85	<510	2J	360J	<260	18,000	<350
12MW-05S	6/11/2002	790J	<1300	<300	13,000	<18,000	<1	<240	<300	1,600J	<5	<5	170	<470	3.3	<210	<350	23,000	<350
12MW-05SR	6/11/2002	840J	<1300	<300	14,000	<18,000	—	<240	<300	1,700J	<5	<5	170	<470	3.7	<210	<350	23,000	<350
12MW-05S	9/10/2002	490	74J	<15	12,000	<880	—	<12	<15	1,500	<10	<10	56	<24	4.9	540	<17	20,000	52J
12MW-05SR	9/10/2002	<330	<1300	<300	12,000	<18,000	—	<240	<300	1,700J	<10	<10	130	<470	4.7	560J	<350	20,000	<350
12MW-05S	1/8/2003	<33	<130	<30	11,000	<1,800	<1	<24	<30	1,000	<10	<10	160	<47	3.4	500	<35	20,000	<35
12MW-05SR	1/8/2003	<330	<1300	<300	11,000	<18,000	<1	<240	<300	1,200J	<10	<10	35	<470	3	550J	<350	20,000	<350
12MW-05S	4/10/2003	<53	<60	<68	9,400	<1,300	<1	<58	<59	1,200	<0.5	1.4	39	<85	2.2	<61	<67	21,000	<21
12MW-05SR	4/10/2003	<330	<210	<280	8,100	<6,300	—	<230	<320	1,100J	<0.5	2.5	62	<230	2.4	380J	<290	18,000	<210
12MW-05S	7/17/2003	<330	<210	<280	10,000	<6,300	<0.07	<230	<320	1,200J	<13	<13	140	<230	<5	740J	<290	20,000	<210
12MW-05SR	7/17/2003	<330	<210	<280	9,900	<6,300	—	<230	<320	1,200J	<10	<10	130	<230	—	720J	<290	19,000	<210
12MW-05S	9/16/2003	<460	<430	<400	8,900	<6,800	<0.07	<450	<420	1,200J	<5	5.2	95	<470	<5	660J	<470	16,000	<350
12MW-05SR	9/16/2003	<460	<430	<400	9,300	<6,800	—	<450	<420	1,300J	<5	<5	100	<470	—	700J	<470	18,000	<350
12MW-05S	1/14/2004	230	<60	<68	8,600	<1,300	0.07	<58	<59	1,200	<10	<10	62	<85	—	620	<67	18,000	<21
12MW-05SR	1/14/2004	<530	<600	<680	9,000	<13,000	—	<580	<590	1,200J	<10	<10	78	<850	—	650J	<670	18,000	<210
12MW-05S	4/27/2004	<330	<370	<420	9,000	<8,000	<0.07	<360	<370	1,300J	—	—	—	<530	<5	770J	<420	18,000	<130
12MW-05SR	4/27/2004	<530	<600	<680	7,500	<13,000	—	<580	<590	1,300J	<5	<5	170	<850	—	810J	<670	20,000	<210
12MW-05S	8/18/2004	290	68J	<43	9,600	<630	<0.067	<36	<44	1,400	<50	<50	180	<35	2.5	910	<42	22,000	120

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-05SR	8/18/2004	<380	<390	<430	8,800	<6,300	—	<360	<440	1,500	<20	<20	140	<350	—	1000J	<420	22,000	<310
12MW-05S	2/2/2005	157J	<200	<36	6,330	<13	0.084	1	1.95	1,490	<5	5.5J	100	410J	<5	1,470	3.59	13,100	130
12MW-05SR	2/2/2005	<580	<420	<360	8,900	<7,000	—	<440	<400	2,000	<5	<5	100	1,100J	—	2,300	<380	20,000	<290
12MW-05S	5/24/2005	160	40J	<15	6,200	<280	0.064JM	<17	<16	2,300	<2.5	<2.5	92	<16	43	2,600	<15	15,000	170
12MW-05SR	5/24/2005	<530	<600	<680	5,900	<13,000	—	<580	<590	2,300J	<2.5	<2.5	92	<850	—	2,800	<670	16,000	<210
12MW-05S	9/13/2005	79	35J	<13	4,000	<560	—	<16	<18	2,500	<0.5	<0.5	4.6	<20	—	2,400	<16	11,000	140
12MW-05SR	9/13/2005	<210	<170	<160	3,900	<7,000	—	<200	<230	2,100	<0.5	<0.5	110	<250	—	2,200	<210	9,800	<200
12MW-05S	1/31/2006	99J	65J	<18	3,600	<350	—	<22	<20	2,300	<0.5	1.1J	69	34J	—	2,300	<19	11,000	160
12MW-05SR	1/31/2006	<210	<170	<160	3,600	<7,000	—	<200	<230	2,400	<0.5	0.78J	73	<250	—	2,500	<210	11,000	<200
12MW-05S	6/20/2006	120J	100J	<97	1,700	30J	—	<98	<100	2,200	1.1J	2.7	130	<180	3.3	1,500	<96	6,800	170J
12MW-05SR	6/20/2006	120J	120J	<97	1,900	<3,900	—	<98	<100	2,500	0.88J	2.4	100	<180	—	1,700	<96	6,900	200J
12MW-05S	9/12/2006	100J	100J	<97	1,700	<3,900	—	<98	<100	1,900	0.43J	1.1J	130	<180	—	1,000	<96	6,100	170J
12MW-05SR	9/12/2006	99J	98J	<97	1,500	<3,900	—	<98	<100	1,900	<0.4	0.6J	110	<180	—	980	<96	5,800	150J
12MW-05S	5/22/2007	22.5	59.7	990	1.68	<20	—	<0.3	<0.25	914	<2	2.71J	2,070	<2	2.01	296	0.791J	3,400	47.7
12MW-05SR	5/22/2007	23.3	60.9	1,050	1.6	—	—	<0.3	0.276J	971	<2	5.38J	2,520	<2	—	325	0.679J	3,510	49.4
12MW-05S	7/17/2007	27.2J	63.2	874	<12.5	<1,000	—	<15	<12.5	948	<2	<2	3,100	<100	2.65	355	<12.5	3,190	44.4J
12MW-05SR	7/17/2007	20.8J	60.3	869	<12.5	—	—	<15	<12.5	927	<2	<2	3,390	<100	—	358	<12.5	3,190	45.2J
12MW-05S	11/27/2007	9.52J	33.8	858	<6.25	—	—	<7.5	<6.25	685	<100	<100	3,480B	<50	2.63	208	<6.25	2,230	46.5
12MW-05S	5/6/2008	6.38J	55.5	<5	586	—	—	<6	<5	580	<2	<2	8,870	<40	2.64	91.3	<5	1210	16.7J
12MW-05SR	5/6/2008	6.39J	56.7	<5	572	—	—	<6	<5	605	<2	<2	7,730	<40	2.83	85.4	<5	1190	15.7J
12MW-06D	8/29/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	27	<5	1.8	<5	<5	<5	<2
12MW-06D	11/29/2000	<0.18	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	16	<0.18	2.8J	<0.21	<0.18	<0.17	<0.15
12MW-06D	2/27/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	16	<0.26	1.5J	<0.13	<0.13	<0.14	<0.17
12MW-06D	5/14/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	9.2	<0.26	3.9	<0.13	<0.13	<0.14	<0.17
12MW-06D	8/28/2001	<0.17	<0.64	<0.15	<0.13	—	—	<0.12	<0.15	<0.28	<0.5	<0.5	310	<0.24	2.1J	<0.1	<0.17	<0.13	<0.18
12MW-06D	7/16/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	—	—	—	<2	—	<0.25	<0.25	<0.25	<0.5
12MW-06D	11/28/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	<2	<2	21.9J	<2	—	<0.25	<0.25	<0.25	<0.5
12MW-06S	8/29/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	36	<5	2	<5	<5	<5	<2
12MW-06S	11/29/2000	0.42J	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	46	<0.18	4.3	<0.21	<0.18	<0.17	<0.15
12MW-06S	2/27/2001	0.29J	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	23	<0.26	1.4J	<0.13	0.15J	<0.14	<0.17
12MW-06S	5/14/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	11	<0.26	2.9J	<0.13	<0.13	<0.14	<0.17

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-06S	8/28/2001	<0.27	<0.29	<0.35	<0.26	—	—	<0.35	<0.27	<0.31	<0.5	<0.5	15	<0.33	3.2	<0.38	<0.43	<0.34	<0.19
12MW-06S	12/4/2001	<0.22	<0.23	<0.2	<0.16	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	430	<0.26	3.4	<0.13	<0.13	0.15J	<0.17
12MW-06S	2/26/2002	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	71	<0.26	3.5	<0.13	<0.13	<0.14	<0.17
12MW-06S	6/11/2002	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<5	<5	75	<0.24	5.1	<0.1	<0.17	<0.13	<0.18
12MW-06S	9/9/2002	<0.26	<0.24	<0.18	<0.33	<5.4	—	<0.24	<0.24	<0.2	<10	<10	28	<0.24	4.8	<0.16	<0.19	<0.17	<0.2
12MW-06S	1/7/2003	<0.26	<0.24	<0.18	<0.33	<5.4	<1	<0.24	<0.24	<0.2	<10	<10	44	<0.24	3.6	<0.16	<0.19	<0.17	<0.2
12MW-06S	4/8/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<0.5	<0.5	20	<0.43	2.5	<0.31	<0.34	<0.25	<0.11
12MW-06S	8/19/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	<0.18	<0.22	<0.15	—	—	—	<0.18	—	<0.2	<0.21	<0.2	<0.15
12MW-06S	5/23/2005	<0.29	<0.21	<0.18	<0.17	<3.5	—	<0.22	<0.2	<0.23	—	—	—	<0.2	—	<0.21	<0.19	<0.28	<0.15
12MW-06S	6/22/2006	<0.19	<0.21	<0.21	<0.14	<6.6	—	<0.21	<0.2	<0.34	—	—	—	<0.3	—	<0.16	<0.17	<0.19	<0.17
12MW-06S	5/21/2007	<0.300H	<0.300H	<0.300H	<0.250H	—	—	<0.300H	<0.250H	<0.300H	—	—	—	<2.00H	—	<0.250H	<0.250H	<0.250H	<0.500H
12MW-06S	5/6/2008	<0.3	<0.3	<0.25	<0.3	—	—	<0.3	<0.25	<0.3	—	—	—	<2	—	<0.25	<0.25	<0.25	<0.5
12MW-07D	8/28/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	19	<5	2.1	<5	<5	<5	<2
12MW-07D	11/29/2000	<0.18	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	10	<0.18	2.3J	<0.21	<0.18	<0.17	<0.15
12MW-07D	2/26/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	5.8	20	<0.26	1.4J	<0.13	<0.13	<0.14	<0.17
12MW-07D	5/14/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	9.4	<0.26	2.2J	<0.13	<0.13	<0.14	<0.17
12MW-07D	8/29/2001	0.7J	<0.29	<0.35	0.78J	—	<0.2	<0.35	<0.27	<0.31	11	<0.5	11	<0.33	1.1J	1J	<0.43	0.44J	<0.19
12MW-07S	8/28/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	120	<5	3.1	<5	<5	<5	<2
12MW-07S	11/28/2000	<0.18	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	120	<0.18	1.5J	<0.21	<0.18	<0.17	<0.15
12MW-07S	2/26/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	340	<0.26	<0.96	<0.13	0.14J	<0.14	<0.17
12MW-07S	5/14/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	190	<0.26	1.2J	<0.13	<0.13	<0.14	<0.17
12MW-07S	8/29/2001	0.55J	<0.29	<0.35	0.67J	—	<0.2	<0.35	<0.27	<0.31	<0.5	<0.5	150	<0.33	<0.96	0.77J	<0.43	0.38J	<0.19
12MW-07S	5/22/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	—	—	—	<2	—	<0.25	<0.25	<0.25	<0.5
12MW-07S	11/28/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	<2	<2	45	<2	1.05	<0.25	<0.25	<0.25	<0.5
12MW-08D	8/29/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	7.6	<5	5.3	<5	<5	<5	<2
12MW-08D	11/28/2000	<0.18	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	8.3	<0.18	3J	<0.21	<0.18	<0.17	<0.15
12MW-08D	2/26/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	5.7	<0.26	1.8J	<0.13	<0.13	<0.14	<0.17
12MW-08D	5/14/2001	<0.27	<0.29	<0.35	<0.26	—	—	<0.35	<0.27	<0.31	<0.5	<0.5	2.5	<0.33	3.1J	<0.38	<0.43	<0.34	<0.19
12MW-08D	8/27/2001	<0.27	<0.29	<0.35	<0.26	—	<0.2	<0.35	<0.27	<0.31	<0.5	<0.5	5.4	<0.33	3.9	<0.38	<0.43	<0.34	<0.19
12MW-08S	8/28/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	150	<5	1.3	<5	<5	<5	<2
12MW-08S	11/28/2000	<0.18	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	52	<0.18	<1	<0.21	<0.18	<0.17	<0.15
12MW-08S	2/26/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	53	<0.26	<0.96	<0.13	<0.13	<0.14	<0.17

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-08S	5/14/2001	<0.27	<0.29	<0.35	<0.26	—	—	<0.35	<0.27	<0.31	<0.5	<0.5	12	<0.33	2.5J	<0.38	<0.43	<0.34	<0.19
12MW-08S	8/27/2001	<0.27	<0.29	<0.35	<0.26	—	—	<0.35	<0.27	<0.31	<0.5	<0.5	3.7	<0.33	1.7J	<0.38	<0.43	<0.34	<0.19
12MW-09D	8/29/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	720	<5	3	<5	<5	<5	<2
12MW-09D	11/29/2000	<0.18	0.24J	<0.21	0.18J	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	940	<0.18	5.4	<0.21	<0.18	<0.17	<0.15
12MW-09D	2/27/2001	<0.22	0.34J	<0.2	0.34J	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	640	<0.26	4.8	<0.13	<0.13	<0.14	<0.17
12MW-09D	5/15/2001	<0.27	0.31J	<0.35	0.3J	—	—	<0.35	<0.27	<0.31	<0.5	<0.5	380	<0.33	5	<0.38	<0.43	<0.34	<0.19
12MW-09D	8/29/2001	<0.22	0.33J	<0.2	0.52	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	570	<0.26	4.4	<0.13	<0.13	<0.14	<0.17
12MW-09D	12/3/2001	<0.17	<0.64	<0.15	<0.13	—	<0.2	<0.12	<0.15	<0.28	13	<0.5	550	<0.24	4.6	<0.1	<0.17	<0.13	<0.18
12MW-09D	2/26/2002	<0.22	<0.23	<0.2	0.19J	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	310	<0.26	5.1	<0.13	<0.13	<0.14	<0.17
12MW-09D	6/10/2002	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<5	<5	360	<0.24	5.8	<0.1	<0.17	<0.13	<0.18
12MW-09D	9/10/2002	<0.26	<0.24	<0.18	<0.33	<5.4	—	<0.24	<0.24	<0.2	<10	<10	230	<0.24	5.2	<0.16	<0.19	<0.17	<0.2
12MW-09D	1/7/2003	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<10	<10	300	<0.24	4.1	<0.1	<0.17	<0.13	<0.18
12MW-09D	4/9/2003	<0.16	0.14J	<0.14	<0.17	<3.2	—	<0.11	<0.16	<0.22	<0.5	<0.5	340	<0.12	4.4	<0.17	<0.14	<0.12	<0.1
12MW-09D	7/16/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<50	<50	370	<0.43	4	<0.31	<0.34	<0.25	<0.11
12MW-09D	8/16/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	<0.18	<0.22	<0.15	—	—	—	<0.18	—	<0.2	<0.21	<0.2	<0.15
12MW-09S	8/29/2000	<5	120	<5	120	—	—	<5	<5	<5	<2	<2	61	<5	2.5	<5	<5	<5	<2
12MW-09S	11/29/2000	1	97	<0.21	98	—	—	<0.18	<0.17	0.3J	<0.5	5.6	130	<0.18	1.9J	<0.21	<0.18	0.94	0.49J
12MW-09S	2/27/2001	0.79	86	<0.2	86	—	—	<0.16	<0.23	0.32J	<0.5	<0.5	92	<0.26	1.9J	<0.13	<0.13	0.89	0.24J
12MW-09S	5/15/2001	<2.2	73	<2.8	60	—	—	<2.8	<2.2	<2.4	<0.5	5.9	270	<2.7	3.3	<3	<3.4	<2.7	<1.5
12MW-09S	8/29/2001	<1.7	76	<1.6	83	—	<0.2	<1.3	<1.8	<1.9	<0.5	<0.5	230	<2.1	2.2J	<1	<1	1.3J	<1.4
12MW-09S	12/3/2001	<1.3	73	<1.2	69	—	<0.2	<0.95	<1.2	<2.2	<0.5	<0.5	120	<1.9	4	<0.82	<1.4	<1	<1.4
12MW-09S	2/26/2002	<1.7	51	<1.6	52	—	—	<1.3	<1.8	<1.9	<0.5	<0.5	64	<2.1	2.2J	<1	<1	<1.1	<1.4
12MW-09S	6/10/2002	<1.3	100	<1.2	110	290	—	<0.95	<1.2	<2.2	<5	<5	57	<1.9	3.2	<0.82	<1.4	<1	<1.4
12MW-09S	9/10/2002	<1	35	<0.7	31	150	—	<0.96	<0.98	<0.81	<10	<10	220	<0.95	2.4	<0.66	<0.77	1.3J	<0.79
12MW-09S	1/7/2003	<0.67	20	<0.6	18	63J	7	<0.48	<0.6	<1.1	<10	<10	560	<0.94	10	<0.41	<0.7	<0.51	<0.7
12MW-09S	4/8/2003	<0.33	22	<0.28	23	68	—	<0.23	<0.32	<0.44	<0.5	<0.5	630	<0.23	4	<0.34	<0.29	0.47J	<0.21
12MW-09S	7/15/2003	<0.53	30	<0.68	32	80	—	<0.58	<0.59	<0.8	<50	<50	660	<0.85	2.4	<0.61	1.5J	0.71J	0.39J
12MW-09S	9/17/2003	<0.33	28	<0.28	28	85	—	<0.23	<0.32	<0.44	<50	<50	700	<0.23	3.3	<0.34	0.46J	0.61J	<0.21
12MW-09S	1/13/2004	<0.41	23	<0.35	24	87	—	<0.28	<0.4	<0.55	<10	<10	220	<0.29	2.1	<0.43	<0.36	<0.31	<0.26
12MW-09S	4/28/2004	<0.47	23	<0.54	26	83	—	<0.45	<0.55	<0.36	<5	<5	54	<0.44	3.7	<0.51	<0.52	<0.5	<0.39
12MW-09S	8/16/2004	<0.53	20	<0.68	25	77	—	<0.58	<0.59	<0.8	<5	<5	87	<0.85	2.5	<0.61	<0.67	<0.49	<0.21
12MW-09S	5/25/2005	<0.66	29	<0.85	30	99	—	<0.73	<0.74	<1	<25	<25	100	<1.1	2.1	<0.77	<0.84	0.94J	0.62J

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-09S	1/31/2006	<0.52	27	<0.41	34	110	—	<0.51	<0.58	<0.45	<0.5	<0.5	72	<0.62	—	<0.4	<0.52	0.78J	0.65J
12MW-09S	6/22/2006	<0.47	17	<0.53	25	76	—	<0.52	<0.51	<0.85	<0.4	<0.5	110	<0.76	1.8	<0.4	<0.43	<0.47	0.63J
12MW-09S	9/12/2006	<0.47	15	<0.53	21	59	—	<0.52	<0.51	<0.85	<0.4	<0.5	49	1J	—	<0.4	<0.43	0.6J	0.57J
12MW-09S	5/22/2007	<0.3	9.03	14.1	<0.25	—	—	<0.3	<0.25	0.328J	<2	<2	56.8	<2	1.36	<0.25	<0.25	<0.25	<0.5
12MW-09S	11/28/2007	<0.3	5.84	8.15	<0.25	—	—	<0.3	<0.25	0.401J	<2	<2	71.2	<2	1.68	<0.25	<0.25	<0.25	<0.5
12MW-10S	11/30/2000	19,000	7,000	<420	2,400	—	—	<370	<350	9,300	38	330	1,200	<360	14	3,300	<360	1,900	660J
12MW-10S	2/28/2001	38,000	15,000	<390	5,100	—	—	<320	<460	5,500	97	240	1,400	<510	17	3,100	<260	1,100	480J
12MW-10S	5/16/2001	17,000	5,000	<440	5,600	—	—	<430	<340	6,400	27	190	970	<420	14	3,500	<540	1,800	1,600
12MW-10SR	5/16/2001	16,000	5,200	<700	5,800	—	—	<690	<550	6,700	28	200	1,100	<660	15	3,500	<860	1,700J	1,700
12MW-10S	8/29/2001	19,000	6,600	<190	7,000	—	6.1	<150	<190	9,200	23	130	510	<300	12	4,200	<220	3,500	1,800
12MW-10SR	8/29/2001	18,000	5,900	<390	6,600	—	4.8	<320	<460	8,300	35	160	610	<510	13	3,700	<260	2,400	1,700
12MW-10S	12/5/2001	16,000	6,100	<300	12,000	—	5.4	<240	<300	12,000	28	150	370	<470	13	4,400	<350	2,600	2,200
12MW-10SR	12/5/2001	17,000	5,900	<300	11,000	—	5.3	<240	<300	12,000	42	200	450	<470	11	4,100	<350	2,500	2,300
12MW-10S	2/27/2002	16,000	5,400	<390	9,300	—	8.2	<320	<460	7,300	31	210	790	<510	13	3,400	<260	1,600	1,400
12MW-10SR	2/27/2002	16,000	5,400	<390	9,300	—	7.5	<320	<460	7,300	28	190	810	<510	12	3,300	<260	1,600	1,400
12MW-10S	6/11/2002	6,800	2,800	<140	4,900	<4300	6	<190	<200	6,800	6.3J	140	470	<190	12	2,400	<150	1,200	1,600
12MW-10S	9/10/2002	11,000	4,400	47	4,700	1,700	—	<4.8	<6	7,000	130	11	180	<9.4	13	3,400	<7	1,300	1,400
12MW-10S	1/8/2003	17,000	7,700	79J	5,700	<1,800	4.3	<24	<30	3,500	160	36	31	<47	12	2,200	<35	900	760
12MW-10S	4/10/2003	5,600	2,400	<170	4,800	<3,200	9.2	<150	<150	2,300	11	140	710	870	11	1,800	<170	710	470
12MW-10S	7/16/2003	9,300	4,200	<270	9,700	<5,100	4.94	<230	<240	3,000	20	96	940	<340	15	3,400	<270	1,100	610
12MW-10S	9/16/2003	3,600	1,800	<140	4,400	<2,600	1.33	<120	<120	2,100	4.2	44	810	<170	11	1,600	<130	550	480
12MW-10S	1/14/2004	2,700	1,600	<27	4,300	<510	5.59	<23	<24	1,900	54	<10	1,200	<34		1,600	<27	580	460
12MW-10S	4/27/2004	2,500	1,500	<140	3,600	<2,600	6.33	<120	<120	1,800	—	—	—	<170	9.8	1,500	<130	570	440
12MW-10S	8/18/2004	3,100	2,100	27J	3,900	<130	5.35	<7.2	<8.8	—	<50	<50	1,100	<7	11	2,100	<8.4	730	630
12MW-10SR	8/18/2004	2,910	2,090	26.5	3,310	529	—	0.571J	1.59	2,520	—	—	—	4.24J	—	2,150	1.04	689	422
12MW-10S	2/2/2005	2,100	1,700	21J	4,700	330J	4.4	<8.7	<7.9	1,400	25J	100	1,300	<8	12	1,800	<7.6	470	330
12MW-10S	5/24/2005	7,600	5,000	82J	13,000	<1,400	18	<87	<79	2,200	26	74	860	<80	20	4,400	<76	1,100	410
12MW-10S	9/13/2005	5,200	4,700	<200	13,000	<8,700	—	<250	<290	2,200	<0.5	1.6	1,600	<310	—	3,200	<260	980	410J
12MW-10S	1/31/2006	1,900	1,800	<82	4,500	<3,500	—	<100	<120	1,000	2.9	14	300	<120	—	1,700	<100	460	220J
12MW-10S	6/21/2006	6,600	6,200	91J	17,000	1,200	—	<82	<81	2,300	140	230	710	<120	—	4,300	<68	1,100	370
12MW-10S	9/12/2006	1,700	2,100	<85	5,200	<2,600	—	<82	<81	920	1.4	6.5	460	<120	—	1,300	<68	380	170J
12MW-10S	5/22/2007	10,500	12,100	33,400	142J	<10,000	—	<150	<125	4,490	74.2	110	654	<1,000	20.7	8,530	<125	2,190	476J

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-10S	7/16/2007	265	671	1,230	7.66	<20	—	<0.3	0.375J	480	3.27J	6.77J	84.8	<2	10.1	435	<0.25	174	45.1
12MW-10S	11/27/2007	1,600	2,260	4,320	39.9	—	—	<6	<5	1,040	<20		649B	<40	10.5	1,820	<5	447	217
12MW-10S	5/6/2008	766	776	8.31J	1,190	—	—	<6	<5	433	10.1J	40	895	<40	7.67	379	<5	132	121
12MW-11D	8/29/2000	<5	<5	<5	<5	—	—	<5	<5	<5	<2	<2	39	<5	2.6	<5	<5	<5	<2
12MW-11D	11/29/2000	<0.18	<0.18	<0.21	<0.17	—	—	<0.18	<0.17	<0.17	<0.5	<0.5	39	<0.18	4.1	<0.21	<0.18	<0.17	<0.15
12MW-11D	2/27/2001	<0.22	<0.23	<0.2	0.41J	—	—	<0.16	<0.23	0.75J	<0.5	6.9	42	<0.26	1.6J	2.3	<0.13	0.98	<0.17
12MW-11D	5/15/2001	<0.27	<0.29	<0.35	<0.26	—	—	<0.35	<0.27	<0.31	<0.5	5.2	28	<0.33	2.8J	<0.38	<0.43	<0.34	<0.19
12MW-11D	8/28/2001	<0.22	<0.23	<0.2	0.24J	—	—	<0.16	<0.23	<0.24	<0.5	6.6	26	<0.26	2.2J	<0.13	<0.13	0.47	<0.17
12MW-11D	12/4/2001	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	31	<0.26	3.2J	<0.13	<0.13	<0.14	<0.17
12MW-11D	2/27/2002	<0.22	<0.23	<0.2	<0.16	—	—	<0.16	<0.23	<0.24	<0.5	<0.5	22	<0.26	2.5	<0.13	<0.13	<0.14	<0.17
12MW-11D	6/10/2002	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<5	<5	35	<0.24	3.1	<0.1	<0.17	<0.13	<0.18
12MW-11D	9/9/2002	<0.26	<0.24	<0.18	<0.33	<5.4	—	<0.24	<0.24	<0.2	<10	<10	65	<0.24	2.5	<0.16	<0.19	<0.17	<0.2
12MW-11D	1/8/2003	<0.17	<0.64	<0.15	<0.13	<8.8	—	<0.12	<0.15	<0.28	<10	<10	40	<0.24	2.8	<0.1	<0.17	<0.13	<0.18
12MW-11D	4/9/2003	<0.16	<0.11	<0.14	<0.17	<3.2	—	<0.11	<0.16	<0.22	<0.5	<0.5	12	<0.12	2.4	<0.17	<0.14	<0.12	<0.1
12MW-11D	7/16/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<5	<5	83	<0.43	2.7	<0.31	<0.34	<0.25	<0.11
12MW-11S	8/29/2000	<5	20	<5	130	—	—	<5	<5	<5	<2	<2	17	<5	6	<5	<5	7.6	<2
12MW-11S	11/29/2000	0.34J	6.1	<0.21	65	—	—	<0.18	<0.17	0.37J	<0.5	<0.5	19	<0.18	2.1J	<0.21	<0.18	3.8	<0.15
12MW-11SR	11/29/2000	0.57J	8.5	<0.21	74	—	—	<0.18	<0.17	0.68	<0.5	<0.5	14	<0.18	2.4J	<0.21	<0.18	6.4	<0.15
12MW-11S	2/27/2001	<0.87	9.3	<0.78	70	—	—	<0.65	<0.92	8.9	<0.5	<0.5	19	<1	1.4J	15	<0.52	16	<0.7
12MW-11S	5/15/2001	<1.1	5.5	<1.4	41	—	—	<1.4	<1.1	<1.2	<0.5	<0.5	12	<1.3	2.2J	<1.5	<1.7	2.6J	<0.75
12MW-11S	8/28/2001	1.1J	7	<0.78	80	—	<0.2	<0.65	<0.92	1.3J	<0.5	<0.5	15	<1	1.4J	<0.5	<0.52	38	<0.7
12MW-11S	1/8/2003	<0.17	12	0.23J	71	<8.8	—	<0.12	<0.15	0.58J	—	—	—	<0.24	—	<0.1	<0.17	1.4	<0.18
12MW-11S	8/19/2004	<1.5	13	<1.7	110	<25	—	<1.4	<1.8	<1.2	—	—	—	<1.4	—	<1.6	<1.7	<1.6	<1.2
12MW-11S	5/23/2005	<2.7	13	<3.4	89	<64	—	<2.9	<3	<4	—	—	—	<4.3	—	<3.1	<3.4	6.6J	<1.1
12MW-11S	6/20/2006	<0.94	8	<0.97	52	<39	—	<0.98	<1	<0.95	—	—	—	<1.8	—	<0.81	<0.96	3.1J	<0.98
12MW-11S	5/22/2007	<0.3	9.93	55.5	<0.25	—	—	<0.3	<0.25	1.16	<2	<2	37.6	<2	—	<0.25	<0.25	7.85	<0.5
12MW-12D	8/28/2001	<0.22	<0.23	<0.2	0.34J	—	<0.2	<0.16	2	<0.24	<0.5	<0.5	8.5	<0.26	4.2	<0.13	0.41	2.3	<0.17
12MW-12D	8/18/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	<0.18	<0.22	<0.15	—	—	—	<0.18	—	<0.2	<0.21	<0.2	<0.15
12MW-12D	7/16/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	—	—	—	<2	—	<0.25	<0.25	<0.25	<0.5
12MW-12S	8/28/2001	10	5.8	0.95	420	—	<0.2	<0.16	<0.23	29J	<0.5	<0.5	20	<0.26	1.6J	15	0.22J	2,900	0.44J
12MW-12S	12/4/2001	<8.7	<9.2	<7.8	680	—	<0.2	<6.5	<9.2	38	<0.5	<0.5	24	<10	2.4J	65	<5.2	2,400	<7
12MW-12S	2/27/2002	<55	<58	<49	280	—	<0.2	<41	<58	<61	<0.5	<0.5	21	<64	1.3J	<31	<32	1,800	<44

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-12S	6/10/2002	<42	<160	<38	880	<2,200	<1	<30	<37	<70	<5	<5	33	<59	2.8	110	<44	2,400	<44
12MW-12S	9/9/2002	<1.7	7.5J	<1.5	400	<88	—	<1.2	<1.5	50	<10	<10	20	<2.4	2.2	100	<1.7	2,200	<1.8
12MW-12S	1/8/2003	<1.7	<6.4	<1.5	170	<88	<1	<1.2	<1.5	18	<10	<10	13	<2.4	1J	8	<1.7	1,400	<1.8
12MW-12S	4/10/2003	<6.6	4.7J	<5.6	140	<130	—	<4.5	<6.4	9.2J	<0.5	<0.5	13	<4.6	1.3J	<6.9	<5.8	430	<4.1
12MW-12S	7/16/2003	<6.6	<7.5	<8.5	99	<160	—	<7.3	<7.4	<10	<25	<25	63	<11	1.5J	<7.7	<8.4	250	<2.7
12MW-12S	9/15/2003	<6.6	<7.5	<8.5	68	<160	<0.07	<7.3	<7.4	<10	<0.5	<0.5	8.6	<11	<5	<7.7	<8.4	180	<2.7
12MW-12S	1/13/2004	1.2	2.7	<0.28	48	<6.3	<0.07	<0.23	<0.32	4	<10	<10	<10	<0.23	—	2.6	<0.29	120	<0.21
12MW-12S	4/26/2004	<0.94	2.3J	<1.1	33	<16	<0.07	<0.9	<1.1	3.3	—	—	—	<0.88	<5	1.4J	<1	65	<0.77
12MW-12S	8/17/2004	1.2	3.1	0.29J	58	<3.2	<0.067	<0.18	<0.22	4.2	<1.3	<1.3	21	<0.18	1.7	2.7	<0.21	93	0.24J
12MW-12S	2/1/2005	<1.2	2.8J	<0.73	60	<14	—	<0.87	<0.79	4.4	0.66J	<0.5	14	1.5J	<0.54	2J	<0.76	80	<0.58
12MW-12S	5/24/2005	2.7J	4.1J	<3.4	86	<64	—	<2.9	<3	8.4J	<25	<25	69J	<4.3	5.7	4.6J	<3.4	130	1.2J
12MW-12S	9/12/2005	<2.6	3.1J	<2	100	<87	—	<2.5	<2.9	7.2J	<0.5	<0.5	18	<3.1	1.6J	2.7J	<2.6	150	<2.5
12MW-12S	1/30/2006	2.4J	3.5J	<1.6	150	<70	—	<2	<2.3	14	<0.5	<0.5	8.9	4.3J	—	2.7J	<2.1	400	<2
12MW-12S	6/20/2006	<7.5	<7.7	<7.7	150	<310	—	<7.8	<8.2	19J	<0.4	<0.5	17	16J	1.4J	7.6J	<7.6	570	<7.8
12MW-12S	9/11/2006	<7.5	<8.4	<8.5	300	<260	—	<8.2	<8.1	40J	<0.4	<0.5	3.8	<12	—	27	<6.8	960	<6.6
12MW-12S	5/22/2007	2.82	2.89	495	0.492J	—	—	<0.3	<0.25	86	<2	<2	45.7	<2	1.17	84	0.364J	1,280	5.34
12MW-12S	7/16/2007	2.61	2.86	396	0.387J	—	—	<0.3	<0.25	87.5	<2	<2	52.2	<2	1.46	95.8	0.477J	1,140	6.37
12MW-12S	11/26/2007	<6	<6	417	<5	—	—	<6	<5	114	<2	<2	33.4B	<40	1.42	103	<5	1,150	<10
12MW-12S	5/6/2008	<6	<6	<5	518	—	—	<6	<5	160	<2	<2	54.1	<40	1.73	139	<5	1,480	<10
12MW-13S	8/28/2001	<0.17	<0.64	<0.15	20	—	—	<0.12	<0.15	0.47J	<0.5	<0.5	4	<0.24	2.2J	<0.1	<0.17	16	<0.18
12MW-13S	12/4/2001	<0.22	<0.23	<0.2	1	—	<0.2	1.7	<0.23	<0.24	<0.5	<0.5	<0.5	<0.26	5.6	0.35J	<0.13	5.2	<0.17
12MW-13S	2/26/2002	<0.22	<0.23	<0.2	1	—	<0.2	<0.16	<0.23	<0.24	<0.5	<0.5	2.9	<0.26	1.7J	<0.13	<0.13	4.3	<0.17
12MW-13S	6/11/2002	<0.17	<0.64	<0.15	0.82	<8.8	<1	<0.12	<0.15	<0.28	<5	<5	<5	<0.24	1.6J	<0.1	<0.17	4	<0.18
12MW-13S	9/10/2002	<0.26	<0.24	<0.18	3.5	<5.4	—	<0.24	<0.24	<0.2	<10	<10	<10	<0.24	1.2J	<0.16	<0.19	3.9	<0.2
12MW-13S	1/7/2003	<0.17	<0.64	<0.15	34	<8.8	<1	<0.12	<0.15	<0.28	<10	<10	<10	<0.24	1.5J	<0.1	<0.17	21	<0.18
12MW-13S	4/8/2003	<1.1	<1.2	<1.4	65	<26	<1	<1.2	<1.2	<1.6	<0.5	<0.5	1.7	<1.7	2	<1.2	<1.3	37	<0.42
12MW-13SR	4/8/2003	<0.16	0.77	<0.14	52	<3.2	—	<0.11	<0.16	0.39J	—	—	—	<0.12	—	<0.17	<0.14	31	<0.1
12MW-13S	7/15/2003	<1.3	<1.5	<1.7	82	<32	—	<1.5	<1.5	<2	<0.5	<0.5	1.8	<2.1	0.88J	<1.5	<1.7	33	<0.53
12MW-13SR	7/15/2003	<1.3	<1.5	<1.7	76	<32	—	<1.5	<1.5	<2	—	—	—	<2.1	—	<1.5	<1.7	31	<0.53
12MW-13S	9/15/2003	<1.3	<1.5	<1.7	83	<32	<0.07	<1.5	<1.5	<2	<0.5	<0.5	1.1	<2.1	<5	<1.5	<1.7	26	<0.53
12MW-13SR	9/15/2003	<1.3	<1.5	<1.7	82	<32	—	<1.5	<1.5	<2	—	—	—	<2.1	—	<1.5	<1.7	25	<0.53
12MW-13S	1/13/2004	<0.27	<1.2	<0.34	41	<26	0.043J	<0.29	<0.3	<0.4	<10	<10	<10	<0.43	7.6	<0.31	<0.34	20	<0.11

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-13SR	1/13/2004	<1.1	<1.2	<1.4	47	<26	—	<1.2	<1.2	<1.6	—	—	—	<1.7	—	<1.2	<1.3	21	<0.42
12MW-13S	4/28/2004	<0.27	0.77J	<0.34	60	<6.4	<0.07	<0.29	<0.3	<0.4	<0.5	<0.5	3.5	<0.43	<5	<0.31	<0.34	14	<0.11
12MW-13SR	4/28/2004	<1.5	<1.6	<1.7	57	<25	—	<1.4	<1.8	<1.2	—	—	—	<1.4	—	<1.6	<1.7	15	<1.2
12MW-13S	8/17/2004	0.23J	0.82	<0.22	54	<3.2	<0.067	<0.18	<0.22	0.27J	<0.5	<0.5	4.1	<0.18	0.8J	<0.2	<0.21	15	0.23J
12MW-13SR	8/17/2004	<0.38	0.91J	<0.43	55	<6.3	—	<0.36	<0.44	<0.29	—	—	—	<0.35	—	<0.41	<0.42	15	<0.31
12MW-13S	2/2/2005	<1.5	<1	<0.91	62	<17	—	<1.1	<0.99	<1.2	<0.5	<0.5	2.6	1.3J	<0.54	<1	<0.95	14	<0.73
12MW-13SR	2/2/2005	<1.5	1.1J	<0.91	61	<17	—	<1.1	<0.99	<1.2	—	—	—	1.7J	—	<1	<0.95	14	<0.73
12MW-13S	5/24/2005	<1.5	1.3J	<0.91	95	<17	0.063JM	<1.1	<0.99	<1.2	<0.5	<0.5	2.4	<1	4.2J	<1	<0.95	43	<0.73
12MW-13SR	5/24/2005	<1.5	1.2J	<0.91	92	<17	—	<1.1	<0.99	<1.2	<0.5	<0.5	2.4	<1	2.5	<1	<0.95	42	<0.73
12MW-13S	9/12/2005	<2.1	<1.7	<1.6	110	<70	—	<2	<2.3	<1.8	<0.5	<0.5	<0.5	<2.5	—	<1.6	<2.1	30	<2
12MW-13SR	9/12/2005	<2.1	<1.7	<1.6	120	<70	—	<2	<2.3	<1.8	<0.5	<0.5	0.72J	<2.5	—	<1.6	<2.1	33	<2
12MW-13S	1/30/2006	<2.1	<1.7	<1.6	120	<70	—	<2	<2.3	<1.8	<0.5	<0.5	1.2J	3.4J		<1.6	<2.1	30	<2
12MW-13SR	1/30/2006	<2.1	<1.7	<1.6	130	<70	—	<2	<2.3	<1.8	<0.5	<0.5	0.88J	3.4J	—	<1.6	<2.1	32	<2
12MW-13S	6/22/2006	<1.5	<1.7	<1.7	82	<53	—	<1.6	<1.6	23	<0.4	<0.5	10	<2.4	1.1J	<1.3	<1.4	42	<1.3
12MW-13SR	6/22/2006	<1.5	<1.7	<1.7	87	<53	—	<1.6	<1.6	19	<0.4	<0.5	8.8	<2.4	—	<1.3	<1.4	39	<1.3
12MW-13S	9/11/2006	<1.5	<1.7	<1.7	64	<53	—	<1.6	<1.6	14	<0.4	<0.5	1.2	<2.4	—	<1.3	<1.4	29	<1.3
12MW-13SR	9/11/2006	<1.5	<1.7	<1.7	61	<53	—	<1.6	<1.6	13	<0.4	<0.5	2.3	<2.4	—	<1.3	<1.4	28	<1.3
12MW-13S	5/21/2007	<0.3	0.559J	44	<0.25	—	—	<0.3	<0.25	3.05	<2	<2	6.46J	<2	0.730J	<0.25	<0.25	16.4	<0.5
12MW-13SR	5/21/2007	<0.3	0.489J	45.4	<0.25	—	—	<0.3	<0.25	2.57	<2	<2	<6	<2	—	<0.25	<0.25	16.3	<0.5
12MW-13S	7/16/2007	<0.3	0.436J	28.4	<0.25	—	—	<0.3	<0.25	0.892J	<2	<2	<6	<2	1.17	<0.25	<0.25	9.96	<0.5
12MW-13SR	7/16/2007	<0.3	0.440J	28.2	<0.25	—	—	<0.3	<0.25	0.782J	<2	<2	11.5J	<2	—	<0.25	<0.25	9.69	<0.5
12MW-13S	8/22/2007	<0.3	0.416J	23.8	<0.25	—	—	<0.3	<0.25	1.01	—	—	—	<2	2.42	<0.25	<0.25	10.7	<0.5
12MW-13S	11/27/2007	<0.3	<0.3	22.4	<0.25	—	—	<0.3	<0.25	<0.3	<2	<2	41.6B	<2	1.24	<0.25	<0.25	5.17	<0.5
12MW-13SR	11/27/2007	<0.3	<0.3	21.2	<0.25	—	—	<0.3	<0.25	<0.3	<2	<2	28.0B	<2	1.2	<0.25	<0.25	5.16	<0.5
12MW-13S	5/5/2008	<0.3	0.520J	<0.25	35.8	—	—	<0.3	<0.25	<0.3	—	—	—	<2	—	<0.25	<0.25	4.84	<0.5
12MW-13S	8/14/2008	<0.3	<0.3	<0.25	10.8	—	—	<0.3	<0.25	<0.3	<10	<10	<10	<2	1.09	<0.25	<0.25	3.57	<0.5
12MW-13SR	8/14/2008	<0.3	<0.3	<0.25	16.4	—	—	<0.3	<0.25	<0.3	<10.0	<10	<10	<2	—	<0.250	<0.250	5.34	<0.500
12MW-14S	8/30/2001	<0.17	<0.64	<0.15	<0.13	—	—	<0.12	<0.15	<0.28	11	<0.5	1.4J	<0.24	2.6J	<0.1	<0.17	<0.13	<0.18
12MW-17S	9/10/2002	2.1	0.98	<0.18	240	<5.4	—	<0.24	<0.24	29J	<10	<10	19	<0.24	1.6J	110	0.32J	690	0.91
12MW-17S	1/7/2003	<0.84	<3.2	<0.76	350	<44	<1	<0.6	<0.75	31	<10	<10	46	<1.2	2.1	100	<0.87	720	<0.88
12MW-17S	4/9/2003	<6.6	<4.2	<5.6	160	<130	—	<4.5	<6.4	16J	<0.5	<0.5	45	<4.6	3	32	<5.8	320	<4.1
12MW-17S	7/15/2003	<11	<12	<14	170	<260	—	<12	<12	<16	<5	<5	73	<17	1.9	35J	<13	420	<4.2

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-17S	9/15/2003	<11	<12	<14	160	<260	<0.07	<12	<12	<16	<5	<5	26	<17	<5	30J	<13	370	<4.2
12MW-17S	1/13/2004	<11	<12	<0.68	190	<13	<0.07	<0.58	<0.59	24	<10	<10	35	<0.85		49	<0.67	420	<4.2
12MW-17S	4/26/2004	3.1	1.9	<0.43	280	<6.3	<0.07	<0.36	<0.44	30	<5	<5	39	<0.35	<5	72	<0.42	690	1.3
12MW-17S	8/17/2004	0.44J	0.51J	<0.43	70	<6.3	<0.067	<0.36	<0.44	7.1	<5	<5	41	<0.35	1.7	12	<0.42	230	<0.31
12MW-17S	2/1/2005	<5.8	<4.2	<3.6	150	<70	0.11	<4.4	<4	16J	2.4J	<1	23	<4	<5	33	<3.8	360	<2.9
12MW-17S	5/24/2005	<11	<12	<14	190	<260	—	<12	<12	27J	<25	<25	90	<17	3.2	46	<13	460	<4.2
12MW-17S	9/12/2005	<8.3	<7	<6.5	170	<280	—	<8.1	<9.2	23J	<0.5	<0.5	29	<9.9	1.8	38	<8.2	390	<7.9
12MW-17S	1/31/2006	<12	<8.4	<7.3	220	<140	—	<8.7	<7.9	31J	<0.5	<0.5	23	<8	—	54	<7.6	450	<5.8
12MW-17S	6/20/2006	<1.9	<1.9	<1.9	41	<77	—	<2	<2.1	6.3J	<0.4	<0.5	21	<3.6	1.7	9	<1.9	110	<2
12MW-17S	9/11/2006	<1.9	<2.1	<2.1	64	<66	—	<2.1	<2	10J	<0.4	<0.5	12	<3	—	13	<1.7	160	<1.7
12MW-17S	5/22/2007	<0.3	0.718J	68.3	<0.25	—	—	<0.3	<0.25	9.07	<2	<2	39.9	<2	1.39	9.19	<0.25	136	<0.5
12MW-17S	11/26/2007	<0.6	1.67J	125	<0.5	—	—	<0.6	<0.5	11.1	<2	<2	25.6B	<4	1.55	9.45	<0.5	194	<1
12MW-17S	5/6/2008	<0.3	2.82	0.380J	107	—	—	<0.3	<0.25	17	<2	<2	36.9	<2	1.77	13.1	<0.25	212	0.668J
12MW-18S	4/9/2003	<13	86	<17	550	<320	—	<15	<15	<20	<0.5	<0.5	130	<21	9.4	<15	<17	<12	<5.3
12MW-18S	7/16/2003	<13	64	<17	500	<320	—	<15	<15	<20	<25	<25	62	<21	3.9	<15	<17	<12	<5.3
12MW-18S	9/17/2003	<13	54	<17	490	<320	—	<15	<15	<20	<5	<5	600	<21	4.1	<15	<17	<12	<5.3
12MW-18S	1/14/2004	<11	87	<14	440	<260	—	<12	<12	<16	<10	<10	150	<17	3.9	<12	<13	<9.9	<4.2
12MW-18S	4/27/2004	<6.6	84	<8.5	230	<160	—	<7.3	<7.4	<10	<20	<20	190	<11	7.6	<7.7	<8.4	7.7J	<2.7
12MW-18S	8/19/2004	<4.7	75	<5.4	240	<79	—	<4.5	<5.5	4.4J	<50	<50	510	<4.4	8.8	<5.1	<5.2	22	<3.9
12MW-18S	2/3/2005	<7.3	47	<4.6	380	<87	—	<5.5	<5	9.1J	—	—	—	7.4J	—	<5.2	<4.8	16J	<3.6
12MW-18S	5/23/2005	<11	71	<14	450	<260	—	<12	<12	<16	—	—	—	<17	—	<12	<13	25J	4.7J
12MW-18S	9/12/2005	<8.3	76	<6.5	390	<280	—	<8.1	<9.2	9.8J	—	—	—	<9.9	—	<6.4	<8.2	18J	<7.9
12MW-18S	1/31/2006	<12	89	<7.3	300	<140	—	<8.7	<7.9	<9.4	—	—	—	<8	—	<8.4	<7.6	19J	<5.8
12MW-18S	6/20/2006	<4.7	84	<5.3	230	<160	—	<5.2	<5.1	<8.5	—	—	—	<7.6	—	<4	<4.3	15J	4.4J
12MW-18S	9/11/2006	<3.7	72	<3.9	250	<150	—	<3.9	<4.1	6.2J	—	—	—	<7.2	—	<3.2	<3.8	15J	4.5J
12MW-18S	5/22/2007	<0.3	63.2	235	0.559J	—	—	<0.3	<0.25	8.59	—	—	—	<2	—	<0.25	<0.25	12.4	2.07
12MW-18S	7/16/2007	<0.3	59.8	153	0.517J	—	—	<0.3	<0.25	7.83	—	—	—	<2	—	<0.25	<0.25	13.9	2.3
12MW-18S	11/26/2007	0.609J	44	161	<0.5	—	—	<0.6	<0.5	8.83	<40	—	2,620B	<4	3.56	<0.5	<0.5	16	<1
12MW-18S	5/5/2008	<1.5	48.8	<1.25	305	—	—	<1.5	<1.25	15.6	<2	<2	3,430	<10	3.41	<1.25	<1.25	33.2	<2.5
12MW-19D	4/8/2003	<11	<12	<14	<16	<260	—	<12	<12	<16	3.2	7.4	72	<17	980	<12	<13	<9.9	<4.2
12MW-19D	7/14/2003	<13	<8.4	<11	<14	<250	—	<9	<13	<18	2.8	4.5	1,100	<9.2	670	<14	<12	<9.8	<8.2
12MW-19D	9/17/2003	<6.6	<4.2	<5.6	<6.8	<130	—	<4.5	<6.4	<8.8	<5	<5	2,600	<4.6	510	<6.9	<5.8	<4.9	<4.1

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-19D	1/14/2004	<2.1	<2.4	<2.7	<3.3	<51	—	2.6J	<2.4	<3.2	<10	<10	3,900	<3.4	—	<2.4	<2.7	<2	<0.85
12MW-19D	4/27/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	2.4	<0.22	<0.15	<200	<200	5,200	0.24J	220	<0.2	1.1	<0.2	<0.15
12MW-19D	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	2.5	<0.3	<0.4	<500	<500	5,100	<0.43	100	<0.31	20	<0.25	<0.11
12MW-19S	4/8/2003	<13	<15	<17	<21	<320	—	<15	<15	<20	1.9	4.9	130	<21	930	<15	<17	<12	<5.3
12MW-19S	7/14/2003	<13	22J	<11	<14	<250	—	<9	<13	<18	<250	<250	2,900	<9.2	650	<14	<12	<9.8	<8.2
12MW-19S	9/17/2003	<18	<17	<16	<21	<270	—	<18	<17	<17	<5	6	2,900	<19	670	<14	<19	<17	<14
12MW-19S	1/14/2004	<0.82	8.3	<0.7	<0.86	<16	—	1.3J	<0.8	<1.1	<10	<10	2,300	1J	360	<0.86	<0.72	<0.61	<0.52
12MW-19S	4/27/2004	<0.94	7.1	<1.1	<0.91	<16	—	1.3J	<1.1	<0.73	<200	<200	4,200	1.2J	270	<1	<1	<1	<0.77
12MW-19S	8/19/2004	<0.94	4.5	<1.1	<0.91	<16	—	1.7J	<1.1	<0.73	<500	<500	3,300	<0.88	150	<1	<1	<1	<0.77
12MW-19S	2/2/2005	<1.5	5.3	<0.91	<0.85	30J	—	1.3J	<0.99	<1.2	<250	<250	6,600	1.4J	67	<1	<0.95	<1.4	<0.73
12MW-19S	5/25/2005	<0.29	5.7	0.43J	<0.17	30	—	1.3	<0.2	<0.23	2.3	5.1	6,600	<0.2	61	<0.21	<0.19	<0.28	<0.15
12MW-19S	9/13/2005	<0.29	1.7	<0.18	<0.17	9.3J	—	1.3	<0.2	<0.23	<0.5	<0.5	3,200	<0.2	31	<0.21	<0.19	<0.28	<0.15
12MW-19S	1/31/2006	<0.21	0.53J	<0.16	<0.2	<7	—	1.3	<0.23	<0.18	55	0.52J	4,300	<0.25	—	<0.16	<0.21	<0.19	<0.2
12MW-19S	9/12/2006	<0.19	4.7	0.26J	<0.15	17J	—	2	<0.21	<0.19	<0.4	0.91J	3,300	<0.36	—	<0.16	<0.19	<0.3	<0.2
12MW-20D	4/8/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<0.5	<0.5	4.5	<0.43	2	<0.31	<0.34	<0.25	<0.11
12MW-20D	7/15/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<5	<5	35	<0.43	1.8	<0.31	<0.34	<0.25	<0.11
12MW-20D	9/16/2003	<0.16	<0.11	<0.14	<0.17	<3.2	—	<0.11	<0.16	<0.22	<0.5	<0.5	14	<0.12	1.9	<0.17	<0.14	<0.12	<0.1
12MW-20D	1/12/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<10	<10	65	<0.43	2.3	<0.31	<0.34	<0.25	<0.11
12MW-20D	4/26/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<5	<5	250	<0.43	4.7	<0.31	<0.34	<0.25	<0.11
12MW-20D	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<50	<50	400	<0.43	2.9	<0.31	<0.34	<0.25	<0.11
12MW-20D	5/25/2005	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<250	<250	3,800	<0.43	2.1	<0.31	0.63J	<0.25	<0.11
12MW-20D	6/21/2006	<0.19	<0.19	<0.19	0.15J	<7.7	—	<0.2	<0.21	<0.19	<0.4	<0.5	1,100	<0.36	2.2	<0.16	<0.19	<0.3	<0.2
12MW-20S	4/9/2003	<13	67	<17	410	<320	—	<15	<15	<20	<0.5	<0.5	59	<21	3	<15	<17	<12	<5.3
12MW-20S	7/16/2003	<5.3	35	<6.8	220	<130	—	<5.8	<5.9	<8	1.1	2.3	230	<8.5	260	<6.1	<6.7	<4.9	<2.1
12MW-20S	9/16/2003	<2.7	17	<3.4	110	<64	—	<2.9	<3	<4	<5	5.3	5,100	<4.3	500	<3.1	<3.4	<2.5	<1.1
12MW-20S	1/14/2004	<0.66	7.0	<0.85	43	26J	—	3.1	<0.74	<1	<10	<10	7,800	<1.1	310	<0.77	<0.84	<0.62	<0.27
12MW-20S	4/26/2004	<1.1	2.7J	<1.4	38	33J	—	3J	<1.2	<1.6	<200	<200	3,300	<1.7	92	<1.2	46	<0.99	<0.42
12MW-20S	8/19/2004	<0.75	0.88J	<0.86	13	31J	—	3.6	<0.88	<0.58	<500	<500	6,900	<0.7	38	<0.82	51	<0.8	<0.62
12MW-20S	2/2/2005	<0.29	1.5	0.45J	14	23	—	3.3	<0.2	0.34J	<250	<250	8,200	<0.2	7.2	<0.21	2.1	0.37J	0.22J
12MW-20S	5/25/2005	<0.29	0.57J	<0.18	6.9	6.8J	—	5	<0.2	<0.23	<500	<500	7,200	<0.2	6.2	<0.21	2.2	<0.28	<0.15
12MW-20S	9/13/2005	<0.29	1.2	<0.18	12	11J	—	3.7	<0.2	<0.23	0.86J	<0.5	5,400	<0.2	6.4	<0.21	0.8	<0.28	<0.15
12MW-20S	1/31/2006	<0.42	3.1	<0.33	26	19J	—	3.1	<0.46	0.61J	<500	<500	12,000	<0.49	—	<0.32	0.61J	0.42J	<0.39

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-20S	6/22/2006	<0.19	0.76	<0.21	6.5	<6.6	—	2.6	<0.2	<0.34	<0.4	<0.5	3,100	<0.3	6.2	<0.16	0.42J	<0.19	<0.17
12MW-20S	9/11/2006	<0.19	1.3	<0.21	12	10J	—	3	<0.2	<0.34	<0.4	<0.5	8,900	<0.3	—	<0.16	0.46J	<0.19	<0.17
12MW-20S	5/23/2007	<0.3	0.498J	4.1	<0.25	—	—	1.92	<0.25	<0.3	2.34J	<2	14,100	<2	4.5	<0.25	<0.25	<0.25	<0.5
12MW-20S	11/28/2007	<0.3	0.317J	2.95	<0.25	—	—	2.62	<0.25	<0.3	<40	<40	9,610	<2	4.05	<0.25	<0.25	<0.25	<0.5
12MW-21D	4/7/2003	<1.1	3.4J	<1.4	<1.6	<26	—	2.1J	<1.2	2.3J	4.2	7.7	2,400	<1.7	850	<1.2	<1.3	<0.99	<0.42
12MW-21D	7/15/2003	<0.82	1.1J	<0.7	<0.86	<16	—	2.3	<0.8	1.4J	<500	<500	1,900	<0.58	440	<0.86	<0.72	<0.61	<0.52
12MW-21D	9/16/2003	<0.82	<0.53	<0.7	<0.86	<16	—	1.9J	<0.8	<1.1	<5	<5	3,900	<0.58	360	<0.86	<0.72	<0.61	<0.52
12MW-21D	1/12/2004	<0.82	<0.53	<0.7	<0.86	<16	—	1.8J	<0.8	<1.1	<10	<10	15,000	<0.58	240	<0.86	<0.72	<0.61	<0.52
12MW-21D	4/27/2004	<1.3	<1.5	<1.7	<2.1	<32	318	1.8J	<1.5	<2	<500	<500	5,000	<2.1	130	<1.5	<1.7	<1.2	<0.53
12MW-21D	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	1.8	<0.3	<0.4	<500	<500	4,200	<0.43	97	<0.31	<0.34	<0.25	<0.11
12MW-21S	4/8/2003	<1.3	21	<1.7	<2.1	<32	456.9	<1.5	<1.5	2.9J	110	18	110	<2.1	440	<1.5	<1.7	<1.2	<0.53
12MW-21SR	4/8/2003	—	—	—	—	—	455.4	—	—	—	96	23	95	—	460	—	—	—	—
12MW-21S	7/15/2003	<5.3	25	<6.8	<8.2	<130	117	<5.8	<5.9	<8	39	13	160	<8.5	430	<6.1	<6.7	<4.9	<2.1
12MW-21SR	7/15/2003	—	—	—	—	—	—	—	—	—	41	19	<250	—	—	—	—	—	—
12MW-21S	9/15/2003	<5.3	17J	<6.8	<8.2	<130	321	<5.8	<5.9	<8	15	6.9	1,400	<8.5	430	<6.1	<6.7	<4.9	<2.1
12MW-21SR	9/15/2003	—	—	—	—	—	—	—	—	—	11	6.3	1,100	—	—	—	—	—	—
12MW-21S	1/13/2004	<1.3	47	<1.7	<2.1	<32	316	<1.5	<1.5	11	13	10	2,000	<2.1	370	<1.5	<1.7	<1.2	<0.53
12MW-21SR	1/13/2004	—	—	—	—	—	—	—	—	—	16	13	4,100	—	360	—	—	—	—
12MW-21S	4/27/2004	<0.94	56	2J	<0.91	<16	390	1.5J	<1.1	6.3	40	15	1,400	<0.88	340	<1	<1	<1	<0.77
12MW-21SR	4/27/2004	—	—	—	—	—	—	—	—	—	43	17	2,000	—	—	—	—	—	—
12MW-21S	8/19/2004	<1.9	55	3J	<1.8	<32	288M	2.4J	<2.2	2.2J	<130	<130	1,900	<1.8	100	<2	<2.1	<2	<1.5
12MW-21SR	8/19/2004	<5.3	46	<6.8	<8.2	<130	—	<5.8	<5.9	<8	<130	<130	1,900	<8.5	—	<6.1	<6.7	<4.9	<2.1
12MW-21S	2/1/2005	<2.9	21	<1.8	<1.7	<35	70	<2.2	<2	<2.3	<25	31J	2,000	<2	250	<2.1	<1.9	<2.8	<1.5
12MW-21SR	2/1/2005	—	—	—	—	—	—	—	—	—	25J	33J	2,000	—	—	—	—	—	—
12MW-21S	5/24/2005	<12	24J	<7.3	7.2J	<140	279	<8.7	<7.9	<9.4	11	8.9	2,200	<8	310	<8.4	<7.6	<11	<5.8
12MW-21S	9/13/2005	<12	20J	<7.3	<6.8	<140	—	<8.7	<7.9	<9.4	<0.5	<0.5	43	<8		<8.4	<7.6	<11	<5.8
12MW-21S	1/31/2006	<0.83	12	1.8J	<0.82	43J	—	1.8J	<0.92	<0.72	2.7	2.1	1,500J	1.7J	—	<0.64	<0.82	<0.74	<0.79
12MW-21S	6/22/2006	<0.19	13	1.5	<0.15	<7.7	—	2.2	<0.21	<0.19	6.3	7.4	730	<0.36	—	<0.16	<0.19	<0.3	<0.2
12MW-21S	9/11/2006	<1.9	20	<2.1	<1.4	<66	—	2.5J	<2	<3.4	0.81J	<0.5	640	<3	—	<1.6	<1.7	<1.9	<1.7
12MW-22D	4/9/2003	<0.16	3.1	<0.14	8	<3.2	388.9	0.41J	<0.16	29	1.5	3.4	1,800	0.44	190	<0.17	0.2J	0.21J	0.55
12MW-22D	7/14/2003	<0.41	2.2	<0.35	3.1	<7.9	106	0.93J	<0.4	9.6	5.2	8.6	1,900	0.67J	320	<0.43	0.55J	<0.31	0.58J

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-22D	9/17/2003	<0.41	0.96	<0.35	1.8	<7.9	311	0.86J	<0.4	6.6	<5	<5	5,700	<0.29	250	<0.43	100	<0.31	<0.26
12MW-22D	1/12/2004	<2.7	<3	<3.4	<4.1	<64	103	<2.9	<3	5.5J	<10	<10	16,000	<4.3		<3.1	140	<2.5	<1.1
12MW-22D	4/28/2004	<2.4	<2.5	<2.7	<2.3	<40	94.1	<2.3	<2.8	3.9J	<250	<250	4,400	<2.2	47	<2.6	130	<2.5	<1.9
12MW-22D	8/17/2004	<0.94	<0.98	<1.1	1.2J	<16	—	0.99J	<1.1	3.4	—	—	—	<0.88	—	<1	58	<1	<0.77
12MW-22D	5/25/2005	<1.2	<0.84	<0.73	<0.68	<14	51.4	1.4J	<0.79	1.3J	<500	<500	6,600	<0.8	80	<0.84	43	<1.1	<0.58
12MW-22D	6/21/2006	<0.19	<0.19	<0.19	<0.15	<7.7	—	1.3	<0.21	0.33J	<0.4	<0.5	5,500	<0.36	—	<0.16	1.2	<0.3	0.84
12MW-22D	5/22/2007	<0.3	<0.3	<0.3	<0.25	—	—	1.06	<0.25	<0.3	<2	<2	27,000	<2	—	<0.25	0.429J	<0.25	1.58
12MW-22D	11/28/2007	<0.3	<0.3	<0.3	<0.25	—	—	0.773J	<0.25	<0.3	<100	<100	20,100	<2	—	<0.25	0.300J	<0.25	0.852J
12MW-22S	4/10/2003	1,100	<300	<340	6,100	<6,400	4.7	<290	<300	1,200J	1.4	1.4	40	1,800	4	790J	<340	15,000	<110
12MW-22S	7/17/2003	650	200J	<170	2,100	<3,200	23.7	<150	<150	5,400	<5	11	400	<210	57	<150	<170	2,500	<53
12MW-22S	9/15/2003	<82	100J	<70	1,300	<1,600	77.3	<57	<80	4,600	1.2	3.2	92	<58	100	<86	<72	420	<52
12MW-22S	1/14/2004	43	33	<6.8	550	<130	235	<5.8	<5.9	2,100	<10	<10	2,400	<8.5		<6.1	<6.7	13J	<2.1
12MW-22S	4/28/2004	11J	19	<4.2	630	<80	208	<3.6	<3.7	1,500	<500	<500	3,600	<5.3	100	<3.8	<4.2	63	4.5J
12MW-22S	8/17/2004	<24	27J	<27	1,000	<400	29.5	<23	<28	1,600	<500	<500	5,000	<22	20	<26	<26	<25	<19
12MW-22S	2/3/2005	<37	<26	<23	980	<440	0.604	<27	<25	1,200	<250	<250	4,400	38J	8.1	<26	<24	<36	<18
12MW-22S	5/24/2005	4.4J	21	1.8J	820	<35	0.616M	<2.2	<2	860	<250	<250	5,000	<2	11	<2.1	<1.9	58	5.7
12MW-22S	9/13/2005	<8.3	11J	<6.5	440	<280	—	<8.1	<9.2	460	<0.5	<0.5	7.1	17J		<6.4	<8.2	<7.4	61
12MW-22S	1/31/2006	<17	23J	<13	630	<560	—	<16	<18	480	250J	<250	4,500	<20	—	<13	<16	170	280
12MW-22S	6/20/2006	<7.5	11J	<7.7	390	<310	—	<7.8	<8.2	210	0.75J	<0.5	7,700	19J	—	<6.5	<7.6	82	170
12MW-22S	9/11/2006	<7.5	11J	<7.7	450	<310	—	<7.8	<8.2	200	<0.4	<0.5	2,700	<14	—	<6.5	<7.6	89	130
12MW-22S	5/22/2007	<0.3	11.9	293	1.01	—	—	1.38	<0.25	147	<2	<2	16,300	<2	—	1.72	0.252J	54.1	211
12MW-22S	7/17/2007	<1.5	9.63	265	<1.25	—	—	1.85J	<1.25	121	<2	<2	18,100	<10	—	1.65J	<1.25	60	138
12MW-22S	11/27/2007	<0.6	5.4	158	<0.5	—	—	1.17J	<0.5	56.4	<200	<200	11,300B	<4	5.34	1.24J	<0.5	39.6	105
12MW-22S	5/6/2008	<0.6	7.57	<0.5	102	—	—	1.59J	<0.5	44.1	<2	<2	21,600	<4	5.2	2.44	<0.5	42.3	180
12MW-23D	4/8/2003	<0.16	<0.11	<0.14	0.72	<3.2	—	<0.11	<0.16	<0.22	<0.5	<0.5	9.6	<0.12	1.9	<0.17	<0.14	0.58	<0.1
12MW-23D	7/14/2003	<0.16	<0.11	<0.14	0.4J	<3.2	—	<0.11	<0.16	<0.22	<10	<10	120	<0.12	1.7	<0.17	<0.14	0.35J	<0.1
12MW-23D	9/17/2003	<0.16	<0.11	<0.14	0.22J	<3.2	—	<0.11	<0.16	<0.22	<5	<5	120	<0.12	<0.54	<0.17	0.26J	0.24J	<0.1
12MW-23D	1/12/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<10	<10	2,700	<0.43	2.2	<0.31	<0.34	<0.25	<0.11
12MW-23D	4/27/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<50	<50	680	<0.43	3.2	<0.31	<0.34	<0.25	<0.11
12MW-23D	8/18/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<200	<200	3,200	<0.43	2.8	<0.31	<0.34	<0.25	<0.11
12MW-23D	5/25/2005	<0.29	0.4J	<0.18	<0.17	<3.5	—	<0.22	<0.2	<0.23	<100	<100	1,700	<0.2	1.4J	<0.21	<0.19	<0.28	0.49J
12MW-23D	6/21/2006	<0.19	0.73J	<0.21	<0.14	<6.6	—	<0.21	<0.2	<0.34	<0.4	<0.5	1,700	<0.3	2	<0.16	<0.17	<0.19	1.8

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-23S	4/9/2003	<110	<120	<140	2,200	<2600	<1	<120	<120	370J	1.1	2	65	740	2.8	<120	<130	4,200	<42
12MW-23S	7/16/2003	<110	<120	<140	2,100	<2600	<0.07	<120	<120	450J	1.2	2.7	99	<170	<5	<120	<130	4,100	<42
12MW-23S	9/17/2003	<53	<60	<68	1,000	<1,300	<0.07	<58	<59	280	<5	5.2	110	<85	<5	<61	<67	1,900	<21
12MW-23S	1/14/2004	<2.1	13	<2.7	390	<51	0.07	<2.3	<2.4	150	<10	<10	31	<3.4	—	14	<2.7	790	<0.85
12MW-23S	4/27/2004	<2.4	16	<2.7	450	<40	<0.07	<2.3	<2.8	150	<5	<5	89	<2.2	<5	19	<2.6	770	<1.9
12MW-23S	8/17/2004	<15	16J	<17	480	<250	0.072J	<14	<18	160	<20	<20	170	38J	1.8	21J	<17	760	<12
12MW-23S	2/1/2005	97	99	<15	690	<280	—	<17	<16	150	<5	<5	89	<16	—	38J	<15	690	<12
12MW-23S	2/3/2005	—	—	—	—	—	0.154	—	—	—	—	—	—	—	<5	—	—	—	—
12MW-23S	5/25/2005	290	420	<15	1,600	<280	0.068JM	<17	<16	260	<10	<10	240	<16	30	100	<15	1,100	13J
12MW-23S	9/12/2005	77	240	<16	950	<700	—	<20	<23	200	<0.5	<0.5	6.9	<25	—	50J	<21	660	<20
12MW-23S	1/30/2006	260	520	<16	1,900	<700	—	<20	<23	360	0.54J	<0.5	570	30J	—	180	<21	890	23J
12MW-23S	6/21/2006	230	700	<27	2,100	<820	—	<26	<25	490	0.57J	<0.5	720	<38	—	190	<21	830	34J
12MW-23S	9/12/2006	99J	500	<39	1,800	<1,500	—	<39	<41	400	<0.4	<0.5	650	<72	—	100J	<38	670	39J
12MW-23S	5/21/2007	148H	956H	3,200H	13	—	—	<0.3	1.33	703H	2.49J	<2	3,010	<2	—	222H	0.748J	972H	61.1
12MW-23S	7/16/2007	151	1,220	3,240	14.9	—	—	<0.3	1.47	737	2.91J	3.53J	4,190	<2	—	221	0.900J	1,050	75.1
12MW-23S	11/27/2007	112	1,010	3,180	<12.5	—	—	<15	<12.5	602	<100	<100	2,650B	<100	2.09	263	<12.5	914	98.8
12MW-23S	5/6/2008	232	1,680	19.7J	4,080	—	—	<15	<12.5	1,030	4.71J	2.25J	5,500	<100	2.45	458	<12.5	1,160	109
12MW-24D	4/7/2003	<1.3	<1.5	<1.7	<2.1	<32	—	<1.5	<1.5	<2	2.1	4.6	7,700	<2.1	420	<1.5	<1.7	<1.2	<0.53
12MW-24D	7/16/2003	<1.3	<1.5	<1.7	<2.1	<32	—	1.6J	<1.5	<2	0.96	2	1,600	<2.1	260	<1.5	<1.7	<1.2	<0.53
12MW-24D	9/16/2003	<0.66	<0.75	<0.85	<1	<16	—	1.3J	<0.74	<1	<5	<5	7,500	<1.1	160	<0.77	<0.84	<0.62	<0.27
12MW-24D	1/12/2004	<0.16	<0.11	<0.14	0.29J	<3.2	—	1.6	<0.16	<0.22	<10	<10	14,000	0.25J	280	<0.17	0.53	0.18J	<0.1
12MW-24D	4/27/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	1.8	<0.3	<0.4	<500	<500	4,900	<0.43	120	<0.31	6	<0.25	<0.11
12MW-24D	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	2	<0.3	<0.4	<500	<500	5,800	<0.43	180	<0.31	21	<0.25	<0.11
12MW-24S	4/7/2003	<2.7	<3	<3.4	28	<64	—	<2.9	<3	120	2	5.3	3,500	<4.3	450	<3.1	<3.4	52	<1.1
12MW-24S	7/16/2003	<1.3	<1.5	<1.7	17	<32	—	1.9J	<1.5	75	<500	<500	1,400	<2.1	310	<1.5	<1.7	69	1.4J
12MW-24S	9/16/2003	<0.82	<0.53	<0.7	10	<16	—	2.5	<0.8	47	<5	5.8	4,600	<0.58	370	<0.86	<0.72	37	1.5J
12MW-24S	1/13/2004	<0.82	<0.53	<0.7	22	<16	—	2.7	<0.8	38	<10	<10	11,000	<0.58	85	<0.86	1J	6.1	1.8
12MW-24S	4/27/2004	<0.94	<0.98	<1.1	5.7	<16	—	2.8J	<1.1	54	<5	<5	4,300	<0.88	52	<1	1.1J	1.5J	<0.77
12MW-24S	8/18/2004	<1.3	<1.5	<1.7	5.8J	<32	—	2.7J	<1.5	58	<500	<500	8,700	<2.1	32	<1.5	<1.7	<1.2	<0.53
12MW-24S	2/1/2005	<1.5	<1	<0.91	5.7	<17	—	2.5J	<0.99	60	<250	<250	8,700	<1	27	<1	<0.95	<1.4	1.2J
12MW-24S	5/25/2005	<1.5	1.4J	<0.91	2.8J	30J	—	2.6J	<0.99	40	<500	<500	7,100	<1	29	<1	<0.95	<1.4	11

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-24S	9/12/2005	<0.42	13	1.4	1.3J	58	—	2.3	<0.46	18	1.7	7.5	6,000	0.53J	13	<0.32	0.48J	<0.37	17
12MW-24S	1/30/2006	<0.42	2.1	1.1J	0.68J	56	—	1.7	<0.46	7.8	<250	<250	7,800	0.61J	—	<0.32	<0.41	<0.37	12
12MW-24S	6/21/2006	<0.19	0.97	1.6	0.32J	72	—	2	<0.2	5.1	0.52J	0.91J	8,900	<0.3	15	<0.16	0.47J	<0.19	14
12MW-24S	9/11/2006	<0.19	0.36J	0.71J	0.31J	33	—	2	<0.2	4.2	2.3	0.65J	5,800	<0.3	—	<0.16	0.48J	<0.19	8.7
12MW-25D	4/8/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<0.5	<0.5	22	<0.43	1.7J	<0.31	<0.34	0.46J	<0.11
12MW-25D	7/15/2003	<0.27	<0.3	<0.34	1.1J	<6.4	—	<0.29	<0.3	<0.4	<10	<10	180	<0.43	11	<0.31	<0.34	0.76J	<0.11
12MW-25D	9/16/2003	<0.16	0.18J	<0.14	1.3	<3.2	—	0.13J	<0.16	0.35J	<5	<5	920	<0.12	57	<0.17	<0.14	0.83	<0.1
12MW-25D	1/12/2004	<0.27	<0.3	<0.34	1.1J	<6.4	—	<0.29	<0.3	0.59J	<10	<10	2,900	<0.43	87	<0.31	<0.34	<0.25	<0.11
12MW-25D	4/28/2004	<0.19	0.44J	<0.22	1.6	<3.2	—	0.51J	<0.22	0.33J	<500	<500	4,900	0.55J	200	<0.2	0.45J	0.51J	<0.15
12MW-25D	8/16/2004	<0.27	<0.3	<0.34	1J	<6.4	—	<0.29	<0.3	0.48J	<500	<500	6,000	<0.43		<0.31	2.6	<0.25	<0.11
12MW-25D	5/23/2005	<0.29	<0.21	<0.18	1.3	<3.5	—	0.64J	<0.2	0.33J	<250	<250	6,300	0.24J	100	<0.21	58	0.29J	0.29J
12MW-25D	6/21/2006	<0.19	<0.19	<0.19	0.26J	<7.7	—	0.62J	<0.21	0.31J	<0.4	<0.5	5,900	<0.36	7	<0.16	0.61J	<0.3	0.54J
12MW-25S	4/9/2003	<1.3	<1.5	<1.7	25	<32	<1	<1.5	<1.5	24	<0.5	<0.5	21	<2.1	1.2J	<1.5	<1.7	63	<0.53
12MW-25S	7/15/2003	<1.3	<1.5	<1.7	43	<32	<0.07	<1.5	<1.5	36	<5	<5	30	<2.1	<5	<1.5	<1.7	100	0.56J
12MW-25S	9/17/2003	<1.3	<1.5	<1.7	33	<32	4.72	<1.5	<1.5	48	<10	<10	180	<2.1	<5	<1.5	<1.7	58	<0.53
12MW-25S	1/13/2004	<0.82	0.73J	<0.7	25	<16	15.6	<0.57	<0.8	64	<10	<10	1,700	<0.58		<0.86	11	13	<0.52
12MW-25S	4/27/2004	<1.3	<1.5	<1.7	23	<32	11.5	<1.5	<1.5	67	<10	<10	3,500	<2.1	15	<1.5	37	5.6	<0.53
12MW-25S	8/18/2004	<0.94	<0.98	<1.1	23	<16	<0.067	<0.9	<1.1	69	<500	<500	6,500	<0.88	13	<1	41	6.5	<0.77
12MW-25S	2/1/2005	<1.5	<1	<0.91	25	<17	—	<1.1	<0.99	83	<250	<250	6,400	<1	6.8	<1	34	1.4J	1.1J
12MW-25S	5/23/2005	<2.7	<3	<3.4	20	<64	—	<2.9	<3	87	<250	<250	4,700	<4.3	9.9	<3.1	15	4.6J	1.2J
12MW-25S	9/12/2005	<2.1	<1.7	<1.6	16	<70	—	<2	<2.3	78	<0.5	<0.5	6,100	<2.5	5.7	<1.6	3.9J	2.4J	9.7
12MW-25S	1/30/2006	<2.1	<1.7	<1.6	11	<70	—	<2	<2.3	62	<250	<250	6,800	4J	—	<1.6	2.2J	<1.9	28
12MW-25S	6/21/2006	<0.94	<1	<1.1	9	<33	—	<1	<1	53	<0.4	<0.5	5,100	<1.5	6.3	<0.81	2J	1.8J	39
12MW-25S	9/11/2006	<0.94	<1	<1.1	6	<33	—	<1	<1	41	<0.4	<0.5	4,300	<1.5	—	<0.81	2.2J	2J	51
12MW-25S	5/21/2007	<0.3	<0.3	0.645J	<0.25	—	—	1.3	<0.25	10.2	<2	<2	17,900	<2	4.08	<0.25	3.04	0.926J	71.6
12MW-25S	7/16/2007	<0.3	<0.3	<0.3	<0.25	—	—	1.2	<0.25	5.97	<2	<2	22,700	<2	4.43	<0.25	2.16	0.479J	68.4
12MW-25S	11/27/2007	<0.3	<0.3	<0.3	<0.25	—	—	0.877J	<0.25	3.3	<200	<200	11,500B	<2	4.05	<0.25	1.91	0.336J	78.8
12MW-25S	5/6/2008	<0.3	<0.3	<0.25	<0.3	—	—	1.25	<0.25	2.24	<2	<2	22,600	<2	3.96	<0.25	2.39	<0.25	54.4
12MW-26S	4/8/2003	<0.16	4.6	0.6	150	<3.2	<1	<0.11	<0.16	0.35J	<0.5	<0.5	79	<0.12	3.1	<0.17	<0.14	0.25J	0.41
12MW-26S	7/16/2003	<0.66	4.3	<0.85	140	<16	25	<0.73	<0.74	<1	<130	<130	930	<1.1	51	<0.77	31	<0.62	0.45J
12MW-26S	9/17/2003	<3.3	<3.7	<4.2	140	<80	—	<3.6	<3.7	<5	<5	<5	140	<5.3	—	<3.8	42	<3.1	<1.3

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-26S	1/13/2004	<3.3	7J	<4.2	230	<80	2.83	<3.6	<3.7	12J	<10	<10	3,700	<5.3	—	<3.8	13J	32	<1.3
12MW-26S	4/27/2004	47	46	<6.8	900	<130	—	<5.8	<5.9	62	<100	<100	1,200	<8.5	—	18J	<6.7	590	<2.1
12MW-26S	8/18/2004	780	390	<6.8	2,600	<130	1.1M	<5.8	<5.9	160	<250	<250	3,500	<8.5	2.8	320	<6.7	1,000	9.8
12MW-26S	2/2/2005	2,300	1,700	<46	7,000	<870	—	<55	<50	440	<25	<25	1,300	<50	—	1,100	<48	1,600	73J
12MW-26S	5/25/2005	2,500	2,200	<91	7,300	<1,700	—	<110	<99	650	—	—	—	<100	—	1,500	<95	1,700	130J
12MW-26S	9/28/2005	1,600	2,000	<82	5,800	<3,500	—	<100	<120	810	—	—	—	<120	—	1,300	<100	1,200	140J
12MW-26S	1/31/2006	2,100	3,800	75	8,400	2,000	—	<17	<16	1,500	—	—	—	29J	—	2,100	<15	2,000	280
12MW-26S	7/5/2006	1,300	2,700	<97	5,900	<3,900	—	<98	<100	1,300	—	—	—	<180	—	1,600	<96	1,500	180J
12MW-26S	9/12/2006	380	930	<42	1,900	<1,300	—	<41	<40	510	—	—		<61	—	420	<34	520	130
12MW-26S	5/21/2007	1,500H	4,420H	9,980H	66.8	3,330	—	<0.3	3.86	2,940H	16.6J	25.5	1,950	<2	2.57	3,270H	1.49	3,440H	234H
12MW-26S	7/16/2007	1,270	4,560	8,820	42.3	<20	—	0.367J	2.43	2,840	11.1J	17.5J	7,250	<2	3.81	2,700	1.14	4,410	284
12MW-26S	8/22/2007	1,080	3,710	6,910	46.7J	<2,000	—	<30	<25	2,390	<100	<100	13,000	<200	3.84	3,230	<25	3,940	281
12MW-26SR	8/22/2007	1,480	5,370	9,580	72.0J	<2,000	—	<30	<25	3,470	<100	<100	13,200	<200	4.24	4,290	<25	5,280	379
12MW-26S	11/26/2007	761	2,720	5,890	<25	—	—	<30	<25	1,830	<200	<200	4,260B	<200	3.72	2,250	<25	3,230	216
12MW-26SR	11/26/2007	991	3,370	7,520	<25	—	—	<30	<25	2,240	<100	<100	4,890B	<200	3.75	2,670	<25	3,920	278
12MW-26S	5/6/2008	107	540	6.19J	1,160	—	—	<6	<5	315	7.99J	12.5J	4,890	<40	2.6	567	<5	597	141
12MW-26S	8/14/2008	803	3,030	52.8	7500	—	—	.314J	3.65	2,420	<200	<200	6,760	<2	2.95	2,890	9.89	4,490	177J
12MW-27D	4/8/2003	<0.16	0.15J	<0.14	0.49J	<3.2	—	<0.11	<0.16	<0.22	<0.5	<0.5	8.2	<0.12	3.7	<0.17	<0.14	0.28J	<0.1
12MW-27D	7/15/2003	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<5	<5	22	<0.43	2	<0.31	<0.34	<0.25	<0.11
12MW-27D	9/16/2003	<0.23	<0.22	<0.2	<0.26	<3.4	—	<0.23	<0.21	<0.22	<0.5	<0.5	11	<0.24	—	<0.18	<0.23	<0.22	<0.18
12MW-27D	1/12/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	<10	<10	<10	<0.43	2.5	<0.31	<0.34	<0.25	<0.11
12MW-27D	4/28/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	<0.18	<0.22	<0.15	<1	<1	16	<0.18	3.9	<0.2	<0.21	<0.2	<0.15
12MW-27D	8/18/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	<0.18	<0.22	<0.15	9.6	<1.3	71	<0.18	4.3	<0.2	<0.21	<0.2	<0.15
12MW-27D	5/23/2005	<0.29	<0.21	<0.18	<0.17	<3.5	—	<0.22	<0.2	<0.23	<130	<130	3,700	<0.2	5.9	<0.21	<0.19	<0.28	<0.15
12MW-27D	6/21/2006	<0.19	<0.21	<0.21	0.18J	<6.6	—	<0.21	<0.2	<0.34	<0.4	<0.5	4,100	<0.3	3.5	<0.16	<0.17	<0.19	0.2J
12MW-27S	4/9/2003	<1.3	110	<1.7	290	53J	—	<1.5	<1.5	8.8	<0.5	<0.5	110	<2.1	2.4	<1.5	<1.7	18	4.6
12MW-27S	7/16/2003	<6.6	94	<8.5	400	<160	—	<7.3	<7.4	16J	<25	<25	190	<11	3.3	<7.7	<8.4	45	5.8J
12MW-27S	9/16/2003	<5.7	74	<5	380	<85	—	<5.6	<5.3	<5.4	<5	<5	180	<5.9	3.3	<4.5	<5.9	42	<4.4
12MW-27S	1/14/2004	<0.41	100	1.2	340	56	—	<0.28	<0.4	11	<10	<10	110	<0.29	2.6	<0.43	<0.36	25	4.5
12MW-27S	4/27/2004	<0.47	98	1.1J	380	55	—	<0.45	<0.55	14	<5	<5	140	<0.44	3.2	<0.51	<0.52	36	3.1
12MW-27S	8/18/2004	<0.66	120	1.3J	500	65	—	<0.73	<0.74	14	<50	<50	610	<1.1	3.7	<0.77	<0.84	36	6.1

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-27S	2/3/2005	<7.3	65	<4.6	330	<87	—	<5.5	<5	13J	—	—	—	<5	—	<5.2	<4.8	34	3.8J
12MW-27S	5/23/2005	<7.3	61	<4.6	380	<87	—	<5.5	<5	16J	<50	<50	1,100	<5	5	<5.2	12J	34	5.4J
12MW-27S	9/13/2005	<4.2	40	<3.3	240	<140	—	<4	<4.6	15	<0.5	<0.5	750	6.6J	3.8	<3.2	<4.1	25	<3.9
12MW-27S	1/31/2006	<5.2	53	<4.1	200	<170	—	<5.1	<5.8	13J	<0.5	<0.5	1,000	<6.2	—	<4	<5.2	17	<4.9
12MW-27S	6/21/2006	<3.7	50	<4.2	200	<130	—	<4.1	<4	16J	<0.4	<0.5	470	<6.1	5.1	<3.2	<3.4	18	4.3J
12MW-27S	9/12/2006	<3.7	54	<3.9	240	<150	—	<3.9	<4.1	18	<0.4	<0.5	530	<7.2	—	<3.2	<3.8	22	5.5J
12MW-27S	5/23/2007	<0.3	31.6	395	0.684J	—	—	<0.3	<0.25	22.3	<2	<2	2120	<2	2.91	0.282J	<0.25	40.7	4
12MW-27S	7/17/2007	<3	32.8	512	<2.5	—	—	<3	<2.5	30.1	<2	<2	2,570	<20	3.7	<2.5	<2.5	71.3	6.12J
12MW-27S	11/27/2007	<3	10.1	447	<2.5	—	—	<3	<2.5	18.6	<20	<20	1,510B	<20	3.5	<2.5	<2.5	78.8	<5
12MW-27S	5/5/2008	0.624J	24.7	2.03	761	—	—	<0.3	0.268J	37.7	<2	<2	1,930	<2	3.61	1.99	<0.25	165	5.76
12MW-28D	4/8/2003	<0.16	1.7	<0.14	4.2	<3.2	—	<0.11	<0.16	2.3	<0.5	<0.5	9.1	<0.12	1.7J	3.1	<0.14	7.6	<0.1
12MW-28D	7/15/2003	<0.66	7.5	<0.85	14	<16	—	<0.73	<0.74	9.7	<1	<1	13	<1.1	1.1J	10	<0.84	26	0.59J
12MW-28D	9/17/2003	<0.16	6.1	<0.14	12	<3.2	—	<0.11	<0.16	12	<5	<5	92	<0.12	2	6.7	<0.14	16	0.65
12MW-28D	1/12/2004	<0.27	8.6	<0.34	2.7	<6.4	—	<0.29	<0.3	20	<10	<10	430	<0.43	13	0.58J	<0.34	2.9	23
12MW-28D	4/26/2004	<0.66	5.7	<0.85	<1	<16	—	<0.73	<0.74	<1	<2.5	<2.5	1,100	<1.1	7.2	<0.77	<0.84	<0.62	40
12MW-28D	8/17/2004	<0.75	8.5	<0.86	<0.73	<13	—	<0.72	<0.88	<0.58	<500	<500	3,800	0.76J	3	<0.82	<0.84	<0.8	43
12MW-28D	5/25/2005	<1.2	6.9	<0.73	<0.68	<14	0.076	<0.87	<0.79	<0.94	<250	<250	5,700	<0.8	44	<0.84	<0.76	<1.1	55
12MW-28D	6/22/2006	<0.94	3.4J	<0.97	<0.76	<39	—	<0.98	<1	<0.95	<0.4	0.5J	3,800	<1.8	—	<0.81	<0.96	<1.5	59
12MW-28D	5/22/2007	<0.3	1.64	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	<2	<2	15,500	<2	—	<0.25	0.496J	<0.25	41.6
12MW-28D	7/16/2007	<0.3	1.2	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	—	—	—	<2	—	<0.25	0.309J	<0.25	21.7
12MW-28D	11/28/2007	<0.3	0.932J	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	<40	<40	5910	<2	—	<0.25	0.272J	<0.25	24.8
12MW-28S	4/9/2003	3,700	1,300J	<680	20,000	<13,000	<1	<580	<590	5,300	3.6	6.7	63	<850	5.2	5,300	<670	17,000	350J
12MW-28SR	4/9/2003	3,100	1,100J	<680	18,000	<13,000	—	<580	<590	4,800	3.6	6.5	77	<850	4.7	4,900	<670	16,000	290J
12MW-28S	7/17/2003	3,300	1,300	<280	15,000	<6,300	0.087	<230	<320	4,500	12	15	1,100	<230	<5	5,600	<290	15,000	<210
12MW-28SR	7/17/2003	3,200	1,200	<280	14,000	<6,300	—	<230	<320	4,400	12	15	1,200	<230	—	5,200	<290	14,000	<210
12MW-28S	9/15/2003	3,900	1,600	<280	16,000	<6,300	0.077	<230	<320	5,300	6.6	6.5	520	<230	<5	5,600	<290	15,000	<210
12MW-28SR	9/15/2003	3,900	1,600	<280	16,000	<6,300	—	<230	<320	5,600	7.1	6.7	310	<230	—	5,500	<290	15,000	<210
12MW-28S	1/14/2004	3,200	1,400	<34	12,000	<640	0.084	<29	<30	5,400	12	<10	280	<43	—	5,100	<34	12,000	280
12MW-28SR	1/14/2004	3,000	1,500	<340	11,000	<6,400	—	<290	<300	5,100	<10	<10	280	<430	—	4,700	<340	12,000	<110
12MW-28S	4/28/2004	3,100	1,600	<42	11,000	<800	<0.07	<36	<37	5,300	<25	<25	310	<53	<5	5,500	<42	12,000	290
12MW-28SR	4/28/2004	2,800	1,500	<340	10,000	<6,400	—	<290	<300	4,700	<25	<25	340	<430	—	5,200	<340	12,000	300J

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-28S	8/17/2004	3,000	1,700	<27	14,000	<400	<0.067	<23	<28	5,300	<25	<25	370	<22	2.5	5,200	<26	12,000	380
12MW-28SR	8/17/2004	3,100	2,000	<220	14,000	<3,200	—	<180	<220	5,100	<25	<25	360	<180	—	5,500	<210	13,000	360J
12MW-28S	2/2/2005	2,990	2,090	20	10,400	200	0.111	<1	<25	4,410	16J	19J	310	<25	<5	4,750	12.2	13,000	<200
12MW-28SR	2/2/2005	3,400	2,200	<230	13,000	<4,400	—	<270	<250	5,500	17J	18J	330	690J	—	7,400	<240	14,000	420J
12MW-28S	5/24/2005	4,800	3,500	<420	15,000	<8,000	<0.07M	<360	<370	6,000	16	7J	310	<530	7.5	7,900	<420	16,000	440J
12MW-28SR	5/24/2005	4,600	3,400	<420	15,000	<8,000	0.053JM	<360	<370	5,900	17	6.2J	310	<530	8.6	7,800	<420	16,000	410J
12MW-28S	9/13/2005	3,800	3,300	31J	17,000	<440	—	<27	<25	5,200	19	10	410	<25	—	7,200	<24	16,000	340
12MW-28SR	9/13/2005	3,600	3,100	<230	16,000	<4,400	—	<270	<250	4,900	<0.5	<0.5	1.5	<250	—	6,800	<240	15,000	380J
12MW-28S	1/31/2006	3,500	3,900	39J	15,000	<440	—	<27	<25	5,300	16	5.7	490	41J	—	8,600	<24	16,000	330
12MW-28SR	1/31/2006	3,600	4,000	<230	15,000	<4,400	—	<270	<250	5,300	16	5.8	540	<250	—	8,500	<240	16,000	400J
12MW-28S	6/20/2006	4,100	5,100	<240	20,000	140	—	<250	<260	4,800	25	7.9	720	520J	3.8	8,600	<240	17,000	430J
12MW-28SR	6/20/2006	4,200	5,100	<240	20,000	160	—	<250	<260	4,800	28	9	570	570J	3.4	8,500	<240	18,000	420J
12MW-28S	9/12/2006	3,800	5,900	<240	20,000	<9,600	—	<250	<260	4,000	9.6	3.4	610	<450	—	5,900	<240	12,000	370J
12MW-28SR	9/12/2006	4,100	6,300	<270	19,000	<8,200	—	<260	<250	4,100	7.4	2.4	720	<380	—	6,300	<210	14,000	380J
12MW-28S	5/22/2007	2,620	6,720	18,800	69.8	35.1J	—	<0.3	7.31	2,690	34.2	4.23J	3,340	<2	1.86	2,890	0.765J	6,890	281
12MW-28SR	5/22/2007	2,730	6,890	19,600	70.5	37.1J	—	<0.3	7.66	2,750	33.9	4.15J	3,520	<2	1.86	3,030	0.789J	7,080	297
12MW-28S	7/17/2007	2,520	6,480	15,100	<62.5	—	—	<75	<62.5	2,820	22.5J	4.87J	3,530	<500	—	3,350	<62.5	7,570	193J
12MW-28S	11/27/2007	1,530	4,100	11,200	<50	—	—	<60	<50	1,810	<40	<40	2,290B	<400	2.6	1,920	<50	4,890	<100
12MW-28S	5/6/2008	653	3,190	32.9J	5,980	—	—	<15	<12.5	1,710	12.3J	<2	4,680	<100	2.57	<12.5	<12.5	5,000	77.6
12MW-28SR	5/6/2008	569	2,890	31.4	5,360	—	—	<0.3	4.41	1,520	12.1J	<2	4,800	<2	2.52	1,110	0.825J	3,800	58.4J
12MW-29S	8/17/2004	19J	<9.8	<11	570	<160	<0.067	<9	<11	150	<5	<5	54	<8.8	1.3	24J	<10	4,400	12J
12MW-29SR	8/17/2004	<130	<150	<170	560J	<3,200	<0.067	<150	<150	<200	<5	<5	60	<210	1.3	<150	<170	4,900	<53
12MW-29SR	8/17/2004	4.35	3.93	0.755J	429	<25	—	<0.33	<0.36	134	—	—	—	4.20J	—	17.3	0.409J	3,900	2.6
12MW-29S	2/2/2005	36J	8.9J	<7.3	1,900	<140	—	<8.7	<7.9	260	<2	<2	40	130J	<0.54	170	<7.6	5,800	12J
12MW-29S	5/24/2005	<150	<100	<91	2,200	<1700	—	<110	<99	460	<2.5	<2.5	43	<100	1.8	600	<95	5,300	<73
12MW-29SR	5/24/2005	<150	<100	<91	2,300	<1,700	—	<110	<99	480	<2.5	<2.5	43	<100	5.2	620	<95	5,500	<73
12MW-29S	9/13/2005	24J	<10	<9.1	1,700	<170	—	<11	<9.9	720	<0.5	<0.5	60	<10	1.8	790	<9.5	4,700	44
12MW-29SR	9/13/2005	<100	<87	<82	1,600	<3500	—	<100	<120	640	<0.5	<0.5	24	200J	1.8	660	<100	4,500	<99
12MW-29S	1/31/2006	<150	<100	<91	1,200	<1,700	—	<110	<99	660	<0.5	<0.5	33	<100	—	740	<95	3,700	<73
12MW-29SR	1/31/2006	<0.29	<0.21	<0.18	1,200	<3.5	—	<0.22	<0.2	540	<0.5	<0.5	27	<0.2	—	690	<0.19	3,300	<0.15
12MW-29S	6/20/2006	<47	<48	<48	1,100	<1,900	—	<49	<52	590	<0.4	<0.5	60J	120J	2	380	<48	3,000	<49

Appendix 3. Concentrations of organic compounds measured in groundwater and surface water at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[111TCA, 1,1,1-trichloroethane; 11DCA, 1,1-dichloroethane; 12DCA, 1-2-dichloroethane; 11DCE, 1,1-dichloroethene; CF, chloroform; *c*DCE, *cis*-1,2-dichloroethene; Meth, methane; MC, methylene chloride; TOC, total organic carbon; PCE, tetrachloroethene; TCE, trichloroethene; VC, vinyl chloride; <, less than; —, data not measured; J, estimated; R, replicate sample; all concentrations are in micrograms per liter except for acetate and total organic carbon, which are in milligrams per liter; M, poor recovery in laboratory quality-control samples; B, analyte was detected in the associated laboratory blank; H, analyte holding time was exceeded]

Site identification	Sample date	111TCA	11DCA	12DCA	11DCE	1,4-Dioxane	Acetate	Benzene	CF	*c*DCE	Ethane	Ethene	Meth	MC	TOC	PCE	Toluene	TCE	VC
12MW-29SR	6/20/2006	<19	<19	<19	1,100	<770	—	<20	<21	620	<0.4	<0.5	40	<36	1.2J	440	<19	3,100	41J
12MW-29S	9/11/2006	<47	<48	<48	1,200	<1,900	—	<49	<52	520	<0.4	6.4	41	<90	—	250	<48	2,800	<49
12MW-29SR	9/11/2006	<47	<48	<48	1,100	<1,900	—	<49	<52	510	<0.4	<0.5	34	<90	—	220	<48	2,700	<49
12MW-29S	5/22/2007	<12	27.7J	1220	<10	—	—	<12	<10	226	<2	<2	64.5	<80	1.13	111	<10	1,950	<20
12MW-29SR	5/22/2007	2.17	27.4	1,230	2.27	—	—	<0.3	0.565J	221	<2	<2	65.7	<2	1.18	97.1	0.544J	1,980	10.6
12MW-29S	7/17/2007	<7.5	32.1	1280	<6.25	—	—	<7.5	<6.25	233	<2	<2	77.2	<50	1.82	131	<6.25	2,200	<12.5
12MW-29S	11/27/2007	<7.5	21.5J	960	<6.25	—	—	<7.5	<6.25	121	<2	<2	34.6B	<50	1.33	68.9	<6.25	1,320	<12.5
12MW-29S	5/6/2008	<3	21.3	<2.5	563	—	—	<3	<2.5	112	<2	<2	71.6	<20	1.83	32.1	<2.5	898	<5
12MW-30S	8/18/2004	18J	<9.8	<11	440	<160	<0.067	<9	<11	110	<5	<5	52	<8.8	1.6	53	<10	3,800	<7.7
12MW-30SR	8/18/2004	<94	<98	<110	470	<1,600	0.078J	<90	<110	100J	<5	<5	47	<88	1.5	<100	<100	3,700	<77
12MW-30S	5/24/2005	<120	<84	<73	1,200	<1,400	—	<87	<79	270J	<1	<1	27	<80	3.3	200J	<76	2,600	<58
12MW-30S	9/13/2005	14J	5.8J	<4.6	1,200	<87	—	<5.5	<5	330	<0.5	<0.5	33	<5	2.1	350	<4.8	3,000	24
12PZ-03D	8/19/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	<0.18	<0.22	<0.15	<20	<20	180	<0.18	—	<0.2	<0.21	<0.2	<0.15
12PZ-03D	2/1/2005	<0.29	<0.21	<0.18	<0.17	<3.5	—	<0.22	<0.2	<0.23	—	—	—	<0.2	—	<0.21	<0.19	<0.28	<0.15
12PZ-03D	5/23/2005	<0.29	<0.21	<0.18	<0.17	<3.5	—	<0.22	<0.2	<0.23	—	—	—	<0.2	—	<0.21	<0.19	<0.28	<0.15
12PZ-03D	1/31/2006	<0.21	<0.17	<0.16	<0.2	<7	—	<0.2	<0.23	<0.18	—	—	—	<0.25	—	<0.16	<0.21	<0.19	<0.2
12PZ-03D	6/22/2006	<0.19	<0.21	<0.21	<0.14	<6.6	—	<0.21	<0.2	<0.34	—	—	—	<0.3	—	<0.16	<0.17	<0.19	<0.17
12PZ-03D	5/21/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	—	—	—	<2	—	<0.25	<0.25	<0.25	<0.5
12PZ-03D	11/28/2007	<0.3	<0.3	<0.3	<0.25	—	—	<0.3	<0.25	<0.3	<2	<2	119	<2	—	<0.25	<0.25	<0.25	<0.5
12PZ-03S	8/19/2004	<0.19	<0.2	<0.22	<0.18	<3.2	—	<0.18	<0.22	<0.15	—	—	—	<0.18	—	<0.2	<0.21	<0.2	<0.15
East Marsh Site 1	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	—	—	—	<0.43	—	<0.31	<0.34	<0.25	<0.11
East Marsh Site 2	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	—	—	—	<0.43	—	<0.31	<0.34	<0.25	<0.11
East Marsh Site 3	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	—	—	—	<0.43	—	<0.31	<0.34	<0.25	<0.11
North Marsh Site 1	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	—	—	—	<0.43	—	<0.31	0.44J	<0.25	<0.11
North Marsh Site 2	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	—	—	—	<0.43	—	<0.31	<0.34	<0.25	<0.11
North Marsh Site 3	8/16/2004	<0.27	<0.3	<0.34	<0.41	<6.4	—	<0.29	<0.3	<0.4	—	—	—	<0.43	—	<0.31	<0.34	<0.25	<0.11

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-01S	1/30/2006	—	—	—	—	—	—	<0.05	—	—	2.5	4.9	—	—	95	—	—	18.3	—
12MW-02D	8/30/2000	—	—	—	28	—	—	1.5	—	78	0.1	6.9	—	—	841	1.7	<0.05	22.1	—
12MW-02D	11/29/2000	175	—	42	22	180	—	1.5	8.5	110	0.5	7.2	5.3	130	1,100	5.4	<0.05	20.4	—
12MW-02D	2/27/2001	175	—	35	20	130	—	0.30	5.6	45	1.5	6.9	5.2	150	951	<5.0	<0.05	20.2	—
12MW-02D	5/15/2001	150	—	50	15	190	—	1.0	10	140	0.8	7.0	5.7	150	1,160	<10	<0.05	20.9	—
12MW-02D	8/29/2001	200	—	39	25	170	—	0.15	7.7	96	0.3	6.9	4.6	140	1,060	<5.0	<0.05	22.8	—
12MW-02D	12/3/2001	200	<4.0	46	18	200	—	2.5	9.0	110	0.2	7.2	4.5	140	1,190	<10	<0.05	20.2	—
12MW-02D	2/27/2002	150	<2.0	43	13	190	—	0.40	8.6	73	0.8	7.1	5.2	170	1,030	<5.0	<0.05	14.4	—
12MW-02D	6/10/2002	225	0.74	45	19	210	—	1.0	9.3	110	0.3	7.0	6	170	1,210	<10	<0.05	23.1	—
12MW-02D	9/9/2002	178	<2.0	45	23	95	—	0.35	5.3	41	0.7	6.9	2.5	93.0	783	11	<0.05	24.8	—
12MW-02D	1/8/2003	200	<1.6	33	23	130	0.20	0.85	6.0	75	0.5	6.9	4.5	150	978	4.3	<0.05	19.8	—
12MW-02D	4/9/2003	210	<1.6	32	24	110	—	<0.05	5.1	50	0.3	7.1	4	130	820	6.0	<0.05	18.3	—
12MW-02D	7/16/2003	225	<1.0	40	28	180	—	<0.05	8.0	100	0.2	7.0	<0.48	150	1,050	5.3	0.80	23.4	—
12MW-02D	8/16/2004	200	—	—	18	120	—	0.20	—	—	0.5	5.5	—	—	1,110	2.8J	<0.05	22.0	19.2
12MW-02D	5/23/2005	175	—	33	20	140	—	1.0	6.6	79	0.2	7.0	4.8	150	908	2.5J	<0.05	21.9	2.4
12MW-02D	6/20/2006	185	—	—	23	120	—	0.60	—	—	0.2	7.0	—	—	821	3.0	<.05	22.6	—
12MW-02S	8/30/2000	—	—	—	250	—	—	0.50	—	<15	0.5	4.8	—	—	80.6	9.1	<0.05	24.1	—
12MW-02S	11/29/2000	<50	—	0.76	70	9.9	—	<0.05	0.49	7.4	0.7	5.1	<0.41	13.0	76.0	14	<0.05	21.0	—
12MW-02S	2/27/2001	<10	—	0.76	100	11	—	0.10	0.47	6.4	0.9	4.9	<0.54	12.0	77.0	12	<0.05	18.5	—
12MW-02S	5/15/2001	110	—	0.72	95	10	—	<0.05	0.48	5.8	1.6	5.0	<0.54	11.0	87.4	11	<0.05	22.2	—
12MW-02S	8/29/2001	<10	—	0.39	85	<5.0	—	0.10	0.38	3.9	0.5	4.8	<0.54	7.6	50.0	8.5	<0.05	23.9	—
12MW-02S	12/3/2001	<10	<0.20	0.51	60	9.1	0.30	0.10	0.39	3.6	0.9	4.8	<0.54	11.0	63.6	12	<0.05	20.7	—
12MW-02S	2/27/2002	<10	<0.20	0.39	24	5.2	—	<0.05	0.47	4.3	2.5	4.9	<0.54	9.9	49	10	<0.05	13.8	—
12MW-02S	6/10/2002	<10	<0.50	<0.3	80	8.0	0.82	0.10	0.38	3.2	0.3	4.6	<0.39	11.0	54	11	<0.05	23.2	—
12MW-02S	9/9/2002	<10	<0.20	0.48	70	8.1	—	0.10	0.62	6.5	0.9	4.8	<0.39	11.0	61.8	9.9	<0.05	24.9	—
12MW-02S	1/8/2003	<10	<0.20	0.57	35	14	0.10	0.05	0.59	6.9	1.0	5.1	0.51J	15.0	77.8	15	<0.05	18.3	—
12MW-02S	4/9/2003	<10	<0.20	0.95	50	15	4.7	0.40	0.79	27	0.3	4.7	<0.48	19.0	99.5	14	<0.05	16.9	—
12MW-02S	7/15/2003	<10	<0.20	0.65	80	13	2.9	0.30	0.49	6.5	0.2	5.0	<0.48	12.0	77.0	11	<0.05	24.0	—
12MW-02S	9/17/2003	<10	—	0.6	160	15	14	0.50	0.48	4.4	0.2	5.0	<0.48	14.0	78.8	10	<0.05	25.1	8.3
12MW-02S	1/14/2004	<10	—	0.49	100	13	—	<0.05	0.44	4	1.5	5.1	<0.48	8.90	67.6	8.9	<0.05	18.6	7
12MW-02S	4/28/2004	<10	—	1.4	120	28	—	0.10	1.1	9.2	0.2	4.8	<0.53	19.0	87.9	13	<0.05	18.1	212

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-02S	8/16/2004	<10	—	<0.15	70	4.7	—	<0.05	0.30	1.8J	1.5	4.8	<0.53	8.1	54.5	9.0	—	24.4	3.4
12MW-02S	2/2/2005	<10	—	0.17J	50	4.4	—	0.10	0.44	—	2.0	5.2	0.57J	9.2	68.7	9.8	<0.05	16.8	23.3
12MW-02S	5/23/2005	<10	—	0.22J	50	4.0	—	<0.05	0.30	2.2	2.0	4.9	<0.36	8.7	50.2	10	<0.05	21.4	3.3
12MW-02S	9/12/2005	<10	—	0.18J	120	5.1	—	<0.05	0.32	1.9J	0.3	4.7	<0.36	9.6	53.9	11	<0.05	24.7	—
12MW-02S	1/30/2006	—	—	—	—	8.6	—	<0.05	—	—	0.7	4.9	—	—	74.0	10	—	19.3	—
12MW-02S	6/20/2006	<10	—	—	95	5.0	—	<0.05	—	—	3.0	4.8	—	—	54.0	11	<0.05	23.6	—
12MW-02S	9/11/2006	<10	—	—	120	7.6	—	<0.05	—	—	2.0	4.4	—	—	56.0	9.0	<0.05	25.2	—
12MW-02S	5/21/2007	<10	—	—	120	9.7	—	<0.05	—	—	0.3	4.7	—	—	247	8.9	<0.05	22.2	—
12MW-02S	11/28/2007	<10	—	0.24	150	10	—	0.07	0.58	3.1J	1.0	5.1	0.372	12.6	80	9.4	0.08	22.6	—
12MW-03D	8/30/2000	—	—	—	21	—	—	1.5	—	84	0.2	7.0	—	—	748	<1.0	<0.05	24.0	—
12MW-03D	11/30/2000	225	—	33	13	110	—	1.5	6.5	80	0.6	7.1	5.2	—	714	<5.0	<0.05	17.9	—
12MW-03D	2/27/2001	150	—	30	18	97	—	0.50	6.0	70	0.6	7.0	4.7	110	682	<5.0	<0.05	19.3	—
12MW-03D	5/15/2001	155	—	34	18	110	—	0.50	6.7	120	0.9	7.0	4.9	100	736	<5.0	<0.05	22.0	—
12MW-03D	8/29/2001	170	—	39	15	120	—	1.0	7.6	89	0.2	7.0	5.2	100	816	<5.0	<0.05	22.7	—
12MW-03D	12/4/2001	175	<2.0	43	17	150	0.20	1.5	8.8	100	0.2	7.2	6.1	110	963	<5.0	0.15	21.5	—
12MW-03D	2/27/2002	200	<1.0	33	10	110	—	0.80	7.0	72	0.8	7.2	5.5	110	768	2.6	<0.05	17.8	—
12MW-03D	6/11/2002	250	0.62	40	16	140	0.15	1.0	7.8	94	0.3	7.0	6.1	120	899	<5.0	<0.05	23.2	—
12MW-03D	9/10/2002	200	<1.0	29	19	110	—	1.5	6.3	77	0.05	7.1	5.1	100	748	<2.5	<0.05	23.7	—
12MW-03D	1/9/2003	200	<0.80	26	20	76	0.10	0.10	5.1	46	0.8	7.0	4.7	100	627	2.7	<0.05	18.6	—
12MW-03D	4/9/2003	160	<0.60	27	15	61	—	0.15	5.2	83	0.3	7.1	4.4	98.0	612	3.0	<0.05	18.5	—
12MW-03D	7/15/2003	150	<0.50	28	22	81	—	0.60	5.6	100	0.1	7.0	4.2	92.0	659	2.5J	<0.05	22.2	—
12MW-03D	8/16/2004	150	—	—	14	57	—	1.0	—	—	0.1	7.0	—	—	608	3.2	<0.05	22.7	—
12MW-03D	5/25/2005	50	—	33	13	110	—	0.20	6.6	76	0.2	7.7	5.1	110	742	3.4	<0.05	20.5	—
12MW-03D	6/21/2006	140	—	—	19	110	—	0.20	—	—	0.1	7.1	—	—	749	2.1J	<0.05	23.7	—
12MW-03D	5/21/2007	160	—	—	21	120	—	0.20	—	—	0.05	7.0	—	—	954	2.4	<0.05	21.4	—
12MW-03D	5/6/2008	190	—	—	28	77	—	0.17	—	—	<0.05	7.1	—	—	632	1.6	0.048	21.2	—
12MW-03S	8/30/2000	—	—	—	250	—	—	7.0	—	<15	0.05	5.3	—	—	331	4.7	<0.05	25.5	—
12MW-03SR	8/30/2000	—	—	—	—	—	—	—	—	<15	—	—	—	—	—	4.7	—	—	—
12MW-03S	11/30/2000	<50	—	4.9	60	110	—	15	3.7	30	0.3	5.3	0.67J	—	416	5.3	<0.05	17.4	—
12MW-03S	2/27/2001	<10	—	1.2	140	62	—	2.0	2.0	7	0.4	4.4	<0.54	37.0	241	5.4	<0.05	17.3	—
12MW-03SR	2/27/2001	—	—	0.5	—	59	—	—	1.7	6.8	—	—	<0.54	38.0	—	5.3	—	—	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-03S	5/15/2001	<10	—	17	250	210	—	16	12	100	0.2	4.8	0.9J	87.0	733	<10	<0.05	26.6	—
12MW-03S	8/29/2001	<10	—	28	250	260	—	17	16	150	—	4.7	1.4J	95.0	880	<10	<0.05	24.0	—
12MW-03SR	8/29/2001	—	—	28	—	270	—	—	16	150	—	—	1.3J	93.0	—	<10	—	—	—
12MW-03S	12/5/2001	<10	<5.0	40	320	400	1.6	32	25	220	<0.05	4.7	2.3	130	1,310	<13	<0.05	22.5	—
12MW-03SR	12/5/2001	—	<5.0	40	—	410	—	—	25	220	—	—	2.3	120	—	<13	—	—	—
12MW-03S	2/27/2002	<10	<1.0	2.1	160	110	—	3.0	4.0	18	<0.05	4.4	<0.54	55.0	372	3.8	<0.05	16.9	—
12MW-03SR	2/27/2002	—	<1.0	2.1	—	110	—	—	4.0	17	—	—	<0.54	54.0	—	5.2	—	—	—
12MW-03S	6/11/2002	<10	0.98	24	250	230	33	14	14	130	<0.05	4.8	1.8	95.0	822	<10	<0.05	23.1	—
12MW-03SR	6/11/2002	—	0.77	23	—	200	—	—	14	130	—	—	1.8	92.0	—	<10	—	—	—
12MW-03S	9/10/2002	<10	<1.0	8.3	220	160	7.0	6.0	6.4	57	0.05	4.5	0.66J	64.0	367	3.1	<0.05	25.9	—
12MW-03SR	9/10/2002	—	<1.0	8.6	—	170	—	—	6.6	62	—	—	0.79J	63.0	—	2.9	—	—	—
12MW-03S	1/9/2003	<10	<1.6	2.3	190	130	0.20	5.4	3.1	16	0.2	4.2	0.44J	51.0	311	<4.0	<0.05	17.5	—
12MW-03SR	1/9/2003	—	<1.6	2.5	—	130	—	—	3.2	16	—	—	0.52J	51.0	—	5.4	—	—	—
12MW-03S	4/10/2003	38	<20	9.8	60	170	25	38	6.9	56	0.1	5.2	0.7J	62.0	590	<5.0	0.15	16.4	—
12MW-03SR	4/10/2003	—	<20	9.3	—	170	24	—	6.6	53	—	—	0.49J	66.0	—	<5.0	—	—	—
12MW-03S	7/17/2003	<10	<0.50	2.5	160	93	3.6	9.0	2.7	16	<0.05	4.9	<0.48	39.0	213	3.2	0.25	23.4	—
12MW-03SR	7/17/2003	—	<0.50	2.5	—	94	—	—	2.7	17	—	—	<0.48	38.0	—	3.5	—	—	—
12MW-03S	9/16/2003	<10	—	2.6	160	80	3.0	5.0	2.5	17	0.2	5.0	<0.48	39.0	198	3.8	0.05	24.5	29.4
12MW-03S	1/14/2004	<10	—	1.0	140	62	4.0	1.0	2.0	8.3	0.2	4.4	<0.48	28.0	234	8.0	<0.05	19.2	4.9
12MW-03S	4/27/2004	<10	—	8.6	180	110	71	10	5.7	49	<0.05	5.1	1.2J	43.0	385	6.7	<0.05	18.1	—
12MW-03S	8/18/2004	<10	—	0.38	170	33	1.2	3.7	1.2	4.7	0.05	4.6	<0.53	26.0	144	13	0.05	25.5	11.2
12MW-03S	2/2/2005	<10	—	2.4	120	44	1.6	4.0	2.1	—	0.05	4.9	<0.53	29.0	198	13	<0.05	19.1	0
12MW-03S	5/24/2005	<10	—	0.30	140	27	1.6	1.8	0.74	2.8	0.1	5.0	<0.36	22.0	162	19	—	20.6	7.7
12MW-03S	9/13/2005	<10	—	0.46	35	19	—	2.0	0.65	2.7	0.2	5.2	<0.36	19.0	139	18	<0.05	24.2	8.9
12MW-03S	1/31/2006	—	—	—	—	21	—	0.35	—	—	0.2	4.8	—	—	149	18	—	19.5	5.1
12MW-03S	6/21/2006	<10	—	—	110	13	—	0.90	—	—	0.1	5.0	—	—	123	23	<0.05	23.4	—
12MW-03S	9/12/2006	<10	—	—	45	11	—	0.10	—	—	0.2	4.7	—	—	112	23	<0.05	23.0	—
12MW-03S	5/21/2007	<10	—	—	70	17	—	<0.05	—	—	0.3	4.7	—	—	329	20	<0.05	20.4	—
12MW-03S	7/16/2007	<10	—	—	90	7.7	—	<0.05	—	—	3.0	4.7	—	—	103	24	<0.05	22.3	—
12MW-03S	11/27/2007	<10	—	—	30	7.1	—	<1.0	—	—	0.2	4.4	—	—	106	23	0.042	20.6	—
12MW-03S	5/6/2008	<10	—	—	20	8.8	—	<0.05	—	—	0.1	4.8	—	—	105	23	0.08	19.5	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-04D	8/28/2000	—	—	—	—	—	—	0.90	—	99	0.2	7.1	—	—	632	2.8	<0.05	27.0	—
12MW-04D	11/28/2000	200	—	41	14	79	—	2.0	8.0	110	0.3	7.1	7.5	100	749	<5.0	<0.05	23.5	—
12MW-04D	2/26/2001	145	—	36	<10	67	—	0.35	5.4	58	0.7	8.3	6.4	75.0	571	<5.0	<0.05	22.4	—
12MW-04D	5/14/2001	110	—	43	12	88	—	0.20	8.7	97	0.9	7.1	6.8	86.0	730	<5.0	—	23.5	—
12MW-04D	8/27/2001	150	—	46	17	84	—	0.90	9.2	120	0.2	7.2	6.7	79.0	633	<5.0	<0.05	25.2	—
12MW-04D	12/3/2001	200	<1.0	49	15	92	—	1.5	10	120	0.1	7.4	6.2	84.0	791	<5.0	<0.05	21.8	—
12MW-04D	2/26/2002	180	<1.0	44	10	81	—	0.70	8.5	100	0.5	7.1	6.6	94.0	721	<2.5	<0.05	21.7	—
12MW-04D	6/11/2002	225	<0.50	40	16	98	—	0.90	7.8	110	0.5	7.1	7.1	100	781	<5.0	<0.05	23.4	—
12MW-04D	9/9/2002	225	<0.40	43	20	63	—	1.5	8.1	120	0.05	7.0	5.9	75.0	669	<1.0	<0.05	26.3	—
12MW-04D	1/7/2003	200	<0.40	40	18	40	—	1.0	7.1	88	0.7	7.2	5.0	60.0	531	3.4	<0.05	20.3	—
12MW-04D	4/7/2003	100	<0.60	36	18	45	—	<0.05	6.9	30	0.05	7.7	5.4	58.0	479	4.9	<0.05	21.8	—
12MW-04D	7/14/2003	210	0.31J	47	15	69	—	0.60	9.3	120	0.2	7.0	5.0	61.0	682	1.4J	<0.05	24.6	—
12MW-04D	8/18/2004	200	—	—	23	51	—	0.80	—	—	<0.05	6.8	—	—	555	2.1	<0.05	23.0	6
12MW-04S	8/28/2000	—	—	—	—	—	—	3.5	—	43	0.3	4.2	—	—	138	8.8	<0.05	27.9	—
12MW-04S	11/28/2000	<50	—	0.31	300	22	—	1.5	0.96	44	0.4	4.6	<0.41	23.0	144	14	<0.05	22.8	—
12MW-04S	2/26/2001	<10	—	<0.30	270	19	—	3.0	0.89	45	0.3	5.3	<0.54	19.0	80	14	—	18.4	—
12MW-04S	5/14/2001	<10	—	0.44	250	19	—	0.25	0.86	41	2.5	4.4	<0.54	19.0	129	12	<0.05	23.0	—
12MW-04S	8/27/2001	<10	—	0.30	320	17	—	0.15	0.84	37	0.6	4.4	<0.54	18.0	132	12	<0.05	28.4	—
12MW-04S	12/3/2001	<10	0.68	<0.30	300	16	0.20	<0.05	0.81	34	0.3	4.5	<0.54	18.0	120	15	<0.05	22.4	—
12MW-04S	2/26/2002	<10	0.68	<0.30	300	16	—	0.35	0.83	37	1.0	4.7	<0.54	21.0	121	17	<0.05	19.9	—
12MW-04S	6/11/2002	<10	0.74	<0.30	320	17	0.40	0.05	0.67	32	3.5	4.5	<0.39	21.0	125	15	<0.05	24.0	—
12MW-04S	9/9/2002	<10	0.45	<0.30	260	14	—	2.5	0.67	29	0.3	4.5	<0.39	19.0	124	14	<0.05	28.7	—
12MW-04S	1/7/2003	<10	0.61	<0.30	250	17	—	3.1	0.73	36	0.2	4.7	<0.39	22.0	132	18	<0.05	17.7	—
12MW-04S	4/7/2003	<10	0.67	<0.30	300	16	—	3.5	0.73	41	0.1	4.8	<0.48	20.0	130	16	<0.05	20.4	—
12MW-04S	7/14/2003	<10	0.67	0.26J	300	15	—	1.5	0.63	39	0.3	4.3	<0.48	13.0	113	17	<0.05	25.9	—
12MW-04S	9/16/2003	<10	—	0.24J	270	14	—	3.0	0.63	27	0.2	4.6	<0.48	18.0	123	16	<0.05	26.7	13
12MW-04S	1/12/2004	<10	—	0.78	200	17	—	0.70	0.80	38	0.3	4.4	<0.48	16.0	124	16	<0.05	18.8	32.6
12MW-04S	4/26/2004	<10	—	0.15J	220	14	—	2.5	0.75	39	0.8	4.5	<0.53	15.0	118	21	<0.05	20.5	48.4
12MW-04S	8/18/2004	<10	—	9.1	220	12	—	0.80	0.80	25	0.2	4.6	1.0J	18.0	170	29	<0.05	25.3	54.1
12MW-04S	2/1/2005	<10	—	0.27J	220	12	—	1.0	0.85	—	0.7	4.8	<0.53	18.0	126	18	<0.05	19.3	27.6
12MW-04S	5/23/2005	<10	—	0.36	300	13	—	0.50	0.68	36	0.3	4.6	<0.36	16.0	117	18	<0.05	24.0	19.2

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-04S	9/12/2005	<10	—	0.40	260	12	—	4.5	0.62	26	0.2	4.7	<0.36	16.0	127	18	<0.05	27.2	—
12MW-04S	1/30/2006	—	—	—	—	9.7	—	2.5	—	—	0.2	4.8	—	—	125	20	—	19.8	—
12MW-04S	6/21/2006	<10	—	—	250	11	—	1.0	—	—	0.2	4.6	—	—	140	56	<0.05	26.0	—
12MW-04S	9/11/2006	<10	—	—	300	16	—	4.0	—	—	0.2	4.7	—	—	125	19	<0.05	28.9	—
12MW-04S	5/22/2007	<10	—	—	250	9.2	—	1.0	—	—	0.2	4.7	—	—	112	19	<0.05	22.9	—
12MW-04S	11/28/2007	<10	—	0.20	30	9.8	—	1.6	0.60	26	0.1	5.5	0.19	20.0	129	19	0.14	22.8	—
12MW-05D	8/30/2000	—	—	—	19	—	—	0.50	—	84	0.6	7.3	—	—	1,240	11	<0.05	21.5	—
12MW-05D	11/30/2000	250	—	41	15	180	—	1.0	9.7	73	0.6	7.3	12	—	1,390	13	<0.05	17.8	—
12MW-05D	2/28/2001	350	—	46	22	180	—	0.50	11	91	0.4	7.2	12	210	1,300	7.6	0.80	17.0	—
12MW-05D	5/15/2001	250	—	43	18	92	—	0.50	9.8	80	0.3	7.4	9.9	200	1,290	8.2	0.35	20.2	—
12MW-05D	8/28/2001	350	—	39	17	—	—	0.40	9.4	63	0.8	7.3	11	220	1,280	—	0.40	22.2	—
12MW-05D	12/4/2001	350	<2.0	35	18	130	0.50	0.90	9.0	58	0.3	7.5	10	210	1,220	<5.0	0.10	20.0	—
12MW-05D	2/28/2002	300	<1.0	33	11	150	—	0.70	8.8	48	0.8	7.2	11	230	1,170	14	0.10	12.3	—
12MW-05D	6/11/2002	375	0.65	32	13	130	—	0.50	7.8	41	0.2	7.3	11	230	1,170	14	<0.05	22.6	—
12MW-05D	9/10/2002	375	<2.0	31	18	130	—	0.70	7.8	47	0.3	7.4	9.6	210	1,300	12	0.05	21.8	—
12MW-05D	1/8/2003	300	<2.0	39	18	170	0.30	0.60	9.0	68	0.2	7.4	11	220	1,250	13	<0.05	18.0	—
12MW-05D	4/7/2003	325	<1.6	42	18	180	—	0.80	9.7	78	0.2	7.8	12	210	1,230	10	<0.05	19.2	—
12MW-05I	8/30/2000	—	—	—	19	—	—	0.70	—	49	0.4	7.0	—	—	637	1.1	<0.05	20.9	—
12MW-05I	11/30/2000	120	—	17	13	100	—	1.0	3.5	42	0.6	7.2	3.3	—	634	<5.0	<0.05	18.6	—
12MW-05I	2/28/2001	120	—	15	16	93	—	0.15	3.3	40	0.4	6.9	3.2	100	597	<5.0	<0.05	17.9	—
12MW-05I	5/16/2001	100	—	16	16	98	—	0.40	3.4	46	0.8	6.8	3.0	97.0	618	5.9	<0.05	18.9	—
12MW-05I	8/29/2001	125	—	20	20	120	—	0.70	4.0	48	0.05	6.9	3.4	110	665	<5.0	<0.05	21.7	—
12MW-05I	12/4/2001	150	<2.0	22	16	130	1.5	1.5	4.4	53	0.05	7.0	3.7	110	760	<5.0	<0.05	20.2	—
12MW-05I	2/27/2002	150	<1.0	22	10	130	—	0.50	4.9	55	0.6	7.2	4.0	130	773	4.7	<0.05	15.1	—
12MW-05I	6/11/2002	137	0.64	24	15	150	—	0.50	4.7	55	0.2	6.9	4.1	130	826	5.5	<0.05	22.6	—
12MW-05I	9/10/2002	110	<1.0	18	18	130	—	0.60	4.0	47	0.05	7.0	3.3	120	740	2.9	<0.05	21.2	—
12MW-05I	1/8/2003	140	<1.0	13	18	87	0.30	3.0	2.7	32	0.7	6.9	3.1	97.0	562	<2.5	<0.05	17.2	—
12MW-05I	4/7/2003	—	<1.0	14	—	92	1.5	—	3.1	48	—	6.8	2.9	98.0	570	<2.5	—	19.2	—
12MW-05I	7/14/2003	<10	<0.50	16	15	100	7.2	0.50	3.4	44	0.2	6.6	2.7	89.0	617	1.9J	<0.05	20.3	—
12MW-05I	8/18/2004	100	—	—	17	110	—	0.40	—	—	<0.05	6.9	—	—	678	2.3J	<0.05	21.0	—
12MW-05I	5/25/2005	110	—	19	10	110	—	<0.05	3.8	51	0.2	7.1	3.4	120	666	2.2	<0.05	18.5	—
12MW-05I	6/22/2006	125	—	—	18	120	—	0.40	—	—	0.1	6.8	—	—	695	3.1	<0.05	20.8	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-05S	8/30/2000	—	—	—	260	—	—	3.5	—	34	0.2	5.3	—	—	578	2.8	<0.05	21.7	—
12MW-05S	11/30/2000	<50	—	8.1	100	130	—	2.0	4.4	40	0.3	5.3	1.4J	—	527	5.5	<0.05	18.9	—
12MW-05SR	11/30/2000	—	—	8.3	—	130	—	—	4.5	41	—	—	1.5J	—	—	5.6	—	—	—
12MW-05S	2/28/2001	25	—	9.0	90	120	—	0.90	4.6	35	0.6	5.4	1.5J	85.0	500	<5.0	<0.05	16.5	—
12MW-05SR	2/28/2001	—	—	9.0	—	120	—	—	4.5	35	—	—	1.8J	83.0	—	<5.0	—	—	—
12MW-05S	5/16/2001	19	—	8.8	200	130	—	4.5	4.5	32	0.4	5.3	1.2J	73.0	529	<5.0	<0.05	18.4	—
12MW-05SR	5/16/2001	—	—	8.5	—	130	—	—	4.4	32	—	—	1.3J	71.0	—	<5.0	—	—	—
12MW-05S	8/29/2001	<10	—	9.2	220	140	—	3.5	4.8	34	0.1	5.2	1.3J	75.0	543	<5.0	<0.05	22.4	—
12MW-05SR	8/29/2001	—	—	9.5	—	140	—	—	4.9	35	—	—	1.4J	73.0	—	<5.0	—	—	—
12MW-05S	12/4/2001	<10	<2.0	7.4	250	130	5.5	2.5	4.3	30	0.2	5.2	1.1J	67.0	526	<5.0	<0.05	20.0	—
12MW-05SR	12/4/2001	—	<2.0	7.3	—	110	—	—	4.2	29	—	—	1.3J	68.0	—	<5.0	—	—	—
12MW-05S	2/28/2002	<10	<1.0	7.9	120	120	—	1.5	4.6	31	0.7	5.8	1.3J	78.0	505	<5.0	<0.05	12.9	—
12MW-05S	6/11/2002	<10	1.1	7.3	250	130	—	2.5	4.1	28	0.1	5.1	1.3J	76.0	529	<5.0	<0.05	21.4	—
12MW-05SR	6/11/2002	—	1.2	7.5	—	120	—	—	4.1	28	—	—	1.3J	77.0	—	<5.0	—	—	—
12MW-05S	9/10/2002	<10	<1.0	6.4	270	130	0.62	2.5	4.0	28	0.3	5.0	1.2J	74.0	546	3.0	<0.05	22.0	—
12MW-05SR	9/10/2002	—	<1.0	6.3	—	120	—	—	3.8	27	—	—	1.1J	74.0	—	2.8	—	—	—
12MW-05S	1/8/2003	<10	<1.6	6.6	160	120	3.7	1.5	3.9	25	0.3	5.2	1.1J	77.0	493	4.0	<0.05	16.3	—
12MW-05SR	1/8/2003	—	<1.6	6.5	—	130	—	—	4.0	25	—	—	1.2J	77.0	—	4.6	—	—	—
12MW-05S	4/10/2003	<10	<1.6	6.0	180	120	3.1	2.5	3.7	22	0.3	5.1	1.1J	75.0	473	5.3	<0.05	15.9	—
12MW-05SR	4/10/2003	—	1.8	6.0	—	120	—	—	3.7	23	—	—	0.96J	66.0	—	4.2	—	—	—
12MW-05S	7/17/2003	<10	<0.8	6.6	170	130	8.4	2.5	3.9	25	<0.05	5.4	0.91J	69.0	489	4.5	<0.05	21.5	—
12MW-05SR	7/17/2003	—	1J	7.3	—	130	—	—	4.0	25	—	—	1.1J	65.0	—	5.1	—	—	—
12MW-05S	9/16/2003	<10	—	5.7	—	110	2.7	2.0	3.5	22	0.2	4.9	1.3J	71.0	459	4.4	<0.05	20.9	1.9
12MW-05SR	9/16/2003	—	—	5.7	—	110	—	—	3.4	21	—	—	1.2J	72.0	—	4.0	—	—	—
12MW-05S	1/14/2004	<10	—	6.2	40	120	2.0	1.0	3.4	25	0.4	5.1	1.3J	56.0	464	3.7J	<0.05	17.5	3.9
12MW-05SR	1/14/2004	—	—	6.1	—	120	—	—	3.4	25	—	—	1.4J	55.0	—	4.0J	—	—	—
12MW-05S	4/27/2004	<10	—	—	130	—	3.0	2.0	—	—	<0.05	5.3	—	—	470	—	<0.05	17.8	—
12MW-05SR	4/27/2004	—	—	5.6	—	110	—	—	3.5	21	—	—	1.7J	57.0	—	5.0	—	—	—
12MW-05S	8/18/2004	—	—	6.0	<10	110	1.8	1.5	3.7	23	0.3	5.0	<0.53	26.0	450	4.2	<0.05	21.7	2.7
12MW-05SR	8/18/2004	—	—	6.1	—	110	—	—	3.7	23	—	—	1.9	67.0	—	4.9	—	—	—
12MW-05S	2/2/2005	<10	—	5.8	180	110	1.9	1.5	3.4	—	0.05	5.3	1.4J	62.0	454	4.0	<0.05	18.0	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-05SR	2/2/2005	—	—	5.8	—	100	—	—	3.4	—	—	—	1.4J	63.0	—	7.2	—	—	—
12MW-05S	5/24/2005	<10	—	5.9	180	96	1.5	1.25	3.0	22	0.05	6.2	1.1J	59.0	399	4.2	<0.05	17.8	1.5
12MW-05SR	5/24/2005	—	—	5.6	—	95	—	—	3.0	22	—	—	1.1J	59.0	—	4.3	—	—	—
12MW-05S	9/13/2005	<10	—	5.0	80	97	—	1.5	2.7	20	0.1	5.6	1.1J	54.0	378	4.2	<0.05	21.8	7.9
12MW-05SR	9/13/2005	—	—	5.3	—	91	—	—	2.8	20	—	—	1.1J	59.0	—	4.2	—	—	—
12MW-05S	1/31/2006	—	—	—	—	76	—	1.0	—	—	0.2	5.2	—	—	353	4.3	—	18.4	0.3
12MW-05SR	1/31/2006	—	—	—	—	77	—	—	—	—	—	—	—	—	—	4.4	—	—	—
12MW-05S	6/20/2006	<10	—	—	100	83	—	3.0	—	—	0.05	5.2	—	—	346	4.6	<0.05	20.1	—
12MW-05SR	6/20/2006	—	—	—	—	83	—	—	—	—	—	—	—	—	—	4.5	—	—	—
12MW-05S	9/12/2006	<10	—	—	70	75	—	1.5	—	—	0.1	5.2	—	—	343	5.6	<0.05	21.4	—
12MW-05SR	9/12/2006		—	—	—	75	—	—	—	—			—	—	—	4.3	—	—	—
12MW-05S	5/22/2007	<10	—	—	50	63	—	2.0	—	—	0.05	5.3	—	—	327	4.5	<0.05	19.0	—
12MW-05SR	5/22/2007	—	—	—	—	63	—	—	—	—	—	—	—	—	—	4.6	—	—	—
12MW-05S	7/17/2007	<10	—	—	60	64	—	1.4	—	—	0.1	6.0	—	—	337	4.3	<0.05	20.3	—
12MW-05SR	7/17/2007	—	—	—	—	63	—	—	—	—	—	—	—	—	—	4.4	—	—	—
12MW-05S	11/27/2007	<10	—	—	35	57	—	0.62	—	—	0.1	6.0	—	—	313	4.5	0.10	18.8	—
12MW-05S	5/6/2008	<10	—	—	40	62	—	1.3	—	—	0.05	5.2	—	—	317	3.8	<0.60	18.4	—
12MW-05SR	5/6/2008	—	—	—	—	61	—	—	—	—	—	—	—	—	—	3.9	—	—	—
12MW-06D	8/29/2000	—	—	—	65	—	—	14	—	810	0.2	6.4	—	—	2,250	22	<0.05	20.3	—
12MW-06D	11/29/2000	225	—	110	45	530	—	16	21	750	0.2	6.8	9.8	230	2,280	22	0.05	16.6	—
12MW-06D	2/27/2001	240	—	95	70	540	—	12	19	650	0.2	6.5	9.9	280	2,310	<25	<0.05	15.9	—
12MW-06D	5/14/2001	225	—	110	40	470	—	10	22	800	1.0	6.6	8.1	280	2,340	21	<0.05	18.8	—
12MW-06D	8/28/2001	275	—	34	50	460	—	15	17	280	<0.05	6.5	1.9J	250	2,180	<25	<0.05	23.8	—
12MW-06D	7/16/2007	220	—	—	30	—	—	10	—	—	<0.05	6.3	—	—	2,200	—	<0.05	21.0	—
12MW-06D	11/28/2007	120	—	100	14	500	—	9.4	22	750	0.1	7.7	9.59	298	2,180	19	0.12	17.0	—
12MW-06S	8/29/2000	—	—	—	200	—	—	26	—	270	0.05	5.4	—	—	1,730	17	0.25	21.9	—
12MW-06S	11/29/2000	<50	—	29	85	470	—	32	14	250	0.1	5.7	2.3	190	1,710	19	0.25	16.2	—
12MW-06S	2/27/2001	<10	—	29	180	500	—	22	15	250	0.3	5.0	2.0	260	1,810	30	0.25	13.8	—
12MW-06S	5/14/2001	<10	—	32	170	270	—	30	16	270	0.3	5.3	1.4J	230	1,690	22	0.15	18.9	—
12MW-06S	8/28/2001	50	—	120	100	580	—	30	23	840	<0.05	5.7	8.6	280	1,690	<25	0.20	24.4	—
12MW-06S	12/4/2001	100	<5.0	33	75	480	—	23	19	280	<0.05	6.2	1.8J	280	1,900	<13	0.60	17.1	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-06S	2/26/2002	<10	<1.0	67	90	1,000	—	75	55	550	<0.05	4.8	2.6	570	3,880	130	0.25	18.1	—
12MW-06S	6/11/2002	<10	3.2	61	320	980	—	75	45	480	<0.05	4.6	2.8	500	3,640	100	0.25	20.7	—
12MW-06S	9/9/2002	<10	<1.00	55	310	970	—	65	46	460	<0.05	4.5	3.0	730	3,870	100	0.15	22.7	—
12MW-06S	1/7/2003	<10	<5.0	38	200	570	—	38	19	320	<0.05	5.1	2.1	310	2,150	63	0.05	13.9	—
12MW-06S	4/8/2003	<10	<6.0	35	210	530	—	25	18	300	0.05	5.4	1.7J	260	1,860	30	<0.05	15.3	—
12MW-06S	8/19/2004	<10	—	—	150	510	—	20	—	—	<0.05	5.4	—	—	1,840	22	—	22.0	33.2
12MW-06S	5/23/2005	30	—	—	70	—	—	20	—	—	<0.05	6.6	—	—	1,800	—	0.30	18.9	—
12MW-06S	6/22/2006	<10	—	—	50	—	—	35			<0.05	5.2	—	—	1780	—	0.10	19.7	—
12MW-06S	5/21/2007	<10	—	—	50	—	—	35	—	—	<0.05	5.2	—	—	1,780	—	<0.05	18.6	—
12MW-06S	5/6/2008	<10	—	—	40		—	49	—	—	<0.05	4.8	—	—	2,090	—	<0.6	18.0	—
12MW-07D	8/28/2000	—	—	—	<100	—	—	4.8	—	190	0.2	6.6	—	—	1,620	26	<0.05	20.5	—
12MW-07D	11/29/2000	85	—	73	32	370	—	6.0	15	200	—	6.6	8.8	130	1,560	32	<0.05	18.1	—
12MW-07D	2/26/2001	120	—	65	35	290	—	5.5	13	190	0.5	6.7	8.1	150	1,327	22	<0.05	18.7	—
12MW-07D	5/14/2001	125	—	69	24	320	—	3.0	14	180	1.5	6.7	7.0	140	1,359	28	<0.05	19.7	—
12MW-07S	2/26/2001	100	—	12	37	94	—	1.5	3.3	84	0.1	6.1	1.5J	82.0	81	<5.0	0.15	17.2	—
12MW-07S	5/14/2001	80	—	15	25	67	—	2.0	4.2	110	0.5	6.4	1.4J	69.0	492	<5.0	<0.05	18.5	—
12MW-07S	8/29/2001	100	—	15	40	87	—	2.0	4.2	100	0.07	6.5	1.5J	76.0	490	<5.0	<0.05	23.0	—
12MW-07S	1/13/2004	—	—	—	—	—	—	—	—	—	—	7.0	—	—	516	—	—	16.7	—
12MW-07S	8/19/2004	45	—	—	27	—	—	2.0	—	—	<0.05	6.3	—	—	531	—	<0.05	22.4	3.3
12MW-07S	5/22/2007	100	—	—	50	—	—	2.0	—	—	0.1	—	—	—	557	—	<0.05	—	—
12MW-07S	11/28/2007	30	—	15	11	110	—	0.85	4.8	110	0.1	—	1.7	89.5	575	0.74	0.093	18.3	—
12MW-08D	8/29/2000	—	—	—	32	—	—	2.5	—	130	0.2	7.0	—	—	1,470	11	<0.05	22.9	—
12MW-08D	11/28/2000	200	—	50	18	260	—	3.5	8.6	140	0.2	6.6	7.9	170	1,410	13	<0.05	18.5	—
12MW-08D	2/26/2001	225	—	48	30	230	—	1.5	8.4	130	1.5	7.1	8.1	220	1,420	10	<0.05	17.7	—
12MW-08D	5/14/2001	225	—	55	26	210	—	0.70	9.3	170	1.0	7.0	7.3	240	1,450	11	<0.05	19.9	—
12MW-08D	8/27/2001	300	—	52	27	250	—	2.5	9.3	150	0.2	7.0	7.5	240	1,430	10	<0.05	26.3	—
12MW-08S	8/28/2000	—	—	—	—	—	—	6.5	—	69	0.2	4.4	—	—	1,310	7.6	<0.05	24.9	—
12MW-08S	11/28/2000	<50	—	50	50	390	—	4.0	5.2	67	0.6	4.3	0.88J	59	1,270	<5.0	<0.05	17.9	—
12MW-08S	2/26/2001	<10	—	45	—	360	—	3.0	4.8	58	0.4	5.4	1.1J	160	218	<10	<0.05	16.9	—
12MW-08S	5/14/2001	<10	—	46	160	340	—	4.0	4.9	59	0.3	4.3	0.68J	150	1,240	<10	<0.05	18.6	—
12MW-08S	8/27/2001	<10	—	44	210	360	—	4.0	5.0	55	0.05	4.7	0.73J	140	1,030	<10	<0.05	23.9	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-09D	8/29/2000	—	—	—	70	—	—	12	—	600	0.1	6.4	—	—	3,770	5.4	<0.05	22.2	—
12MW-09D	11/29/2000	225	—	200	50	1,000	—	17	41	530	0.2	6.6	14	430	3,450	<5	<0.05	18.3	—
12MW-09D	2/27/2001	260	—	200	100	960	—	14	40	560	0.2	6.5	14	430	3,800	<25	<0.05	18.1	—
12MW-09D	5/15/2001	200	—	230	90	800	—	18	47	620	0.6	6.6	12	370	3,640	<25	<0.05	18.4	—
12MW-09D	8/29/2001	250	—	250	110	1,000	—	15	52	630	0.1	6.4	<0.54	390	3,490	<50	<0.05	22.5	—
12MW-09D	12/3/2001	250	<1.00	240	40	950	—	18	49	580	0.05	6.7	12	390	3,620	<25	<0.05	18.9	—
12MW-09D	2/26/2002	350	<1.00	250	70	1,000	—	23	50	620	<0.05	6.5	11	430	3,740	<25	<0.05	18.6	—
12MW-09D	6/10/2002	350	3.7	220	70	990	—	12	46	570	0.1	6.5	13	440	3,710	<50	<0.05	20.3	—
12MW-09D	9/10/2002	—	<4.0	210	112	920	—	15	45	560	0.05	6.5	<0.39	400	3,720	<10	<0.05	20.6	—
12MW-09D	1/7/2003	—	<1.00	220	100	960	—	17	44	560	0.1	6.2	13	420	—	<25	<0.05	17.7	—
12MW-09D	4/9/2003	—	<8.0	210	100	810	—	9.0	43	520	0.3	6.6	13	400	3,630	<20	<0.05	16.9	—
12MW-09D	7/16/2003	250	<5.0	220	120	1,000	—	13	47	570	0.1	6.5	12	420	3,620	<13	<0.05	21.6	—
12MW-09D	8/16/2004	260	—	—	120	1,100	—	8.8	—	—	—	5.9	—	—	3,670	<13	<0.05	20.0	23.7
12MW-09S	8/29/2000	—	—	—	80	—	—	2.5	—	20	0.2	5.2	—	—	172	21	<0.05	21.3	—
12MW-09S	11/29/2000	<50	—	1.5	50	15	—	3.5	0.90	15	0.3	6.2	<0.41	34.0	196	23	<0.05	18.5	—
12MW-09S	2/27/2001	13	—	1.1	100	13	—	2.5	0.60	14	0.2	5.2	<0.54	290	166	22	<0.05	16.9	—
12MW-09S	5/15/2001	44	—	1.0	70	12	—	3.0	0.76	14	0.4	5.7	<0.54	33.0	200	17	0.10	17.8	—
12MW-09S	8/29/2001	37	—	1.3	130	12	—	3.0	0.79	15	0.1	5.6	<0.54	27.0	171	20	<0.05	22.4	—
12MW-09S	12/3/2001	19	<0.20	1.2	150	14	—	3.5	0.8	15	<0.05	5.4	<0.54	23.0	161	26	<0.05	19.9	—
12MW-09S	2/26/2002	40	<0.20	1.2	130	10	—	4.0	0.88	15	0.2	5.6	<0.54	28.0	154	24	—	18.2	—
12MW-09S	6/10/2002	<10	<0.50	0.96	150	11	—	3.5	0.71	12	0.05	5.2	<0.39	25.0	141	27	<0.05	20.5	—
12MW-09S	9/10/2002	32	<0.40	1.1	130	8.4	—	2.5	0.77	16	0.05	5.8	<0.39	29.0	187	18	0.08	23.1	—
12MW-09S	1/7/2003	65	<0.40	2.1	140	47	0.5	8.9	2.2	33	<0.05	6.0	0.52J	72.0	411	8.7	2.5	16.3	—
12MW-09S	4/8/2003	70	<0.40	1.8	120	26	—	6.0	2.2	33	<0.05	6.1	<0.48	55.0	346	20	0.90	15.7	—
12MW-09S	7/15/2003	45	<0.20	1.0	160	16	—	5.5	1.1	18	<0.05	5.6	<0.48	35.0	219	20	0.05	20.0	—
12MW-09S	9/17/2003	70	—	1.2	140	16	—	7.0	1.2	19	0.2	5.7	0.49J	48.0	312	19	0.30	22.2	—
12MW-09S	1/13/2004	20	—	0.96	35	12	—	6.0	0.87	14	0.1	5.5	<0.48	18.0	172	24	<0.05	15.7	4.9
12MW-09S	4/28/2004	20	—	1.3	110	12	2.1	5.0	1.1	24	0.1	5.2	0.73J	20.0	150	26	<0.05	16.9	42
12MW-09S	8/16/2004	—	—	1.8	130	10	—	6.3	2.5	45	—	4.9	1.4J	25.0	145	26	<0.05	20.5	429
12MW-09S	5/25/2005	<10	—	0.74	32	11	—	2.0	0.63	8.8	0.1	5.7	<0.36	20.0	143	29	<0.05	17.4	3.4
12MW-09S	1/31/2006	—	—	—	—	24	—	1.4	—	—	0.5	5.2	—	—	169	30	—	16.5	19.8

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-09S	6/22/2006	<10	—	—	120	10	—	1.5	—	—	0.1	5.0	—	—	120	23	<0.05	19.5	—
12MW-09S	9/12/2006	<10	—	—	110	10	—	2.0	—	—	0.1	4.8	—	—	124	23	<0.05	20.5	—
12MW-09S	5/22/2007	<10	—	—	120	7.5	—	1.5	—	—	0.3	—	—	—	114	22	<0.05	—	—
12MW-09S	11/28/2007	<10	—	0.60	14	8.1	—	0.50	0.55	8.8J	0.2	5.0	0.31	19.5	112	20	0.25	18.5	—
12MW-10S	11/30/2000	<50	—	3.1	300	120	—	38	8.5	49	0.4	4.5	<0.41	—	496	<5.0	<0.05	22.5	—
12MW-10S	2/28/2001	<10	—	4.3	300	100	—	60	13	110	<0.05	4.4	1.4J	35.0	613	<5.0	0.20	17.9	—
12MW-10SR	5/16/2001	—	—	2.5	—	89	—	—	6.8	33	—	—	<0.54	32.0	—	<5.0	—	—	—
12MW-10SR	8/29/2001	—	—	2.2	—	92	—	—	5.8	34	—	—	<0.54	32.0	—	<5.0	—	—	—
12MW-10SR	12/5/2001	—	<2.0	2.6	—	110	—	—	7.1	40	—	—	0.66J	44.0	—	<5.0	—	—	—
12MW-10S	2/27/2002	<10	<1.0	2.6	250	100	—	23	6.4	28	<0.05	4.6	<0.54	38.0	357	3.4	0.80	15.4	—
12MW-10SR	2/27/2002	—	<1.0	2.6	—	100	—	—	6.3	29	—	—	<0.54	36.0	—	4.1	—	—	—
12MW-10S	6/11/2002	<10	<0.50	1.4	250	73	2.4	2.5	3.8	15	0.4	3.9	<0.39	32.0	250	<5.0	<0.05	26.6	—
12MW-10S	9/10/2002	<10	<1.0	1.1	250	64	2.9	18	3.2	21	<0.05	4.5	<0.39	28.0	259	3.9	0.20	27.0	—
12MW-10S	1/8/2003	<10	<1.0	1.9	275	95	4.4	27	4.8	40	<0.05	4.6	<0.39	28.0	325	8.2	0.80	18.2	—
12MW-10S	4/10/2003	<10	<0.80	1.4	245	69	—	12	3.1	16	0.1	4.7	<0.48	27.0	193	10	0.90	15.5	—
12MW-10S	7/16/2003	<10	<0.40	2.1	260	67	5.8	12	4.3	14	0.1	4.7	<0.48	30.0	275	7.8	0.50	25.0	—
12MW-10S	9/16/2003	<10	—	1.2	270	53	3.9	5.0	2.6	15	0.1	4.7	<0.48	24.0	193	7.7	0.80	25.8	53
12MW-10S	1/14/2004	<10	—	1.7	130	41	2.8	8.0	2.5	14	0.1	4.7	<0.48	16.0	186	10	0.40	18.4	12.4
12MW-10S	4/27/2004	—	—	—	—	—	16	—	—	—	—	4.9	—	—	171	—	—	18.6	—
12MW-10S	8/18/2004	<10	—	1.1	20	40	3.1	8.1	2.6	12	0.1	4.6	0.62J	22.0	162	9.9	0.05	24.6	12.4
12MW-10S	2/2/2005	<10	—	1.1	90	32	—	5.5	2.4	—	0.2	4.8	<0.53	19.0	147.1	11	0.70	15.4	9.1
12MW-10S	2/3/2005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12MW-10S	5/24/2005	<10	—	2.9	240	75	3.5	10	5.7	12	0.05	4.6	<0.36	31.0	303	10	0.35	21.2	—
12MW-10S	9/13/2005	<10	—	2.7	270	77	—	7.6	5.5	12	0.05	4.7	<0.36	29.0	249	7.3	0.90	25.4	2.9
12MW-10S	1/31/2006	—	—	—	—	29	—	3.7	—	—	<0.05	—	—	—	159	11	—	19.4	9.2
12MW-10S	6/21/2006	<10	—	3.8	270	80	—	10	7.2	—	0.1	4.6	—	—	342	9.2	0.25	24.4	—
12MW-10S	9/12/2006	<10	—	—	70	33	—	5.0	—	—	0.2	4.7	—	—	163	10	0.80	24.0	—
12MW-10S	5/22/2007	<10	—	—	70	130	—	20	—	—	0.05	4.7	—	—	723	6.2	0.90	20.9	—
12MW-10S	7/16/2007	<10	—	—	160	23	—	1.5	—	—	1.0	4.8	—	—	138	22	<0.05	24.4	—
12MW-10S	11/27/2007	<10	—	—	25	46	—	3.9	—	—	0.4	5.0	—	—	242	11	1.3	18.4	—
12MW-10S	5/6/2008	<10	—	—	50	24	—	5.0	—	—	0.2	4.7	—	—	151	15	0.33	22.7	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-11D	8/29/2000	—	—	—	120	—	—	16	—	370	0.05	6.1	—	—	3,070	38	<0.05	19.9	—
12MW-11D	11/29/2000	150	—	150	55	880	—	18	33	520	<0.05	6.3	7.4	330	3,050	47	<0.05	18.6	—
12MW-11D	2/27/2001	135	—	160	60	910	—	12	33	440	0.7	6.1	6.7	400	3,170	38	<0.05	17.4	—
12MW-11D	5/15/2001	130	—	160	90	780	—	13	37	530	0.3	6.3	6.5	390	3,290	<25	<0.05	21.4	—
12MW-11D	8/28/2001	130	—	170	160	900	—	17	39	590	<0.05	6.2	6.2	360	3,240	<40	<0.05	25.1	—
12MW-11D	12/4/2001	115	<1.0	180	120	920	—	23	43	710	<0.05	6.3	6.7	350	3,520	57	<0.05	18.9	—
12MW-11D	2/27/2002	135	<1.0	180	30	940	—	16	44	680	0.05	6.2	7.3	430	3,370	57	<0.05	14.8	—
12MW-11D	6/10/2002	130	3.7	170	75	1000	—	23	41	720	0.5	6.0	7.3	400	3,600	68	<0.05	21.8	—
12MW-11D	9/9/2002	175	<8.0	160	60	840	—	18	36	520	—	6.1	7.1	410	3,320	37	—	22.4	—
12MW-11D	1/8/2003	125	<8.0	150	32	840	0.10	10	31	420	0.1	6.1	6.9	430	3,130	39	<0.05	15.8	—
12MW-11D	4/9/2003	150	<8.0	150	70	800	—	5.5	31	410	0.3	6.4	6.4	400	3,010	41	<0.05	16.8	—
12MW-11D	7/16/2003	165	<5.0	160	13	940	—	15	35	500	0.05	6.2	5.6	390	3,230	43	<0.05	22.8	—
12MW-11S	8/29/2000	—	—	—	70	—	—	3.5	—	80	0.2	5.8	—	—	1,104	5.6	—	21.3	—
12MW-11S	11/29/2000	175	—	35	70	330	—	3.5	11	130	0.8	6.3	2.5	160	1,630	8.4	<0.05	18.5	—
12MW-11SR	11/29/2000	—	—	32	—	330	—	—	10	120	—	—	2.6	230	—	9.2	—	—	—
12MW-11S	2/27/2001	90	—	46	75	380	—	3.5	14	160	0.4	5.9	2.9	240	1,670	<25	<0.05	16.7	—
12MW-11S	5/15/2001	110	—	47	100	360	—	6.5	15	170	0.9	6.1	2.3	230	1,840	<25	<0.05	19.9	—
12MW-11S	8/28/2001	105	—	34	70	310	—	3.0	11	120	0.05	6.1	2.3	190	1,470	<10	<0.05	23.5	—
12MW-11S	1/8/2003	90	—	—	50	—	1.0	0.50	—	—	0.3	5.9	—	—	1,650	—	<0.05	15.2	—
12MW-11S	8/19/2004	125	—	—	50	380	—	5.0	—	—	0.2	6.1	—	—	1,680	8.1J	<0.05	22.7	85.5
12MW-11S	5/23/2005	100	—	—	30	—	—	4.0	—	—	0.2	7.1	—	—	1,350	—	<0.05	19.3	—
12MW-11S	6/20/2006	65	—	—	40	—	—	4.5	—	—	0.2	6.1	—	—	1,600	—	<0.05	20.7	—
12MW-11S	5/22/2007	90	—	—	22	—	—	3.0	—	—	0.1	6.1	—	—	1,260	—	<0.05	19.3	—
12MW-12D	8/28/2001	175	—	100	12	490	—	0.20	22	290	0.4	7.2	5.9	260	2,030	70	<0.05	24.6	—
12MW-12D	8/18/2004	150	—	—	35	860	—	10	—	—	0.1	6.3	—	—	3,070	49	<0.05	22.8	3.3
12MW-12D	7/16/2007	150	—	—	30	—	—	10	—	—	0.1	6.3	—	—	2,200	—	<0.05	21.0	—
12MW-12S	8/28/2001	80	—	20	150	190	—	1.5	6.4	78	0.2	5.8	1.6J	130	919	<10	<0.05	23.5	—
12MW-12S	12/4/2001	85	<4.0	19	150	220	1.4	0.80	7	71	0.4	6.2	1.8J	140	976	<10	<0.05	19.6	—
12MW-12S	2/27/2002	95	<4.0	36	35	290	—	0.20	11	130	0.3	6.3	2.7	200	1,380	11	<0.05	13.6	—
12MW-12S	6/10/2002	120	1.1	32	75	290	1.9	1.5	9.4	110	0.2	6.1	2.2	180	1,190	<10	<0.05	21.8	—
12MW-12S	9/9/2002	125	<2.0	32	60	290	—	1.5	9.6	120	0.2	6.1	2.3	180	1,180	8.4	<0.05	22.5	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

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Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-12S	1/8/2003	115	<2.0	28	50	230	2.4	0.35	8.3	97	0.7	6.3	2.5	180	1,200	7.6	<0.05	13.3	—
12MW-12S	4/10/2003	110	<2.0	27	60	220	1.6	0.25	7.9	93	0.4	5.8	1.9	160	1,080	16	<0.05	14.7	—
12MW-12S	4/26/2004	125	—	—	40	—	2.6	2.0	—	—	0.3	6.3	—	—	1,250	—	<0.05	18.3	—
12MW-12S	8/17/2004	110	—	29	40	250	—	1.0	8.6	100	<0.05	6.1	2.5	170	1,120	6.7	<0.05	21.7	—
12MW-12S	2/1/2005	100	—	31	22	260	2.4	1.0	9.1	—	0.4	5.8	2.1	190	1,170	6.7J	<0.05	16.5	31.2
12MW-12S	5/24/2005	120	—	27	110	220	2.1	0.90	7.9	92	0.1	6.0	1.7	180	964	5.9	<0.05	17.6	40.7
12MW-12S	9/12/2005	—	—	24	—	220	—	—	7.4	83	—	—	2.1	140	—	6.4	—	—	—
12MW-12S	9/16/2005	100	—	—	24	—	—	0.75	—	—	0.2	6.3	—	—	1,020	—	<0.05	21.7	3.8
12MW-12S	1/30/2006	—	—	—	—	200	—	0.30	—	—	0.5	6.5	—	—	968	5.1J	—	17.8	11.7
12MW-12S	6/20/2006	105	—	—	45	230	—	1.0	—	—	0.1	6.2	—	—	1,050	6.7	<0.05	20.5	—
12MW-12S	9/11/2006	100	—	—	32	200	—	1.0	—	—	0.1	6.2	—	—	1,000	6.8	<0.05	22.0	—
12MW-12S	5/22/2007	125	—	—	35	200	—	2.0	—	—	0.2	6.3	—	—	1,050	6.8	<0.05	19.3	—
12MW-12S	7/16/2007	110	—	—	23	190	—	1.7	—	—	0.05	6.3	—	—	1,050	6.8	<0.05	20.6	—
12MW-12S	11/26/2007	80	—	—	25	190	—	0.07	—	—	0.4	6.1	—	—	964	6.3	0.065	20.7	—
12MW-12S	5/6/2008	70	—	—	20	180	—	0.64	—	—	0.1	6.1	—	—	900	6.0	<0.6	18.0	—
12MW-13S	8/28/2001	<10	—	24	100	320	—	9.0	14	150	0.2	4.9	1.9J	140	1,140	18	<0.05	23.1	—
12MW-13S	12/4/2001	<20	<4.0	32	160	370	0.6	12	18	190	<0.05	5.5	2.2	160	1,390	22	<0.05	17.6	—
12MW-13S	2/26/2002	<10	<5.0	35	140	400	—	8.0	20	190	1.50	4.9	2.4	200	1,400	34	<0.05	17.6	—
12MW-13S	6/11/2002	<10	1.5	30	190	370	0.5	11	17	170	<0.05	5.2	2.4	180	1,460	28	<0.05	20.3	—
12MW-13S	9/10/2002	<10	<4.0	26	200	360	0.46	12	16	160	<0.05	5.0	2.1	170	1,420	26	<0.05	21.8	—
12MW-13S	1/7/2003	<10	<4.0	19	150	310	0.9	4.4	12	120	1.5	4.7	1.7	170	1,110	27	<0.05	14.7	—
12MW-13S	4/8/2003	<10	<2.0	18	150	280	8.0	6.0	11	120	0.2	5.0	1.5J	150	1,070	16	<0.05	15.5	—
12MW-13S	7/15/2003	<10	1.1J	16	210	280	4.4	7.0	10	110	0.1	5.1	1.2J	110	1,010	18	<0.05	21.1	—
12MW-13S	9/15/2003	<10	—	4.8	180	280	1.4	8.0	9.7	99	0.05	4.9	1.8	140	1,030	20	<0.05	22.7	—
12MW-13S	1/13/2004	<10	—	20	160	300	5.9	5.5	12	130	0.7	4.8	2.2	140	1,130	20	<0.05	15.9	8.5
12MW-13S	4/28/2004	<10	—	18	40	270	180	8.0	11	120	<0.05	4.8	1.9	120	1,050	17	<0.05	16.7	2.8
12MW-13S	8/17/2004	<10	—	18	170	290	1.5	7.0	12	120	<0.05	4.8	1.9	150	1,070	18	<0.05	21.8	—
12MW-13S	2/2/2005	<10	—	20	30	300	1.3	6.0	12	—	0.3	5.0	1.4J	170	1,080	17	<0.05	16.4	—
12MW-13S	5/24/2005	<10	—	19	170	300	1.1	4.5	11	120	0.1	4.8	1.5	160	1,060	17	<0.05	19.9	—
12MW-13SR	5/24/2005	—	—	19	—	300	—	—	11	120	—	—	1.4	160	—	17	—	—	—
12MW-13S	9/12/2005	—	—	17	—	230	—	—	9.9	100	—	—	1.6	130	—	12	—	—	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-13SR	9/12/2005	—	—	17	—	190	—	—	10	110	—	—	1.6	120	—	14	—	—	—
12MW-13S	9/16/2005	<10	—	—	70	—	—	6.6	—	—	0.1	5.2	—	—	1,020	—	<0.05	22.0	20
12MW-13S	1/30/2006	—	—	—	—	270	—	5.5	—	—	0.6	5.1	—	—	1,010	13	—	17.0	16
12MW-13SR	1/30/2006		—	—	—	270	—	—	—	—	—	—	—	—	—	14	—	—	—
12MW-13S	6/22/2006	<10	—	19	45	270	—	10	12	120	<0.05	5.1	—	120	1,090	16	0.05	20.1	—
12MW-13S	9/11/2006	25	—	—	45	300	—	8.0	—	—	0.2	5.1	—	—	2,230	16	<0.05	22.2	—
12MW-13SR	9/11/2006		—	—	—	310	—		—	—	—	—	—	—	—	19	—	—	—
12MW-13S	5/21/2007	<10	—	—	50	310	—	9.0	—	—	0.1	5.0	—	—	1,210	21	<0.05	19.2	—
12MW-13SR	5/21/2007	—	—	—	—	310	—	—	—	—	—	—	—	—	—	21	—	—	—
12MW-13S	7/16/2007	<10	—	—	50	310	—	8.7	—	—	0.2	5.0	—	—	1,250	21	<0.05	30.2	—
12MW-13SR	7/16/2007	—	—	—	—	310	—	—	—	—	—	—	—	—	—	21	—	—	—
12MW-13S	8/22/2007	—	—	—	—	320	—	—	—	—	—	—	—	—	—	22	—	—	—
12MW-13S	11/27/2007	<10	—	—	25	310	—	7.5	—	—	0.05	4.4	—	—	1,240	22	0.184	18.5	—
12MW-13SR	11/27/2007	—	—	—	—	310	—	—	—	—	—	—	—	—	—	22	—	—	—
12MW-13S	5/5/2008	<10	—	22	40	300	—	6.3	14	141	0.2	4.8	2.0	164	1,210	20	<0.6	17.7	—
12MW-13S	8/14/2008	<10	—	—	28	390	—	7.1	—	—	0.05	4.9	—	—	1,320	26	0.07	21.4	—
12MW-13SR	8/14/2008	—	—	—	—	390	—	—	—	—	—	—	—	—	—	26	—	—	—
12MW-14S	8/30/2001	30	—	54	100	830	—	12	41	940	1.5	—	4.4	490	—	29	<0.05	—	—
12MW-17S	9/10/2002	112	<2.0	63	100	420	1.1	5.5	18	220	<0.05	6.2	3	220	1,820	15	<0.05	21.4	—
12MW-17S	1/7/2003	125	<2.0	69	33	450	0.9	3.5	19	240	0.3	6.0	3.5	250	1,920	22	<0.05	15.7	—
12MW-17S	4/9/2003	125	<2.0	74	75	470	1.9	5.1	19	250	0.2	6.0	3.1	250	1,980	20	<0.05	16.0	—
12MW-17S	7/15/2003	140	<2.5	79	90	490	2.0	7.5	21	270	0.1	6.6	3.4	260	2,000	23	<0.05	20.6	—
12MW-17S	9/15/2003	115	—	75	70	450	1.8	—	20	260	0.2	6.2	3.6	250	1,990	18	<0.05	21.5	2.6
12MW-17S	1/13/2004	120	—	75	30	480	1.9	6.0	20	270	0.7	6.2	3.7	200	1,840	18	<0.05	17.3	5.7
12MW-17S	4/26/2004	130	—	75	1,100	480	2.9	6.0	20	260	0.1	6.3	3.4	200	1,820	19	<0.05	17.0	—
12MW-17S	8/17/2004	135	—	85	110	570	1.2	7.6	23	300	<0.05	6.1	4.1	280	2,080	20J	<0.05	20.6	—
12MW-17S	2/1/2005	100	—	77	20	490	—	8.0	21	—	0.4	6.4	3.2	290	1,990	21	<0.05	16.6	11.6
12MW-17S	5/24/2005	—	—	—	—	—	2.5	—	—	—	—	—	—	—	—	—	—	—	—
12MW-17S	5/24/2005	110	—	75	120	490	—	9.0	21	270	0.1	6.5	3.4	290	1,870	21	<0.05	18.0	32.5
12MW-17S	9/12/2005	—	—	67	—	470	—	—	20	240	—	—	3.5	210	—	20	—	—	—
12MW-17S	9/16/2005	100	—	—	35	—	—	6.2	—	—	<0.05	6.3	—	—	1,830	—	<0.05	21.3	39.5

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-17S	1/31/2006	—	—	—	—	410	—	6.0	—	—	0.2	6.4	—	—	1,720	19	—	17.8	15.9
12MW-17S	6/20/2006	110	—	—	25	530	—	9.0	—	—	0.2	6.2	—	—	2,050	21	<0.05	19.7	—
12MW-17S	9/11/2006	120	—	—	27	500	—	10	—	—	<0.05	6.2	—	—	1,990	22	<0.05	21.2	—
12MW-17S	5/22/2007	100	—	—	32	470	—	0.8	—	—	0.1	6.2	—	—	1,990	21	<0.05	18.6	—
12MW-17S	11/26/2007	130	—	—	100	410	—	7.7	—	—	0.1	6.2	—	—	1,740	19	0.08	20.9	—
12MW-17S	5/6/2008	70	—	—	17	380	—	6.0	—	—	0.05	6.3	—	—	1,690	18	<0.6	18.3	—
12MW-18S	4/9/2003	70	<0.60	6.7	250	38	—	5.9	2.1	50	0.2	5.1	0.49J	52.0	303	7.9	2.5	16.6	—
12MW-18S	7/16/2003	50	0.42J	5.2	250	36	—	3.5	1.8	29	<0.05	5.5	0.63J	42.0	283	15	0.60	22.2	—
12MW-18S	9/17/2003	45	—	4.3	220	32	—	2.5	1.6	22	<0.05	5.3	0.77J	46.0	246	13	0.50	21.6	0.7
12MW-18S	1/14/2004	35	—	4	180	33	—	1.5	1.5	20	0.3	6.1	0.48J	32.0	266	16	0.15	18.0	—
12MW-18S	4/27/2004	50	—	4.1	220	31	—	2.5	1.6	19	0.1	5.5	0.95J	38.0	284	18	0.05	19.9	14.5
12MW-18S	8/19/2004	<10	—	4.9	350	26	—	2.5	1.9	21	0.05	5.2	1.2J	48.0	277	15	0.15	22.9	—
12MW-18S	2/3/2005	50	—	7.5	300	30	—	1.5	2.7	—	0.3	5.6	1.3J	55.0	341	11	0.05	17.2	5.6
12MW-18S	5/23/2005	70	—	—	270	38	—	2.0	—	—	0.1	5.4	—	—	328	12	0.10	21.6	2.7
12MW-18S	9/12/2005	65	—	—	220	42	—	1.5	—	—	0.1	5.6	—	—	351	9.9	0.10	23.4	—
12MW-18S	1/31/2006	—	—	—	—	43	—	1.0	—	—	0.2	5.9	—	—	332	10	—	15.8	—
12MW-18S	6/20/2006	40	—	—	210	51	—	1.5	—	—	0.2	5.5	—	—	329	10	<0.05	24.2	—
12MW-18S	9/11/2006	45	—	—	250	53	—	1.5	—	—	0.1	5.2	—	—	317	11	<0.05	25.1	—
12MW-18S	5/22/2007	<10	—	—	350	56	—	2.5	—	—	0.2	5.4	—	—	341	8.1	<0.05	20.8	—
12MW-18S	7/16/2007	40	—	—	300	55	—	2.0	—	—	0.1	5.4	—	—	333	7.7	<0.05	23.2	—
12MW-18S	11/26/2007	<10	—	—	350	54	—	1.9	—	—	0.05	5.6	—	—	336	7.0	0.07	22.9	—
12MW-18S	5/5/2008	<10	—	6.9	350	56	—	2.5	3.0	29	0.05	5.4	1.1	51.3	354	7.6	0.048	20.5	—
12MW-19D	4/8/2003	200	<0.80	120	10	75	—	14	11	2,400	0.2	6.6	11	390	1,920	<2.0	<0.05	17.4	—
12MW-19D	4/27/2004	150	—	27	<10	140	—	1.0	0.80	73	<0.05	8.4	5.3	230	1,220	<2.5	<0.05	20.6	30.2
12MW-19D	8/16/2004	135	—	16	<10	140	43,000	0.2	0.30	24	<0.05	9.2	3.8	190	969	<2.0	<0.05	23.2	3.6
12MW-19S	4/8/2003	190	<0.80	130	<10	70	—	13	12	2,700	<0.05	7.0	11	330	1,890	<2.0	<0.05	16.8	—
12MW-19S	7/14/2003	130	1.7	120	<10	28	300,000	1.5	10	370	0.05	8.2	7.1	380	1,780	0.5	<0.05	22.5	—
12MW-19S	9/17/2003	300	—	130	<10	31	310,000	0.7	9.1	260	0.05	7.8	10	320	1,870	2.8	<0.05	23.8	3.4
12MW-19S	1/14/2004	110	—	66	<10	37	290,000	0.05	4.1	130	0.1	8.9	5.4	140	991	<0.5	<0.05	18.6	2.3
12MW-19S	4/27/2004	60	—	50	<10	33	—	<0.05	2.7	70	0.05	9.2	4.6	100	778	<0.75	<0.05	19.5	7
12MW-19S	8/19/2004	50	—	35	<10	33	—	<0.05	1.7	61	<0.05	9.3	3.6	66.0	503	<0.50	<0.05	23.8	5.1

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-19S	2/2/2005	33	—	16	<10	44	250,000	<0.05	0.52	—	<0.05	10.0	2	52.0	400	<0.5	<0.05	16.5	—
12MW-19S	5/25/2005	30	—	14	<10	45	260,000	<0.05	0.56	17	0.05	8.9	1.8	42.0	326	<0.75	<0.05	18.7	—
12MW-19S	9/13/2005	21	—	9.4	<10	51	—	<0.05	0.40	15	0.1	9.3	1.9	34.0	272	1.0J	<0.05	23.4	—
12MW-19S	1/31/2006	—	—	—	—	45	—	<0.05	—	—	0.1	9.5	—	—	255	<0.75	—	18.2	—
12MW-19S	9/12/2006	22	—	—	<10	40	—	0.10	—	—	0.1	9.4	—	—	199	<0.75	<0.05	23.2	—
12MW-20D	4/8/2003	200	<2.0	31	14	200	—	1.5	6.5	90	0.2	7.1	4.8	170	1,045	<5.0	<0.05	17.5	—
12MW-20D	7/15/2003	200	<1.0	45	25	290	—	1.5	9.1	100	0.3	6.9	5.3	210	1,320	4.4J	0.05	22.3	—
12MW-20D	9/16/2003	175	—	46	30	300	—	1.5	9.3	99	0.05	6.8	5.8	220	1,390	<5.0	0.10	22.2	1.4
12MW-20D	1/12/2004	175	—	52	25	380	—	1.5	10	120	0.1	6.8	6.3	200	1,440	<6.3	<0.05	18.5	2
12MW-20D	4/26/2004	200	—	55	30	320	—	1.5	11	120	0.2	6.9	6.6	180	1,460	<5.0	0.05	20.8	5.5
12MW-20D	8/16/2004	150	—	59	20	340	—	1.0	12	130	0.2	6.9	7	220	1,570	4.0J	0.30	23.0	—
12MW-20D	5/25/2005	250	—	47	24	280	—	0.90	9.3	96	0.2	7.0	5.8	250	1,360	<5	0.10	20.3	—
12MW-20D	6/21/2006	185	—	44	30	250	—	0.70	8.7	91	0.1	6.8	—	170	1,280	<2.5	<0.05	22.9	—
12MW-20S	4/9/2003	40	<0.60	7.5	250	45	—	0.85	2.6	36	0.1	5.1	0.93J	54.0	310	15	0.05	16.8	—
12MW-20S	7/16/2003	50	0.85	43	320	41	—	18	16	230	<0.05	5.4	1.4J	100	835	2.2	0.60	21.5	—
12MW-20S	9/16/2003	<10	—	62	320	39	—	35	26	340	<0.05	5.2	2.0	170	1,100	2.0	0.80	22.9	5.5
12MW-20S	1/14/2004	180	—	44	250	40	—	38	19	250	<0.05	5.9	1.3J	160	1,030	<0.5	<0.05	18.2	13.8
12MW-20S	4/26/2004	260	—	26	270	41	—	23	11	150	0.1	6.2	0.98J	130	793	1.0J	0.60	19.0	19.8
12MW-20S	8/19/2004	225	—	16	200	45	—	15	6.9	91	0.1	6.0	1.0J	130	700	<0.75	0.15	22.4	24.5
12MW-20S	2/2/2005	175	—	8.4	35	53	—	7.5	3.4	—	0.05	6.5	<0.53	100	527	4.6	<0.05	16.9	24.1
12MW-20S	5/25/2005	130	—	9.7	50	68	—	5.5	3.1	44	0.05	6.4	<0.36	96.0	572	1.0J	<0.05	20.0	—
12MW-20S	9/13/2005	102	—	8.0	50	61	—	4.0	3.2	43	<0.05	6.4	0.39J	85.0	448	2.4	0.10	22.8	—
12MW-20S	1/31/2006	—	—	—	—	47	—	2.0	—	—	0.1	6.1	—	—	314	8.7	—	18.8	—
12MW-20S	6/22/2006	35	—	2.8	25	44	—	2.5	1.1	16	<0.05	6.2	—	47.0	296	2.7	<0.05	21.3	—
12MW-20S	9/11/2006	60	—	—	30	57	—	2.5	—	—	—	6.0	—	—	327	4.4	<0.05	23.3	—
12MW-20S	5/23/2007	50	—	2.1	27	49	—	2.2	1.0	13	<0.05	6.3	0.327	52.2	269	2.3	<0.05	19.7	—
12MW-20S	11/28/2007	30	—	3.4	0.21	82	—	2.4	1.5	20	<0.05	6.6	0.463	64.1	379	2.9	0.14	20.5	—
12MW-21D	4/7/2003	150	<0.80	100	40	79	—	48	15	1,900	0.1	6.7	10	370	1,950	<2.0	0.10	19.9	—
12MW-21D	7/15/2003	500	0.70J	95	60	71	4,100	18	15	750	<0.05	7.0	9.2	380	1,950	<1.0	<0.05	23.2	—
12MW-21D	9/16/2003	350	—	88	50	65	12,000	15	12	570	<0.05	7.2	9.8	370	1,850	<1.0	<0.05	23.8	18.8
12MW-21D	1/12/2004	250	—	71	33	71	46,000	9	9.3	320	<0.05	7.4	9.3	260	1,670	<1.3	<0.05	18.6	28.9

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-21D	4/27/2004	325	—	68	27	69	14,000	7.5	8.7	330	<0.05	7.4	9.9	270	1,650	<1.3	<0.05	19.0	27.1
12MW-21D	8/16/2004	500	—	49	25	74	4,900	3.5	7.4	170	0.05	7.6	9.0	300	1,380	<0.75	<0.05	23.1	23.1
12MW-21S	4/8/2003	110	<0.80	57	<10	87	—	4.5	7.0	320	<0.05	7.6	18	220	1,200	7.7	<0.05	17.3	—
12MW-21SR	4/8/2003	—	—	54	—	—	—	—	6.6	300	—	—	16	210	—	—	—	—	—
12MW-21S	7/15/2003	112	1.2	77	<10	93	380,000	6.5	8.1	400	<0.05	7.3	16	230	1,290	3.5	<0.05	22.4	—
12MW-21SR	7/15/2003	—	1.0	75	—	93	—	—	7.9	380	—	—	17	220	—	3.5	—	—	—
12MW-21S	9/15/2003	125	—	76	<10	94	500,000	3.0	7.7	330	<0.05	8.0	17	210	1,280	<1.5	<0.05	25.0	1.4
12MW-21SR	9/15/2003	—	—	74	—	97	—	—	7.5	320	—	—	16	200	—	<1.5	—	—	—
12MW-21S	1/13/2004	50	—	71	<10	90	410,000	2.0	4.7	140	0.1	8.4	15	170	1,150	<1.3	<0.05	16.3	9.9
12MW-21S	4/27/2004	75	—	76	<10	91	560,000	1.5	4.8	130	0.1	9.2	14	160	1,240	<1.5	<0.05	19.3	8.4
12MW-21S	8/18/2004	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12MW-21S	8/19/2004	65	—	62	<10	110	400,000	0.30	4.8	94	<0.05	8.0	11	130	923	<1.3	<0.05	24.0	—
12MW-21S	2/1/2005	50	—	68	<10	110	580,000	0.40	3.9	—	0.05	9.7	10	150	951	<1.3	<0.05	16.9	—
12MW-21SR	2/1/2005	—	—	68	—	110	—	—	4.0	—	—	—	10	150	—	<1.3	—	—	—
12MW-21S	2/3/2005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12MW-21S	5/24/2005	—	—	—	—	—	220,000	—	—	—	—	—	—	—	—	—	—	—	—
12MW-21S	5/24/2005	70	—	84	<10	90	—	0.15	3.0	71	0.05	9.6	12	160	1,120	<1.3	<0.05	20.6	7.3
12MW-21S	9/13/2005	70	—	81	<10	94	—	0.5	2.5	93	0.05	9.5	12	110	1,050	<1.3	<0.05	24.1	4
12MW-21S	1/31/2006	—	—	—	--	86	—	0.35	—	—	<0.05	9.4	—	—	889	<1.3	—	19.3	0.1
12MW-21S	6/22/2006	50	—	60	<10	85	—	0.30	1.7	68	0.1	9.2	—	94.0	768	<1.3	<0.05	23.1	—
12MW-21S	9/11/2006	50	—	—	<10	96	—	0.15	—	—	0.05	9.4	—	—	750	<1.3	<0.05	24.7	—
12MW-22D	4/9/2003	205	<1.6	79	21	140	59	3.0	14	200	<0.05	6.5	7.6	170	1,180	<4.0	0.80	18.2	—
12MW-22D	7/14/2003	250	0.80J	100	60	130	14	3.0	21	280	<0.05	6.7	6.9	270	1,530	<1.5	0.50	21.6	—
12MW-22D	9/17/2003	375	—	99	70	120	8.8	3.5	20	270	0.2	6.3	8.8	250	1,660	<0.5	0.20	22.6	—
12MW-22D	1/12/2004	350	—	83	50	140	6.4	2.0	17	210	0.1	6.8	8.5	180	1,440	<2.0	0.20	19.1	11.8
12MW-22D	4/28/2004	550	—	88	60	130	120	1.9	18	220	0.2	7.1	8.5	200	1,550	<2.0	0.15	17.7	—
12MW-22D	8/17/2004	500	—	79	50	140	—	2.0	16	210	0.3	6.9	8.1	220	1,530	<1.8	<0.05	23.5	12.9
12MW-22D	5/25/2005	550	—	71	60	110	—	1.4	15	200	0.1	7.1	7.5	260	1,380	<1.5	<0.05	20.7	27.7
12MW-22D	6/21/2006	375	—	58	35	150	—	1.1	11	160	0.2	6.9	—	150	1,100	<1.8	0.05	22.7	—
12MW-22D	5/22/2007	300	—	41	50	150	—	0.95	8.7	110	0.1	7.1	6.0	141	1,110	<0.10	<0.05	21.6	—
12MW-22D	11/28/2007	350	—	51	35	150	—	1.1	11	140	0.1	7.4	6.8	159	1,100	0.37J	0.13	21.7	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-22S	4/10/2003	60	<1.0	14	60	96	2,100	7.5	5.3	94	0.3	5.8	1.7J	73.0	518	8	<0.05	16.2	—
12MW-22S	7/17/2003	70	<0.50	16	240	96	1,200	14	6.5	110	<0.05	5.8	1.7J	68.0	536	1.4J	0.6	22.3	—
12MW-22S	9/15/2003	<10	—	19	270	86	410	28	7.6	120	<0.05	5.9	2.1	79.0	—	1.3J	0.05	23.3	—
12MW-22S	1/14/2004	80	—	29	220	82	6.7	23	12	170	<0.05	6.6	2.1	78.0	741	<1.5	0.20	18.6	6.2
12MW-22S	4/28/2004	150	—	43	270	90	10	27	17	250	<0.05	6.3	2.1	85.0	924	<1.3	0.20	17.5	—
12MW-22S	8/17/2004	250	—	38	300	98	5.7	30	14	210	0.05	6.1	1.9J	100	918	<1.3	<0.05	23.5	8.5
12MW-22S	2/3/2005	250	—	42	4	99	2.7	20	15	—	<0.05	6.4	1.9	110	884	<1.3	0.20	17.0	1.5
12MW-22S	5/24/2005	250	—	41	250	96	2.9	25	14	220	0.05	6.3	2.9	120	954	<1.3	0.10	19.1	40.8
12MW-22S	9/13/2005	225	—	33	250	100	—	20	12	160	0.05	6.3	1.5	81.0	846	<1.5	0.10	23.9	3.4
12MW-22S	1/31/2006	—	—	—	—	91	—	—	—	—	0.05	6.0	—	—	691	2.3J	—	19.1	65.8
12MW-22S	6/20/2006	225	—	30	160	99	2.6	16	11	150	0.05	6.2	—	89.0	821	<1.3	<0.05	23.0	—
12MW-22S	9/11/2006	200	—	—	170	90	—	14	—	—	<0.05	6.4	—	—	756	<1.3	0.05	24.1	—
12MW-22S	5/22/2007	175	—	22	140	92	—	13	8.1	100	<0.05	6.5	1.45	103	743	1.09	<0.05	21.4	—
12MW-22S	7/17/2007	167	—	22	130	90	—	11	7.8	99	<0.05	6.4	1.39	115	699	1.2	<0.05	23.2	—
12MW-22S	11/27/2007	175	—	20	100	85	—	8.3	7.0	91	<0.05	6.6	1.36	104	672	0.98	0.09	23.0	—
12MW-22S	5/6/2008	160	—	17	65	90	—	8.8	6.3	78	<0.05	6.6	1.23	99.8	651	0.73	0.075	20.8	—
12MW-23D	4/8/2003	140	<0.80	27	17	83	—	0.85	5.5	66	0.2	6.8	4.8	83.0	572	<2.0	<0.05	17.9	—
12MW-23D	7/14/2003	180	<0.50	33	18	99	—	1.0	6.7	84	0.2	6.7	4.5	74.0	682	3.3	<0.05	22.3	—
12MW-23D	9/17/2003	160	—	32	17	89	—	1.5	6.1	76	0.3	7.0	5.0	88.0	654	2.1J	<0.05	22.1	—
12MW-23D	1/12/2004	130	—	42	20	150	—	1.0	8.2	110	0.3	7.1	6.5	98.0	897	4	<0.05	19.2	1.8
12MW-23D	4/27/2004	185	—	32	15	93	—	1.3	6.3	79	0.2	7.1	5.7	98.0	655	2.4J	<0.05	20.3	7.4
12MW-23D	8/18/2004	140	—	39	16	140	—	1.5	8.0	98	0.2	7.0	6.1	110	815	2.7J	<0.05	23.9	6.9
12MW-23D	5/25/2005	175	—	36	25	110	—	0.60	7.2	87	0.2	7.2	5.7	100	773	<1.5	<0.05	20.1	—
12MW-23D	6/21/2006	200	—	42	22	130	—	0.7	8.4	100	0.2	7.0	—	95.0	848	<1.8	<0.05	22.7	—
12MW-23S	4/9/2003	145	0.97	12	60	66	3.8	2.5	3.6	73	0.2	5.9	1.9	130	705	56	<0.05	18.1	—
12MW-23S	7/16/2003	200	0.60J	15	150	71	2.4	5.0	4.4	94	0.2	6.3	2.0	120	735	55	<0.05	23.0	—
12MW-23S	9/17/2003	175	—	17	130	60	4.3	6.0	4.2	82	0.05	6.2	2.4	98.0	609	33	<0.05	24.4	8.4
12MW-23S	1/14/2004	130	—	15	55	52	2.8	1.3	3.8	70	0.9	6.9	2.4	60.0	474	13	<0.05	18.7	2.7
12MW-23S	4/27/2004	175	—	15	60	53	—	0.85	3.9	83	0.4	6.4	2.2	71.0	495	11	<0.05	20.2	9.3
12MW-23S	8/17/2004	160	—	16	85	51	2.2	4.5	4.0	71	0.05	6.2	2.4	72.0	472	5.9	<0.05	23.3	8.6
12MW-23S	2/1/2005	—	—	16	—	55	—	—	4.0	—	—	—	2.3	65.0	—	4.4	—	—	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-23S	2/3/2005	—	—	—	—	—	1.8	—	—	—	—	—	—	—	—	—	—	—	—
12MW-23S	2/5/2005	110	—	—	40	—	—	1.7	—	—	0.7	6.4	—	—	452	—	<0.05	18.7	4.3
12MW-23S	5/25/2005	120	—	15	100	61	42	1.8	4.0	92	0.05	6.3	2.2	74.0	502	4.4	<0.05	18.9	1.5
12MW-23S	9/12/2005	120	—	17	120	58	—	5.0	4.2	75	0.05	6.3	2.5	72.0	465	2.4	<0.05	23.9	4.6
12MW-23S	1/30/2006	—	—	—	—	59	—	2.1	—	—	0.50	6.2	—	—	449	2.9	—	19.7	1.4
12MW-23S	6/21/2006	110	460	16	110	58	—	4.0	4.3	97	—	6.0	—	66.0	476	2.3	<0.05	22.5	—
12MW-23S	9/12/2006	115	—	—	160	58	—	4.8	—	—	0.05	6.1	—	—	455	2.0	<0.05	22.7	—
12MW-23S	5/21/2007	112	—	14	170	61	—	4.7	4.1	73	0.05	6.2	2.2	67.7	499	2.29	<0.05	21.1	—
12MW-23S	7/16/2007	90	—	15	190	64	—	5.3	4.5	87	0.1	6.0	2.3	72.9	494	2.86	<0.05	22.5	—
12MW-23S	11/27/2007	112	—	15	190	60	—	5.1	4.5	92	0.1	6.2	2.4	70.1	478	2.4	0.06	22.4	—
12MW-23S	5/6/2008	100	—	14	170	66	—	4.9	4.4	125	0.05	6.0	2.2	71.2	488	2.94	0.04	19.6	—
12MW-24D	4/7/2003	180	<0.80	120	100	86	—	40	21	1,400	0.120	6.5	8.7	130	1,300	<2	0.10	20.8	—
12MW-24D	7/16/2003	450	0.70J	170	140	92	400	45	23	1,900	<0.05	6.6	10	120	1,590	<1.3	<0.05	22.4	—
12MW-24D	9/16/2003	500	—	160	130	84	18	35	21	1,400	<0.05	7.0	12	130	1,580	<1.3	<0.05	23.3	—
12MW-24D	1/12/2004	400	—	180	60	78	89	28	30	1,300	0.03	6.5	12	120	1,640	<1.3	<0.05	18.0	18.3
12MW-24D	4/27/2004	500	—	130	45	79	—	15	22	710	0.05	7.3	12	100	1,310	<1.3	<0.05	19.0	18.1
12MW-24D	8/16/2004	400	—	150	65	79	1,600	23	25	940	0.03	7.0	12	140	1,410	1.7J	<0.05	23.0	5.2
12MW-24S	4/7/2003	125	<0.60	100	100	65	—	44	22	1,400	0.2	5.9	5.5	91.0	1,090	<1.5	0.30	20.6	—
12MW-24S	7/16/2003	425	0.91	160	190	53	8,600	50	30	1,600	<0.05	6.5	6.8	100	1,430	<0.75	0.20	22.6	—
12MW-24S	9/16/2003	325	—	170	150	46	24,000	35	26	1,300	0.1	6.8	9.9	110	1,510	<0.75	<0.05	24.0	—
12MW-24S	1/13/2004	400	—	110	70	42	5,000	15	17	710	<0.05	7.2	8.7	80.0	1,100	<0.75	<0.05	17.2	25
12MW-24S	4/27/2004	500	—	79	80	38	—	13	15	470	<0.05	6.9	7.4	80.0	972	0.87J	<0.05	19.8	10.3
12MW-24S	8/18/2004	325	—	62	60	39	—	15	12	350	<0.05	6.8	6.5	79.0	801	<0.75	<0.05	24.4	31.2
12MW-24S	2/1/2005	225	—	45	40	37	—	6.4	9.1	—	<0.05	7.0	5.2	75.0	674	<0.5	<0.05	17.0	15.3
12MW-24S	1/30/2006	—	—	—	—	48	—	2.6	—	—	<0.05	7.2	—	—	494	2.8	—	18.9	3.2
12MW-24S	6/21/2006	125	380	23	16	50	—	2.6	3.9	96	<0.05	6.9	—	58.0	466	<0.75	<0.05	22.8	—
12MW-24S	9/11/2006	110	—	—	15	56	—	1.8	—	—	<0.05	7.2	—	—	430	<0.75	<0.05	23.4	—
12MW-25D	7/15/2003	125	<1.0	40	14	140	—	1.5	6.3	90	0.2	7.2	5.0	110	861	5.6	0.30	21.4	—
12MW-25D	9/16/2003	190	—	50	18	140	10	1.5	8.4	120	0.1	7.1	5.9	130	460	<2.0	0.60	21.9	—
12MW-25D	1/12/2004	130	—	56	16	150	—	1.2	11	140	0.1	6.4	7.2	120	1,060	<2.0	0.90	17.8	—
12MW-25D	4/28/2004	125	—	89	25	150	—	2.5	18	220	0.05	6.7	8.4	120	1,210	<2.5	0.50	19.1	17.3

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

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Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-25D	8/16/2004	200	—	56	33	180	—	1.5	11	140	0.2	6.9	7.4	150	1,090	<2.3	0.15	22.1	14.5
12MW-25D	5/23/2005	250	—	90	70	150	—	2.5	19	350	0.1	6.9	8.4	160	1,200	<1.8	0.25	21.5	15.3
12MW-25D	6/21/2006	275	—	63	45	130	—	2.1	13	270	0.1	6.8	—	110	1,050	<1.8	0.10	21.1	—
12MW-25S	4/9/2003	100	<0.60	18	30	48	2.6	2.0	4.3	66	0.1	6.3	2.3	62.0	410	2.7	<0.05	17.4	—
12MW-25S	7/15/2003	105	0.35J	16	45	49	5.5	2.0	4.1	59	0.1	6.8	2.3	58.0	405	1.7	<0.05	21.3	—
12MW-25S	9/17/2003	110	—	16	30	47	10	2.0	3.9	55	0.1	6.3	2.5	59.0	412	1.0J	0.10	21.3	5.5
12MW-25S	1/13/2004	115	—	17	30	49	8.5	1.6	4.1	59	0.1	6.7	2.5	47.0	420	<0.75	<0.05	16.2	1
12MW-25S	4/27/2004	120	—	21	40	48	—	1.8	5.1	72	0.3	6.5	3.0	57.0	469	<0.75	<0.05	18.7	19.7
12MW-25S	8/18/2004	160	—	25	40	49	3,100	2.0	6.2	85	0.2	6.3	3.3	69.0	506	<0.75	<0.05	22.7	28.9
12MW-25S	2/1/2005	225	—	30	60	48	—	2.2	7.3	—	0.05	6.4	3.0	79.0	588	<0.75	<0.05	17.8	5.3
12MW-25S	5/23/2005	210	—	34	85	48	—	2.3	8.4	110	0.05	6.5	3.1	87.0	630	<0.75	0.05	21.3	18.4
12MW-25S	9/12/2005	240	—	34	110	52	—	2.4	8.8	110	0.1	6.5	3.6	93.0	670	0.84J	<0.05	23.2	12.2
12MW-25S	1/30/2006	—	—	—	—	44	—	2.3	—	—	0.2	6.6	—	—	683	<0.75	—	18.8	7.7
12MW-25S	6/21/2006	260	560	42	100	47	—	2.6	10	130	0.1	6.4	—	90.0	697	1.3J	0.05	21.6	—
12MW-25S	9/11/2006	260	—	—	140	98	—	2.6	—	—	0.05	6.5	—	—	686	1.8J	<0.05	22.1	—
12MW-25S	5/21/2007	225	—	33	120	51	—	2.2	8.6	110	0.05	6.4	3.4	77.4	653	0.67	<0.05	20.5	—
12MW-25S	7/16/2007	200	—	36	110	50	—	2.3	9.2	110	0.05	6.5	3.6	81.5	629	0.66	0.05	22.1	—
12MW-25S	11/27/2007	225	—	33	80	50	—	1.9	8.4	100	0.05	6.6	3.6	76.4	594	0.48	0.09	21.1	—
12MW-25S	5/6/2008	225	—	31	85	52	—	2.2	7.7	94	0.05	6.6	3.3	71.1	561	0.32J	0.06	19.6	—
12MW-26S	4/8/2003	85	<0.60	20	30	51	—	1.9	4.7	67	0.1	6.6	2.8	56.0	403	<1.5	0.05	16.8	—
12MW-26S	7/16/2003	85	<0.30	33	45	50	—	4.0	7.9	120	<0.05	6.3	2.5	48.0	508	<0.75	0.30	22.3	—
12MW-26S	9/17/2003	125	—	25	60	48	—	2.5	5.7	83	<0.05	6.4	3.2	58.0	466	<0.75	0.05	23.8	8.9
12MW-26S	1/13/2004	110	—	24	60	52	—	3.1	5.5	85	<0.05	7.1	3.2	44.0	462	<0.75	0.05	17.7	—
12MW-26S	4/27/2004	110	—	21	60	53	—	3.2	4.9	72	—	6.4	2.8	48.0	423	<1	<0.05	18.5	4.7
12MW-26S	8/18/2004	70	—	20	120	68	—	3.5	5	71	<0.05	6.2	2.7	58.0	441	<1	0.05	24.3	8.3
12MW-26S	2/2/2005	100	—	21	110	79	—	4.5	5.5	—	0.05	5.9	2.6	61.0	486	1.1J	<0.05	15.8	12
12MW-26S	5/25/2005	40	—	—	25	84	—	7.0	—	—	0.05	7.1	—	—	509	<1	<0.05	19.7	—
12MW-26S	1/31/2006	—	—	—	—	110	—	6.5	—	—	0.1	6.0	—	—	590	<1.3	—	18.6	—
12MW-26S	7/5/2006	65	—	—	70	—	—	4.0	—	—	0.1	6.1	—	—	574	—	<0.05	22.3	—
12MW-26S	9/12/2006	110	—	—	85	67	—	2.0	—	—	0.05	6.4	—	—	432	<1	<0.05	21.8	—
12MW-26S	5/21/2007	85	—	21	150	89	—	4.1	6.5	79	0.05	6.1	2.6	68.4	535	1.0	<0.05	20.6	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-26S	7/16/2007	80	—	21	140	100	—	4.7	6.5	81	<0.05	6.0	2.6	70.1	534	1.2	<0.05	21.5	—
12MW-26S	8/22/2007	—	—	21	—	120	—	—	6.7	80	—	—	2.6	75.8	—	1.5	—	—	—
12MW-26SR	8/22/2007	—	—	21	—	120	—	—	6.4	76	—	—	2.6	71.0	—	1.4	—	—	—
12MW-26S	11/26/2007	50	—	20	110	110	—	4.7	6.3	77	0.05	6.1	2.8	70.4	508	1.3	0.15	22.1	—
12MW-26SR	11/26/2007	—	—	20	—	110	—	—	6.1	75	—	—	2.7	68.7	—	1.3	—	—	—
12MW-26S	5/6/2008	95	—	21	140	94	—	4.9	6.0	74	<0.05	6.1	2.7	65.5	584	1.1	0.05	19.1	—
12MW-26S	8/14/2008	75	—	21	150	100	—	5.0	6.5	81	0.1	5.9	2.5	73.3	533	1.4	<0.20	22.0	—
12MW-27D	4/8/2003	200	<2.0	47	33	220	—	2.2	9.5	110	0.2	6.8	6.4	170	1,190	6.2	<0.05	17.2	—
12MW-27D	7/15/2003	175	<1.0	52	22	280	—	2.0	11	120	0.2	6.9	6.0	190	1,300	7.9	<0.05	22.4	—
12MW-27D	9/16/2003	175	—	51	21	260	—	2.0	10	110	0.1	6.9	6.1	190	1,340	5.8J	<0.05	22.8	4
12MW-27D	1/12/2004	150	—	52	21	290	—	1.0	10	110	0.3	6.8	6.6	180	1,400	<6.3	<0.05	18.1	2.7
12MW-27D	4/28/2004	150	—	50	19	250	—	0.90	10	130	0.1	6.9	6.3	150	1,330	5J	<0.05	18.5	17.9
12MW-27D	8/18/2004	200	—	42	30	220	—	1.6	8.8	98	0.1	6.8	5.4	170	1,150	<2.5	0.10	24.1	—
12MW-27D	5/23/2005	225	—	1.6	37	270	—	1.5	1.4	11	0.1	7.0	<0.36	25.0	1,340	<5	<0.05	22.9	0.2
12MW-27D	6/21/2006	100	—	63	45	190	—	1.5	13	130	0.1	6.7	—	170	1,370	<2.5	<0.05	23.4	—
12MW-27S	4/9/2003	<10	<0.60	4.3	150	32	—	1.4	1.8	33	0.3	4.7	0.67J	28.0	195	18	<0.05	16.2	—
12MW-27S	7/16/2003	<10	0.35J	3.2	200	37	—	3.5	1.6	29	<0.05	5.0	0.62J	24.0	195	17	<0.05	22.4	—
12MW-27S	9/16/2003	<10	—	2.8	200	34	—	5.5	1.5	25	0.05	5.0	0.63J	28.0	240	<2.5	<0.05	24.3	—
12MW-27S	1/14/2004	<10	—	3.1	—	37	—	0.80	1.5	25	0.6	5.4	0.48J	20.0	196	14	<0.05	17.2	—
12MW-27S	4/27/2004	<10	—	2.5	140	37	—	0.50	1.5	23	0.2	4.9	0.79J	22.0	193	16	<0.05	19.4	6.7
12MW-27S	8/18/2004	<10	—	2.2	190	36	—	2.5	1.4	17	0.1	4.7	0.94J	28.0	190	14	<0.05	24.6	—
12MW-27S	2/3/2005	<50	—	—	22	—	—	4.0	—	—	0.4	4.9	—	—	175	—	<0.05	16.9	8
12MW-27S	5/23/2005	<10	—	59	210	38	—	2.5	12	120	0.1	4.9	6.6	230	189	13	<0.05	21.6	—
12MW-27S	9/13/2005	<10	—	1.2	240	39	—	3.5	1.5	11	0.2	4.7	0.51J	25.0	202	12	<0.05	24.1	—
12MW-27S	1/31/2006	—	—	—	—	43	—	2.0	—	—	0.2	4.7	—	—	223	12	—	20.0	—
12MW-27S	6/21/2006	<10	—	2.1	350	46	—	2.5	2.1	15	0.05	4.6	—	29.0	237	10	<0.05	23.4	—
12MW-27S	9/12/2006	<10	—	—	350	47	—	3.0	—	—	0.1	4.5	—	—	241	9.9	<0.05	23.6	—
12MW-27S	5/23/2007	<10	—	1.6	420	45	—	2.0	2.1	14	0.05	4.5	0.62	35.4	229	9.6	<0.05	20.4	—
12MW-27S	7/17/2007	<10	—	2.0	420	45	—	3.0	2.2	14	0.1	4.6	0.71	35.9	231	9.6	<0.05	23.1	—
12MW-27S	11/27/2007	<10	—	1.7	350	47	—	2.7	2.1	14	0.1	4.7	0.69	34.4	234	8.5	0.06	21.7	—
12MW-27S	5/5/2008	<10	—	1.2	370	45	—	1.6	1.9	9.9J		4.6	0.57	34.0	222	9.0	0.047	20.5	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Mag-nesium (mg/L)	Man-ganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conduc-tance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Tem-perature (Celsius)	Turbidity (NTU)
12MW-28D	4/8/2003	50	<0.80	20	16	85	—	0.65	4.3	48	0.2	6.9	3.5	96.0	588	3	<0.05	18.5	—
12MW-28D	7/15/2003	100	0.55J	23	18	100	—	1.5	4.9	64	<0.05	6.9	4	95.0	647	3.8	<0.05	23.0	—
12MW-28D	9/17/2003	150	—	24	19	98	—	2.0	5	64	0.1	6.9	4.2	100	688	4.1	<0.05	22.8	5
12MW-28D	1/12/2004	175	—	36	17	150	—	1.3	7.5	96	0.2	6.6	5.6	110	888	<2	0.20	18.8	—
12MW-28D	4/26/2004	180	—	34	25	130	—	1.7	7.2	95	0.05	7.0	5.5	95.0	831	<2	0.10	21.0	12.1
12MW-28D	8/17/2004	240	—	41	30	150	—	2.0	8.8	110	0.2	6.9	6.3	140	928	<1.8	<0.05	23.4	15.2
12MW-28D	5/25/2005	200	—	52	40	120	—	1.5	11	140	0.1	6.7	6.5	160	1,030	<1.5	0.05	21.7	9.1
12MW-28D	6/22/2006	350	—	64	100	120	—	1.4	14	170	0.2	6.5	—	120	1,070	<1.8	0.10	21.7	—
12MW-28D	5/22/2007	275	—	46	100	130	—	1.0	11	130	0.1	6.6	6.8	129	947	<0.1	0.05	21.3	—
12MW-28D	7/16/2007	225	—	—	65		—	0.85	—	—	0.1	6.6	—	—	915	—	0.05	22.6	—
12MW-28D	11/28/2007	250	—	42	70	100	—	0.81	9.6	120	0.05	7.1	6.5	121	840	0.39J	0.14	21.8	—
12MW-28S	4/9/2003	250	<1.6	110	70	130	2.3	4.5	12	140	0.2	6.1	2.3	70.0	1,050	15	<0.05	17.7	—
12MW-28SR	4/9/2003	—	<1.6	120	—	130	—	—	13	140	—	—	2.5	70.0	—	15	—	—	—
12MW-28SR	7/17/2003	—	<0.80	73	—	120	—	—	9.3	120	—	—	1.8	70.0	—	12	—	—	—
12MW-28SR	9/15/2003	—	—	42	—	120	—	—	7.2	81	—	—	1.7J	70.0	—	7.9	—	—	—
12MW-28SR	1/14/2004	—	—	32	—	120	—	—	5.8	61	—	—	1.7J	49.0	—	6.5	—	—	—
12MW-28S	4/28/2004	<10	—	24	220	110	18	0.80	6.3	60	0.2	5.6	1.6J	59.0	528	6.8	<0.05	18.6	—
12MW-28SR	4/28/2004	—	—	24	—	120	—	—	6.3	60	—	—	1.5J	59.0	—	7.2	—	—	—
12MW-28S	8/17/2004	35	—	20	250	110	3.0	4.5	5.8	64	0.3	5.3	64	64.0	521	5.5	<0.05	23.8	12.8
12MW-28SR	8/17/2004	—	—	20	—	110	—	—	5.9	64	—	—	63	63.0	—	5.9	—	—	—
12MW-28S	2/2/2005	60	—	21	180	110	0.82	1.3	5.5	—	0.4	5.7	1.4J	61.0	511	4.5	<0.05	18.5	—
12MW-28SR	2/2/2005	—	—	22	—	120	—	—	5.7	—	—	—	1.5J	64.0	—	5.4	—	—	—
12MW-28S	5/24/2005	<10	—	20	210	120	0.98J	0.7	5.5	53	0.05	5.4	1.6	64.0	538	5.9	<0.05	21.2	12.6
12MW-28SR	5/24/2005	—	—	20	—	120	—	—	5.6	54	—	—	1.2J	65.0	—	5.8	—	—	—
12MW-28S	9/13/2005	<10	—	18	250	130	—	2.6	5.5	52	0.2	5.2	1.3J	69.0	533	8.6	<0.05	23.7	11.4
12MW-28SR	9/13/2005	—	—	18	—	130	—	—	5.6	53	—	—	1.6	71.0	—	8	—	—	—
12MW-28S	1/31/2006	—	—	—	—	120	—	—	—	—	—	—	—	—	—	5.4	—	—	—
12MW-28SR	1/31/2006	—	—	—	—	120	—	—	—	—	—	—	—	—	—	5.4	—	—	—
12MW-28S	6/20/2006	<10	—	18	250	140	1.2	0.95	5.9	54	0.1	5.1	—	68.0	553	7	<0.05	22.9	—
12MW-28SR	6/20/2006	—	—	18	—	140	—	—	5.7	53	—	—	—	66.0	—	5.4	—	—	—
12MW-28S	9/12/2006	<10	—	—	270	120	—	2.4	—	—	0.2	5.2	—	—	538	4.1	<0.05	24.1	—

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12MW-28SR	9/12/2006		—	—	—	120	—	—	—	—	—	—	—	—	—	4.1	—	—	—
12MW-28S	5/22/2007	<10	—	13.5	270	120	—	1.0	4.9	43	0.2	5.1	1.5	65.6	503	5.6	<0.05	20.3	—
12MW-28SR	5/22/2007	—	—	12.9	—	120	—	—	4.6	41	—	—	1.4	63.1	—	5.5	—	—	—
12MW-28S	7/17/2007	<10	—	13.8	260	120	—	2.0	5.0	44	0.1	5.2	1.6	71.7	485	4.5	<0.05	23.6	—
12MW-28S	11/27/2007	<10	—	13.2	270	100	—	1.9	4.7	44	0.5	5.3	1.7	63.9	466	4.0	0.07	22.6	—
12MW-28S	5/6/2008	<10	—	10.4	250	95	—	0.69	3.9	34	0.05	5.2	1.4	57.7	435	5.1	0.037	20.9	—
12MW-28SR	5/6/2008	—	—	10.5	—	94	—	—	4.0	35	—	—	1.4	58.7	—	5.1	—	—	—
12MW-29S	8/17/2004	50	—	4.2	40	90	2.0	0.80	2.3	17	0.05	5.7	1.5J	82.0	463	2.0J	<0.05	20.9	38.4
12MW-29SR	8/17/2004	—	—	4.4	—	89	—	—	2.3	17	—	—	1.6J	82.0	—	2.2	—	—	—
12MW-29S	2/2/2005	50	—	6.2	20	94	1.8	0.80	2.5	—	0.2	6.1	1.2J	88.0	478	1.4J	<0.05	17.4	—
12MW-29S	5/24/2005	65	—	6.5	70	86	1.0J	0.60	2.6	23	0.05	—	1.2J	85.0	478	1.8J	<0.05	18.1	9.2
12MW-29SR	5/24/2005	—	—	6.6	—	87	—	—	2.6	23	—	—	1.1J	85.0	—	1.7J	—	—	—
12MW-29S	9/13/2005	<10	—	5.9	150	80	—	0.50	2.5	22	0.1	6.1	1.7	85.0	460	2J	<0.05	21.5	34.9
12MW-29SR	9/13/2005	—	—	6.1	—	84	—	—	2.6	23	—	—	1.5	86.0	—	1.9J	—	—	—
12MW-29S	1/31/2006	—	—	—	—	76	—	0.30	—	—	—	6.1	—	—	449	1.8J	—	17.3	6.3
12MW-29SR	1/31/2006	—	—	—	—	76	—	—	—	—	—	—	—	—	—	1.6J	—	—	—
12MW-29S	6/20/2006	70	—	—	110	80	—	0.50	—	—	0.2	6.0	—	—	476	1.9J	<0.05	20.0	—
12MW-29SR	6/20/2006	—	—	—	—	79	—	—	—	—	—	—	—	—	—	1.7J	—	—	—
12MW-29S	9/11/2006	65	—	—	30	77	—	0.80	—	—	0.1	6.0	—	—	471	1.8J	<0.05	21.3	—
12MW-29SR	9/11/2006	—	—	—	—	77	—	—	—	—	—	—	—	—	—	1.7J	—	—	—
12MW-29S	5/22/2007	90	—	—	35	71	—	0.40	—	—	0.1	6.0	—	—	463	1.8	<0.05	19.0	—
12MW-29SR	5/22/2007	—	—	—	—	70	—	—	—	—	—	—	—	—	—	1.7	—	—	—
12MW-29S	7/17/2007	90	—	—	25	71	—	0.30	—	—	0.05	5.8	—	—	470	1.8	<0.05	19.3	—
12MW-29S	11/27/2007	50	—	—	12	67	—	<0.05	—	—	2.0	7.4	—	—	486	1.7	0.12	18.6	—
12MW-29S	5/6/2008	70	—	—	25	68	—	0.09	—	—	0.2	6.2	—	—	470	2.0	<0.6	19.6	—
12MW-30S	8/18/2004	100	—	6.2	50	100	2.6	—	2.3	45	0.05	5.6	1.2J	81.0	500	6.9	<0.05	20.6	21.6
12MW-30SR	8/18/2004	—	—	6.2	—	97	—	—	2.3	46	—	—	1.4J	83.0	—	6.3	—	—	—
12MW-30S	5/24/2005	70	—	9.4	50	96	17	0.40	2.6	37	0.1	—	1.2J	88.0	505	1.7J	<0.05	19.8	11.4
12MW-30S	9/13/2005	65	—	11	40	88	—	0.40	2.6	38	0.2	6.0	1.5	89.0	494	2.5	<0.05	21.5	27.6
12PZ-03D	8/19/2004	90	—	46	80	580	—	24	19	370	0.1	5.6	4.6	310	2,200	58	<0.05	22.8	—
12PZ-03D	2/1/2005	65	—	—	70	—	—	18	—	—	0.05	5.8	—	—	2,050	—	<0.05	14.6	190

Appendix 4. Concentrations of inorganic constituents measured in groundwater at Solid Waste Management Unit 12, Naval Weapons Station Charleston, North Charleston, South Carolina, August 2000 to August 2008.—Continued

[mg/L, milligrams per liter; nM, nanomoles; µg/L, micrograms per liter; S.U., standard units; µS/cm, microsiemens per centimeter; NTU, Nephelometric turbidity units; —, Data not collected; <, less than; J, estimated; R, replicate sample]

Well number	Sampling date	Alkalinity (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Carbon dioxide (mg/L)	Chloride (mg/L)	Hydrogen (nM)	Iron(II) (mg/L)	Magnesium (mg/L)	Manganese (µg/L)	Dissolved oxygen (mg/L)	pH (S.U.)	Potassium (mg/L)	Sodium (mg/L)	Specific conductance (µS/cm)	Sulfate (mg/L)	Sulfide (mg/L)	Temperature (Celsius)	Turbidity (NTU)
12PZ-03D	5/23/2005	100	—	—	100	—	—	24	—	—	0.1	6.1	—	—	2,060	—	<0.05	—	—
12PZ-03D	6/22/2006	45	—	—	160	—	—	25	—	—	0.05	5.7	—	—	2,060	—	<0.05	22.0	—
12PZ-03D	5/21/2007	—	—	—	—	—	—	—	—	—	—	5.8	—	—	2,080	—	—	18.8	—
12PZ-03D	11/28/2007	35	—	39.1	25	550	—	9.9	18	290	0.3	6.5	3.3	333	—	50	0.13	—	—

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