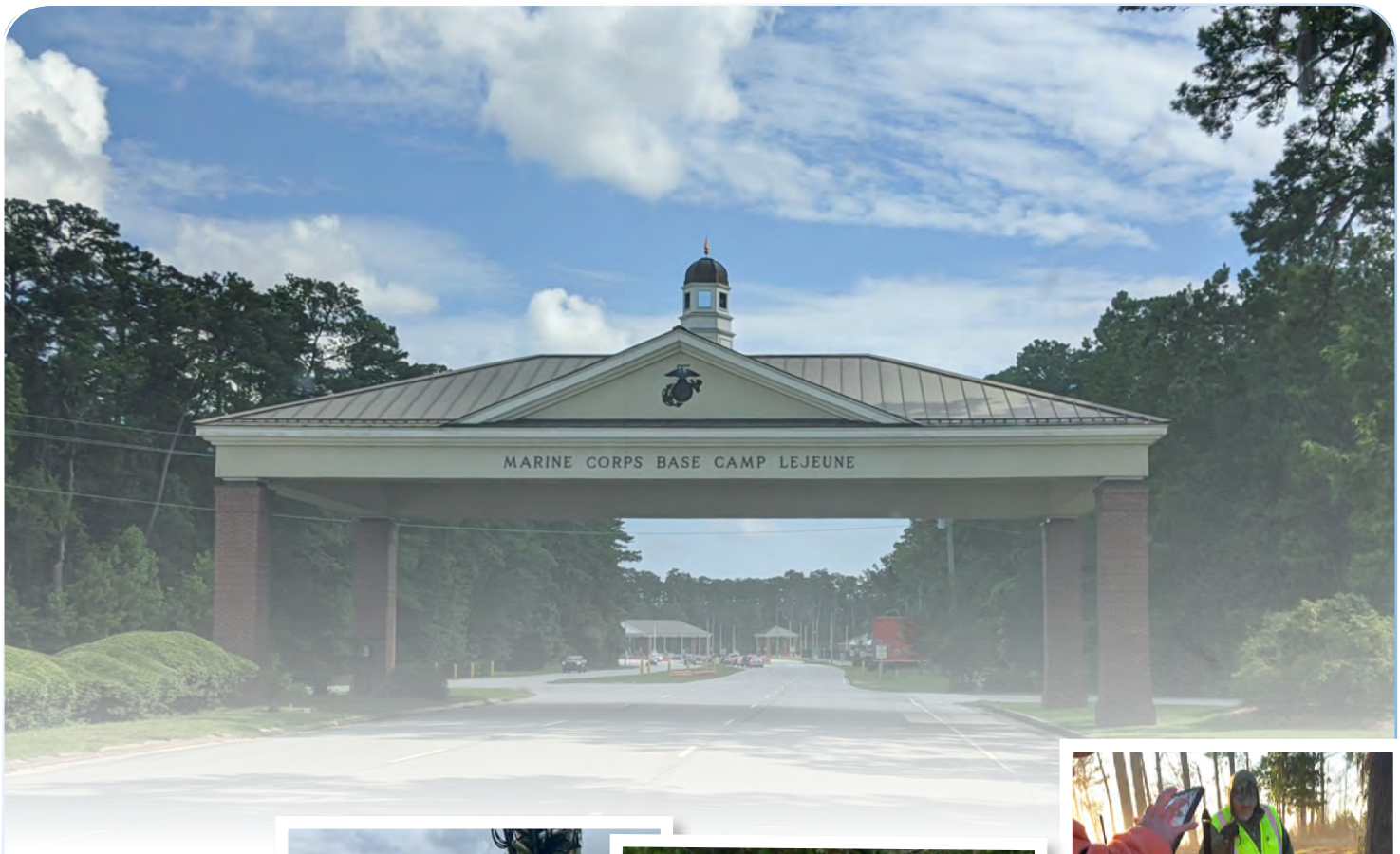


Final

Community Involvement Plan Update

Marine Corps Base Camp Lejeune and Marine Corps Air Station New River North Carolina

November 2020

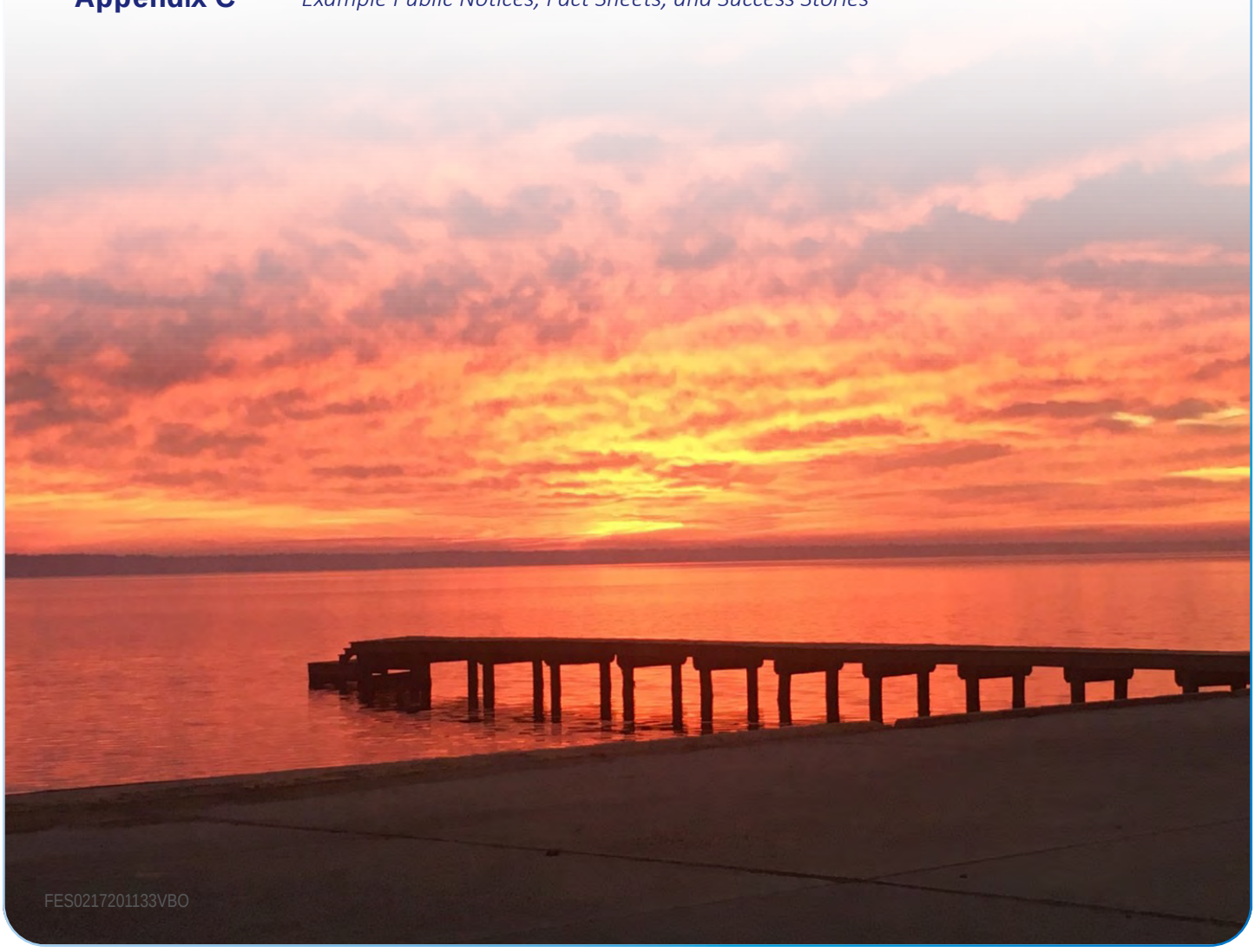
Prepared by

ch2m.

NAVFAC Naval Facilities Engineering Command

APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

Community Involvement Plan Organization



Section 1: Introduction

This Community Involvement Plan (**CIP**) describes specific outreach methods to provide factual and timely information, obtain community feedback, and promote understanding of the Environmental Restoration Program (**ERP**) at Marine Corps Base Camp Lejeune and Marine Corps Air Station New River (hereafter Camp Lejeune). The plan is designed to support effective two-way communication between Camp Lejeune and both on- and off-Base community members. The outreach methods described were developed based on the results of community feedback obtained in November 2019.

Environmental Restoration Program

In 1989, the United States Environmental Protection Agency (**USEPA**) placed Camp Lejeune on the National Priorities List (**NPL**), commonly known as "Superfund." Camp Lejeune was included on the list based on soil and groundwater contamination caused by historical disposal, storage, and handling of hazardous materials. Camp Lejeune has since conducted a series of environmental studies and cleanup activities under the United States (**U.S.**) Department of Defense (**DoD**) ERP. The ERP follows the process and procedures set forth in two major environmental acts: the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA**) and the 1986 Superfund Amendments and Reauthorization Act (**SARA**).

The ERP consists of:

The Installation Restoration Program (**IRP**), which addresses releases of hazardous substances, pollutants, or contaminants that may pose risks to human health or the environment; and

The Military Munitions Response Program (**MMRP**), which addresses environmental health and safety hazards from unexploded ordnance (UXO), discarded military munitions, and munitions constituents.

Community Involvement

The first CIP was prepared for Camp Lejeune in 1990, following the Base's inclusion on the NPL, and was updated in 1994, 2005, 2011, and 2015. This 2020 CIP is an update to the 2015 plan.

The Naval Facilities Engineering Command (**NAVFAC**) Mid-Atlantic, Camp Lejeune's Environmental Management Division (**EMD**) representing the Marine Corps, and the Base Public Affairs Office will work together to implement this CIP.

Photo by Cpl. Breanna Weisenberger

Acronym Use

To make this document more readable, acronym use has been limited. Acronyms that are used repeatedly appear in **bold** the first time they are used. Other acronyms are provided for informational purposes, but are not repeated throughout the document. The following acronyms are repeated in the document:

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
DoD	Department of Defense
EMD	Environmental Management Division
ERP	Environmental Restoration Program
IRP	Installation Restoration Program
MMRP	Military Munitions Response Program
NAVFAC	Naval Facilities Engineering Command
Navy	Department of the Navy
NPL	National Priorities List
RAB	Restoration Advisory Board
SARA	Superfund Amendments and Reauthorization Act
TAG	Technical Assistance Grant
TAPP	Technical Assistance for Public Participation
U.S.	United States
USEPA	United States Environmental Protection Agency

Section 2: The Site

This section describes Camp Lejeune, its environmental history, and the environmental investigation and cleanup process.

Photo By Cpl. Michelle Reif

Facility Profile

Commissioned 1941

Mission To maintain combat-ready warfighters for deployment. Training operations include 80 live-fire ranges, 34 gun positions, 50 tactical landing zones, 3 military operations in urban terrain complexes, and 11 miles of beach capable of supporting amphibious operations.

Geographic Setting Camp Lejeune covers more than 156,000 acres in the Atlantic coastal plain of southeastern North Carolina in Onslow County, adjacent to the City of Jacksonville. The Base consists of the geographical areas shown on **Figure 1**. Neighboring communities, cities, and towns include the City of Jacksonville, Verona, Holly Ridge, North Topsail Beach, Surf City, Piney Green, Sneads Ferry, and Swansboro.

Environmental History Historical operations, storage, and disposal practices at Camp Lejeune resulted in environmental impacts to soil and groundwater. Camp Lejeune has been actively engaged in environmental investigations and remediation programs since 1981. **Figure 2** provides highlights of the ERP history at Camp Lejeune.

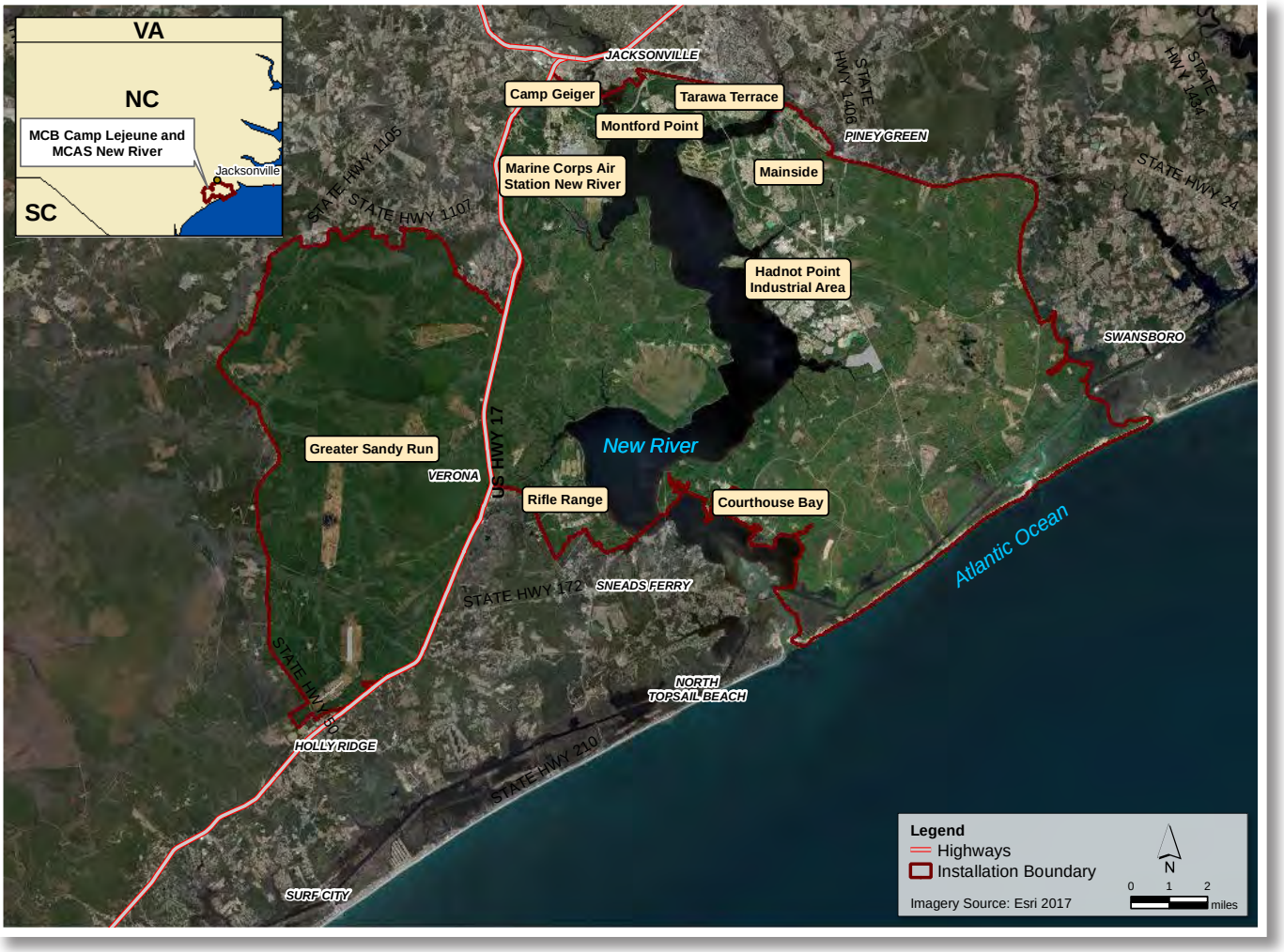


FIGURE 1
CAMP LEJEUNE AREA MAP

FIGURE 2

Timeline of Camp Lejeune Environmental History

Early 1990s

Environmental Restoration Partnership – Camp Lejeune formed a Partnering Team made up of representatives of the Navy (NAVFAC Mid-Atlantic), Camp Lejeune's EMD, USEPA, the North Carolina Department of Environment, Health, and Natural Resources (now the North Carolina Department of Environmental Quality, or NCDEQ), and consultants supporting the environmental investigations and cleanup process. By bringing these key parties together in regular, structured meetings to discuss and resolve issues, the Partnering Team promotes trust and cooperation that enables the remediation process to move forward more quickly than possible under traditional procedures.

1981–present *Ongoing Environmental Investigation and Remediation*

1981–1983

Navy Assessment and Control Installation Pollutants (NACIP) Program – The Initial Assessment Study (IAS) (Water and Air Research, Inc., 1983) was the first investigation of potentially hazardous sites at the Base conducted under this program. This study identified areas of concern that might cause threats to human health and the environment, recommended further investigation of several sites, and led to Camp Lejeune's placement on the NPL.

1984

Resource Conservation Recovery Act (RCRA) Hazardous and Solid Waste Act (HSWA) permit issued – Camp Lejeune's RCRA Hazardous Waste Management permit was issued (and later modified). It outlines the corrective action process and schedule of compliance for environmental releases.

1986

IRP – The IRP was initiated, following enactment of the amended Superfund legislation (SARA), to identify, assess, and clean up impacts resulting from historical handling, storage, and disposal of potentially hazardous wastes. The IRP follows the CERCLA process.

1989

NPL – On October 4, 1989, USEPA placed Camp Lejeune on the NPL, USEPA's list of the highest-priority hazardous waste sites in the nation. The decision to list a particular site is based on calculated risks to human health and the environment. Nationwide, more than 1,000 sites are listed on the NPL.

1990

CIP – The first CIP was prepared to provide information about the community's interests, concerns, and opportunities for involvement in the environmental remediation process. The 2020 update is the fifth update to the CIP.

1991

Federal Facilities Agreement (FFA) – USEPA Region 4, the North Carolina Department of Environment, Health, and Natural Resources (now NCDEQ), the Marine Corps, and NAVFAC entered into a Federal Facilities Agreement. The primary purpose of the Federal Facilities Agreement is to ensure that potential environmental impacts are investigated and remediated to protect public health, welfare, and the environment.

1992

First Site Management Plan (SMP) – The SMP, which is updated annually, summarizes each IRP and MMRP site currently under investigation and provides the regulatory deadlines and a schedule of deliverables, as agreed upon in the Federal Facilities Agreement.

1999

First Five-Year Review – Five-Year Reviews are conducted to determine whether the cleanup decisions made for sites continue to protect human health and the environment, and whether the remedial actions need to be adjusted. Five-Year Reviews were completed in 1999, 2005, 2010, 2015, and 2020.

2001

MMRP – The MMRP was established to investigate and reduce potential human health and environmental risks created by past military munitions-related activities and to carry out response actions at non-operational ranges.

2007–present

Basewide Vapor Intrusion (VI) Evaluation – Camp Lejeune conducted a basewide vapor intrusion (VI) evaluation to identify buildings where VI might be occurring and to evaluate potential risks posed to building occupants from VI related to groundwater impacts. The phased VI evaluation identified VI as a pathway of concern at Site 88 (Building 3B) and a vapor intrusion mitigation system (VIMS) was installed in 2012. Although VI was not a significant pathway of concern, there was a potential for the VI pathway to become significant at Site 78 (Building 902) and 88 (Buildings 3, 37, and 43) in the future. The Base elected to install VIMS in Building 902 and Buildings 3, 37, and 43 in 2012, as a precautionary measure. Additional VI evaluations at Site 88 identified human health risks associated with a wastewater and sanitary sewer line as a potential VI preferential pathway to Building HP57 and a sewer ventilation system (SVS) was installed in October 2016.

Performance monitoring of the VIMS at Sites 78 and 88 and SVS at Building HP57 has been conducted quarterly since startup. Performance monitoring is completed to evaluate if the VIMS and SVS at Sites 78 and 88 are operating to effectively mitigate the VI pathway.

Because of damage sustained during Hurricane Florence (September 2018), Buildings 3 and 3B are unoccupied. Although these buildings are slated for demolition in the future the VIMS in Building 3B is still operating; however, performance monitoring has been discontinued.

2009–present

Base Boundary Survey – A Base Boundary survey was initiated in 2009 to identify current and historical activities at the properties adjacent to Camp Lejeune that may have resulted in environmental impacts to the Base and to evaluate potential on-Base impacts to soil and groundwater. Twelve areas of potential concern (AOPCs) were identified and evaluated and potential on-Base impacts were identified at 3 AOPCs. Following completion of the Base Boundary Survey in 2012, long-term monitoring was initiated and is ongoing.

2009–2016

Evaluation of Off-Base Surface Danger Zones (SDZs) – During a routine review of operational range locations, portions of the surface danger zones for several ranges were discovered outside the current Base boundary during specific time frames dating back to the 1940s. In 2009, Camp Lejeune initiated investigation of these historical off-Base surface danger zones, which are located outside current Base boundaries. In 2015, unexploded ordnance (UXO) warning signs were installed along the banks of the waterways within and around the perimeter of UXO-31 to provide notification of potential UXO hazards.

2019–present

Per- and polyfluoroalkyl substances (PFAS) Preliminary Assessment – In 2018 a basewide Preliminary Assessment was conducted to identify areas on the Base where PFAS-containing materials may have been released to the environment. Four areas were previously investigated in 2017 and 3 of those areas were recommended for further investigation as PFAS concentrations in groundwater exceeded screening criteria. In addition to those 3 sites, 52 areas were identified during the Preliminary Assessment that were recommended for soil and/or groundwater sampling as part of a Site Inspection. The Site Inspection is currently underway.

1980 **1990** **2000** **2010** **2020**

Steps in the CERCLA Process

In response to environmental problems that resulted from past disposal methods for hazardous waste, Congress directed USEPA to develop a program to manage and control past disposal sites. This program was established by CERCLA in 1980, amended by SARA in 1986, and is commonly known as Superfund.

Camp Lejeune's ERP follows the process prescribed by CERCLA regulations and guidance for investigating and addressing environmental contamination. The steps of the CERCLA process are shown on **Figure 3** and include:

» **Preliminary Assessment/Site Inspection (PA/SI) – The First Look: Is there something there?**

The first step is to determine if there has been a release of hazardous waste or materials causing contamination that warrants further study or cleanup. The Preliminary Assessment involves collecting and reviewing existing information to identify specific potentially contaminated sites. The Site Inspection involves limited sampling of soil, groundwater, surface water, and/or sediment to confirm or deny the presence of contaminants. An Expanded Site Inspection (ESI) may be conducted if more data is needed.

» **Remedial Investigation/Feasibility Study (RI/FS) – A Closer Look: What's there and where is it? What can be done about it?**

The Remedial Investigation determines the nature and extent of contamination and associated human health and ecological risks. If cleanup is determined to be warranted, the Feasibility Study evaluates potential cleanup approaches against a variety of criteria, including technical feasibility, cost-effectiveness, and community acceptance.

» **Proposed Plan (PP) – Public Input: What's the best way to deal with it? What do you think?**

The preferred cleanup approach, based on the evaluation of various alternatives by the Feasibility Study, is documented in the Proposed Plan (also called a Proposed Remedial Action Plan, or PRAP), which is provided to the public for formal comment prior to selecting the remedy.

» **Record of Decision (ROD) – Decision: Here's what we decided and why!**

The Record of Decision documents the selection of the remedy following consideration of public comments received on the Proposed Plan. It includes a reply to public comments on the Proposed Plan.

» **Remedy Implementation – Cleanup Plan and Action: Let's deal with it!**

The Remedial Design (RD) is a detailed plan to implement the remedy documented in the Record of Decision, and the Remedial Action (RA) is the actual construction or implementation of the selected remedy. In addition, interim remediation or removal actions can be implemented during the CERCLA process should there be imminent risk to human health and the environment.

For more detail on the various CERCLA steps, see *http://www.epa.gov/superfund/about-superfund-cleanup-process*.

Site Status

Investigation and remediation for Camp Lejeune IRP and MMRP sites are conducted following the CERCLA process. The IRP currently includes 69 sites and the MMRP includes 32 sites at various steps in the CERCLA process. **Figure 4** describes which sites are in which steps in the process, and **Figure 5** shows a map of all the sites.

More detail about each of the sites can be found in the Fiscal Year 2021 Site Management Plan (CH2M, 2020).

FIGURE 3
STEPS IN THE CERCLA CLEANUP PROCESS

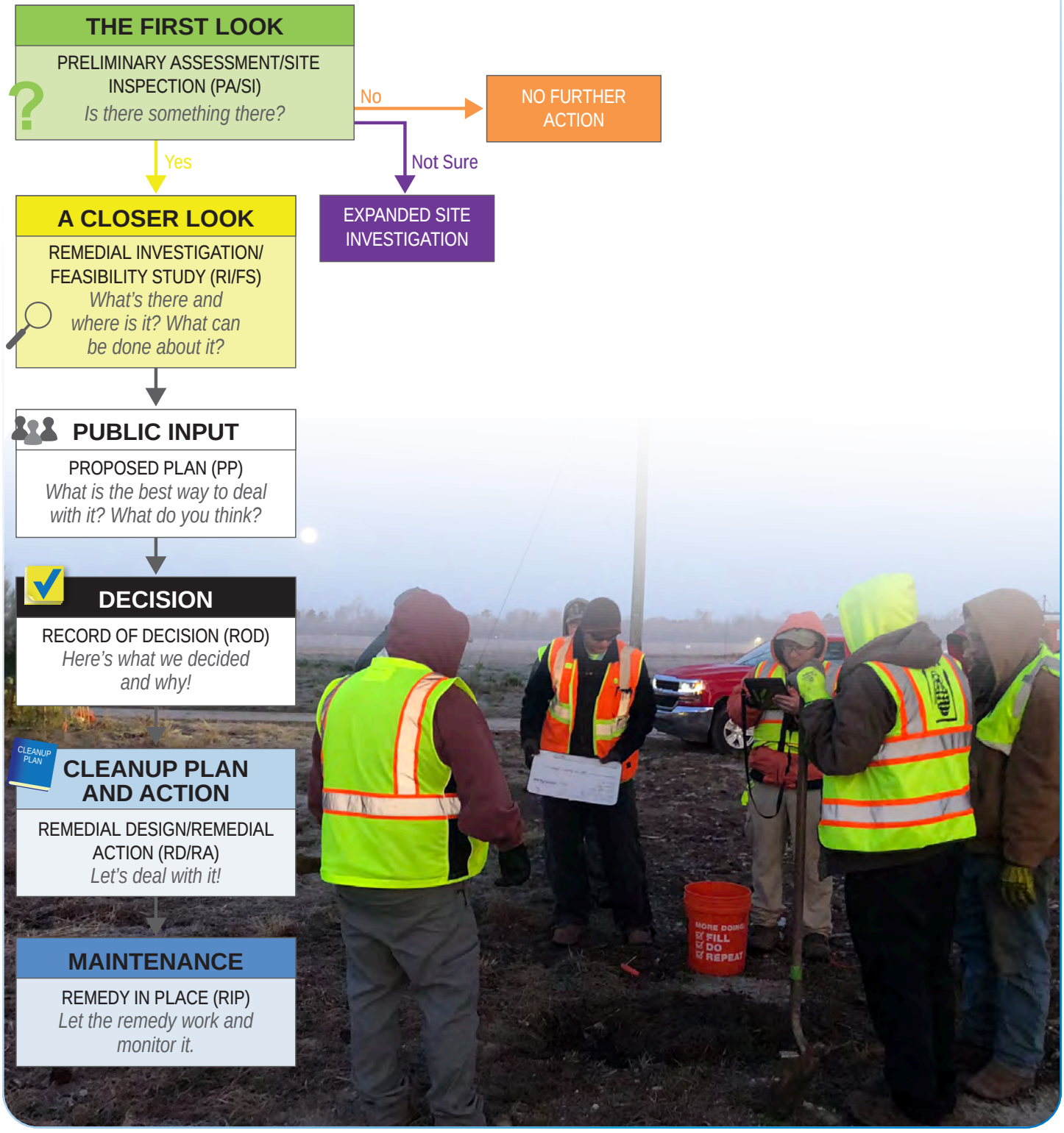


FIGURE 4

Camp Lejeune Sites in the CERCLA Process

Preliminary Assessment/Site Inspection

UXO-30 Portions of B-6 (ASR #2.44), B-12 (ASR #2.134), and ABC Ranges (ASR #2.198)

Remedial Investigation/Feasibility Study

Site 96 Building 1817 UST
UXO-28 Wallace Creek Phase 1 Munitions Response Site
UXO-29 New River Runway Expansion Area (ASR #2.1, 2.167, and 2.29)

Proposed Plan/Record of Decision

none

Remedial Design/Remedial Action

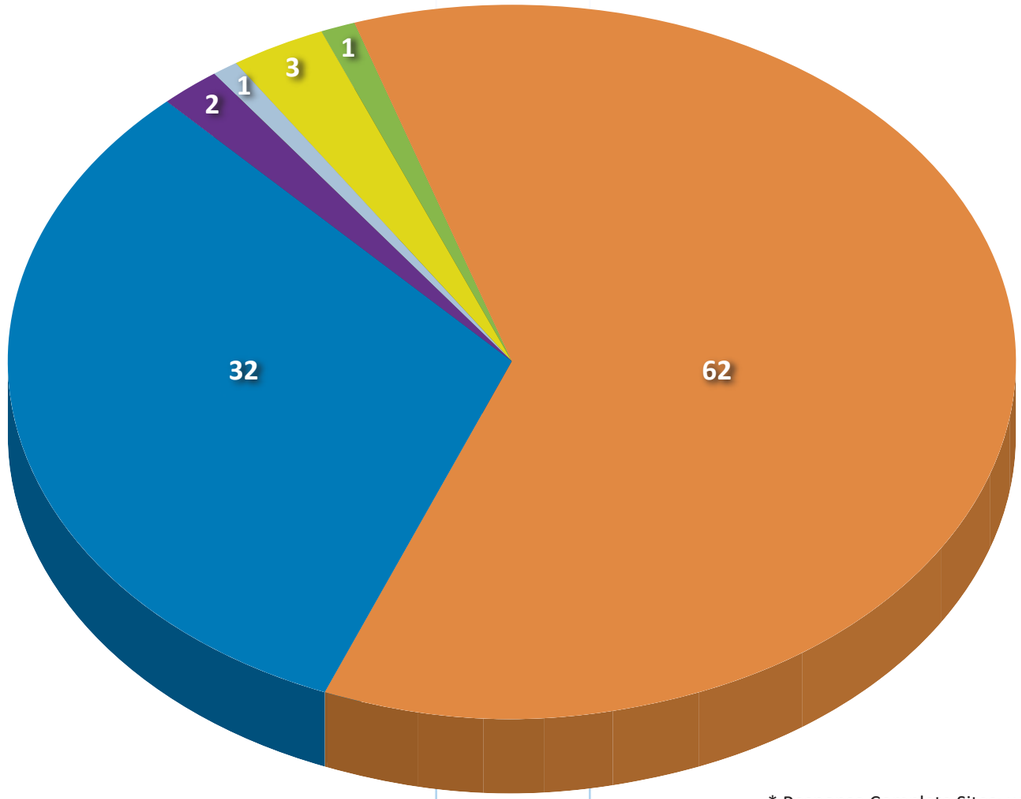
Site 88 Base Dry Cleaners

Remedy in Place

Site 2 Former Nursery and Day Care Center
Site 3 Old Creosote Plant
Site 6 Storage Lots 201 and 203
Site 10 Original Base Dump
Site 15 Montford Point Burn Landfill Area
Site 16 Former Montford Point Burn Dump
Site 21 Transformer Storage Lot 140
Site 28 Hadnot Point Burn Dump
Site 35 Camp Geiger Area Fuel Farm
Site 36 Camp Geiger Dump Area
Site 41 Camp Geiger Dump Near Former Trailer Park
Site 43 Agan Street Dump
Site 44 Jones Street Dump
Site 49 MCAS Suspected Minor Dump
Site 54 Crash Crew Fire Training Burn Pit
Site 63 Verona Loop Dump
Site 65 Engineer Area Dump
Site 68 Rifle Range Dump
Site 69 Rifle Range Chemical Dump
Site 73 Courthouse Bay Liquids Disposal Area
Site 74 Mess Hall Grease Disposal Area
Site 78 Hadnot Point Industrial Area
Site 80 Paradise Point Golf Course Maintenance Area
Site 82 Piney Green Road VOC Area
Site 84 Building 45 Area
Site 86 Tank Area AS419-AS421
Site 89 Former DRMO
Site 93 Building TC-942
UXO-06 Fortified Beach Assault Area (ASR# 2.65)
UXO-19 M-4 Rifle Grenade Range (ASR# 2.104), K-22 Practice Hand Grenade Course (ASR# 2.111), M115 Hand Grenade Course (ASR# 2.168)
UXO-22 Sites 6 and 82 (OU2)
UXO-24 Camp Geiger Area

Expanded Site Inspection

Site 110 Former Water Towers (LCH-4004, S-29, S-830, S-2323, SBA-108)
UXO-31 Off-Base Surface Danger Zones

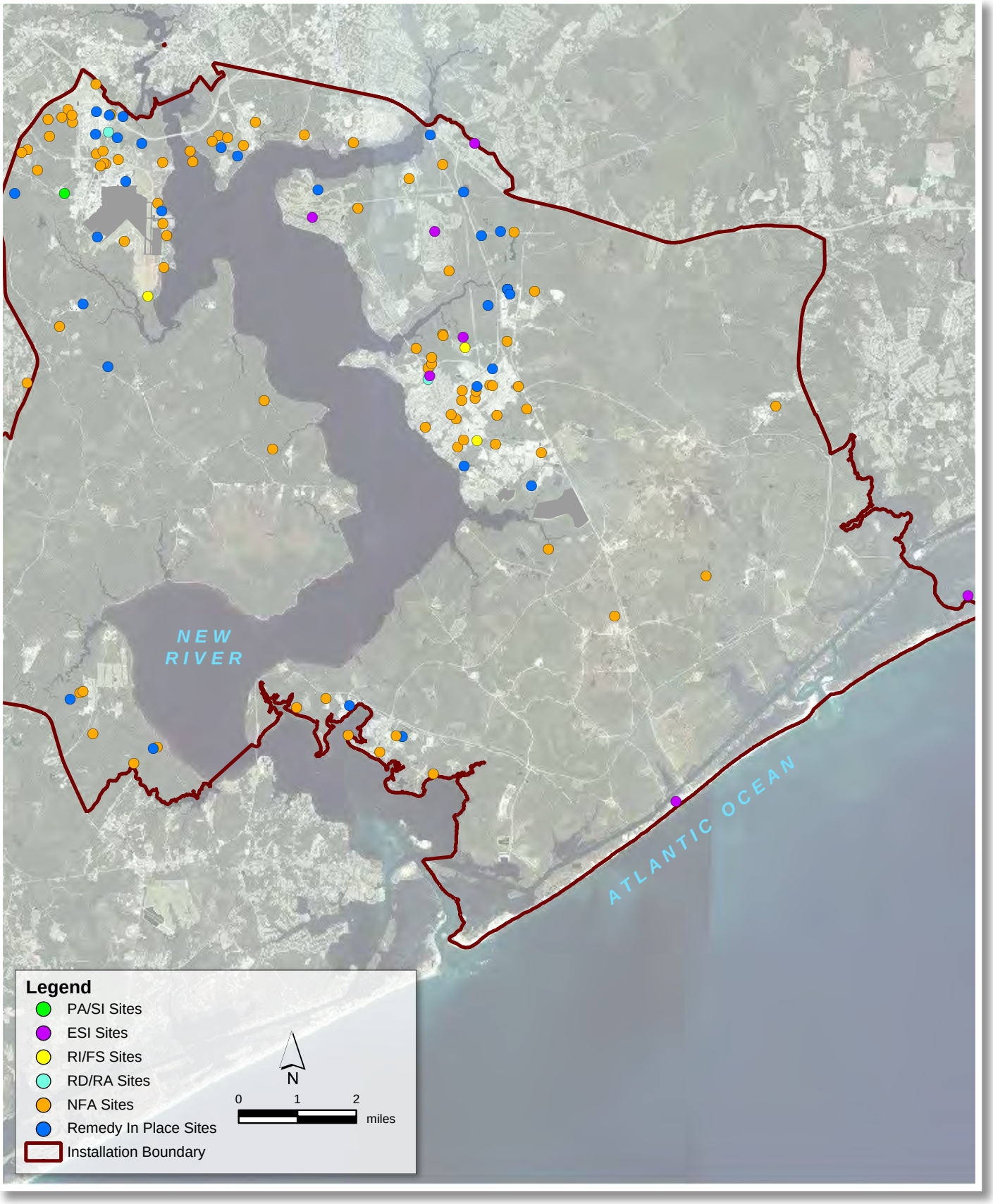


Response Complete/No Further Action

HPIA Buildings 1120, 1409, and 1512
MCAS New River Buildings SAS113, AS116, and AS11
Montford Point Buildings M119 and M315
*Site 1 French Creek Liquids Disposal Area
Site 4 Sawmill Road Construction Debris Dump
*Site 7 Tarawa Terrace Dump
Site 9 Fire Fighting Training Pit at Piney Green Road
Site 12 Explosive Ordnance Disposal (formerly EOD-1, G-4A)
Site 13 Golf Course Construction Debris Dump
Site 18 Watkins Village (E) Site
Site 19 Naval Research Lab Dump
Site 20 Naval Research Lab Incinerator
Site 23 Roads and Grounds Building 1105
*Site 24 Industrial Area Fly Ash Dump
Site 25 Base Incinerator
*Site 30 Sneads Ferry Road Fuel Tank Sludge Area
Site 37 Camp Geiger Area Surface Dump
Site 38 Camp Geiger Construction Dump
Site 40 Camp Geiger Area Borrow Pit
Site 42 Building 705 BOQ Dump
Site 46 MCAS Main Gate Dump
*Site 48 MCAS Mercury Dump
Site 51 MCAS Football Field
Site 53 MCAS Warehouse Building 3525 Area
Site 55 Air Station East Perimeter Dump
Site 61 Rhodes Point Road Dump
Site 62 Race Course Area Dump
Site 65 Engineer Area Dump
Site 66 AMTRAC Landing Site and Storage Area
*Site 67 Engineer's TNT Burn Site
Site 75 MCAS Basketball Court Site
Site 76 MCAS Curtis Road Site
Site 85 Former Camp Johnson Battery Dump
Site 87 MCAS Officer's Housing Area (formerly Site A)
*Site 90 Building BB-9
*Site 91 Building BB-51
*Site 92 Building BB-246
*Site 94 PCX Service Station
Site 95 Dipping Vat Sites
UXO-01 Former Live Hand Grenade Course (ASR# 2.23)
UXO-01 D-6 50-Foot Indoor Rifle and Pistol Range (ASR# 2.64)
UXO-02 Unnamed Explosive Range (ASR# 2.201)
UXO-03 Practice Hand Grenade Course (ASR# 2.78a, 2.78b)
UXO-04 Knox Trailer Park
UXO-05 Mini Anti-Tank Range (ASR# 2.7a, 2.7b, and 2.7c)
UXO-07 Practice Hand Grenade Course (ASR# 2.77a, 2.77b)
UXO-08 2.36-inch Bazooka Range, Base CS Chamber and NBC Training Trail (ASR# 2.182), D-7 Gas Chamber (ASR# 2.80)
UXO-09 F-9, Triangulation Range (ASR# 2.83)
UXO-10 D-11A, Flame Tank and Flame Thrower Range (ASR# 2.136)
UXO-11 B-5, Practice Hand Grenade Course (ASR# 2.281)
UXO-12 1,000-inch Range (ASR# 2.5)
UXO-13 Naval Regional Medical Center
UXO-14 Indoor Pistol Range (ASR# 2.199), Gas Chamber (ASR# 2.200)
UXO-15 1000-inch Range (ASR# 2.19)
UXO-16 Former Gun Positions 41A and 41B (ASR# 2.212)
UXO-17 Firing Position #2 (ASR# 2.212)
UXO-18 B-6, 50-Foot Small Arms Range (ASR# 2.44)
UXO-20 1000-inch Range Montford Point (ASR# 2.32), A-1, 50-Foot .22 Caliber Range (ASR# 2.87)
UXO-21 Gas Chamber (2D MARDIV) (ASR# 2.204)
UXO-23 D-9 Skeet Range (ASR #2.82)
UXO-25 Verona Loop
UXO-26 B-3 Gas Chamber (ASR# 2.79a and 2.79c)
UXO-27 Gun Position Owl (ASR #2.212)

* Response Complete Sites; where a remedy was implemented and cleanup levels were met.

FIGURE 5
IRP AND MMRP SITES IN THE CERCLA PROCESS AT CAMP LEJEUNE



Section 3: The Community

Camp Lejeune enjoys a close relationship with the surrounding community. The Base and Onslow County work together to ensure quality living for both military personnel and civilians throughout the area. This section describes Camp Lejeune's setting within the community.

Community Profile

Environmental Setting The Base includes approximately 72,000 acres of upland forests, 49,000 acres of wetlands, 26,000 acres of water, and 7,500 acres of urban/developed land. The Base boundary includes approximately 14 miles of beach along the Atlantic Ocean. Beach frontage consists of a barrier island system and is separated from the mainland by salt marshes, small bays, and the Atlantic Intracoastal Waterway.

Land Use Several large, publicly owned tracts of land, including Croatan National Forest, Hoffman Forest, and Hammocks Beach State Park, are located within 15 miles of the Base. The remaining surrounding land uses are a mix of urban, suburban, small town, and agricultural, as Onslow County has grown and developed with Camp Lejeune. Estuaries along the coast support commercial fishing, recreation, and tourism, and residential resort areas along the coast are important to the regional economy.

Parks and Recreation Onslow County and City of Jacksonville parks provide many recreational facilities, including: picnic areas; nature trails; boardwalks; water access for boating; tennis, basketball, and volleyball courts; and baseball fields. Camp Lejeune has its own outdoor recreational resources, including Onslow Beach, the 122-acre Brewster Recreation Area, nature and bike trails, archery and skeet shooting ranges, a skate park, pools, and recreation centers.

Medical Facilities Nearby medical facilities include the Naval Hospital Camp Lejeune, serving Marines, retirees, and family members; and the Onslow Memorial Hospital, located in Jacksonville.

Base Services Many services are available on-Base, including childcare, shopping, education, family support, hunting and fishing, dining, boating, and swimming. Facilities and infrastructure include banks and credit unions, the commissary, the library, hobby shops, fitness centers, the beach, theaters, a state-of-the-art landfill, and an advanced water treatment system. (MCB Camp Lejeune About website: *https://www.lejeune.marines.mil/About/*)

Schools North Carolina Camp Lejeune District Schools consists of seven schools, serving students on-Base in pre kindergarten through 12th grade. (U.S. Department of Defense Education Activity website: *http://www.dodea.edu/Americas/midAtlantic/index.cfm*)

In addition, the Onslow County public school system serves approximately 25,250 students and currently consists of 40 facilities, including 20 elementary schools, 9 middle schools, 8 high schools, 1 early childhood development center, and 2 alternative learning programs. (Onslow County Public Schools website: *http://www.onslow.k12.nc.us/domain/524*)

Drinking Water Sources Potable water is provided to the Base and surrounding area by water supply wells that pump groundwater from the deeper Castle Hayne aquifer. The supply wells are included in the Base's annual wellhead monitoring program to ensure compliance with drinking water standards. Regionally, in southeastern North Carolina, the Castle Hayne aquifer may be used as a potable source of domestic water supply and for watering lawns or filling swimming pools. (Annual Water Quality Reports website: *https://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Annual-Reports/*)

Photo by Cpl. Mark Watola

Camp Lejeune Historic Drinking Water

In the 1980s, some of Camp Lejeune's drinking water wells were found to be affected by unregulated industrial chemicals.

This issue is not part of the ERP and is therefore not covered in this document. Additional information can be found at:

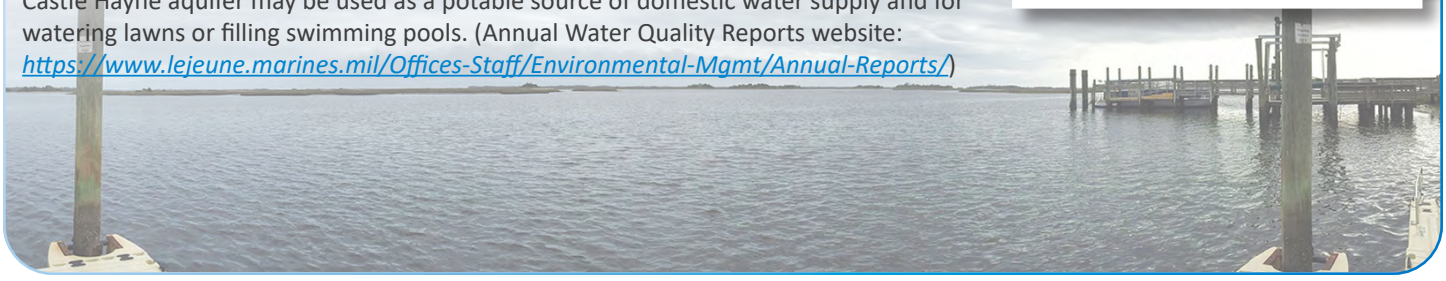
https://clnr.hqi.usmc.mil/clwater/

Or by phone or email:

Phone: (877) 261-9782
Email: clwater@usmc.mil

Annual water quality reports for Camp Lejeune can be found at:

https://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Annual-Reports/



Demographics Camp Lejeune and the surrounding community are home to the largest concentration of Marines and Sailors in the world, with an active duty, dependent, retiree, and civilian employee population of more than 170,000 people. Together, Camp Lejeune and the City of Jacksonville make up the principal employment center in Onslow County. In 2017, the estimated total economic impact of Camp Lejeune was $3.1 billion, coming from payrolls; construction contracts; materials, supplies and services; and other local commerce, including healthcare and transportation (Marine Corps Installations Command East, 2017.)

Select demographic and economic information for the City of Jacksonville and Onslow County, compared to the State of North Carolina, are shown in **Table 1**.

TABLE 1
DEMOGRAPHIC SUMMARY

	North Carolina	Onslow County	City of Jacksonville
Total population, 2010[a]	9,535,483	177,772	70,145
Total population, 2018[b]	10,383,620	197,683	82,748
Percent change (2010–2018)	↑ 8.9%	↑ 11.2%	↑ 17.9%
Percent minority (non-white)[b]	31.6%	25.8%	32.0%
Hispanic or Latino[b]	9.6%	12.8%	17.3%
Median age[b]	38.9	26.5	22.7
Median household income[b]	$53,855	$50,639	$56,538
Population in labor force (over 16 years old)	62.4%	72.0%	79.2%
Persons living below the poverty level[b]	14.0%	15.6%	14.5%
Percent of people over 5 years old who speak English "less than very well"[b]	4.5%	2.1%	2.4%

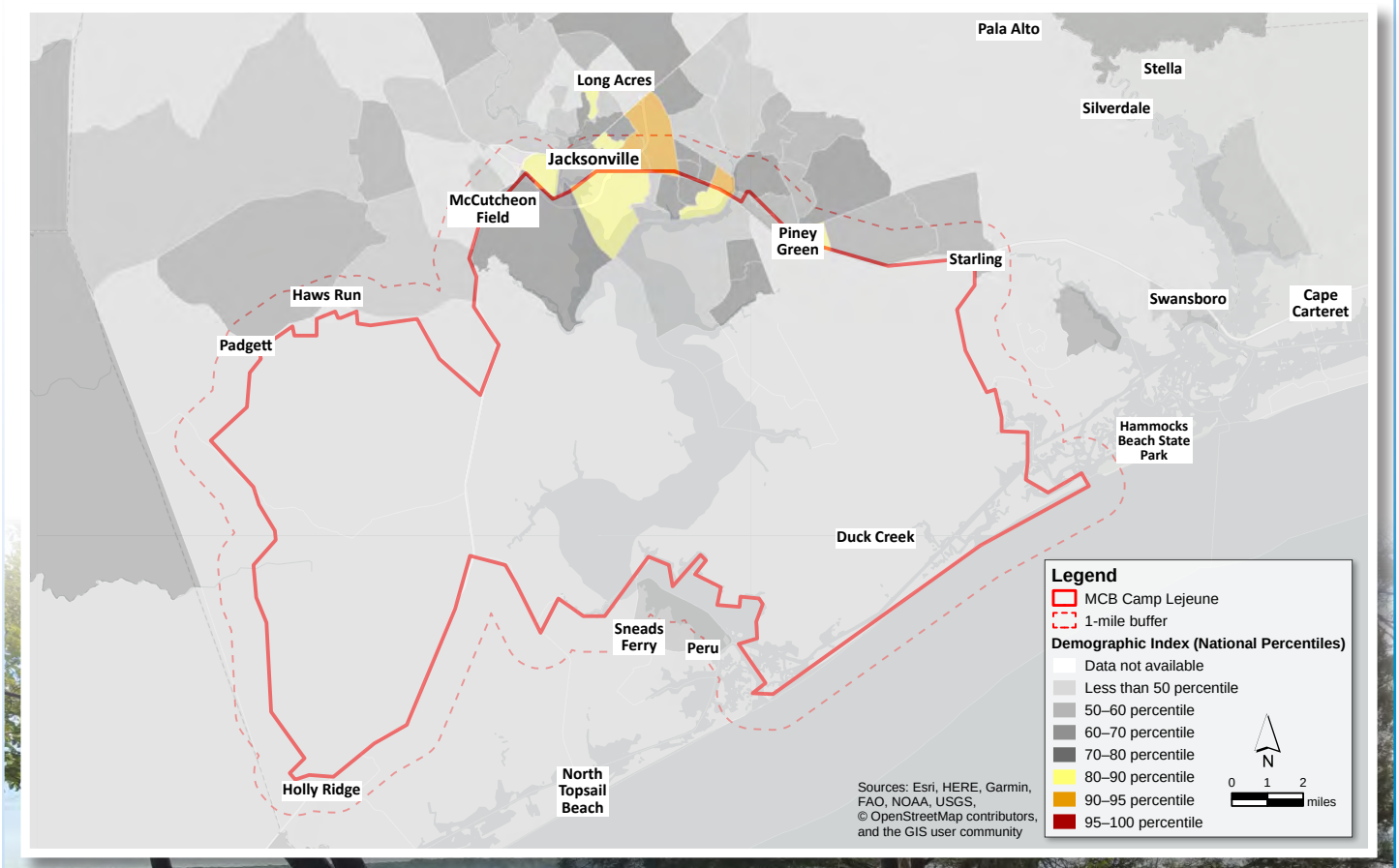
a U.S. Census Bureau, 2020a
b U.S. Census Bureau, 2020b

Photo by Lance Cpl. Dominique Fisk

Environmental Justice Issues In accordance with Executive Order 12898, USEPA developed an environmental justice screening and mapping tool called EJSCREEN. EJSCREEN uses data on low-income and minority populations at the Census-block-group level (rather than at the county or city level, as shown in **Table 1**), to develop a demographic index. USEPA uses EJSCREEN to help screen for areas that "may be candidates for additional consideration, analysis, or outreach." The results of EJSCREEN do not, by themselves, determine where there are environmental justice concerns in a given area (*http://www.epa.gov/ejscreen*).

Figure 6 shows the demographic index for a 1-mile buffer around Camp Lejeune using EJSCREEN. Results of EJSCREEN are shown in terms of percentiles, indicating the percent of the U.S. population that has a higher value for low-income and minority indicators. Percentiles at or above 95 percent indicate those areas of particular concern for environmental justice issues. No areas around Camp Lejeune are at the 95th percentile on the demographic index. However, several areas fall into the 90 to 95th percentile (orange) meaning that the populations in those areas are potentially more susceptible to environmental concerns. Therefore, the Navy/Marine Corps will consider the results of this environmental justice screening when communicating with residents of these areas.

FIGURE 6
DEMOGRAPHIC INDEX RESULTS FROM EJSCREEN



Section 4: Community Issues, Concerns, and Preferences

To update this CIP, information was collected from on- and off-Base community members to determine current issues, concerns, and communication preferences related to the ERP. This section describes the process for gathering that information and summarizes the results.

Process for Gathering Community Input

In November 2019, interviews were conducted and feedback was collected at a Restoration Advisory Board (**RAB**) meeting for this CIP update. In an effort to reach an audience with specific potential interest in the Base and its ERP, the focus of gathering information for this CIP update was increasing RAB attendance. Additionally, most of the interviews were conducted with interviewees who participated in the previous CIP update to determine whether the Base's actions were being recognized and/or whether these actions were improving the ERP's involvement with the local community. Seven interviews were conducted with off-Base local officials, a representative of local businesses, an on-Base employee, and a Base resident. Interviewees were contacted by phone and email to schedule in-person and phone interviews. Interview questions were used as a guide to facilitate further discussion about the Base's ERP. Minutes of the November 2019 RAB meeting and a summary of the results of the community interviews are provided in **Appendix A**.

NAVFAC

YOU ARE INVITED
To Provide Your Input on Environmental Cleanup at MCB Camp Lejeune

Who: YOU (Board members and public)

What: Restoration Advisory Board Meeting

When: Wednesday, November 20, 2019 at 6:00 PM

Where: Coastal Carolina Community College
Business Technology Building, Room BT106 444
Western Boulevard Jacksonville, NC 28546

Why: MCB Camp Lejeune is in the process of updating its Community Involvement Plan (CIP) for the Environmental Restoration Program (ERP) for fiscal year 2020. The CIP describes specific outreach methods to provide information to the community about the ERP and is updated based on results of community interviews and feedback. Please join us for the November 2019 RAB meeting to learn about the ERP and provide your input to update the CIP!

Meeting Agenda

- Overview of Environmental Restoration Program at Camp Lejeune
- Review of the CIP and accomplishments
- Discussion/Questions/Feedback on the 2020 CIP

If you would like to receive additional information about the RAB meeting, please contact Ms. Kirsten Hiortdahl, the MCB Camp Lejeune RAB Co-Chair, at (910) 451-5878, or visit: http://go.usa.gov/x3f7m.

Results of Community Interviews

Results of the 2019 interviews – like those of the 2014 interviews – generally reflect an excellent relationship between Camp Lejeune and the surrounding community. Most interviewees feel that the Base is a responsible environmental neighbor, describing a generally positive local perception of the Base. Business representatives and government officials spoke highly of the Government Affairs Committee, which serves as a forum for communication between Base commanders and local government officials.

Interviewees indicated general concern for the local environment and emphasized surface water quality as an issue of community concern, particularly because the region's tourism and recreation activities tend to be water-based. Other local environmental concerns included traffic patterns and the historic drinking water issue.

While some of the interviewees were aware of the ERP and the RAB, most interviewees were unaware of the Base environmental website and none had ever visited the Onslow County Public Library to view the Information Repository or the Administrative Record.

Interviewees offered many suggestions about how the Base communicates with the surrounding community about the ERP. The top two means of general communication used and suggested by interviewees were email and social media.

Results of Restoration Advisory Board Meeting Input

The CIP update was the topic of the November 2019 RAB meeting. Additional advertising for the RAB meeting was coordinated to encourage greater public participation. A public notice to announce the November RAB meeting was published in the *Jacksonville Daily News* and *The Globe* newspapers with eye-catching graphics and request for feedback on the CIP at the meeting. The notice was also posted on the Camp Lejeune Facebook page and distributed via email to the Lejeune Wide Area Network mailing list and RAB members. RAB meeting information was posted to the Community Events calendar on the MIX 101.5 WRAL-FM website (wralfm.com) and a public service announcement was submitted to the WAVQ radio station. RAB meeting attendance increased 40 percent from the July 2019 RAB meeting.

RAB attendees participated in the November 2019 meeting with many questions specifically related to the ERP at Camp Lejeune and the CIP presentation. One attendee indicated that there were no environmental concerns related to the ERP that were not being addressed and a member indicated that Camp Lejeune is on the cutting edge of cleanup technologies. Another attendee said the program is doing a lot more than what is being shown and communicated. Many recommendations were also made for improving communication about the ERP and are included in the following table.

SUGGESTIONS FROM NOVEMBER 2019 RAB MEMBERS AND ATTENDEES

RAB notifications should be posted on government Channel G-10, flyers on bulletin boards at community centers and libraries, and announced through civic organizations such as Rotary and the Coastal Federation.
The Base should strive to inform people about all the work that is being conducted, using numbers and facts (for example, how many contractors and people working on the projects during a given time, and how many monitoring wells installed and sampled) because the program is doing a lot more than is being shown and communicated.
The November 2019 RAB meeting presentation should be given to members of the Chamber of Commerce.
RAB meeting presentations should contain less technical content.
Meetings should be held on-Base for residents regarding drinking water and should be announced through Marine Corps Community Services.[a]
Short films and visuals such as before and after pictures should be prepared and broadcasted on YouTube and government Channel G-10. Utilize the community college's media department.

a The ERP works to prevent contamination to the drinking water wells; however, a separate drinking water treatment department on-Base addresses drinking water issues and concerns. This feedback was relayed to the appropriate department.

More than one RAB attendee and interviewee expressed concern about drinking water contamination in the 1980s. They indicated that it is unclear how to find current information on the issue, including the current quality of the drinking water on-Base and what the Base and/or Marine Corps are doing for individuals with health issues who may have been exposed to chemicals in the 1970s and 1980s. RAB attendees were reminded that the historic drinking water issue is not part of the ERP but that information about current drinking water quality and the historic drinking water issues is available through the Camp Lejeune website (https://clnr.hqi.usmc.mil/clwater/) and questions concerning potential health issues should be addressed to the Agency for Toxic Substances and Disease Registry (ATSDR) (https://www.atsdr.cdc.gov/sites/lejeune/index.html; phone: (800) 232-4636).

Section 5: Community Involvement Action Plan

Based on the community's issues, concerns, and preferences described in the previous section, this section describes the specific techniques and activities the Base will use to refine its ongoing ERP community involvement program.

Goals and Objectives

The overall goal of the ERP community involvement program is to promote communication between the Department of the Navy (**Navy**), Base, and community members throughout the life of the ERP. Specific objectives include:

- Continue two-way communication between the Base and concerned individuals, including local residents and local officials.
- Keep the general public informed of ongoing actions, major findings, and decisions.
- Furnish accurate, timely, and understandable information to affected and interested parties.
- Provide a way to monitor public concerns and information needs throughout the ERP process.
- Provide a mechanism for incorporating public comments into the environmental restoration process in a timely and meaningful way.
- Modify the program as necessary to meet the changing needs of the local community.
- Modify planned actions where public comments or concerns have merit.
- Explain to the public how their comments were considered and addressed, and describe the resulting outcome.

Based on feedback from community members during the 2015 CIP update, the Base refined its ongoing ERP community involvement program. Several enhancements have been implemented since the December 2014 interviews including:

- Increased advertising for upcoming RAB meetings on the Camp Lejeune Facebook page, through public service announcements (WAVQ FM), community calendars (WRAL FM), and the Base's weekly email "blast".
- Scheduling site tours for RAB members.
- Including a link to the RAB website on public notices and fact sheets.
- Maintaining and updating mailing lists.
- Preparing and distributing fact sheets.
- Publicizing points of contact on the Base's and Navy's websites.
- Updating the CIP format to be more user friendly.
- Providing Technical Assistance Grant information which was presented at the August 2016 RAB meeting.

- Distributing updates through social media and the internet through periodic "Success Stories" posted to the Camp Lejeune Facebook page and published in *The Globe* (**Appendix C**).
- Maintaining and updating Base, Navy, and USEPA websites more frequently with up-to-date information.
- Placing signs near environmental sites.
- Participating in local festivals. An interactive display on the ERP was provided at the Earth and Surf Fest in 2016.
- Attending and presenting on the ERP at an Atlantic Marine Corps Communities Residents Advisory Board meeting.

CERCLA-Required Community Involvement Activities

This section describes the community involvement techniques and activities that will continue to be implemented to support the public outreach goal and objectives of the ERP. Community outreach activities are based on CERCLA requirements as well as on community suggestions and feedback as described in **Section 4**.

CERCLA requires specific community involvement activities to be implemented at various steps in the environmental investigation and remediation process so that the public is kept informed and has an opportunity to be involved in the decision-making process. Following is a description of how those activities are implemented at Camp Lejeune.

Maintain and Update Mailing Lists

Goal To enable the Navy/Marine Corps to mail or email information to stakeholders about ERP activities and upcoming meetings.

Current Activities The Navy/Marine Corps maintains a list of people to notify for upcoming RAB meetings and other significant ERP activities, such as the start of public comment periods. New stakeholders are added to the list upon request. In addition, the Navy/Marine Corps periodically develops targeted mailing lists to notify interested parties of an investigation or cleanup action that could affect them.

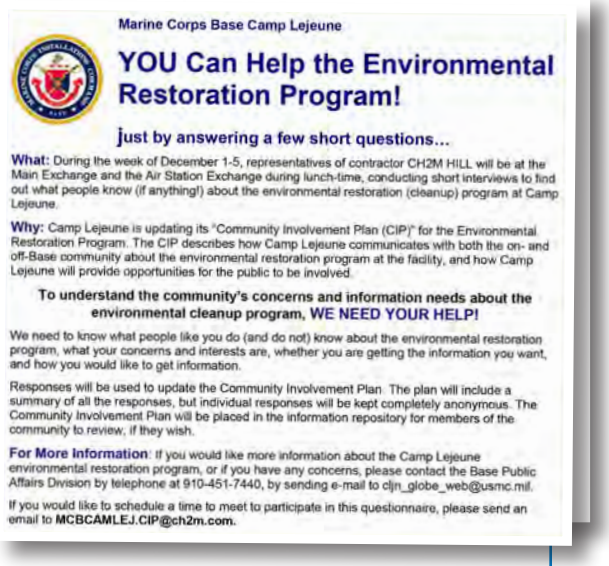
Plan The Navy/Marine Corps will continue to maintain its existing RAB mailing list and add new stakeholders upon request. Specific activity mailing lists will be established, maintained, and updated as needed based on site activities.

Publish Public Notices

Goal To notify interested persons about events and activities related to the ERP and to meet regulatory requirements for advertising comment periods and public hearings.

Current Activities The Navy/Marine Corps currently publishes public notices (as paid display advertisements) in the *Jacksonville Daily News* to announce RAB meetings, other public meetings, public comment periods, and when Records of Decision are completed and available.* A public service announcement for RAB meetings is also submitted to a local radio station (WAVQ) and RAB meeting information is submitted to the WRAL-FM community events calendar. A list of local media contacts is included in **Appendix B** and examples of public notices are provided in **Appendix C**.

Plan The Navy/Marine Corps will continue publishing public notices in the *Jacksonville Daily News* approximately 2 weeks before a public meeting or beginning of a public comment period, as required. In addition, the Navy/Marine Corps will consider publicizing RAB meetings, other public meetings, and comment periods using social media such as Facebook; online event calendars such as the City of Jacksonville, Onslow County, and Marine Corps Community Services online event calendars; and government Channel G-10.



Marine Corps Base Camp Lejeune

YOU Can Help the Environmental Restoration Program!

just by answering a few short questions...

What: During the week of December 1-5, representatives of contractor CH2M HILL will be at the Main Exchange and the Air Station Exchange during lunch-time, conducting short interviews to find out what people know (if anything!) about the environmental restoration (cleanup) program at Camp Lejeune.

Why: Camp Lejeune is updating its "Community Involvement Plan (CIP)" for the Environmental Restoration Program. The CIP describes how Camp Lejeune communicates with both the on- and off-Base community about the environmental restoration program at the facility, and how Camp Lejeune will provide opportunities for the public to be involved.

To understand the community's concerns and information needs about the environmental cleanup program, WE NEED YOUR HELP!

We need to know what people like you do (and do not) know about the environmental restoration program, what your concerns and interests are, whether you are getting the information you want, and how you would like to get information.

Responses will be used to update the Community Involvement Plan. The plan will include a summary of all the responses, but individual responses will be kept completely anonymous. The Community Involvement Plan will be placed in the information repository for members of the community to review, if they wish.

For More Information: If you would like more information about the Camp Lejeune environmental restoration program, or if you have any concerns, please contact the Base Public Affairs Division by telephone at 910-451-7440, by sending e-mail to cljn_globe_web@usmc.mil.

If you would like to schedule a time to meet to participate in this questionnaire, please send an email to **MCBCAMLEJ.CIP@ch2m.com**.

* Public notices were also previously published in *The Globe;* however, as of September 3, 2020, *The Globe* has ceased publication.

Hold Public Meetings

Goal To provide the public with a chance to learn about the status of site cleanups and to discuss questions, concerns, and comments on proposed remediation alternatives.

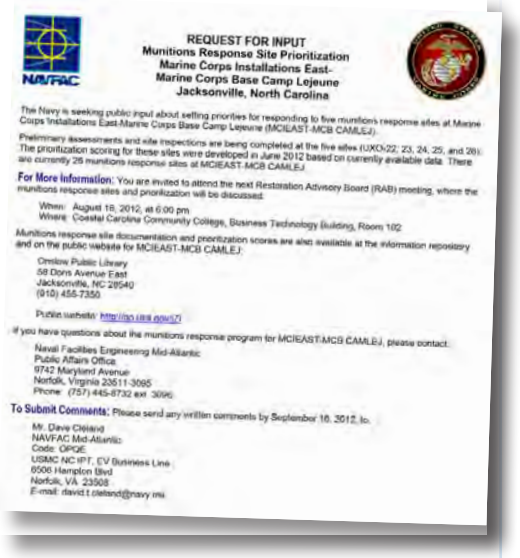
Current Activities Public meetings are held to enable community members to learn about ERP activities at Camp Lejeune and to voice their concerns and questions. Under CERCLA regulations, an opportunity for a public meeting must be provided whenever there is a formal public comment period (such as for a Proposed Plan) and that a transcript of the meeting be kept and made available to the public.

Public meetings are typically scheduled in conjunction with RAB meetings at the Coastal Carolina Community College and at a time to encourage the greatest possible participation and focus on soliciting comments from the public. The meetings are publicized at the start of a public comment period and are held during the 30-day comment period. A presentation is provided at the meeting and attendees have an opportunity to ask questions and make comments. During formal public comment periods, a transcript of the meeting is prepared and is made available to the public as an appendix to the Action Memorandum or Record of Decision, which becomes part of the Administrative Record file. Occasionally, stakeholder meetings are held for issues of particular public interest, such as vapor intrusion investigation and mitigation.

Plan The Navy/Marine Corps will continue to hold (or offer to hold) public meetings as required by CERCLA and may use additional methods for advertising public meetings. Additionally, the Navy/Marine Corps will consider holding stakeholder meetings for issues of particular public interest. The need to hold additional public meetings and/or change the location of meetings may be evaluated as needed or requested.

Provide Comment Periods

Goal To provide the public with an opportunity for meaningful involvement in the decision-making process and to provide the Navy/Marine Corps with community input before cleanup decisions are made.


NAVFAC

REQUEST FOR INPUT
Munitions Response Site Prioritization
Marine Corps Installations East-
Marine Corps Base Camp Lejeune
Jacksonville, North Carolina

The Navy is seeking public input about setting priorities for responding to five munitions response sites at Marine Corps Installations East-Marine Corps Base Camp Lejeune (MCIEAST-MCB CAMLEJ).

Preliminary assessments and site inspections are being completed at the five sites (UXO-22, 23, 24, 25, and 26). The prioritization scoring for these sites were developed in June 2012 based on currently available data. There are currently 25 munitions response sites at MCIEAST-MCB CAMLEJ.

For More Information: You are invited to attend the next Restoration Advisory Board (RAB) meeting, where the munitions response sites and prioritization will be discussed.

When: August 16, 2012, at 6:00 pm
Where: Coastal Carolina Community College, Business Technology Building, Room 102

Munitions response site documentation and prioritization scores are also available at the information repository and on the public website for MCIEAST-MCB CAMLEJ:

Onslow Public Library
58 Doris Avenue East
Jacksonville, NC 28540
(910) 455-7350

Public website: http://go.usa.gov/57j

If you have questions about the munitions response program for MCIEAST-MCB CAMLEJ, please contact:

Naval Facilities Engineering Mid-Atlantic
Public Affairs Office
9742 Maryland Avenue
Norfolk, Virginia 23511-3095
Phone: (757) 445-8732 ext. 3096

To Submit Comments: Please send any written comments by September 16, 2012, to:

Mr. Dave Cleland
NAVFAC Mid-Atlantic
Code: OPQE
USMC NC IPT, CV Business Line
6506 Hampton Blvd
Norfolk, VA 23508
E-mail: david.t.cleland@navy.mil

Current Activities As required by CERCLA, public comment periods lasting a minimum of 30 days give the public an opportunity to comment on removal actions and final remedial actions. Public notices are published to announce the 30-day public comment period. The notices include a brief description of the document, information on where to obtain more information, and a written address to which comments should be mailed. Documents associated with public comment periods are made available in the information repository at the library.

Plan The Navy/Marine Corps will continue to hold public comment periods as required by CERCLA and will consider alternate ways to announce them such as by email, radio public service announcements, social media such as Facebook, and online event calendars or for people to submit their comments electronically.

Prepare Responsiveness Summaries

Goal To summarize comments received during public comment periods and to document how the comments were considered during the decision-making process.

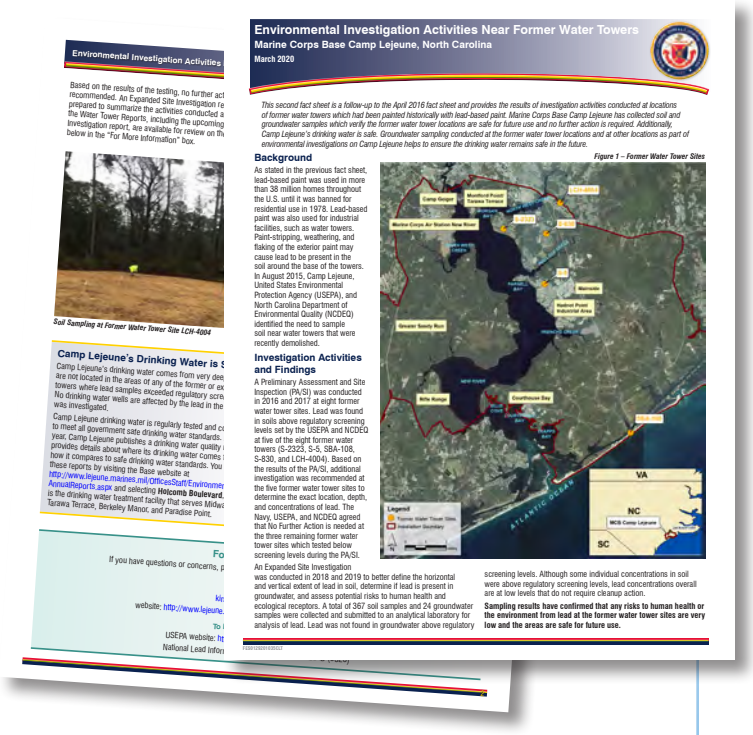
Current Activities As required by CERCLA, a Responsiveness Summary is prepared following a public comment period to document the comments received and the Navy/Marine Corps responses to major comments. The summary provides decision makers information about the community concerns and preferences. It also provides the public with a record of the concerns raised and how the Navy/Marine Corps considered the questions and concerns during decision-making. The Responsiveness Summary is included in the Record of Decision (or Action Memorandum), and placed in the information repository and Administrative Record file.

Plan The Navy/Marine Corps will continue to publish Responsiveness Summaries as required. No changes to current activities are planned.

Prepare and Distribute Fact Sheets

Goal To provide current, accurate, easy-to-understand information about ERP activities in the form of written fact sheets.

Current Activities The Navy/Marine Corps currently develops Proposed Plans as part of the CERCLA process; these documents read like fact sheets and include information on how and when the public can provide comments. They are provided at the library and at public meetings during the public comment period. Although not specifically required by CERCLA, the Navy/Marine Corps often prepares a fact sheet for the public meeting when an Engineering Evaluation/ Cost Analysis document is available for public comment. The Navy/Marine Corps also develops fact sheets as needed for informational purposes. These are also not required, but are prepared when work is being conducted in populated areas or when stakeholders may be particularly interested. **Appendix C** provides examples of recent fact sheets on topics such as vapor intrusion and the basewide per- and polyfluoroalkyl substances preliminary assessment and site inspection.


Environmental Investigation Activities

Soil Sampling at Former Water Tower Site LCH-4004

Camp Lejeune's Drinking Water is

Environmental Investigation Activities Near Former Water Towers
Marine Corps Base Camp Lejeune, North Carolina
March 2020

Background

Investigation Activities and Findings

Figure 1 – Former Water Tower Sites

Plan The Navy/Marine Corps will continue to produce fact sheets as required and as needed. Additionally, the Navy/Marine Corps may consider placing fact sheets on the ERP website, producing brief fact sheets for environmental monitoring, investigation, or remediation systems that are visible to the public and/or for other significant milestones that may be of potential interest to the community, and/or distributing them in lobbies of nearby buildings. Potential environmental justice issues will be considered for all community outreach activities, but particularly when communicating information of particular interest to residents in the higher percentile areas identified in Figure 6. These considerations may include analyzing the reading level of fact sheets as well as ensuring that documents are readily available in hard-copy as well as through computer access.

Maintain the Information Repository and Administrative Record File

Goal To provide convenient access to site-related information for community members.

Current Activities Under CERCLA regulations, the Navy/Marine Corps is responsible for maintaining an "information repository" containing current documents of potential public interest as well as an official "Administrative Record" containing documents used or relied upon to select a response action. For Camp Lejeune, the electronic Administrative Record may be accessed at *http://go.usa.gov/Dy5T* from any computer or mobile device. Information for accessing and searching the Administrative Record is provided at the Onslow County Public Library. The official Administrative Record is maintained by NAVFAC Mid-Atlantic in Norfolk, Virginia, and is available for review upon advanced request. During a public comment period, the information repository located in the reference room at the Onslow County Public Library contains a hardcopy of the document (such as a Proposed Plan) that is under review. Location information for the public information repositories are provided in **Table 2**.

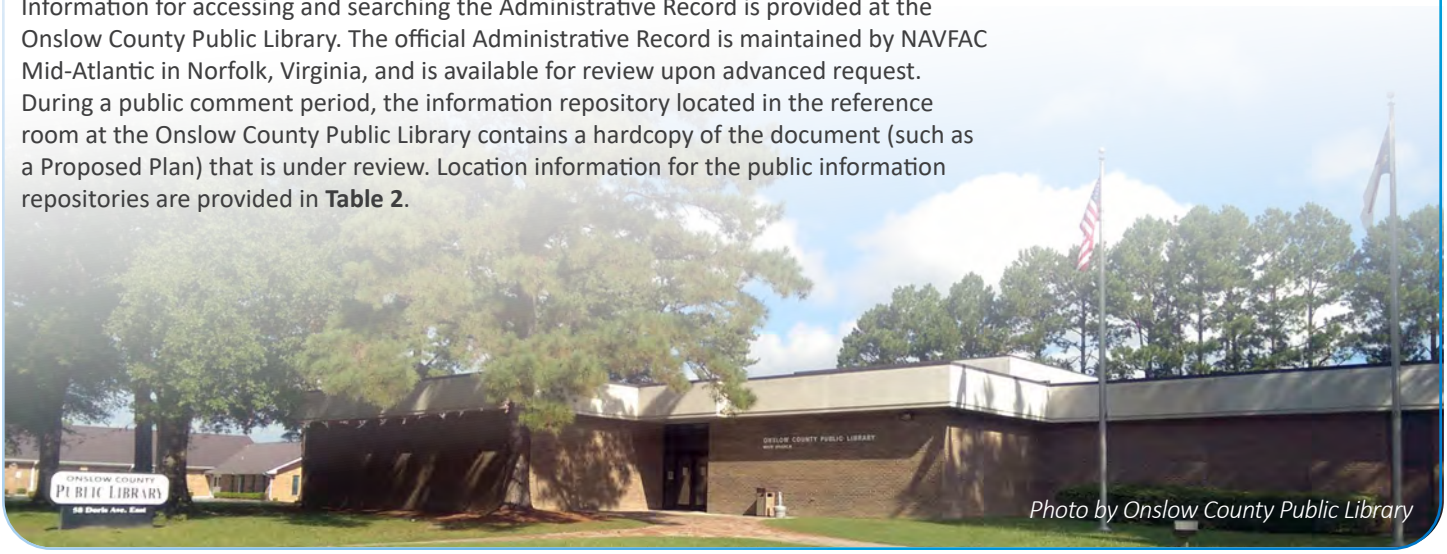


Photo by Onslow County Public Library

TABLE 2
PUBLIC INFORMATION REPOSITORIES

Repository	Location	Hours (call to verify)	Contact
Onslow County Public Library	58 Doris Avenue East Jacksonville, NC 28540	Monday–Thursday: 9 a.m.–9 p.m. Friday–Saturday: 9 a.m.–6 p.m. Sunday: 1 p.m.–5 p.m.	Telephone: 910-455-7350
NAVFAC Administrative Record website	http://go.usa.gov/Dy5T		

Plan The Navy/Marine Corps will continue to maintain and update the information repository and Administrative Record as work continues under the ERP.

Publicize Points of Contacts

Goal To provide community members with clear points of contact for obtaining information about the ERP.

Current Activities A phone number for Ms. Kirsten Hiortdahl, the Base's RAB co-chair, is provided on the RAB website (http://go.usa.gov/x3f7m) and in public notices. An appropriate point of contact (depending on the subject matter) is also provided on all fact sheets. Key points of contact and their roles in the ERP are included in **Table 3**.

TABLE 3
KEY NAVY AND MARINE CORPS POINTS OF CONTACT

Primary contact for:	Contact Information:
Questions about Camp Lejeune in general	Public Affairs Office CommStrat Office MCB Camp Lejeune PSC Box 20005 Camp Lejeune, NC 28542 Email: cljn_globe_web@usmc.mil Phone: 910-451-7413
Questions and concerns about Camp Lejeune's ERP Requests for a public document (e.g., Proposed Plan, Engineering Evaluation/Cost Analysis) Questions about accessing the Administrative Record file	Public Affairs Office NAVFAC Atlantic Code 09PAO 6056 Hampton Boulevard Norfolk, VA 23508 Email: julianne.kreidel@navy.mil Phone: 757-322-4548
Questions and information about the RAB	Ms. Kirsten Hiortdahl, P.E./EMD/EQB 12 Post Lane Camp Lejeune, NC 28547 Email: kirsten.hiortdahl@usmc.mil Phone: 910-451-5878
Comments on a document during a public comment period	Mr. David Cleland NAVFAC MID-ATLANTIC NAVFAC MIDLANT EV34 9324 Virginia Avenue Building N26, RM3300 Norfolk, VA 23511 Email: david.t.cleland@navy.mil Phone: 757-341-0329

Plan Websites will be updated with current contact information as needed. The Navy/Marine Corps will continue to publicize points of contact in public notices and fact sheets. In addition, the Navy/Marine Corps will consider adding appropriate contact information to the Base's EMD and the Navy's ERP websites and printing handouts with ERP contact numbers and their areas of responsibility for distribution to local officials and use at public outreach events.

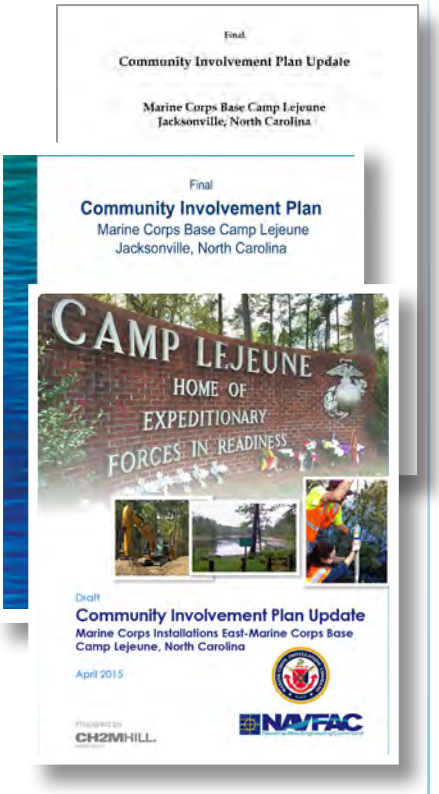
Update the Community Involvement Plan

Goal To describe how the Navy/Marine Corps will communicate with the public throughout the ERP process.

Current Activity A CIP is a written plan outlining how the Navy/Marine Corps will communicate with the public, elected officials, environmental groups, and other stakeholders throughout the ERP process, including methods for obtaining their input at appropriate decision-making points. The CIP is made available to the public in the information repository and the Administrative Record. It is updated approximately every 5 years.

Camp Lejeune's CIP was originally published in September 1990. The 2015 update involved new ways to reach the public for input (for example, using a written questionnaire that could be submitted by email, distributing the questionnaire electronically, and distributing a short version of the questionnaire at the Base Exchanges), which resulted in many more respondents. The layout of the CIP was also changed from a typical report format to a more user-friendly, graphic layout.

Plan This CIP will continue to be updated approximately every 5 years to reflect potential changes in community interests, concerns, and communication preferences. The Navy/Marine Corps will consider again using a wide variety of ways to obtain community input and will continue to publish the CIP in a user-friendly, graphic format.



Provide Technical Assistance for Public Participation Information

Goal To enable the RAB to obtain technical assistance to help them better understand and provide input to the ERP.

In 1998, DoD established the Technical Assistance for Public Participation (**TAPP**) program to enable RABs to hire a qualified person to provide technical assistance. The RAB can define a proposed TAPP project and prepare a TAPP request. NAVFAC will then prepare a Statement of Work and hire a qualified person. Funding is provided for up to $25,000 per year or 1 percent of the total restoration cost, whichever is less, with a limit of $100,000 total over the life of the program at any one facility.

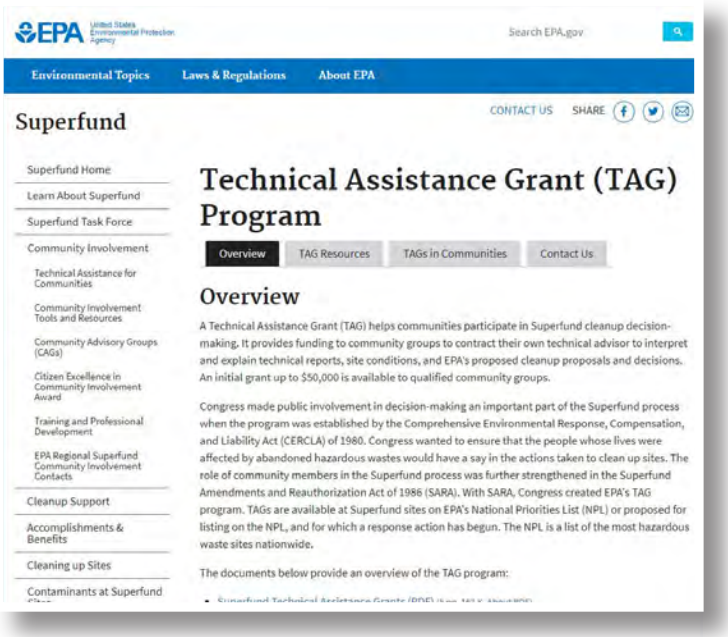
Current Activities The TAPP is available as requested by the RAB. The Navy has developed presentation materials and information available on the TAPP. The RAB may request TAPP presentations through the Base co-chair.

Plan The Navy/Marine Corps may offer to make a TAPP presentation at a RAB meeting at least once every 5 years or as warranted by any significant or especially complex ERP activities.

Provide Technical Assistance Grant Information

Goal To provide resources for community groups to hire technical advisors who can assist them in interpreting technical information about the site.

Administered by USEPA, the Technical Assistance Grant (**TAG**) program assists a community group at an NPL site with obtaining professional assistance to interpret technical information about a site (*https://www.epa.gov/superfund/technical-assistance-grant-tag-program*). USEPA has specific guidelines for groups that apply for and administer TAG grants, and the value can be up to $50,000 for a single recipient.



Current Activities A TAG presentation was given at the August 2016 RAB meeting. A TAG is available as requested by community groups. The USEPA has developed presentation materials and information available on the TAG. The RAB may request additional TAG information from USEPA.

Plan The Navy/Marine Corps may ask USEPA representatives to make another TAG presentation to the RAB at least once every 5 years or as warranted by any significant or especially complex ERP activities.

Community Involvement Program Enhancements

In response to community feedback, the following additional community involvement activities are also being conducted by the Navy/Marine Corps or may be implemented to enhance the current community involvement program, and increase awareness of ERP activities, project successes, and resulting benefits to the local community.

Support the Restoration Advisory Board

Goal To gain effective input from community stakeholders on cleanup activities and to share information with the public through the RAB members and meetings.

Current Activities The Base, Navy, and regulatory agencies and members of the public typically meet quarterly* at the Coastal Carolina Community College to review ongoing investigation activities and findings, and to discuss cleanup alternatives and actions. RAB members are notified of upcoming meetings and presentation topics by email and/or telephone and RAB meetings are also advertised in the *Jacksonville Daily News*.† A public service announcement for RAB meetings is submitted to a local radio station (WAVQ) and RAB meeting information is submitted to the WRAL-FM community events calendar and posted on the Camp Lejeune Facebook page. RAB meeting minutes are posted to the RAB website and are also available in the electronic Administrative Record file.

Plan The Navy/Marine Corps will continue all current RAB activities to enlist the support and cooperation of RAB members, including enhancements for advertising RAB meetings. The RAB website, which includes a list of current RAB members (**Appendix B**), will be maintained with current information. In response to community input for this CIP, the Navy/Marine Corps will consider presenting "overview" type presentations (such as that made at the November 2019 RAB meeting) to outside organizations such as the Chamber of Commerce. The Navy/Marine Corps will also strive to use less technical language in the RAB presentations.

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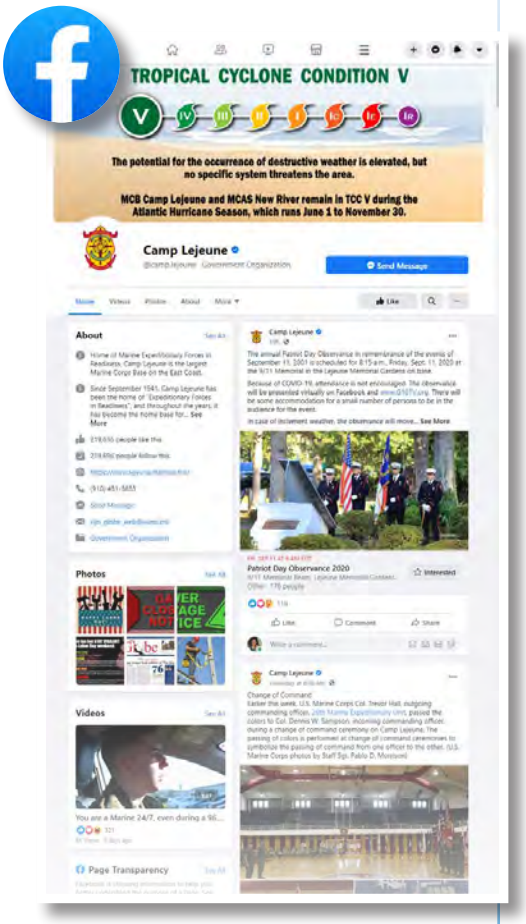
* In 2020, the RAB stopped meeting in person due to the COVID-19 pandemic. Periodic outreach with RAB members continued through emailed program updates.

† Public notices were also previously published in *The Globe;* however, as of September 3, 2020, *The Globe* has ceased publication.

Distribute Updates through Social Media and the Internet



Goal To increase awareness of ERP activities by distributing brief updates through email and social media.

Current Activities The Navy/Marine Corps sends reminders of RAB meetings to its members by email and includes public notices on the Camp Lejeune Facebook page. In addition, the Navy/Marine Corps issued an "e blast" and posted information on several Base-related Facebook pages to announce the interviews for this CIP update.

Plan The Navy/Marine Corps will continue to use email for RAB meeting reminders. In addition, the following activities may be implemented as needed:

- Increase use of the Base's weekly "all-hands" email messages by periodically including an update on the ERP. These messages can also include an attachment, such as a fact sheet of general interest.
- Distribute information through existing communication networks, such as the Jacksonville-Onslow County Chamber of Commerce's email list, the North Carolina Coastal Federation's daily online news feed, and the City of Jacksonville and Onslow County public information networks.
- Increase use of social media such as Facebook by posting updates on active Camp Lejeune Facebook pages and on pages maintained by local community and environmental groups.
- Make short videos of the environmental sites (potentially while giving a tour to RAB members) and post them on "You Tube," Facebook, and the EMD website.
- Continue periodic posting of Success Stories to the Camp Lejeune Facebook page.*

Maintain and Update Websites

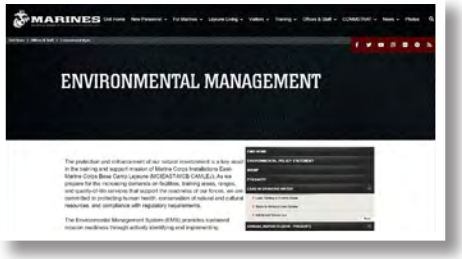
Goal To provide up-to-date information that can be accessed easily from anywhere with Internet access and to raise awareness of these websites.

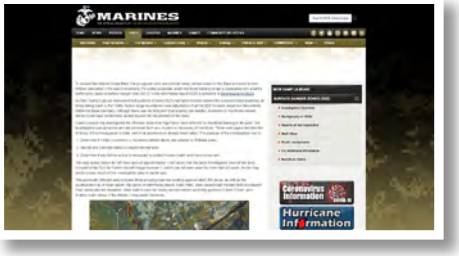
Current Activities Information about the ERP is available on several websites provided in **Table 4**.

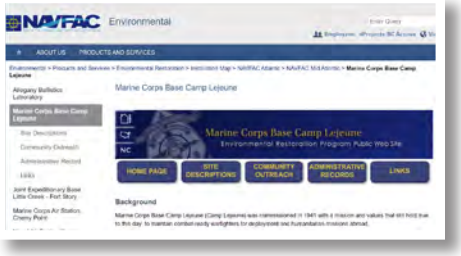
TABLE 4
WEBSITES ON THE ENVIRONMENTAL RESTORATION PROGRAM AT CAMP LEJEUNE

Navy's ERP website (including the Administrative Record)	http://go.usa.gov/Dy5T
Camp Lejeune EMD	http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt.aspx
RAB website	http://go.usa.gov/x3f7m
Camp Lejeune website for off-Base surface danger zones (munitions investigation)	http://www.lejeune.marines.mil/SDZ
USEPA information on Camp Lejeune	http://www.epa.gov/region4/superfund/sites/fedfacs/camplejnc.html
General information about USEPA and Superfund	http://www.epa.gov/superfund/

Plan The websites previously described will continue to be maintained and updated. In addition, the Navy/Marine Corps will list appropriate websites on all public notices, fact sheets, newsletters, email notices, and other public communications and ensure that all links and pages on Camp Lejeune websites are working properly and include current information.







* Success Stories were also previously published in *The Globe;* however, as of September 3, 2020, *The Globe* has ceased publication.

Place Signs near Environmental Sites

Goal To provide immediate information near sites or activities that are visible to the public.

Current Activities The Navy/Marine Corps has placed warning signs along some site boundaries where land use controls have been established to restrict access and protect public health. EMD has also placed fish advisory signs at Henderson and Hickory Ponds. These signs contain Quick Response codes that can be scanned with a smart phone to access more information. Additionally, fact sheets have been attached to vapor intrusion monitoring devices during sampling events.

Plan The Navy/Marine Corps will continue to place warning signs as needed and required to restrict access and/or protect public health. In addition, they will consider additional opportunities to place signs near remediation sites that are visible to the public, such as near vapor intrusion monitoring or mitigation systems, field activities near buildings and other public areas, remedial or removal actions, and land use controls, such as fences.

Participate in Local Festivals

Goal To reach a large local population and raise awareness of the ERP by participating in established local festivals.

Current Activities Camp Lejeune typically sponsors an annual Earth Day Exposition with information booths designed to educate Marines and their families about environmental issues. EMD sets up interactive displays highlighting their work on the ERP. The exposition is open to Base schools, military and dependents, RAB members, and DoD civilians. Previously, EMD has also set up a display at Onslow County's annual Earth and Surf Fest.

Plan EMD will continue to participate in Camp Lejeune's annual Earth Day Exposition, and will consider setting up its ERP display at other off-Base community festivals as appropriate, such as Onslow County's annual Earth and Surf Fest, the Sneads Ferry Shrimp Festival, and the Swansboro Mullet Festival.

Expand Media Relations

Goal To improve frequency and accuracy of coverage of the ERP through print and online media.

Current Activities The Navy/Marine Corps currently posts paid public notices as required by the CERCLA process.

Plan The Navy/Marine Corps will continue to issue paid public notices as required. In addition, by working with the Camp Lejeune Public Affairs Office, EMD will consider expanding media relations to increase program awareness and "share good news" about the ERP (as recommended by interviewees), such as:

- Issuing news releases the week before a RAB meeting, highlighting a topic on the RAB agenda, and announcing the date and time of the meeting.
- Providing short articles to local community and environmental groups to publish through their existing communication networks.

Timing of Community Involvement Activities

Table 5 summarizes the general timing of the community involvement activities described in this CIP for Camp Lejeune. **Table 6** shows the community involvement activities required by CERCLA for the major steps in the CERCLA remediation and removal process.

TABLE 5
SUMMARY OF COMMUNITY INVOLVEMENT ACTIVITIES BY TIMING

Activity	Quarterly	Annually	Once Every Five Years	As needed or as appropriate	As Required by CERCLA
Maintain and Update Mailing Lists	■			■	■
Publish Public Notices	■			■	■
Hold Public Meetings				■	■
Provide Comment Periods					■
Prepare Responsiveness Summaries					■
Prepare and Distribute Fact Sheets				■	■
Maintain the Information Repository and Administrative Record	■			■	■
Publicize Points of Contact	■			■	■
Update the Community Involvement Plan			■		■
Provide Technical Assistance for Public Participation Information			■	■	■
Provide Technical Assistance Grant Information			■	■	■
Support the Restoration Advisory Board	■				
Distribute Updates through Social Media and the Internet	■			■	
Maintain and Update Websites	■			■	
Place Signs Near Environmental Sites				■	
Participate in Local Festivals		■		■	
Expand Media Relations				■	

Photo by Pfc. Nicholas Guevara

TABLE 6
TIMING OF REQUIRED AND RECOMMENDED COMMUNITY INVOLVEMENT ACTIVITIES WITH CERCLA MILESTONES

Activity	Preliminary Assessment/ Site Inspection	Remedial Investigation/ Feasibility Study	Proposed Plan	Record of Decision	Remedial Design Remedial Action	Pre-ROD Significant Changes	Post-ROD Significant Changes	Removal Action < 6 Months	Removal Action > 120 Days	Removal Action > 6 Months	Five-Year Review
Designate a Contact Person	▬	▬	▬	▬	▬	▬	▬	▬	■	■	❍
Information Repository	■	▬	▬	▬	▬	▬	▬	▬	■	■	❍
Administrative Record		■	▬	▬	▬	▬	▬	■[a]	■[a]	■[a]	❍
TAG/TAPP Information	■	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬
Public Notice	■	■	■	■	❍	❍	■	■	■	■	■[c]
Public Meetings		❍	■	❍	■[b]	❍	■	❍	❍	❍	❍
Public Comment Period			■			■		■[d]	■[d]	■[d]	■
Responsiveness Summary				■		■		■[d]	■[d]	■[d]	
CIP	■				■				■	■	❍
Fact Sheets			■[e]		■[b]		■[b]				❍

Source: *Superfund Community Involvement Handbook* (USEPA, 2016).

▬ Ongoing activity

■ Required activity

❍ Discretionary activity as determined by comunity interest or as needed.

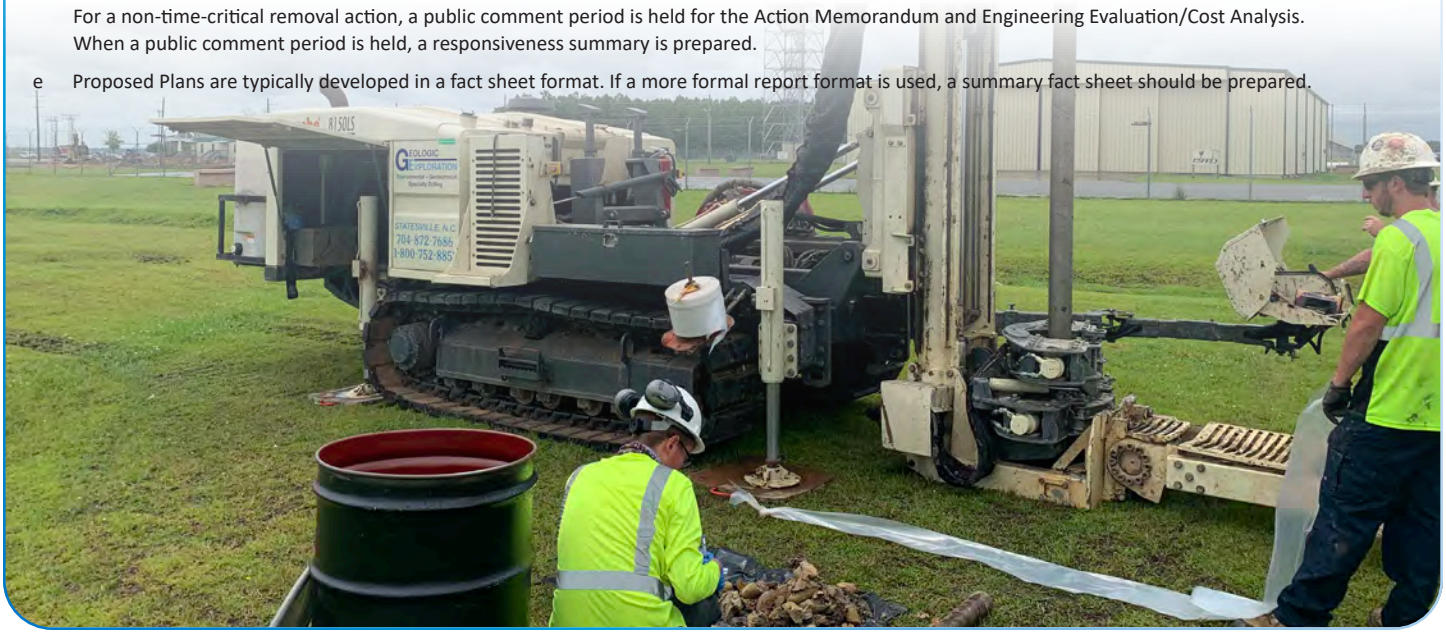
a Only if relevant to later response selection decisions. Remedial Design and Remedial Action documents, reports, and plans are normally part of the Post Decision File, rather than the Administrative Record, because such documents are not "considered or relied on in the decision process."

b The National Contingency Plan 40 CFR 300.435(c)(3) requires a fact sheet and public briefing as appropriate at the Remedial Design stage. For military installations with multiple sites, this step is typically performed only if Remedial Actions are for releases outside installation boundaries or are of particular interest or concern to the surrounding community.

c Twice, when the Five-Year Review is beginning and when that review has been completed, to provide the results of the review.

d If appropriate for a time-critical removal action, that is, if the community might be affected and public comments on the removal action are expected to affect future action at the site, a public comment period should be held during the planning or execution of the removal action. For a non-time-critical removal action, a public comment period is held for the Action Memorandum and Engineering Evaluation/Cost Analysis. When a public comment period is held, a responsiveness summary is prepared.

e Proposed Plans are typically developed in a fact sheet format. If a more formal report format is used, a summary fact sheet should be prepared.



Section 6: Sources

The following resources, references, and websites were used to develop the Camp Lejeune CIP. Not all documents referred to in the formulation of this document are specifically cited in the text.

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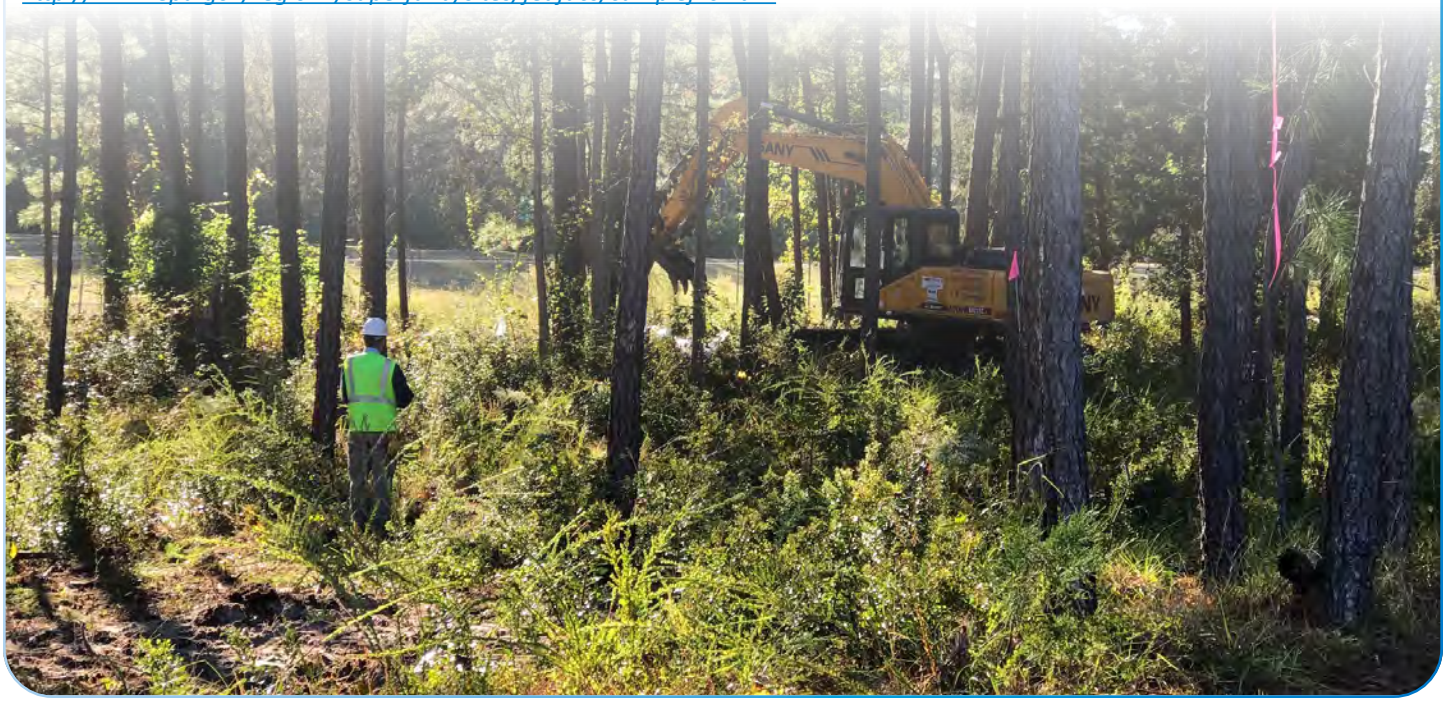

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Appendix A

Community Input for CIP – November 2019 RAB Minutes and Summary of Community Interviews

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Appendix A *November 2019 RAB Minutes*

Marine Corps Base Camp Lejeune (MCB Camp Lejeune) Restoration Advisory Board (RAB) Meeting Minutes

MEETING DATE:	November 20, 2019
LOCATION:	Coastal Carolina Community College, Business Technology Building, Jacksonville, North Carolina
ATTENDEES:	Ansley Bucher/MCB Camp Lejeune Kirsten (Kitty) Hiortdahl/MCB Camp Lejeune Dave Cleland/Navy Beth Hartzell/NCDEQ Randy McElveen/NCDEQ Jennifer Tufts/EPA Laura Bader/RAB Co-Chair Richard Mullins/RAB Member Cynthia Rester/RAB Member Steve Thompson/RAB Member Brian Wheat/RAB Member John Faran/RAB Attendee Allison Jensen/RAB Attendee Walter Perry/RAB Attendee David Plummer/RAB Attendee James Rester/RAB Attendee Kelsey Stiglitz/RAB Attendee Amy Brand/CH2M Kim Henderson/CH2M Matt Louth/CH2M Genevieve Ritter/CH2M
FROM:	Kim Henderson/CH2M
DATE:	December 16, 2019

I. Welcome and Introductions

Ms. Hiortdahl began the meeting.

II. Fiscal Year 2020 Community Involvement Plan Update

Objective: The purpose of this agenda item was to introduce the Community Involvement Plan (CIP), provide an overview of the Environmental Restoration Program (ERP), review of the 2015 CIP, discuss the 2020 CIP Update, and tell us what you're thinking!

Overview: A presentation was reviewed by Ms. Brand and Mr. Louth. A CIP is a site-specific strategy to enable meaningful community involvement throughout the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanup process. The CIP is considered an "essential and integral component" of the Department of the Navy's and Marine Corps ERP.

Environmental Protection Agency (EPA) and Navy guidance is followed in developing the CIP. The Navy generally follows EPA's Superfund Community Involvement Handbook dated 2016. The Navy's community involvement requirements are more comprehensive than the minimum CERCLA requirements and CIPs are considered "living documents" that are reviewed and updated periodically.

Contents of the CIP include the scope and objective of the Navy's ERP; site history including the environmental history; key demographic information about the affected community; background and

history of community involvement at the site; community needs, concerns, and expectations; and community involvement activities the Navy plans to implement.

The basis of a CIP is based on information gathered through personal interviews, review of RAB meeting minutes, and public comments. Interviews identify community interests and concerns, information needs, and how people would like to be kept informed.

In 2015, there were 98 sites in the ERP (68 Installation Restoration Program [IRP] sites and 30 Military Munitions Response Program [MMRP] sites) whereas in 2019, there are 101 sites in the ERP (69 IRP sites and 32 MMRP sites) and the status of sites in the CERCLA process were reviewed.

Since the last CIP Update, some highlighted successes were reviewed:

- A pilot study using a bioreactor comprised of mulch, gravel, and vegetable oil at IRP Site 93 was initiated in 2015 to reduce volatile organic compounds (VOCs) in groundwater.
- A permanganate tracer study was conducted in 2016 at IRP Site 88 to determine the best means of distribution to come in contact with the VOCs and to evaluate the performance of a groundwater recirculation system. The solution was applied through a 1,600-foot horizontal injection well at a depth of 95-feet below ground surface.
- A pilot study was conducted at IRP Site 78 from 2017 through 2018 to evaluate the effectiveness of air sparging to treat VOCs found in groundwater at depths up to 125 feet below ground surface.
- A treatability study was conducted at IRP Site 96 in 2018 to assess the effectiveness soil vapor extraction in removing VOCs and to evaluate the effectiveness of enhanced reductive dichlorination in reducing VOC concentrations in groundwater. Solar power was used to run the system.
- Environmental investigations were conducted at MMRP Site UXO-19, Camp Devil Dog in 2016 through 2017. 440 munitions and explosives of concern were identified and although there was no risk to human health or the environment from munitions constituents, potential risk for unexploded ordnance buried below 2 feet remained. Land use controls were implemented in 2016 and warning signs were installed in 2017.
- At MMRP Site UXO-06, in 2019, a total of 425 pounds of material documented as safe were identified and removed from 129 acres of the site. Land use controls were put in place to protect public health and welfare from potential explosive hazards since surface clearance does not remove all the munitions items from the site and below the ground. Warning signs and digging restriction signs were also installed.

The RAB was opened for discussion on technical topics and cleanup:

- A RAB member indicated that Camp Lejeune has been on the cutting edge of cleanup technologies.
- A RAB attendee asked how vegetable oil cleans up chlorinated solvents. Vegetable oil feeds the bugs and they breed and breathe the solvents and take chlorine atoms one by one until the solvents are gone. The resulting waste is carbon dioxide which is not toxic.
- A RAB attendee asked that given the size of plumes and restoration efforts, how long until success can be declared. The timeframe for cleanup is dependent on how easy the contamination is to get to. Although there are good technologies to treat the contamination, contact with the contamination must be achieved for successful treatment. This can be challenging based on subsurface conditions (e.g., if contamination is bound to clay or if contamination is 100s of feet deep).
- A RAB attendee asked how much money has been spent so far at Site 88. Site 88 is one of the most technically challenging sites. For the Record of Decision that was just signed, the remedial action for addressing contamination over 100 feet deep has a present day cost of $14M and the timeframe to achieve the cleanup goals is just under 100 years.

- A RAB attendee asked how health risks are assessed. As part of the CERCLA process human health and ecological risk assessments are conducted to evaluate every potential exposure scenario from a child to a trespasser to a construction worker to a worker in a building to worms, birds, mammals, and fish. The team's mission is to protect human health and the environment. If there is an immediate concern identified, a time-critical removal action is conducted to address the risk immediately. Potential future risks are through controls (e.g., restricting activities in soil, prohibiting groundwater as drinking water). The Five-Year Review is currently being conducted to review the site remedies and evaluating protection of human health and the environment. There are no known receptors with known contact (e.g., potable well, creek).
- A RAB attendee asked how data is collected. Investigations and interviews with former employees on operations are conducted and environmental media including collection of soil, groundwater, air, surface water, and sediment samples.
- A RAB attendee indicated that they worked in the former dry cleaning building for 20 years and asked about participating in the health evaluations. A RAB member also asked if there is anything being done for people exposed in the 1970s and 1980s for health issues. Ms. Hiortdahl can provide Base and Agency for Toxic Substances and Disease Registry (ATSDR) contacts for more information.

For the 2015 CIP, the results of the interviews and questionnaires indicated 61% were aware of the ERP, 13% were aware of the RAB, 11% were aware of the Navy's ERP website, 7% were aware of the RAB website, and 38% were aware of the Information Repository. It also indicated confidence in the ERP as 76% believe that "Camp Lejeune is a responsible neighbor regarding environmental cleanup". The key environmental concerns identified included potential health concerns, groundwater, and surface water followed by air quality and munitions.

Based on the feedback from community members during the 2015 CIP update, several enhancements were implemented including:

- Increased advertisement of upcoming RAB meetings on the Camp Lejeune Facebook page, through public service announcements (WAVQ FM), community calendars (WRAL FM), and the Base's weekly email "blast".
- Site tours for RAB members.
- Including a link to the RAB website on public notices and fact sheets.
- Maintaining and updating mailing lists.
- Preparation and distribution of fact sheets.
- Publicizing points of contact on the Base's and Navy's websites.
- Updating the CIP format to be more user friendly.
- Providing technical assistance grant information which was presented at the August 2016 RAB meeting.
- Distributing updates through social media and the internet through quarterly "Success Stories" posted to the Camp Lejeune Facebook page.
- Maintaining and updating Base, Navy, and EPA websites more frequently with up-to-date information.
- Placing signs near environmental sites
- Participating in local festivals. An interactive display on the ERP was provided at the Earth and Surf Fest in 2016.

The CIP update process includes developing a preliminary list of community stakeholders for community interviews, developing questions for interviews, conducting interviews to determine community concerns and information needs, promoting the RAB meetings to present the CIP update and gather input, analyze results of interviews and the RAB meeting input along with other sources of information

about community concerns, reviewing and updating community involvement methods as necessary, and updating the CIP document.

The RAB was opened for discussion with questions:

- What do you want to know?
- How do you want to get that information?
- How do you think Camp Lejeune and the Navy should be delivering information?

The suggestions and topics discussed include the following:

- The frequency of RAB meetings is good, every 3 months.
- RAB notifications were recommended on channel G10, through flyer posting on community bulletin boards at community centers and libraries, and announcements through civic organizations, Rotary, the Costal Federation, etc.
- The Base could do a better job letting people know about all the work that is being done to show action (e.g., how many contractors/people working on the projects during a given time, how many monitoring wells installed and sampled) because the program is doing a lot more than is being shown and communicated.
- There was a recommendation to provide this presentation to the Chamber of Commerce.
- The RAB attendees indicated that there are no concerns that that are not being addressed.
- There was a recommendation for less technical content for presentations.
- There was a recommendation to hold meetings on-Base for residents regarding drinking water. The ERP works to prevent contamination to the drinking water wells. There is a separate drinking water treatment department on-Base and Camp Lejeune's drinking water is thoroughly tested and this feedback will be passed along. Notifications for a meeting was recommended through Marine Corps Community Services (MCCS).
- YouTube/channel 10 short films, visuals, and before and after pictures were recommended. The community college may have a media department looking for a project.

V. RAB Business

The next RAB meeting is scheduled for February 19, 2020.

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Appendix A *Summary of Community Interviews*

Summary Results of November 2019 Community Interviews

Note: The following questions were used to guide a conversation; in some cases, questions may have been skipped. Responses are compiled but any responses that may identify the participant have not been included in this summary.

1. How long have you lived and/or worked in this community?

   63, 7, 2 years lived 15, 7, 7, 0, 38 years worked

2. How would you describe your role in the community*? (check all that apply)*

   ☒ local resident 4
   ☒ public or elected official 4
   ☒ retired military
   ☐ representative of an environmental group
   ☐ representative of an HOA or civic organization
   ☒ other – See below
   ☐ local business owner

   Military affairs committee member; Jacksonville/Onslow Civic affairs member; Onslow Co public transportation board; Jacksonville/Onslow Economic Development; Jacksonville Tourism Development Authority

3. Have you or any of your relatives ever worked at Marine Corps Base Camp Lejeune?

   ☒ Yes (me) 1 ☒ Yes (relative) 1 ☒ No (me) 2 ☒ No (relative) 2

4. On a scale of 1 to 10, with 10 being the most concerned, how concerned do you think local community members are about the environment in general? (*1- Not concerned at all, 10 – extremely concerned)*

   3, 6, 7 (land), 8, 10 (aquatics)

5. What environmental issues tend to concern the community the most? *(prompt as needed)*

   ☒Traffic 1
   ☐ Growth and development
   ☐ Contamination in the environment
   ☐ Drinking water 1
   ☐ Air quality
   ☐ Trash and littering
   ☒ Water quality
   ☐ Climate change
   ☐ Flooding
   ☒ Other *(please specify)*

   Water quality in rivers, UXO in the New River was/is a huge concern for Sneads Ferry and fishing community; dry cleaner chemical issues/from laundromat; drinking water is the most common question/topic among base residents and there is a lot of mixed information out about it-some people won't even use the tap water to cook or feed their pets; living in a rural area and there aren't many environmental concerns in the community there.

6. Were you aware that Camp Lejeune is conducting environmental investigations and cleanup of hazardous waste and inactive munitions sites?

   ☒ Yes 4 ☐ No ☐ Vaguely

7. Were you aware that some investigations include areas called "Off-Base Surface Danger Zones"? *(A surface danger zone is the safety buffer area around a munitions training range. In the past, some of these areas were located outside the surveyed Base boundary.)*

   ☒ Yes 2 ☒ No 2 ☐ Vaguely

   I am a boat owner so I am aware; follow the Base Facebook page, they are very good at getting information out; aware of UXO sites but not SDZs.

8. On a scale of 1 to 10, with 10 being the most, how concerned about the environmental cleanup program at Camp Lejeune do you think THE COMMUNITY is?
   (scale of 1 to 10, with 1 being not at all concerned and 10 being very concerned)

   5, 6-7, 6-7, 7, 8 (with focus on waterways)

   People are concerned; drinking water concerns cycle/come and go.

9. On a scale of 1 to 10, with 10 being the most concerned, how concerned are YOU about the environmental cleanup program at Camp Lejeune?

   9

10. Do you have any specific Interests or concerns about environmental or munitions sites at Camp Lejeune?

    ☒ surface water 2 ☒ drinking water 3 ☐ none

    ☐ groundwater ☒ health issues 2 ☒ other *(please describe)*

    ☐ air quality ☐ munitions

    Waterways

11. Do you feel that you are directly or indirectly affected by Camp Lejeune's (current) environmental and munitions sites and cleanup program?

    ☒ Yes 1 ☒ No 3 ☐ Not sure

    Do you think that Camp Lejeune, the North Carolina Department of Environmental Quality (NCDEQ) and the U.S. Environmental Protection Agency (EPA) are viewed as credible, trustworthy sources of information about the environmental cleanup at Camp Lejeune?

    ☒ Yes 4 ☐ No ☐ Not sure

    Haven't heard any concerns; the process (regulations for environmental cleanup) just takes time

12. Do you feel the base is fulfilling its role as a responsible neighbor regarding environmental cleanup?

    ☒ Yes 5 ☐ No ☐ Not sure

    It's a lot better than it used to be; they are responsive when something comes up

13. Have you participated in any public meetings about the environmental cleanup or munitions response at Camp Lejeune?

    ☒Yes 3 ☒ No 1

    Attended a meeting regarding UXO in the New River roughly 4 years ago in Sneads Ferry as part of the Joint Land Use study involvement. Initially the Base did not communicate well when closing off the river due to UXO and it was very frustrating for the fishing and shrimping community who rely on the river for their livelihood; Went to one meeting but the topic was UXO sites and I wanted to

hear about drinking water.

14. The Restoration Advisory Board is a group of concerned stakeholders who meet several times a year to receive updates about the environmental investigations and remedial actions and who provide feedback from the community's point of view.* Are you aware of Camp Lejeune's RAB?

☒Yes 2 ☒ No 3

Found the meeting helpful.

(*If yes*) have you attended any RAB meetings?

☒Yes 2 ☒ No 3

(*If yes*) when? _____
Do you remember what was discussed?

I would come again if the topics were of interest to me.

**RAB meetings are always open to the public and are advertised in the "Jacksonville Daily News" and the "Camp Lejeune Globe". Minutes of RAB meetings are available on the Base website.*

15. Have you ever visited the website for the Camp Lejeune environmental cleanup program? [http://go.usa.gov/Dy5T]

☐ Yes ☒ No 4 ☐ Not aware of it 1

The housing company has sent out an email with information about it.

If yes) Was the information available there useful to you?

☐ Yes ☐ No

(*If yes*) Do you have any suggestions for improving it?

16. Have you ever visited the RAB website?

(http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt/RestorationAdvisoryBoard.aspx)

☐ Yes ☒ No 5 ☐ Not aware of it

(If yes) Was the information available there useful to you?

☐ Yes ☐ No

(*If yes*) Do you have any suggestions for improving it?

17. The Base maintains a Public Information Repository at the Onslow County Library in Jacksonville where the public can review documents about the cleanup work at Camp Lejeune. Did you know about or have you ever used the repository?

☐ Yes ☒ No 2 ☒ Not aware of it 1

(If yes) Was the information available there useful to you?

☐ Yes ☐ No

18. Who would you contact if you wanted to know more about Camp Lejeune's environmental cleanup program?

Base liaison – Joe Ramirez (3 people answered with this response); retired Colonel Michael Scalise; Ansley Bucher; Local EMD

19. Have you ever seen or received information about the Camp Lejeune environmental cleanup or munitions response programs?

☒ Yes 3 ☒ No 1

UXO fact sheets

If so, where?

The County also conducted a community survey for this information.

☐ newspaper notice	☐ newspaper articles	☐ signs on base
☐ fact sheet	☐ email/phone inquiry	☐ other (*please describe):*
☐ Camp Lejeune website	☐ display at community event	

JDN (mostly online); G10; Social media; ATSDR – water contamination

(If yes to any) Do you have any suggestions for improving the information you receive?

More communication with the on-Base (home) leasing company because most people think it's the leasing company's job to "cleanup" (rusty pipes, water, trash, etc.) residential areas.

20. How do you receive information about local news and events? *(Check all that apply*)

☐ Radio	☐ The Globe	☐ Twitter
☒ TV* 1	☐ Web	☒ Other
☐ Jacksonville Daily News	☒ Facebook 3	
	☐ Instagram	

* Please list specific stations: _____

Email (2 responses); chamber monthly newsletter; insert in newspaper; forum Onslow – broadcast on G10; State of the Community on G10 – representatives from County, City, schools, hospital, Base, etc.

21. How would you like to receive information about the cleanup work at Camp Lejeune? *(check all that apply)*

☐Newspaper notices	☐ Other social media	☐ Presentations
☒ Radio/TV 1	☐ Public meetings	☐ Not interested
☐ Website	☐ RAB meetings	☒ Other *(please describe)*
☒ Facebook 1	☐ Events	

The Joint Land Use study is discussing/working on a platform for better communication; the Chamber always gladly puts out information for the Base-they are a paying member of the chamber.

22. Do you have any other comments or suggestions about Camp Lejeune's environmental cleanup or munitions response programs?

I did not know that EMD was in charge of residential areas. I thought it was the leasing company and that the EMD dealt with industrial areas; they are doing what they're supposed to; $3.7 billion of construction is planned over the next 3-5 years that will be a concern in the community. The Base should be prepared for this.

Additional Comments:

- When there was UXO in the water there was a lot of mis-information and the city helped to quell the concerns by distributing correct info. The Base did an excellent job; very proactive. Put out signs.

- City can help with the communication reach out to specific groups because they know the players.
- The Joint Land Use Study was just updated and recommended analyzing communication between the city and the Base.
- G10 broadcasts throughout the community/county
- Base, City, and County work well together, but for natural disasters such as hurricanes the County will do mandatory evacuations and there's confusion as to who that applies to. It doesn't apply to the Base.
- Do not want to defer or complicate/contradict communication plans. Suggested that we should look at other communication plans for the Base and make sure we don't contradict them. No matter the topic – feed into that same system for communications.
- The City sees themselves as helping their citizens get the information they need. CPG sets the framework.
- Too many regulatory requirements that keep the Base from acting/doing the right thing quickly. City has contracts with the Base now for traffic repairs so that they can act quickly.
- Base needs to look to local partners and they should see the City as a partner
- When will river be restricted due to maneuvers and UXO on beach. City can help communicate.
- Intergovernmental service agreement – IGSA – opportunity to have one for communications?
- Dry cleaner contamination – we know there are no used (drinking water) aquifers that are contaminated – no one is exposed to contaminants from dry cleaner. The state has been so slow to clean up. It's been investigated but not remediated. City worked to get building down so that now the site can be remediated. The lingering memory of contamination off Base that affected drinking water on Base remains.
- City has email blast system and a (voluntary) robo-calling system (reverse 911) to alert citizens.
- No problem getting info out but getting people to receive info is a problem.
- This city is unique in that well over 50% of Jacksonville population is retired military so they stand in support of the military very well.

B

Appendix B *Key Community Contacts*

Table B-1. Restoration Advisory Board Members

Name	Position	Phone Number	Email Address
Ms. Kirsten Hiortdahl	Base Co-Chair	910-451-5878	kirsten.hiortdahl@usmc.mil
Ms. Laura Bader	Community Co-Chair	Personal contact information is not provided for private citizens.	
Mr. Michael Curtis	Community Representative		
Mr. Richard D. Mullins	Community Representative		
Mr. Jerome M. Ensminger	Community Representative		
Mr. Thomas R. Mattison	Community Representative		
Ms. Nicole Triplett	Community Representative		
Ms. Amy Poe	Community Representative		
Ms. Cynthia Rester	Community Representative		
Ms. Karen Sota	Community Representative		
COL Steven Thompson USMC (Ret)	Community Representative		
Mr. Brian Wheat	Community Representative		
Mr. Dave Cleland	NAVFAC Representative	757-341-0329	david.t.cleland@navy.mil
Ms. Jennifer Tufts	EPA Representative	404-562-8513	tufts.jennifer@epa.gov
Mr. Randy McElveen	NCDEQ Representative	919-707-8341	randy.mcelveen@ncdenr.gov

Notes:

USEPA = Environmental Protection Agency

NAVFAC = Naval Facilities Engineering Command

NCDEQ = North Carolina Department of Environmental Quality

USMC = United States Marine Corps

Table B-2. Key Community Contacts

U.S. Navy			
Organization/ Department	Name	Address	Phone/Fax/Email
NAVFAC Mid-Atlantic	Mr. Dave Cleland	NAVFAC MID-ATLANTIC NAVFAC MIDLANT EV34 9324 Virginia Avenue Building N26, RM 3300 Norfolk, VA 23511-3095	Phone: (757) 341-0329 david.t.cleland@navy.mil
NAVFAC Atlantic	Public Affairs Office Mr. Michael J. Morris	NAVFAC Atlantic Code 09PAO 6506 Hampton Boulevard Norfolk, VA 23508	Phone: (757) 322-4548 michael.j.morris@navy.mil
Marine Corps Base Camp Lejeune			
Organization/ Department	Name	Address	Phone/Fax/Email
EMD/EQB	Ms. Kirsten Hiortdahl	Commanding General ATTN: EMD 12 Post Lane Camp Lejeune, NC 28547-2540	Phone: (910) 451-5878 kirsten.hiortdahl@usmc.mil
EMD/EQB	Ms. Charity Delaney	Commanding General ATTN: EMD 12 Post Lane Camp Lejeune, NC 28547-2540	Phone: (910) 451-9385 charity.delaney@usmc.mil
Public Affairs Office	Mr. Nat Fahy	CommStrat Office MCB Camp Lejeune PSC Box 20005 Camp Lejeune, NC 28542	Phone: (910) 451-7413 MCIEASTCOMMSTRAT@USMC.MIL
U.S. Environmental Protection Agency			
Organization/ Department	Name	Address	Phone/Fax/Email
USEPA	Ms. Jennifer Tufts	USEPA - Region 4 Atlanta Federal Center 61 Forsyth Street SW Atlanta, GA 30303	Phone: (404) 562-8513 tufts.jennifer@epa.gov
North Carolina Department of Environmental Quality			
Organization/ Department	Name	Address	Phone/Fax/Email
NCDEQ	Ms. Beth Hartzell	NCDEQ Attn: Beth Hartzell 1646 Mail Service Center Raleigh, NC 27699-1646	Phone: (919) 707-8335 beth.hartzell@ncdenr.gov
NCDEQ	Mr. Randy McElveen	NCDEQ Attn: Randy McElveen 217 West Jones Street 1646 Mail Service Center Raleigh, NC 27699-1646	Phone: (919) 707-8341 randy.mcelveen@ncdenr.gov

Table B-2. Key Community Contacts

Federal and State Elected Officials			
Organization/ Department	Name	Address	Phone/Fax/Email
North Carolina House of Representatives	Phil Shepard	N.C. House of Representatives 300 N. Salisbury St., Room 534 Raleigh, NC 27603-5925	Phone: (919) 715-9644 Phil.Shepard@ncleg.net
Governor of North Carolina	Governor Roy Cooper	Office of the Governor 20301 Mail Service Center Raleigh, NC 27699	Phone: (919) 814-2000
North Carolina Senate	Senator Harry Brown	Senate District #6 300 N. Salisbury St., Room 300-B Raleigh, NC 27603-5925	Phone: (919) 715-3034 Harry.Brown@ncleg.net
City of Jacksonville			
Organization/ Department	Name	Address	Phone/Fax/Email
Mayor	Mr. Sammy Phillips	P.O. Box 128 815 New Bridge St. Jacksonville, NC 28540	mayor@jacksonvillenc.gov
City Manager	Dr. Richard Woodruff	P.O. Box 128 815 New Bridge St. Jacksonville, NC 28540	Phone: (910) 938-5221 citymanager@jacksonvillenc.gov
City Clerk	Ms. Carmen J. Miracle	P.O. Box 128 815 New Bridge St. Jacksonville, NC 28540	Phone: (910) 938-5224 cmiracle@jacksonvillenc.gov
Onslow County Commissioner	Mr. Robin Knapp	Board of Commissioners 234 NW Corridor Blvd. Jacksonville, NC 28540	Phone: (910) 347-4717 Robin_Knapp@onslowcountync.gov
Onslow County Commissioner	Mr. Jack Bright		Phone: (910) 347-4717 Bright@onslowcountync.gov
Onslow County Commissioner	Mr. Paul Buchanan		Phone: (910) 347-4717 Buchanan@onslowcountync.gov
Onslow County Commissioner	Mr. Royce Bennett		Phone: (910) 347-4717 Royce_Bennett@onslowcountync.gov
Onslow County Commissioner	Mr. Mark Price		Phone: (910) 347-4717 Mark_Price@onslowcountync.gov
Onslow County Commissioner	Mr. Timothy Foster		Phone: (910) 347-4717 Tim_Foster@onslowcountync.gov
Onslow County Commissioner	Mr. William Shanahan III		Phone: (910) 347-4717 William_Shanahan@onslowcountync.gov
Onslow County Parks & Recreation	Mr. Rick Perry	1244 Onslow Pines Rd. Jacksonville, NC 28540	Phone: (910) 347-5332 rick_perry@onslowcountync.gov
Onslow County Tourism		1099 Gum Branch Rd. Jacksonville, NC 28540	Phone: (910) 347-3141
Onslow County Public Library		58 Doris Ave. East Jacksonville, NC 28540	Phone: (910) 455-7350 library@onslowcountync.gov

Table B-2. Key Community Contacts

Town of Cedar Point			
Organization/ Department	Name	Address	Phone/Fax/Email
Mayor	Mr. Scott Hatsell	427 Sherwood Ave. Cedar Point, NC 28584	Phone: (910) 358-3764 shatsell@cedarpointnc.org
Commissioner	Ms. Pam Castellano		pcastellano@cedarpointnc.org
Commissioner	Mr. John Nash		Phone: (252) 503-9339 jmnashnc@outlook.com
Commissioner	Mr. Frankie Winberry		Phone: (910) 451-3579 winberryfarms@yahoo.com
Commissioner	Mr. Gary Bray		gbray@cedarpointnc.org
Town Clerk	Ms. Jayne Calhoun		jcalhoun@cedarpointnc.org
Town Administrator	Mr. David M. Rief		drief@cedarpointnc.org
Town of Cape Carteret			
Organization/ Department	Name	Address	Phone/Fax/Email
Mayor	Mr. Will Baker	102 Dolphin St. Cape Carteret, NC 28584	wbaker@capecarteret.org
Commissioner	Mr. Jeff Waters	102 Dolphin St. Cape Carteret, NC 28584	jwaters@capecarteret.org
Commissioner	Mr. Steve Martin	200 Live Oak Drive Cape Carteret, NC 28584	Phone: (336) 442-1806 smartin@capecarteret.org
Commissioner	Mr. Mike King	517 Neptune Drive Cape Carteret, NC 28584	Phone: (252) 393-8032 raisedbeds10@gmail.com
Commissioner	Mr. Jim Nalitz	102 Dolphin St. Cape Carteret, NC 28584	jnalitz@capecarteret.org
Commissioner	Mr. Don Miller	410 Neptune Drive Cape Carteret, NC 28584	Phone: (252) 725-4160 dmiller@capecarteret.org
Town Clerk	Ms. Sherrie Hancock	102 Dolphin St. Cape Carteret, NC 28584	Phone: (252) 393-8483 shancock@capecarteret.org

Town of Emerald Isle			
Organization/ Department	Name	Address	Phone/Fax/Email
Mayor	Mr. Eddie Barber	7500 Emerald Drive Emerald Isle, NC 28594	Phone: (252) 354-3424 ebarber@emeraldisle-nc.org
Mayor Pro-tem	Mr. Floyd Messer, Jr		Phone: (252) 354-3342 FMESSER@ec.rr.com
Town Manager	Mr. Matt Zapp		mzapp@emeraldisle-nc.org
Commissioner	Ms. Candace Dooley		Phone: (910) 787-3460 cdooley@emeraldisle-nc.org
Commissioner	Mr. Steve Finch		Phone: (919) 422-0792 sfinch@emeraldisle-nc.org
Commissioner	Mr. Mark Taylor		Phone: (252) 241-5087 mtaylor@emeraldisle-nc.org
Commissioner	Mr. Jim Normile		Phone: (910) 290-0835 jnormile@emeraldisle-nc.org
Town Clerk	Ms. Rhonda Ferebee		Phone: (910) 354-3424 rferebee@emeraldisle-nc.org
Town of Newport			
Organization/ Department	Name	Address	Phone/Fax/Email
Mayor	Mr. Dennis Barber	P. O. Box 1968 Newport, NC 28570	Phone: (252) 223-4749 mayorbarber@townofnewport.com
Mayor Pro-tem	Mr. Chuck Shinn		cshinn@townofnewport.com
Town Manager	Mr. Christopher S. Turner		Manager@townofnewport.com
Councilor	Mr. Mark Eadie		meadie@townofnewport.com
Councilor	Mr. David Heath		dheath@townofnewport.com
Councilor	Mr. Danny Fornes		dfornes@townofnewport.com
Councilor	Mr. Chuck Shinn		cshinn@townofnewport.com
Councilor	Mr. Bob Benedict		bbenedict@townofnewport.com

Town of Swansboro			
Organization/ Department	Name	Address	Phone/Fax/Email
Mayor	Mr. John Davis	P.O. Box 338 Swansboro, NC 28584	Phone: (910) 376-0883 jdavis@ci.swansboro.nc.us
Mayor Pro-tem	Mr. Frank Tursi	270 River Reach Drive Swansboro, NC 28584	(910) 325-1890 ftursi@ci.swansboro.nc.us
Town Clerk	Ms. Paula Webb	601 Corbett Avenue Swansboro, NC 28584	Phone: (910) 326-4428 pwebb@ci.swansboro.nc.us
Town Manager	Mr. Christopher Seaberg		Phone: (910) 326-4428 cseaberg@ci.swansboro.nc.us
Commissioner	Mr. Laurent Meilleur		lmeilleur@ci.swansboro.nc.us
Commissioner	Ms. Pat Turner		pturner@ci.swansboro.nc.us
Commissioner	Mr. Harry "PJ" Pugliese		hpugliese@ci.swansboro.nc.us
Commissioner	Mr. Larry Philpott		lphilpott@ci.swansboro.nc.us
Swansboro Branch Library		1460 West Corbett Ave. Swansboro, NC 28584	Phone: (910) 326-4888
Town of Topsail Beach			
Organization/ Department	Name	Address	Phone/Fax/Email
Mayor	Mr. Steven George Smith	P.O. Box 3378 Topsail Beach, NC 28445	Phone: (910) 547-2677 stevesmith@topsailbeach.org
Commissioner	Mr. Joe Bell	P.O. Box 3393 Topsail Beach, NC 28445	Phone: (910) 379-4381 joebell@topsailbeach.org
Commissioner	Ms. Linda Stipe	P.O. Box 3625 Topsail Beach, NC 28445	Phone: (910) 328-1150 tbclstipe@gmail.com
Commissioner	Mr. Morton Blanchard		Phone: (910) 284-0897 emb5151@earthlink.net
Commissioner	Mr. John Gunter	P.O. Box 3294 Topsail Beach, NC 28445	Phone: (919) 475-2924 johngunter@topsailbeach.org
Commissioner	Mr. Tim Zizack	P.O. Box 3564 Topsail Beach, NC 28445	Phone: (813) 785-3333 timzizack@topsailbeach.org
Commissioner	Mr. Frank Braxton	P.O. Box 3681 Topsail Beach, NC 28445	Phone: (910) 520-3347 frankbraxton@topsailbeach.org
Town Manager	Mr. Michael Rose	820 S. Anderson Blvd Topsail Beach, NC 28445	Phone: (910) 328-5841 mrose@topsailbeach.org
Deputy Clerk	Ms. Jessica DeRoche	820 S. Anderson Blvd Topsail Beach, NC 28445	Phone: (910) 328-5841 jderoche@topsailbeach.org

Community Organizations			
Organization/ Department	Name	Address	Phone/Fax/Email
U.S. Fish and Wildlife Service	Mr. Pete Benjamin	PO Box 33726 Raleigh, NC 27636	Phone: (919) 856-4520
Division of Water Quality Administration	N.C. DEQ Administration	1601 Mail Service Center Raleigh, NC 27699-1617	Phone: (877) 623-6748
NCDEQ Division of Coastal Management	Mr. Braxton Davis	400 Commerce Ave. Morehead City, NC 28557	Phone: (252) 808-2808, ext. 202 Braxton.Davis@ncdenr.gov
NC Division of Marine Fisheries	Ms. Cindi Hamilton	3441 Arendell St Morehead City, NC 28557	Phone: (252) 808-8013 Cindi.Hamilton@ncdenr.gov
Hammocks Beach State Park		1572 Hammocks Beach Road Swansboro, NC 28584	Phone: (910) 326-4881 hammocks.beach@ncparks.gov
North Carolina National Estuarine Research Reserve	Ms. Rebecca Ellin	101 Pivers Island Road Beaufort, NC 28516	Phone: (252) 838-0880 Rebecca.ellin@ncdenr.gov
North Carolina Natural Heritage Program		1651 Mail Service Center Raleigh, NC 27699-1651	Phone: (919) 707-8107
North Carolina Wildlife Resources Commission	Mr. Gordon Myers	1701 Mail Service Center Raleigh, NC 27699-1700	 Phone: (919) 707-0151 gordon.myers@ncwildlife.org
North Carolina Wildlife Resources Commission, Division of Wildlife Management	Mr. David Cobb	1722 Mail Service Center Raleigh, NC 27699-1722	 Phone: (919) 707-0051 David.Cobb@ncwildlife.org
Carteret County Fisherman's Association		308 Franklin Street Beaufort, NC 28516	ccfaofnc@gmail.com
North Carolina Costal Federation	Mr. Todd Miller	3609 Hwy 24 Ocean Newport, NC 28570	Phone: (910) 347-3141 toddm@nccoast.org
Chamber of Commerce, Greater Jacksonville-Onslow	Ms. Laurette Leagon	1099 Gum Branch Rd. Jacksonville, NC 28540	Phone: (910) 347-3141
Keep Onslow Beautiful	Ms. Lisa Rider	604 College St. Jacksonville, NC 28540	Rider@onslowcountync.gov
Stewards of the White Oak River			http://www.waterwaystewards.us/wwsblog/contact-us/
NCSU Center for Marine Science and Technology	Mr. David B. Eggleston		Phone: (919) 515-7840 eggleston@ncsu.edu

Community Organizations			
Organization/ Department	Name	Address	Phone/Fax/Email
Duke University Marine Laboratory, Nicholas School of the Environment		Environment Hall 9 Circuit Drive Box 90328 Durham, NC 27708	dukenvironment@nicholas.duke.edu
North Carolina Beach, Inlet & Waterway Association	Ms. Kathleen Riely	P.O Box 440 Wrightsville Beach, NC 28480	ncbiwa@gmail.com
North Carolina Fisheries Association		P.O. Box 86 Morehead City, NC 28557	contact@ncfish.org
Friends of the Hammocks and Bear Island		P.O Box 1861 Swansboro, NC 28584	Friends@FHBI.org
North Carolina Maritime Museum	Mr. Joseph Schwarzer II	315 Front St. Beaufort, NC 28516	Phone: (252) 504-7740 jk.schwarzer@ncdcr.gov
Swansboro Chamber of Commerce		203 W. Church St. Carthage, NC 28584	Phone: (910) 326-1174 contact@SwansboroChamber.org
Local Media			
Type	Name	Address	Phone/Website
Radio Station	WJKA 90.1 FM, American Family Radio	Jacksonville, NC	https://www.radio.net/s/wjka
Radio Station	WQSL 92.3 FM, The Wolf	Jacksonville, NC	
Radio Station	WAVQ 95.5 FM	Jacksonville, NC	https://wavqradio.net/
Radio Station	WRMR 98.7 FM	Jacksonville, NC	http://www.modernrock987.com/
Radio Station	WRAL FM 101.5 FM, MIX	Raleigh, NC 27604	https://www.wralfm.com/
Radio Station	WXQR 105.5 FM, Carolina's Pure Rock	Jacksonville, NC	https://myrock105.com/
Radio Station	WSRP 910 AM	Jacksonville, NC	
Radio Station	WJCV 1290 AM	Jacksonville, NC	https://www.wjcv.com/
TV Station	Cable Channel G10 TV	P.O. Box 128 Jacksonville, NC	http://www.g10tv.org/CablecastPublicSite/?channel=1
TV Station	WCTI-TV WYDO	225 Glenburnie Dr. New Bern, NC 28561	Phone: (252) 638-1212 news@wcti12.com http://www.wcti12.com/index.html

Local Media			
Type	Name	Address	Phone/Website
TV Station	WITN-TV	275 East Arlington Boulevard Greenville, NC 27858	Phone: (252) 439-7777 www.witn.com/
TV Station	WNCT-TV (9 on your side)	3221 South Evans St. Greenville, NC 27834	Phone: (252) 355-8500 newsdesk@wnct.com http://www2.wnct.com/
TV Station	UNC-TV	PO Box 14900 Research Triangle Park, NC 27709-4900	Phone: (910) 549-7000 viewer@unctv.org http://www.unctv.org/
TV Station	WECT / New 6 WSFX / FOX 26	322 Shipyard Boulevard Wilmington, NC 28412	Phone: (910) 791-8070 http://www.wect.com/
TV Station	WWAY / News Channel 3	1224 Magnolia Village Way Leland, NC 28451	Phone: (910) 763-0979 http://www.wwaytv3.com/
Newspaper	Jacksonville Daily News	724 Bell Fork Road Jacksonville, NC 28540	Phone: (910) 353-1171 http://www.jdnews.com
Newspaper	Tideland News	774 W. Corbett Ave. Swansboro, NC 28584	Phone: (910) 326-5066 https://www.carolinacoastonline.com/tideland_news/
Newspaper	The Wilmington Star-News	115 North 3rd Street Suite 400 Wilmington, NC 28401	Phone: (910) 343-2000 www.starnewsonline.com/
Newspaper	The Duplin Times		Phone: (910) 296-0239 www.duplinnews@ncweeklies.com
Newspaper	The Globe	724 Bell Fork Road Jacksonville, NC 28540	Phone: (910) 939-0701 staff@camplejeuneglobe.com http://www.camplejeuneglobe.com/

C

Appendix C

Example Public Notices, Fact Sheets, and Success Stories

C

Appendix C *Public Notices*

Sample Public Notices for Marine Corps Base Camp Lejeune

North Carolina

Table C-1 lists examples of the public notices published by the Navy/Marine Corps since the last Community Involvement Plan (CIP) update in February 2015. Public notices are published in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. These examples were published before Restoration Advisory Board (RAB) Meetings, public meetings, initiating the Five Year Review Process, and the Navy updating the Munitions Response Site Prioritization Protocol. The example public notices follow this page.

TABLE C-1
EXAMPLE PUBLIC NOTICES

Date of Publication	Public Notices
August 2016	RAB Meeting
June 2017	RAB Meeting and UXO-06 Public Meeting
June 2018	RAB Meeting and Site 88 Public Meeting
October 2018	RAB Meeting and Munitions Response Site Prioritization
May 2019	RAB Meeting, UXO-24 Public Meeting, and Beginning the 5-Year Review
July 2019	RAB Meeting
November 2019	RAB Meeting – Community Involvement Plan Update
February 2020	RAB Meeting
April 2020	UXO-24 Record of Decision Available

75¢ DAILY $1.50 SUNDAY

THE DAILY NEWS

SATURDAY, AUGUST 13, 2016 » COVERING COASTAL CAROLINA SINCE 1953 « JACKSONVILLE, N.C.

jdnews.com

THE DAILY NEWS » www.JDNews.com

SATURDAY, AUGUST 13, 2016 A3

PUBLIC NOTICE

Restoration Advisory Board Meeting
Marine Corps Base Camp Lejeune

The Restoration Advisory Board (RAB) meets quarterly to discuss the Base's Installation Restoration Program with the local community. You are invited to the next RAB meeting to learn more about the environmental cleanup process on the Base and to provide your input. The RAB meeting will be held on **Wednesday August 24, at 6:00 PM** at the following location:

Coastal Carolina Community College
Business Technology Building, Room BT103
444 Western Boulevard
Jacksonville, NC 28546

If you would like to receive additional information about the RAB, please contact:

Ms. Charity Delaney
MCB Camp Lejeune RAB Co-Chair
(910) 451-9385

Or visit:
http://go.usa.gov/x3f7m

008-522938

VOLUME 79, EDITION 23

CAMP LEJEUNE RECIPIENT OF THE 2017 COMMANDER IN CHIEF'S ANNUAL AWARD FOR INSTALLATION EXCELLENCE

The Globe

SERVING CAMP LEJEUNE AND SURROUNDING AREAS SINCE 1944

WWW.CAMPLEJEUNEGLOBE.COM

THURSDAY, JUNE 8, 2017

THE GLOBE, CAMP LEJEUNE, N.C.

JUNE 8, 2017 3B

PUBLIC NOTICE
Public Meeting
And Restoration Advisory Board Meeting
Marine Corps Base Camp Lejeune

You are invited to a JOINT public meeting and Restoration Advisory Board (RAB) meeting on **Wednesday June 14, 2017 at 6:00 PM.** This meeting will be a regular RAB meeting to discuss ongoing environmental cleanup at Marine Corps Base Camp Lejeune (MCB Camp Lejeune), as well as a public meeting to discuss the proposed plan for one specific site (see below for more information.) The meeting will be held at:

Coastal Carolina Community College
Business Technology Building, Room BT103
444 Western Boulevard
Jacksonville, NC 28546

Public Meeting

The Department of the Navy (DoN) is inviting public comment on the Proposed Plan for Site Unexploded Ordnance (UXO) 06. The Proposed Plan identifies and discusses the preferred alternative for addressing potential explosive hazards at Site UXO-06. The preferred alternative for Site UXO-06 is a surface clearance of munitions and explosives of concern in accessible areas and land use controls. Information about the site and the preferred alternative will be presented at the meeting, with an opportunity for public comment.

The Proposed Plan is based upon the findings of previous site-related documents contained in the DoN's Administrative Record for MCB Camp Lejeune. The Proposed Plan and other background documentation are available for public review in the Administrative Record and are located on the internet at http://go.usa.gov/OyST. The website and a hard copy version of the Site UXO-06 Proposed Plan are also available at:

Onslow County Public Library
58 Doris Avenue East
Jacksonville, NC 28540
(910) 455-7350

Please provide written comments on the Site UXO-06 Proposed Plan on or before (postmark by) July 8, 2017 to the following address:

Mr. Dave Cleland
NAVFAC Mid-Atlantic
Marine Corps IPT
9324 Virginia Ave
Norfolk, VA 23511

Restoration Advisory Board Meeting

The RAB meets quarterly to discuss the Base's Installation Restoration Program with the local community. You are invited to the RAB meeting to learn more about the environmental cleanup process on the Base and to provide your input. If you would like to receive additional information about the RAB, please contact:

Ms. Charity Delaney
MCB Camp Lejeune RAB Co-Chair
(910) 451-9385

PN0034130101

PUBLIC NOTICE
Public Meeting
And Restoration Advisory Board Meeting
Marine Corps Base Camp Lejeune

You are invited to a JOINT public meeting and Restoration Advisory Board (RAB) meeting on **Wednesday June 13, 2018 at 6:00 PM.** This meeting will be a regular RAB meeting to discuss ongoing environmental cleanup at Marine Corps Base Camp Lejeune (MCB Camp Lejeune), as well as a public meeting to discuss the proposed plan for one specific site (see below for more information.) The meeting will be held at:

Coastal Carolina Community College
Business Technology Building, Room BT106
444 Western Boulevard
Jacksonville, NC 28546

Public Meeting

The Department of the Navy (DoN) is inviting public comment on the Proposed Plan for Operable Unit 15, Site 88. The Proposed Plan identifies and discusses the preferred alternative for addressing potential risks to human health. The preferred alternative for Site 88 is enhanced reductive dechlorination, in situ chemical oxidation, a biobarrier, monitored natural attenuation, land use controls, and continued operation and monitoring of vapor intrusion mitigation systems. Information about the site and the preferred alternative will be presented at the meeting, with an opportunity for public comment.

The Proposed Plan is based upon the findings of previous site-related documents contained in the DoN's Administrative Record for MCB Camp Lejeune. The Proposed Plan and other background documentation are available for public review in the Administrative Record and are located on the internet at http://go.usa.gov/Dy5T. The website and a hard copy version of the Site 88 Proposed Plan are also available at:

Onslow County Public Library
58 Doris Avenue East
Jacksonville, NC 28540
(910) 455-7350

Please provide written comments on the Site 88 Proposed Plan on or before (postmark by) July 13, 2018 to the following address:

Mr. Dave Cleland
NAVFAC Mid-Atlantic
Marine Corps IPT
9324 Virginia Ave
Norfolk, VA 23511

Restoration Advisory Board Meeting

The RAB meets quarterly to discuss the Base's Installation Restoration Program with the local community. You are invited to the RAB meeting to learn more about the environmental cleanup process on the Base and to provide your input. If you would like to receive additional information about the RAB, please contact:

Ms. Charity Delaney
MCB Camp Lejeune RAB Co-Chair
(910) 451-9385

THE DAILY NEWS

Wednesday, October 31, 2018

@JDNews | facebook.com/JacksonvilleDailyNews | 75¢

Find us on all platforms 24/7

jdnews.com

PUBLIC NOTICE

Restoration Advisory Board Meeting and Munitions Response Site Prioritization Marine Corps Base Camp Lejeune

The Marine Corps Base Camp Lejeune (MCB Camp Lejeune) Restoration Advisory Board (RAB) meets quarterly to discuss the Base's Environmental Restoration Program with the local community. You are invited to the next RAB meeting to learn more about the Environmental Restoration Program and to provide input on the Munitions Response Site Prioritization Protocol (MRSPP) as described below. This RAB meeting will be held on **Wednesday November 14, at 6:00 PM** at the following location:

Coastal Carolina Community College
Business Technology Building, Room BT106
444 Western Boulevard
Jacksonville, NC 28546

MRSPP: The Navy is updating the MRSPP to update information for four sites and add one new site. The MRSPP scores sites based on site conditions and the potential risk posed to human health and the environment.

For More Information:
Munitions response site documentation and prioritization scores are also available at the information repository and on the public website for MCB Camp Lejeune:

Onslow Public Library
58 Doris Avenue East
Jacksonville, NC 28540
(910) 455-7350

Public Website: **http://go.usa.gov/Dy5T**

This meeting is rescheduled from September 12, 2018, which was cancelled due to weather. If you would like to receive additional information about the RAB, please contact:

Ms. Charity Delaney
MCB Camp Lejeune RAB Co-Chair
(910) 451-9385
Lejeune_IR_Program@usmc.mil
Or visit: **http://go.usa.gov/x3f7m**

OBITUARIES

Daily News Obit Policy

The Daily News provides obituary notices free of charge. Paid obituaries are furnished with photos and a contributed article. For our full policy, visit Legacy.com/obituaries/jdnews/

OBITUARIES

Samuel MacCargar

Samuel Aaron MacCargar, 27, of Jacksonville died April 3, 2019 at his home.

Graveside service will be held at 1 p.m. Saturday at Gethsemane Memorial Park, Morehead City.

Survivors include children, Oliver Graeson MacCargar, Micah Sebastian Hines, Scarlett Rose Garrett, Zelda Jamie-Lynn MacCargar; mother, Deb MacCargar; and father, Bob MacCargar.

Arrangements are by Jones Funeral Home, Swansboro.

Gloria Joles

Gloria Richey Joles, 81, of Jacksonville died May 1, 2019, at her home.

Graveside service will be held at 11:30 a.m. Monday at Onslow Memorial Park.

Survivors include daughters, Diana Zamora, Donna Prevatte, both of Jacksonville.

The family will receive friends from 10 to 11 a.m. before the service at Jones Funeral Home, Jacksonville and other times at the home.

Fannie Rogers

ROSE HILL – Fannie Bell Moore Rogers, 98, of Rose Hill died May 1, 2019, at Kenansville Rehab Center.

Funeral will be held at 4 p.m. Saturday at Rose Hill Funeral Home with interment following at the funeral home cemetery, Magnolia.

Survivors include sons, Jimmy Rogers of Rose Hill, Johnny Rogers of Philadelphia, James M. Murray of Steadman; daughter, Catherine Rogers Lanier of Rose Hill.

Visitation will be one hour before the service.

Roland Atkinson

MAGNOLIA – Roland Owen Atkinson, 70, of Magnolia died April 30, 2019, at N.C. State Veterans Hospital.

Funeral will be held at noon on Friday at Rose Hill Funeral Home with interment following at Atkinson family cemetery, Magnolia.

Survivors include wife, Jessie Atkinson of Magnolia; son, Derrick Fennell of Clinton; daughters, Rolanda Jackson of Magnolia, Gabrielle Townsend of Garland; brothers, Leonard Atkinson of Magnolia, Scott Chappelle of Philadelphia; and sister, Lina Underwood of Magnolia.

Visitation will be one hour before the service.

Retha Kenan

TEACHEY – Retha Mae Witherspoon Kenan, 87, of Teachey died April 29, 2019, at her home.

Funeral will be held at 1 p.m. Saturday at Rose Hill Funeral Home with interment following at funeral home cemetery, Magnolia.

Survivors include son, Ronald Lee Kenan; daughter, Denise Kenan, both of Teachey; and brother, J.D. Witherspoon of Rose Hill.

Visitation will be one hour before the service.

Amanda Quinn

BEULAVILLE – Amanda Higgs Quinn of Beulaville died April 27, 2019, at her home.

Memorial will be held at 6 p.m. Saturday followed by visitation at Community Funeral Home of Beulaville.

Survivors include son, Lux Hamilton; daughter, Kyndall Quinn, both of Beulaville; brothers, Billy Higgs of Cary, Greg Higgs of Roanoke Rapids.

Truett Miller Sr.

WILMINGTON – Charles Truett Miller Sr., 80, of Wilmington died April 30, 2019, at Lower Cape Fear Hospice Center.

Funeral will be held at 2 p.m. Saturday at Community Funeral Home of Beulaville with interment at East Duplin Memorial Gardens, Beulaville.

Survivors include spouse, Betty Houston Miller of Wilmington; son, Charles T. "Chuck" Miller Jr. of Hampstead; daughter, Kimberly Dopson of Wilmington; and brothers; W.L. Miller of Clinton, Jerry Miller of Cary.

Visitation will be one hour before the service.

Eli McAllister

FAYETTEVILLE – Eli McAllister, 72, of Fayetteville died April 29, 2019.

Celebration of life will be held at 3 p.m. Saturday at Marshall Chapel Baptist Church with interment following at Washington-Hill Cemetery.

Survivors include wife, Helen McAllister of the home; daughter, Helena McAllister; sons, Domonique McAllister, Eli McAllister Jr., William McAllister, all of Fayetteville.

Visitation will be one hour before the service.

Arrangements by Saunders Funeral Home.

Edward Boyle

SWANSBORO – Edward Francis Boyle, 69, of Swansboro died April 28, 2019, at his home.

Services will be held later in New Jersey.

Survivors include sisters, Mary Giordano of Sicklerville, New Jersey, Catherine Boyle of Manchester, New Hampshire, Suzanne Musetto of Cherry Hill, New Jersey, Laura Schmidt of Newbery, New Hampshire, Shelley Stahl of Marlton, New Jersey.

Arrangements by Jones Funeral Home, Swansboro.

Steve McCarver

HUBERT – Steve Wesley McCarver, 72, of Hubert died April 29, 2019, at his home.

Survivors include daughters, Stephanie Moore of the home, April Lee of Brunswick, Georgia, Summer Bracher of Nags Head; brother, Mason "Butch" McCarver of Pineville; and sister, Denise Canant Curran of Virginia.

The family will receive friends from 4 to 6 p.m. Sunday at Jones Funeral Home, Swansboro.

Meredith Horner

Swansboro – Meredith Halford Horner, 90, passed away peacefully at Harbor-Chase of Columbia.

She was born July 19, 1928, in Gilkey, NC; daughter of the late Albert and Mary Frady Halford.

A celebration of life service will be held at 2 p.m. Saturday, May 4, 2019, in the chapel of Jones Funeral Home, Swansboro with Rev. Terry Golden officiating. Burial will follow at Piney Grove Baptist Church Cemetery.

Meredith loved to knit and spend time with her family, one of her greatest joys was traveling with her husband while he was in the military and then continued after his retirement as they love to go camping.

She is survived by her daughter, Lou McLean (Walter) of Boone, NC; sons, Tommy Horner Jr. (Monica) of Oxford, NC and Jimmy Horner (Robbin) of Hubert, NC; five grandchildren, Caroline Pearson, Lizzie Horner, Crystal Dawn Horner, James David Horner Jr., and Rowdy Lewis Horner and two great-grandchildren; brother, Escar Halford of Hickory, NC; and sister, Lois Siegel of TX.

She was preceded in death by her husband, Tom Horner Sr.; and brother, Charles Halford.

Online condolences may be made at Jonesfh.org or at JDNews.com.

Arrangements are by Jones Funeral Home, Swansboro.

RESPONDER

From Page A1

Her son was present at the accident and was so impressed with what we did to help his mom he joined the department as a volunteer and became a career firefighter.

Where else have you worked in the past? Describe the road to your current position.

I started as a volunteer at 16. I attended college and volunteered at Winter Park Volunteer Fire Department (Wilmington).

I graduated college and became a police officer, still volunteering as a firefighter. I rose through the ranks and became chief of the department while working as a police officer.

After 10 years of law enforcement I had the opportunity to work as a career captain at Leland Fire/Rescue.

I worked at Leland for 10 years. I then went to work at Cape Fear Community College in the Public Safety Department for two years prior to coming to Onslow County.

What was the most memorable case you've worked?

There have been so many memorable calls. The most memorable one I can think of right now would have to be Hurricane Florence. The rescues, damage and sheer time frame this disaster lasted will be very memorable.

What pushes you to stay on this career path and continue working in such a challenging profession?

Being able to help people in a time of crisis in a highly skilled profession. Constant learning and new challenges keep my job interesting.

Want to nominate someone for FRF? Contact City Editor Amanda McReynolds at amcreynolds@jdnews.com with the person's name, contact information and a brief reason for nomination.

LOST SOMETHING?

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PUBLIC NOTICE

Restoration Advisory Board Meeting, Public Meeting, and Five-Year Review
Marine Corps Base Camp Lejeune, North Carolina

You are invited to the next Restoration Advisory Board (RAB) meeting for Marine Corps Base (MCB) Camp Lejeune. The RAB is a community advisory group that meets quarterly to discuss the Base's Environmental Restoration Program. The Environmental Restoration Program focuses on hazardous materials in the environment from past handling or disposal practices, as well as potential health and safety hazards from unexploded ordnance, discarded military munitions, and munitions constituents.

RAB Meeting: Please join us at the next RAB meeting to learn more about the Environmental Restoration Program and to provide input on the Proposed Plan for UXO-24 and Five-Year Review as described below. This RAB meeting will be held on **Wednesday May 15, at 6:00 PM** at:

Coastal Carolina Community College
Business Technology Building, Room BT106
444 Western Boulevard
Jacksonville, NC 28546

If you would like to receive additional information about the RAB, please contact Ms. Charity Delaney, the MCB Camp Lejeune RAB Co-Chair, at (910) 451-9385, or visit: http://go.usa.gov/x3f7m.

Public Meeting: The Navy is inviting public comment on the Proposed Plan for Site Unexploded Ordnance (UXO) 24. The Proposed Plan identifies and discusses the preferred alternative of land use controls for addressing potential explosive hazards at Site UXO-24. Information about the site and the preferred alternative will be presented at the meeting. The Navy invites interested members of the public to review and comment on the Proposed Plan during the 30-day public comment period from May 15 through June 15, 2019. Public comments must be submitted in writing and postmarked or e-mailed no later than May 30, 2019. Comments may also be provided verbally during the public meeting. Please send all comments to:

Mr. Dave Cleland
NAVFAC Mid-Atlantic
9324 Virginia Ave
Norfolk, VA 23511
david.t.cleland@navy.mil

The Proposed Plan is based upon the findings of previous site-related documents contained in the Administrative Record for MCB Camp Lejeune that are available for review here: http://go.usa.gov/Dy5T.

Five-Year Review: The Navy, as the lead agency, is beginning the Five-Year Review of environmental cleanup actions at MCB Camp Lejeune in accordance with requirements of the Comprehensive Environmental Response, Compensation, and Liability Act. The Navy is completing this review with support from MCB Camp Lejeune, the United States Environmental Protection Agency, and the North Carolina Department of Environmental Quality.

The purpose of a Five-Year Review is to ensure that cleanup actions are continuing to protect human health and the environment. Sites are included in the Five-Year Review if contaminants remain above levels that would allow for unlimited use and unrestricted exposure and if there is a signed Record of Decision in place. The Record of Decision, which includes an evaluation of potential human health and environmental risks, documents the cleanup remedy that was selected for the site following consideration of public comments. The last Five-Year Review was completed in 2015 and the report on this Five-Year Review will be available in 2020.

Environmental cleanup actions, including groundwater treatment, soil cover, long-term monitoring, and/or land use controls, are currently being conducted at 25 sites at MCB Camp Lejeune to address contaminants in soil, groundwater, and surface water. Cleanup actions such as removal and land use controls are being implemented at 3 sites to address explosive hazards related to munitions items.

If you have any questions or input on the Five-Year Review process, please contact Mr. Dave Cleland, the Navy Remedial Project Manager, at (757) 341-0329 or david.t.cleland@navy.mil. The Navy welcomes your input!

For More Information: If you would like additional information on the Environmental Restoration Program, the Site UXO-24 Proposed Plan, or the Five-Year Review visit the public website (http://go.usa.gov/Dy5T) and information repository for MCB Camp Lejeune at:

Onslow Public Library
58 Doris Avenue East
Jacksonville, NC 28540
(910) 455-7350

CROSSWORD

By THOMAS JOSEPH

ACROSS

1 Marina sight
6 Computer shortcut
11 Old anesthetic
12 Earthy color
13 Intent look
14 Pentagon bigwigs
15 Face feature
17 Savvy about
18 Falls back
20 Protracted
22 Bar need
23 Summer
26 Got up
28 Chew the scenery
29 Bar orders
31 Phone bill addition
32 Bud's place
33 Storage spot
34 Goblet part
36 Spot
38 Comic strip unit
40 Ominous tarot card
43 Tickle
44 Goof
45 Alacrity
46 Hand costs

DOWN

1 "For sure!"
2 Lawyer: Abbr.
3 Case relocation
4 Long lunches
5 "— bien!"
6 Unruly group
7 NASA, for one
8 Attitude reversal
9 Take five
10 Approximating phrase
16 Peyton's brother
18 Tale teller
19 Farm unit
21 Some poetry
23 "Alice" diner
24 Suit to —
25 Oboe part
27 Cat variety
30 Guitarist Paul
33 Boat's back
34 Relaxing places
35 Pack down
37 Concept
39 Went ahead
41 Sock part
42 Day pts.

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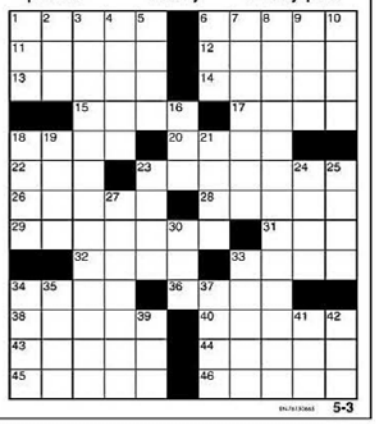
B	O	O	S	T	S	■	S	E	E	N

Yesterday's answer



5-3

ENVIRONMENTAL CLEANUP.
WANT TO KNOW MORE?

Join us for the next Camp Lejeune Restoration Advisory Board Meeting

- Who: YOU!
- What: Presentations Regarding Environmental Cleanup at Camp Lejeune
  - Hurricane preparedness
  - Updates on activities at Site UXO-06
  - Review of the vapor intrusion Five-Year Review re-evaluation
- When: Wednesday, July 31, 2019 @ 6:00 pm
- Where: Coastal Carolina Community College, **Room BT106**

http://go.usa.gov/x3f7m

Campus Map:
http://www.coastalcarolina.edu/maps/

Waste Management
ENVIRONMENTAL QUALITY

YOU ARE INVITED
To Provide Your Input on Environmental Cleanup at MCB Camp Lejeune

Who: YOU (Board members and public)

What: Restoration Advisory Board Meeting

When: Wednesday, November 20, 2019 at 6:00 PM

Where: Coastal Carolina Community College
Business Technology Building, Room BT106 444
Western Boulevard Jacksonville, NC 28546

Why: MCB Camp Lejeune is in the process of updating its Community Involvement Plan (CIP) for the Environmental Restoration Program (ERP) for fiscal year 2020. The CIP describes specific outreach methods to provide information to the community about the ERP and is updated based on results of community interviews and feedback. Please join us for the November 2019 RAB meeting to learn about the ERP and provide your input to update the CIP!

Meeting Agenda

- Overview of Environmental Restoration Program at Camp Lejeune
- Review of the CIP and accomplishments
- Discussion/Questions/Feedback on the 2020 CIP

If you would like to receive additional information about the RAB meeting, please contact Ms. Kirsten Hiortdahl, the MCB Camp Lejeune RAB Co-Chair, at (910) 451-5878, or visit: http://go.usa.gov/x3f7m.

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PUBLIC NOTICE
Restoration Advisory Board Meeting
Marine Corps Base Camp Lejeune, North Carolina

You are invited to the next Restoration Advisory Board (RAB) meeting for Marine Corps Base (MCB) Camp Lejeune. The RAB is a community advisory group that meets quarterly to discuss the Base's Environmental Restoration Program. Please join us at the next RAB meeting to learn more about the environmental cleanup process on the Base and to provide your input. This RAB meeting will be held on **Wednesday February 19, at 6:00 PM** at:

Coastal Carolina Community College
Business Technology Building, Room BT106
444 Western Boulevard
Jacksonville, NC 28546

If you would like to receive additional information about the RAB, please contact Ms. Kirsten Hiortdahl, Co-Chair, at (910) 451-5878, or visit: http://go.usa.gov/x3f7m.

Record of Decision Available for Operable Unit 26, Site UXO-24 and Site 37 at Marine Corps Base Camp Lejeune North Carolina

The United States Department of the Navy announces the availability of the Record of Decision (ROD) for Operable Unit 26, Site Unexploded Ordnance (UXO)-24 and Site 37, located aboard Marine Corps Base Camp Lejeune. The ROD documents the Navy's selected remedy for addressing the potential presence of munitions and explosives of concern (MEC)/material potentially presenting an explosive hazard (MPPEH) at Site UXO-24. The Selected Remedy for Site UXO-24 is land use controls which requires explosives safety education training for onsite personnel. The effectiveness of this remedy will be reviewed every five years.

No further action is recommended for Site 37 because MEC/MPPEH has not been identified within the site boundary, and exposure to surface or subsurface soil and groundwater at the site is not expected to result in unacceptable risks to human or ecological receptors.

Prior to selecting the remedy, a public meeting and comment period were held. Clarifying questions were asked, but no specific comments on the proposed plan were submitted. The ROD has been reviewed and approved by the United States Environmental Protection Agency and the North Carolina Department of Environmental Quality.

For More Information

The ROD and the Administrative Record file for this site, which includes all documents used as the basis for this decision, are available on the public website (http://go.usa.gov/Dy5T) which can be accessed at:

Onslow Public Library
58 Doris Avenue East
Jacksonville, NC 28540
(910) 455-7350

C

Appendix C *Fact Sheets*

Sample Fact Sheets for Marine Corps Base Camp Lejeune

North Carolina

Table C-2 lists the fact sheets published by the Navy/Marine Corps since the last CIP update in February 2015. Fact sheets have been issued as needed and appropriate to explain project activities to stakeholders. The fact sheets follow this page.

TABLE C-2
EXAMPLE FACT SHEETS

Date of Publication	Title
April 2016	Environmental Investigation Activities Near Water Towers, Marine Corps Base Camp Lejeune, North Carolina
July 2018	Investigation Activities at Building 1828, Installation Restoration Program Site 96, Marine Corps Base Camp Lejeune, North Carolina
January 2020	Vapor Intrusion Mitigation Systems, Marine Corps Base Camp Lejeune, North Carolina
March 2020	Environmental Investigation Activities Near Water Towers, Marine Corps Base Camp Lejeune, North Carolina
April 2020	Operable Unit 15, Site 88 – Former Base Dry Cleaning Facility, Marine Corps Base Camp Lejeune, North Carolina
May 2020	Basewide Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Assessment and Site Inspection, Marine Corps Base Camp Lejeune and Marine Corps Air Station New River, North Carolina

Environmental Investigation Activities Near Water Towers

Marine Corps Base Camp Lejeune, North Carolina

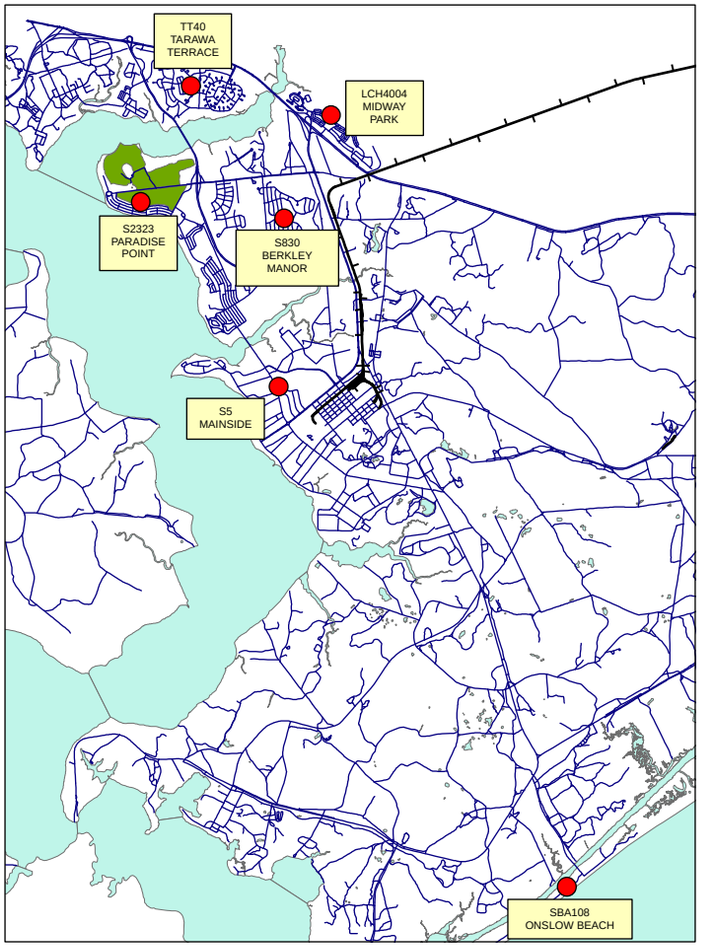
April 2016

The purpose of this information flyer is to notify you that lead may be present in soil around current and former water tower locations due to the historical use of lead-based paint on the exterior of the towers. ***As a precaution, do not dig or disturb the soil or allow children to play in the fenced in areas identified in Figure 1 until studies and cleanup activities have been completed. This does not affect your drinking water.*** *Soil contamination studies are being done by Camp Lejeune's Environmental Management Division (EMD), in partnership with the U.S. Environmental Protection Agency (USEPA) and North Carolina Department of Environmental Quality (NCDEQ).*

Background

Lead-based paint was used in more than 38 million homes throughout the U.S. until it was banned for residential use in 1978. Lead-based paint was also used for industrial facilities, such as water towers. Paint-stripping, weathering, and flaking of the exterior paint may cause lead to be present in the soil around the base of the towers. In August 2015, Camp Lejeune, USEPA, and NCDEQ identified the need to sample soil near water towers that were recently demolished. Based on the results of the soil sampling at these towers, the soil near one additional existing water tower has been sampled. Sampling at other existing water towers is planned in the near future, as well.

Figure 1 – Water Tower Sites with Confirmed Soil Contamination



Investigation Activities

Initial soil sampling was conducted at eight recently demolished water tower sites from September through November 2015. Additionally, soil was sampled around existing water tower TT40 in March 2016. Sample results were compared with State of North Carolina regulatory screening levels for lead in soil to rule out sites that do not require environmental cleanup action.

- Three of the demolished water tower sites (S29, SFC314, and S1000) do not require environmental cleanup.
- Five of the demolished water tower sites (S5, SBA108, LCH4004, S830, and S2323), and the soil around water tower TT40, require further environmental investigation to determine whether environmental cleanup action is needed (**Figure 1**). Four of these six sites are located close to housing areas (LCH4004 in Midway Park, S830 in Berkeley Manor, S2323 in Paradise Point, and TT40 in Tarawa Terrace). Orange fences were installed around these sites to prevent exposure (**Figure 2**). The orange fencing encloses all known areas of excessive contamination.

Figure 2 – Installed Fences

Next Steps

Additional investigation is planned at the six water tower sites where lead is present in soil above regulatory screening levels. Soil will be sampled to determine the exact location, depth, and concentration of lead. Additional testing is also planned at other existing water tower locations, as lead-based paint was permitted for use on non-residential structures after 1978. The results of the investigation will be evaluated to identify any potential risks to human health and the environment. If potential risks are identified, the affected soil will be removed or protected if excavation is not feasible, such as near an existing water tower. A report will be prepared to summarize the activities conducted, findings, and recommendations.

Camp Lejeune's Drinking Water is Safe

Camp Lejeune's drinking water comes from very deep wells that are not located in the areas of any of the former or existing water towers where lead samples exceeded regulatory screening levels. Drinking water wells are not affected by the lead in the soil that is being investigated.

Camp Lejeune drinking water is regularly tested and continues to meet all government safe drinking water standards. Every year, Camp Lejeune publishes a drinking water quality report that provides details about where its drinking water comes from and how it compares to safe drinking water standards. You can find these reports by visiting the Base website at *http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt/AnnualReports.aspx* and selecting **Holcomb Boulevard**, which is the drinking water treatment facility that serves Midway Park, Tarawa Terrace, Berkeley Manor, and Paradise Point.

What is lead?

Lead is a naturally occurring element found in small amounts in the earth's crust. While it has some beneficial uses, it can cause health effects in humans and animals.

Where is lead found?

Lead can be found in all parts of our environment – the air, the soil, the water, and even inside our homes. Much of our exposure comes from human activities including the use of fossil fuels such as leaded gasoline, some types of industrial facilities, and past use of lead-based paint. Lead and lead compounds have been used in a wide variety of products found in and around our homes, including paint, ceramics, pipes and plumbing materials, solders, gasoline, batteries, ammunition, and cosmetics.

How can people be exposed to lead?

Exposure to lead can occur through ingestion (eating or drinking), breathing, or skin contact. Lead exposure occurs primarily through ingestion, and lead paint is the major source of lead exposure. As lead paint deteriorates, peels, chips, or is removed, dust and surrounding soil may become contaminated.

Lead then enters the body through normal hand-to-mouth activity. Lead exposure can cause a variety of health effects when people are exposed to sufficient quantities. **It is important to note that young children should avoid even small exposures to lead because they are especially susceptible to health effects.** The USEPA and the US Department of Housing and Urban Development (HUD) have published a pamphlet explaining the risks from lead based paint and ways to reduce exposure. The pamphlet is available at *http://www.epa.gov/lead/protect-your-family-lead-your-home.*

What are Regulatory Screening Levels?

If concentrations of chemicals are below the "screening levels" defined by environmental regulatory agencies, it is generally agreed that little or no risk to human health or the environment is likely to result. If chemicals are above screening levels, further study of possible health or environmental risks is required.

For More Information

If you have questions or concerns, please contact the Base Environmental Management Division:

Charity Delaney at (910) 451-9385
Email: charity.delaney@usmc.mil
Website: *http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt.aspx*

To learn more about lead:

USEPA website: *http://www.epa.gov/lead/learn-about-lead*

National Lead Information Center: 1-800-424-LEAD (5323)

How Can Building Occupants Help?

It is not always easy to tell whether VOCs detected during indoor air sampling are due to background air conditions, vapor intrusion from the soil and groundwater, or both. Therefore, you can help make the testing more accurate by avoiding the following activities:

- Storing freshly dry-cleaned clothing indoors.
- Using personal products such as nail polish remover, hair spray, and perfume. (If the building being sampled is your work place, you may use these products at home before you come to work.)
- Using cleaning products such as bathroom cleaners, furniture polish, appliance cleaners, all-purpose cleaners, floor cleaners, air fresheners, and odor eliminators.
- Working on projects that involve paint, varnish, glue, and similar products.
- Using solvents or degreasers.
- Cleaning guns (weapons) within the week prior to the sampling event.
- Smoking indoors or within 20 feet of open doors or windows.
- Opening windows during the sampling event.
- Disturbing sampling devices or canisters.

What Happens Next?

A treatability study and investigations are being conducted to evaluate and address the VOCs in soil and groundwater that could be the source of vapors at or near Building 1828. The results of the treatability study and investigations will be reported in technical memorandums which are submitted to USEPA and the NCDEQ and will be included in the Camp Lejeune Administrative Record.

For More Information

If you have questions, please contact:
Charity Delaney | 910-451-9385 | charity.delaney@usmc.mil
Thomas Richard | 910-451-9641 | thomas.richard@usmc.mil

For general information about the Camp Lejeune Environmental Restoration Program, please visit:
http://go.usa.gov/Dy5T

NG0914171349CLT

Investigation Activities at Building 1828, Installation Restoration Program Site 96

Marine Corps Base Camp Lejeune, North Carolina

July 2018

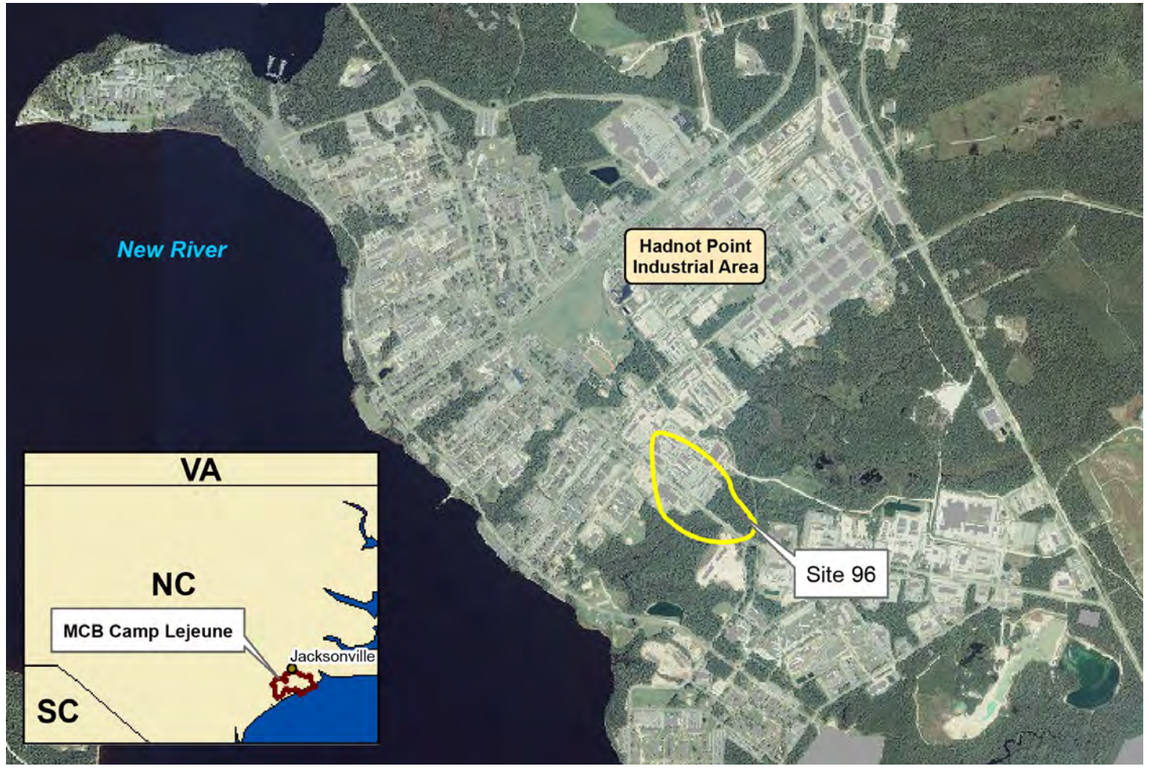
Background

From 2007 to 2013, a Basewide Vapor Intrusion Investigation was conducted to determine if contaminants are moving in vapors from groundwater up through soil and into buildings at Marine Corps Base Camp Lejeune. Building 1828 was included in the Basewide Vapor Intrusion Investigation because it is located in an area of known soil and groundwater contamination associated with Site 96. **No immediate risks to building occupants were identified during the investigation.** This fact sheet describes the vapor intrusion studies that have been conducted at Building 1828 and the proposed future activities.

Site 96 covers approximately 14 acres in the Hadnot Point Industrial Area of Mainside (Figure 1). Site 96 is the site of a former 300-gallon waste oil underground storage tank that was removed in July 1997. Environmental investigations revealed tetrachloroethene (PCE) and trichloroethene (TCE) contamination in soil and groundwater. PCE and TCE are common solvents used in degreasers.

Not all volatile organic compounds (VOCs) found indoors come from contaminated soil and groundwater. Many substances commonly found in commercial and residential settings contain VOCs that may be detected by indoor air testing. These include paints, paint thinners, gasoline-powered machinery, certain building materials and cleaning products, certain types of personal products, dry-cleaned clothing, and cigarette smoke. Even VOCs from motor vehicle emissions and other outdoor sources can contaminate indoor air. When VOCs from these types of sources are detected during indoor air sampling, they are referred to as background sources of VOCs.

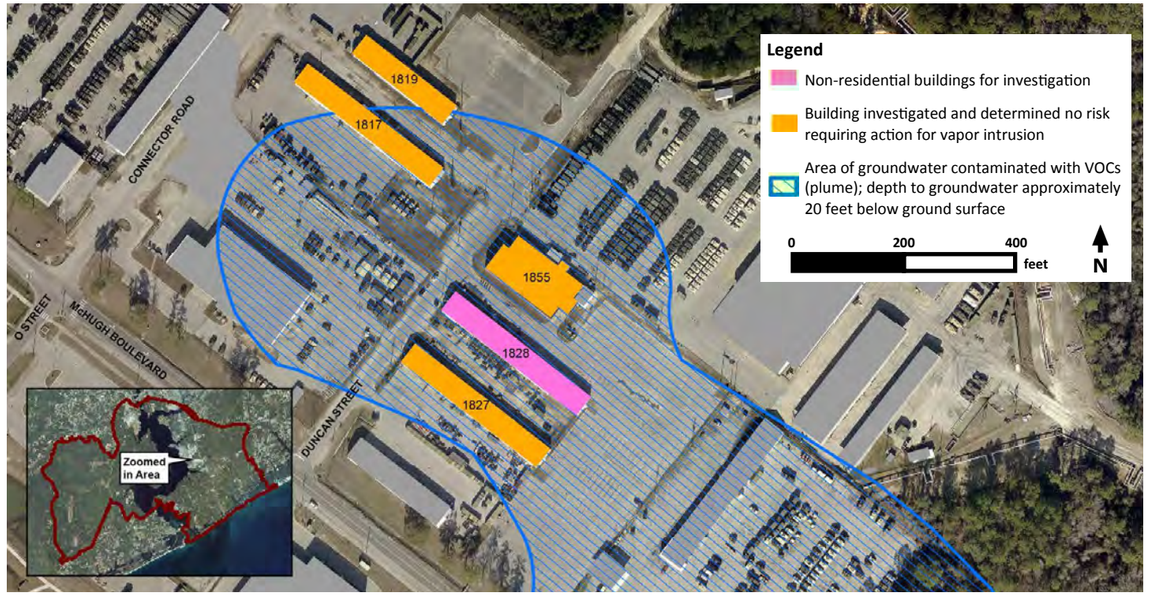
Figure 1. Site Location



Site 96 Investigation Results

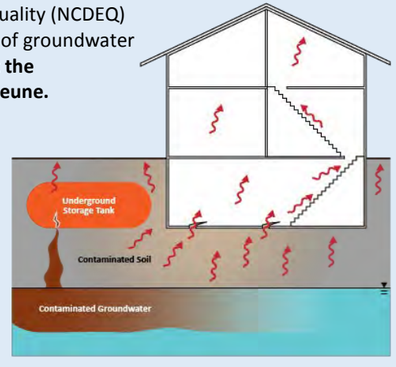
Buildings 1817, 1819, 1827, 1828, and 1855 at Site 96 were included in the Basewide Vapor Intrusion Investigation based on their locations within 100 feet of groundwater that contains VOCs above the vapor intrusion screening levels. Soil gas samples and indoor air samples were collected within these buildings, and the results were not above screening levels within Buildings 1817, 1819, 1827, and 1855. Therefore, no further action was recommended for these buildings. At Building 1828 (Figure 2), located near the intersection of McHugh Boulevard and Duncan Street, continued monitoring was recommended due to concentrations of PCE above screening levels below the slab at the south end of the building. **No immediate risks to building occupants were identified during this investigation.**

Figure 2. VOC Plume beneath Building 1828



What is vapor intrusion?

Vapor intrusion is the term used to describe the movement of contaminants from a contaminated source in soil or groundwater up through the soil into buildings. Under the right conditions, certain types of VOCs can evaporate and move as vapors through the soil or shallow groundwater and seep into buildings through cracks in basements, foundations, utility conduits, or other openings of a building (see illustration). Vapor intrusion can be a concern if vapors build up to levels that could potentially pose health risks to building occupants. For this reason, both the United States Environmental Protection Agency (USEPA) and the North Carolina Department of Environmental Quality (NCDEQ) recommend that vapor intrusion be evaluated for buildings located within 100 feet of groundwater or soil contaminated with VOCs above regulatory screening levels. **Please note that the contaminated groundwater is NOT used as a source of drinking water at Camp Lejeune.**



What are screening levels?

Screening levels are levels determined by state and federal environmental agencies, based on specific media (for example, soil or groundwater) and potential health risk. When concentrations of chemicals are below the screening levels defined by the NCDEQ, it is generally agreed that little or no risk to human health or the environment is likely. If concentrations are above screening levels, more investigation or protective action (such as vapor intrusion mitigation) may be needed. Just because indoor air may exceed a screening level does not automatically mean there is an immediate health risk.

What Happens Next?

Additional vapor intrusion monitoring will be conducted at Building 1828 to determine the current levels of PCE and TCE in indoor air as well as in soil gas below the building slab (subslab). Vapor intrusion monitoring can require several days of onsite activities, but should not disrupt everyday activities in your building. The following vapor intrusion monitoring activities will be conducted:

Subslab Soil Gas Samples will be collected from the air directly below the building. These samples show whether contaminants could enter the building and indicate if there is potential vapor intrusion. To collect a subslab soil gas sample, a technician will drill a hole (about the size of a quarter) through the floor slab and install a sample probe. Sampling the location will take a technician about an hour. Air samples from the probe will be collected in canisters. Subslab soil gas monitoring points will consist of vapor pins. They have silicone sleeves and caps and are designed to reduce the potential for leaks during sample collection, to reduce damage to the building slab, and to minimize sampling time compared to traditional subslab soil gas sampling methods. For more information on these pins: https://vaporpin.coxcolvin.com/.

Exterior Soil Gas Samples will be collected using a small track-mounted drill rig. The drill rig will push a sample probe into the ground outside of Building 1828. The sample probe will be installed one day and a sample team will return the following day to collect a sample. No access to the inside of the building is required for this activity.

Indoor Air Samples will be collected to figure out whether vapor intrusion is occurring and, if so, to determine VOC concentrations for comparison to regulatory screening levels. Indoor air samples will be collected using steel canisters about the size of a volleyball. The air has been pumped out of the canister so it is under a vacuum. When the valve is opened, the canister slowly draws in the air from the area in which it has been placed. It uses no pumps or mechanical devices and therefore makes no noise. After 24 hours, a technician will return to collect the canister, and the sample will be sent offsite for laboratory analysis and to determine an average concentration over the course of one day.

Outdoor Air Samples are usually collected for comparison to indoor air to show the typical "background" concentrations in the area. Outdoor air samples will be collected upwind of the building using canisters similar to those used for indoor air sampling. These canisters are typically chained to permanent structures such as light or telephone poles. The canisters remain in place for 24 hours.

Health Effects

Exposure to VOCs does not mean that adverse health effects will occur. Adverse effects depend on many factors including chemical concentrations, how long and how often the exposure occurs, the individual's sensitivity to the specific chemical, and the toxicity of the chemical. Most environmental cleanup standards are established by government environmental agencies at very low levels designed to protect the most sensitive people—infants, children, or the elderly—against a lifetime of exposure.

The results of indoor air sampling at Building 1828, compared with risk-based screening levels, do not indicate that there is an unacceptable health risk to building occupants. Camp Lejeune is taking precautionary actions to prevent people from being exposed to ensure that no unacceptable health risks occur in the future. However, if you have concerns about your health, you should contact Naval Hospital Camp Lejeune Occupational Health Clinic (910-451-2181) or speak with your health care provider.

Vapor Intrusion Mitigation Systems

Marine Corps Base Camp Lejeune, North Carolina

January 2020

This fact sheet provides information on the vapor intrusion mitigation systems (VIMS) that have been installed to ensure vapor intrusion does not impact indoor air quality in the following buildings:

- *Mainside - Buildings 3, 3B, 37, 43, WC500, WC504, and WC510*
- *Hadnot Point - Buildings 902, 1005, 1068, 1101, 1108, 1115, 1200, 1201, 1202, and 1301*
- *Midway Park - Buildings LCH4007 and LCH4014*
- *Camp Geiger - Buildings G484, G773 and P674*

What is vapor intrusion? Under the right conditions, certain types of volatile chemicals can evaporate and move through the soil or shallow groundwater and seep into buildings through cracks in basements, foundations, or other openings of a building (see Figure 1). Volatile Organic Compounds (VOCs) are chemicals that can evaporate easily at room temperature. Vapor intrusion can be a concern if vapors build up to levels that could potentially pose health risks to building occupants. For this reason, the U.S. Environmental Protection Agency (USEPA) recommends that vapor intrusion be evaluated for buildings located within 100 feet[1] of groundwater or soil contaminated with volatile chemicals above regulatory screening levels. **Please note that the contaminated groundwater is NOT used as a source of drinking water at Camp Lejeune.**

What are screening levels? Screening levels are generally recommended, media-specific, risk-based screening-level concentrations. When concentrations of chemicals are below the screening levels defined by environmental regulatory agencies, it is generally agreed that little or no risk to human health or the environment is likely. If concentrations are above screening levels, more investigation or protective action (such as vapor intrusion mitigation) may be needed. An exceedance of an indoor air screening level does not automatically imply imminent danger to life and health, or that the the VIMS is not working.

What is vapor intrusion mitigation? Mitigation involves taking protective actions to prevent or reduce vapor entry into a building from subsurface sources. These actions may include sealing vapor entry points, increasing the amount of fresh air circulation, or installing a VIMS that can effectively remove the soil vapor and vent it outside before it can enter an occupied building. VIMS can be operated actively (using a fan to phyically remove vapors) or passively (as a venting system).

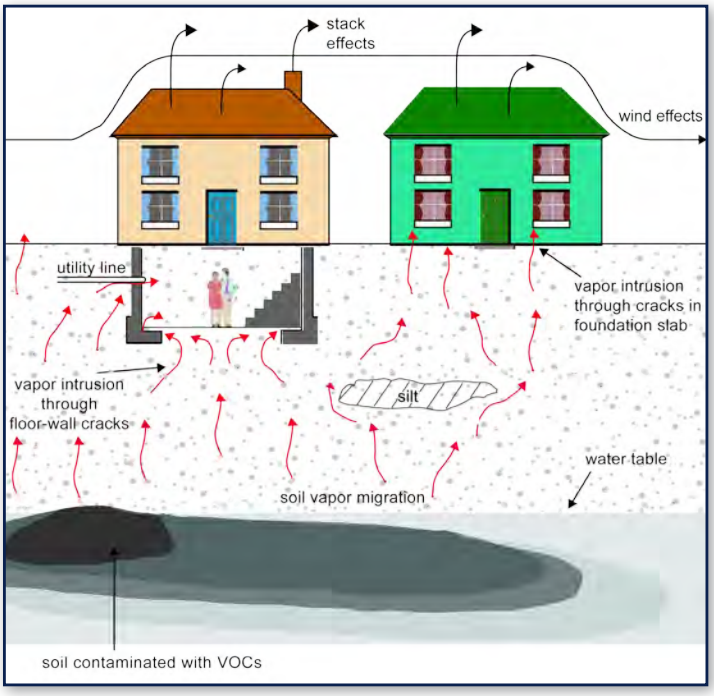
Background

Since 1999, Camp Lejeune has been evaluating the potential for vapor intrusion into buildings located near groundwater or soil known to be contaminated with VOCs. A comprehensive Base-wide vapor intrusion evaluation was completed in 2010 and updated in 2013. **No immediate health risks to building occupants were identified during this comprehensive evaluation**. However, based on the results of these evaluations, the Base has installed VIMS in 21 buildings where there might be a potential of vapor intrusion, either at the time of study or in the future. Additional VIMS are planned as precautionary measures for select military construction projects.

VIMS Installation

Vapors naturally move from areas of higher pressure to areas of lower pressure. For most buildings, the air pressure is higher beneath the building enabling underground vapors to move up and into the overlying buildings. The VIMS work by reducing the pressure beneath the building, which prevents vapors from moving inside (see Figure 2). Suction points are installed beneath the building slab and are connected to a blower or fan that produces a vacuum. This vacuum reduces the air pressure immediately beneath the building, which keeps vapors that may collect beneath the building from intruding into the building.

Figure 1 – Vapor Intrusion Conceptual Site Model



[1]*Research suggests that a smaller radius can be used in assessing vapor intrusion from petroleum-related VOCs as documented in USEPA's June 2015 Final Guidance for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites.*

The Base has installed VIMS in the following buildings:

- Building 1101 – systems were installed in 1999/2000 due to odor complaints received after soil and groundwater remediation systems began operating at the former Hadnot Point Fuel Farm.
- Buildings 1108, 1200, 1201, 1202, and 1301 – active systems were installed in 2006 as a preventive measure because they are close to the remediation systems for the former Hadnot Point Fuel Farm.
- Buildings 3, 3B, 37, 43, 902, 1005, and 1115 – active systems were installed in 2011 and 2012 as a precaution based on information collected during Base-wide vapor intrusion evaluations.
- Building 1068 – an active system was installed in 2011 due to complaints of petroleum odors within the building.
- Buildings LCH4007 and LCH4014 – active systems were installed in 2012 and 2013 as a precautionary measure based on information collected during site investigation activities conducted near these buildings.
- Building G484 and P674– vapor barrier was installed during construction as a precautionary measure.
- Buildings WC500, WC504, WC510, AND G773 – systems were installed during construction as a precautionary measure.

Performance Monitoring

The Base is conducting performance monitoring to ensure the VIMS are effective and operating as designed. This ongoing program includes:

- Pressure monitoring to confirm there is a negative pressure maintained beneath the slab, to prevent vapors from seeping into the buildings.
- Exhaust monitoring to collect measurements of VOCs from various sampling ports installed on the VIMS vent piping. The data are used to evaluate the levels and type of VOCs being removed by the VIMS and to assess any trends over time.
- Indoor air monitoring to collect measurements of VOCs within the buildings at both the floor level and breathing level. Compound-specific analytical data are used to compare VOC concentrations to regulatory screening levels and to outdoor air concentrations and to assess any trends over time.

The frequency of performance monitoring varies by building, based on the results of previous monitoring and trends over time.

Summary of Current Results

The performance monitoring conducted to-date shows that the VIMS are working effectively at each building to prevent vapor intrusion from occurring. **Based on available guidance, the data collected to date do not indicate there is an unacceptable health risk to building occupants. VI assessment and mitigation efforts have been and will continue to be conducted in partnership with the USEPA and North Carolina Department of Environment and Natural Resources (NCDENR).**

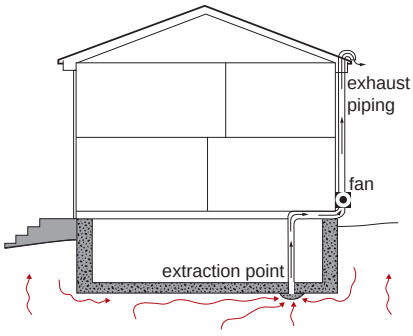
Building 1005 VIMS

Indoor air typically contains VOCs from consumer products, building materials, and outdoor air. Indoor air concentrations resulting from these sources are commonly referred to as "background" when assessing the potential for vapor intrusion. Any indoor air sample collected for assessment of vapor intrusion is likely to detect VOCs from these other sources.

Next Steps

Investigations and remedial actions are continuing to reduce the levels of VOCs in soil and groundwater that could be the source of vapors at or near these buildings. The VIMS are expected to operate until the concentrations of VOCs in soil and groundwater are reduced to the regulatory cleanup levels. While the VIMS are in operation, performance monitoring will be conducted to ensure that the systems continue to protect people who live and work on Base. The results of the performance monitoring conducted under the CERCLA program can be found in the Adminstrative Record at the link below. Results for performance monitoring conducted under other programs (e.g., Underground Storage Tank and Due Diligence) are available upon request.

Figure 2 – Example VIMS Design



How to Find More Information

If you have questions, please contact:

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910-451-5878
Email: Kirsten.hiortdahl@usmc.mil

Ansley Bucher
910-451-9610
Email: Ansley.bucher@usmc.mil

For general information about the Camp Lejeune Environmental Restoration Program please visit: http://go.usa.gov/Dy5T

For additional information about vapor intrusion mitigation systems, please visit:
http://www.epa.gov/tio/download/citizens/a_citizens_guide_to_vapor_intrusion_mitigation_.pdf

Environmental Investigation Activities Near Former Water Towers

Marine Corps Base Camp Lejeune, North Carolina

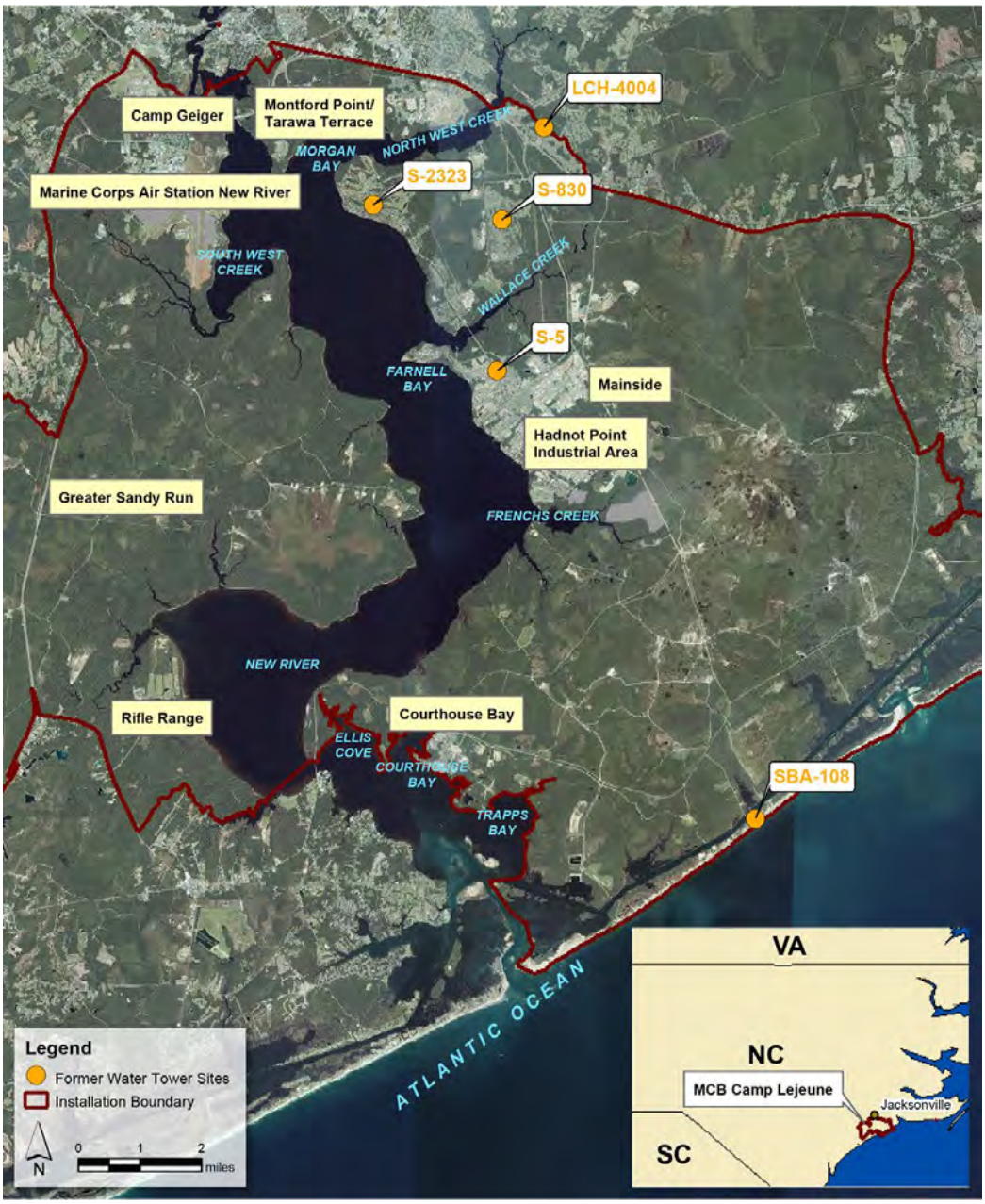
March 2020

This second fact sheet is a follow-up to the April 2016 fact sheet and provides the results of investigation activities conducted at locations of former water towers which had been painted historically with lead-based paint. Marine Corps Base Camp Lejeune has collected soil and groundwater samples which verify the former water tower locations are safe for future use and no further action is required. Additionally, Camp Lejeune's drinking water is safe. Groundwater sampling conducted at the former water tower locations and at other locations as part of environmental investigations on Camp Lejeune helps to ensure the drinking water remains safe in the future.

Background

As stated in the previous fact sheet, lead-based paint was used in more than 38 million homes throughout the U.S. until it was banned for residential use in 1978. Lead-based paint was also used for industrial facilities, such as water towers. Paint-stripping, weathering, and flaking of the exterior paint may cause lead to be present in the soil around the base of the towers. In August 2015, Camp Lejeune, United States Environmental Protection Agency (USEPA), and North Carolina Department of Environmental Quality (NCDEQ) identified the need to sample soil near water towers that were recently demolished.

Figure 1 – Former Water Tower Sites



Investigation Activities and Findings

A Preliminary Assessment and Site Inspection (PA/SI) was conducted in 2016 and 2017 at eight former water tower sites. Lead was found in soils above regulatory screening levels set by the USEPA and NCDEQ at five of the eight former water towers (S-2323, S-5, SBA-108, S-830, and LCH-4004). Based on the results of the PA/SI, additional investigation was recommended at the five former water tower sites to determine the exact location, depth, and concentrations of lead. The Navy, USEPA, and NCDEQ agreed that No Further Action is needed at the three remaining former water tower sites which tested below screening levels during the PA/SI.

An Expanded Site Investigation was conducted in 2018 and 2019 to better define the horizontal and vertical extent of lead in soil, determine if lead is present in groundwater, and assess potential risks to human health and ecological receptors. A total of 367 soil samples and 24 groundwater samples were collected and submitted to an analytical laboratory for analysis of lead. Lead was not found in groundwater above regulatory screening levels. Although some individual concentrations in soil were above regulatory screening levels, lead concentrations overall are at low levels that do not require cleanup action.

Sampling results have confirmed that any risks to human health or the environment from lead at the former water tower sites are very low and the areas are safe for future use.

Based on the results of the testing, no further action is recommended. An Expanded Site Investigation report is being prepared to summarize the activities conducted and findings. All of the Water Tower Reports, including the upcoming Expanded Site Investigation report, are available for review on the website listed below in the "For More Information" box.

Soil Sampling at Former Water Tower Site LCH-4004

Camp Lejeune's Drinking Water is Safe

Camp Lejeune's drinking water comes from very deep wells that are not located in the areas of any of the former or existing water towers where lead samples exceeded regulatory screening levels. No drinking water wells are affected by the lead in the soil that was investigated.

Camp Lejeune drinking water is regularly tested and continues to meet all government safe drinking water standards. Every year, Camp Lejeune publishes a drinking water quality report that provides details about where its drinking water comes from and how it compares to safe drinking water standards. You can find these reports by visiting the Base website at http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt/AnnualReports.aspx and selecting **Holcomb Boulevard**, which is the drinking water treatment facility that serves Midway Park, Tarawa Terrace, Berkeley Manor, and Paradise Point.

What is lead?

Lead is a naturally occurring element found in small amounts in the earth's crust. While it has beneficial uses, it can cause health effects in humans and animals.

Where is lead found?

Lead can be found in all parts of our environment – the air, the soil, the water, and even inside our homes. Much of our exposure comes from human activities including the use of fossil fuels such as leaded gasoline, some types of industrial facilities, and past use of lead-based paint. Lead and lead compounds have been used in a wide variety of products found in and around our homes, including paint, ceramics, pipes and plumbing materials, solders, gasoline, batteries, ammunition, and cosmetics.

How can people be exposed to lead?

Exposure to lead can occur through ingestion (eating or drinking), breathing, or skin contact. Lead exposure occurs primarily through ingestion, and lead paint is the major source of lead exposure. As lead paint deteriorates, peels, chips, or is removed, dust and surrounding soil may become contaminated.

Lead then enters the body through normal hand-to-mouth activity. Lead exposure can cause a variety of health effects when people are exposed to sufficient quantities. **It is important to note that young children should avoid even small exposures because they are especially susceptible to lead.** The USEPA and the U.S. Department of Housing and Urban Development (HUD) have published a pamphlet explaining the risks from lead based paint and ways to reduce exposure. The pamphlet is available at http://www.epa.gov/lead/protect-your-family-lead-your-home.

What are Regulatory Screening Levels?

If concentrations of chemicals are below the "screening levels" defined by environmental regulatory agencies, it is generally agreed that little or no risk to human health or the environment is likely to result. Exceeding a screening level does not mean unacceptable risks are present at a site. It is an indication that further study of possible health or environmental risk is needed.

For More Information

If you have questions or concerns, please contact the Base Environmental Management Division:

Kirsten Hiortdahl
(910) 451-5878
kirsten.hiortdahl@usmc.mil

website: http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt.aspx

To learn more about lead:

USEPA website: http://www.epa.gov/lead/learn-about-lead

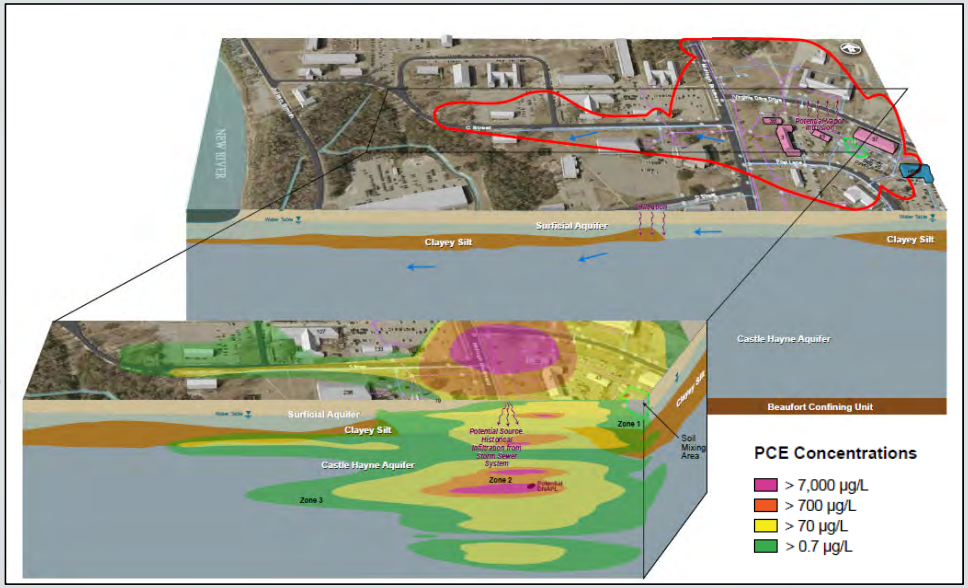
National Lead Information Center: 1-800-424-LEAD (5323)

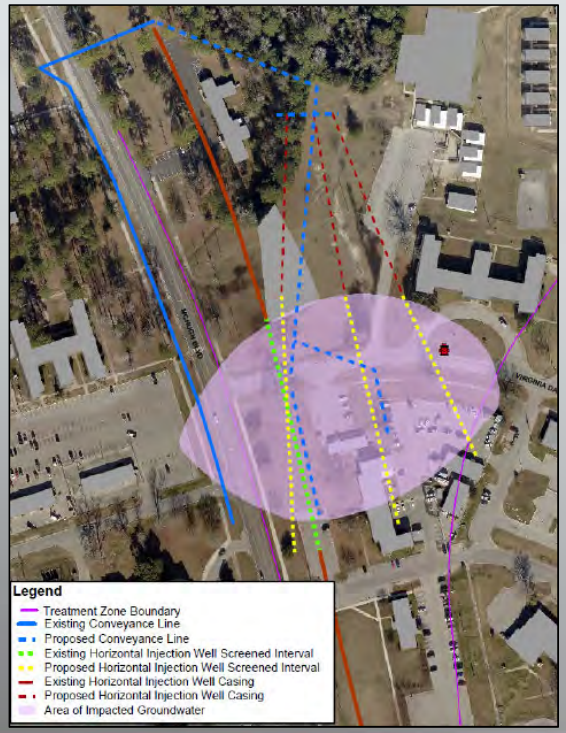
Operable Unit 15, Site 88 – Former Base Dry Cleaning Facility

This fact sheet provides an overview of environmental investigation and remediation at the Former Base Dry Cleaning Facility, Operable Unit 15, Site 88, to address contamination in groundwater, including a timeline of activities leading up to selection of the final remedial action and a schedule for implementation.

Background

- **1940s – 2004**: Dry cleaning facility at Building 25
- **2004**: Building 25 demolished
- **2004 – 2005**: Site investigation identified chemicals of concern (COCs) as tetrachloroethene (PCE) and daughter products
- **2005**: Non-time critical removal action conducted
  - Soil mixing with zero-valent iron and clay
  - 99% removal of PCE (14 tons)
- **2006 – 2008**: Remedial Investigation completed
  - Groundwater COC plume at various depths, highest concentrations 75 to 125 feet deep
- **2010 – 2016**: Studies conducted to evaluate treatment technologies for groundwater COCs
  - In situ chemical oxidation (ISCO) via permanganate injection through vertical and horizontal directionally drilled (HDD) wells
  - Enhanced reductive dechlorination (ERD) via injection of emulsified vegetable oil (EVO)
- **2016 – 2017**: Feasibility Study conducted to evaluate remedial alternatives
- **2018**: Proposed Plan issued to solicit public comments on the preferred alternative
- **2019**: Study conducted to further evaluate ERD in source area and as downgradient biobarrier
- **2019**: Record of Decision prepared to document selected remedy
  - ERD via EVO injections in source area and as downgradient biobarrier
  - ISCO via permanganate injections through HDD injection wells to treat highest concentrations of COCs
  - Land use controls (LUCs) to prevent exposure to COCs





Future Activities

- **May 2020 – July 2021**: Remedial Action implementation
  - May – August 2020: LUC survey and plat recordation with Onslow County
  - July – December 2020: Installation of nine HDD injection wells
  - January – July 2021:
    - ISCO via permanganate injection and recirculation
    - ERD via EVO injection in source area and downgradient biobarrier

For More Information

If you have questions or concerns, please contact the Base Environmental Management Division:

Kirsten Hiortdahl
(910) 451-5878
Kirsten.Hiortdahl@usmc.mil

Drinking Water is Safe on MCB Camp Lejeune and MCAS New River

Drinking Water

When a known or potential release of PFAS is identified on a Navy or Marine Corps installation, the first action is to determine if there are potential impacts to drinking water sources which require a drinking water investigation. If drinking water wells are identified in an area located 1 mile in the direction the groundwater flows away from the release site (downgradient), then a drinking water investigation is conducted. A drinking water investigation is not required on- or off-base at this time for MCB Camp Lejeune or MCAS New River because there are no drinking water wells within 1 mile downgradient from known or potential PFAS release areas.

Additionally, the drinking water supplies on MCB Camp Lejeune and MCAS New River were sampled for PFAS between 2013 and 2016 as part of EPA's efforts to gather information on the prevalence of PFAS in drinking water systems across the country. The sampling effort is officially known as Third Unregulated Contaminant Monitoring Rule or UCMR3 sampling. PFAS was not detected in any of the finished drinking water samples taken on base above the EPA lifetime health advisory for PFOA and PFOS of 70 parts per trillion (ppt).

The base initiated voluntary drinking water sampling in 2019, after UCMR3, and expanded sampling to include collecting samples from individual drinking water supply wells (untreated water) for PFAS analysis. PFOA and PFOS have not been detected above the EPA lifetime health advisory or the North Carolina interim maximum allowable concentration (for PFOA) in any drinking water well sample. The sampling results from August 2019 indicated the presence of several PFAS chemicals, most of which are currently unregulated. The concentrations of other PFAS that were detected were less than 10 ppt, with most being less than 2 ppt.

As part of the voluntary drinking water sampling in 2019, finished (treated) drinking water was also collected from distribution stations. PFOA and PFOS was not detected in any of the finished drinking water samples taken on base above the EPA lifetime health advisory or the North Carolina interim maximum allowable concentration (for PFOA). In one sample collected as part of this voluntary sampling in August 2019, one other PFAS, perfluorohexanoic acid, was detected at 1.76 ppt in a sample from the Hadnot Point distribution system. This chemical currently does not have a health advisory level or other cleanup standard. This detection of perfluorohexanoic acid is the only PFAS that has been detected in finished drinking water.

Camp Lejeune drinking water comes from very deep wells and is regularly tested and continues to meet all government safe drinking water standards. Every year, the base publishes a drinking water quality report that provides details about where its drinking water comes from and how it compares to safe drinking water standards. You can find these reports by visiting the base website at https://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Annual-Reports/.

Drinking Water Screening

The EPA has issued a lifetime health advisory for two commonly used and studied PFAS – PFOA and PFOS. EPA's lifetime health advisories are non-enforceable and non-regulatory. The EPA's health advisory for lifetime exposure is 70 ppt for PFOA and 70 ppt for PFOS. When both PFOA and PFOS are found in drinking water, the combined concentrations should not exceed 70 ppt. In 2006, the State of North Carolina set an interim maximum allowable concentration for PFOA in groundwater at 2,000 ppt.

Health Information

Exposure to PFOA and PFOS appears to be global. Studies have found both compounds in the blood samples of the general population. Once these compounds are released, they break down very slowly. Studies on exposed populations indicate that PFOA and/or PFOS may have caused elevated cholesterol levels and possibly low infant birth weight. In studies conducted using laboratory animals, effects on developmental, neurological, immune, thyroid, and liver function were observed. Health effects from exposure to low levels of PFAS are not well known and studies are continuing. At this time, it is not possible to link exposures to PFOA and/or PFOS to a person's individual health issues. Blood tests are available to measure these chemicals, but they are not routinely done because the results can be inconclusive and test results do not predict health effects. Long-term exposure effects are still being investigated by the EPA. Based on what is known and still unknown about PFOA and PFOS, EPA recommends people not drink or cook with water that contains these compounds above the EPA lifetime health advisory.

For More Information

If you have questions or concerns, please contact the base Environmental Management Division:

Kirsten Hiortdahl
(910) 451-5878
kirsten.hiortdahl@usmc.mil

website: http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt.aspx

To learn more about PFAS:

EPA website: http://www.epa.gov/pfas

Basewide Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Assessment and Site Inspection

Marine Corps Base Camp Lejeune and Marine Corps Air Station New River, North Carolina

May 2020

Introduction

PFAS are a large family of man-made chemicals which have been widely used in industrial and consumer products since the 1950s because of their unique water- and oil-repelling properties. They have been used in such products as carpeting, apparel, food packaging, and non-stick cookware to make them more stain-resistant, waterproof, and/or non-stick. Additionally, PFAS are key components in firefighting foam (specifically aqueous film forming foam [AFFF]), which is used by fire departments across the country to fight fuel fires.

The Navy developed a proactive policy in 2016 to address past releases of PFAS at installations nationwide, as several PFAS are now of emerging public health concern. The most common Navy activities that have resulted in the release of PFAS to the environment are testing, training, firefighting, and other life-saving emergency response using firefighting foam. The Department of Defense is currently studying fluorine-free firefighting foam alternatives to replace AFFF and prevent future PFAS release. In the interim, AFFF is no longer used in training at Marine Corps Base (MCB) Camp Lejeune and Marine Corps Air Station (MCAS) New River and is limited to emergency response actions only.

In response to the Navy policy, a PFAS investigation is being conducted for MCB Camp Lejeune and MCAS New River under the environmental restoration program. Fifty-six areas have been identified on base where investigation is needed to address known or potential releases of firefighting foam or other PFAS containing industrial materials to the environment. Four of these areas were identified and investigated previously under an Initial Site Inspection. The remaining 52 areas were identified under a recent basewide Preliminary Assessment.

Drinking water safety is the priority for Navy and Marine Corps PFAS investigations. Once released to the environment, PFAS can move easily into and with groundwater. People can be exposed to PFAS in their drinking water if contaminated groundwater is used as their drinking water source. The U.S. Environmental Protection Agency (EPA) issued a drinking water lifetime health advisory in 2016 for two commonly used and studied PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). ***The drinking water on MCB Camp Lejeune and MCAS New River has been tested for PFOS and PFOA and remains safe to drink.*** A PFAS drinking water investigation is not needed on- or off-base as known or potential PFAS releases are not impacting local drinking water well locations.

This fact sheet provides a summary of data collected under the Initial Site Inspection, information on the known or potential PFAS release areas identified for further investigation in the Preliminary Assessment, plans for further PFAS investigation, and information on drinking water testing.

Initial Site Inspections

In 2017, four areas at MCB Camp Lejeune and MCAS New River (Figure 1) were investigated for the presence of PFAS in the groundwater: two firefighting training areas (Sites 9 and 54); an area along the MCAS New River flight line containing one fire station and three aircraft hangars where fire equipment containing AFFF was stored and tested (Site 86); and a helicopter crash site where AFFF was used during emergency response (Tactical Landing Zone Phoenix). Concentrations of PFOA and PFOS in the groundwater samples collected from Sites 9, 54, and 86 exceeded the EPA lifetime health advisory. PFOA and PFOS were not detected in the groundwater samples collected at the helicopter crash site above the EPA lifetime health advisory.

Basewide Preliminary Assessment/ Site Inspection

In 2018, MCB Camp Lejeune and MCAS New River initiated a basewide Preliminary Assessment to evaluate whether there were potential PFAS release areas in addition to those investigated in 2017. The objective of the Preliminary Assessment was to identify areas on the base where AFFF or other PFAS-containing materials may have been released to the environment. In addition to the areas previously investigated in 2017, 52 areas identified during the Preliminary Assessment are recommended for soil and/or groundwater sampling as part of a Site Inspection which is planned for late 2020 (Figure 1).

The 52 areas identified in the Preliminary Assessment for Site Inspection activities are summarized as follows:

- One firefighting training area where AFFF-containing crash crew trucks test equipment and conduct training
- 14 fire stations (or previous fire stations) where AFFF is stored, handled, and transferred into equipment
- Three hangars which use AFFF in their fire suppression systems
- Six emergency response locations where AFFF was used or reportedly used to extinguish a fire on base
- Two motor transport shops where AFFF-containing equipment is stored, repaired, and tested
- Seven spray testing areas where AFFF equipment was staged and tested
- Five wastewater treatment plants and associated sludge drying beds where AFFF could have been treated through discharges to sewers
- Seven landfills where AFFF storage containers or materials may have been disposed
- Four forward arming and refueling point training areas where AFFF-containing equipment was staged and used for training
- Three other areas where AFFF was released or reportedly released

Next Steps

The objective of the basewide Site Inspection, planned to begin in late 2020, is to evaluate the presence or absence of PFAS at the 52 areas identified in the Preliminary Assessment. Groundwater monitoring wells will be installed at these areas. Soil samples will be collected during well drilling activities and groundwater samples will be collected from existing and newly installed monitoring wells.

A Remedial Investigation is planned to gather more information on the location and concentration of PFAS contamination at Sites 9, 54, and 86 evaluated previously in the Initial Site Inspection. If sampling results for any of the additional 52 sites contain PFAS at levels which could pose unacceptable risks to human health, the site will also be included in the upcoming Remedial Investigation.

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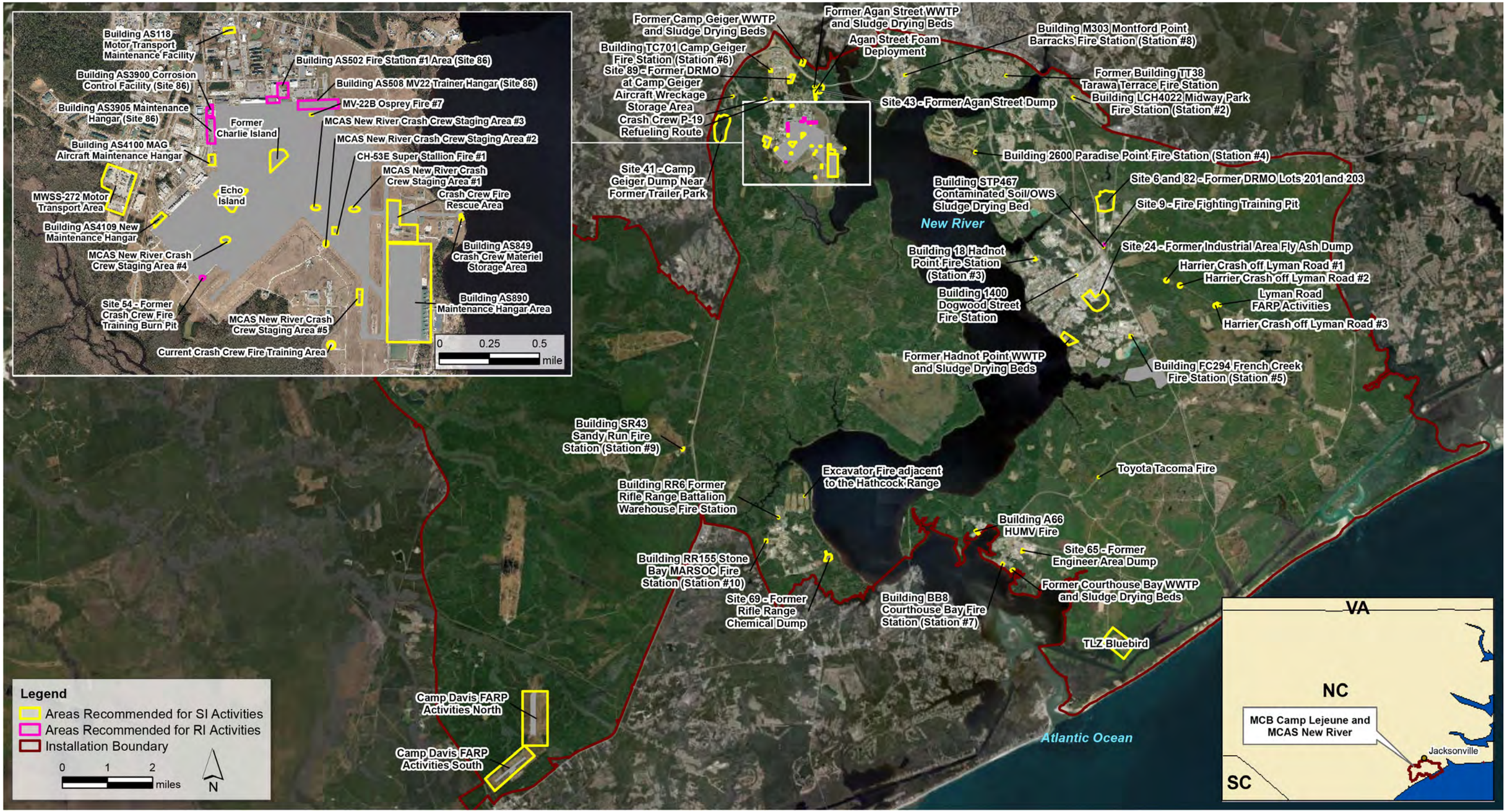

Figure 1 – Potential AFFF Release Sites at MCB Camp Lejeune and MCAS New River

C

Appendix C *Success Stories*

Sample Success Stories for Marine Corps Base Camp Lejeune

North Carolina

Table C-3 lists examples of Success Stories published by the Navy/Marine Corps since the last CIP update in February 2015. Success Stories are issued quarterly and posted to Camp Lejeune's Facebook page to highlight work being conducted under the Environmental Restoration Program. The example Success Stories follow this page.

TABLE C-3
EXAMPLE SUCCESS STORIES

Year	Title
2016	Site 93 Pilot Study – Bioreactor
2016	Site 88 Tracer Study
2017	Site 84 – Remedial Actions
2018	Solar Power is Fueling Remediation Systems
2019	Site 78 Pilot Study – Air Sparging
2019	Base's Long-term Monitoring Program Keeps Watch Year-After-Year

DID YOU KNOW…MCB Camp Lejeune's Environmental Restoration Program has been around since the early 1990s and has been working since then to conduct environmental investigations and cleanup in partnership with the United States Environmental Protection Agency and the State of North Carolina. This is the third in a series of articles that will be published quarterly on recent activities under the Environmental Restoration Program.

A pilot study is being conducted at Site 93, a former waste oil tank site located at the intersection of Ninth and "E" Streets in Camp Geiger. The pilot study is being implemented to evaluate the use of a bioreactor to reduce potentially harmful chemicals (chlorinated solvents) in groundwater. A bioreactor is a system created by excavating soil and replacing it with a reactive material, which in this case included mulch, gravel, and soybean oil. Groundwater is pumped out of the ground and then back into this material through the distribution piping shown in the image to the left. As groundwater passes through this material, the bioreactor increases the rate at which the chlorinated solvents are broken down into safe elements and compounds.

Since the bioreactor was installed in July 2015, 125,000 gallons of groundwater have been pumped through the system using a solar panel as the energy source. Concentrations of chlorinated solvents in the groundwater have been reduced by up to 87% 15 feet downgradient of the bioreactor. With its continued operation, the bioreactor is anticipated to reduce the time required to meet groundwater cleanup goals. The system will also provide valuable information if this technology is used elsewhere on Base.

If you have questions, contact your chain of command or Base Environmental Management Division:
Phone: (910) 451-9385
Email: Lejeune_IR_Program@usmc.mil
Website: http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt

DID YOU KNOW…

MCB Camp Lejeune's Environmental Restoration Program has been around since the early 1990s and has been working since then to conduct environmental investigations and cleanup in partnership with the North Carolina Department of Environmental Quality, the United States Environmental Protection Agency, and the State of North Carolina. This is the second in a series of articles that will be published quarterly on recent activities under the Environmental Restoration Program.

A permanganate tracer study is being conducted at Site 88, Operable Unit 15. Permanganate is a compound that breaks potentially harmful chemicals found in groundwater, such as chlorinated solvents, into safe elements and compounds through chemical reaction. The study is being conducted to determine the best means to distribute permanganate, since it must come in contact with the target chemicals for this beneficial chemical reaction to occur. The permanganate solution was applied at the site through a 1,600-foot horizontal injection well, with a 500-foot long screened interval placed at a depth of 95-feet below ground surface, to target the chlorinated solvents. The tracer study is also evaluating:

- Performance of a groundwater recirculation system that will continuously recirculate permanganate and groundwater to enhance contact and treatment
- A geophysical mapping technique to assess subsurface distribution

Results will be used to help identify the best and most cost effective technology for full-scale implementation.

The Site 88 Tracer Study Work Plan is available at the QR code or at http://go.usa.gov/cetTG.
If you have questions, contact your chain of command or Base Environmental Management Division:
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Email: Lejeune_IR_Program@usmc.mil
Website: http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt

DID YOU KNOW…MCB Camp Lejeune's Environmental Restoration Program has been around since the early 1990s and has been working since then to conduct environmental investigations and cleanup, where needed, in partnership with the Navy, the North Carolina Department of Environmental Quality, and the United States Environmental Protection Agency.

Site 84, located off of State Route 24 south of the Main Gate, served as an electric substation in the 1940s, 1950s, and 1960s.

Transformers, containing polychlorinated biphenyls (PCBs), were reportedly used and stored onsite during this time.

Between 2002 and 2007, over 16,000 tons of PCB contaminated soil and sediment was removed from the site. The soil was cleaned up to levels consistent with current industrial site uses.

Land use controls are in place to restrict residential land use and maintain clean soil cover.

In 2012, solar panels were built on the site to form a photovoltaic farm. Energy is generated on site and flows to the power grid.

MCB Camp Lejeune has dedicated over 100 acres to renewable energy generation improving Department of the Navy 's energy security goals and operational capabilities, strategic flexibility and resource availability.

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DID YOU KNOW…MCB Camp Lejeune's Environmental Restoration Program has been around since the early 1990s and has been working since then to conduct environmental investigations and cleanup, where needed, in partnership with the Navy, the North Carolina Department of Environmental Quality, and the United States Environmental Protection Agency.

Solar Power is Fueling Remediation Systems

Former Waste Oil Tank Sites:

At **Site 93**, a solar powered pump has been used since 2015 to circulate groundwater contaminated with chlorinated solvents through a reactive media for treatment. More than 300,000 gallons of groundwater have been treated and concentrations reduced by up to 90 percent

At **Site 96**, a solar powered remediation system is planned for installation in 2018. This system will extract vapors from the ground that have been contaminated with chlorinated solvents for collection and treatment.

Why Use Solar?

(courtesy of Energy.gov)

- Solar energy does not produce air or water pollution or greenhouse gases while operating.
- Solar energy is the most abundant energy source on the planet. Enough sunlight hits the Earth's surface in 1 1/2 hours to power the entire world's electricity consumption for a year.
- Solar panels have decreased in cost by 80% between 2008 and 2015.

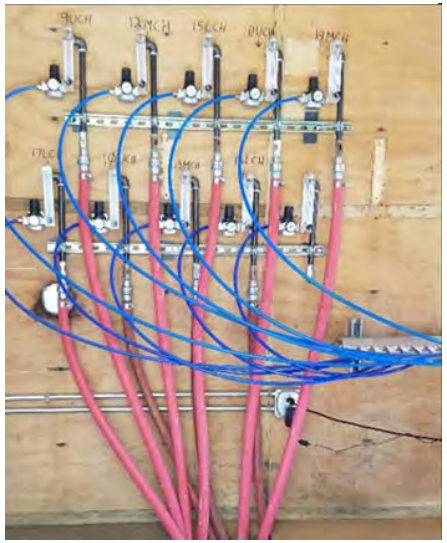
If you have questions, contact your chain of command or Base Environmental Management Division at (910) 451-9385 or Lejeune_IR_Program@usmc.mil.
Website: http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt

*DID YOU KNOW ?...*MCB Camp Lejeune's Environmental Restoration Program has been around since the early 1990s and has been working since then to conduct environmental investigations and cleanup, where needed, in partnership with the Navy, the North Carolina Department of Environmental Quality, and the United States Environmental Protection Agency.

At Site 78, Operable Unit 1, a pilot study was conducted between November 2017 and November 2018 to evaluate the effectiveness of air sparging to treat chlorinated solvents found in groundwater at depths up to 125 feet below ground surface. Air was injected into the subsurface to remove the chlorinated solvents. Influence from the sparging was observed up to 40 feet away. Concentrations of chlorinated solvents were reduced by up to 98 percent, translating to approximately 50 pounds removed.

If you have questions, contact your chain of command or Base Environmental Management Division at (910) 451-9385 or Lejeune_IR_Program@usmc.mil.
Website:
http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt

These photos show the air sparging system at Site 78. Air is injected into each well through a separate line. Pressure and flowrate are monitored to help field personnel determine if the system is operating as designed.



Base's Long-term Monitoring Program Keeps Watch Year-After-Year

Groundwater sampling at Site 78 in September 2018.

Aerators are used for stripping volatile organic compounds from the surface water in Edwards Creek adjacent to Site 89. Surface water samples are collected downstream of the aerators to monitor effectiveness.

DID YOU KNOW…MCB Camp Lejeune has been working since the 1990s to conduct environmental investigations and cleanup, where needed, in partnership with the U.S. Navy, the North Carolina Department of Environmental Quality, and the United States Environmental Protection Agency? These agencies work together to come up with long-term, cost-effective cleanup strategies with the goal of returning our property to reusable land.

- One cleanup strategy is long-term monitoring and is currently conducted at 16 sites at the Base. The purpose of long-term monitoring is to evaluate the effectiveness of treatment systems, the potential for migration of contamination, and progress towards site cleanup. In 2018, approximately 422 groundwater, 20 surface water, 6 sediment, 2 pore water, and 13 indoor air samples were collected. The samples were analyzed for site-specific contaminants that include volatile organic compounds, semi-volatile organic compounds, pesticides, polychlorinated biphenyls, metals, and/or natural attenuation parameters.
- Data is evaluated every year and compared against site-specific cleanup levels, based on Federal and State standards, to evaluate concentration changes over time and to ensure continued protectiveness of human health and the environment.

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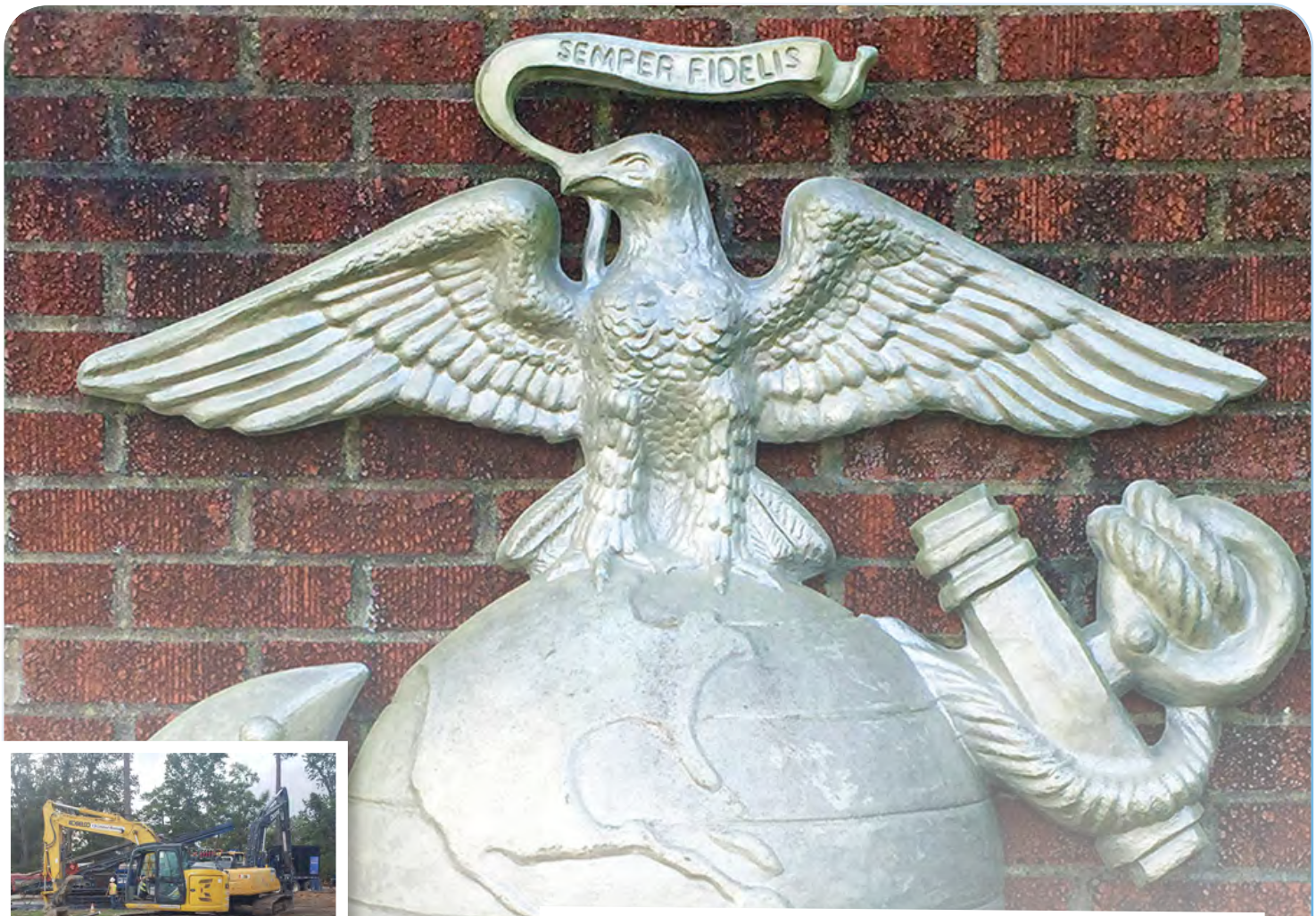

Prepared by

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