Hazardous Waste Section

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Ms. Katherine O'Neal
North Carolina Department
Of Environmental Quality
Hazardous Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Dear Ms. O'Neal:

Enclosed for your review is the Long-Term Groundwater Monitoring (LTM) Report-2015 for Solid Waste Management Unit (SWMU) Site 343 (Former G-10 Open Burn/Open Detonation), located on Marine Corps Base Camp Lejeune. The LTM was conducted and this report was prepared in accordance with the SWMU 343 LTM Implementation Plan dated June 2014, and approved by your office via letter dated November 3, 2014.

We would like to request a meeting with you to discuss the path forward for the long-term groundwater monitoring of this site. Specifically, we would like to develop some possible exit strategies based on the data we currently have collected and the sporadic nature of many of the contaminants of concern we are monitoring. If it is possible, we would like to meet sometime early to mid-May, perhaps during the week of May 9th or 16th.

We will follow up with you at the end of April to schedule a meeting. If you have any questions or comments, please contact Ms. Charity Delaney, Environmental Quality Branch, Environmental Management Division, G-F, at (910)451-9385.

Sincerely,

JOHN R. TOWNSON
Director, Environmental Management
By direction of
the Commanding General

Enclosure: RCRA Long-Term Groundwater Monitoring Report-2015 SWMU 343

Copy to:
NCDEQ (Ms. Elizabeth Hartzell w/ CD enclosure)
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File (ODI #22285)

RCRA Long-term Groundwater Monitoring Report – 2015
SWMU 343

Marine Corps Base Camp Lejeune
North Carolina

Contract Task Order WE15

April 2016

Prepared for

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Naval Facilities Engineering Command
Mid-Atlantic

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Prepared by

CH2M HILL, Inc
14120 Ballantyne Corporate Place, Suite 200
Charlotte, North Carolina

Executive Summary

This document presents the findings of the Resource Conservation and Recovery Act (RCRA) long-term monitoring (LTM) activities conducted at Solid Waste Management Unit (SWMU) 343 at Marine Corps Base Camp Lejeune (MCB Camp Lejeune), North Carolina. SWMU 343, the former G-10 Open Burn/Open Detonation (OB/OD) Unit, comprises approximately 2 acres within the 4,900-acre active G-10 Impact Area. SWMU 343 was added to the Base's RCRA LTM program in 2009 to monitor groundwater quality and potential contaminant migration from the G-10 OB/OD Unit. The site is located within an operational impact area with inherent physical and explosives safety hazards; therefore, the SWMU 343 monitoring wells are located just outside the boundary of the G-10 Impact Area.

Site History and Description

The G-10 OB/OD Unit was used from 1983 until approximately 1996 for the demilitarization and disposal of waste military munitions generated at MCB Camp Lejeune. The OB/OD Unit was closed under RCRA in February 2009. Following its closure, the G-10 OB/OD hazardous waste management unit was transferred to the Base's corrective action management program for post-closure LTM as SWMU 343.

Post-Closure Long-term Monitoring

Long-term groundwater monitoring has been performed at SWMU 343 on a quarterly basis between 2009 and 2013 with annual monitoring starting in 2014.

Groundwater samples are analyzed for:

- Semivolatile organic compounds (SVOCs)
- Explosives residues including pentaerythritol tetranitrate (PETN), nitroglycerin, and perchlorate
- Select metals (total and dissolved)

Analytical Results

The following sections summarize the laboratory analytical data for groundwater samples collected from the surficial and upper Castle Hayne aquifers in August 2015.

Explosives Residues

Explosives residues were not detected above the laboratory detection limits in samples collected in 2015. Perchlorate was detected in groundwater samples at concentrations below the North Carolina Groundwater Quality Standards (NCGWQS) and the adjusted United States Environmental Protection Agency Regional Screening Levels (RSL).

Semivolatile Organic Compounds

Four SVOCs (atrazine, benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) were detected at estimated concentrations. Three out of the four detected SVOCs (benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) exceeded screening criteria.

Metals

Eight total metals and six dissolved metals were detected. Only manganese in the sample collected from one upper Castle Hayne monitoring well (G10-MW14) exceeded the background threshold value (BTV) and the NCGWQS. The other detections of metals did not exceed the BTV and the NCGWQS.

Long-term Monitoring Data Evaluation

Overall, detections of explosives residues, perchlorate, SVOCs, and metals in the groundwater samples collected from the surficial and upper Castle Hayne aquifers have been isolated and sporadic. The following discussion addresses exceedances of the BTVs (if applicable) and NCGWQS, focusing on the last 4 years so that, at a minimum, results from four previous sampling events are included in the discussion.

- With the exception of the February 2013 monitoring event, explosives residues have not been detected in samples collected since 2010. In February 2013, five explosives residues were detected at estimated concentrations in the duplicate sample and not the parent sample collected from G10-MW19, which is screened in the upper Castle Hayne aquifer. For analytes that do not have an established NCGWQS, a detection constitutes an exceedance; however, the concentrations did not exceed the adjusted RSLs. Explosives residues were not detected in samples collected from G10-MW19 during subsequent monitoring events or in samples collected from any other monitoring well in 2015.
- Perchlorate has only been detected above the NCGWQS and adjusted RSL once since LTM began in 2009 in a sample collected from G10-MW12 (November 2009) which is screened in the surficial aquifer and located near the southeast corner of the G10 Impact Area. Perchlorate was detected below the NCGWQS and adjusted RSL in samples collected in 2013, 2014, and 2015.
- SVOCs detected at concentrations exceeding the NCGWQS over the last four monitoring events have included 2,4-dinitrotoluene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and pentachlorophenol. However, none of the exceedances occurred in samples collected from the same well in consecutive monitoring events and have generally only been sporadically detected at very low, estimated concentrations.
- Two total metals (manganese and vanadium) and one dissolved metal (manganese) have been detected above the NCGWQS, adjusted RSLs, and BTVs.
  - Total and dissolved manganese concentrations have exceeded the BTV, NCGWQS, and adjusted RSL in samples collected from wells G10-MW3, which is screened in the surficial aquifer, and G10-MW14 and G10-MW17, which are screened in the upper Castle Hayne aquifer. Since 2009, concentrations of total and dissolved manganese were detected above the NCGWQS, adjusted RSL, and BTV in 1 of 10 samples collected from G10-MW3, 5 of 10 samples collected from G10-MW14, and in 4 of 9 samples collected from G10-MW17.
  - Total vanadium was detected above the BTV, NCGWQS, and adjusted RSL in a sample from G10-MW13 in 2009 and in a sample from G10-MW16 in 2011. Both monitoring wells (G10-MW13 and G10-MW16) are installed in the surficial aquifer; however, G10-MW13 is located northeast of the former OB/OD Unit, while G10-MW16 is located southeast of the former OB/OD Unit. Total and dissolved vanadium have not been detected above the BTV, NCGWQS, and adjusted RSL in samples collected from the upper Castle Hayne aquifer.
- With the exception of the recent (August 2015) polycyclic aromatic hydrocarbon exceedances (particularly for benzo[a]pyrene), samples collected from 10 of the 14 monitoring wells have not contained an exceedance in four annual sampling events dating back to August 2012. Samples collected from G10-MW8 have not contained an exceedance of groundwater screening levels in the last 11 sampling events, dating back to February 2009. Samples collected from G10-MW19 have not contained an exceedance of groundwater screening levels in the last five sampling events dating back to February 2013.

Conclusions

Based on the 2015 and historical LTM groundwater analytical results, the following conclusions were developed:

- With the exception of the duplicate sample collected from G10-MW19 in February 2013, explosives residues have not been detected above NCGWQS or adjusted RSLs in samples collected since 2010.
- SVOCs have been detected above the NCGWQS; however, the detections have been isolated and sporadic with no discernible trend. Additionally, SVOCs have not been detected above the NCGWQS in groundwater samples collected from the same monitoring well over consecutive sampling events.

- Two total metals (manganese and vanadium) and one dissolved metal (manganese) have been detected above the BTVs, NCGWQS, and adjusted RSLs. Manganese and vanadium are the only metals that have exceeded background, NCGWQS, and adjusted RSLs in the last four monitoring events (dating back to 2010 for most wells).
- Over the last 11 monitoring events, there have been no exceedances in samples collected from monitoring well G10-MW8.
- Over the last five monitoring events, there have been no exceedances in samples collected from monitoring well G10-MW19.

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Acronyms and Abbreviations

°C	degree(s) Celsius
µg/L	microgram(s) per liter
amsl	above mean sea level
bgs	below ground surface
BTOC	below top of casing
BTV	background threshold value
COC	constituent of concern
CSM	conceptual site model
DO	dissolved oxygen
DoD	Department of Defense
IMAC	Interim Maximum Allowable Concentration
Katahdin	Katahdin Analytical Services
LTM	long-term monitoring
mg/L	milligram(s) per liter
MC	munitions constituent
MCB Camp Lejeune	Marine Corps Base Camp Lejeune
mS/cm	milliSiemens per centimeter
mV	millivolt(s)
NCDEQ	North Carolina Department of Environmental Quality
NCGWQS	North Carolina Groundwater Quality Standards
NTU	nephelometric turbidity unit
OB/OD	Open Burn/Open Detonation
ORP	oxidation-reduction potential
PETN	pentaerythritol tetranitrate
RCRA	Resource Conservation and Recovery Act
REVA	Range Environmental Vulnerability Assessment
RMUS	Range and Munitions Use Subcommittee
RSL	Regional Screening Level
SI	Site Investigation
SU	standard unit
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

SECTION 1

Introduction

This document is the annual Resource Conservation and Recovery Act (RCRA) Long-term Monitoring (LTM) Report for Solid Waste Management Unit (SWMU) 343 for Marine Corps Base Camp Lejeune (MCB Camp Lejeune), North Carolina.

The objective of this report is to present the LTM activities conducted at SWMU 343 in August 2015, as well as the current groundwater conditions, conceptual site model (CSM), evaluation of contaminant trends, and conclusions and recommendations.

SWMU 343, the former G-10 Open Burn/Open Detonation (OB/OD) Unit, is located within the active G-10 Impact Area east of Sneads Ferry Road on the Mainside of MCB Camp Lejeune (**Figure 1-1**). Due to its location within an operational impact area and its inherent physical and explosives safety hazards, it is not feasible to install monitoring wells within the actual OB/OD area, and therefore groundwater monitoring is conducted using monitoring wells located along the boundary of the G-10 Impact Area.

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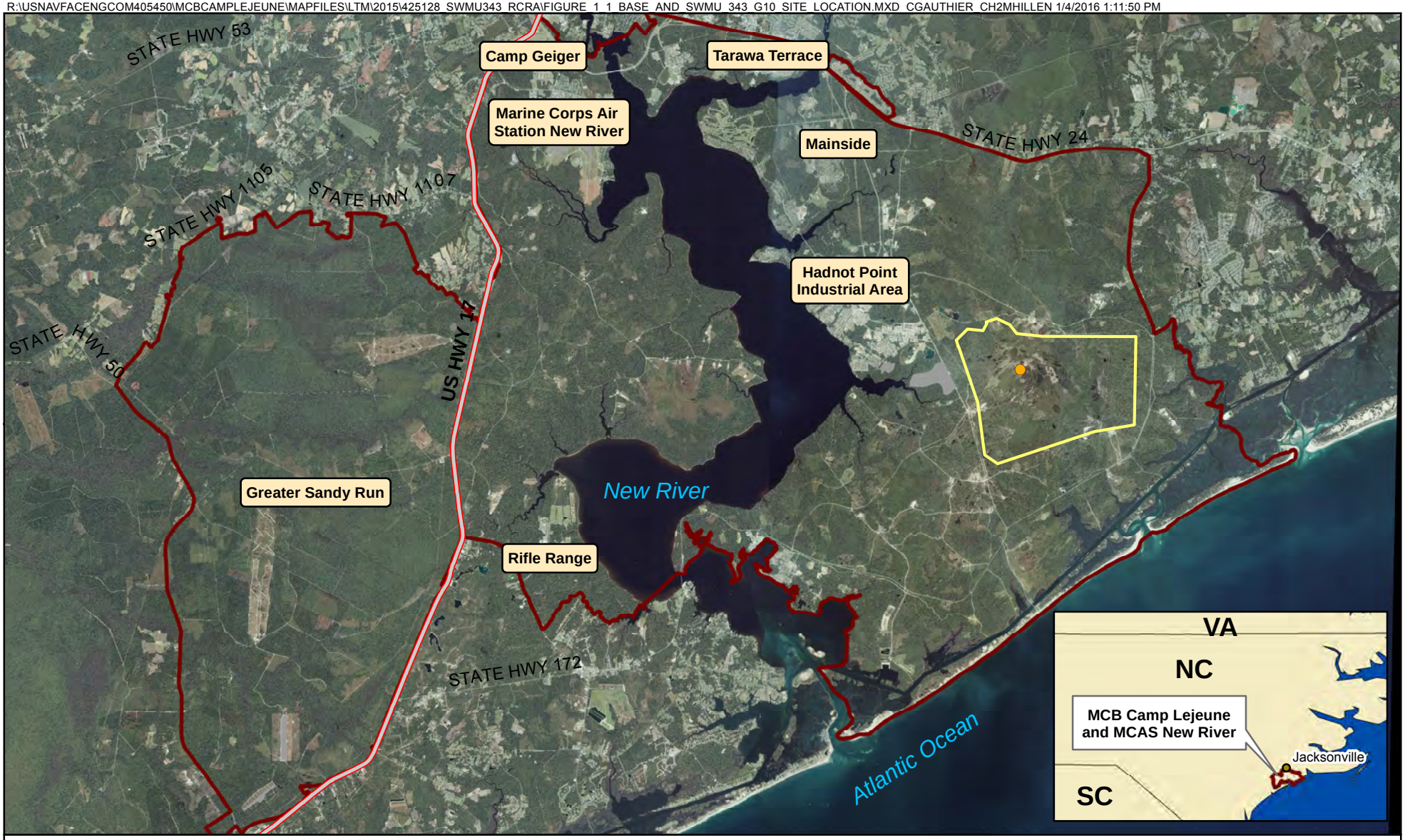

Legend

- G10 Impact Area Boundary
- SWMU 343 (Former G-10 OB/OD)
- Highways
- Installation Boundary

N

0 7,500 15,000 Feet

1 inch = 15,000 feet

Figure 1-1
Base Location Map
RCRA Long-term Groundwater Monitoring Report – SWMU 343
MCB Camp Lejeune
North Carolina

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SECTION 2

Site Background

MCB Camp Lejeune (hereafter known as the Base) is a 156,000-acre facility located in Onslow County, North Carolina, adjacent to the City of Jacksonville. The mission of the Base is to maintain combat-ready units for expeditionary deployment. The Base provides housing, training facilities, and logistical support for Fleet Marine Force and other assigned units. It is located within the coastal plain of southeastern North Carolina and is bisected by the New River, which flows in a southeasterly direction to the Atlantic Ocean. The Base is bordered by the Atlantic Ocean to the southeast, United States Route 17 to the west, and State Route 24 to the northeast. A location map of the Base and surrounding area is provided as **Figure 1-1**.

2.1 Location and History

SWMU 343 is located within the boundary of the active G-10 Impact Area east of Sneads Ferry Road (**Figure 2-1**). The G-10 Impact Area has been used for military training and range activities since approximately 1941 and is one of two primary active munitions impact areas at the Base. SWMU 343 was used from 1983 until approximately 1996 for the demilitarization and disposal of waste military munitions generated at the Base. When operational, the OB/OD Unit covered an area of approximately 2 acres within the 4,900-acre G-10 Impact Area and consisted of three craters, each approximately 15 feet wide and 4 to 6 feet deep. The OB/OD Unit was closed under RCRA in February 2009. Following its closure, the G-10 OB/OD hazardous waste management unit entered the Base's corrective action management program for post-closure LTM as SWMU 343.

While conducting RCRA pre-closure site investigation activities in 2007, the former OB/OD Unit was noted to be located adjacent to hard targets in the form of vehicle (tank) carcasses in an area that was heavily impacted by former and current munitions-training activities. Other than the craters, there were no other physical demarcations delineating the OB/OD Unit from the remainder of the G-10 Impact Area.

2.2 Previous Investigations

Details regarding previous investigations at SWMU 343 are summarized in **Table 2-1**.

TABLE 2-1
Previous Investigations

Previous Investigation	Date	Activities
United States Geologic Survey Study (USGS, 2004)	2004	A study was conducted to estimate the direction of groundwater flow and hydraulic gradient in the surficial aquifer within the G-10 Impact Area. Field activities included installation of monitoring wells along the perimeter of the G-10 Impact Area, measurement of water level elevations, and surveying of land surface elevations. Results indicated that water in the surficial aquifer likely flows outward in all directions toward discharge zones along local streams that drain westward to the New River or to streams that drain southward and eastward to the Intracoastal Waterway and the Atlantic Ocean.
Pre-Closure Site Investigation (SI) (CH2M HILL, 2007)	2007	To develop an appropriate closure strategy for the site, an SI was conducted. Field activities included groundwater sampling for explosives residues, semivolatile organic compounds (SVOCs), metals, nitrate and nitrite, nitrosodimethylamine, n-nitrosodi-n-propylamine, and perchlorate. One SVOC (benzo[b]fluoranthene) and one metal (iron) were detected at concentrations exceeding screening criteria. The results of the investigation indicated no significant impact to the surficial aquifer and were used to develop a strategy to address groundwater during closure of the OB/OD Unit.

TABLE 2-1
Previous Investigations

Previous Investigation	Date	Activities
Closure Plan (CH2M HILL, 2008)	2008	Based on recommendations from the Pre-Closure SI, a closure plan was developed and approved by North Carolina Department of Environment and Natural Resources (now North Carolina Department of Environmental Quality [NCDEQ]) in 2008. The plan authorizes closure of the site with munitions-related residues in place (consistent with the current and future land use as an impact area) and post-closure groundwater LTM.
Post-Closure Long-Term Monitoring 2009 Work Plan (CH2M HILL, 2009)	2008	A Technical Memorandum was prepared to address the requirements for post-closure groundwater LTM. The memo specified quarterly monitoring for 1 year to establish a baseline for future LTM sampling and a report to summarize the first four sampling events and evaluate the analytes and frequency for future LTM.
Long-term Monitoring (CH2M HILL, 2015)	2009–present	LTM was initiated in 2009, and six additional monitoring wells (G10-MW14 through G10-MW19) were installed along the boundary of the G-10 Impact Area (**Figure 2-1**). LTM activities included quarterly groundwater monitoring for explosives residues (including nitroglycerin and pentaerythritol tetranitrate [PETN]), perchlorate, SVOCs, and select metals from 17 monitoring wells. In December 2010, the monitoring frequency was reduced to quarterly monitoring at monitoring well G10-MW19, semi-annual monitoring at the western boundary locations (G10-MW08, G10-MW09, G10-MW10, G10-MW11, and G10-MW18), and annual monitoring at the remaining monitoring wells (G10-MW03, G10-MW04, G10-MW05, G10-MW06, G10-MW07, G10-MW12, G10-MW13, G10-MW14, G10-MW15, G10-MW16, and G10-MW17). In January 2014, monitoring well frequency was reduced to annual monitoring for all monitoring wells. Explosives residues, SVOCs, and metals have been sporadically detected in the groundwater samples at concentrations exceeding their respective North Carolina Groundwater Quality Standard (NCGWQS) or Interim Maximum Allowable Concentration (IMAC), United States Environmental Protection Agency (USEPA) Regional Screening Level (RSL), and/or background threshold value (BTV).
Range Environmental Vulnerability Assessment (REVA) (Malcom Pirnie, 2012)	2010–2011	A REVA was conducted to evaluate whether unacceptable concentrations of munitions constituents (MCs) are migrating to off-range areas. Field activities included collection of groundwater samples from 14 wells, 13 of which are monitored as part of the SWMU 343 program, for analysis of explosives residues, perchlorate, and total and dissolved lead. The findings of this study did not indicate the presence of MC in groundwater or that MC above applicable regulatory criteria are migrating to off-range receptors.

2.3 Site Characteristics

The site characteristics are summarized in the CSM presented in **Table 2-2**.

TABLE 2-2
Conceptual Site Model

Site Name		SWMU 343 – Former OB/OD Unit
Current Use		The G-10 Impact Area is an active military training range.
Site Conditions	**Physical Characteristics**	SWMU 343 covers approximately 2 acres within the 4,900-acre G-10 Impact Area. The ground cover is primarily vegetated with patches of bare earth. The topography within the G-10 Impact Area is generally higher than the surrounding area, ranging from approximately 56 feet above mean sea level (amsl) to 10 feet amsl near the surface drainage features at the northern and western boundaries of the G-10 Impact Area. The western boundary of the G-10 Impact Area exhibits the greatest relief, with a change in elevation of about 40 feet over a distance of approximately 4,480 feet. Several drainage swales are located within and around the G-10 Impact Area that potentially convey stormwater runoff to nearby tributaries.
	Geology and Hydrogeology	Shallow soils of the undifferentiated formation, which extend to depths of 23 to 59 feet below ground surface (bgs), consist of sand and silty sand. A laterally continuous silty clay layer, part of the Belgrade Formation, exists in the northern portion of the G-10 Impact Area. The River Bend Formation lies beneath the undifferentiated formation or Belgrade Formation, if present, and consists of weakly to fully cemented limestone with silt, shell and fossil fragments, poorly sorted sand, silty sand, and trace amounts of clay. The surficial aquifer is located within the undifferentiated formation and extends from the water table to approximately 30 feet bgs. Depth to groundwater in the surficial aquifer ranges from approximately 2 to 16 feet bgs. Groundwater flows radially from the G-10 Impact Area (**Figure 2-2**) with an average seepage velocity of 90 feet per year. The upper Castle Hayne aquifer lies beneath the surficial aquifer within the River Bend Formation and extends from 30 to 75 feet bgs. Groundwater flow in the upper Castle Hayne aquifer is to the east, west, and south (**Figure 2-3**) with an average seepage velocity of 58 feet per year. The upper Castle Hayne aquifer shows localized confinement and that may result in flowing artesian conditions in wells installed in low lying areas that penetrate the aquifer.
Potential Source Area		OB/OD Unit – Formerly used for disposal of waste military munitions G-10 Impact Area – Currently used for training with military munitions
Current Potential LTM Constituents of Concern (COCs)		Explosives residues, perchlorate, SVOCs, and select total and dissolved metals
Migration Pathways		Potential migration pathways include horizontal and vertical migration of potential COCs in groundwater and stormwater runoff to drainage swales located within and around the G-10 Impact Area.

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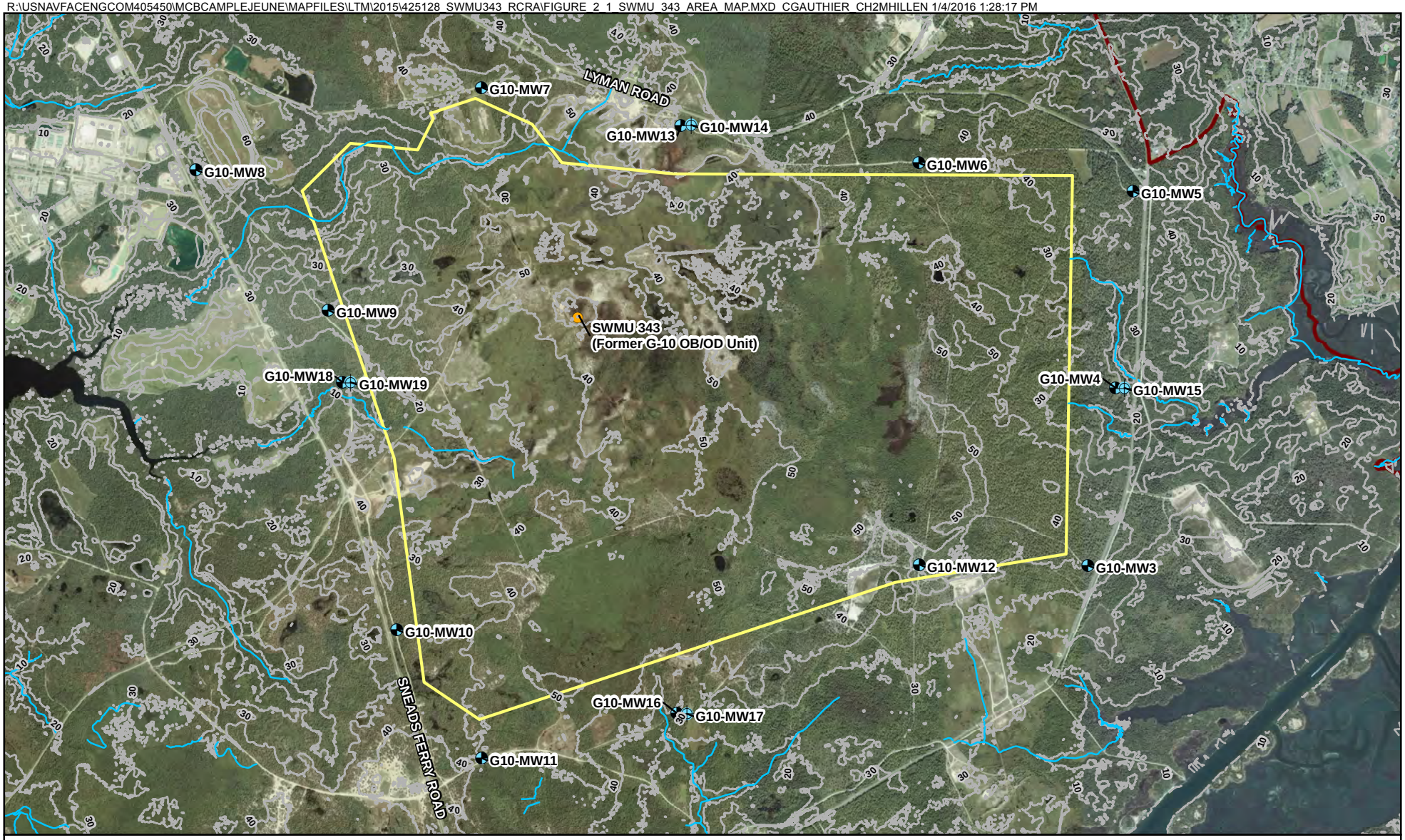

Legend

- Monitoring Well (Surficial Aquifer)
- Monitoring Well (Upper Castle Hayne Aquifer)
- SWMU 343 (Former G-10 OB/OD)
- Elevation Contour Line (10 ft Interval)
- Surface Water
- G10 Impact Area Boundary
- Installation Boundary

N

0 1,750 3,500 Feet

1 inch = 3,500 feet

Figure 2-1
Site Map
RCRA Long-term Groundwater Monitoring Report – SWMU 343
MCB Camp Lejeune
North Carolina

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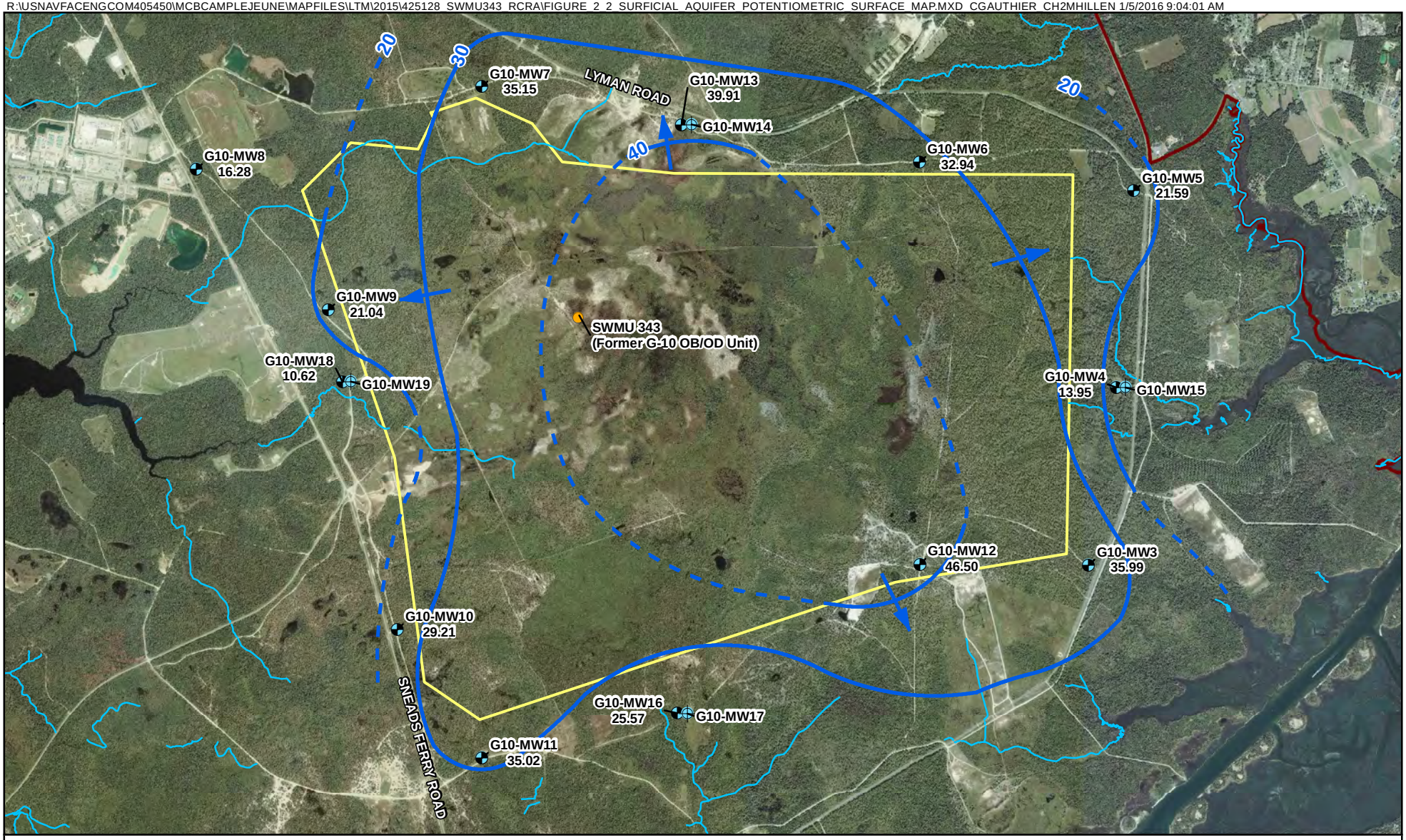

Legend

- Monitoring Well (Surficial Aquifer)
- Monitoring Well (Upper Castle Hayne Aquifer)
- SWMU 343 (Former G-10 OB/OD)
- Groundwater Flow Direction
- Potentiometric Contour (dashed where inferred; feet)
- Surface Water
- G10 Impact Area Boundary
- Installation Boundary

N

0 1,750 3,500 Feet

1 inch = 3,500 feet

Figure 2-2
Surficial Aquifer Potentiometric Surface Map
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

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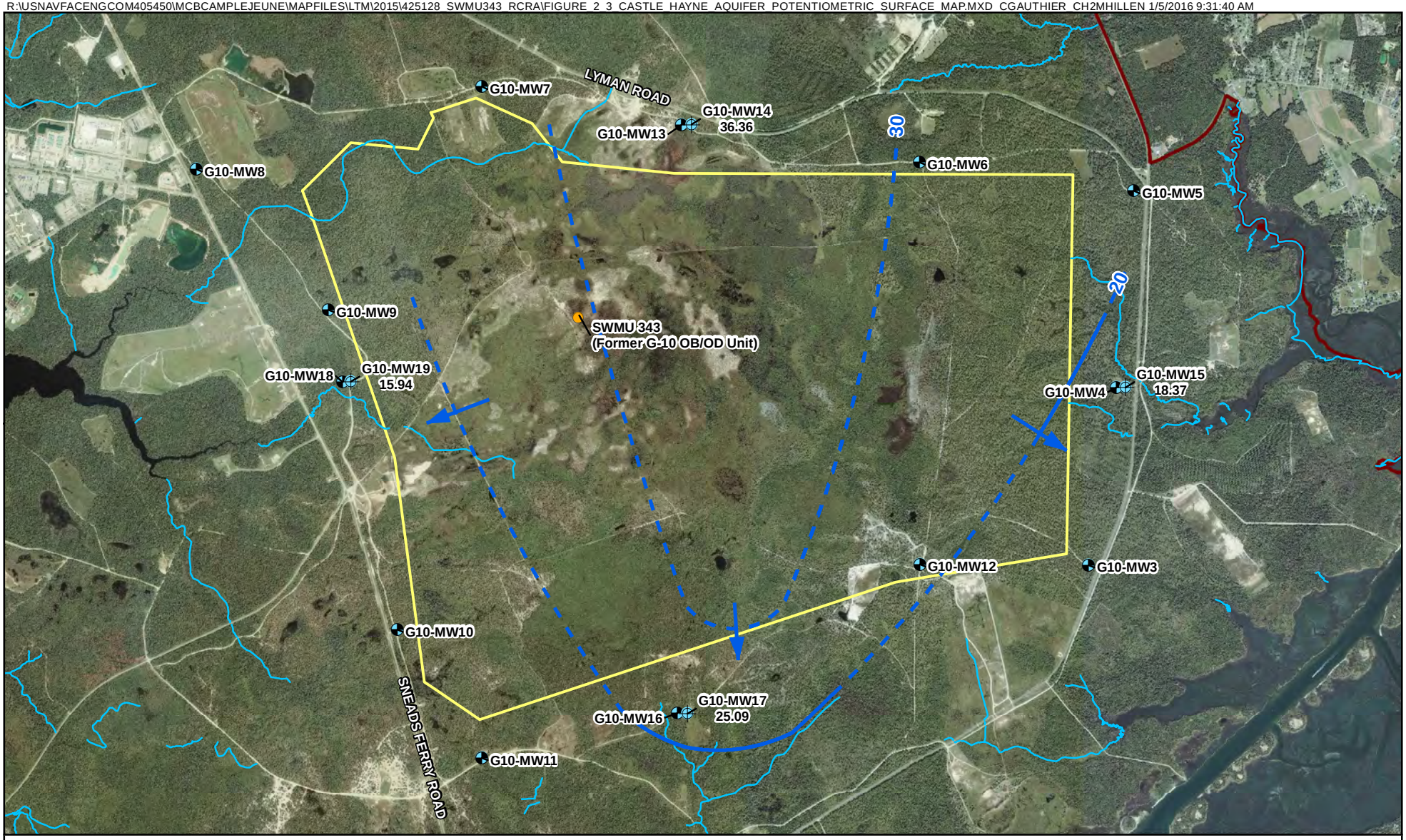

Legend

- Monitoring Well (Surficial Aquifer)
- Monitoring Well (Upper Castle Hayne Aquifer)
- SWMU 343 (Former G-10 OB/OD)
- Groundwater Flow Direction
- Potentiometric Contour (dashed where inferred; feet)
- Surface Water
- G10 Impact Area Boundary
- Installation Boundary

N

0 1,750 3,500 Feet

1 inch = 3,500 feet

Figure 2-3
Castle Hayne Aquifer Potentiometric Surface Map
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

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SECTION 3

Data Collection and Evaluation

This section discusses the field procedures and information obtained during the annual groundwater monitoring event conducted in 2015. Groundwater samples were collected from both the surficial and upper Castle Hayne aquifers as summarized in **Table 3-1**. All field procedures were conducted in accordance with the Long-term Groundwater Monitoring Plan, SWMU 343 (CH2M HILL, 2014).

3.1 LTM Well Network

Table 3-1 presents a summary of the monitoring well network, target analytes, and rationale for sampling. The rationale for selection of wells for use in the LTM program is based upon the location of the wells relative to the perimeter of the G-10 Impact Area, potable supply wells, and groundwater flow directions within and from the G-10 Impact Area.

TABLE 3-1
Long-Term Monitoring Well Network

Sampling Event	Analytes	Aquifer	Monitoring Well(s)	Rationale
Annual – August 2015	Explosives residues, perchlorate, SVOCs, and select total and dissolved metals*	Surficial	G10-MW3, G10-MW4, G10-MW5, G10-MW6, G10-MW7, G10-MW8, G10-MW9, G10-MW10, G10-MW11, G10-MW12, G10-MW13, G10-MW16, and G10-MW18	Downgradient of the G-10 Impact Area
		Upper Castle Hayne	G10-MW14	Upgradient of the G-10 Impact Area
			G10MW15, G10-MW17, and G10-MW19	Downgradient of the G-10 Impact Area

Notes:

* The total and dissolved metals (antimony, arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, molybdenum, nickel, silver, vanadium, and zinc) list is derived from a list of metals associated with operational range assessments as identified by the Department of Defense (DoD) Range and Munitions Use Subcommittee (RMUS) and for which screening values have been developed for use with the DoD's operational range assessment program.

3.2 Water Level Gauging

During the August 2015 monitoring event, water levels were gauged in each well from which a sample was collected. The gauging data were used to calculate groundwater elevations and develop potentiometric surface maps to evaluate groundwater flow directions in the surficial and upper Castle Hayne aquifers (**Figures 2-2** and
2-3).

3.3 Sample Collection

Groundwater samples were collected using low-flow sampling protocol. Water quality parameters – including pH, conductivity, turbidity, dissolved oxygen (DO), temperature, and oxidation-reduction potential (ORP) – were measured during the well purging. The final measurements are presented in **Table 3-2**. Groundwater samples were collected from the wells after water quality parameters stabilized over three consecutive readings.

Monitoring well G10-MW19 is a flowing artesian well, screened within the upper Castle Hayne aquifer. The well head is valved to control water flow and purged by opening the valve and allowing water to discharge at a low-flow rate. When the water level lowered to below the valve, a submersible pump was used to finish purging.

TABLE 3-2
Water Quality Parameters

Monitoring Well	Date Collected	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DO (mg/L)	Temperature (°C)	ORP (mV)
G10-MW3	8/8/15	4.83	3.27	3.53	0.14	23.50	295.6
G10-MW4	8/6/15	4.80	0.079	0.27	4.75	22.45	258.0
G10-MW5	8/8/15	4.78	0.062	0.08	4.85	21.50	294.2
G10-MW6	8/8/15	4.71	0.062	1.65	0.60	21.00	282.8
G10-MW7	8/8/15	4.81	0.087	0.01	4.55	21.30	247.9
G10-MW8	8/8/15	4.79	0.075	0.01	0.45	21.88	207.9
G10-MW9	8/6/15	5.15	0.061	0.75	4.96	21.40	283.9
G10-MW10	8/7/15	4.55	0.048	1.11	0.24	21.03	65.2
G10-MW11	8/7/15	6.36	0.230	1.15	0.13	21.80	-109.3
G10-MW12	8/7/15	5.74	0.070	37.57	0.42	22.82	-85.2
G10-MW13	8/5/15	5.15	0.099	1.85	0.21	21.90	-56.7
G10-MW14	8/5/15	6.36	0.235	2.31	0.55	22.10	-58.1
G10-MW15	8/6/15	7.31	0.412	8.70	0.12	23.40	-57.8
G10-MW16	8/7/15	5.07	0.119	2.25	0.23	21.50	278.8
G10-MW17	8/7/15	6.48	0.230	4.00	0.18	22.00	-65.6
G10-MW18	8/6/15	5.72	0.206	0.00	0.22	27.21	-127.8
G10-MW19	8/6/15	7.60	0.254	4.53	0.15	18.70	-106.9

Notes:
°C = degrees Celsius
DO = dissolved oxygen
mg/L = milligram(s) per liter
mS/cm = milliSiemens per centimeter
mV = millivolt(s)
NTU = nephelometric turbidity unit
ORP = oxidation-reduction potential
SU = standard unit

Groundwater samples were collected in laboratory-prepared sample bottles (pre-preserved for metals analysis) and packed on ice for overnight delivery to Katahdin Analytical Services (Katahdin) in Scarborough, Maine. Katahdin is certified to provide analytical services through the DoD Environmental Laboratory Accreditation Program and NCDEQ. All groundwater samples were submitted for the following analyses:

- SVOCs (SW-846 Method 8270C)

- Explosives residues (including PETN by SW-846 Method 8330A, nitroglycerin by SW-846 Method 8332, and perchlorate by SW-846 Method 6850)
- Select metals (total and dissolved) that include antimony, arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, molybdenum, nickel, silver, vanadium, and zinc (DoD RMUS, 2009) by SW-846 Methods 6010B/7470A

Quality assurance and quality control samples were collected at the following frequency and submitted for the analyses listed above:

- Duplicate samples – 1 per 10 samples
- Matrix spike/matrix spike duplicate – 1 per 20 samples
- Equipment blanks – 1 per day per equipment item
- Field blanks – 1 per week

3.4 Data Evaluation

The laboratory analytical data was submitted to Environmental Data Services, Inc. for third-party validation. Procedures used for the validation process were those set forth in the *National Functional Guidelines for Superfund Organic Analysis* (USEPA, 2008) and *National Functional Guidelines for Superfund Inorganic Analysis* (USEPA, 2010). The data validation qualifiers, or flags, used and a brief interpretation are presented as follows:

- Data qualified with a “J” flag indicate that the analyte is present and the value is estimated. The reported value may or may not be accurate or precise.
- Data qualified with a “U” flag indicate that the analyte was not detected, and the associated value indicates that the concentration was below the reporting limit.
- Data qualified with a “UJ” flag indicate that the analyte was not detected and the quantitation limit may be inaccurate.

The validated analytical data is presented in **Appendix A**. Groundwater analytical results were screened against the NCGWQS (updated April 2013) which include the IMACs. In addition, the groundwater analytical results were screened against the adjusted tap water RSLs (updated November 2015). The RSLs for non-carcinogens were adjusted to account for exposure to multiple constituents and are one-tenth of the published RSLs. Analytical results for SVOCs and most metals were also screened against BTVs which were calculated for the surficial and Castle Hayne aquifer as part of the *Expanded Groundwater Background Study Report* (CH2M HILL, 2012). The results of the data evaluation are presented in **Section 4**.

SECTION 4

Results

This section provides a summary of the results from the 2015 annual monitoring event and an evaluation of current and historical data for LTM optimization.

4.1 Groundwater Hydrology

Depths to groundwater levels measured during the monitoring event were used to calculate groundwater elevations (**Table 4-1**). Potentiometric surface maps for the surficial and upper Castle Hayne aquifers were developed using the August 2015 data and are presented on **Figures 2-2** and **2-3**, respectively. Groundwater elevations in the surficial aquifer ranged from 10.62 to 46.50 feet amsl. Based on these elevations and evaluation of surface topography, groundwater flow in the surficial aquifer is anticipated to be radial, originating from the center of the G-10 Impact Area (**Figure 2-2**). Groundwater elevations in the Castle Hayne aquifer ranged from 15.94 to 36.36 feet amsl, and groundwater flow is generally to the south, west, and east (**Figure 2-3**).

TABLE 4-1
Water Level Measurements

Monitoring Well	Top of Casing Elevation (feet amsl)	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Date	Depth to Water (feet BTOC)	Groundwater Elevation (feet amsl)
Surficial Aquifer						
G10-MW3	44.54	19	9–19	8/5/2015	8.55	35.99
G10-MW4	24.75	19.5	9.5–19.5	8/5/2015	10.80	13.95
G10-MW5	38.13	20	10–20	8/5/2015	16.55	21.59
G10-MW6	40.65	19	9–19	8/5/2015	7.71	32.94
G10-MW7	46.52	19.5	9.5–19.5	8/5/2015	11.37	35.15
G10-MW8	32.35	19	9–19	8/5/2015	16.07	16.28
G10-MW9	36.22	19.5	9.5–19.5	8/5/2015	15.18	21.04
G10-MW10	40.35	19.5	9.5–19.5	8/5/2015	11.14	29.21
G10-MW11	43.20	18.5	8.5–18.5	8/5/2015	8.18	35.02
G10-MW12	56.09	19.5	9.5–19.5	8/7/2015[a]	9.59	46.50
G10-MW13	48.33	19	9–19	8/5/2015	8.42	39.91
G10-MW16	35.47	18.5	8.5–18.5	8/5/2015	9.90	25.57
G10-MW18	13.31	13	3–13	8/5/2015	2.69	10.62
Upper Castle Hayne						
G10-MW14	47.59	75	70–75	8/5/2015	11.23	36.36
G10-MW15	23.49	75	70–75	8/5/2015	5.12	18.37
G10-MW17	35.83	62	57–62	8/5/2015	10.74	25.09
G10-MW19[b]	13.44[c]	67	62–67	8/11/2015 [a]	2.50[d]	15.94

Notes:

[a] G10-MW12 is located within the G-10 impact area and access was not granted until 8/7/2015. The apparatus necessary to measure head in artesian well G10-MW19 was not available until 8/11/15.

[b] Flowing artesian well

[c] Elevation of sampling port

[d] Water level measured in sight tube above the sampling port.

BTOC = below top of casing

4.2 Analytical Results

Tables 4-2 and **4-3** present a summary of the laboratory analytical data for groundwater samples collected from the surficial and upper Castle Hayne aquifers in August 2015, respectively. Analytes that exceeded the BTVs (if established) and the NCGWQS or adjusted RSLs in the surficial and upper Castle Hayne aquifers are presented on **Figures 4-1** and **4-2**, respectively and summarized in **Tables 4-4** and **4-5**.

4.2.1 Explosives Residues and Perchlorate

Explosives residues were not detected above the laboratory detection limits in samples collected in 2015. Perchlorate was detected in groundwater samples collected from eight surficial aquifer monitoring wells (G10-MW3 through G10-MW9, and G10-MW11) and one upper castle Hayne aquifer monitoring well (G10-MW19) at concentrations ranging from 0.015 J microgram per liter (µg/L) to 0.40 µg/L (**Table 4-2** and **Table 4-3**). The detected concentrations were below the NCGWQS (2 µg/L) and the adjusted RSL (1.4 µg/L).

4.2.2 Semivolatile Organic Compounds

Four SVOCs (atrazine, benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) were detected at low levels in groundwater samples collected from the surficial aquifer (**Table 4-2**). Three out of the four analytes (benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) exceeded screening criteria.

- Benzo(a)pyrene slightly exceeded the NCGWQS (0.005 µg/L) and the adjusted RSL (0.0034 µg/L) in samples collected from 11 monitoring wells (G10-MW4 through G10-MW7, GW10-MW9, G10-MW10 through G10-MW13, G10-MW16, and G10-MW18) with estimated concentrations ranging from 0.067 J µg/L to 0.16 J µg/L.
- Benzo(b)fluoranthene slightly exceeded the NCGWQS (0.05 µg/L) and the adjusted RSL (0.034 µg/L) in samples collected from three monitoring wells (G10-MW4, G10-MW9, and G10-MW18) with estimated concentrations ranging from 0.086 J µg/L to 0.094 J µg/L.
- Indeno(1,2,3-cd)pyrene slightly exceeded the NCGWQS (0.05 µg/L) and the adjusted RSL (0.034 µg/L) in samples collected from four monitoring wells (G10-MW4, G10-MW9, G10-MW13, and G10-MW18) at estimated concentrations ranging from 0.082 J µg/L and 0.1 J µg/L.

Two SVOCs (benzo[a]pyrene and indeno[1,2,3-cd]pyrene) were detected and exceeded screening criteria in groundwater samples collected from the upper Castle Hayne aquifer (**Table 4-3**).

- Benzo[a]pyrene slightly exceeded the NCGWQS (0.005 µg/L) and the adjusted RSL (0.0034 µg/L) in samples collected from three monitoring wells (G10-MW14, G10-MW15, and G10-MW17) at estimated concentrations ranging from 0.015 J µg/L to 0.11 J µg/L.
- Indeno(1,2,3-cd)pyrene slightly exceeded the NCGWQS (0.05 µg/L) and the adjusted RSL (0.034 µg/L) in the groundwater samples collected from two monitoring wells (G10-MW14 and G10-MW15) with estimated concentrations of 0.08 J µg/L.

4.2.3 Metals

Eight total metals and six dissolved metals were detected in the groundwater samples collected from the surficial aquifer (**Table 4-2**). The groundwater sample collected from one monitoring well, G10-MW3, exceeded the BTV (176 µg/L), the NCGWQS (50 µg/L), and the adjusted RSL (43 µg/L) for total and dissolved manganese with detected concentrations of 793 µg/L and 840 µg/L, respectively. Concentrations exceeded the NCGWQS but were below the BTV for total vanadium at monitoring wells, G10-MW04, G10-MW12, G10-MW 13, G10-MW 16, and G10-MW 18 and dissolved vanadium at monitoring wells, G10-MW13 and G10-MW18.

Four total metals and four dissolved metals were detected in the groundwater samples collected from the upper Castle Hayne aquifer (**Table 4-3**). The concentration of total manganese (146 µg/L) and dissolved manganese (143 µg/L) detected in the sample collected from G10-MW14 exceeded the BTV (92.6 µg/L), the

NCGWQS (50 µg/L), and the adjusted RSL (43 µg/L). Concentrations of total and dissolved vanadium exceeded the NCGWQS but were below the BTV at monitoring well, G10-MW14.

TABLE 4-4
Summary of Exceedances in Surficial Aquifer Wells

Analyte	NCGWQS (µg/L)	BTV (µg/L)	Total Detections	Total Exceedances*	Total Number of Samples	Location of Highest Concentration
SVOCS						
Benzo(a)pyrene	0.005	–	11	11	13	G10-MW18 (0.16 J µg/L)
Benzo(b)fluoranthene	0.05	–	3	3	13	G10-MW18 (0.094 J µg/L)
Indeno(1,2,3-cd)pyrene	0.05	–	4	4	13	G10-MW18 (0.1 J µg/L)
Total Metals						
Manganese	50	176	1	1	13	G10-MW3 (793 µg/L)
Dissolved Metals						
Manganese	50	176	1	1	13	G10-MW3 (840 µg/L)

Notes:
* Includes samples exceeding both the BTV (if applicable) plus the NCGWQS.

TABLE 4-5
Summary of Exceedances in Castle Hayne Aquifer Wells

Analyte	NCGWQS (µg/L)	BTV (µg/L)	Total Detections	Total Exceedances*	Total Number of Samples	Location of Highest Concentration
SVOCS						
Benzo(a)pyrene	0.005	–	3	3	4	G10-MW15 (0.11 J µg/L)
Indeno(1,2,3-cd)pyrene	0.05	–	2	2	4	G10-MW14 (0.08 J µg/L) G10-MW15 (0.08 J µg/L)
Total Metals						
Manganese	50	92.6	1	1	4	GW10-MW14 (146 µg/L)
Dissolved Manganese						
Manganese	50	92.6	1	1	4	GW10-MW14 (143 µg/L)

Notes:
* Includes samples exceeding both the BTV (if applicable) plus the NCGWQS.

4.3 Long-term Monitoring Data Evaluation

Tables 4-6 and **4-7** present the number of sampling events without exceedances for analytes that have historically exceeded groundwater criteria (BTVs and NCGWQS or RSLs). The analytical LTM data collected between 2009 and 2015 is provided in **Appendix A**.

Overall, detections of explosives residues, perchlorate, SVOCs, and metals in the groundwater samples collected from the surficial and upper Castle Hayne aquifers have been isolated and sporadic. The following discussion addresses exceedances of the BTVs (if applicable) and NCGWQS, focusing on the last 4 years so that, at a minimum, results from four previous sampling events are included in the discussion. The last four

sampling events represent 4 years for all monitoring wells except G10-MW19, which was sampled quarterly until 2014, and G10-MW8, G10-MW9, G10-MW10, G10-MW11, and G10-MW18, which were sampled semiannually until 2014.

- With the exception of the February 2013 monitoring event, explosives residues have not been detected in samples collected since 2010. In February 2013, five explosives residues were detected at estimated concentrations in the duplicate sample and not the parent sample collected from G10-MW19, which is screened in the upper Castle Hayne aquifer. For analytes that do not have an established NCGWQS, a detection constitutes an exceedance; however, the concentrations did not exceed the adjusted RSLs. Explosives residues were not detected in samples collected from G10-MW19 during subsequent monitoring events or in samples collected from any other monitoring well in 2015.
- Perchlorate has only been detected above the NCGWQS and adjusted RSL once since LTM began in 2009 in a sample collected from G10-MW12 (November 2009) which is screened in the surficial aquifer and located near the southeast corner of the G10 Impact Area (**Figure 2-1**). Perchlorate was detected below the NCGWQS and adjusted RSL in samples collected in 2013, 2014, and 2015.
- SVOCs detected at concentrations exceeding the NCGWQS over the last four monitoring events have included 2,4-dinitrotoluene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and pentachlorophenol. However, none of the exceedances occurred in samples collected from the same well in consecutive monitoring events and have generally only been sporadically detected at very low, estimated concentrations.
- Two total metals (manganese and vanadium) and one dissolved metal (manganese) have been detected above the NCGWQS, adjusted RSLs, and BTVs.
  - Total and dissolved manganese concentrations have exceeded the BTV, NCGWQS, and adjusted RSL in samples collected from wells G10-MW3, which is screened in the surficial aquifer, and G10-MW14 and G10-MW17, which are screened in the upper Castle Hayne aquifer. Since 2009, concentrations of total and dissolved manganese were detected above the NCGWQS, adjusted RSL, and BTV in 1 of 10 samples collected from G10-MW3, 5 of 10 samples collected from G10-MW14, and in 4 of 9 samples collected from G10-MW17.
  - Total vanadium was detected above the BTV, NCGWQS, and adjusted RSL in a sample from G10-MW13 in 2009 and in a sample from G10-MW16 in 2011. Both monitoring wells (G10-MW13 and G10-MW16) are installed in the surficial aquifer; however, G10-MW13 is located northeast of the former OB/OD Unit, while G10-MW16 is located southeast of the former OB/OD Unit. Total and dissolved vanadium have not been detected above the BTV, NCGWQS and adjusted RSL in samples collected from the upper Castle Hayne aquifer.
- With the exception of the recent (August 2015) polycyclic aromatic hydrocarbon exceedances (particularly for benzo[a]pyrene), samples collected from 10 of the 14 monitoring wells have not contained an exceedance in four annual sampling events dating back to August 2012. Samples collected from G10-MW8 have not contained an exceedance of groundwater screening levels in the last 11 sampling events, dating back to February 2009 (**Table 4-2**). Samples collected from G10-MW19 have not contained an exceedance of groundwater screening levels in the last five sampling events dating back to February 2013 (**Table 4-3**).

TABLE 4-2
Summary of Analytical Results - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune Surficial Background Threshold Value (April 2012)**	**NCGWQS (April 2013) / IMAC (February 2012)**	**Adjusted Tap Water RSLs (June 2015)**	SWMU343G-10-MW10	SWMU343G-10-MW11	SWMU343G-10-MW12	SWMU343G-10-MW13	SWMU343G-10-MW16	SWMU343G-10-MW18	
Sample ID				SWMU343G-10-GW10-15C	SWMU343G-10-GW11-15C	SWMU343G-10-GW12-15C	SWMU343G-10-GW13-15C	SWMU343G-10-GW16-15C	SWMU343G-10-GW18-15C	SWMU343G-10-GW18D-15C
Sample Date				08/07/15	08/07/15	08/07/15	08/05/15	08/07/15	08/06/15	08/06/15
Number of Events Without Exceedance				0	0	0	0	0	0	
Semivolatile Organic Compounds (µg/l)										
Atrazine	--	3	0.3	0.097 U	0.096 U	0.048 J	0.096 U	0.095 U	0.098 U	0.098 U
Benzo(a)pyrene	--	0.005	0.0034	**0.07 J**	**0.087 J**	**0.089 J**	**0.12 J**	**0.087 J**	**0.16 J**	0.098 U
Benzo(b)fluoranthene	--	0.05	0.034	0.097 U	0.096 U	0.096 U	0.096 U	0.095 U	**0.094 J**	0.098 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.034	0.097 U	0.096 U	0.096 U	**0.095 J**	0.095 U	**0.1 J**	0.098 U
Explosives Residues (µg/l)										
Perchlorate	--	2	1.4	0.04 U	0.038 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Total Metals (µg/l)										
Arsenic	9.79	10	0.052	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
Barium	359	700	380	17.2	0.94 J	2 U	3.33 U	41.2	26.3	25.9
Cadmium	--	2	0.92	0.2 UJ	0.2 UJ	0.2 U	0.048 J	0.2 U	0.2 U	0.2 U
Lead	8.92	15	15	0.5 UJ	0.5 UJ	0.32 J	0.44 J	0.882 J	0.2 J	0.19 J
Manganese	176	50	43	6.16 U	6.64 U	2.3 U	28.4 U	4.93 U	9.89 U	9.94 U
Nickel	11.8	100	39	1.2 U	1.66 U	1.63 U	1.2 U	1.2 U	1.2 U	1.2 U
Vanadium	26.7	0.3	8.6	4 U	4 U	2.2 J	2.2 J	**16.6**	4 J	3.3 J
Zinc	41.2	1,000	600	8 U	8 U	5.6 J	8 U	8 U	8 U	8 U
Dissolved Metals (µg/l)										
Barium, Dissolved	359	700	380	16.1	0.6 J	1 U	3.16 U	43.2	25.8	27
Cadmium, Dissolved	--	2	0.92	0.2 UJ	0.2 UJ	0.066 J	0.2 U	0.2 U	0.2 U	0.2 U
Manganese, Dissolved	176	50	43	5.58 U	6.04 U	1.8 U	25.3 U	5.3 U	9.4 U	11.4 U
Nickel, Dissolved	11.8	100	39	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Vanadium, Dissolved	26.7	0.3	8.6	4 U	4 U	4 U	1.2 J	4 U	3.9 J	3.9 J
Zinc, Dissolved	41.2	1,000	600	8 U	8 U	8 U	8 U	8 U	6 J	8 U

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Notes:

Shading indicates exceedance of the Surficial background concentration for groundwater

Bold box indicates exceedance of NCGWQS or IMAC (IMAC is used when there is no NCGWQS value)

Bold text indicates exceedance of Adjusted Tap Water RSLs

J - Analyte present, value may or may not be accurate or precise
U - The material was analyzed for, but not detected
UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

TABLE 4-2
Summary of Analytical Results - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune Surficial Background Threshold Value (April 2012)**	**NCGWQS (April 2013) / IMAC (February 2012)**	**Adjusted Tap Water RSLs (June 2015)**	SWMU343G-10-MW3	SWMU343G-10-MW4	SWMU343G-10-MW5	SWMU343G-10-MW6	SWMU343G-10-MW7		SWMU343G-10-MW8	SWMU343G-10-MW9
Sample ID				SWMU343G-10-GW03-15C	SWMU343G-10-GW04-15C	SWMU343G-10-GW05-15C	SWMU343G-10-GW06-15C	SWMU343G-10-GW07-15C	SWMU343G-10-GW07D-15C	SWMU343G-10-GW08-15C	SWMU343G-10-GW09-15C
Sample Date				08/08/15	08/06/15	08/08/15	08/08/15	08/08/15	08/08/15	08/08/15	08/06/15
Number of Events Without Exceedance				0	0	0	0	0		11	0
Semivolatile Organic Compounds (µg/l)											
Atrazine	--	3	0.3	0.094 U	0.098 U	0.094 U	0.096 U	0.095 U	0.096 U	0.095 U	0.095 U
Benzo(a)pyrene	--	0.005	0.0034	0.094 U	**0.13 J**	**0.067 J**	**0.072 J**	**0.064 J**	**0.071 J**	0.095 U	**0.12 J**
Benzo(b)fluoranthene	--	0.05	0.034	0.094 U	**0.092 J**	0.094 U	0.096 U	0.095 U	0.096 U	0.095 U	**0.086 J**
Indeno(1,2,3-cd)pyrene	--	0.05	0.034	0.094 U	**0.093 J**	0.094 U	0.096 U	0.095 U	0.096 U	0.095 U	**0.082 J**
Explosives Residues (µg/l)											
Perchlorate	--	2	1.4	0.081 J	0.053 J	0.4	0.015 J	0.14 J	0.13 J	0.37	0.091 J
Total Metals (µg/l)											
Arsenic	9.79	10	0.052	**2.5 J**	4 U	4 U	4 UJ	4 U	4 U	4 U	4 U
Barium	359	700	380	64.7	18.3 U	18.8	14.4	11.5	12	57.4	14.4 U
Cadmium	--	2	0.92	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U
Lead	8.92	15	15	2.78	0.2 J	0.35 J	0.75 UJ	0.18 J	0.14 J	0.18 J	0.13 J
Manganese	176	50	43	**793**	5.49 U	4.33 U	8.14 U	3.1 U	2.7 U	4.35 U	3.95 U
Nickel	11.8	100	39	3.02	1.2 U	0.54 J	1.2 U	0.31 J	0.24 J	0.41 J	1.2 U
Vanadium	26.7	0.3	8.6	4 U	1 J	4 U	4 U	4 U	4 U	4 U	4 U
Zinc	41.2	1,000	600	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U
Dissolved Metals (µg/l)											
Barium, Dissolved	359	700	380	69.7	19.5 U	18.8	13.9	11.7	11.7	59.7	13.4 U
Cadmium, Dissolved	--	2	0.92	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U
Manganese, Dissolved	176	50	43	**840**	5.18 U	3.2 U	7.88 U	2.8 U	2.8 U	4.14 U	4.49 U
Nickel, Dissolved	11.8	100	39	3.22	1.2 U	0.43 J	1.2 U	0.27 J	0.28 J	0.39 J	1.2 U
Vanadium, Dissolved	26.7	0.3	8.6	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Zinc, Dissolved	41.2	1,000	600	8 U	4.4 J	8 U	8 U	8 U	8 U	8 U	8 U

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Notes:

Shading indicates exceedance of the Surficial background concentration for groundwater

Bold box indicates exceedance of NCGWQS or IMAC (IMAC is used when there is no NCGWQS value)

Bold text indicates exceedance of Adjusted Tap Water RSLs

J - Analyte present, value may or may not be accurate or precise
U - The material was analyzed for, but not detected
UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

TABLE 4-3

Summary of Analytical Results - Castle Hayne Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	**Camp Lejeune UCH Background Threshold Value (April 2012)**	**NCGWQS (April 2013) / IMAC (February 2012)**	**Adjusted Tap Water RSLs (June 2015)**	SWMU343G-10-MW14	SWMU343G-10-MW15	SWMU343G-10-MW17	SWMU343G-10-MW19
Sample ID				SWMU343G-10-GW14-15C	SWMU343G-10-GW15-15C	SWMU343G-10-GW17-15C	SWMU343G-10-GW19-15C
Sample Date				08/05/15	08/06/15	08/07/15	08/06/15
Number of Events Without Exceedance				0	0	0	5
Semivolatile Organic Compounds (µg/l)							
Benzo(a)pyrene	--	0.005	0.0034	**0.09 J**	**0.11 J**	**0.085 J**	0.094 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.034	**0.08 J**	**0.08 J**	0.094 U	0.094 U
Explosives Residues (µg/l)							
Perchlorate	--	2	1.4	0.04 U	0.04 U	0.04 U	0.22
Total Metals (µg/l)							
Lead	--	15	15	0.1 J	0.16 J	0.23 J	0.49 J
Manganese	92.6	50	43	**146**	12.6 U	36.6 U	30.8 U
Vanadium	5.32	0.3	8.6	1.2 J	4 U	4 U	4 U
Dissolved Metals (µg/l)							
Manganese, Dissolved	92.6	50	43	**143**	11.4 U	36 U	19.2 U
Vanadium, Dissolved	5.32	0.3	8.6	1.2 J	4 U	4 U	4 U

Notes:

Shading indicates exceedance of the Upper Castle Hayne (UCH) background concentration for groundwater

Bold box indicates exceedance of NCGWQS or IMAC (IMAC is used when there is no NCGWQS value)

Bold text indicates exceedance of Adjusted Tap Water RSLs

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

TABLE 4-6

Number of Events Without an Exceedance of Historically Exceeded Compounds - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Analyte	Number of Events Without Exceedance
Semivolatile Organic Compounds (µg/L)	
2,2'-Oxybis(1-Chloropropane)	11
2,4-Dinitrotoluene	6
Benzo(a)anthracene	4
Benzo(a)pyrene	0
Benzo(b)fluoranthene	0
Dimethyl phthalate	8
Indeno(1,2,3-cd)pyrene	0
Naphthalene	11
Nitrobenzene	7
Pentachlorophenol	2
Explosives Residues (µg/L)	
1,3-Dinitrobenzene	9
2-Nitrotoluene	9
4-Nitrotoluene	7
Nitroglycerin	12
Perchlorate	6
Total Metals (µg/L)	
Manganese	0
Vanadium	4
Dissolved Metals (µg/L)	
Manganese	0

Notes:

µg/L - micrograms per liter

TABLE 4-7

Number of Events Without an Exceedance of Historically Exceeded Compounds - Castle Hayne Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

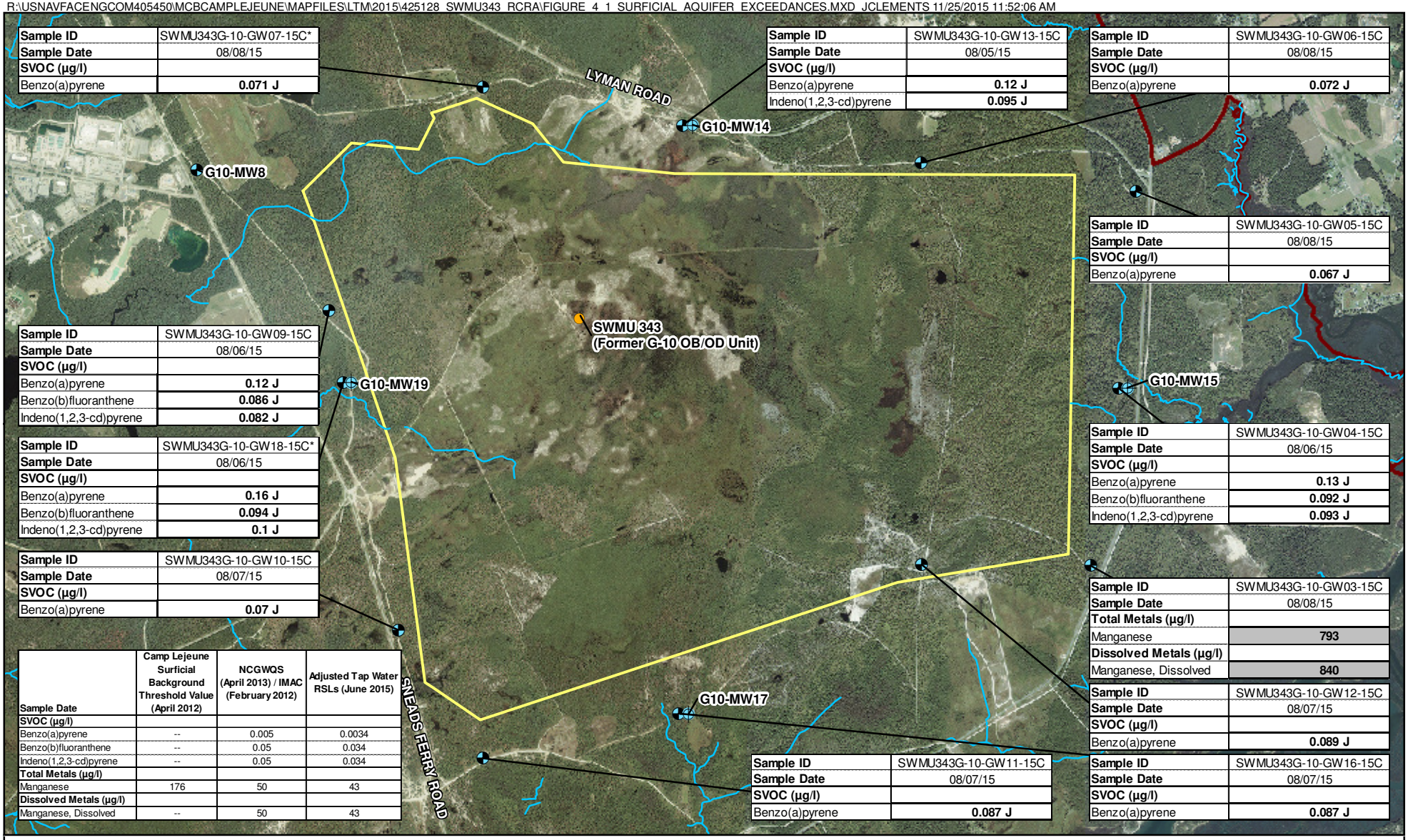
North Carolina

Analyte	Number of Events Without Exceedance
Semivolatile Organic Compounds (µg/L)	
2,4-Dinitrotoluene	5
Benzo(a)anthracene	3
Benzo(a)pyrene	0
Benzo(b)fluoranthene	0
Dibenz(a,h)anthracene	5
Indeno(1,2,3-cd)pyrene	0
Nitrobenzene	5
Pentachlorophenol	2
Explosives Residues (µg/L)	
1,3-Dinitrobenzene	14
2-Nitrotoluene	15
1,3,5-Trinitrobenzene	5
2,4,6-Trinitrotoluene	5
2-Amino-4,6-dinitrotoluene	5
4-Amino-2,6-dinitrotoluene	5
RDX	5
Total Metals (µg/L)	
Manganese	0
Dissolved Metals (µg/L)	
Manganese	0

Notes:

µg/L - micrograms per liter

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\LTM\2015\425128_SWMU343_RCRA\FIGURE_4_1_SURFICIAL_AQUIFER_EXCEEDANCES.MXD JCLEMENTS 11/25/2015 11:52:06 AM



Sample ID	SWMU343G-10-GW07-15C*
Sample Date	08/08/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.071 J**

Sample ID	SWMU343G-10-GW13-15C
Sample Date	08/05/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.12 J**
Indeno(1,2,3-cd)pyrene	**0.095 J**

Sample ID	SWMU343G-10-GW06-15C
Sample Date	08/08/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.072 J**

Sample ID	SWMU343G-10-GW05-15C
Sample Date	08/08/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.067 J**

Sample ID	SWMU343G-10-GW09-15C
Sample Date	08/06/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.12 J**
Benzo(b)fluoranthene	**0.086 J**
Indeno(1,2,3-cd)pyrene	**0.082 J**

Sample ID	SWMU343G-10-GW18-15C*
Sample Date	08/06/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.16 J**
Benzo(b)fluoranthene	**0.094 J**
Indeno(1,2,3-cd)pyrene	**0.1 J**

Sample ID	SWMU343G-10-GW04-15C
Sample Date	08/06/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.13 J**
Benzo(b)fluoranthene	**0.092 J**
Indeno(1,2,3-cd)pyrene	**0.093 J**

Sample ID	SWMU343G-10-GW10-15C
Sample Date	08/07/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.07 J**

Sample ID	SWMU343G-10-GW03-15C
Sample Date	08/08/15
Total Metals (µg/l)	
Manganese	**793**
Dissolved Metals (µg/l)	
Manganese, Dissolved	**840**

Sample ID	SWMU343G-10-GW12-15C
Sample Date	08/07/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.089 J**

Sample ID	SWMU343G-10-GW11-15C
Sample Date	08/07/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.087 J**

Sample ID	SWMU343G-10-GW16-15C
Sample Date	08/07/15
SVOC (µg/l)	
Benzo(a)pyrene	**0.087 J**

Sample Date	Camp Lejeune Surficial Background Threshold Value (April 2012)	NCGWQS (April 2013) / IMAC (February 2012)	Adjusted Tap Water RSLs (June 2015)
SVOC (µg/l)			
Benzo(a)pyrene	--	0.005	0.0034
Benzo(b)fluoranthene	--	0.05	0.034
Indeno(1,2,3-cd)pyrene	--	0.05	0.034
Total Metals (µg/l)			
Manganese	176	50	43
Dissolved Metals (µg/l)			
Manganese, Dissolved	--	50	43

Legend

- Monitoring Well (Surficial Aquifer)
- Monitoring Well (Upper Castle Hayne Aquifer)
- SWMU 343 (Former G-10 OB/OD)
- Surface Water
- G10 Impact Area Boundary
- Installation Boundary

Notes:
Shading indicates exceedance of the Surficial background concentration for groundwater
Bold text indicates exceedance of Adjusted Tap Water RSLs
J - Analyte present, value may or may not be accurate or precise
µg/l - Micrograms per liter
SVOCs - Semivolatile Organic Compounds
* Field duplicate was collected, the higher detection between the parent and the duplicate is shown.

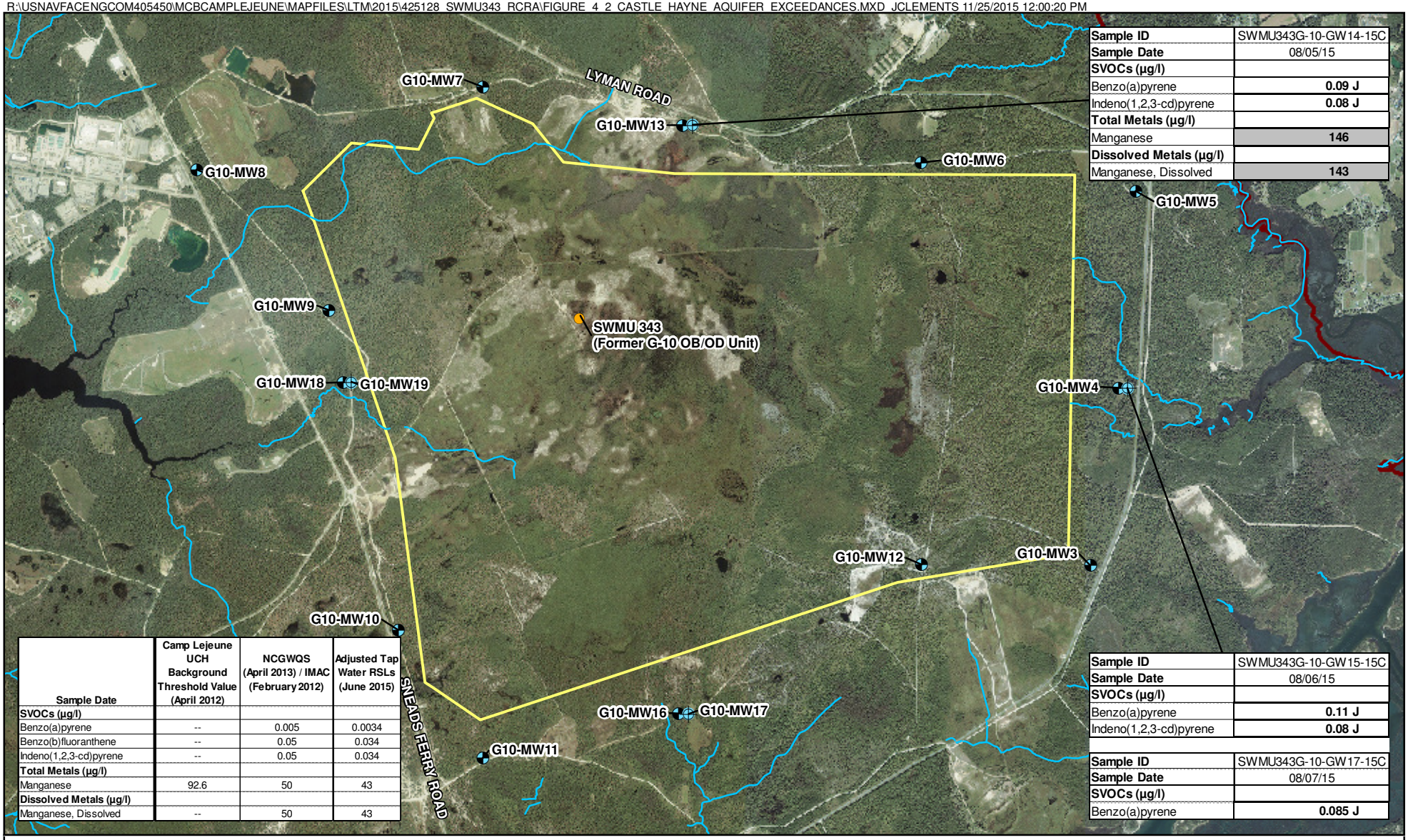
N

0 1,750 3,500 Feet
1 inch = 3,500 feet

Figure 4-1
Surficial Aquifer Exceedances
RCRA Long-term Groundwater Monitoring Report – SWMU 343
MCB Camp Lejeune
North Carolina

ch2m

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\LTM\2015\425128_SWMU343_RCRA\FIGURE_4_2_CASTLE_HAYNE_AQUIFER_EXCEEDANCES.MXD JCLEMENTS 11/25/2015 12:00:20 PM



Sample ID	SWMU343G-10-GW14-15C
Sample Date	08/05/15
SVOCs (µg/l)	
Benzo(a)pyrene	**0.09 J**
Indeno(1,2,3-cd)pyrene	**0.08 J**
Total Metals (µg/l)	
Manganese	**146**
Dissolved Metals (µg/l)	
Manganese, Dissolved	**143**

Sample ID	SWMU343G-10-GW15-15C
Sample Date	08/06/15
SVOCs (µg/l)	
Benzo(a)pyrene	**0.11 J**
Indeno(1,2,3-cd)pyrene	**0.08 J**

Sample ID	SWMU343G-10-GW17-15C
Sample Date	08/07/15
SVOCs (µg/l)	
Benzo(a)pyrene	**0.085 J**

Sample Date	Camp Lejeune UCH Background Threshold Value (April 2012)	NCGWQS (April 2013) / IMAC (February 2012)	Adjusted Tap Water RSLs (June 2015)
SVOCs (µg/l)			
Benzo(a)pyrene	--	0.005	0.0034
Benzo(b)fluoranthene	--	0.05	0.034
Indeno(1,2,3-cd)pyrene	--	0.05	0.034
Total Metals (µg/l)			
Manganese	92.6	50	43
Dissolved Metals (µg/l)			
Manganese, Dissolved	--	50	43

Legend

- Monitoring Well (Surficial Aquifer)
- Monitoring Well (Upper Castle Hayne Aquifer)
- SWMU 343 (Former G-10 OB/OD)
- Surface Water
- G10 Impact Area Boundary
- Installation Boundary

Notes:
Shading indicates exceedance of the Surficial background concentration for groundwater
Bold text indicates exceedance of Adjusted Tap Water RSLs
J - Analyte present, value may or may not be accurate or precise
µg/l - Micrograms per liter
SVOCs - Semivolatile Organic Compounds
* Field duplicate was collected, the higher detection between the parent and the duplicate is shown.

N

0 1,750 3,500 Feet

1 inch = 3,500 feet

Figure 4-2
Castle Hayne Aquifer Exceedances
RCRA Long-term Groundwater Monitoring Report – SWMU 343
MCB Camp Lejeune
North Carolina

ch2m

SECTION 5

Conclusions

This section presents conclusions and recommendations based upon LTM and REVA data from 2009 to the present.

- With the exception of the duplicate sample collected from G10-MW19 in February 2013, explosives residues have not been detected above NCGWQS or RSLs in samples collected since 2010.
- Over the last four monitoring events, SVOCs have been detected slightly above their respective NCGWQS; however, the detections have been isolated and sporadic with no discernible trends. Additionally, SVOCs have not been detected above the NCGWQS in groundwater samples collected from the same monitoring well over consecutive monitoring events.
- Two total metals (manganese and vanadium) and one dissolved metal (manganese) have been detected above the BTVs, NCGWQS, and RSLs. Manganese and vanadium are the only metals that have exceeded background and the NCGWQS and RSLs in the last four monitoring events (dating back to 2010 for most wells).
- Over the last 11 monitoring events, there have been no exceedances in samples collected from monitoring well G10-MW8.
- Over the last five monitoring events, there have been no exceedances in samples collected from monitoring well G10-MW19.

SECTION 6

References

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Appendix A
Analytical Results

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW10							
Sample ID			SWMU343G-10-GW10-09A	SWMU343G10-GW10-09B	SWMU343G10-GW10-09C	SWMU343G10-GW10-09D	SWMU343-G10-GW10-10D	SWMU343-GW10-11A	SWMU343-GW10-11C	SWMU343GW10-GW10-12A
Sample Date			02/25/09	04/23/09	08/19/09	11/16/09	11/08/10	02/22/11	08/30/11	02/23/12
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
2,2'-Oxybis(1-chloropropane)	--	--	9.3 U	10 U	10 U	9.2 UJ	5.6 U	7.4 U	7.6 U	7.4 U
3- and 4-Methylphenol	--	--	NA	NA	NA	NA	2.5 J	7.4 U	7.6 U	7.4 U
4-Methylphenol	--	40	9.3 U	10 U	10 U	4.1 J	NA	NA	NA	NA
Acenaphthene	--	80	9.3 U	10 U	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 U
Atrazine	--	3	9.3 U	10 U	10 UJ	9.2 UJ	NA	7.4 U	7.6 U	7.4 UJ
Benzaldehyde	--	700	9.3 UJ	10 U	10 UJ	9.2 UJ	NA	7.4 UJ	7.6 UJ	7.4 U
Benzo(a)anthracene	--	0.05	9.3 U	10 U	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 UJ
Benzo(a)pyrene	--	0.005	9.3 U	10 U	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 U
Benzo(b)fluoranthene	--	0.05	9.3 U	10 U	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 U
bis(2-Ethylhexyl)phthalate	--	3	9.3 U	10 U	10 U	9.2 U	5.6 U	7.4 U	7.6 U	7.4 U
Chrysene	--	5	9.3 U	10 U	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 U
Dimethyl phthalate	--	--	9.3 U	10 U	10 U	9.2 U	8.6	7.4 U	7.6 U	7.4 U
Di-n-butylphthalate	--	700	9.3 U	10 U	10 U	9.2 U	5.6 U	7.4 U	7.6 U	7.4 U
Fluoranthene	--	300	9.3 U	10 U	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 UJ
Fluorene	--	300	9.3 U	10 U	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.3 U	10 UJ	10 UJ	9.2 U	5.6 U	0.099 UJ	0.1 UJ	0.098 U
Naphthalene	0.0363	6	9.3 U	10 UJ	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 U
Pentachlorophenol	--	0.3	23 U	25 U	25 U	23 U	28 U	0.5 U	0.5 U	0.49 UJ
Pyrene	--	200	9.3 U	10 U	10 U	9.2 U	5.6 U	0.099 U	0.1 U	0.098 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.19 U	0.2 UJ	0.065 J	0.15 UJ	1.03 U	0.12 U	0.12 UJ	0.12 U
1,3-Dinitrobenzene	--	--	0.19 U	0.2 U	0.22 U	0.45	1.03 U	0.12 U	0.12 UJ	0.12 U
2,4,6-Trinitrotoluene	--	--	0.048 J	0.2 U	0.22 U	0.15 U	1.03 U	0.12 U	0.12 UJ	0.12 U
2,4-Dinitrotoluene	--	0.1	0.19 U	0.2 U	0.22 U	0.15 U	1.03 U	0.12 U	0.12 UJ	0.12 U
2,6-Dinitrotoluene	--	--	0.19 U	0.2 U	0.22 U	0.29 U	1.03 U	0.12 U	0.12 UJ	0.12 U
2-Nitrotoluene	--	--	0.19 U	0.2 U	0.22 U	0.15 U	1.03 U	0.12 U	0.12 UJ	0.12 U
3-Nitrotoluene	--	--	0.19 U	0.2 U	0.25 U	0.15 U	1.03 U	0.12 U	0.12 UJ	0.12 U
4-Nitrotoluene	--	--	0.19 U	0.2 U	0.54 U	0.68 U	1.03 U	0.12 U	0.12 UJ	0.12 U
HMX	--	--	0.19 U	0.2 U	0.22 U	0.15 UJ	1.03 U	0.12 U	0.12 UJ	0.12 U
Nitrobenzene	--	--	0.19 U	0.2 U	0.22 U	0.15 U	1.03 U	0.12 U	0.12 UJ	0.12 U
Nitroglycerin	--	--	0.48 U	2 U	2.2 U	0.51 U	1.03 U	2 U	2 UJ	2 U
Perchlorate	--	2	0.08 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U
PETN	--	--	0.75 U	2 U	2.2 U	0.51 U	1.03 U	2 U	2 UJ	2 U
RDX	--	--	0.22 U	0.2 U	0.22 U	0.15 U	1.03 U	0.12 U	0.12 UJ	0.12 U
Total Metals (µg/l)										
Aluminum	14,000	--	1,120	280	990 J	309	NA	NA	NA	NA
Antimony	3.91	1	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U
Arsenic	9.79	10	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	1.9 J
Barium	359	700	17.1 J	15.9 J	40 U	23.1	23 J	18	16.9	14.6
Cadmium	--	2	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U	3 U
Calcium	179,000	--	5,000 U	5,000 U	5,000 UJ	988 J	NA	NA	757	NA
Chromium	16.9	10	10 U	10 U	10 U	1.25 U	5 U	4 U	0.81 J	4 U
Copper	6.59	1,000	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	11.6 U
Iron	16,100	300	459	274	503 J	939	NA	NA	NA	NA
Lead	8.92	15	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U	4 U
Magnesium	13,500	--	5,000 U	5,000 U	5,000 U	1,030 J	NA	NA	NA	NA
Manganese	176	50	8.4 J	7.8 J	15 U	7.11	7.4 J	5.9	6.2	5.6 U
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel	11.8	100	40 U	40 U	10 U	2.5 U	40 U	4 U	4 U	4 U
Potassium	5,590	--	5,000 U	5,000 U	5,000 U	317 J	NA	NA	NA	NA
Selenium	--	20	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA
Silver	0.724	20	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	0.6 J
Sodium	22,700	--	4,250 J	4,570 J	5,000 U	7,060	NA	NA	NA	NA
Vanadium	26.7	0.3	50 U	50 U	15 U	3.12 U	50 U	4 U	0.32 J	4 U
Zinc	41.2	1,000	20 U	20 U	20 U	2.65 J	20 U	14.8 U	10.1 U	10 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW10							
Sample ID			SWMU343G-10-GW10-09A	SWMU343G10-GW10-09B	SWMU343G10-GW10-09C	SWMU343G10-GW10-09D	SWMU343-G10-GW10-10D	SWMU343-GW10-11A	SWMU343-GW10-11C	SWMU343GW10-GW10-12A
Sample Date			02/25/09	04/23/09	08/19/09	11/16/09	11/08/10	02/22/11	08/30/11	02/23/12
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	237	230	289 J	252	NA	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	1.25 U	5.5 J	5 U	5 U	5 U
Barium, Dissolved	--	700	15.7 J	200 U	40 U	25.4	22 J	21.6	16.4 U	15.5
Cadmium, Dissolved	--	2	5 U	5 U	1.1 J	1.25 U	2 U	3 U	3 U	3 U
Calcium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	939 J	NA	NA	783	NA
Chromium, Dissolved	--	10	10 U	10 U	10 U	1.25 U	5 U	0.68 J	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	10 U
Iron, Dissolved	--	300	259 J	274	371	1,010	NA	NA	NA	NA
Lead, Dissolved	--	15	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U	4.2 U
Magnesium, Dissolved	--	--	5,000 U	5,000 UJ	5,000 U	1,110 J	NA	NA	NA	NA
Manganese, Dissolved	--	50	8.2 J	8 J	15 U	8.13	11 J	6.8	6.1	6.9 U
Mercury, Dissolved	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel, Dissolved	--	100	40 U	40 U	10 U	0.764 J	40 U	4 U	4 U	4 U
Potassium, Dissolved	--	--	5,000 U	5,000 U	5,000 U	332 J	NA	NA	NA	NA
Selenium, Dissolved	--	20	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	4,510 J	4,310 J	5,150 J	7,690	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	50 U	50 U	15 U	3.12 U	50 U	0.74 J	4 U	4 U
Zinc, Dissolved	--	1,000	20 U	20 U	20 U	5.67	20 U	11.9 U	33.6 U	10 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed
J - Analyte present, value may or may not be accurate or precise
R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW10					
Sample ID			SWMU343-G10-GW10-2012C	SWMU343-G10-GW10D-2012C	SWMU343-GW10-13A	SWMU343-GW10-13C	SWMU343-GW10-14C	SWMU343G-10-GW10-15C
Sample Date			08/09/12	08/09/12	02/05/13	08/06/13	08/20/14	08/07/15
Chemical Name								
Volatile Organic Compounds (µg/l)								
No Detections			NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)								
2,2'-Oxybis(1-chloropropane)	--	--	7.1 U	7.3 U	7.7 U	7.1 U	7.1 U	7.3 U
3- and 4-Methylphenol	--	--	7.1 U	7.3 U	7.7 U	7.1 U	7.1 U	7.3 U
4-Methylphenol	--	40	NA	NA	NA	NA	NA	NA
Acenaphthene	--	80	0.094 UJ	0.097 UJ	0.1 U	0.095 U	0.094 U	7.3 U
Atrazine	--	3	7.1 UJ	7.3 UJ	7.7 U	7.1 U	7.1 U	0.097 U
Benzaldehyde	--	700	7.1 U	7.3 U	7.7 U	7.1 UJ	7.1 UJ	7.3 UJ
Benzo(a)anthracene	--	0.05	0.094 UJ	0.097 UJ	0.1 UJ	0.095 U	0.094 U	0.097 U
Benzo(a)pyrene	--	0.005	0.094 UJ	0.097 UJ	0.1 U	0.095 U	0.094 U	0.07 J
Benzo(b)fluoranthene	--	0.05	0.094 UJ	0.097 UJ	0.1 U	0.095 U	0.094 UJ	0.097 U
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.3 U	7.7 U	7.1 U	7.1 U	7.3 U
Chrysene	--	5	0.094 UJ	0.097 UJ	0.1 U	0.042 J	0.094 U	7.3 U
Dimethyl phthalate	--	--	7.1 U	7.3 U	7.7 U	7.1 U	7.1 U	7.3 U
Di-n-butylphthalate	--	700	7.1 U	7.3 U	7.7 U	7.1 U	7.1 U	7.3 U
Fluoranthene	--	300	0.094 UJ	0.097 UJ	0.1 UJ	0.095 UJ	0.094 UJ	7.3 U
Fluorene	--	300	0.094 UJ	0.097 UJ	0.1 U	0.095 U	0.094 U	7.3 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.094 UJ	0.097 UJ	0.1 U	0.095 UJ	0.094 U	0.097 U
Naphthalene	0.0363	6	0.094 U	0.097 U	0.1 U	0.095 U	0.094 U	7.3 U
Pentachlorophenol	--	0.3	0.47 UJ	0.48 UJ	0.44 J	0.48 UJ	0.47 U	0.48 U
Pyrene	--	200	0.094 UJ	0.097 UJ	0.1 UJ	0.095 U	0.094 U	7.3 U
Explosives (µg/l)								
1,3,5-Trinitrobenzene	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 R	2 U	2 UJ	2 U	2 U	2 U
Perchlorate	--	2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.04 U
PETN	--	--	2 R	2 U	2 UJ	2 U	2 U	2 U
RDX	--	--	0.12 R	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)								
Aluminum	14,000	--	NA	NA	NA	NA	NA	NA
Antimony	3.91	1	5 U	5 U	5 U	5 U	5 U	0.5 UJ
Arsenic	9.79	10	5 U	5 U	5 U	5 U	5 U	4 UJ
Barium	359	700	18.4	17.9	20.5	13.7	26.1	17.2
Cadmium	--	2	3 U	3 U	3 U	3 U	3 U	0.2 UJ
Calcium	179,000	--	NA	NA	NA	NA	NA	NA
Chromium	16.9	10	0.44 J	4 U	1.2 J	0.63 J	0.9 J	4 U
Copper	6.59	1,000	10 U	10 U	10 U	10 U	10 U	2 U
Iron	16,100	300	NA	NA	NA	NA	NA	NA
Lead	8.92	15	4 U	4 U	4 U	4 U	1.5 J	0.5 UJ
Magnesium	13,500	--	NA	NA	NA	NA	NA	NA
Manganese	176	50	4.8 U	5 U	6.4 U	3.8 J	4.7 U	6.16 U
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	8 U	8 U	8 U	8 U	2 U
Nickel	11.8	100	0.4 J	4 U	0.84 J	4 U	2.7 J	1.2 U
Potassium	5,590	--	NA	NA	NA	NA	NA	NA
Selenium	--	20	NA	NA	NA	NA	NA	NA
Silver	0.724	20	4 U	4 U	4 U	4 U	4 U	0.4 U
Sodium	22,700	--	NA	NA	NA	NA	NA	NA
Vanadium	26.7	0.3	4 U	0.64 J	0.44 J	0.41 J	0.42 J	4 U
Zinc	41.2	1,000	17.9 U	16.9 U	16 U	10 U	10 U	8 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW10					
Sample ID			SWMU343-G10-GW10-2012C	SWMU343-G10-GW10D-2012C	SWMU343-GW10-13A	SWMU343-GW10-13C	SWMU343-GW10-14C	SWMU343G-10-GW10-15C
Sample Date			08/09/12	08/09/12	02/05/13	08/06/13	08/20/14	08/07/15
Chemical Name								
Dissolved Metals (µg/l)								
Aluminum, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	5 U	5 U	5 U	0.5 UJ
Arsenic, Dissolved	--	10	5 U	5 U	5 U	5 U	5 U	4 UJ
Barium, Dissolved	--	700	17.8	17.6	21.3	12.9	26.7	16.1
Cadmium, Dissolved	--	2	3 U	3 U	3 U	3 U	3 U	0.2 UJ
Calcium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	0.46 J	0.88 J	1.7 J	4 U
Copper, Dissolved	--	1,000	10 U	10 U	10 U	10 U	10 U	2 U
Iron, Dissolved	--	300	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	4 U	4 U	4 U	2.5 J	0.5 UJ
Magnesium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	5.3 U	5.8 U	5.5 U	4.1 U	20.3	5.58 U
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	8 U	8 U	8 U	8 U	8 U	2 U
Nickel, Dissolved	--	100	4 U	4 U	4 U	0.39 J	4 U	1.3 U
Potassium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	4 U	4 U	4 U	4 U	0.4 U
Sodium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	4 U	0.44 J	4 U	0.64 J	4 U	4 U
Zinc, Dissolved	--	1,000	33.4 U	30 U	15 U	10 U	10 U	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW11							
Sample ID			SWMU343G-10-GW11-09A	SWMU343G10-GW11-09B	SWMU343G10-GW11-09C	SWMU343G10-GW11-09D	SWMU343-G10-FDUP-10D	SWMU343-G10-GW11-10D	SWMU343-GW11-11A	SWMU343-GW11-11C
Sample Date			02/25/09	04/23/09	08/19/09	11/11/09	11/10/10	11/10/10	02/22/11	08/30/11
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
2,2'-Oxybis(1-chloropropane)	--	--	10 U	0.92 J	10 U	9.8 UJ	5.4 U	5.4 U	7.6 U	7.2 U
3- and 4-Methylphenol	--	--	NA	NA	NA	NA	11 U	11 U	7.6 U	7.2 U
4-Methylphenol	--	40	10 U	9.3 U	10 U	9.8 U	NA	NA	NA	NA
Acenaphthene	--	80	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
Atrazine	--	3	10 U	9.3 U	10 UJ	9.8 UJ	NA	NA	7.6 U	7.2 U
Benzaldehyde	--	700	10 UJ	0.64 J	10 UJ	9.8 UJ	NA	NA	7.6 UJ	7.2 UJ
Benzo(a)anthracene	--	0.05	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
Benzo(a)pyrene	--	0.005	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
Benzo(b)fluoranthene	--	0.05	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
bis(2-Ethylhexyl)phthalate	--	3	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	7.6 U	7.2 U
Chrysene	--	5	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
Dimethyl phthalate	--	--	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	7.6 U	7.2 U
Di-n-butylphthalate	--	700	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	7.6 U	7.2 U
Fluoranthene	--	300	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
Fluorene	--	300	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
Indeno(1,2,3-cd)pyrene	--	0.05	10 U	9.3 UJ	10 UJ	9.8 U	5.4 U	5.4 U	0.1 UJ	0.096 U
Naphthalene	0.0363	6	10 U	1.6 J	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
Pentachlorophenol	--	0.3	25 U	23 U	25 U	24 U	27 U	27 U	0.5 U	0.48 U
Pyrene	--	200	10 U	9.3 U	10 U	9.8 U	5.4 U	5.4 U	0.1 U	0.096 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.22 U	0.19 UJ	0.2 U	0.15 UJ	1.03 U	1.03 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.22 U	0.19 U	0.2 U	0.15 U	1.03 U	1.03 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.22 U	0.19 U	0.2 U	0.15 U	1.03 U	1.03 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.22 U	0.19 U	0.2 U	0.15 U	1.03 U	1.03 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.22 U	0.19 U	0.2 U	0.15 U	1.03 U	1.03 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.22 U	0.19 U	0.2 U	0.15 U	1.03 U	1.03 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.22 U	0.19 U	0.2 U	0.15 U	1.03 U	1.03 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.22 U	0.19 U	0.84 U	1.3 U	1.03 U	1.03 U	0.12 U	0.12 U
HMX	--	--	0.22 U	0.19 U	0.2 U	0.15 UJ	1.03 U	1.03 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.22 U	0.96 J	0.2 U	0.15 U	1.03 U	1.03 U	0.12 U	0.12 U
Nitroglycerin	--	--	0.58 U	1.9 U	2 U	0.51 U	1.03 U	1.03 U	2 U	2 U
Perchlorate	--	2	0.32	0.18 J	0.25	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U
PETN	--	--	0.89 U	1.9 U	2 U	0.36 J	1.03 U	1.03 U	2 U	2 U
RDX	--	--	0.22 U	0.19 U	0.2 U	0.15 U	1.03 U	1.03 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	14,000	--	777	637	458 J	1,150	NA	NA	NA	NA
Antimony	3.91	1	60 U	60 U	15 U	3.75 U	10 U	10 U	5 U	5 U
Arsenic	9.79	10	10 U	10 U	10 U	1.25 U	10 U	10 U	5 U	5 U
Barium	359	700	200 U	200 U	40 U	10 U	25 U	25 U	0.68 J	2.7 J
Cadmium	--	2	5 U	5 U	5 U	1.25 U	2 U	2 U	3 U	3 U
Calcium	179,000	--	39,400	39,600	30,500 J	40,100	NA	NA	NA	25,700
Chromium	16.9	10	10 U	10 U	10 U	1.42	5 U	5 U	4 U	3.1 J
Copper	6.59	1,000	25 U	25 U	10 U	1.29 J	5 U	5 U	0.87 J	10 U
Iron	16,100	300	178	167	100 U	258	NA	NA	NA	NA
Lead	8.92	15	3 U	3 U	3 U	0.75 U	10 U	10 U	4 U	4 U
Magnesium	13,500	--	1,190 J	1,200 J	5,000 U	999 J	NA	NA	NA	NA
Manganese	176	50	17.7	27.4	15 U	65.1	28	27	8	7.6 U
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	40 U	40 U	0.97 J	8 U
Nickel	11.8	100	40 U	40 U	10 U	2.5 U	40 U	40 U	4 U	4 U
Potassium	5,590	--	5,000 U	5,000 U	5,000 U	260 J	NA	NA	NA	NA
Selenium	--	20	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA
Silver	0.724	20	10 U	10 U	10 U	1.25 U	5 U	5 U	4 U	4 U
Sodium	22,700	--	4,480 J	5,320	5,000 U	4,790	NA	NA	NA	NA
Vanadium	26.7	0.3	50 U	50 U	15 U	1.77 J	50 U	50 U	4 U	6.5 J
Zinc	41.2	1,000	9.7 J	17.1 J	5.1 J	12.1	20 U	20 U	15.6 U	38.6 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW11							
Sample ID			SWMU343G-10-GW11-09A	SWMU343G10-GW11-09B	SWMU343G10-GW11-09C	SWMU343G10-GW11-09D	SWMU343-G10-FDUP-10D	SWMU343-G10-GW11-10D	SWMU343-GW11-11A	SWMU343-GW11-11C
Sample Date			02/25/09	04/23/09	08/19/09	11/11/09	11/10/10	11/10/10	02/22/11	08/30/11
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	176 J	117 J	200 U	105	NA	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	15 U	3.75 U	10 U	10 U	5 U	5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	1.25 U	10 U	4.1 J	5 U	5 U
Barium, Dissolved	--	700	200 U	200 U	40 U	10 U	25 U	25 U	3 U	3 U
Cadmium, Dissolved	--	2	5 U	5 U	1.2 J	0.441 J	2 U	2 U	3 U	3 U
Calcium, Dissolved	--	--	41,000	38,700	30,900 J	41,500	NA	NA	NA	24,400
Chromium, Dissolved	--	10	10 U	10 U	10 U	0.645 J	5 U	2.5 J	1.1 J	4 U
Copper, Dissolved	--	1,000	25 U	25 U	10 U	2.5 U	5 U	5 U	10 U	14.7 U
Iron, Dissolved	--	300	100 U	100 U	100 U	36.7	NA	NA	NA	NA
Lead, Dissolved	--	15	3 U	3 U	3 U	0.75 U	10 U	10 U	4 U	4 U
Magnesium, Dissolved	--	--	1,310 J	1,130 J	5,000 U	991 J	NA	NA	NA	NA
Manganese, Dissolved	--	50	15 U	5.1 J	15 UJ	65.3 J	30	24	7.9	8.9 U
Mercury, Dissolved	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.073 J	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	40 U	40 U	0.68 J	8 U
Nickel, Dissolved	--	100	40 U	40 U	10 U	2.5 U	17 J	40 U	4 U	7.5 U
Potassium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	1,250 U	NA	NA	NA	NA
Selenium, Dissolved	--	20	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 UJ	1.25 U	5 U	5 U	4 U	4 U
Sodium, Dissolved	--	--	4,860 J	4,960 J	5,000 J	4,400	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	50 U	50 U	15 UJ	3.12 U	50 U	50 U	0.92 J	4.1 J
Zinc, Dissolved	--	1,000	20 U	20 U	5.9 J	7.56	20 U	20 U	11.9 U	33.2 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

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µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW11					
Sample ID			SWMU343GW10-GW11-12A	SWMU343-G10-GW11-2012C	SWMU343-GW11-13A	SWMU343-GW11-13C	SWMU343-GW11-14C	SWMU343G-10-GW11-15C
Sample Date			02/23/12	08/13/12	02/05/13	08/16/13	08/18/14	08/07/15
Chemical Name								
Volatile Organic Compounds (µg/l)								
No Detections			NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)								
2,2'-Oxybis(1-chloropropane)	--	--	7.3 U	7.4 U	7.1 U	7.4 U	8.2 U	7.2 U
3- and 4-Methylphenol	--	--	7.3 U	7.4 U	7.1 U	7.4 U	8.2 U	7.2 U
4-Methylphenol	--	40	NA	NA	NA	NA	NA	NA
Acenaphthene	--	80	0.097 U	0.098 U	0.094 U	0.098 U	0.11 U	7.2 U
Atrazine	--	3	7.3 UJ	7.4 UJ	7.1 U	7.4 U	8.2 U	0.096 U
Benzaldehyde	--	700	7.3 U	7.4 UJ	7.1 U	7.4 U	8.2 UJ	7.2 UJ
Benzo(a)anthracene	--	0.05	0.097 UJ	0.064 J	0.094 UJ	0.098 U	0.16 U	0.096 U
Benzo(a)pyrene	--	0.005	0.097 U	0.12 U	0.094 U	0.098 U	0.11 U	0.087 J
Benzo(b)fluoranthene	--	0.05	0.097 U	0.091 J	0.094 U	0.098 U	0.11 U	0.096 U
bis(2-Ethylhexyl)phthalate	--	3	7.3 U	7.4 U	7.1 U	7.4 U	8.2 U	7.2 U
Chrysene	--	5	0.097 U	0.098 U	0.094 U	0.098 U	0.11 U	7.2 U
Dimethyl phthalate	--	--	7.3 U	7.4 U	7.1 U	7.4 U	8.2 U	7.2 U
Di-n-butylphthalate	--	700	7.3 U	7.4 U	7.1 U	7.4 U	8.2 U	7.2 U
Fluoranthene	--	300	0.097 UJ	0.076 J	0.094 UJ	0.098 U	0.11 U	7.2 U
Fluorene	--	300	0.097 U	0.098 U	0.094 U	0.098 U	0.11 U	7.2 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.097 U	0.098 U	0.094 U	0.098 UJ	0.11 U	0.096 U
Naphthalene	0.0363	6	0.097 U	0.098 U	0.094 U	0.098 U	0.11 U	7.2 U
Pentachlorophenol	--	0.3	0.48 UJ	0.49 U	0.47 U	0.49 UJ	0.55 U	0.48 U
Pyrene	--	200	0.097 U	0.12 J	0.094 UJ	0.098 U	0.11 U	7.2 U
Explosives (µg/l)								
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 U	2 U	2 UJ	2 U	2 U	2 U
Perchlorate	--	2	0.25 U	0.43 J	0.25 U	0.25 U	0.25 U	0.038 J
PETN	--	--	2 U	2 U	2 UJ	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)								
Aluminum	14,000	--	NA	NA	NA	NA	NA	NA
Antimony	3.91	1	5 U	5 U	5 U	5 U	5 U	0.5 UJ
Arsenic	9.79	10	5 U	5 U	5 U	5 U	2.8 J	4 UJ
Barium	359	700	3 U	3 U	0.57 J	0.99 J	0.86 J	0.94 J
Cadmium	--	2	3 U	3 U	3 U	3 U	3 U	0.2 UJ
Calcium	179,000	--	NA	NA	NA	NA	NA	NA
Chromium	16.9	10	4 U	4 U	1.1 J	4 U	4 U	4.12 U
Copper	6.59	1,000	10 U	10 U	10 U	10 U	10 U	2 U
Iron	16,100	300	NA	NA	NA	NA	NA	NA
Lead	8.92	15	4 U	4 U	4 U	4 U	4 U	0.5 UJ
Magnesium	13,500	--	NA	NA	NA	NA	NA	NA
Manganese	176	50	4 U	4 U	4 U	4 U	3.2 J	6.64 U
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	8 U	8 U	8 U	1.1 J	2 U
Nickel	11.8	100	4 U	4 U	4 U	4 U	4 U	1.66 U
Potassium	5,590	--	NA	NA	NA	NA	NA	NA
Selenium	--	20	NA	NA	NA	NA	NA	NA
Silver	0.724	20	4 U	4 U	4 U	4 U	4 U	0.4 U
Sodium	22,700	--	NA	NA	NA	NA	NA	NA
Vanadium	26.7	0.3	4 U	3.5 J	0.34 J	4 U	0.67 J	4 U
Zinc	41.2	1,000	12.8 U	19.3 U	17 U	10 U	10 U	8 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW11					
Sample ID			SWMU343GW10-GW11-12A	SWMU343-G10-GW11-2012C	SWMU343-GW11-13A	SWMU343-GW11-13C	SWMU343-GW11-14C	SWMU343G-10-GW11-15C
Sample Date			02/23/12	08/13/12	02/05/13	08/16/13	08/18/14	08/07/15
Chemical Name								
Dissolved Metals (µg/l)								
Aluminum, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	5 U	5 U	5 U	0.5 UJ
Arsenic, Dissolved	--	10	1.8 J	5 U	1.8 J	5 U	5 U	4 UJ
Barium, Dissolved	--	700	3 U	3 U	3 U	1.2 J	1.4 J	0.6 J
Cadmium, Dissolved	--	2	3 U	3 U	3 U	3 U	3 U	0.2 UJ
Calcium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	1.1 J	4 U	4 U	4 U
Copper, Dissolved	--	1,000	10 U	10 U	10 U	10 U	10 U	2 U
Iron, Dissolved	--	300	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	4 U	4 U	4 U	4 U	0.5 UJ
Magnesium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	4 U	4 U	4 U	4 U	5.3 U	6.04 U
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	8 U	8 U	8 U	8 U	8 U	2 U
Nickel, Dissolved	--	100	4 U	4 U	4 U	4 U	4 U	1.2 U
Potassium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	0.78 J	4 U	4 U	4 U	4 U	0.4 U
Sodium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	4 U	3.2 J	4 U	4 U	0.75 J	4 U
Zinc, Dissolved	--	1,000	10 U	33.9 U	10 U	12 U	3.6 J	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW12							
Sample ID			SWMU343G-10-GW12-09A	SWMU343G-10-GW12D-09A	SWMU343G10-GW12-09B	SWMU343G10-GW12-09C	SWMU343G10-GW12-09D	SWMU343-G10-GW12-10D	SWMU343-GW12-11C	SWMU343-G10-GW12-2012C
Sample Date			02/25/09	02/25/09	04/22/09	08/20/09	11/16/09	11/10/10	08/29/11	08/10/12
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
2,2'-Oxybis(1-chloropropane)	--	--	9.8 U	9.6 U	9.4 U	9.4 U	9.4 UJ	5 U	7.4 U	7.4 U
3- and 4-Methylphenol	--	--	NA	NA	NA	NA	NA	0.83 J	7.4 U	7.4 U
4-Methylphenol	--	40	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	NA	NA	NA
Acenaphthene	--	80	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	0.098 U	0.098 UJ
Atrazine	--	3	9.8 U	9.6 U	9.4 U	9.4 UJ	9.4 UJ	NA	7.4 U	7.4 UJ
Benzaldehyde	--	700	9.8 UJ	9.6 UJ	9.4 U	9.4 UJ	9.4 UJ	NA	7.4 UJ	7.4 U
Benzo(a)anthracene	--	0.05	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	0.098 U	0.098 UJ
Benzo(a)pyrene	--	0.005	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	0.098 U	0.098 UJ
Benzo(b)fluoranthene	--	0.05	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	0.098 U	0.098 UJ
bis(2-Ethylhexyl)phthalate	--	3	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	7.4 UJ	7.4 U
Chrysene	--	5	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	0.041 J	0.098 UJ
Dimethyl phthalate	--	--	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	7.4 U	7.4 U
Di-n-butylphthalate	--	700	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	7.4 U	7.4 U
Fluoranthene	--	300	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	0.098 U	0.098 UJ
Fluorene	--	300	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	0.098 U	0.098 UJ
Indeno(1,2,3-cd)pyrene	--	0.05	9.8 U	9.6 U	9.4 U	9.4 U	9.4 U	5 U	0.24 J	0.098 UJ
Naphthalene	0.0363	6	9.8 U	9.6 U	9.4 UJ	9.4 U	9.4 U	5 U	0.098 U	0.098 U
Pentachlorophenol	--	0.3	24 U	24 U	24 U	24 U	24 U	25 U	0.49 U	0.49 UJ
Pyrene	--	200	9.8 U	9.6 U	9.4 U	9.4 UJ	9.4 U	5 U	0.098 U	0.098 UJ
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 UJ	1 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.22 U	1 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.19 U	0.19 U	0.19 U	12 J	3.5 U	1 U	0.12 U	0.12 U
HMX	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 UJ	1 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.19 U	0.19 U	0.13 J	0.2 U	0.14 U	1 U	0.12 U	0.12 U
Nitroglycerin	--	--	0.48 U	0.5 U	1.9 U	2 U	0.48 U	1 U	2 U	2 U
Perchlorate	--	2	0.1 J	0.11 J	0.09 J	0.2 U	2.28	0.2 U	0.25 U	0.25 U
PETN	--	--	0.75 U	0.77 U	1.9 U	2 U	0.48 U	1 U	2 U	2 U
RDX	--	--	0.19 U	0.19 U	0.19 U	0.2	0.14 U	1 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	14,000	--	541	563	585	821 J	2,500	NA	NA	NA
Antimony	3.91	1	60 U	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U
Arsenic	9.79	10	10 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U
Barium	359	700	5.7 J	5.7 J	7.7 J	40 U	9.44 J	25 U	2.2 J	4.4 J
Cadmium	--	2	5 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U
Calcium	179,000	--	12,600	12,400	13,900 J	8,770 J	9,120	NA	10,600	NA
Chromium	16.9	10	10 U	10 U	10 U	10 U	1.76	5 U	0.83 J	2.6 J
Copper	6.59	1,000	25 U	25 U	25 U	10 U	2.5 U	5 U	0.77 J	10 U
Iron	16,100	300	33 J	45.1 J	54.6 J	100 U	314	NA	NA	NA
Lead	8.92	15	3 U	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U
Magnesium	13,500	--	5,000 U	5,000 U	5,000 U	5,000 U	866 J	NA	NA	NA
Manganese	176	50	4.1 J	3.9 J	5 J	15 U	4.85	15 U	1.2 J	4 U
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel	11.8	100	40 U	40 U	40 U	10 U	2.5 U	40 U	4 U	4 U
Potassium	5,590	--	5,000 U	5,000 U	5,000 U	5,000 U	350 J	NA	NA	NA
Selenium	--	20	5 U	5 U	5 U	5 U	1.25 U	NA	NA	NA
Silver	0.724	20	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Sodium	22,700	--	7,720	7,590	5,490	5,000 U	5,710	NA	NA	NA
Vanadium	26.7	0.3	50 U	50 U	50 U	15 U	1.81 J	50 U	1.8 J	3 J
Zinc	41.2	1,000	20 U	20 U	5.7 J	20 U	5 U	20 U	11 U	18.7 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW12							
Sample ID			SWMU343G-10-GW12-09A	SWMU343G-10-GW12D-09A	SWMU343G10-GW12-09B	SWMU343G10-GW12-09C	SWMU343G10-GW12-09D	SWMU343-G10-GW12-10D	SWMU343-GW12-11C	SWMU343-G10-GW12-2012C
Sample Date			02/25/09	02/25/09	04/22/09	08/20/09	11/16/09	11/10/10	08/29/11	08/10/12
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	413	413	489	303 J	367	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U
Barium, Dissolved	--	700	5.5 J	5.6 J	7.5 J	40 U	8.98 J	25 U	3 U	3 U
Cadmium, Dissolved	--	2	5 U	5 U	5 U	1 J	0.29 J	2 U	3 U	3 U
Calcium, Dissolved	--	--	12,900	13,100	13,000 J	8,680 J	9,480	NA	10,600	NA
Chromium, Dissolved	--	10	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U
Iron, Dissolved	--	300	100 U	100 U	33.3 J	100 U	77	NA	NA	NA
Lead, Dissolved	--	15	3 U	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U
Magnesium, Dissolved	--	--	1,040 J	1,060 J	5,000 U	5,000 U	835 J	NA	NA	NA
Manganese, Dissolved	--	50	3.8 J	3.9 J	4.6 J	15 U	5.14	15 U	1.1 J	4 U
Mercury, Dissolved	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel, Dissolved	--	100	40 U	40 U	40 U	10 U	2.5 U	40 U	1.1 J	4 U
Potassium, Dissolved	--	--	5,000 U	5,000 U	5,000 U	5,000 U	317 J	NA	NA	NA
Selenium, Dissolved	--	20	5 U	5 U	5 U	5 U	1.25 U	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Sodium, Dissolved	--	--	7,940	8,060	5,890	5,000 U	5,580	NA	NA	NA
Vanadium, Dissolved	--	0.3	50 U	50 U	50 U	15 U	3.12 U	50 U	4 U	1.8 J
Zinc, Dissolved	--	1,000	20 U	20 U	7.5 J	5.8 J	5 U	20 U	20.5 U	28.4 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

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µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW12			SWMU343G-10-MW13							
Sample ID			SWMU343-GW12-13C	SWMU343-GW12-14C	SWMU343G-10-GW12-15C	SWMU343G-10-GW13-09A	SWMU343G10-GW13-09B	SWMU343G10-GW13-09C	SWMU343G10-GW13-09D	SWMU343-G10-GW13-10D	SWMU343-GW13-11C	SWMU343-G10-GW13-2012C	SWMU343-GW13-13C
Sample Date			08/09/13	08/26/14	08/07/15	03/10/09	04/21/09	08/17/09	11/10/09	11/09/10	08/31/11	08/08/12	08/05/13
Chemical Name													
Volatile Organic Compounds (µg/l)													
No Detections			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)													
2,2'-Oxybis(1-chloropropane)	--	--	7.5 U	7.1 U	7.2 U	10 U	9.6 U	9.8 U	10 UJ	5.2 U	8.3 U	7.2 U	7.1 U
3- and 4-Methylphenol	--	--	7.5 U	7.1 U	7.2 U	NA	NA	NA	NA	10 U	8.3 U	7.2 U	7.1 U
4-Methylphenol	--	40	NA	NA	NA	10 U	9.6 U	9.8 U	10 U	NA	NA	NA	NA
Acenaphthene	--	80	0.1 U	0.094 U	7.2 U	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.092 J
Atrazine	--	3	7.5 U	7.1 U	0.048 J	10 U	9.6 UJ	9.8 U	10 UJ	NA	8.3 U	7.2 UJ	7.1 U
Benzaldehyde	--	700	7.5 UJ	7.1 UJ	7.2 UJ	10 UJ	9.6 U	9.8 U	10 UJ	NA	8.3 UJ	7.2 U	7.1 UJ
Benzo(a)anthracene	--	0.05	0.1 U	0.094 U	0.096 U	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.16 U
Benzo(a)pyrene	--	0.005	0.1 U	0.094 U	0.089 J	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.095 U
Benzo(b)fluoranthene	--	0.05	0.1 U	0.094 U	0.096 U	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.22 U
bis(2-Ethylhexyl)phthalate	--	3	7.5 U	7.1 U	7.2 U	10 U	1.5 J	9.8 U	11 U	5.2 U	8.3 U	7.2 U	7.1 U
Chrysene	--	5	0.1 U	0.094 U	7.2 U	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.095 U
Dimethyl phthalate	--	--	7.5 U	7.1 U	7.2 U	10 U	9.6 U	9.8 U	10 U	5.2 U	8.3 U	7.2 U	7.1 U
Di-n-butylphthalate	--	700	7.5 U	7.1 U	7.2 U	10 U	9.6 U	9.8 U	10 U	5.2 U	8.3 U	7.2 U	7.1 U
Fluoranthene	--	300	0.1 UJ	0.094 U	7.2 U	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.54 U
Fluorene	--	300	0.1 U	0.094 U	7.2 U	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.058 J
Indeno(1,2,3-cd)pyrene	--	0.05	0.1 UJ	0.094 U	0.096 U	10 U	9.6 U	9.8 UJ	10 U	5.2 U	0.11 U	0.099 U	0.095 U
Naphthalene	0.0363	6	0.1 U	0.094 U	7.2 U	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.095 U
Pentachlorophenol	--	0.3	0.5 UJ	0.47 U	0.48 U	25 U	24 U	24 U	25 U	26 U	0.56 U	0.48 U	0.48 U
Pyrene	--	200	0.1 U	0.094 U	7.2 U	10 U	9.6 U	9.8 U	10 U	5.2 U	0.11 U	0.096 U	0.32 U
Explosives (µg/l)													
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.19 U	0.2 U	0.2 U	0.15 UJ	1 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.19 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.16 J	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.12 U	0.19 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.19 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.19 U	0.2 U	0.14 J	0.15 U	1 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.19 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.19 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.12 U	0.32 U	0.2 U	0.2 U	0.15 UJ	1 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.19 U	0.069 J	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 U	2 U	2 U	0.48 U	2 U	2 U	0.51 U	1 U	2 U	2 U	2 U
Perchlorate	--	2	0.25 U	0.25 U	0.04 U	0.08 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U
PETN	--	--	2 U	2 U	2 U	0.75 U	2 U	2 U	0.51 U	1 U	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.12 U	0.19 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)													
Aluminum	14,000	--	NA	NA	NA	965	1,170	1,870 J	634	NA	NA	NA	NA
Antimony	3.91	1	5 U	5 U	0.5 U	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U
Arsenic	9.79	10	1.7 J	5 U	4 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U
Barium	359	700	0.66 J	0.48 J	2 U	13.2 J	13.7 J	40 U	12.5	25 U	6.3	8	5.9
Cadmium	--	2	3 U	3 U	0.2 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U	3 U
Calcium	179,000	--	NA	NA	NA	13,500	12,800	10,400 J	8,960	NA	9,440	NA	NA
Chromium	16.9	10	1 J	4 U	4 U	10 U	10 U	2.1 J	1.25 U	5 U	1.3 J	0.78 J	4 U
Copper	6.59	1,000	0.73 J	0.77 J	2 U	25 U	25 U	5.2 J	2.5 U	5 U	10 U	10 U	10 U
Iron	16,100	300	NA	NA	NA	52.4 J	399 J	2,340 J	254	NA	NA	NA	NA
Lead	8.92	15	4 U	4 U	0.32 J	3 U	3 U	2.2 J	0.759	10 U	1.5 J	1.4 J	4 U
Magnesium	13,500	--	NA	NA	NA	1,570 J	1,470 J	1,110 J	1,430	NA	NA	NA	NA
Manganese	176	50	4 U	2.4 J	2.3 U	15 U	15 U	15 U	1.52 J	15 U	5.9	4.4 U	10.4
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.2 U	0.2 U	0.081 J	0.2 U	0.1 U	0.1 U	0.1 U	0.02 J
Molybdenum	--	--	0.77 J	8 U	2 U	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel	11.8	100	4 U	4 U	1.63 U	40 U	40 U	10 U	2.5 U	40 U	0.5 J	4 U	4 U
Potassium	5,590	--	NA	NA	NA	5,000 U	5,000 U	1,870 J	837 J	NA	NA	NA	NA
Selenium	--	20	NA	NA	NA	5 U	5 U	5 U	0.984 J	NA	NA	NA	NA
Silver	0.724	20	4 U	4 U	0.4 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U
Sodium	22,700	--	NA	NA	NA	14,800 J	16,700 J	12,800 J	20,400	NA	NA	NA	NA
Vanadium	26.7	0.3	0.94 J	0.88 J	2.2 J	50 U	6.7 J	36.2	4.35	50 U	7.9 J	3.8 J	0.25 J
Zinc	41.2	1,000	10.4 U	10 U	5.6 J	8.3 J	20 U	20 U	1.34 J	20 U	16.2 U	17.6 U	10 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW12			SWMU343G-10-MW13							
Sample ID			SWMU343-GW12-13C	SWMU343-GW12-14C	SWMU343G-10-GW12-15C	SWMU343G-10-GW13-09A	SWMU343G10-GW13-09B	SWMU343G10-GW13-09C	SWMU343G10-GW13-09D	SWMU343-G10-GW13-10D	SWMU343-GW13-11C	SWMU343-G10-GW13-2012C	SWMU343-GW13-13C
Sample Date			08/09/13	08/26/14	08/07/15	03/10/09	04/21/09	08/17/09	11/10/09	11/09/10	08/31/11	08/08/12	08/05/13
Chemical Name													
Dissolved Metals (µg/l)													
Aluminum, Dissolved	--	--	NA	NA	NA	988 J	909	742 J	612	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	0.5 U	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	2.5 J	5 U	4 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U
Barium, Dissolved	--	700	0.88 J	3 U	1 U	13.9 J	14.9 J	40 U	13.6	25 U	6 U	7.6 U	5.5
Cadmium, Dissolved	--	2	3 U	3 U	0.066 J	5 U	5 U	1.8 J	0.265 J	2 U	3 U	3 U	3 U
Calcium, Dissolved	--	--	NA	NA	NA	11,100 J	12,100	9,300 J	9,770	NA	8,900	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	4 U	10 UJ	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U
Copper, Dissolved	--	1,000	10 U	10 U	2 U	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	10 U
Iron, Dissolved	--	300	NA	NA	NA	40.9 J	72.5 J	86.1 J	109	NA	NA	NA	NA
Lead, Dissolved	--	15	4.6 J	4 U	0.5 U	3 U	3 U	3 U	0.703 J	10 U	4 U	1.7 J	4 U
Magnesium, Dissolved	--	--	NA	NA	NA	1,400 J	1,430 J	1,160 J	1,580	NA	NA	NA	NA
Manganese, Dissolved	--	50	4 U	4.6 U	1.8 U	15 U	15 U	15 UJ	2.03 J	5 J	9.7 U	22.7 U	9.9
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	0.5 J	8 U	2 U	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel, Dissolved	--	100	3.5 J	4 U	1.2 U	40 U	40 U	10 U	2.5 U	40 U	4 U	4 U	4 U
Potassium, Dissolved	--	--	NA	NA	NA	5,000 U	5,000 U	1,860 J	972 J	NA	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	NA	5 U	5 U	5 U	0.867 J	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	4 U	0.4 U	10 U	10 U	10 UJ	1.25 U	5 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	NA	NA	NA	14,200	16,900	14,200 J	23,200	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	0.77 J	0.49 J	4 U	50 U	50 U	15 UJ	2.19 J	50 U	4 U	0.34 J	4 U
Zinc, Dissolved	--	1,000	53.2	10 U	8 U	20 U	20 U	20 U	5 U	6.3 J	11 U	34 U	10 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW13		SWMU343G-10-MW16							
Sample ID			SWMU343-GW13-14C	SWMU343G-10-GW13-15C	SWMU343G-10-GW16-09A	SWMU343G10-GW16-09B	SWMU343G10-GW16D-09B	SWMU343G10-GW16-09C	SWMU343-G10-GW16-10D	SWMU343-GW16-11C	SWMU343-G10-GW16-2012C	SWMU343-GW16-13C
Sample Date			08/19/14	08/05/15	02/26/09	04/22/09	04/22/09	08/18/09	11/10/10	09/01/11	08/13/12	08/16/13
Chemical Name												
Volatile Organic Compounds (µg/l)												
No Detections			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)												
2,2'-Oxybis(1-chloropropane)	--	--	7.1 U	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	8.3 U	7.5 U	7.1 U
3- and 4-Methylphenol	--	--	7.1 U	7.2 U	NA	NA	NA	NA	11 U	8.3 U	7.5 U	7.1 U
4-Methylphenol	--	40	NA	NA	9.4 R	9.6 U	9.2 U	10 U	NA	NA	NA	NA
Acenaphthene	--	80	0.094 U	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	0.11 U	0.1 U	0.094 U
Atrazine	--	3	7.1 U	0.096 U	9.4 R	9.6 U	9.2 U	10 UJ	NA	8.3 U	7.5 UJ	7.1 U
Benzaldehyde	--	700	7.1 UJ	7.2 UJ	9.4 R	9.6 U	9.2 U	10 UJ	NA	8.3 UJ	7.5 UJ	7.1 U
Benzo(a)anthracene	--	0.05	0.094 U	0.096 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	0.11 U	0.1 U	0.094 U
Benzo(a)pyrene	--	0.005	0.094 U	0.12 J	9.4 R	9.6 U	9.2 U	10 U	5.3 U	0.11 U	0.13 U	0.094 U
Benzo(b)fluoranthene	--	0.05	0.094 U	0.096 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	0.11 U	0.096 J	0.094 U
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	8.3 U	7.5 U	7.1 U
Chrysene	--	5	0.1 J	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	0.11 U	0.1 U	0.094 U
Dimethyl phthalate	--	--	7.1 U	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	8.3 U	7.5 U	7.1 U
Di-n-butylphthalate	--	700	7.1 U	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	8.3 U	7.5 U	7.1 U
Fluoranthene	--	300	0.094 U	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	0.11 U	0.1 U	0.094 U
Fluorene	--	300	0.094 U	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	0.11 U	0.1 U	0.094 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.094 U	0.095 J	9.4 R	9.6 U	9.2 U	10 UJ	5.3 U	0.11 U	0.097 J	0.094 UJ
Naphthalene	0.0363	6	0.094 U	7.2 U	9.4 R	9.6 UJ	9.2 UJ	10 U	5.3 U	0.11 U	0.1 U	0.094 U
Pentachlorophenol	--	0.3	0.47 U	0.48 U	24 R	24 U	23 U	25 U	26 U	0.56 U	0.5 U	0.47 UJ
Pyrene	--	200	0.094 U	7.2 U	9.4 R	9.6 U	9.2 U	10 U	5.3 U	0.11 U	0.1 U	0.094 U
Explosives (µg/l)												
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	0.062 J	1.04 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.14 R	0.19 U	0.19 U	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	1.2 U	1.04 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.048 J	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 U	2 U	0.51 U	1.9 U	1.9 U	2 U	1.04 U	2 U	2 U	2 U
Perchlorate	--	2	0.25 U	0.04 U	0.08 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U
PETN	--	--	2 U	2 U	0.78 U	1.9 U	1.9 U	2 U	1.04 U	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.2 U	0.19 U	0.19 U	0.2 U	1.04 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)												
Aluminum	14,000	--	NA	NA	764	470	453	565 J	NA	NA	NA	NA
Antimony	3.91	1	1.4 J	0.5 U	60 U	60 U	60 U	15 U	10 U	5 U	5 U	5 U
Arsenic	9.79	10	5 U	4 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U
Barium	359	700	4.32 U	3.33 U	47.7 J	42.5	41.7	49.4	52	49.1	52.4	45.2
Cadmium	--	2	3 U	0.048 J	5 U	5 U	5 U	5 U	2 U	3 U	3 U	3 U
Calcium	179,000	--	NA	NA	14,800	13,200 J	12,800 J	10,800 J	NA	7,820	NA	NA
Chromium	16.9	10	0.69 J	4 U	10 U	10 U	10 U	10 U	5 U	4 U	4 U	4 U
Copper	6.59	1,000	10 U	2 U	25 U	25 U	25 U	10 U	5 U	10 U	10 U	10 U
Iron	16,100	300	NA	NA	441	169	157	205 J	NA	NA	NA	NA
Lead	8.92	15	4 U	0.44 J	3 R	3 U	3 U	3 U	10 U	1.6 J	4 U	4 U
Magnesium	13,500	--	NA	NA	2,810 J	2,470 J	2,410 J	2,430 J	NA	NA	NA	NA
Manganese	176	50	14	28.4 U	18.3	8.9 J	8.6 J	15 U	5.9 J	5.8	7.2	5.6 U
Mercury	--	1	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	2 U	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel	11.8	100	4 U	1.2 U	40 U	40 U	40 U	10 U	40 U	4 U	4 U	4 U
Potassium	5,590	--	NA	NA	1,320 J	1,030 J	1,040 J	1,250 J	NA	NA	NA	NA
Selenium	--	20	NA	NA	5 U	5 U	5 U	5 U	NA	NA	NA	NA
Silver	0.724	20	4 U	0.4 U	10 U	10 U	10 U	10 U	5 U	4 U	4 U	4 U
Sodium	22,700	--	NA	NA	9,230 R	9,460	9,400	9,010 J	NA	NA	NA	NA
Vanadium	26.7	0.3	0.27 J	2.2 J	50 U	50 U	50 U	15 U	50 U	28.3	1.6 J	4 U
Zinc	41.2	1,000	10 U	8 U	20 U	20 U	20 U	20 U	20 U	10.8 U	14.1 U	10 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW13		SWMU343G-10-MW16							
Sample ID			SWMU343-GW13-14C	SWMU343G-10-GW13-15C	SWMU343G-10-GW16-09A	SWMU343G10-GW16-09B	SWMU343G10-GW16D-09B	SWMU343G10-GW16-09C	SWMU343-G10-GW16-10D	SWMU343-GW16-11C	SWMU343-G10-GW16-2012C	SWMU343-GW16-13C
Sample Date			08/19/14	08/05/15	02/26/09	04/22/09	04/22/09	08/18/09	11/10/10	09/01/11	08/13/12	08/16/13
Chemical Name												
Dissolved Metals (µg/l)												
Aluminum, Dissolved	--	--	NA	NA	229 R	316	316	269 J	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	0.5 U	60 U	60 U	60 U	15 U	10 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	5 U	4 U	3.7 J	10 U	10 U	10 U	10 U	5 U	5 U	5 U
Barium, Dissolved	--	700	4.22 U	3.16 U	47.9 J	43.4	43.8	47.2	55	49.8	51.8	42.8
Cadmium, Dissolved	--	2	3 U	0.2 U	5 U	5 U	5 U	1.2 J	2 U	3 U	3 U	3 U
Calcium, Dissolved	--	--	NA	NA	15,500	12,300 J	12,600 J	9,780 J	NA	7,710	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	10 U	10 U	10 U	10 U	5 U	4 U	4 U	4 U
Copper, Dissolved	--	1,000	10 U	2 U	25 U	25 U	25 U	10 U	5 U	10 U	10 U	10 U
Iron, Dissolved	--	300	NA	NA	358	104	107	105	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	0.5 U	3 U	3 U	3 U	3 U	10 U	4 U	4 U	2 J
Magnesium, Dissolved	--	--	NA	NA	2,850 R	2,410 J	2,460 J	2,340 J	NA	NA	NA	NA
Manganese, Dissolved	--	50	15 U	25.3 U	19.1	8.6 J	8.6 J	15 U	8.9 J	14.4 U	8 U	30.7 U
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	0.54 J	2 U	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel, Dissolved	--	100	4 U	1.2 U	40 U	40 U	40 U	10 U	40 U	4 U	4 U	4 U
Potassium, Dissolved	--	--	NA	NA	1,200 J	1,100 J	1,110 J	1,240 J	NA	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	5 U	5 U	5 U	5 U	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	0.4 U	10 U	10 U	10 U	10 U	5 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	NA	NA	9,960 J	10,200	10,200	8,930 J	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	0.71 J	1.2 J	50 U	50 U	50 U	15 U	50 U	4 U	4 J	4 U
Zinc, Dissolved	--	1,000	10 U	8 U	7.3 R	6.5 J	20 U	20 U	12 J	15 U	32.5 U	48 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW16		SWMU343G-10-MW18							
Sample ID			SWMU343-GW16-14C	SWMU343G-10-GW16-15C	SWMU343G-10-GW18-09A	SWMU343G10-GW18-09B	SWMU343G10-GW18-09C	SWMU343G10-GW18-09D	SWMU343-G10-GW18-10D	SWMU343-GW18-11A	SWMU343-GW18-11C	SWMU343GW10-GW18-12A
Sample Date			08/21/14	08/07/15	02/25/09	04/20/09	08/18/09	11/09/09	11/09/10	02/23/11	08/31/11	02/24/12
Chemical Name												
Volatile Organic Compounds (µg/l)												
No Detections			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)												
2,2'-Oxybis(1-chloropropane)	--	--	7.4 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	7.4 U	7.2 U	7.1 U
3- and 4-Methylphenol	--	--	7.4 U	7.1 U	NA	NA	NA	NA	11 U	7.4 U	7.2 U	7.1 UJ
4-Methylphenol	--	40	NA	NA	10 U	9.2 U	9.8 U	9.4 U	NA	NA	NA	NA
Acenaphthene	--	80	0.099 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 U
Atrazine	--	3	7.4 U	0.095 U	10 U	9.2 UJ	9.8 U	9.4 UJ	NA	7.4 U	7.2 U	7.1 UJ
Benzaldehyde	--	700	7.4 UJ	7.1 UJ	10 UJ	9.2 U	9.8 U	9.4 UJ	NA	7.4 UJ	7.2 UJ	7.1 UJ
Benzo(a)anthracene	--	0.05	0.099 U	0.095 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 UJ
Benzo(a)pyrene	--	0.005	0.099 U	0.087 J	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 U
Benzo(b)fluoranthene	--	0.05	0.099 UJ	0.095 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 U
bis(2-Ethylhexyl)phthalate	--	3	7.4 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	7.4 U	7.2 U	7.1 U
Chrysene	--	5	0.099 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 UJ
Dimethyl phthalate	--	--	7.4 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	7.8	7.4 U	7.2 U	7.1 U
Di-n-butylphthalate	--	700	7.4 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	7.4 U	7.2 U	7.1 U
Fluoranthene	--	300	0.099 UJ	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 UJ
Fluorene	--	300	0.099 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.099 U	0.095 U	10 U	9.2 U	9.8 UJ	9.4 U	5.6 U	0.099 UJ	0.096 UJ	0.094 U
Naphthalene	0.0363	6	0.099 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 U
Pentachlorophenol	--	0.3	0.5 UJ	0.48 U	25 U	23 U	24 U	24 U	28 U	0.5 U	0.48 U	0.47 UJ
Pyrene	--	200	0.099 U	7.1 U	10 U	9.2 U	9.8 U	9.4 U	5.6 U	0.099 U	0.096 U	0.094 U
Explosives (µg/l)												
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.15 UJ	1.04 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.15 U	1.04 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.15 U	1.04 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.15 U	1.04 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.15 U	1.04 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.14 J	0.15 U	1.04 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.097 J	0.19 U	0.24 U	0.15 U	1.04 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.25 J	1.04 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.15 UJ	1.04 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.15 U	1.04 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 U	2 U	0.58 U	1.9 U	2 U	0.5 U	1.04 U	2 U	2 U	2 U
Perchlorate	--	2	0.25 U	0.04 U	0.08 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U
PETN	--	--	2 U	2 U	0.89 U	1.9 U	2 U	0.5 U	1.04 U	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.2 U	0.15 U	1.04 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)												
Aluminum	14,000	--	NA	NA	984	683	277 J	301	NA	NA	NA	NA
Antimony	3.91	1	5 U	0.5 U	60 U	60 U	15 U	3.75 U	10 U	5 U	1.3 J	5 U
Arsenic	9.79	10	5 U	4 U	10 U	10 U	10 UJ	1.25 U	10 U	5 U	5 U	5 U
Barium	359	700	43.1	41.2	24.4 J	20.2 J	40 U	21.6	26	74.9	52.2	81.3
Cadmium	--	2	3 U	0.2 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U	3 U
Calcium	179,000	--	NA	NA	4,850 J	3,580 J	1,680 J	2,220	NA	NA	6,390	NA
Chromium	16.9	10	4 U	4 U	10 U	10 U	10 UJ	1.25 U	5 U	4 U	4 U	4 U
Copper	6.59	1,000	10 U	2 U	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	1 J
Iron	16,100	300	NA	NA	816	656	428 J	537	NA	NA	NA	NA
Lead	8.92	15	4 U	0.882 J	1.7 J	3 U	3 U	0.75 U	10 U	4 U	4 U	4 U
Magnesium	13,500	--	NA	NA	1,030 J	5,000 U	5,000 UJ	841 J	NA	NA	NA	NA
Manganese	176	50	5.8 U	4.93 U	19	6.9 J	15 U	7.22	8.5 J	14.5	13.1	17.9
Mercury	--	1	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	2 U	NA	NA	NA	NA	40 U	8 U	7 J	8 U
Nickel	11.8	100	4 U	1.2 U	40 U	40 U	10 UJ	2.5 U	40 U	4 U	4 U	4 U
Potassium	5,590	--	NA	NA	1,170 J	1,040 J	5,000 U	775 J	NA	NA	NA	NA
Selenium	--	20	NA	NA	5 U	5 U	5 UJ	1.25 U	NA	NA	NA	NA
Silver	0.724	20	4 U	0.4 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U
Sodium	22,700	--	NA	NA	7,690	7,900	6,030 J	6,820	NA	NA	NA	NA
Vanadium	26.7	0.3	0.97 J	16.6	50 U	50 U	15 U	3.12 U	50 U	4 U	0.96 J	1.1 J
Zinc	41.2	1,000	10 U	8 U	20 U	6.2 J	20 UJ	5 U	20 U	11.1 U	13.8 U	10 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW16		SWMU343G-10-MW18							
Sample ID			SWMU343-GW16-14C	SWMU343G-10-GW16-15C	SWMU343G-10-GW18-09A	SWMU343G10-GW18-09B	SWMU343G10-GW18-09C	SWMU343G10-GW18-09D	SWMU343-G10-GW18-10D	SWMU343-GW18-11A	SWMU343-GW18-11C	SWMU343GW10-GW18-12A
Sample Date			08/21/14	08/07/15	02/25/09	04/20/09	08/18/09	11/09/09	11/09/10	02/23/11	08/31/11	02/24/12
Chemical Name												
Dissolved Metals (µg/l)												
Aluminum, Dissolved	--	--	NA	NA	335	370	263 J	290	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	0.5 U	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	5 U	4 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U
Barium, Dissolved	--	700	43.5	43.2	22.9 J	200 U	40 U	22.5	27	77.7	50.9	81.6
Cadmium, Dissolved	--	2	3 U	0.2 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U	3 U
Calcium, Dissolved	--	--	NA	NA	4,750 J	3,740 J	1,720 J	2,260	NA	NA	6,410	NA
Chromium, Dissolved	--	10	4 U	4 U	10 U	10 U	10 U	1.25 U	5 U	0.93 J	4 U	4 U
Copper, Dissolved	--	1,000	10 U	2 U	25 U	25 U	10 U	2.5 U	5 U	0.8 J	18.9 U	0.79 J
Iron, Dissolved	--	300	NA	NA	691 J	553	444	522	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	0.5 U	1.5 J	3 U	3 U	0.75 U	10 U	4 U	6.1 U	4 U
Magnesium, Dissolved	--	--	NA	NA	1,080 J	5,000 U	5,000 U	870 J	NA	NA	NA	NA
Manganese, Dissolved	--	50	5.2 U	5.3 U	18.7	6.8 J	15 U	7.28 J	10 J	15.2	19.1	17.6
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	8 U	2 U	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel, Dissolved	--	100	4 U	1.2 U	40 U	40 U	10 U	2.5 U	40 U	4 U	4 U	4 U
Potassium, Dissolved	--	--	NA	NA	1,120 J	5,000 U	5,000 U	861 J	NA	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	0.4 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	NA	NA	7,870	7,540	7,220 J	7,150	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	0.75 J	4 U	50 U	50 U	15 U	3.12 U	50 U	0.95 J	4 U	0.62 J
Zinc, Dissolved	--	1,000	5.9 J	8 U	20 U	20 U	8.7 J	5 U	20 U	10 U	42 U	17.1 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW18					
Sample ID			SWMU343-G10-GW18-2012C	SWMU343-GW18-13A	SWMU343-GW18-13C	SWMU343-GW18-14C	SWMU343G-10-GW18-15C	SWMU343G-10-GW18D-15C
Sample Date			08/15/12	02/06/13	08/02/13	08/25/14	08/06/15	08/06/15
Chemical Name								
Volatile Organic Compounds (µg/l)								
No Detections			NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)								
2,2'-Oxybis(1-chloropropane)	--	--	7.1 U	7.1 U	7.4 U	7.4 U	7.4 U	7.4 U
3- and 4-Methylphenol	--	--	7.1 U	7.1 U	7.4 U	7.4 U	7.4 U	7.4 U
4-Methylphenol	--	40	NA	NA	NA	NA	NA	NA
Acenaphthene	--	80	0.095 U	0.094 U	0.098 U	0.099 U	7.4 U	7.4 U
Atrazine	--	3	7.1 UJ	7.1 U	7.4 U	7.4 U	0.098 U	0.098 U
Benzaldehyde	--	700	7.1 UJ	7.1 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ
Benzo(a)anthracene	--	0.05	0.095 U	0.094 U	0.098 U	0.099 U	0.098 U	0.098 U
Benzo(a)pyrene	--	0.005	0.095 U	0.094 U	0.098 U	0.099 U	0.16 J	0.098 U
Benzo(b)fluoranthene	--	0.05	0.095 U	0.094 U	0.098 U	0.099 U	0.094 J	0.098 U
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.1 U	7.4 U	7.4 U	7.4 U	7.4 U
Chrysene	--	5	0.095 U	0.094 U	0.098 U	0.099 U	7.4 U	7.4 U
Dimethyl phthalate	--	--	7.1 U	7.1 U	7.4 U	7.4 U	7.4 U	7.4 U
Di-n-butylphthalate	--	700	7.1 U	7.1 U	7.4 U	7.4 U	7.4 U	7.4 U
Fluoranthene	--	300	0.095 U	0.094 U	0.098 U	0.099 U	7.4 U	7.4 U
Fluorene	--	300	0.095 U	0.094 U	0.098 U	0.099 U	7.4 U	7.4 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.095 U	0.094 U	0.098 U	0.099 U	0.1 J	0.098 U
Naphthalene	0.0363	6	0.095 U	0.094 U	0.098 U	0.099 U	7.4 U	7.4 U
Pentachlorophenol	--	0.3	0.48 U	0.47 U	0.49 U	0.5 UJ	0.49 U	0.49 U
Pyrene	--	200	0.095 U	0.094 U	0.098 U	0.099 U	7.4 U	7.4 U
Explosives (µg/l)								
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 U	2 UJ	2 U	2 U	2 U	2 U
Perchlorate	--	2	0.25 U	0.25 U	0.25 U	0.25 U	0.04 U	0.04 U
PETN	--	--	2 U	2 U	2 U	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)								
Aluminum	14,000	--	NA	NA	NA	NA	NA	NA
Antimony	3.91	1	5 U	5 U	5 U	5 U	0.5 U	0.5 U
Arsenic	9.79	10	1.9 J	5 U	2 J	5 U	4 U	4 U
Barium	359	700	82.3	40.9	35	31.2	26.3	25.9
Cadmium	--	2	3 U	3 U	3 U	3 U	0.2 U	0.2 U
Calcium	179,000	--	NA	NA	NA	NA	NA	NA
Chromium	16.9	10	0.91 J	0.78 J	4 U	0.42 J	4 U	4 U
Copper	6.59	1,000	10 U	10 U	10 U	10 U	2 U	2 U
Iron	16,100	300	NA	NA	NA	NA	NA	NA
Lead	8.92	15	4 U	4 U	4 U	4 U	0.2 J	0.19 J
Magnesium	13,500	--	NA	NA	NA	NA	NA	NA
Manganese	176	50	10.6	11.4	9.6	9.4	9.89 U	9.94 U
Mercury	--	1	0.1 U	0.06 J	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	8 U	8 U	8 U	2 U	2 U
Nickel	11.8	100	4 U	0.74 J	4 U	4 U	1.2 U	1.2 U
Potassium	5,590	--	NA	NA	NA	NA	NA	NA
Selenium	--	20	NA	NA	NA	NA	NA	NA
Silver	0.724	20	4 U	4 U	4 U	4 U	0.4 U	0.4 U
Sodium	22,700	--	NA	NA	NA	NA	NA	NA
Vanadium	26.7	0.3	4 U	0.6 J	1.1 J	0.84 J	4 J	3.3 J
Zinc	41.2	1,000	15.5 U	10 U	0.79 J	1 J	8 U	8 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW18					
Sample ID			SWMU343-G10-GW18-2012C	SWMU343-GW18-13A	SWMU343-GW18-13C	SWMU343-GW18-14C	SWMU343G-10-GW18-15C	SWMU343G-10-GW18D-15C
Sample Date			08/15/12	02/06/13	08/02/13	08/25/14	08/06/15	08/06/15
Chemical Name								
Dissolved Metals (µg/l)								
Aluminum, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	5 U	5 U	0.5 U	0.5 U
Arsenic, Dissolved	--	10	5 U	5 U	5 U	5 U	4 U	4 U
Barium, Dissolved	--	700	81	34.7	32.7	30.2	25.8	27
Cadmium, Dissolved	--	2	3 U	3 U	3 U	3 U	0.2 U	0.2 U
Calcium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	6.7 J	4 U	0.67 J	4 U	4 U
Copper, Dissolved	--	1,000	10 U	10 U	10 U	10 U	4.42 U	2 U
Iron, Dissolved	--	300	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	1.7 J	4 U	4 U	0.5 U	0.5 U
Magnesium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	17.4 U	**92.1**	9.6	12.1 U	9.4 U	11.4 U
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.02 J	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	8 U	8 U	8 U	8 U	2 U	2 U
Nickel, Dissolved	--	100	4 U	4 U	4 U	4 U	1.2 U	1.2 U
Potassium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	4 U	4 U	4 U	0.4 U	0.4 U
Sodium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	1.1 J	1.1 J	1.5 J	0.92 J	3.9 J	3.9 J
Zinc, Dissolved	--	1,000	13.9 U	39.4 U	10 U	10 U	6 J	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

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APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW3								SWMU343G-10-MW3	
Sample ID			SWMU343G-10-GW3-09A	SWMU343G10-GW03-09B	SWMU343G10-GW3-09C	SWMU343G10-GW3-09D	SWMU343-G10-GW03-10D	SWMU343-GW03-11C	SWMU343-G10-GW03-2012C	SWMU343-GW03-13C	SWMU343-GW03-14C	SWMU343G-10-GW03-15C
Sample Date			02/25/09	04/24/09	08/19/09	11/10/09	11/11/10	08/30/11	08/09/12	08/06/13	08/18/14	08/08/15
Chemical Name												
Volatile Organic Compounds (µg/l)												
No Detections			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)												
2,2'-Oxybis(1-chloropropane)	--	--	9.8 U	9.2 U	10 U	9.4 UJ	5.2 U	7.5 U	7.2 U	7.1 U	7.7 U	7.1 U
3- and 4-Methylphenol	--	--	NA	NA	NA	NA	10 U	7.5 U	7.2 U	7.1 U	7.7 U	7.1 U
4-Methylphenol	--	40	9.8 U	9.2 U	10 U	9.4 U	NA	NA	NA	NA	NA	NA
Acenaphthene	--	80	9.8 U	9.2 U	10 U	9.4 U	5.2 U	0.1 U	0.096 UJ	0.095 U	0.1 U	7.1 U
Atrazine	--	3	9.8 UJ	9.2 U	10 UJ	9.4 UJ	NA	7.5 U	7.2 UJ	7.1 U	7.7 U	0.094 U
Benzaldehyde	--	700	9.8 UJ	9.2 U	10 UJ	9.4 UJ	NA	7.5 UJ	7.2 U	7.1 UJ	7.7 UJ	7.1 UJ
Benzo(a)anthracene	--	0.05	9.8 U	9.2 U	10 U	9.4 U	5.2 U	0.1 U	0.096 UJ	0.095 U	0.1 U	0.094 U
Benzo(a)pyrene	--	0.005	9.8 U	9.2 U	10 U	9.4 U	5.2 U	0.1 U	0.096 UJ	0.095 U	0.1 U	0.094 U
Benzo(b)fluoranthene	--	0.05	9.8 U	9.2 U	10 U	9.4 U	5.2 U	0.1 U	0.096 UJ	0.095 U	0.1 U	0.094 U
bis(2-Ethylhexyl)phthalate	--	3	9.8 U	9.2 U	10 U	9.4 U	5.2 U	7.5 UJ	7.2 U	7.1 U	7.7 U	7.1 U
Chrysene	--	5	9.8 U	9.2 U	10 U	9.4 U	5.2 U	0.1 U	0.096 UJ	0.049 J	0.1 U	7.1 U
Dimethyl phthalate	--	--	9.8 U	9.2 U	10 U	9.4 U	5.2 U	7.5 U	7.2 U	7.1 U	7.7 U	7.1 U
Di-n-butylphthalate	--	700	9.8 U	9.2 U	10 U	9.4 U	5.2 U	7.5 U	7.2 U	7.1 U	7.7 U	7.1 U
Fluoranthene	--	300	9.8 U	9.2 U	10 U	9.4 U	5.2 U	0.1 U	0.096 UJ	0.095 U	0.1 U	7.1 U
Fluorene	--	300	9.8 U	9.2 U	10 U	9.4 U	5.2 U	0.1 U	0.096 UJ	0.095 U	0.1 U	7.1 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.8 U	9.2 UJ	10 UJ	9.4 U	5.2 U	0.1 UJ	0.096 UJ	0.095 UJ	0.058 J	0.094 U
Naphthalene	0.0363	6	9.8 U	9.2 UJ	10 U	9.4 U	5.2 U	0.1 U	0.096 U	0.095 U	0.1 U	7.1 U
Pentachlorophenol	--	0.3	24 U	23 U	25 U	24 U	26 U	0.5 U	0.48 UJ	0.48 UJ	0.52 U	0.47 U
Pyrene	--	200	9.8 U	9.2 U	10 U	9.4 U	5.2 U	0.1 U	0.096 UJ	0.095 U	0.1 U	7.1 U
Explosives (µg/l)												
1,3,5-Trinitrobenzene	--	--	0.18 U	0.19 U	0.2 U	0.14 UJ	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.18 U	0.19 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.18 U	0.19 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.18 U	0.19 U	0.14 J	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.18 U	0.19 U	0.2 U	0.057 J	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.18 U	0.19 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.18 U	0.19 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.18 U	1.8 U	0.16 U	2.5 J	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.18 U	0.19 U	0.2 U	0.14 UJ	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.18 U	0.19 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	0.48 U	1.9 U	2 U	0.49 U	1.04 U	2 U	2 U	2 U	2 U	2 U
Perchlorate	--	2	0.08 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U	0.25 U	0.081 J
PETN	--	--	0.74 U	1.9 U	2 U	0.49 U	1.04 U	2 U	2 U	2 U	2 U	2 U
RDX	--	--	0.18 U	0.19 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)												
Aluminum	14,000	--	974	1,500	200 U	737	NA	NA	NA	NA	NA	NA
Antimony	3.91	1	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U	5 U	0.5 U
Arsenic	9.79	10	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U	5 U	2.5 J
Barium	359	700	10.3 J	8.9 J	40 U	10.6	20 J	19.2	20.6	20.6	37.7	64.7
Cadmium	--	2	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U	3 U	3 U	0.2 U
Calcium	179,000	--	5,000 U	5,000 U	5,000 UJ	769 J	NA	726	NA	NA	NA	NA
Chromium	16.9	10	10 U	10 U	10 U	1.25 U	5 U	0.55 J	0.57 J	0.71 J	4 U	4 U
Copper	6.59	1,000	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	10 U	10 U	2.54 U
Iron	16,100	300	791	931	100 U	168	NA	NA	NA	NA	NA	NA
Lead	8.92	15	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U	4 U	4 U	2.78
Magnesium	13,500	--	5,000 U	5,000 U	5,000 U	985 J	NA	NA	NA	NA	NA	NA
Manganese	176	50	5.2 J	5.5 J	15 U	5.97	15 U	4.3 J	4 U	4.9 J	90.8	793
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	40 U	8 U	8 U	8 U	2.6 J	2 U
Nickel	11.8	100	40 U	40 U	10 U	2.5 U	40 U	4 U	0.62 J	4 U	0.7 J	3.02
Potassium	5,590	--	5,000 U	5,000 U	5,000 U	382 J	NA	NA	NA	NA	NA	NA
Selenium	--	20	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA	NA	NA
Silver	0.724	20	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U	4 U	0.4 U
Sodium	22,700	--	6,980	7,310	5,000 U	10,500	NA	NA	NA	NA	NA	NA
Vanadium	26.7	0.3	50 U	50 U	15 U	3.12 U	50 U	4 U	4 U	0.33 J	0.24 J	4 U
Zinc	41.2	1,000	20 U	20 U	20 U	5 U	20 U	11.6 U	13.4 U	10 U	10 U	8 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW3								SWMU343G-10-MW3	
Sample ID			SWMU343G-10-GW3-09A	SWMU343G10-GW03-09B	SWMU343G10-GW3-09C	SWMU343G10-GW3-09D	SWMU343-G10-GW03-10D	SWMU343-GW03-11C	SWMU343-G10-GW03-2012C	SWMU343-GW03-13C	SWMU343-GW03-14C	SWMU343G-10-GW03-15C
Sample Date			02/25/09	04/24/09	08/19/09	11/10/09	11/11/10	08/30/11	08/09/12	08/06/13	08/18/14	08/08/15
Chemical Name												
Dissolved Metals (µg/l)												
Aluminum, Dissolved	--	--	343	309	200 U	288	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	15 U	3.75 U	3.7 J	5 U	5 U	5 U	5 U	0.5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U	5 U	4 U
Barium, Dissolved	--	700	9.5 J	200 U	40 U	10.6	20 J	18.5 U	20.6	19.2	36.5	69.7
Cadmium, Dissolved	--	2	5 U	5 U	5 U	0.298 J	2 U	3 U	3 U	3 U	3 U	0.2 U
Calcium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	891 J	NA	743	NA	NA	NA	NA
Chromium, Dissolved	--	10	10 U	10 U	10 U	1.25 U	2.4 J	4 U	4 U	0.43 J	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	10 U	10 U	3.09 U
Iron, Dissolved	--	300	100 U	100 U	100 U	25 U	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U	4 U	4 U	2.84 U
Magnesium, Dissolved	--	--	5,000 U	5,000 UJ	5,000 U	900 J	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	4.8 J	4.7 J	15 UJ	5.82 J	15 U	4 J	4 U	4.7 U	87.3	840
Mercury, Dissolved	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	40 U	8 U	8 U	8 U	3.3 J	2 U
Nickel, Dissolved	--	100	40 U	40 U	10 U	2.5 U	40 U	4 U	0.47 J	0.55 J	4 U	3.22
Potassium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	356 J	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	--	20	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 UJ	1.25 U	5 U	4 U	4 U	4 U	4 U	0.4 U
Sodium, Dissolved	--	--	7,080	6,620	5,000 U	9,050	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	50 U	50 U	15 UJ	3.12 U	50 U	4 U	4 U	0.24 J	0.35 J	4 U
Zinc, Dissolved	--	1,000	20 U	20 U	20 U	5.03	20 U	28.1 U	33.5 U	10 U	10 U	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW4								SWMU343G-10-MW4		
Sample ID			SWMU343G-10-GW4-09A	SWMU343G-10-GW4D-09A	SWMU343G10-GW04-09B	SWMU343G10-GW4-09C	SWMU343G10-GW4-09D	SWMU343-G10-GW04-10D	SWMU343-GW04-11C	SWMU343-G10-GW04-2012C	SWMU343-GW04-13C	SWMU343-GW04-14C	SWMU343G-10-GW04-15C
Sample Date			02/26/09	02/26/09	04/22/09	08/20/09	11/11/09	11/11/10	09/01/11	08/09/12	08/06/13	08/22/14	08/06/15
Chemical Name													
Volatile Organic Compounds (µg/l)													
No Detections			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)													
2,2'-Oxybis(1-chloropropane)	--	--	9.4 U	10 U	9.4 U	10 U	9.3 UJ	5.2 U	8 U	7.4 U	7.7 U	7.1 U	7.4 U
3- and 4-Methylphenol	--	--	NA	NA	NA	NA	NA	10 U	8 U	7.4 U	7.7 U	7.1 U	7.4 U
4-Methylphenol	--	40	9.4 U	10 U	9.4 U	10 U	9.3 U	NA	NA	NA	NA	NA	NA
Acenaphthene	--	80	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 U	0.094 U	7.4 U
Atrazine	--	3	9.4 U	10 U	9.4 U	10 UJ	9.3 UJ	NA	8 U	7.4 UJ	7.7 U	7.1 U	0.098 U
Benzaldehyde	--	700	9.4 UJ	10 UJ	9.4 U	10 UJ	9.3 UJ	NA	8 UJ	7.4 U	7.7 UJ	7.1 UJ	7.4 UJ
Benzo(a)anthracene	--	0.05	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 UJ	0.094 U	0.098 U
Benzo(a)pyrene	--	0.005	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 U	0.094 U	0.13 J
Benzo(b)fluoranthene	--	0.05	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 U	0.094 UJ	0.092 J
bis(2-Ethylhexyl)phthalate	--	3	9.4 U	10 U	9.4 U	10 U	10 U	5.2 U	8 U	7.4 U	7.7 U	7.1 U	7.4 U
Chrysene	--	5	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 U	0.094 U	7.4 U
Dimethyl phthalate	--	--	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	8 U	7.4 U	7.7 U	7.1 U	7.4 U
Di-n-butylphthalate	--	700	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	8 U	7.4 U	7.7 U	7.1 U	7.4 U
Fluoranthene	--	300	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 U	0.094 UJ	7.4 U
Fluorene	--	300	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 U	0.094 U	7.4 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.4 U	10 U	9.4 U	10 U	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 UJ	0.094 U	0.093 J
Naphthalene	0.0363	6	9.4 U	10 U	9.4 UJ	10 U	9.3 U	5.2 U	0.11 U	0.099 U	0.1 U	0.094 U	7.4 U
Pentachlorophenol	--	0.3	24 U	25 U	24 U	25 U	23 U	26 U	0.53 U	0.5 UJ	0.52 U	0.47 UJ	0.49 U
Pyrene	--	200	9.4 U	10 U	9.4 U	10 UJ	9.3 U	5.2 U	0.11 U	0.099 UJ	0.1 U	0.094 U	7.4 U
Explosives (µg/l)													
1,3,5-Trinitrobenzene	--	--	0.22 U	0.22 U	0.2 U	0.2 U	0.14 UJ	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.22 U	0.22 U	0.2 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.22 U	0.22 U	0.2 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.22 U	0.22 U	0.2 U	0.2 U	0.14 J	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.22 U	0.22 U	0.2 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.22 U	0.22 U	0.2 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.22 U	0.22 U	0.2 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.22 U	0.22 U	0.2 U	1.3 U	1.5 J	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.22 U	0.22 U	0.2 U	0.2 U	0.14 UJ	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.22 U	0.22 U	0.087 J	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	0.58 U	0.58 U	2 U	2 U	0.47 U	1.04 U	2 U	2 U	2 U	2 U	2 U
Perchlorate	--	2	0.08 U	0.08 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U	0.25 U	0.053 J
PETN	--	--	0.89 U	0.89 U	2 U	2 U	0.47 U	1.04 U	2 U	2 U	2 U	2 U	2 U
RDX	--	--	0.22 U	0.22 U	0.2 U	0.2 U	0.14 U	1.04 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)													
Aluminum	14,000	--	487	453	302	200 U	207	NA	NA	NA	NA	NA	NA
Antimony	3.91	1	60 U	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U	2.6 J	0.5 U
Arsenic	9.79	10	10 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U	5 U	4 U
Barium	359	700	20.2 J	19.7 J	17.5 J	40 U	19	17 J	17.3	18.4	13.1	17.3	18.3 U
Cadmium	--	2	5 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U	3 U	3 U	0.2 U
Calcium	179,000	--	5,000 U	5,000 U	5,000 UJ	5,000 UJ	832 J	NA	794	NA	NA	NA	NA
Chromium	16.9	10	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	1.1 J	4 U	4 U
Copper	6.59	1,000	25 U	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	1.2 J	10 U	2 U
Iron	16,100	300	386	380	325	254 J	345	NA	NA	NA	NA	NA	NA
Lead	8.92	15	2 J	2.3 J	3 U	3 U	0.75 U	10 U	4 U	4 U	4 U	4 U	0.2 J
Magnesium	13,500	--	1,480 J	1,460 J	1,330 J	1,410 J	1,290	NA	NA	NA	NA	NA	NA
Manganese	176	50	15 U	15 U	3.7 J	15 U	3.75 U	4.9 J	2.7 J	4 U	12	4.8 J	5.49 U
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.083 J	0.2 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U	8 U	8 U	2 U
Nickel	11.8	100	40 U	40 U	40 U	10 U	2.5 U	40 U	4 U	0.32 J	4 U	4 U	1.2 U
Potassium	5,590	--	5,000 U	5,000 U	5,000 U	5,000 U	515 J	NA	NA	NA	NA	NA	NA
Selenium	--	20	5 U	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA	NA	NA
Silver	0.724	20	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U	4 U	0.4 U
Sodium	22,700	--	8,920 J	8,780 J	7,730	8,320 J	8,700	NA	NA	NA	NA	NA	NA
Vanadium	26.7	0.3	50 U	50 U	50 U	15 U	3.12 U	50 U	4 U	4 U	0.71 J	4 U	1 J
Zinc	41.2	1,000	20 U	20 U	6.7 J	20 U	5 U	20 U	13.8 U	14 U	10 U	10 U	8 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW4								SWMU343G-10-MW4		
Sample ID			SWMU343G-10-GW4-09A	SWMU343G-10-GW4D-09A	SWMU343G10-GW04-09B	SWMU343G10-GW4-09C	SWMU343G10-GW4-09D	SWMU343-G10-GW04-10D	SWMU343-GW04-11C	SWMU343-G10-GW04-2012C	SWMU343-GW04-13C	SWMU343-GW04-14C	SWMU343G-10-GW04-15C
Sample Date			02/26/09	02/26/09	04/22/09	08/20/09	11/11/09	11/11/10	09/01/11	08/09/12	08/06/13	08/22/14	08/06/15
Chemical Name													
Dissolved Metals (µg/l)													
Aluminum, Dissolved	--	--	156 J	159 J	173 J	200 U	156	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	60 U	15 U	3.75 U	3.7 J	5 U	5 U	5 U	5 U	0.5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U	5 U	4 U
Barium, Dissolved	--	700	19.5 J	19.9 J	19 J	40 U	19.8	17 J	17.4 U	18.4	16.6	35.3 U	19.5 U
Cadmium, Dissolved	--	2	5 U	5 U	5 U	1.1 J	0.296 J	2 U	3 U	3 U	3 U	3 U	0.2 U
Calcium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	5,000 UJ	971 J	NA	815	NA	NA	NA	NA
Chromium, Dissolved	--	10	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	0.68 J	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	10 U	10 U	2 U
Iron, Dissolved	--	300	201	211	223	228	321	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	3 U	2.4 J	3 U	3 U	0.75 U	10 U	4 U	4 U	4 U	4 U	0.5 U
Magnesium, Dissolved	--	--	1,470 J	1,490 J	1,400 J	1,410 J	1,250	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	3.7 J	3.8 J	3.5 J	15 U	3.75 J	5.8 J	7.4 U	7.7 U	4 U	5.5 U	5.18 U
Mercury, Dissolved	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U	8 U	8 U	2 U
Nickel, Dissolved	--	100	40 U	40 U	40 U	10 U	2.5 U	40 U	4 U	0.79 J	0.33 J	4 U	1.2 U
Potassium, Dissolved	--	--	5,000 U	5,000 U	5,000 U	5,000 U	489 J	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	--	20	5 U	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U	4 U	0.4 U
Sodium, Dissolved	--	--	8,240 J	8,410 J	9,060	8,470 J	7,850	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	50 U	50 U	50 U	15 U	3.12 U	50 U	4 U	4 U	4 U	0.24 J	4 U
Zinc, Dissolved	--	1,000	20 U	20 U	7.6 J	20 U	5.56	20 U	10 U	37.7 U	10.3 J	14.7 U	4.4 J

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed
J - Analyte present, value may or may not be accurate or precise
R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW5							
Sample ID			SWMU343G-10-GW5-09A	SWMU343G10-GW05-09B	SWMU343G10-GW5-09C	SWMU343G10-GW5D-09C	SWMU343G10-GW5-09D	SWMU343-G10-GW05-10D	SWMU343-GW05-11C	SWMU343-GW05-13C
Sample Date			02/24/09	04/21/09	08/18/09	08/18/09	11/10/09	11/11/10	08/30/11	08/06/13
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
2,2'-Oxybis(1-chloropropane)	--	--	9.2 U	9.4 U	10 U	9.8 U	9.8 UJ	5.2 U	7.4 U	7.5 U
3- and 4-Methylphenol	--	--	NA	NA	NA	NA	NA	10 U	7.4 U	7.5 U
4-Methylphenol	--	40	9.2 U	9.4 U	10 U	9.8 U	9.8 U	NA	NA	NA
Acenaphthene	--	80	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.1 U
Atrazine	--	3	9.2 U	9.4 UJ	10 U	9.8 U	9.8 UJ	NA	7.4 U	7.5 U
Benzaldehyde	--	700	9.2 U	9.4 U	10 U	9.8 U	9.8 UJ	NA	7.4 UJ	7.5 UJ
Benzo(a)anthracene	--	0.05	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.1 U
Benzo(a)pyrene	--	0.005	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.1 U
Benzo(b)fluoranthene	--	0.05	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.1 U
bis(2-Ethylhexyl)phthalate	--	3	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	7.4 UJ	7.5 U
Chrysene	--	5	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.045 J
Dimethyl phthalate	--	--	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	7.4 U	7.5 U
Di-n-butylphthalate	--	700	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	7.4 U	7.5 U
Fluoranthene	--	300	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.1 UJ
Fluorene	--	300	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.1 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.2 U	9.4 U	10 UJ	9.8 UJ	9.8 U	5.2 U	0.098 UJ	0.1 UJ
Naphthalene	0.0363	6	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.1 U
Pentachlorophenol	--	0.3	23 U	24 U	25 U	24 U	24 U	26 U	0.49 U	0.5 UJ
Pyrene	--	200	9.2 U	9.4 U	10 U	9.8 U	9.8 U	5.2 U	0.098 U	0.1 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.19 U	0.22 U	0.2 U	0.2 U	0.15 UJ	1.02 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.19 U	0.22 U	0.2 U	0.2 U	0.15 U	1.02 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.057 J	0.22 U	0.2 U	0.2 U	0.15 U	1.02 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.19 U	0.22 U	0.2 U	0.2 U	0.15 U	1.02 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.19 U	0.22 U	0.2 U	0.2 U	0.15 U	1.02 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.19 U	0.22 U	0.1 J	0.2 U	0.15 U	1.02 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.19 U	0.22 U	0.2 U	0.2 U	0.15 U	1.02 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.19 U	0.26 U	0.2 U	0.2 U	0.15 J	1.02 U	0.12 U	0.12 U
HMX	--	--	0.19 U	0.22 U	0.2 U	0.2 U	0.15 UJ	1.02 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.19 U	0.16 J	0.2 U	0.2 U	0.15 U	1.02 U	0.12 U	0.12 U
Nitroglycerin	--	--	0.49 U	2.2 U	2 U	2 U	0.5 U	1.02 U	2 U	2 U
Perchlorate	--	2	0.09 J	0.1 J	0.244	0.303	0.158 J	0.462	0.21 J	0.68
PETN	--	--	0.75 U	2.2 U	2 U	2 U	0.5 U	1.02 U	2 U	2 U
RDX	--	--	0.19 U	0.22 U	0.2 U	0.2 U	0.15 U	1.02 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	14,000	--	1,250	407	1,140 J	1,290 J	190	NA	NA	NA
Antimony	3.91	1	60 U	60 U	15 U	15 U	3.75 U	10 U	5 U	5 U
Arsenic	9.79	10	10 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U
Barium	359	700	13.7 J	11.5 J	40 U	40 U	12.7	19 J	19.4	12.7
Cadmium	--	2	5 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U
Calcium	179,000	--	5,000 U	5,000 U	5,000 UJ	5,000 UJ	495 J	NA	818	NA
Chromium	16.9	10	3.9 J	10 U	10 U	10 U	1.25 U	5 U	2 J	4 U
Copper	6.59	1,000	25 U	25 U	10 U	10 U	2.5 U	5 U	10 U	10 U
Iron	16,100	300	353	116 J	268 J	308 J	47.1	NA	NA	NA
Lead	8.92	15	3.9	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U
Magnesium	13,500	--	5,000 U	5,000 U	5,000 UJ	5,000 UJ	844 J	NA	NA	NA
Manganese	176	50	15 U	15 U	15 U	15 U	3.75 U	15 U	1.9 J	4 U
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 UJ	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel	11.8	100	40 U	40 U	10 U	10 U	2.5 U	40 U	0.54 J	4 U
Potassium	5,590	--	5,000 U	5,000 U	5,000 U	5,000 U	539 J	NA	NA	NA
Selenium	--	20	5 U	5 U	5 U	5 U	1.25 U	NA	NA	NA
Silver	0.724	20	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Sodium	22,700	--	8,030 J	7,970 J	5,980 J	6,150 J	6,600	NA	NA	NA
Vanadium	26.7	0.3	50 U	50 U	15 U	15 U	3.12 U	50 U	2.3 J	0.23 J
Zinc	41.2	1,000	20 U	20 U	20 U	20 U	5 U	20 U	13.8 U	10 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW5							
Sample ID			SWMU343G-10-GW5-09A	SWMU343G10-GW05-09B	SWMU343G10-GW5-09C	SWMU343G10-GW5D-09C	SWMU343G10-GW5-09D	SWMU343-G10-GW05-10D	SWMU343-GW05-11C	SWMU343-GW05-13C
Sample Date			02/24/09	04/21/09	08/18/09	08/18/09	11/10/09	11/11/10	08/30/11	08/06/13
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	200 U	200 U	200 U	200 U	34.6 J	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	15 U	15 U	3.75 U	10 U	5 U	5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U
Barium, Dissolved	--	700	10.7 J	11.2 J	40 U	40 U	12.3	19 J	14.9 U	11.4
Cadmium, Dissolved	--	2	5 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U
Calcium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	5,000 UJ	642 J	NA	751	NA
Chromium, Dissolved	--	10	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	10 U	10 U	2.5 U	5 U	10 U	10 U
Iron, Dissolved	--	300	100 U	100 U	100 U	100 U	25 U	NA	NA	NA
Lead, Dissolved	--	15	2.2 J	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U
Magnesium, Dissolved	--	--	1,000 J	5,000 U	5,000 U	5,000 U	865 J	NA	NA	NA
Manganese, Dissolved	--	50	15 U	15 U	15 U	15 U	3.75 UJ	15 U	4 U	4 U
Mercury, Dissolved	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.088 J	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel, Dissolved	--	100	40 U	40 U	10 U	10 U	2.5 U	40 U	4 U	0.31 J
Potassium, Dissolved	--	--	5,000 U	5,000 U	5,000 U	5,000 U	601 J	NA	NA	NA
Selenium, Dissolved	--	20	5 U	5 U	5 U	5 U	1.25 U	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Sodium, Dissolved	--	--	7,950	8,340	7,290 J	7,340 J	7,000	NA	NA	NA
Vanadium, Dissolved	--	0.3	50 U	50 U	15 U	15 U	3.12 U	50 U	4 U	4 U
Zinc, Dissolved	--	1,000	20 U	5.1 J	20 U	5.4 J	5 U	20 U	25.4 U	10 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW5		SWMU343G-10-MW6							
Sample ID			SWMU343-GW05-14C	SWMU343G-10-GW05-15C	SWMU343G-10-GW6-09A	SWMU343G10-GW06-09B	SWMU343G10-GW6-09C	SWMU343G10-GW6D-09C	SWMU343G10-GW6-09D	SWMU343-G10-GW06-10D	SWMU343-GW06-11C	SWMU343-G10-GW06-2012C
Sample Date			08/26/14	08/08/15	02/24/09	04/21/09	08/18/09	08/18/09	11/10/09	11/09/10	08/30/11	08/08/12
Chemical Name												
Volatile Organic Compounds (µg/l)												
No Detections			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)												
2,2'-Oxybis(1-chloropropane)	--	--	7.2 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 UJ	5.4 U	7.1 U	7.4 U
3- and 4-Methylphenol	--	--	7.2 U	7.1 U	NA	NA	NA	NA	NA	11 U	7.1 U	7.4 U
4-Methylphenol	--	40	NA	NA	10 U	9.3 U	9.6 U	9.6 U	9.3 U	NA	NA	NA
Acenaphthene	--	80	0.096 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
Atrazine	--	3	7.2 U	0.094 U	10 U	9.3 UJ	9.6 U	9.6 U	9.3 UJ	NA	7.1 U	7.4 UJ
Benzaldehyde	--	700	7.2 UJ	7.1 UJ	10 U	9.3 U	9.6 U	9.6 U	9.3 UJ	NA	7.1 UJ	7.4 U
Benzo(a)anthracene	--	0.05	0.096 U	0.094 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
Benzo(a)pyrene	--	0.005	0.096 U	0.067 J	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
Benzo(b)fluoranthene	--	0.05	0.096 U	0.094 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
bis(2-Ethylhexyl)phthalate	--	3	7.2 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	7.1 UJ	7.4 U
Chrysene	--	5	0.096 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
Dimethyl phthalate	--	--	7.2 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	7.1 U	7.4 U
Di-n-butylphthalate	--	700	7.2 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	7.1 U	7.4 U
Fluoranthene	--	300	0.096 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
Fluorene	--	300	0.096 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.096 U	0.094 U	10 U	9.3 U	9.6 UJ	9.6 UJ	9.3 U	5.4 U	0.095 UJ	0.099 U
Naphthalene	0.0363	6	0.096 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
Pentachlorophenol	--	0.3	0.48 U	0.47 U	25 U	23 U	24 U	24 U	23 U	27 U	0.48 U	0.5 U
Pyrene	--	200	0.096 U	7.1 U	10 U	9.3 U	9.6 U	9.6 U	9.3 U	5.4 U	0.095 U	0.099 U
Explosives (µg/l)												
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.18 U	0.2 U	0.14 UJ	1.03 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.18 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.18 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.22 U	0.19 U	0.18 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.18 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	1.3	0.19 U	0.18 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.18 U	0.21 U	0.14 U	1.03 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.22 U	1.1 J	0.29 U	0.26 U	0.26 J	1.03 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.18 U	0.2 U	0.14 UJ	1.03 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.22 U	0.098 J	0.18 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 U	2 U	0.58 U	1.9 U	1.8 U	2 U	0.48 U	1.03 U	2 U	2 U
Perchlorate	--	2	0.23 J	0.4	0.08 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U
PETN	--	--	2 U	2 U	0.89 U	1.9 U	1.8 U	2 U	0.48 U	1.03 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.22 U	0.19 U	0.18 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
Total Metals (µg/l)												
Aluminum	14,000	--	NA	NA	862	1,230	1,100 J	503 J	473	NA	NA	NA
Antimony	3.91	1	5 U	0.5 U	60 U	60 U	15 U	15 U	3.75 U	10 U	5 U	5 U
Arsenic	9.79	10	5 U	4 U	10 U	10 U	10 U	10 UJ	1.25 U	10 U	5 U	5 U
Barium	359	700	15.4	18.8	12.9 J	15.4 J	40 U	40 U	13.3	15 J	13.5	11.5
Cadmium	--	2	3 U	0.2 U	5 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U
Calcium	179,000	--	NA	NA	5,000 U	5,000 U	5,000 UJ	5,000 UJ	1,250 U	NA	318	NA
Chromium	16.9	10	4 U	4 U	10 U	2.2 J	10 U	10 UJ	0.526 J	5 U	0.66 J	0.59 J
Copper	6.59	1,000	0.98 J	2 U	25 U	25 U	10 U	10 U	2.5 U	5 U	10 U	10 U
Iron	16,100	300	NA	NA	794	1,130 J	613 J	513 J	753	NA	NA	NA
Lead	8.92	15	4 U	0.35 J	3 U	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U
Magnesium	13,500	--	NA	NA	5,000 U	5,000 U	5,000 UJ	5,000 UJ	790 J	NA	NA	NA
Manganese	176	50	1.4 J	4.33 U	15 U	15 U	15 U	15 U	3.75 U	15 U	11.7	4 U
Mercury	--	1	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	2 U	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel	11.8	100	4 U	0.54 J	40 U	40 U	10 U	10 UJ	2.5 U	40 U	4 U	4 U
Potassium	5,590	--	NA	NA	5,000 U	5,000 U	5,000 U	5,000 U	380 J	NA	NA	NA
Selenium	--	20	NA	NA	5 U	5 U	5 U	5 UJ	1.25 U	NA	NA	NA
Silver	0.724	20	4 U	0.4 U	10 U	10 U	10 U	10 U	1.25 U	5 U	0.28 J	0.32 J
Sodium	22,700	--	NA	NA	5,980 J	6,400 J	6,310 J	5,820 J	5,930	NA	NA	NA
Vanadium	26.7	0.3	4 U	4 U	50 U	50 U	15 U	15 U	3.12 U	50 U	0.82 J	4 U
Zinc	41.2	1,000	10 U	8 U	20 U	15.9 J	20 U	20 UJ	5 U	20 U	12.2 U	13.5 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	**Camp Lejeune BTVs Surficial (April 2012)**	**NCGWQS/IMAC (January 2016)**	SWMU343G-10-MW5		SWMU343G-10-MW6							
Sample ID			SWMU343-GW05-14C	SWMU343G-10-GW05-15C	SWMU343G-10-GW6-09A	SWMU343G10-GW06-09B	SWMU343G10-GW6-09C	SWMU343G10-GW6D-09C	SWMU343G10-GW6-09D	SWMU343-G10-GW06-10D	SWMU343-GW06-11C	SWMU343-G10-GW06-2012C
Sample Date			08/26/14	08/08/15	02/24/09	04/21/09	08/18/09	08/18/09	11/10/09	11/09/10	08/30/11	08/08/12
Chemical Name												
Dissolved Metals (µg/l)												
Aluminum, Dissolved	--	--	NA	NA	535	422	272 J	334 J	444	NA	NA	NA
Antimony, Dissolved	--	1	5 U	0.5 U	60 U	60 U	15 U	15 U	3.75 U	10 U	5 U	5 U
Arsenic, Dissolved	--	10	5 U	4 U	10 U	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U
Barium, Dissolved	--	700	14.5	18.8	13.2 J	14.4 J	40 U	40 U	13.6	16 J	13.4 U	11.3
Cadmium, Dissolved	--	2	3 U	0.2 U	5 U	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U
Calcium, Dissolved	--	--	NA	NA	5,000 U	5,000 U	5,000 UJ	5,000 UJ	310 J	NA	320	NA
Chromium, Dissolved	--	10	4 U	4 U	10 U	10 U	10 U	10 U	0.569 J	5 U	4 U	4 U
Copper, Dissolved	--	1,000	10 U	2 U	25 U	25 U	10 U	10 U	2.5 U	5 U	10 U	10 U
Iron, Dissolved	--	300	NA	NA	698 J	755	334	488	744	NA	NA	NA
Lead, Dissolved	--	15	4 U	0.5 U	3 U	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U
Magnesium, Dissolved	--	--	NA	NA	5,000 U	5,000 U	5,000 U	5,000 U	834 J	NA	NA	NA
Manganese, Dissolved	--	50	4 U	3.2 U	15 U	15 U	15 U	15 U	2.22 J	15 U	12	11 U
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	8 U	2 U	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel, Dissolved	--	100	4 U	0.43 J	40 U	40 U	10 U	10 U	2.5 U	40 U	0.57 J	4 U
Potassium, Dissolved	--	--	NA	NA	5,000 U	5,000 U	5,000 U	5,000 U	419 J	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	5 U	5 U	5 U	5 U	1.25 U	NA	NA	NA
Silver, Dissolved	--	20	4 U	0.4 U	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Sodium, Dissolved	--	--	NA	NA	5,890	6,840	7,050 J	6,950 J	6,260	NA	NA	NA
Vanadium, Dissolved	--	0.3	4 U	4 U	50 U	50 U	15 U	15 U	3.12 U	50 U	4 U	0.83 J
Zinc, Dissolved	--	1,000	10 U	8 U	20 U	11.5 J	5.5 J	20 U	5 U	20 U	63.9 U	42.6 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Surficial Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW6			SWMU343G-10-MW7			
Sample ID			SWMU343-GW06-13C	SWMU343-GW06-14C	SWMU343-10-GW06-15C	SWMU343G-10-GW7-09A	SWMU343G10-GW07-09B	SWMU343G10-GW7-09C	SWMU343G10-GW7-09D
Sample Date			08/05/13	08/20/14	08/08/15	02/24/09	04/21/09	08/19/09	11/10/09
Chemical Name									
Volatile Organic Compounds (µg/l)									
No Detections			NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)									
2,2'-Oxybis(1-chloropropane)	--	--	7.1 U	7.4 U	7.2 U	9.8 U	9.4 U	9.8 U	9.4 U
3- and 4-Methylphenol	--	--	7.1 UJ	7.4 U	7.2 U	NA	NA	NA	NA
4-Methylphenol	--	40	NA	NA	NA	9.8 U	9.4 U	9.8 U	9.4 U
Acenaphthene	--	80	0.084 J	0.098 U	7.2 U	9.8 U	9.4 U	9.8 U	9.4 U
Atrazine	--	3	7.1 U	7.4 U	0.096 U	9.8 U	9.4 U	9.8 UJ	9.4 UJ
Benzaldehyde	--	700	7.1 UJ	7.4 UJ	7.2 UJ	9.8 U	9.4 U	9.8 UJ	9.4 UJ
Benzo(a)anthracene	--	0.05	0.096 U	0.098 U	0.096 U	9.8 U	9.4 U	9.8 U	9.4 U
Benzo(a)pyrene	--	0.005	0.095 U	0.098 U	0.072 J	9.8 U	9.4 U	9.8 U	9.4 U
Benzo(b)fluoranthene	--	0.05	0.16 U	0.098 UJ	0.096 U	9.8 U	9.4 U	9.8 U	9.4 U
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.4 U	7.2 U	9.8 U	9.4 U	9.8 U	9.4 U
Chrysene	--	5	0.095 U	0.098 U	7.2 U	9.8 U	9.4 U	9.8 U	9.4 U
Dimethyl phthalate	--	--	7.1 U	7.4 U	7.2 U	9.8 U	9.4 U	9.8 U	9.4 U
Di-n-butylphthalate	--	700	7.1 U	7.4 U	7.2 U	9.8 U	9.4 U	9.8 U	1.3 J
Fluoranthene	--	300	0.2 U	0.098 UJ	7.2 U	9.8 U	9.4 U	9.8 U	9.4 U
Fluorene	--	300	0.06 J	0.098 U	7.2 U	9.8 U	9.4 U	9.8 U	9.4 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.095 U	0.098 U	0.096 U	9.8 U	9.4 U	9.8 UJ	9.4 U
Naphthalene	0.0363	6	0.095 U	0.098 U	7.2 U	9.8 U	9.4 UJ	9.8 U	9.4 U
Pentachlorophenol	--	0.3	0.48 U	0.49 U	0.48 U	24 U	24 U	24 U	24 U
Pyrene	--	200	0.13 U	0.098 U	7.2 U	9.8 U	9.4 U	9.8 U	9.4 U
Explosives (µg/l)									
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.11 J	0.19 U	0.2 U	0.14 UJ
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.24 U	0.19 U	0.2 U	0.14 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.24 U	0.19 U	0.2 U	0.14 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.12 U	0.24 U	0.19 U	0.2 U	0.14 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.24 U	0.19 U	0.2 U	0.2
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.24 U	0.19 U	0.2 U	0.14 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.24 U	0.19 U	0.2 U	0.14 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.24 U	0.32 U	1.8 U	2.7 J
HMX	--	--	0.12 U	0.12 U	0.12 U	0.099 J	0.19 U	0.2 U	0.14 UJ
Nitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.8	0.19 U	0.2 U	0.14 U
Nitroglycerin	--	--	2 U	2 U	2 U	0.61 U	1.9 U	2 U	0.48 U
Perchlorate	--	2	0.25 U	0.25 U	0.015 J	0.2	0.22	0.301	0.193 J
PETN	--	--	2 U	2 U	2 U	0.94 U	1.9 U	2 U	0.48 U
RDX	--	--	0.12 U	0.12 U	0.12 U	0.24 U	0.19 U	0.2 U	0.14 U
Total Metals (µg/l)									
Aluminum	14,000	--	NA	NA	NA	3,170	3,940	1,390 J	677
Antimony	3.91	1	5 U	5 U	0.5 UJ	60 U	60 U	15 U	3.75 U
Arsenic	9.79	10	5 U	5 U	4 UJ	10 U	10 U	10 U	1.25 U
Barium	359	700	12.2	17.2	14.4	13.2 J	14.2 J	40 U	10.8
Cadmium	--	2	3 U	3 U	0.2 UJ	5 U	5 U	5 U	1.25 U
Calcium	179,000	--	NA	NA	NA	1,660 J	1,570 J	1,220 J	1,160 J
Chromium	16.9	10	4 U	0.49 J	4 U	2.9 J	4.3 J	10 U	1.25 U
Copper	6.59	1,000	10 U	10 U	2 U	25 U	25 U	10 U	2.5 U
Iron	16,100	300	NA	NA	NA	567	851 J	211 J	97.2
Lead	8.92	15	4 U	4 U	0.75 UJ	3.6	3 U	3 U	0.428 J
Magnesium	13,500	--	NA	NA	NA	1,620 J	1,670 J	1,490 J	1,390
Manganese	176	50	10.4	4 U	8.14 U	4.1 J	5.2 J	15 U	3.75 U
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	--	--	8 U	0.45 J	2 U	NA	NA	NA	NA
Nickel	11.8	100	4 U	4 U	1.2 U	40 U	40 U	10 U	2.5 U
Potassium	5,590	--	NA	NA	NA	5,000 U	5,000 U	5,000 U	330 J
Selenium	--	20	NA	NA	NA	5 U	5 U	5 U	1.25 U
Silver	0.724	20	4 U	4 U	0.4 U	10 U	10 U	10 U	1.25 U
Sodium	22,700	--	NA	NA	NA	9,360 J	8,950 J	8,840 J	8,560
Vanadium	26.7	0.3	0.89 J	4 U	4 U	50 U	50 U	15 U	3.12 U
Zinc	41.2	1,000	10 U	10 U	8 U	20 U	13.1 J	20 U	5 U

APPENDIX A

Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune BTVs Surficial (April 2012)**	**NCGWQS/IMAC (January 2016)**	SWMU343G-10-MW6			SWMU343G-10-MW7			
Sample ID			SWMU343-GW06-13C	SWMU343-GW06-14C	SWMU343-GW06-15C	SWMU343G-10-GW7-09A	SWMU343G10-GW07-09B	SWMU343G10-GW7-09C	SWMU343G10-GW7-09D
Sample Date			08/05/13	08/20/14	08/08/15	02/24/09	04/21/09	08/19/09	11/10/09
Chemical Name									
Dissolved Metals (µg/l)									
Aluminum, Dissolved	--	--	NA	NA	NA	120 J	162 J	200 U	166
Antimony, Dissolved	--	1	2 J	5 U	0.5 UJ	60 U	60 U	15 U	3.75 U
Arsenic, Dissolved	--	10	5 U	5 U	4 UJ	10 U	10 U	10 U	1.25 U
Barium, Dissolved	--	700	12.5	16.9	13.9	8.6 J	9.8 J	40 U	10.9
Cadmium, Dissolved	--	2	3 U	3 U	0.2 UJ	5 U	5 U	5 U	0.258 J
Calcium, Dissolved	--	--	NA	NA	NA	1,650 J	1,360 J	1,240 J	1,280
Chromium, Dissolved	--	10	4 U	0.73 J	4 U	10 U	10 U	10 U	1.25 U
Copper, Dissolved	--	1,000	10 U	10 U	2 U	25 U	25 U	10 U	2.5 U
Iron, Dissolved	--	300	NA	NA	NA	100 U	100 U	100 U	25 U
Lead, Dissolved	--	15	4 U	1.4 J	0.5 UJ	3 U	3 U	3 U	0.75 U
Magnesium, Dissolved	--	--	NA	NA	NA	1,600 J	1,520 J	1,420 J	1,470
Manganese, Dissolved	--	50	9.4	6.7 U	7.88 U	15 U	15 U	15 UJ	1.42 J
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum, Dissolved	--	--	8 U	8 U	2 U	NA	NA	NA	NA
Nickel, Dissolved	--	100	0.39 J	4 U	1.2 U	40 U	40 U	10 U	2.5 U
Potassium, Dissolved	--	--	NA	NA	NA	5,000 U	5,000 U	5,000 UJ	345 J
Selenium, Dissolved	--	20	NA	NA	NA	5 U	5 U	5 U	1.25 U
Silver, Dissolved	--	20	4 U	4 U	0.4 U	10 U	10 U	10 UJ	1.25 U
Sodium, Dissolved	--	--	NA	NA	NA	9,090	9,830	8,800 J	9,380
Vanadium, Dissolved	--	0.3	4 U	4 U	4 U	50 U	50 U	15 UJ	3.12 U
Zinc, Dissolved	--	1,000	10 U	10 U	8 U	20 U	7.1 J	20 U	5 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed
J - Analyte present, value may or may not be accurate or precise
R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS (January 2016)	SWMU343G-10-MW7							
Sample ID			SWMU343G10-GW7D-09D	SWMU343-G10-GW07-10D	SWMU343-GW07-11C	SWMU343-G10-GW07-2012C	SWMU343-GW07-13C	SWMU343-GW07-14C	SWMU343G-10-GW07-15C	SWMU343G-10-GW07D-15C
Sample Date			11/10/09	11/09/10	08/30/11	08/09/12	08/05/13	08/19/14	08/08/15	08/08/15
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
2,2'-Oxybis(1-chloropropane)	--	--	9.8 UJ	5.6 U	7.2 U	7.5 U	7.1 U	7.5 U	7.1 U	7.2 U
3- and 4-Methylphenol	--	--	NA	11 U	7.2 U	7.5 U	7.1 U	7.5 U	7.1 U	7.2 U
4-Methylphenol	--	40	9.8 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	--	80	9.8 U	5.6 U	0.096 U	0.1 UJ	0.095 U	0.1 U	7.1 U	7.2 U
Atrazine	--	3	9.8 UJ	NA	7.2 U	7.5 UJ	7.1 U	7.5 U	0.095 U	0.096 U
Benzaldehyde	--	700	9.8 UJ	NA	7.2 UJ	7.5 U	7.1 UJ	7.5 UJ	7.1 UJ	7.2 UJ
Benzo(a)anthracene	--	0.05	9.8 U	5.6 U	0.096 U	0.1 UJ	0.095 UJ	0.1 U	0.095 U	0.096 U
Benzo(a)pyrene	--	0.005	9.8 U	5.6 U	0.096 U	0.1 UJ	0.095 U	0.1 U	0.064 J	0.071 J
Benzo(b)fluoranthene	--	0.05	9.8 U	5.6 U	0.096 U	0.1 UJ	0.095 U	0.1 UJ	0.095 U	0.096 U
bis(2-Ethylhexyl)phthalate	--	3	9.8 U	5.6 U	7.2 UJ	7.5 U	7.1 U	7.5 U	7.1 U	7.2 U
Chrysene	--	5	9.8 U	5.6 U	0.096 U	0.1 UJ	0.095 U	0.1 U	7.1 U	7.2 U
Dimethyl phthalate	--	--	9.8 U	5.6 U	7.2 U	7.5 U	7.1 U	7.5 U	7.1 U	7.2 U
Di-n-butylphthalate	--	700	9.8 U	5.6 U	7.2 U	7.5 U	7.1 U	7.5 U	7.1 U	7.2 U
Fluoranthene	--	300	9.8 U	5.6 U	0.096 U	0.1 UJ	0.095 U	0.1 UJ	7.1 U	7.2 U
Fluorene	--	300	9.8 U	5.6 U	0.096 U	0.1 UJ	0.095 U	0.1 U	7.1 U	7.2 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.8 U	5.6 U	0.096 UJ	0.1 UJ	0.095 UJ	0.1 U	0.095 U	0.096 U
Naphthalene	0.0363	6	9.8 U	5.6 U	0.096 U	0.1 U	0.095 U	0.1 U	7.1 U	7.2 U
Pentachlorophenol	--	0.3	24 U	28 U	0.48 U	0.5 UJ	0.48 U	0.5 U	0.48 U	0.48 U
Pyrene	--	200	9.8 U	5.6 U	0.096 U	0.1 UJ	0.095 U	0.1 U	7.1 U	7.2 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.14 UJ	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.14 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.14 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.14 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.067 J	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.14 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.14 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.14 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.14 UJ	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.14 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	0.47 U	1.03 U	2 U	2 U	2 U	2 U	2 U	2 U
Perchlorate	--	2	0.151 J	0.131 J	0.16 J	0.094 J	0.18 J	0.16 J	0.14 J	0.13 J
PETN	--	--	0.47 U	1.03 U	2 U	2 U	2 U	2 U	2 U	2 U
RDX	--	--	0.14 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	14,000	--	515	NA	NA	NA	NA	NA	NA	NA
Antimony	3.91	1	3.75 U	10 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U
Arsenic	9.79	10	1.25 U	10 U	5 U	5 U	5 U	5 U	4 U	4 U
Barium	359	700	10.4	25 U	17.7	14.6	8.7	8.07	11.5	12
Cadmium	--	2	1.25 U	2 U	3 U	3 U	3 U	3 U	0.2 U	0.2 U
Calcium	179,000	--	1,170 J	NA	2,140	NA	NA	NA	NA	NA
Chromium	16.9	10	0.673 J	5 U	4 U	0.39 J	4 U	4 U	4 U	4 U
Copper	6.59	1,000	2.5 U	5 U	10 U	10 U	10 U	10 U	2 U	2 U
Iron	16,100	300	66.8	NA	NA	NA	NA	NA	NA	NA
Lead	8.92	15	0.75 U	10 U	4 U	4 U	4 U	4 U	0.18 J	0.14 J
Magnesium	13,500	--	1,360	NA	NA	NA	NA	NA	NA	NA
Manganese	176	50	3.75 U	15 U	2.7 J	4 U	1.6 J	4 U	3.1 U	2.7 U
Mercury	--	1	0.2 U	0.1 U	0.1 U	0.1 U	0.01 J	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	40 U	8 U	8 U	8 U	8 U	2 U	2 U
Nickel	11.8	100	2.5 U	40 U	0.33 J	4 U	4 U	4 U	0.31 J	0.24 J
Potassium	5,590	--	312 J	NA	NA	NA	NA	NA	NA	NA
Selenium	--	20	1.25 U	NA	NA	NA	NA	NA	NA	NA
Silver	0.724	20	1.25 U	5 U	4 U	4 U	4 U	4 U	0.4 U	0.4 U
Sodium	22,700	--	8,060	NA	NA	NA	NA	NA	NA	NA
Vanadium	26.7	0.3	3.12 U	50 U	4 U	4 U	4 U	0.29 J	4 U	4 U
Zinc	41.2	1,000	5 U	20 U	13.4 U	12.5 U	10 U	10 U	8 U	8 U

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune BTVs Surficial (April 2012)**	**NCGWQS (January 2016)**	SWMU343G-10-MW7							
Sample ID			SWMU343G10-GW7D-09D	SWMU343-G10-GW07-10D	SWMU343-GW07-11C	SWMU343-G10-GW07-2012C	SWMU343-GW07-13C	SWMU343-GW07-14C	SWMU343G-10-GW07-15C	SWMU343G-10-GW07D-15C
Sample Date			11/10/09	11/09/10	08/30/11	08/09/12	08/05/13	08/19/14	08/08/15	08/08/15
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	175	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	3.75 U	10 U	5 U	5 U	**1.9 J**	5 U	0.5 U	0.5 U
Arsenic, Dissolved	--	10	1.25 U	7 J	5 U	5 U	5 U	5 U	4 U	4 U
Barium, Dissolved	--	700	11	25 U	18 U	14.9	8	8.09	11.7	11.7
Cadmium, Dissolved	--	2	1.25 U	2 U	3 U	3 U	3 U	3 U	0.2 U	0.2 U
Calcium, Dissolved	--	--	1,330	NA	2,240	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	1.25 U	5 U	4 U	4 U	4 U	4 U	4 U	4 U
Copper, Dissolved	--	1,000	2.5 U	5 U	10 U	10 U	10 U	10 U	2 U	2.42 U
Iron, Dissolved	--	300	25 U	NA	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	0.75 U	10 U	4 U	4 U	4 U	4 U	0.5 U	0.5 U
Magnesium, Dissolved	--	--	1,510	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	1.53 J	15 U	2.6 J	4 U	4 U	4 U	2.8 U	2.8 U
Mercury, Dissolved	--	1	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	40 U	8 U	8 U	8 U	1.9 J	2 U	2 U
Nickel, Dissolved	--	100	2.5 U	40 U	4 U	4 U	4 U	4 U	0.27 J	0.28 J
Potassium, Dissolved	--	--	352 J	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	--	20	1.25 U	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	1.25 U	5 U	4 U	4 U	4 U	4 U	0.4 U	0.4 U
Sodium, Dissolved	--	--	9,330	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	3.12 U	50 U	4 U	4 U	4 U	4 U	4 U	4 U
Zinc, Dissolved	--	1,000	5 U	20 U	19 U	33.6 U	10 U	10 U	8 U	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed
J - Analyte present, value may or may not be accurate or precise
R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS (January 2016)	SWMU343G-10-MW8							
Sample ID			SWMU343G-10-GW8-09A	SWMU343G10-GW08-09B	SWMU343G10-GW8-09C	SWMU343G10-GW8-09D	SWMU343-G10-GW08-10D	SWMU343-GW08-11A	SWMU343-GW08-11C	SWMU343GW10-GW08-12A
Sample Date			02/24/09	04/23/09	08/17/09	11/09/09	11/09/10	02/22/11	08/31/11	02/24/12
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
2,2'-Oxybis(1-chloropropane)	--	--	9.3 U	9.4 U	10 U	9.4 UJ	5.1 U	7.4 U	7.4 U	7.1 U
3- and 4-Methylphenol	--	--	NA	NA	NA	NA	10 U	7.4 U	7.4 U	7.1 U
4-Methylphenol	--	40	9.3 U	9.4 U	10 U	9.4 U	NA	NA	NA	NA
Acenaphthene	--	80	9.3 U	9.4 U	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 U
Atrazine	--	3	9.3 U	9.4 U	10 U	9.4 UJ	NA	7.4 U	7.4 U	7.1 UJ
Benzaldehyde	--	700	9.3 U	9.4 U	10 U	9.4 UJ	NA	7.4 UJ	7.4 UJ	7.1 U
Benzo(a)anthracene	--	0.05	9.3 U	9.4 U	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 UJ
Benzo(a)pyrene	--	0.005	9.3 U	9.4 U	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 U
Benzo(b)fluoranthene	--	0.05	9.3 U	9.4 U	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 U
bis(2-Ethylhexyl)phthalate	--	3	9.3 U	9.4 U	10 U	9.4 U	5.1 U	7.4 U	7.4 U	7.1 U
Chrysene	--	5	9.3 U	9.4 U	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 UJ
Dimethyl phthalate	--	--	9.3 U	9.4 U	10 U	9.4 U	5.1 U	7.4 U	7.4 U	7.1 U
Di-n-butylphthalate	--	700	9.3 U	9.4 U	10 U	9.4 U	5.1 U	7.4 U	7.4 U	7.1 U
Fluoranthene	--	300	9.3 U	9.4 U	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 UJ
Fluorene	--	300	9.3 U	9.4 U	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.3 U	9.4 UJ	10 UJ	9.4 U	5.1 U	0.098 UJ	0.098 U	0.095 U
Naphthalene	0.0363	6	9.3 U	9.4 UJ	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 U
Pentachlorophenol	--	0.3	23 U	23 U	25 U	24 U	25 U	0.49 U	0.49 U	0.48 UJ
Pyrene	--	200	9.3 U	9.4 U	10 U	9.4 U	5.1 U	0.098 U	0.098 U	0.095 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.087 J	0.19 UJ	0.22 U	0.14 UJ	1.02 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.18 U	0.19 U	0.22 U	0.14 U	1.02 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.18 U	0.19 U	0.22 U	0.14 U	1.02 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.18 U	0.19 U	0.22 U	0.14 U	1.02 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.18 U	0.19 U	0.22 U	0.14 U	1.02 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.18 U	0.19 U	0.22 U	0.14 U	1.02 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.18 U	0.19 U	0.22 U	0.14 U	1.02 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.18 U	0.19 U	0.71 U	1.1 J	1.02 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.066 J	0.19 U	0.22 U	0.14 UJ	1.02 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.18 U	0.19 U	0.22 U	0.14 U	1.02 U	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	0.48 U	1.9 U	2.2 U	0.47 U	1.02 U	2 U	2 U	2 U
Perchlorate	--	2	0.13 J	0.12 J	0.145 J	0.149 J	0.2 U	0.25 U	0.25 U	0.25 U
PETN	--	--	0.74 U	1.9 U	2.2 U	0.47 U	1.02 U	2 U	2 U	2 U
RDX	--	--	0.18 U	0.19 U	0.42 U	0.14 U	1.02 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	14,000	--	227	2,790	3,400 J	708	NA	NA	NA	NA
Antimony	3.91	1	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U
Arsenic	9.79	10	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U
Barium	359	700	14.7 J	20.3 J	40 U	23.9	51	25.2	17.1	29
Cadmium	--	2	5 U	5 U	5 U	1.25 U	2 U	3 U	3 U	3 U
Calcium	179,000	--	5,000 U	5,000 U	5,000 UJ	689 J	NA	NA	484	NA
Chromium	16.9	10	10 U	2.2 J	2.1 J	0.605 J	5 U	4 U	4 U	4 U
Copper	6.59	1,000	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U	0.72 J
Iron	16,100	300	67.4 J	666	632 J	172	NA	NA	NA	NA
Lead	8.92	15	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U	4 U
Magnesium	13,500	--	1,150 J	1,300 J	1,180 J	1,390	NA	NA	NA	NA
Manganese	176	50	15 U	3.6 J	15 U	3.75 U	8 J	6.9	4 U	2.9 J
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel	11.8	100	40 U	40 U	10 U	2.5 U	40 U	4 U	4 U	4 U
Potassium	5,590	--	5,000 U	5,000 U	5,000 U	751 J	NA	NA	NA	NA
Selenium	--	20	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA
Silver	0.724	20	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U
Sodium	22,700	--	3,920 J	3,960 J	5,000 U	4,150	NA	NA	NA	NA
Vanadium	26.7	0.3	50 U	50 U	15 U	3.12 U	50 U	4 U	4 U	4 U
Zinc	41.2	1,000	20 U	7.8 J	5.4 J	5 U	20 U	12.1 U	14.6 U	10 U

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune BTVs Surficial (April 2012)**	**NCGWQS (January 2016)**	SWMU343G-10-MW8							
Sample ID			SWMU343G-10-GW8-09A	SWMU343G10-GW08-09B	SWMU343G10-GW8-09C	SWMU343G10-GW8-09D	SWMU343-G10-GW08-10D	SWMU343-GW08-11A	SWMU343-GW08-11C	SWMU343GW10-GW08-12A
Sample Date			02/24/09	04/23/09	08/17/09	11/09/09	11/09/10	02/22/11	08/31/11	02/24/12
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	200 U	200 U	200 U	26.6 J	NA	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	1.25 U	10 U	5 U	5 U	5 U
Barium, Dissolved	--	700	14.7 J	200 U	40 U	20.8	58	25.6	18.1 U	28.5
Cadmium, Dissolved	--	2	5 U	5 U	1.6 J	1.25 U	2 U	3 U	3 U	0.05 J
Calcium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	713 J	NA	NA	611	NA
Chromium, Dissolved	--	10	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	9.5 J	2.5 U	5 U	0.7 J	37.2 U	10 U
Iron, Dissolved	--	300	100 U	100 U	100 U	25 U	NA	NA	NA	NA
Lead, Dissolved	--	15	3 U	3 U	3 U	0.75 U	10 U	4 U	11.6 U	4 U
Magnesium, Dissolved	--	--	1,180 J	1,200 J	1,210 J	1,400	NA	NA	NA	NA
Manganese, Dissolved	--	50	15 U	15 U	15 UJ	2.39 J	12 J	7.3	8 U	4 U
Mercury, Dissolved	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	40 U	8 U	8 U	0.38 J
Nickel, Dissolved	--	100	40 U	40 U	10 U	2.5 U	40 U	4 U	4 U	4 U
Potassium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	779 J	NA	NA	NA	NA
Selenium, Dissolved	--	20	5 U	5 U	5 U	1.25 U	NA	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 UJ	1.25 U	5 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	3,830 J	4,060 J	5,000 U	4,210	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	50 U	50 U	15 UJ	3.12 U	50 U	0.25 J	4 U	0.32 J
Zinc, Dissolved	--	1,000	20 U	20 U	11.8 J	5 U	14 J	10 U	35.3 U	18.5 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed
J - Analyte present, value may or may not be accurate or precise
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µg/l - Micrograms per liter

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune BTVs Surficial (April 2012)**	**NCGWQS (January 2016)**	SWMU343G-10-MW8			
Sample ID			SWMU343-GW08-13A	SWMU343-GW08-13C	SWMU343-GW08-14C	SWMU343G-10-GW08-15C
Sample Date			02/05/13	08/06/13	08/26/14	08/08/15
Chemical Name						
Volatile Organic Compounds (µg/l)						
No Detections			NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)						
2,2'-Oxybis(1-chloropropane)	--	--	7.1 U	7.1 U	7.6 U	7.1 U
3- and 4-Methylphenol	--	--	7.1 U	59	7.6 U	7.1 U
4-Methylphenol	--	40	NA	NA	NA	NA
Acenaphthene	--	80	0.094 U	0.095 U	0.1 U	7.1 U
Atrazine	--	3	7.1 U	7.1 U	7.6 U	0.095 U
Benzaldehyde	--	700	7.1 U	7.1 UJ	7.6 UJ	7.1 UJ
Benzo(a)anthracene	--	0.05	0.094 UJ	0.095 U	0.1 U	0.095 U
Benzo(a)pyrene	--	0.005	0.094 U	0.095 U	0.1 UJ	0.095 U
Benzo(b)fluoranthene	--	0.05	0.094 U	0.095 U	0.1 UJ	0.095 U
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.1 U	7.6 U	7.1 U
Chrysene	--	5	0.094 U	0.095 U	0.1 U	7.1 U
Dimethyl phthalate	--	--	7.1 U	7.1 U	7.6 U	7.1 U
Di-n-butylphthalate	--	700	7.1 U	7.1 U	7.6 U	7.1 U
Fluoranthene	--	300	0.094 UJ	0.095 UJ	0.1 U	7.1 U
Fluorene	--	300	0.094 U	0.095 U	0.1 U	7.1 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.094 U	0.095 UJ	0.1 UJ	0.095 U
Naphthalene	0.0363	6	0.094 U	0.095 U	0.1 U	7.1 U
Pentachlorophenol	--	0.3	0.47 U	0.48 UJ	0.51 U	0.48 U
Pyrene	--	200	0.094 UJ	0.095 U	0.1 U	7.1 U
Explosives (µg/l)						
1,3,5-Trinitrobenzene	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 UJ	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 UJ	2 U	2 U	2 U
Perchlorate	--	2	0.25 U	0.12 J	0.64	0.37
PETN	--	--	2 UJ	2 U	2 U	2 U
RDX	--	--	0.12 UJ	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)						
Aluminum	14,000	--	NA	NA	NA	NA
Antimony	3.91	1	5 U	5 U	5 U	0.5 U
Arsenic	9.79	10	5 U	5 U	5 U	4 U
Barium	359	700	34.5	66	82.4	57.4
Cadmium	--	2	3 U	3 U	3 U	0.2 U
Calcium	179,000	--	NA	NA	NA	NA
Chromium	16.9	10	4 U	4 U	4 U	4 U
Copper	6.59	1,000	10 U	10 U	1.1 J	2 U
Iron	16,100	300	NA	NA	NA	NA
Lead	8.92	15	4 U	4 U	4 U	0.18 J
Magnesium	13,500	--	NA	NA	NA	NA
Manganese	176	50	4 U	3.7 J	5.2	4.35 U
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	8 U	8 U	2 U
Nickel	11.8	100	4 U	4 U	4 U	0.41 J
Potassium	5,590	--	NA	NA	NA	NA
Selenium	--	20	NA	NA	NA	NA
Silver	0.724	20	4 U	4 U	4 U	0.4 U
Sodium	22,700	--	NA	NA	NA	NA
Vanadium	26.7	0.3	4 U	0.39 J	0.25 J	4 U
Zinc	41.2	1,000	17 U	10 U	10 U	8 U

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune BTVs Surficial (April 2012)**	**NCGWQS (January 2016)**	SWMU343G-10-MW8			
Sample ID			SWMU343-GW08-13A	SWMU343-GW08-13C	SWMU343-GW08-14C	SWMU343G-10-GW08-15C
Sample Date			02/05/13	08/06/13	08/26/14	08/08/15
Chemical Name						
Dissolved Metals (µg/l)						
Aluminum, Dissolved	--	--	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	5 U	0.5 U
Arsenic, Dissolved	--	10	5 U	5 U	5 U	4 U
Barium, Dissolved	--	700	32	63.9	80	59.7
Cadmium, Dissolved	--	2	3 U	3 U	3 U	0.2 U
Calcium, Dissolved	--	--	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	4 U	4 U
Copper, Dissolved	--	1,000	10 U	10 U	10 U	2 U
Iron, Dissolved	--	300	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	4 U	4 U	0.5 U
Magnesium, Dissolved	--	--	NA	NA	NA	NA
Manganese, Dissolved	--	50	4.3 U	5.7 U	5.8 U	4.14 U
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	8 U	8 U	8 U	2 U
Nickel, Dissolved	--	100	4 U	0.39 J	4 U	0.39 J
Potassium, Dissolved	--	--	NA	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	4 U	4 U	0.4 U
Sodium, Dissolved	--	--	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	4 U	4 U	4 U	4 U
Zinc, Dissolved	--	1,000	14.7 U	9.4 J	10 U	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed
J - Analyte present, value may or may not be accurate or precise
R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS (January 2016)	SWMU343G-10-MW9							
Sample ID			SWMU343G-10-GW9-09A	SWMU343G10-GW09-09B	SWMU343G10-GW9-09C	SWMU343G10-GW9-09D	SWMU343G10-GW9D-09D	SWMU343-G10-GW09-10D	SWMU343-GW09-11A	SWMU343-GW09-11C
Sample Date			03/11/09	04/24/09	08/17/09	11/09/09	11/09/09	11/09/10	02/22/11	08/30/11
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
2,2'-Oxybis(1-chloropropane)	--	--	9.2 U	10 U	9.6 U	10 UJ	10 UJ	5.6 U	7.4 U	7.2 U
3- and 4-Methylphenol	--	--	NA	NA	NA	NA	NA	11 U	7.4 U	7.2 U
4-Methylphenol	--	40	9.2 U	10 U	9.6 U	10 U	10 U	NA	NA	NA
Acenaphthene	--	80	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
Atrazine	--	3	9.2 UJ	10 U	9.6 U	10 UJ	10 UJ	NA	7.4 U	7.2 U
Benzaldehyde	--	700	9.2 UJ	10 U	9.6 U	10 UJ	10 UJ	NA	7.4 UJ	7.2 UJ
Benzo(a)anthracene	--	0.05	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
Benzo(a)pyrene	--	0.005	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
Benzo(b)fluoranthene	--	0.05	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
bis(2-Ethylhexyl)phthalate	--	3	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	7.4 U	7.2 U
Chrysene	--	5	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
Dimethyl phthalate	--	--	9.2 U	10 U	9.6 U	10 U	10 U	11	7.4 U	7.2 U
Di-n-butylphthalate	--	700	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	7.4 U	7.2 U
Fluoranthene	--	300	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
Fluorene	--	300	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.2 U	10 UJ	9.6 UJ	10 U	10 U	5.6 U	0.099 UJ	0.096 U
Naphthalene	0.0363	6	9.2 U	10 UJ	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
Pentachlorophenol	--	0.3	23 U	25 U	24 U	25 U	25 U	28 U	0.5 U	0.48 U
Pyrene	--	200	9.2 U	10 U	9.6 U	10 U	10 U	5.6 U	0.099 U	0.096 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.2 U	0.24 U	0.2 U	0.16 UJ	0.15 UJ	1.04 U	0.12 U	0.12 UJ
1,3-Dinitrobenzene	--	--	0.2 U	0.24 U	0.2 U	0.16 U	0.15 U	1.04 U	0.12 U	0.12 UJ
2,4,6-Trinitrotoluene	--	--	0.2 U	0.24 U	0.2 U	0.16 U	0.15 U	1.04 U	0.12 U	0.12 UJ
2,4-Dinitrotoluene	--	0.1	0.2 U	0.24 U	0.2 U	0.16 U	0.15 U	1.04 U	0.12 U	0.12 UJ
2,6-Dinitrotoluene	--	--	0.2 U	0.24 U	0.2 U	0.16 U	0.15 U	1.04 U	0.12 U	0.12 UJ
2-Nitrotoluene	--	--	0.2 U	0.24 U	0.18 J	0.16 U	0.15 U	1.04 U	0.12 U	0.12 UJ
3-Nitrotoluene	--	--	0.2 U	0.24 U	0.2 U	0.16 U	0.15 U	1.04 U	0.12 U	0.12 UJ
4-Nitrotoluene	--	--	0.2 U	0.39 U	0.2 U	0.22 U	0.15 U	1.04 U	0.12 U	0.12 UJ
HMX	--	--	0.2 U	0.24 U	0.2 U	0.16 UJ	0.15 UJ	1.04 U	0.12 U	0.12 UJ
Nitrobenzene	--	--	0.2 U	0.24 U	0.2 U	0.16 U	0.15 U	1.04 U	0.12 U	0.12 UJ
Nitroglycerin	--	--	1 J	2.4 U	2 U	0.54 U	0.51 U	1.04 U	2 U	2 UJ
Perchlorate	--	2	0.11 J	0.2 U	0.2 U	0.0908 J	0.0681 J	0.2 U	0.25 U	0.25 U
PETN	--	--	0.78 U	2.4 U	2 U	0.54 U	0.51 U	1.04 U	2 U	2 UJ
RDX	--	--	0.2 U	0.24 U	0.2 U	0.16 U	0.2	1.04 U	0.12 U	0.12 UJ
Total Metals (µg/l)										
Aluminum	14,000	--	566	428	811 J	1,460	859	NA	NA	NA
Antimony	3.91	1	60 U	60 U	15 U	3.75 U	3.75 U	10 U	5 U	1.5 J
Arsenic	9.79	10	10 U	10 U	10 U	1.25 U	1.25 U	10 U	5 U	5 U
Barium	359	700	14.9 J	16 J	40 U	21.4	19.9	17 J	12.6	11.6
Cadmium	--	2	5 U	5 U	5 U	1.25 U	1.25 U	2 U	3 U	3 U
Calcium	179,000	--	5,000 U	5,000 U	5,000 UJ	722 J	720 J	NA	NA	640
Chromium	16.9	10	10 U	10 U	10 U	1.1 J	0.716 J	5 U	4 U	4 U
Copper	6.59	1,000	25 U	25 U	10 U	2.5 U	2.5 U	5 U	10 U	10 U
Iron	16,100	300	97.4 J	68.6 J	138 J	244	148	NA	NA	NA
Lead	8.92	15	3 U	3 U	3 U	0.523 J	0.75 U	10 U	4 U	4 U
Magnesium	13,500	--	1,720 J	1,920 J	1,460 J	2,010	1,930	NA	NA	NA
Manganese	176	50	5.7 J	6 J	15 U	7.34	6.86	8.4 J	5.4	5.2 U
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel	11.8	100	40 U	40 U	10 U	2.5 U	2.5 U	40 U	4 U	4 U
Potassium	5,590	--	5,000 U	5,000 U	5,000 U	482 J	444 J	NA	NA	NA
Selenium	--	20	5 U	5 U	5 U	1.25 U	1.25 U	NA	NA	NA
Silver	0.724	20	10 U	10 U	10 U	1.25 U	1.25 U	5 U	4 U	4 U
Sodium	22,700	--	4,890 J	6,150	5,000 U	6,510	6,190	NA	NA	NA
Vanadium	26.7	0.3	50 U	50 U	15 U	3.12 U	3.12 U	50 U	4 U	4 U
Zinc	41.2	1,000	20 U	54	20 U	2.61 J	1.6 J	20 U	11.8 U	13.9 U

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS (January 2016)	SWMU343G-10-MW9							
Sample ID			SWMU343G-10-GW9-09A	SWMU343G10-GW09-09B	SWMU343G10-GW9-09C	SWMU343G10-GW9-09D	SWMU343G10-GW9D-09D	SWMU343-G10-GW09-10D	SWMU343-GW09-11A	SWMU343-GW09-11C
Sample Date			03/11/09	04/24/09	08/17/09	11/09/09	11/09/09	11/09/10	02/22/11	08/30/11
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	200 U	89.8 J	200 U	130	111	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	15 U	3.75 U	3.75 U	10 U	5 U	5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	1.25 U	1.25 U	10 U	5 U	5 U
Barium, Dissolved	--	700	12.8 J	200 U	40 U	18.7	19.6	15 J	15.6	11.5 U
Cadmium, Dissolved	--	2	5 U	5 U	1.6 J	0.258 J	0.264 J	2 U	3 U	3 U
Calcium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	830 J	845 J	NA	NA	678
Chromium, Dissolved	--	10	10 U	10 U	10 U	1.25 U	1.25 U	5 U	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	10 U	2.5 U	2.5 U	5 U	10 U	10 U
Iron, Dissolved	--	300	100 U	100 U	100 U	25 U	25 U	NA	NA	NA
Lead, Dissolved	--	15	3 U	3 U	3 U	0.75 U	0.75 U	4.3 J	4 U	4 U
Magnesium, Dissolved	--	--	1,640 J	1,820 J	1,460 J	2,150	2,140	NA	NA	NA
Manganese, Dissolved	--	50	4.4 J	5.1 J	15 UJ	5.55 J	5.79 J	18	5.7	6.8 U
Mercury, Dissolved	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel, Dissolved	--	100	40 U	40 U	10 U	2.5 U	2.5 U	40 U	4 U	4 U
Potassium, Dissolved	--	--	5,000 U	5,000 U	5,000 UJ	486 J	472 J	NA	NA	NA
Selenium, Dissolved	--	20	5 U	5 U	5 U	1.25 U	1.25 U	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 UJ	1.25 U	1.25 U	5 U	4 U	4 U
Sodium, Dissolved	--	--	4,670 J	5,740	5,000 U	7,360	7,140	NA	NA	NA
Vanadium, Dissolved	--	0.3	50 U	50 U	15 UJ	3.12 U	3.12 U	50 U	4 U	4 U
Zinc, Dissolved	--	1,000	20 U	20 U	20 U	5 U	5 U	20 U	10 U	34.1 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed
J - Analyte present, value may or may not be accurate or precise
R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Surficial (April 2012)	NCGWQS (January 2016)	SWMU343G-10-MW9					
Sample ID			SWMU343GW10-GW09-12A	SWMU343-G10-GW09-2012C	SWMU343-GW09-13A	SWMU343-GW09-13C	SWMU343-GW09-14C	SWMU343G-10-GW09-15C
Sample Date			02/23/12	08/09/12	02/05/13	08/05/13	08/21/14	08/06/15
Chemical Name								
Volatile Organic Compounds (µg/l)								
No Detections			NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)								
2,2'-Oxybis(1-chloropropane)	--	--	7.1 U	7.2 U	7.8 U	7.1 U	7.1 U	7.1 U
3- and 4-Methylphenol	--	--	7.1 U	7.2 U	7.8 U	7.1 U	7.1 U	7.1 U
4-Methylphenol	--	40	NA	NA	NA	NA	NA	NA
Acenaphthene	--	80	0.095 U	0.096 UJ	0.1 U	0.095 U	0.095 U	7.1 U
Atrazine	--	3	7.1 UJ	7.2 UJ	7.8 U	7.1 U	7.1 U	0.095 U
Benzaldehyde	--	700	7.1 U	7.2 U	7.8 UJ	7.1 UJ	7.1 UJ	7.1 UJ
Benzo(a)anthracene	--	0.05	0.095 UJ	0.096 UJ	0.1 UJ	0.095 U	0.095 U	0.095 U
Benzo(a)pyrene	--	0.005	0.095 U	0.096 UJ	0.1 U	0.095 U	0.095 U	0.12 J
Benzo(b)fluoranthene	--	0.05	0.095 U	0.096 UJ	0.1 U	0.095 U	0.095 UJ	0.086 J
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.2 U	7.8 U	7.1 U	7.1 U	7.1 U
Chrysene	--	5	0.095 UJ	0.096 UJ	0.1 U	0.095 U	0.095 U	7.1 U
Dimethyl phthalate	--	--	7.1 U	7.2 U	7.8 U	7.1 U	7.1 U	7.1 U
Di-n-butylphthalate	--	700	7.1 U	7.2 U	7.8 U	7.1 U	7.1 U	7.1 U
Fluoranthene	--	300	0.095 UJ	0.096 UJ	0.1 UJ	0.095 U	0.095 UJ	7.1 U
Fluorene	--	300	0.095 U	0.096 UJ	0.1 U	0.095 U	0.095 U	7.1 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.095 U	0.062 J	0.1 U	0.095 UJ	0.095 U	0.082 J
Naphthalene	0.0363	6	0.095 U	0.096 U	0.1 U	0.095 U	0.095 U	7.1 U
Pentachlorophenol	--	0.3	0.48 UJ	0.48 UJ	0.52 U	0.48 UJ	0.48 UJ	0.48 U
Pyrene	--	200	0.095 U	0.096 UJ	0.1 UJ	0.095 U	0.095 U	7.1 U
Explosives (µg/l)								
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Nitroglycerin	--	--	2 U	2 U	2 UJ	2 U	2 U	2 U
Perchlorate	--	2	0.25 U	0.25 U	0.25 U	0.13 J	0.095 J	0.091 J
PETN	--	--	2 U	2 U	2 UJ	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)								
Aluminum	14,000	--	NA	NA	NA	NA	NA	NA
Antimony	3.91	1	5 U	5 U	5 U	5 U	5 U	0.5 U
Arsenic	9.79	10	5 U	5 U	5 U	5 U	5 U	4 U
Barium	359	700	10.6	7.6	14	21	17.8	14.4 U
Cadmium	--	2	3 U	3 U	3 U	3 U	3 U	0.2 U
Calcium	179,000	--	NA	NA	NA	NA	NA	NA
Chromium	16.9	10	4 U	4 U	4 U	4 U	4 U	4 U
Copper	6.59	1,000	10 U	10 U	10 U	0.68 J	10 U	2 U
Iron	16,100	300	NA	NA	NA	NA	NA	NA
Lead	8.92	15	4 U	4 U	4 U	4 U	4 U	0.13 J
Magnesium	13,500	--	NA	NA	NA	NA	NA	NA
Manganese	176	50	3.8 J	4 U	5.1 U	11.2	4 U	3.95 U
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	8 U	8 U	8 U	8 U	2 U
Nickel	11.8	100	4 U	4 U	4 U	4 U	4 U	1.2 U
Potassium	5,590	--	NA	NA	NA	NA	NA	NA
Selenium	--	20	NA	NA	NA	NA	NA	NA
Silver	0.724	20	4 U	4 U	4 U	4 U	4 U	0.4 U
Sodium	22,700	--	NA	NA	NA	NA	NA	NA
Vanadium	26.7	0.3	4 U	4 U	4 U	4 U	4 U	4 U
Zinc	41.2	1,000	10 U	14.9 U	15.8 U	10 U	10 U	8 U

APPENDIX A
Historical Exceedance Table - Surficial Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune BTVs Surficial (April 2012)**	**NCGWQS (January 2016)**	SWMU343G-10-MW9					
Sample ID			SWMU343GW10-GW09-12A	SWMU343-G10-GW09-2012C	SWMU343-GW09-13A	SWMU343-GW09-13C	SWMU343-GW09-14C	SWMU343G-10-GW09-15C
Sample Date			02/23/12	08/09/12	02/05/13	08/05/13	08/21/14	08/06/15
Chemical Name								
Dissolved Metals (µg/l)								
Aluminum, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	5 U	5 U	5 U	0.5 U
Arsenic, Dissolved	--	10	5 U	5 U	5 U	5 U	5 U	4 U
Barium, Dissolved	--	700	10.2	6.9 U	14.6	21.1	17.7	13.4 U
Cadmium, Dissolved	--	2	3 U	3 U	3 U	3 U	3 U	0.2 U
Calcium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	0.4 J	4 U	4 U	4 U
Copper, Dissolved	--	1,000	10 U	10 U	10 U	10 U	10 U	2 U
Iron, Dissolved	--	300	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	4 U	9.4	4 U	4 U	0.5 U
Magnesium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	4 U	4 U	7.8	11.6	4 U	4.49 U
Mercury, Dissolved	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum, Dissolved	--	--	8 U	8 U	8 U	8 U	8 U	2 U
Nickel, Dissolved	--	100	4 U	0.64 J	4 U	0.32 J	4 U	1.2 U
Potassium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	--	20	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	4 U	4 U	4 U	4 U	0.4 U
Sodium, Dissolved	--	--	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	4 U	4 U	4 U	0.25 J	4 U	4 U
Zinc, Dissolved	--	1,000	10.9 U	35.7 U	38.9 U	35.8	10 U	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Surficial Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed
J - Analyte present, value may or may not be accurate or precise
R - Unreliable Result

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate
µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW14							
Sample ID			SWMU343G-10-GW14-09A	SWMU343G10-GW14-09B	SWMU343G10-GW14D-09B	SWMU343G10-GW14-09C	SWMU343G10-GW14-09D	SWMU343-G10-GW14-10D	SWMU343-GW14-11C	SWMU343-G10-GW14-2012C
Sample Date			03/09/09	04/21/09	04/21/09	08/18/09	11/10/09	11/09/10	08/31/11	08/13/12
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
4-Methylphenol	--	40	9.8 U	9.4 U	9.3 U	9.8 U	10 U	NA	NA	NA
Benzo(a)anthracene	--	0.05	9.8 U	9.4 U	9.3 U	9.8 U	10 U	5.4 U	0.11 U	0.044 J
Benzo(a)pyrene	--	0.005	9.8 U	9.4 U	9.3 U	9.8 U	10 U	5.4 U	0.11 U	0.12 U
Benzo(b)fluoranthene	--	0.05	9.8 U	9.4 U	9.3 U	9.8 U	10 U	5.4 U	0.11 U	0.095 U
bis(2-Ethylhexyl)phthalate	--	3	9.8 U	9.4 U	9.3 U	9.8 U	14 U	5.4 U	8.1 U	7.1 U
Chrysene	--	5	9.8 U	9.4 U	9.3 U	9.8 U	10 U	5.4 U	0.11 U	0.095 U
Dibenz(a,h)anthracene	--	0.005	9.8 U	9.4 U	9.3 U	9.8 U	10 U	0.69 J	0.11 U	0.095 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.8 U	9.4 U	9.3 U	9.8 UJ	10 U	0.53 J	0.11 U	0.095 U
Pentachlorophenol	--	0.3	24 U	24 U	23 U	24 U	25 U	27 U	0.54 U	0.48 U
Pyrene	--	200	9.8 U	9.4 U	9.3 U	9.8 U	10 U	5.4 U	0.11 U	0.059 J
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.19 U	0.19 U	0.19 U	0.29 J	0.14 UJ	1.03 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.19 U	0.19 U	0.19 U	0.11 J	0.14 U	1.03 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	0.329 J	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.082 J	0.14 U	1.03 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.078 J	0.14 U	1.03 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.19 U	0.19 U	0.25 U	0.66 U	0.14 U	1.03 U	0.12 U	0.12 U
HMX	--	--	0.29 U	0.19 U	0.19 U	0.2 U	0.14 UJ	1.03 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.19 U	0.31	0.49	1.8	0.14 U	1.03 U	0.12 U	0.12 U
Perchlorate	--	2	0.08 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U
PETN	--	--	0.75 U	1.9 U	0.27 J	2 U	0.47 U	1.03 U	2 U	2 U
RDX	--	--	0.19 U	0.19 U	0.19 U	0.42 J	0.14 U	1.03 U	0.12 U	0.12 U
Tetryl	--	--	0.19 U	0.19 U	0.19 U	0.2 U	0.14 U	1.03 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	2,520	--	986	705	759	456 J	263	NA	NA	NA
Antimony	6.93	1	60 U	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U
Arsenic	8.16	10	10 U	10 U	10 U	10 UJ	1.44	10 U	1.7 J	5 U
Barium	38.8	700	11.3 J	10.5 J	10.9 J	40 U	6.91 J	20 J	14.8	14.7
Calcium	146,000	--	38,900	33,300	34,500	30,500 J	30,500	NA	39,000	NA
Chromium	6.05	10	4.2 J	10 U	10 U	10 UJ	8.93	5 U	3.7 J	2.3 J
Copper	3.44	1,000	25 U	25 U	25 U	10 U	2.5 U	1.6 J	10 U	10 U
Iron	2,250	300	279	325	335	179 J	290	NA	NA	NA
Lead	--	15	3 U	3 U	3 U	3 U	0.75 U	10 U	4 U	4 U
Magnesium	2,280	--	5,000 U	5,000 U	5,000 U	5,000 UJ	840 J	NA	NA	NA
Manganese	92.6	50	24.4	22.5	22.3	17.8	22.1	83	124	129
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U
Nickel	3.19	100	40 U	40 U	40 U	10 UJ	4.3	40 U	0.46 J	4 U
Potassium	3,750	--	2,780 J	2,300 J	2,350 J	1,880 J	1,860	NA	NA	NA
Silver	--	20	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Sodium	33,300	--	17,400	12,900	13,100	12,000 J	10,200	NA	NA	NA
Vanadium	5.32	0.3	12.9 J	9.8 J	10.1 J	7 J	3.61	50 U	3.2 J	2.5 J
Zinc	12.6	1,000	20 U	20 U	20 U	20 UJ	5 U	9.5 J	13.1 U	12.8 U

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW14							
Sample ID			SWMU343G-10-GW14-09A	SWMU343G10-GW14-09B	SWMU343G10-GW14D-09B	SWMU343G10-GW14-09C	SWMU343G10-GW14-09D	SWMU343-G10-GW14-10D	SWMU343-GW14-11C	SWMU343-G10-GW14-2012C
Sample Date			03/09/09	04/21/09	04/21/09	08/18/09	11/10/09	11/09/10	08/31/11	08/13/12
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	866 J	506	553	448 J	247	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	60 U	15 U	3.75 U	10 U	5 U	5 U
Arsenic, Dissolved	--	10	10 U	10 U	10 U	3.3 J	1.25 U	10 U	5 U	5 U
Barium, Dissolved	--	700	10 J	8 J	8.5 J	40 U	6.75 J	18 J	14.3 U	13.6
Cadmium, Dissolved	--	2	5 U	5 U	5 U	5 U	0.454 J	2 U	3 U	3 U
Calcium, Dissolved	--	--	32,900 J	31,500	33,800	29,500 J	29,900	NA	37,000	NA
Chromium, Dissolved	--	10	10 UJ	10 U	10 U	10 U	2.95	5 U	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	25 U	10 U	2.5 U	5 U	10 U	10 U
Iron, Dissolved	--	300	218	228	230	175	259	NA	NA	NA
Lead, Dissolved	--	15	3 U	3 U	3 U	3 U	1.5 U	10 U	4 U	4 U
Magnesium, Dissolved	--	--	5,000 U	5,000 U	5,000 U	5,000 U	840 J	NA	NA	NA
Manganese, Dissolved	--	50	22.1	21.7	22.4	18.6	22.6 J	82	121	127
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	NA	40 U	8 U	8 U
Potassium, Dissolved	--	--	3,070 J	2,400 J	2,520 J	2,090 J	1,970	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 U	10 U	1.25 U	5 U	4 U	4 U
Sodium, Dissolved	--	--	17,700	15,100	15,800	13,800 J	10,500	NA	NA	NA
Vanadium, Dissolved	--	0.3	11.1 J	9.3 J	9.8 J	7.8 J	3.61	50 U	4 U	2.5 J
Zinc, Dissolved	--	1,000	20 U	20 U	20 U	20 U	6.97	10 J	10 U	29 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Upper Castle Hayne Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW14				SWMU343G-10-MW15			
Sample ID			SWMU343-GW14-13C	SWMU343-GW14-13CA	SWMU343-GW14-14C	SWMU343G-10-GW14-15C	SWMU343G-10-GW15-09A	SWMU343G-10-GW15D-09A	SWMU343G10-GW15-09B	SWMU343G10-GW15-09C
Sample Date			08/05/13	08/13/13	08/19/14	08/05/15	03/10/09	03/10/09	04/22/09	08/20/09
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
4-Methylphenol	--	40	NA	NA	NA	NA	9.8 U	9.2 U	9.8 U	9.8 U
Benzo(a)anthracene	--	0.05	0.1 UJ	NA	0.1 U	0.096 U	9.8 U	9.2 U	9.8 U	9.8 U
Benzo(a)pyrene	--	0.005	0.1 U	NA	0.1 U	0.09 J	9.8 U	9.2 U	9.8 U	9.8 U
Benzo(b)fluoranthene	--	0.05	0.1 U	NA	0.1 UJ	0.096 U	9.8 U	9.2 U	9.8 U	9.8 U
bis(2-Ethylhexyl)phthalate	--	3	7.2 U	NA	7.6 U	7.2 U	9.8 U	9.2 U	1.2	9.8 U
Chrysene	--	5	0.1 U	NA	0.1 U	7.2 U	9.8 U	9.2 U	9.8 U	9.8 U
Dibenz(a,h)anthracene	--	0.005	0.1 UJ	NA	0.1 UJ	0.096 U	9.8 U	9.2 U	9.8 U	9.8 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.1 UJ	NA	0.1 U	0.08 J	9.8 U	9.2 U	9.8 U	9.8 U
Pentachlorophenol	--	0.3	0.52 U	NA	0.51 U	0.48 U	24 U	23 U	24 U	24 U
Pyrene	--	200	0.1 U	NA	0.1 U	7.2 U	9.8 UJ	9.2 UJ	9.8 U	9.8 UJ
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
1,3-Dinitrobenzene	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
2,4,6-Trinitrotoluene	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
2,4-Dinitrotoluene	--	0.1	7.2 U	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
2,6-Dinitrotoluene	--	--	7.2 U	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2
2-Amino-4,6-dinitrotoluene	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
2-Nitrotoluene	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
3-Nitrotoluene	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
4-Amino-2,6-dinitrotoluene	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.077 J
4-Nitrotoluene	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.05 J	1.1 U
HMX	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
Nitrobenzene	--	--	7.2 U	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.61
Perchlorate	--	2	0.25 U	NA	0.25 U	0.04 U	0.08 U	0.08 U	0.2 U	0.2 U
PETN	--	--	NA	2 U	2 U	2 U	0.75 U	0.74 U	1.9 U	2 U
RDX	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
Tetryl	--	--	NA	0.12 U	0.12 U	0.12 U	0.19 U	0.18 U	0.19 U	0.2 U
Total Metals (µg/l)										
Aluminum	2,520	--	NA	NA	NA	NA	100 J	105 J	261	200 U
Antimony	6.93	1	5 U	NA	5 U	0.5 U	60 U	60 U	60 U	15 U
Arsenic	8.16	10	5 U	NA	5 U	4 U	10 U	10 U	10 U	10 U
Barium	38.8	700	17.3	NA	14.3	16.5 U	15.9 J	15.4 J	16.3 J	40 U
Calcium	146,000	--	NA	NA	NA	NA	80,500	81,400	91,800 J	70,400 J
Chromium	6.05	10	4 U	NA	1.3 J	4 U	10 U	10 U	10 U	10 U
Copper	3.44	1,000	10 U	NA	10 U	2 U	25 U	25 U	25 U	10 U
Iron	2,250	300	NA	NA	NA	NA	117 J	38.3 J	502	290 J
Lead	--	15	4 U	NA	4 U	0.1 J	3 U	3 U	3 U	3 U
Magnesium	2,280	--	NA	NA	NA	NA	1,650 J	1,690 J	1,680 J	1,540 J
Manganese	92.6	50	141	NA	123	146	14.2 J	14.3 J	21.6	19.9
Mercury	--	1	0.1 U	NA	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum	--	--	8 U	NA	0.65 J	2 U	NA	NA	NA	NA
Nickel	3.19	100	0.5 J	NA	0.51 J	1.2 U	40 U	40 U	40 U	10 U
Potassium	3,750	--	NA	NA	NA	NA	5,000 U	5,000 U	5,000 U	5,000 U
Silver	--	20	4 U	NA	4 U	0.4 U	10 U	10 U	10 U	10 U
Sodium	33,300	--	NA	NA	NA	NA	7,830 J	7,880 J	6,910	6,940 J
Vanadium	5.32	0.3	1.8 J	NA	1.7 J	1.2 J	50 U	50 U	50 U	15 U
Zinc	12.6	1,000	10 U	NA	10 U	8 U	6.6 J	5.7 J	20 U	20 U

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW14				SWMU343G-10-MW15			
Sample ID			SWMU343-GW14-13C	SWMU343-GW14-13CA	SWMU343-GW14-14C	SWMU343G-10-GW14-15C	SWMU343G-10-GW15-09A	SWMU343G-10-GW15D-09A	SWMU343G10-GW15-09B	SWMU343G10-GW15-09C
Sample Date			08/05/13	08/13/13	08/19/14	08/05/15	03/10/09	03/10/09	04/22/09	08/20/09
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	NA	NA	NA	NA	200 U	200 U	71.5 J	200 U
Antimony, Dissolved	--	1	5 U	NA	5 U	0.5 U	60 U	60 U	60 U	15 U
Arsenic, Dissolved	--	10	5 U	NA	5 U	4 U	10 U	10 U	10 U	10 U
Barium, Dissolved	--	700	16.4	NA	13.8	16.8 U	16.2 J	16.2 J	200 U	40 U
Cadmium, Dissolved	--	2	3 U	NA	3 U	0.2 U	5 U	5 U	5 U	1.5 J
Calcium, Dissolved	--	--	NA	NA	NA	NA	65,800 J	66,500 J	74,200 J	69,800 J
Chromium, Dissolved	--	10	4 U	NA	1.2 J	4 U	10 UJ	10 UJ	10 U	10 U
Copper, Dissolved	--	1,000	10 U	NA	10 U	2 U	25 U	25 U	25 U	10 U
Iron, Dissolved	--	300	NA	NA	NA	NA	96.1 J	100 U	100 U	145
Lead, Dissolved	--	15	4 U	NA	4 U	0.5 U	3 U	3 U	3 U	3 U
Magnesium, Dissolved	--	--	NA	NA	NA	NA	1,510 J	1,510 J	1,480 J	1,540 J
Manganese, Dissolved	--	50	139	NA	125	143	12.5 J	12.7 J	15 U	19.6
Molybdenum, Dissolved	--	--	8 U	NA	8 U	2 U	NA	NA	NA	NA
Potassium, Dissolved	--	--	NA	NA	NA	NA	5,000 U	5,000 U	5,000 U	5,000 U
Silver, Dissolved	--	20	4 U	NA	4 U	0.4 U	10 U	10 U	10 U	10 U
Sodium, Dissolved	--	--	NA	NA	NA	NA	7,340	7,380	7,050	7,080 J
Vanadium, Dissolved	--	0.3	4 U	NA	1.3 J	1.2 J	50 U	50 U	50 U	15 U
Zinc, Dissolved	--	1,000	10 U	NA	10 U	8 U	20 U	20 U	20 U	20 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Upper Castle Hayne Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW15				SWMU343G-10-MW15		
Sample ID			SWMU343G10-GW15-09D	SWMU343-G10-GW15-10D	SWMU343-GW15-11C	SWMU343-G10-GW15-2012C	SWMU343-GW15-13C	SWMU343-GW15-14C	SWMU343G-10-GW15-15C
Sample Date			11/11/09	11/11/10	09/01/11	08/14/12	08/06/13	08/22/14	08/06/15
Chemical Name									
Volatile Organic Compounds (µg/l)									
No Detections			NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)									
4-Methylphenol	--	40	9.2 U	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	--	0.05	9.2 U	5.3 U	0.1 U	0.097 U	0.1 UJ	0.097 U	0.095 U
Benzo(a)pyrene	--	0.005	9.2 U	5.3 U	0.1 U	0.097 U	0.1 U	0.097 U	0.11 J
Benzo(b)fluoranthene	--	0.05	9.2 U	5.3 U	0.1 U	0.097 U	0.1 U	0.097 UJ	0.095 U
bis(2-Ethylhexyl)phthalate	--	3	9.2 U	5.3 U	7.6 U	7.3 U	7.7 U	7.3 U	7.1 U
Chrysene	--	5	9.2 U	5.3 U	0.1 U	0.097 U	0.1 U	0.097 U	7.1 U
Dibenz(a,h)anthracene	--	0.005	9.2 U	5.3 U	0.1 U	0.097 U	0.1 UJ	0.097 UJ	0.095 U
Indeno(1,2,3-cd)pyrene	--	0.05	9.2 U	5.3 U	0.1 U	0.056 J	0.1 UJ	0.097 U	0.08 J
Pentachlorophenol	--	0.3	23 U	27 U	0.5 U	0.48 U	0.52 U	0.48 UJ	0.48 U
Pyrene	--	200	9.2 U	5.3 U	0.1 U	0.097 U	0.1 U	0.097 U	7.1 U
Explosives (µg/l)									
1,3,5-Trinitrobenzene	--	--	0.16 UJ	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.16 UJ	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Perchlorate	--	2	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U	0.25 U	0.04 U
PETN	--	--	0.54 U	1.03 U	2 U	2 U	2 U	2 U	2 U
RDX	--	--	0.16 U	1.03 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	0.16 UJ	1.03 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)									
Aluminum	2,520	--	42.6 J	NA	NA	NA	NA	NA	NA
Antimony	6.93	1	3.75 U	10 U	5 U	5 U	5 U	2 J	0.5 UJ
Arsenic	8.16	10	1.25 U	10 U	5 U	1.6 J	5 U	5 U	4 UJ
Barium	38.8	700	16.2	14 J	12.8	14	17.5	12.4	13.2 U
Calcium	146,000	--	76,300	NA	77,700	NA	NA	NA	NA
Chromium	6.05	10	1.35	5 U	1.2 J	4 U	4 U	4 U	4 U
Copper	3.44	1,000	2.5 U	5 U	1 J	10 U	10 U	1.5 J	2.16 U
Iron	2,250	300	313	NA	NA	NA	NA	NA	NA
Lead	--	15	0.75 U	10 U	4 U	4 U	4 U	4 U	0.16 J
Magnesium	2,280	--	1,590	NA	NA	NA	NA	NA	NA
Manganese	92.6	50	20.1	28	12.5	12.3 U	3.3 J	11.3	12.6 U
Mercury	--	1	0.2 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	40 U	8 U	8 U	8 U	8 U	2 U
Nickel	3.19	100	2.5 U	40 U	4 U	4 U	4 U	4 U	1.2 U
Potassium	3,750	--	782 J	NA	NA	NA	NA	NA	NA
Silver	--	20	1.25 U	5 U	4 U	4 U	4 U	4 U	0.4 U
Sodium	33,300	--	7,390	NA	NA	NA	NA	NA	NA
Vanadium	5.32	0.3	3.12 U	50 U	4 U	4 U	0.41 J	0.35 J	4 U
Zinc	12.6	1,000	1.8 J	20 U	13.6 U	13.3 U	10 U	10 U	8 U

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	**Camp Lejeune BTVs Upper Castle Hayne (April 2012)**	**NCGWQS/IMAC (January 2016)**	SWMU343G-10-MW15				SWMU343G-10-MW15		
Sample ID			SWMU343G10-GW15-09D	SWMU343-G10-GW15-10D	SWMU343-GW15-11C	SWMU343-G10-GW15-2012C	SWMU343-GW15-13C	SWMU343-GW15-14C	SWMU343G-10-GW15-15C
Sample Date			11/11/09	11/11/10	09/01/11	08/14/12	08/06/13	08/22/14	08/06/15
Chemical Name									
Dissolved Metals (µg/l)									
Aluminum, Dissolved	--	--	17.1 J	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	3.75 U	6.5 J	5 U	5 U	5 U	5 U	0.5 UJ
Arsenic, Dissolved	--	10	1.25 U	10 U	5 U	1.9 J	5 U	3.3 J	4 UJ
Barium, Dissolved	--	700	16.3	8.8 J	13.4 U	12.6	12.8	75.7 U	12.8 U
Cadmium, Dissolved	--	2	0.554 J	2 U	3 U	3 U	3 U	3 U	0.2 UJ
Calcium, Dissolved	--	--	74,800	NA	79,600	NA	NA	NA	NA
Chromium, Dissolved	--	10	1.25 U	5 U	4 U	4 U	1 J	4 U	4 U
Copper, Dissolved	--	1,000	2.5 U	5 U	10 U	10 U	10 U	13 U	2 U
Iron, Dissolved	--	300	38.7	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	0.75 U	10 U	4 U	4 U	4 U	4 U	0.5 UJ
Magnesium, Dissolved	--	--	1,570	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	20.6 J	11 J	19 U	12.8 U	12.2	16.9 U	11.4 U
Molybdenum, Dissolved	--	--	NA	40 U	8 U	8 U	8 U	8 U	2 U
Potassium, Dissolved	--	--	798 J	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	1.25 U	5 U	4 U	4 U	4 U	4 U	0.4 U
Sodium, Dissolved	--	--	7,030	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	3.12 U	50 U	4 U	0.25 J	0.34 J	4 U	4 U
Zinc, Dissolved	--	1,000	5 U	20 U	10 U	11 U	12.1 J	35.1 U	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Upper Castle Hayne Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW17							
Sample ID			SWMU343G-10-GW17-09A	SWMU343G10-GW17-09B	SWMU343G10-GW17D-09B	SWMU343G10-GW17-09C	SWMU343-G10-GW17-10D	SWMU343-GW17-11C	SWMU343-G10-GW17-2012C	SWMU343-GW17-13C
Sample Date			03/10/09	04/22/09	04/22/09	08/18/09	11/10/10	09/01/11	08/13/12	08/16/13
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
4-Methylphenol	--	40	9.4 U	9.4 U	9.6 U	9.6 U	NA	NA	NA	NA
Benzo(a)anthracene	--	0.05	9.4 U	9.4 U	9.6 U	9.6 U	5.4 U	0.11 U	0.046 J	0.1 U
Benzo(a)pyrene	--	0.005	9.4 UJ	9.4 U	9.6 U	9.6 U	5.4 U	0.11 U	0.1 U	0.1 U
Benzo(b)fluoranthene	--	0.05	9.4 UJ	9.4 U	9.6 U	9.6 U	5.4 U	0.11 U	0.096 J	0.1 U
bis(2-Ethylhexyl)phthalate	--	3	9.4 U	9.4 U	9.6 U	9.6 U	5.4 U	8.1 U	7.3 U	7.5 U
Chrysene	--	5	9.4 U	9.4 U	9.6 U	9.6 U	5.4 U	0.11 U	0.097 U	0.1 U
Dibenz(a,h)anthracene	--	0.005	9.4 UJ	9.4 U	9.6 U	9.6 UJ	5.4 U	0.11 U	0.097 U	0.1 UJ
Indeno(1,2,3-cd)pyrene	--	0.05	9.4 UJ	9.4 U	9.6 U	9.6 UJ	5.4 U	0.11 U	0.097 U	0.1 U
Pentachlorophenol	--	0.3	24 U	24 U	24 U	24 U	27 U	0.54 U	0.48 U	0.35 J
Pyrene	--	200	9.4 UJ	9.4 U	9.6 U	9.6 U	5.4 U	0.11 U	0.097 U	0.1 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.19 U	0.21 U	0.2 U	0.14 J	1.02 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.19 U	0.21 U	0.052 J	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.19 U	0.084 J	0.059 J	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.81 J	0.11 J	0.13 J	0.22	1.02 U	0.12 U	0.12 U	0.12 U
Perchlorate	--	2	0.08 U	0.2 U	NA	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U
PETN	--	--	0.76 U	2.1 U	2 U	2 U	1.02 U	2 U	2 U	2 U
RDX	--	--	0.26 J	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	0.19 U	0.21 U	0.2 U	0.2 U	1.02 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	2,520	--	266	368	329	200 U	NA	NA	NA	NA
Antimony	6.93	1	60 U	60 U	60 U	15 U	10 U	5 U	5 U	5 U
Arsenic	8.16	10	8.7 J	4.7 J	5.2 J	10 U	10 U	5 U	5 U	5 U
Barium	38.8	700	7.4 J	19.1 J	19.8 J	44.8	36	28.5	26.9	20.1
Calcium	146,000	--	56,000	63,300 J	63,700 J	53,300 J	NA	43,800	NA	NA
Chromium	6.05	10	3.7 J	2.9 J	2.9 J	10 U	5 U	0.99 J	3.3 J	4 U
Copper	3.44	1,000	25 U	25 U	25 U	10 U	1.6 J	10 U	10 U	10 U
Iron	2,250	300	31.3 J	367	279	346 J	NA	NA	NA	NA
Lead	--	15	3 U	3 U	3 U	3 U	10 U	4 U	1.3 J	4 U
Magnesium	2,280	--	1,260 J	1,930 J	1,940 J	1,810 J	NA	NA	NA	NA
Manganese	92.6	50	18.4	133	132	296	190	107	85.8	52.9
Mercury	--	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Nickel	3.19	100	40 U	40 U	40 U	10 U	40 U	4 U	4 U	4 U
Potassium	3,750	--	5,540	2,730 J	2,730 J	1,360 J	NA	NA	NA	NA
Silver	--	20	10 U	10 U	10 U	10 U	5 U	4 U	4 U	4 U
Sodium	33,300	--	23,600 J	9,160	9,100	8,440 J	NA	NA	NA	NA
Vanadium	5.32	0.3	15.2 J	5.2 J	5.3	15 U	50 U	0.62 J	4 J	4 U
Zinc	12.6	1,000	5.5 J	20 U	20 U	20 U	20 U	14.2 U	14.6 U	10 U

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW17							
Sample ID			SWMU343G-10-GW17-09A	SWMU343G10-GW17-09B	SWMU343G10-GW17D-09B	SWMU343G10-GW17-09C	SWMU343-G10-GW17-10D	SWMU343-GW17-11C	SWMU343-G10-GW17-2012C	SWMU343-GW17-13C
Sample Date			03/10/09	04/22/09	04/22/09	08/18/09	11/10/10	09/01/11	08/13/12	08/16/13
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	271 J	152 J	157 J	200 U	NA	NA	NA	NA
Antimony, Dissolved	--	1	60 U	60 U	60 U	15 U	10 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	10.1	6.2 J	6.7 J	10 U	4 J	5 U	5 U	5 U
Barium, Dissolved	--	700	7.8 J	200 U	200 U	42.8	36	24.3	18.2	16.4
Cadmium, Dissolved	--	2	5 U	5 U	5 U	1.6 J	2 U	3 U	3 U	3 U
Calcium, Dissolved	--	--	45,900 J	57,500 J	58,700 J	51,600 J	NA	43,400	NA	NA
Chromium, Dissolved	--	10	3.3 J	2.3 J	2.3 J	10 U	5 U	4 U	4 U	4 U
Copper, Dissolved	--	1,000	25 U	25 U	25 U	10 U	5 U	10 U	10 U	10 U
Iron, Dissolved	--	300	100 U	73.3 J	76.5 J	246	NA	NA	NA	NA
Lead, Dissolved	--	15	3 U	3 U	3 U	3 U	10 U	4 U	4 U	4 U
Magnesium, Dissolved	--	--	1,120 J	1,830 J	1,880 J	1,750 J	NA	NA	NA	NA
Manganese, Dissolved	--	50	16.3	118	121	283	190	114	78.2	54.3 U
Molybdenum, Dissolved	--	--	NA	NA	NA	NA	40 U	8 U	8 U	8 U
Potassium, Dissolved	--	--	6,010	2,650 J	2,590 J	1,390 J	NA	NA	NA	NA
Silver, Dissolved	--	20	10 U	10 U	10 U	10 U	5 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	22,900	8,910	8,970	8,400 J	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	13.5 J	50 U	50 U	15 U	50 U	4 U	4 J	4 U
Zinc, Dissolved	--	1,000	20 U	20 U	20 U	20 U	20 U	14.4 U	28.2 U	12.6 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Upper Castle Hayne Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW17		SWMU343G-10-MW19							
Sample ID			SWMU343-GW17-14C	SWMU343G-10-GW17-15C	SWMU343G10-GW19-09B	SWMU343G10-GW19-09C	SWMU343G10-GW19-09D	SWMU343-G10-GW19-10D	SWMU343-GW19-11A	SWMU343-GW19D-11A	SWMU343-GW19-11B	SWMU343-GW19D-11B
Sample Date			08/21/14	08/07/15	04/20/09	08/18/09	11/10/09	11/10/10	02/23/11	02/23/11	05/16/11	05/16/11
Chemical Name												
Volatile Organic Compounds (µg/l)												
No Detections			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)												
4-Methylphenol	--	40	NA	NA	9.8 U	26	8.9 J	NA	NA	NA	NA	NA
Benzo(a)anthracene	--	0.05	0.094 U	0.094 U	9.8 U	9.8 U	10 U	5.2 U	0.098 U	0.099 U	0.1 U	0.095 U
Benzo(a)pyrene	--	0.005	0.094 U	0.085 J	9.8 U	9.8 U	10 U	5.2 U	0.098 U	0.099 U	0.1 U	0.095 U
Benzo(b)fluoranthene	--	0.05	0.094 UJ	0.094 U	9.8 U	9.8 U	10 U	5.2 U	0.098 U	0.099 U	0.1 U	0.095 U
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.1 U	9.8 U	9.8 U	10 U	5.2 U	7.4 U	7.4 U	7.5 U	7.1 U
Chrysene	--	5	0.094 U	7.1 U	9.8 U	9.8 U	10 U	5.2 U	0.098 U	0.099 U	0.1 U	0.095 U
Dibenz(a,h)anthracene	--	0.005	0.094 UJ	0.094 U	9.8 U	9.8 U	10 U	5.2 U	0.098 U	0.099 U	0.1 UJ	0.095 UJ
Indeno(1,2,3-cd)pyrene	--	0.05	0.094 U	0.094 U	9.8 U	9.8 UJ	10 U	5.2 U	0.098 UJ	0.099 UJ	0.1 U	0.095 UJ
Pentachlorophenol	--	0.3	0.47 UJ	0.47 U	24 U	24 U	25 U	26 U	0.49 U	0.5 U	0.5 U	0.48 U
Pyrene	--	200	0.094 U	7.1 U	9.8 U	9.8 U	10 U	5.2 U	0.098 U	0.099 U	0.1 U	0.095 U
Explosives (µg/l)												
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.2 U	0.49 J	0.15 UJ	1 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.94 U	0.2 U	0.38 J	1 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.1 J	0.2 U	0.37 J	1 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	0.12 U	0.12 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.2 U	0.31 J	0.15 U	1 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.2 U	0.2 U	0.15 U	1 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	0.12 U	0.12 U	1.7	8.5	7.3 J	1 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.27 U	0.2 U	0.23 J	1 U	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.2 U	0.068 J	0.052 J	1 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	4.6 U	17	16 J	1 U	0.12 U	0.12 U	0.12 U	0.12 U
Perchlorate	--	2	0.25 U	0.04 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U	0.25 U
PETN	--	--	2 U	2 U	2 U	0.38 J	0.51 U	1 U	2 U	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.2 U	0.92 J	0.18	1 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	0.12 U	0.12 U	0.2 U	0.075 J	0.15 U	1 UJ	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)												
Aluminum	2,520	--	NA	NA	107 J	200 U	20.7 J	NA	NA	NA	NA	NA
Antimony	6.93	1	5 U	0.5 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U	5 U
Arsenic	8.16	10	5 U	4 U	10 U	10 UJ	1.25 U	10 U	5 U	5 U	1.5 J	5 U
Barium	38.8	700	18.9	21.4 U	11.1 J	40 U	6.92 J	25 U	4.2 J	4.1 J	3.9 U	3.9 U
Calcium	146,000	--	NA	NA	72,200	61,100 J	59,200	NA	NA	NA	NA	NA
Chromium	6.05	10	0.99 J	4 U	10 U	10 UJ	1.25 U	5 U	4 U	4 U	0.65 J	0.44 J
Copper	3.44	1,000	10 U	2 U	25 U	10 U	2.5 U	5 U	10 U	10 U	10 U	0.64 J
Iron	2,250	300	NA	NA	917	1,230 J	713	NA	NA	NA	NA	NA
Lead	--	15	4 U	0.23 J	3 U	3 U	NA	10 U	4 U	4 U	4 U	4 U
Magnesium	2,280	--	NA	NA	1,520 J	1,320 J	1,290	NA	NA	NA	NA	NA
Manganese	92.6	50	40	36.6 U	63.5	56.9	42.1	26	23.2	22.6	22.8	22.9
Mercury	--	1	0.1 U	0.1 U	0.2 U	0.2 U	0.2 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	2 U	NA	NA	NA	40 U	8 U	8 U	8 U	0.72 J
Nickel	3.19	100	0.41 J	1.2 U	40 U	10 UJ	2.5 U	40 U	4 U	4 U	4 U	4 U
Potassium	3,750	--	NA	NA	5,000 U	5,000 U	720 J	NA	NA	NA	NA	NA
Silver	--	20	4 U	0.4 U	10 U	10 U	1.25 U	5 U	4 U	4 U	0.3 J	4 U
Sodium	33,300	--	NA	NA	7,110	5,460 J	6,430	NA	NA	NA	NA	NA
Vanadium	5.32	0.3	0.35 J	4 U	50 U	15 U	3.12 U	50 U	4 U	4 U	4 U	4 U
Zinc	12.6	1,000	10 U	8 U	20 U	20 UJ	5 U	20 U	10 U	10.9 U	11.2 U	10 U

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer

RCRA Long-term Groundwater Monitoring Report - SWMU 343

MCB Camp Lejeune

North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW17		SWMU343G-10-MW19							
Sample ID			SWMU343-GW17-14C	SWMU343G-10-GW17-15C	SWMU343G10-GW19-09B	SWMU343G10-GW19-09C	SWMU343G10-GW19-09D	SWMU343-G10-GW19-10D	SWMU343-GW19-11A	SWMU343-GW19D-11A	SWMU343-GW19-11B	SWMU343-GW19D-11B
Sample Date			08/21/14	08/07/15	04/20/09	08/18/09	11/10/09	11/10/10	02/23/11	02/23/11	05/16/11	05/16/11
Chemical Name												
Dissolved Metals (µg/l)												
Aluminum, Dissolved	--	--	NA	NA	83.5 J	200 U	16.1 J	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	0.5 U	60 U	15 U	3.75 U	10 U	5 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	5 U	4 U	10 U	10 U	1.25 U	10 U	5 U	5 U	1.5 J	5 U
Barium, Dissolved	--	700	16.4	20.5 U	200 U	40 U	6.35 J	25 U	6.2 U	5.6 U	11 U	15.5 U
Cadmium, Dissolved	--	2	3 U	0.2 U	5 U	5 U	0.444 J	2 U	3 U	3 U	3 U	3 U
Calcium, Dissolved	--	--	NA	NA	78,000	66,700 J	58,900	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	10 U	10 U	1.25 U	5 U	0.78 J	0.8 J	4 U	4 U
Copper, Dissolved	--	1,000	10 U	2 U	25 U	10 U	2.5 U	5 U	10 U	0.71 J	10 U	10 U
Iron, Dissolved	--	300	NA	NA	254	209	12.3 J	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	0.5 U	3 U	3 U	3.75 U	5.9 J	4 U	4 U	4 U	4 U
Magnesium, Dissolved	--	--	NA	NA	1,610 J	1,570 J	1,320	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	40.2	36 U	65.1	61.2	42.1 J	27	22	22.6	20.2	22
Molybdenum, Dissolved	--	--	8 U	2 U	NA	NA	NA	40 U	8 U	8 U	0.84 J	0.42 J
Potassium, Dissolved	--	--	NA	NA	5,000 U	5,000 U	803 J	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	0.4 U	10 U	10 U	1.25 U	5 U	4 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	NA	NA	6,590	6,800 J	6,820	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	0.32 J	4 U	50 U	15 U	3.12 U	50 U	4 U	4 U	4 U	4 U
Zinc, Dissolved	--	1,000	10 U	8 U	20 U	20 U	5 U	20 U	10 U	10 U	10 U	10 U

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Notes:

Shading indicates exceedance of Camp Lejeune Upper Castle Hayne Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW19							
Sample ID			SWMU343-GW19-11C	SWMU343-GW19D-11C	SWMU343-GW19-11D	SWMU343-GW19DUP-11D	SWMU343GW10-GW19-12A	SWMU343GW10-GW19D-12A	SWMU343-GW19-12B	SWMU343-GW19D-12B
Sample Date			08/31/11	08/31/11	11/17/11	11/17/11	02/24/12	02/24/12	05/03/12	05/03/12
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
4-Methylphenol	--	40	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	--	0.05	0.097 UJ	0.094 U	0.064 J	0.097 UJ	0.094 UJ	0.094 UJ	0.094 U	0.094 U
Benzo(a)pyrene	--	0.005	0.097 U	0.094 U	0.097 U	0.097 U	0.094 U	0.094 U	0.094 U	0.094 U
Benzo(b)fluoranthene	--	0.05	0.097 UJ	0.094 U	0.097 U	0.097 U	0.094 U	0.094 U	0.1 U	0.094 U
bis(2-Ethylhexyl)phthalate	--	3	7.3 U	7.1 U	7.3 U	7.3 U	7.1 U	7.1 U	7.1 U	7.1 U
Chrysene	--	5	0.097 UJ	0.094 U	0.097 U	0.097 U	0.094 UJ	0.094 UJ	0.094 U	0.094 U
Dibenz(a,h)anthracene	--	0.005	0.097 U	0.094 U	0.097 UJ	0.097 UJ	0.094 U	0.094 U	0.094 U	0.094 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.097 UJ	0.094 U	0.097 UJ	0.097 UJ	0.094 U	0.094 U	0.094 U	0.094 U
Pentachlorophenol	--	0.3	0.48 UJ	0.47 U	0.48 UJ	0.48 UJ	0.47 UJ	0.47 UJ	0.47 U	0.47 U
Pyrene	--	200	0.097 UJ	0.094 U	0.17 UJ	0.097 U	0.094 U	0.094 U	0.094 U	0.094 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Perchlorate	--	2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETN	--	--	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	2,520	--	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	6.93	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Arsenic	8.16	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Barium	38.8	700	4.1 J	4.1 J	3.6 J	3.8 J	3.6 J	3.4 J	3.4 J	3.6 J
Calcium	146,000	--	46,600	47,300	NA	NA	NA	NA	NA	NA
Chromium	6.05	10	0.79 J	0.77 J	0.75 J	4 U	4 U	4 U	4 U	4 U
Copper	3.44	1,000	10 U	10 U	10 U	10 U	1.3 J	0.72 J	1.2 J	1.3 J
Iron	2,250	300	NA	NA	NA	NA	NA	NA	NA	NA
Lead	--	15	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Magnesium	2,280	--	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	92.6	50	23.3	23.3	19.9 U	19.8 U	21.1	20.4	21.6	20.9
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	8 U	8 U	8 U	0.9 J	8 U	8 U	8 U	8 U
Nickel	3.19	100	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Potassium	3,750	--	NA	NA	NA	NA	NA	NA	NA	NA
Silver	--	20	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Sodium	33,300	--	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	5.32	0.3	4 U	4 U	0.3 J	4 U	0.41 J	4 U	4 U	4 U
Zinc	12.6	1,000	11.8 U	14.2 U	11.6 U	11.7 U	10 U	10 U	10 U	10 U

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW19							
Sample ID			SWMU343-GW19-11C	SWMU343-GW19D-11C	SWMU343-GW19-11D	SWMU343-GW19DUP-11D	SWMU343GW10-GW19-12A	SWMU343GW10-GW19D-12A	SWMU343-GW19-12B	SWMU343-GW19D-12B
Sample Date			08/31/11	08/31/11	11/17/11	11/17/11	02/24/12	02/24/12	05/03/12	05/03/12
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Barium, Dissolved	--	700	5.6 U	5.8 U	3.5 J	3.4 J	3.2 J	2.9 J	4.5 U	4.2 U
Cadmium, Dissolved	--	2	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Calcium, Dissolved	--	--	45,500	45,700	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Copper, Dissolved	--	1,000	12.1 U	19.8 U	1.3 J	1.2 J	1.3 J	10 U	18.9 U	13.5 U
Iron, Dissolved	--	300	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	9.6 U	4 U	4 U	4 U	4 U	4 U	4 U
Magnesium, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	23.9	26.1	19.8	20.6	22.2	18.2	32.1 U	29.3 U
Molybdenum, Dissolved	--	--	8 U	8 U	0.87 J	8 U	0.55 J	8 U	8 U	8 U
Potassium, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	4 U	4 U	0.4 J	0.28 J	4 U	0.43 J	4 U	0.4 J
Zinc, Dissolved	--	1,000	15 U	19.4 U	13.5 U	14.4 U	11.3 U	10 U	22.8 U	14.8 U

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Notes:

Shading indicates exceedance of Camp Lejeune Upper Castle Hayne Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW19							
Sample ID			SWMU343-G10-GW19-2012C	SWMU343-G10-GW19D-2012C	SWMU343-GW19-13A	SWMU343-GW19-13A-FD	SWMU343-GW19-13B	SWMU343-GW19D-13B	SWMU343-GW19-13C	SWMU343-GW19D-13C
Sample Date			08/15/12	08/15/12	02/06/13	02/06/13	05/08/13	05/08/13	08/02/13	08/02/13
Chemical Name										
Volatile Organic Compounds (µg/l)										
No Detections			NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)										
4-Methylphenol	--	40	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	--	0.05	0.094 U	0.1 U	0.1 U	0.094 U	0.094 U	0.1 U	0.097 UJ	0.095 U
Benzo(a)pyrene	--	0.005	0.094 U	0.1 U	0.1 U	0.094 U	0.094 U	0.1 U	0.097 U	0.095 U
Benzo(b)fluoranthene	--	0.05	0.094 U	0.1 U	0.1 U	0.094 U	0.094 U	0.1 U	0.097 U	0.095 U
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.5 U	7.7 U	7.1 U	7.1 U	7.7 U	7.1 U	7.1 U
Chrysene	--	5	0.094 U	0.1 U	0.1 U	0.094 U	0.094 U	0.1 U	0.051 J	0.095 U
Dibenz(a,h)anthracene	--	0.005	0.094 U	0.1 U	0.1 U	0.094 U	0.094 U	0.1 U	0.097 U	0.095 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.094 U	0.1 U	0.1 U	0.094 U	0.094 U	0.1 U	0.097 U	0.095 U
Pentachlorophenol	--	0.3	0.47 U	0.5 U	0.52 U	0.47 U	0.47 U	0.52 U	0.48 UJ	0.48 U
Pyrene	--	200	0.094 U	0.1 U	0.1 U	0.094 U	0.094 U	0.1 U	0.097 U	0.095 U
Explosives (µg/l)										
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.12 UJ	0.089 J	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.096 J	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.12 UJ	0.38 J	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.075 J	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.079 J	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.12 UJ	0.098 J	0.12 U	0.12 U	0.12 U	0.12 U
Perchlorate	--	2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETN	--	--	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.12 U	0.096 J	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)										
Aluminum	2,520	--	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	6.93	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Arsenic	8.16	10	2.9 J	5 U	5 U	5 U	5 U	5 U	5 U	2.1 J
Barium	38.8	700	3.5 J	3.3 J	3.8 J	4.4 J	3 U	3 U	3.8 U	3.6 U
Calcium	146,000	--	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	6.05	10	4 U	4 U	0.61 J	0.58 J	4 U	4 U	4 U	4 U
Copper	3.44	1,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	2,250	300	NA	NA	NA	NA	NA	NA	NA	NA
Lead	--	15	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Magnesium	2,280	--	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	92.6	50	19.5	19.6	20.3	20.3	20.4	21.6	20.9	19.3
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.03 J	0.1 U
Molybdenum	--	--	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U
Nickel	3.19	100	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Potassium	3,750	--	NA	NA	NA	NA	NA	NA	NA	NA
Silver	--	20	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Sodium	33,300	--	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	5.32	0.3	4 U	4 U	0.23 J	4 U	0.26 J	4 U	4 U	4 U
Zinc	12.6	1,000	10 U	14.6 U	15.2 U	17.8 U	10 U	10 U	0.9 J	10 U

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW19							
Sample ID			SWMU343-G10-GW19-2012C	SWMU343-G10-GW19D-2012C	SWMU343-GW19-13A	SWMU343-GW19-13A-FD	SWMU343-GW19-13B	SWMU343-GW19D-13B	SWMU343-GW19-13C	SWMU343-GW19D-13C
Sample Date			08/15/12	08/15/12	02/06/13	02/06/13	05/08/13	05/08/13	08/02/13	08/02/13
Chemical Name										
Dissolved Metals (µg/l)										
Aluminum, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Arsenic, Dissolved	--	10	2.2 J	4.2 J	5 U	5 U	2 J	5 U	5 U	5 U
Barium, Dissolved	--	700	3.2 U	3.5 U	4.6 J	3.5 J	3 U	3 U	3.5 U	4 U
Cadmium, Dissolved	--	2	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Calcium, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Copper, Dissolved	--	1,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron, Dissolved	--	300	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	4 U	1.8 J	4 U	4 U	4 U	4 U	4 U
Magnesium, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	18.3 U	19.3 U	16.8	17.5	20.7	19.2	18.8	17.1
Molybdenum, Dissolved	--	--	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U
Potassium, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	0.46 J	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Sodium, Dissolved	--	--	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	0.42 J	4 U	4 U	4 U	0.24 J	4 U	4 U	0.43 J
Zinc, Dissolved	--	1,000	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Upper Castle Hayne Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	Camp Lejeune BTVs Upper Castle Hayne (April 2012)	NCGWQS/IMAC (January 2016)	SWMU343G-10-MW19				
Sample ID			SWMU343-GW19-13D	SWMU343-GW19D-13D	SWMU343-GW19-14C	SWMU343-GW19-14C-D	SWMU343G-10-GW19-15C
Sample Date			11/14/13	11/14/13	08/25/14	08/25/14	08/06/15
Chemical Name							
Volatile Organic Compounds (µg/l)							
No Detections			NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/l)							
4-Methylphenol	--	40	NA	NA	NA	NA	NA
Benzo(a)anthracene	--	0.05	0.094 U	0.095 U	0.094 U	0.098 U	0.094 U
Benzo(a)pyrene	--	0.005	0.094 U	0.095 U	0.094 UJ	0.098 U	0.094 U
Benzo(b)fluoranthene	--	0.05	0.094 U	0.095 UJ	0.094 UJ	0.098 U	0.094 U
bis(2-Ethylhexyl)phthalate	--	3	7.1 U	7.1 U	7.1 U	7.4 U	7.1 U
Chrysene	--	5	0.094 U	0.095 U	0.094 U	0.098 U	7.1 U
Dibenz(a,h)anthracene	--	0.005	0.094 U	0.095 U	0.094 UJ	0.098 U	0.094 U
Indeno(1,2,3-cd)pyrene	--	0.05	0.094 U	0.095 U	0.094 UJ	0.098 U	0.094 U
Pentachlorophenol	--	0.3	0.47 UJ	0.48 UJ	0.47 UJ	0.49 UJ	0.47 U
Pyrene	--	200	0.094 UJ	0.095 U	0.094 U	0.098 U	7.1 U
Explosives (µg/l)							
1,3,5-Trinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
1,3-Dinitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4,6-Trinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-Dinitrotoluene	--	0.1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,6-Dinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Amino-4,6-dinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
3-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Amino-2,6-dinitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
4-Nitrotoluene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
HMX	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nitrobenzene	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Perchlorate	--	2	0.25 U	0.25 U	0.25 U	0.25 U	0.22
PETN	--	--	2 U	2 U	2 U	2 U	2 U
RDX	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Tetryl	--	--	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Total Metals (µg/l)							
Aluminum	2,520	--	NA	NA	NA	NA	NA
Antimony	6.93	1	5 U	5 U	5 U	5 U	0.5 U
Arsenic	8.16	10	5 U	5 U	5 U	5 U	4 U
Barium	38.8	700	3.8 U	3.5 J	3.05 U	3.52 U	4.15 U
Calcium	146,000	--	NA	NA	NA	NA	NA
Chromium	6.05	10	4 U	0.45 J	0.9 J	0.6 J	4 U
Copper	3.44	1,000	0.91 J	0.92 J	10 U	10 U	2 U
Iron	2,250	300	NA	NA	NA	NA	NA
Lead	--	15	4 U	4 U	4 U	4 U	0.49 J
Magnesium	2,280	--	NA	NA	NA	NA	NA
Manganese	92.6	50	20.5	20	17.6	19.8	30.8 U
Mercury	--	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Molybdenum	--	--	3.1 J	0.42 J	8 U	8 U	2 U
Nickel	3.19	100	4 U	4 U	4 U	4 U	3.99 U
Potassium	3,750	--	NA	NA	NA	NA	NA
Silver	--	20	4 U	4 U	4 U	4 U	0.4 U
Sodium	33,300	--	NA	NA	NA	NA	NA
Vanadium	5.32	0.3	4 U	4 U	4 U	4 U	4 U
Zinc	12.6	1,000	10 U	1.4 J	3.3 J	2.5 J	8 U

APPENDIX A

Historical Exceedance Table - Castle Hayne Aquifer
RCRA Long-term Groundwater Monitoring Report - SWMU 343
MCB Camp Lejeune
North Carolina

Station ID	**Camp Lejeune BTVs Upper Castle Hayne (April 2012)**	**NCGWQS/IMAC (January 2016)**	SWMU343G-10-MW19				
Sample ID			SWMU343-GW19-13D	SWMU343-GW19D-13D	SWMU343-GW19-14C	SWMU343-GW19-14C-D	SWMU343G-10-GW19-15C
Sample Date			11/14/13	11/14/13	08/25/14	08/25/14	08/06/15
Chemical Name							
Dissolved Metals (µg/l)							
Aluminum, Dissolved	--	--	NA	NA	NA	NA	NA
Antimony, Dissolved	--	1	5 U	5 U	5 U	5 U	0.5 U
Arsenic, Dissolved	--	10	5 U	5 U	5 U	5 U	4 U
Barium, Dissolved	--	700	3.6 U	3.5 U	3.15 U	3.14 U	4.29 U
Cadmium, Dissolved	--	2	3 U	3 U	3 U	3 U	0.2 U
Calcium, Dissolved	--	--	NA	NA	NA	NA	NA
Chromium, Dissolved	--	10	4 U	4 U	1 J	0.59 J	4 U
Copper, Dissolved	--	1,000	10 U	10 U	10 U	10 U	2 U
Iron, Dissolved	--	300	NA	NA	NA	NA	NA
Lead, Dissolved	--	15	4 U	4 U	4 U	4 U	0.5 U
Magnesium, Dissolved	--	--	NA	NA	NA	NA	NA
Manganese, Dissolved	--	50	19.8 U	19.8 U	17.6 U	17.4 U	19.2 U
Molybdenum, Dissolved	--	--	2 U	2 U	8 U	8 U	2 U
Potassium, Dissolved	--	--	NA	NA	NA	NA	NA
Silver, Dissolved	--	20	4 U	4 U	4 U	4 U	0.4 U
Sodium, Dissolved	--	--	NA	NA	NA	NA	NA
Vanadium, Dissolved	--	0.3	4 U	4 U	4 U	4 U	4 U
Zinc, Dissolved	--	1,000	10 U	10 U	10 U	10 U	8 U

, Kleist, Bianca/CLT, 03/22/2016

Notes:

Shading indicates exceedance of Camp Lejeune Upper Castle Hayne Background Treshold Values (April 2012)

Bold box indicates exceedance of NCGWQS or IMAC (the IMAC value is reported where there is no NCGWQS value applicable)

NA - Not analyzed

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

µg/l - Micrograms per liter