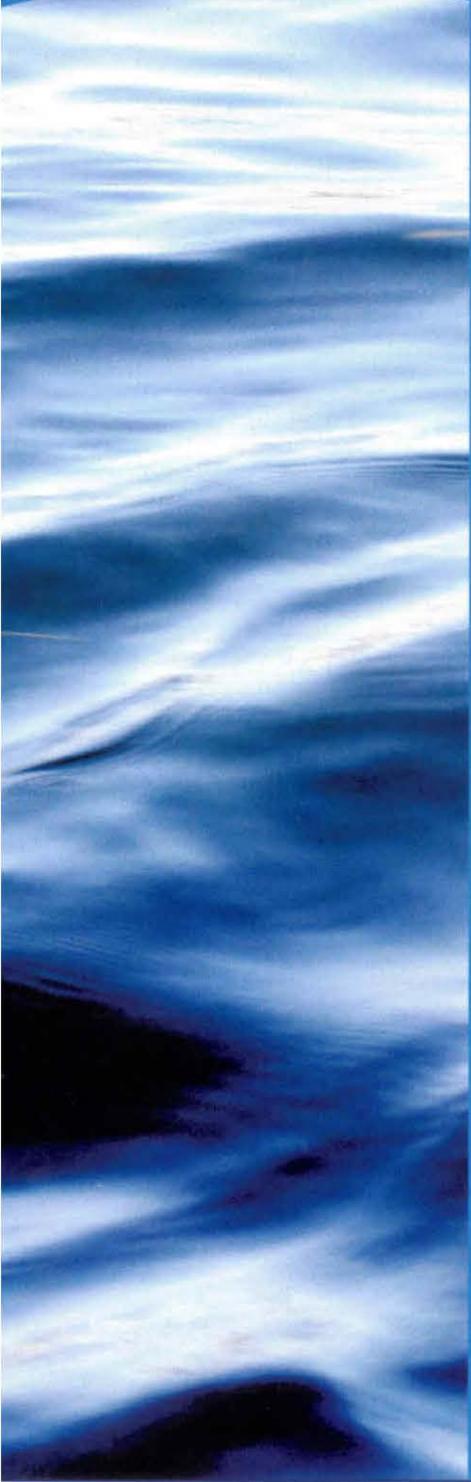


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MCB CAMP LEJEUNE
5090.3a

FINAL EXPLANATION OF SIGNIFICANT DIFFERENCES OPERABLE UNITS 8, 11 AND 13
(OU8) (OU11) (OU13) SITES 16, 80 AND 63 MCB CAMP LEJEUNE NC
8/3/2012
CH2M HILL



Final



**Explanation of Significant Difference
Operable Units 8 (Site 16),
11 (Site 80), and 13 (Site 63)**

Marine Corps Installations East - Marine Corps Base Camp Lejeune
Jacksonville, North Carolina

July 2012

Final

**Explanation of Significant Difference
Operable Units 8 (Site 16), 11 (Site 80), and 13 (Site 63)**

**Marine Corps Installations East - Marine Corps Base Camp Lejeune
Jacksonville, North Carolina**

Contract Task Order WE22

July 2012

Prepared for

**Department of the Navy
Naval Facilities Engineering Command
Mid-Atlantic**

Under the

**NAVFAC CLEAN 8012 Program
Contract N62470-11-D-8012**

Prepared by



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Acronyms and Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ESD	Explanation of Significant Difference
FS	Feasibility Study
GIS	Geographical Information System
IAS	Initial Assessment Study
LTM	long-term monitoring
LUC	land use control
MCAS	Marine Corps Air Station
MCIEAST-MCB CAMLEJ	Marine Corps Installations East-Marine Corps Base Camp Lejeune
Navy	Department of the Navy
NCDENR	North Carolina Department of the Environment and Natural Resources
NCGS	North Carolina General Statutes
NCP	National Contingency Plan
OU	Operable Unit
PCB	poly chlorinated biphenyls
PPM	parts per million
PRAP	Proposed Remedial Action Plan
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
SI	Site Inspection
SVOC	semivolatile organic compound
TCRA	Time Critical Removal Action
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
UU/UE	unlimited use and unrestricted exposure
VOC	volatile organic compound

SECTION 1

Introduction

This Explanation of Significant Difference (ESD) identifies land use controls (LUCs) as the selected remedies for Operable Units (OU) 8 (Site 16), 11 (Site 80), and 13 (Site 63) at Marine Corps Installations East-Marine Corps Base Camp Lejeune (MCIEAST-MCB CAMLEJ). This ESD was prepared per Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Section 300.435(c)(2)(i) of the National Contingency Plan (NCP) and supplements the Record of Decisions (RODs) for OUs 8 (Site 16), 11 (Site 80), and 13 (Site 63) signed in September 1996, August 1997, and April 1997, respectively.

The RODs identified no further action as the selected remedies for each site; however, LUCs were later implemented by MCIEAST-MCB CAMLEJ for conservativeness based on historic use as waste disposal areas and because waste remains in place. Based on recommendations from the Five-Year Review (CH2M HILL, 2010), this ESD documents the implementation of LUCs as the remedy for Sites 16, 63, and 80 to prevent potential exposure to waste. The Navy is the lead agency for funding and site cleanups at MCIEAST-MCB CAMLEJ. The changes to the remedies set forth in this ESD have been selected by the Navy, MCIEAST-MCB CAMLEJ, and United States Environmental Protection Agency (USEPA) with concurrence from North Carolina Department of Environment and Natural Resources (NCDENR [**Attachment 2**]).

SECTION 2

Site Backgrounds and Selected Remedies

MCIEAST-MCB CAMLEJ is a 156,000-acre facility located in Onslow County, North Carolina, adjacent to the southern side of the City of Jacksonville. The mission of MCIEAST-MCB CAMLEJ is to maintain combat-ready units for expeditionary deployment. The Base provides housing, training facilities, and logistical support for Fleet Marine Force units and other assigned units. **Figure 2-1** shows the location of MCIEAST-MCB CAMLEJ and Sites 16, 63, and 80. The following sections provide a description, history, and selected remedy for each site.

FIGURE 2-1
Previous Investigations Summary, Site 16



2.1 Site 16 (OU 8) – Former Montford Point Burn Dump

Site 16, the Former Montford Point Burn Dump, encompasses approximately 4 acres in the Montford Point area of the Base and comprises OU 8 (**Figure 2-1**). The Montford Point Burn dump was open from approximately 1958 to 1972, although unauthorized dumping subsequently occurred. Trash from the surrounding housing area and buildings is suspected to have been burned and then covered with soil. Records indicate that building debris, garbage, tires, and small amounts of waste oils were disposed of. Materials, including asbestos insulating material for pipes, were also dumped on the surface. The quantity of asbestos material was estimated at less than 1 cubic yard and mitigation was completed (Baker, 1996). Currently, Site 16 is vacant.

TABLE 2-1
Previous Investigations Summary, Site 16

Previous Investigation/Action	Date	Activities
Initial Assessment Study (IAS) (WAR, 1983)	1983	The IAS was conducted to identify potential hazardous sites at MCIEAST-MCB CAMLEJ. Research indicated that unauthorized dumping of asbestos posed a possible health threat and recommended an investigation or removal be completed. Corrective measures were undertaken to remove the asbestos material.
Remedial Investigation (RI)/ Feasibility Study (FS) (Baker, 1996)	1994 - 1996	An RI was conducted to assess the nature and extent of contamination. Field activities included a site survey, test pitting, soil, groundwater, surface water, and sediment sampling. Minimal potential human health risks were identified for future residents due to the presence of polychlorinated biphenyls (PCBs) in the soil. However, the maximum detected PCB concentration (2.1 parts per million [ppm]) was below the recommended cleanup level for PCBs of 10 to 25 ppm for industrial areas. No unacceptable ecological risks were identified for terrestrial or aquatic receptors.
Proposed Remedial Action Plan (PRAP) and ROD (Baker, 1996)	1996	A PRAP was issued to solicit public input on the preferred alternative (no remedial action) and a public meeting was held. The ROD for OU 8 was signed on September 30, 1996. Minimal risks were identified in the RI; therefore, no remedial actions were selected in the ROD.
LUCs (Baker, 2002)	2001 - 2002	Although the ROD did not require remedial action, waste remains in place at the site and LUCs were implemented by the Base in 2001 and updated in 2002 for conservativeness. The LUCs prohibit aquifer use, intrusive activities for groundwater, and non-industrial land use. The LUCs were recorded with Onslow County as a notice of contamination in February 2007 and are documented in the Base's Geographical Information System (GIS) for master planning.

2.2 Site 63 (OU 13) – Verona Loop Dump

Site 63, the Verona Loop Dump, encompasses approximately 5 acres, nearly 2 miles south of the Marine Corps Air Station (MCAS) New River operations area and comprises OU 13 (**Figure 2-1**). The area reportedly received bivouac wastes generated during training exercises. No hazardous wastes were reportedly disposed within Site 63. Currently, training exercises, maneuvers, and recreational hunting frequently take place in the area.

TABLE 2-2
Previous Investigations Summary, Site 63

Previous Investigation/Action	Date	Activities
IAS (WAR, 1983)	1983	The IAS was conducted to identify potential hazardous sites at MCIEAST-MCB CAMLEJ. The quantities of waste reportedly disposed of at the site, whether hazardous or not, were insignificant and it was concluded that no further assessment was necessary. However, the USEPA requested an additional investigation to determine whether hazardous waste contamination existed.
Site Inspection (SI) (Baker, 1994)	1994	An SI was conducted to determine whether hazardous waste contamination existed. Field activities included soil, groundwater, surface water, and sediment sampling for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, PCBs, and metals. Fill materials were encountered in soils, confirming that disposal of waste materials occurred at the site. Metals and organic compounds were detected in soil and groundwater. Based on these findings, further evaluation was recommended.
RI (Baker, 1995)	1995	An RI was conducted to evaluate the nature and extent of contamination and potential risks to human health and the environment. Field activities consisted of a site survey, test pitting, and soil, groundwater, surface water, and sediment sampling. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. No unacceptable human health or ecological risks were identified.
PRAP and ROD (Baker, 1996 and 1997)	1996 - 1997	A PRAP was issued to solicit public input on the preferred alternative (no remedial action with institutional controls for groundwater) and a public meeting was held. The Final ROD was issued and signed in April 1997.
LUCs (Baker, 2002)	2001 - 2002	LUCs were implemented in 2001 and updated in 2002 to prohibit aquifer use and groundwater intrusive activities. The LUCs were recorded with Onslow County as a notice of contamination in February 2002 and are documented in the Base's GIS for master planning.

2.3 Site 80 (OU 11) – Paradise Point Golf Course Maintenance Area

Site 80, the Paradise Point Golf Course Maintenance Area, encompasses approximately 3 acres northwest of Brewster Boulevard within OU 11 (**Figure 2-1**). OU 11 consists of two sites (Sites 7 and 80) that were grouped together because of their similar disposal history and proximity to one another. Information regarding past maintenance procedures at Site 80 is unknown. Golf course maintenance operations which include the machine shop (a potential source of waste oils) and the routine spraying of pesticides and herbicides may have contributed to potential contamination at this site. It is unknown when the wash pad was constructed, and what the exact procedure was for cleaning the maintenance equipment prior to the construction of the wash pad. The facility is currently in operation as a maintenance facility for the Base golf course.

TABLE 2-3
Previous Investigations Summary, Site 80

Previous Investigation/Action	Date	Activities
Site Inspection (Halliburton/NUS, 1991)	1991	An SI was conducted to determine the presence or absence of contamination. Field activities included soil, groundwater, surface water, and sediment sampling for VOCs, SVOCs, pesticides, PCBs, herbicides, and/or total petroleum hydrocarbons (TPH). The analytical results identified pesticides and PCBs in soil, low level VOCs in groundwater and petroleum hydrocarbons in surface water. Based on these results, an RI was proposed.
RI (Baker, 1995)	1994 - 1995	An RI was completed to characterize the nature and extent of contamination and potential impacts to human health and the environment. Field activities consisted of a site survey and soil and groundwater sampling. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. Pesticides were detected in soil samples and low levels of pesticides, SVOCs, and metals were detected in groundwater. Potential unacceptable human health risks were identified due to the presence of pesticides in soil. No unacceptable ecological risks were identified.
Time-Critical Removal Action (TCRA) (OHM, 1996)	1996	Based on the potential human health risk identified in the RI, a TCRA was recommended to remove soil contaminated with pesticides to industrial levels. In July 1996, approximately 988 tons of contaminated soil was excavated and transported off-site to a disposal facility.
PRAP (1996) and ROD for OU 11 (Sites 7 and 80) (Baker, 1997)	1996 - 1997	A PRAP was issued in November 1996 to solicit public input on the preferred alternative (no remedial action) and a public meeting was held. The ROD was issued and signed in August 1997.
LUCs (2007)	2007	Although the ROD did not require remedial action, the TCRA was conducted based on industrial risk-based concentrations; therefore, to protect human health and the environment, the Base implemented LUCs in May 2007 to prohibit non-industrial use and intrusive activities to prevent exposure to soil within the site boundary, including the previous TCRA area. The LUCs were recorded with Onslow County as a notice of contamination in February 2007 and are documented in the Base's GIS for master planning.

Basis and Description of Significant Differences

The RODs identified no further action as the selected remedies for each site; however, LUCs were later implemented by MCIEAST-MCB CAMLEJ for conservativeness based on historic use as waste disposal areas and because waste remains in place. Based on recommendations from the Five-Year Review (CH2M HILL, 2010), LUCs should be documented as the selected remedy for Sites 16, 63, and 80 to prevent potential exposure to waste. The following sections document the changes to the remedies for each site and provide a summary of the LUCs.

3.1 Site 16 (OU 8) – Former Montford Point Burn Dump

The selected remedy described in the ROD for Site 16 is no action (Baker, 1996). However, the Base implemented LUCs for conservativeness due to the sites history as a waste disposal area. The following LUCs were implemented in 2001 and updated in 2002 (survey plat provided as **Attachment 1**):

- Non-Industrial Use Control (Soil) – 2.1 acres
- Intrusive Activities Control (Groundwater) – 0.169 acres
- Aquifer Use Control (1,000 feet) – 60.2 acres

These LUCs in-place are protective; however, the addition of the following LUC is recommended to prevent exposure to waste due to the uncertainty of whether it would present unacceptable risk should exposure occur:

- Intrusive Activities Control (Soil) – 2.1 acres

Figure 3-1 shows the LUC boundaries for Site 16. **Table 3-1** outlines the differences in the selected remedy documented in the ROD and the updated remedy documented in this ESD.

FIGURE 3-1
Site 16 LUC Boundaries

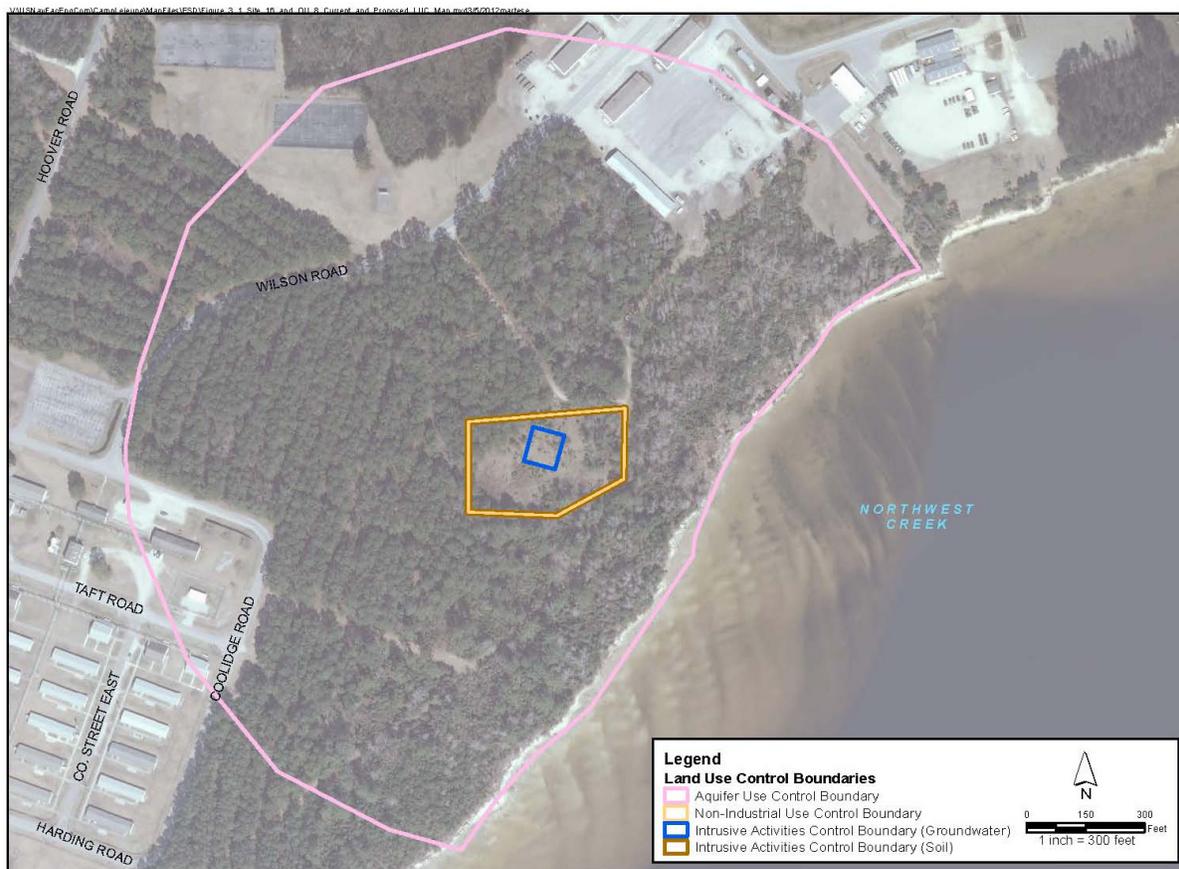


TABLE 3-1
Summary of Significant Differences, Site 16

Comparison Criteria	Selected Remedy in the ROD	Updated Remedy in the ESD
Selected Remedy	No Action	LUCs
Basis for Remedy	No unacceptable human health or ecological risks were identified from exposure to site media	Waste remains in place
Components of Remedy	None	Non-Industrial Use Control (Soil) – 2.1 acres Intrusive Activities Control (Soil) – 2.1 acres Intrusive Activities Control (Groundwater) – 0.169 acres Aquifer Use Control (1,000 feet) – 60.2 acres

LUCs including, but not limited to, land use restrictions in the Base Master Plan, Notice of Contaminated Site, and administrative procedures to prohibit unauthorized intrusive activities (e.g., excavation, well installation, construction) will be updated to prevent exposure to waste. The specific LUC objectives for Site 16 are to:

- Prohibit non-industrial land use within the site boundary, which includes restrictions on the construction of residential housing, hospitals, hotels, nursing homes, and day care facilities
- Prohibit intrusive activities within the site boundaries
- Prohibit intrusive activities below the shallow groundwater table
- Prohibit the withdrawal and any use of groundwater, except for environmental monitoring, from the aquifers (surficial and Castle Hayne) within 1,000 feet of the Site

The details for LUC implementation are provided in Section 3.4. Current land uses are expected to continue and there are no other planned land uses in the foreseeable future at Site 16. Exposure will be controlled through LUCs.

3.2 Site 63 (OU 13) – Verona Loop Dump

The selected remedy described in the ROD for Site 63 is no action with institutional controls for groundwater (Baker, 1997). The following LUCs were implemented in 2001 and updated in 2002 (survey plat provided as **Attachment 1**):

- Intrusive Activities Control (Groundwater) – 2 acres
- Aquifer Use Control (1,000 feet) – 100.1 acres

These LUCs in-place are protective; however, the following additional LUCs were recommended to prevent exposure to waste due to the uncertainty of whether it would present unacceptable risk should exposure occur:

- Non-Industrial Use Control (Soil) – approximately 5 acres
- Intrusive Activities Control (Soil) – approximately 5 acres

Figure 3-2 shows the LUC boundaries for Site 63. **Table 3-2** outlines the differences in the selected remedy documented in the ROD and the updated remedy documented in this ESD.

FIGURE 3-2
Summary of Significant Differences, Site 63

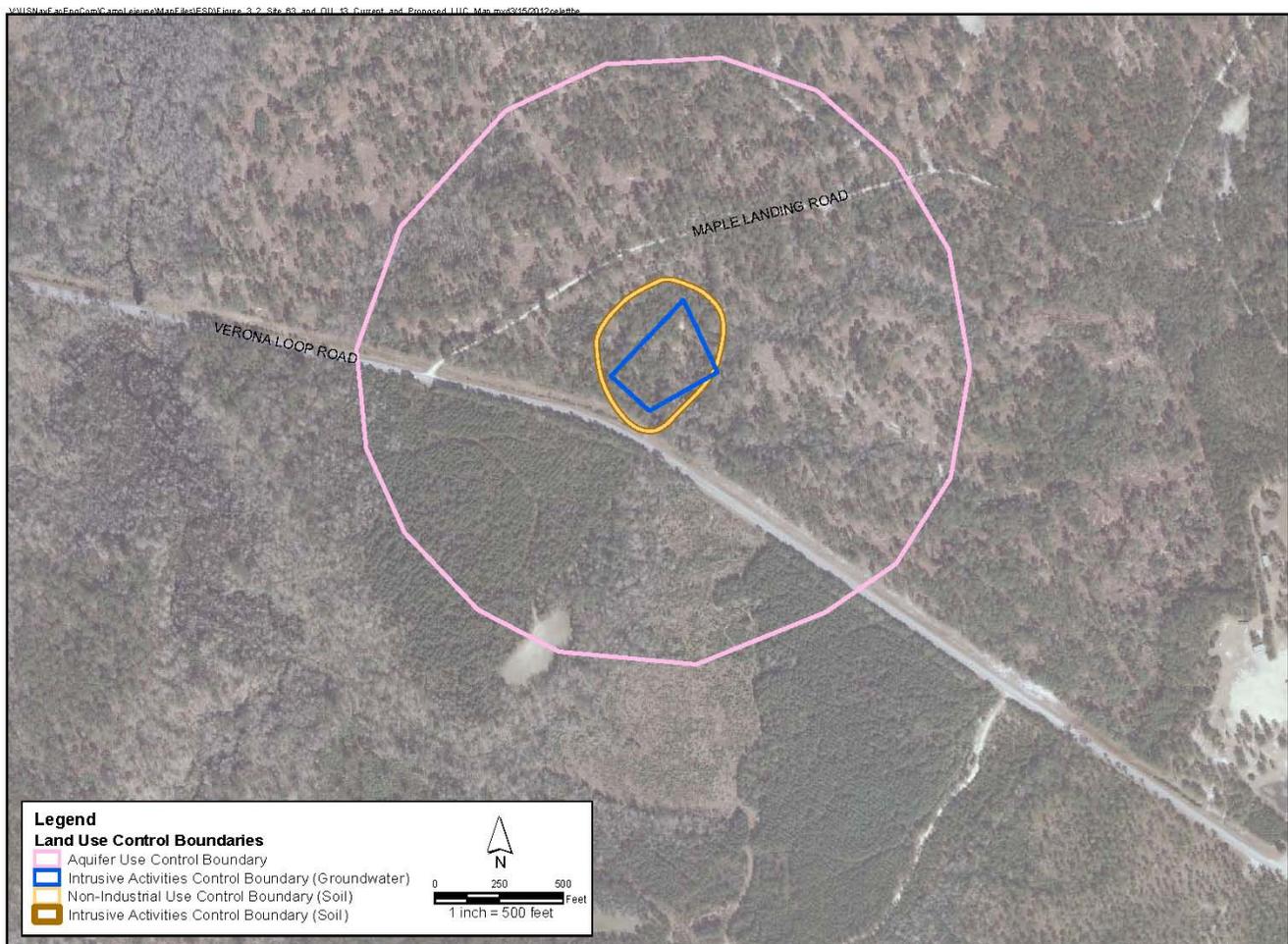


TABLE 3-2
Summary of Significant Differences, Site 63

Comparison Criteria	Selected Remedy in the ROD	Updated Remedy in the ESD
Selected Remedy	No Action and LUCs for groundwater	Additional LUCs for soil/waste
Basis for Remedy	No unacceptable human health or ecological risks were identified from exposure to site media; however, waste remains in place	Waste remains in place
Components of Remedy	Aquifer Use Control Boundary (1,000 feet) Intrusive Activities Control Boundary (Groundwater)	Non-Industrial Use Control (Soil) – approximately 5 acres Intrusive Activities Control (Soil) – approximately 5 acres Intrusive Activities Control Boundary (Groundwater) – 2 acres Aquifer Use Control Boundary (1,000 feet) – 100.1 acres

LUCs including, but not limited to, land use restrictions in the Base Master Plan, Notice of Contaminated Site, and administrative procedures to prohibit unauthorized intrusive activities (e.g., excavation, well installation, construction) will be updated to prevent exposure to waste. The specific LUC objectives for Site 63 are to:

- Prohibit non-industrial land use within the site boundary, which includes restrictions on the construction of residential housing, hospitals, hotels, nursing homes, and day care facilities
- Prohibit intrusive activities within the site boundaries
- Prohibit intrusive activities below the shallow groundwater table
- Prohibit the withdrawal and any use of groundwater, except for environmental monitoring, from the aquifers (surficial and Castle Hayne) within 1,000 feet of the Site

The details for LUC implementation are provided in Section 3.4. Current land uses are expected to continue and there are no other planned land uses in the foreseeable future for Site 63. Exposure will be controlled through LUCs.

3.3 Site 80 (OU 11) – Paradise Point Golf Course Maintenance Area

The selected remedy described in the ROD for Site 80 is no action (Baker, 1997). However, the Base implemented LUCs to protect human health and the environment within the extent of the former soil removal action areas where pesticides remain in soil above levels that allow for unlimited use and unrestricted exposure (UU/UE). The following LUCs were implemented in 2007 (survey plat provided as **Attachment 1**):

- Non-Industrial Use Control (Soil) – 3.56 acres
- Intrusive Activities Control (Soil) – 3.56 acres

Figure 3-3 shows the LUC boundaries for Site 80. **Table 3-3** outlines the differences in the selected remedy documented in the ROD and the updated remedy documented in this ESD.

FIGURE 3-3
Summary of Significant Differences, Site 80

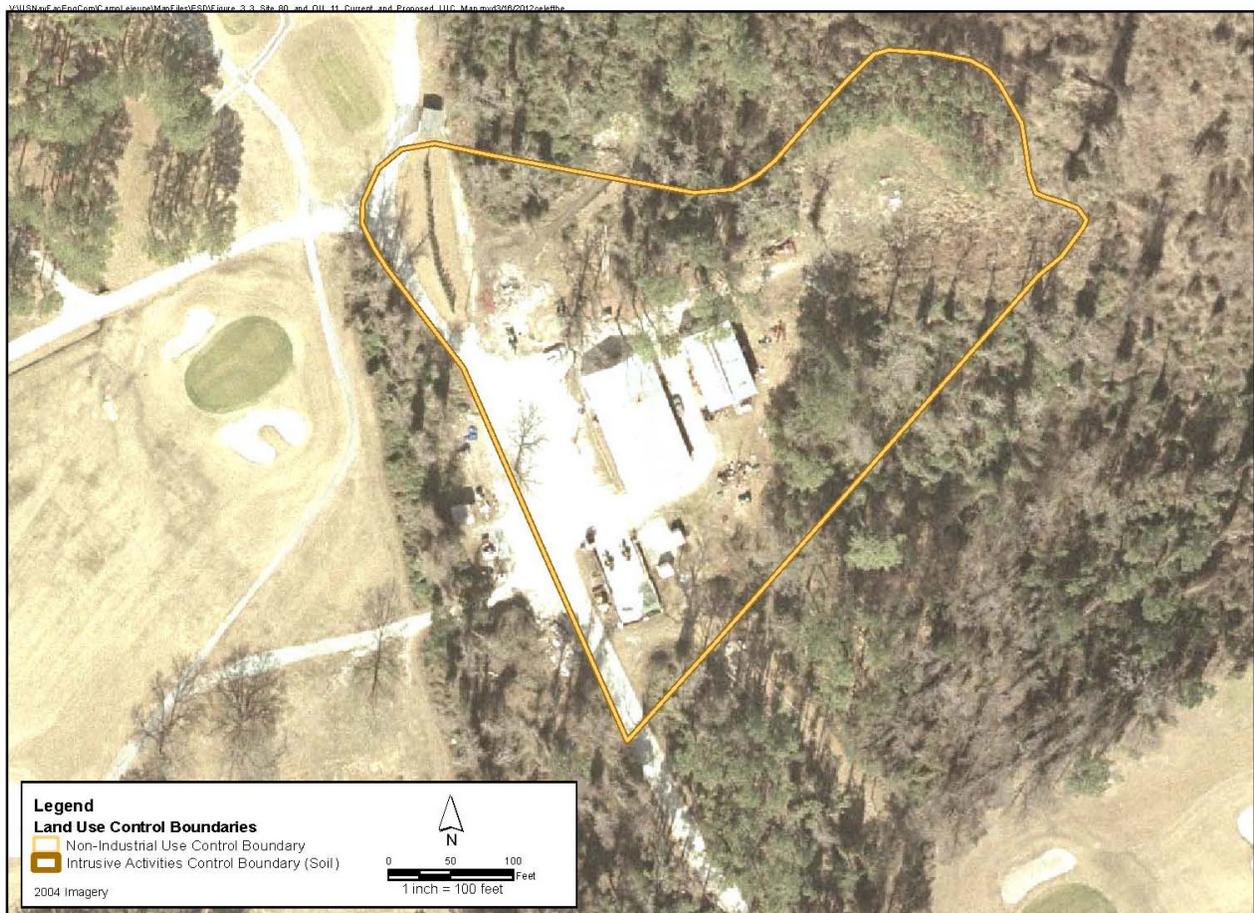


TABLE 3-3
Summary of Significant Differences, Site 80

Comparison Criteria	Selected Remedy in the ROD	Updated Remedy in the ESD
Selected Remedy	No Action	LUCs
Basis for Remedy	Minimal unacceptable human health or ecological risks were identified from exposure to site media	The TCRA conducted in 1996 removed pesticide-contaminated soils to reach cleanup levels established for industrial soils (OHM, 1996). As a result, pesticides concentrations remain in soil above levels that allow for UU/UE.
Components of Remedy	None	Non-Industrial Use Control (Soil) – 3.56 acres Intrusive Activities Control (Soil) – 3.56 acres

This ESD documents the implementation of LUCs at Site 80. The specific LUC objectives for Site 80 are to:

- Prohibit the development and use of property for residential housing, elementary and secondary schools, day care facilities, and recreational areas within the site boundary
- Prohibit intrusive activities within the site boundary

The details for LUC implementation are provided in Section 3.4. Current land uses are expected to continue and there are no other planned land uses in the foreseeable future at Site 80. LUCs, restricting any potential future residential exposure to impacted soils, will be maintained until the concentration of pesticides in the soil are at such levels that allow for UU/UE.

3.4 LUC Implementation

The Navy and MCIEAST-MCB CAMLEJ are responsible for implementing, maintaining, reporting on, and enforcing the LUCs. Although, the Navy and MCIEAST-MCB CAMLEJ may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Navy and MCIEAST-MCB CAMLEJ shall retain ultimate responsibility for the remedy integrity. The LUCs will be implemented and maintained by the Navy and MCIEAST-MCB CAMLEJ until the concentration of hazardous substances in the soil, groundwater, and/or waste are at such levels to allow for UU/UE.

Actions associated with the implementation of the LUCs include:

1. Incorporating land and groundwater use prohibitions into the MCIEAST-MCB CAMLEJ Base Master Plan and geographical information system to prohibit unauthorized intrusive activities within the extent of buried waste and contaminated soil/groundwater
2. Recording a Notice of Contaminated Site filed in Onslow County real property records per North Carolina General Statutes (NCGS) 143B-279.9 and 143B-279.10
3. Conducting site inspections to verify compliance with use restrictions
4. Deed and/or lease restrictions in the event of transfer for any portion of Sites 16, 63, and 80

The Navy shall prepare, in accordance with USEPA guidance, and submit to the USEPA and NCDENR, a Remedial Design (RD) containing LUC implementation and maintenance actions, including periodic inspections, within 90 days of the ESD, for review and approval. The Navy and MCIEAST-MCB CAMLEJ are responsible for implementing, maintaining, inspecting, reporting on, and enforcing the LUCs described in this ESD in accordance with the ESD and the approved RD.

SECTION 4

Support Agency Comments

USEPA Region 4, as lead regulatory agency, has reviewed this ESD and supports the above changes to the remedy. NCDENR concurs (**Attachment 2**).

SECTION 5

Public Participation Activities

To comply with Section 300.435 (c)(2)(i) of the NCP, the Navy, MCIEAST-MCB CAMLEJ, USEPA, and NCDENR provide information regarding the cleanup of MCIEAST-MCB CAMLEJ to the public through the community relations program which includes a Restoration Advisory Board (RAB), public meetings, the Administrative Record file, and announcements published in local newspapers. RAB meetings continue to be held to provide an information exchange among community members, the Navy, MCIEAST-MCB CAMLEJ, USEPA, and NCDENR. These meetings are open to the public and are held quarterly.

As per Section 300.825(a)(2) of the NCP, this ESD and its supporting documents will be added to the Administrative Record, and a notice of availability and brief description of this ESD will be published in the *Jacksonville Daily News*, *The Globe*, and the *RotoVue* newspapers within 30 days of its effective date. The Administrative Record file for MCIEAST-MCB CAMLEJ is available on the internet at: <http://go.usa.gov/jzi>. Access to the internet, the ESD, and supporting documentation are also available at the following location:

Onslow County Public Library¹
58 Doris Avenue East
Jacksonville, North Carolina 28540
(910) 455-7350

¹ Hours of operation: Monday through Thursday from 9:00 am to 9:00 pm, Friday and Saturday from 9:00 am to 6:00 pm, and Sunday 1:00 pm to 5:00 pm

SECTION 6

Statutory Determinations

The Navy, MCIEAST-MCB CAMLEJ, USEPA, and NCDENR agree that the RODs for OUs 8 (Site 16), 11 (Site 80), and 13 (Site 63), as modified by this ESD, meet the statutory requirements and remain protective of human health and the environment, comply with Federal and State regulations that are applicable or relevant and appropriate to the remedial action, are cost-effective, and utilize permanent solutions to the maximum extent practicable. Although the LUCs selected do not satisfy the statutory preference for treatment as a principle element of the remedy, Sites 16 and 63 are waste disposal sites and treatment is not practical. For Site 80, the current land use with the addition of the LUCs remains protective; therefore, active treatment is not required.

As per CERCLA Section 121(c) and NCP Section 300.430 (f)(4)(ii), a review of the effectiveness of the remedy must be undertaken every five years when, following completion of the remedial action, hazardous substances, pollutants, or contaminants remain at a site above levels that allow for UU/UE. Based on the RODs and this ESD, conditions at the Sites do not allow for UU/UE; therefore, statutory reviews will be conducted every five years to ensure that the remedies are protective of human health and the environment.

T. A. GORRY
Brigadier General, U.S. Marine Corps
Commanding General
Marine Corps Installations East-Marine Corps Base Camp Lejeune

Date

Franklin E. Hill, Director
Superfund Division
United States Environmental Protection Agency, Region 4

Date

With concurrence from:

Dexter R. Matthews, Director
Division of Waste Management
North Carolina Department of Environment and Natural Resources

Date

SECTION 7

References

- Baker. 1996. *Record of Decision for Operable Unit No. 8 (Site 16), Marine Corps Base Camp Lejeune, North Carolina*. April.
- Baker. 1997. *Record of Decision for Operable Unit No. 13 (Site 63), Marine Corps Base Camp Lejeune, North Carolina*. January.
- Baker. 1997. *Record of Decision for Operable Unit No. 11 (Sites 7 and 80), Marine Corps Base Camp Lejeune, North Carolina*. April.
- CH2M HILL. 2010. *Five-Year Review. Marine Corps Base Camp Lejeune, North Carolina*. August.
- OHM Remediation Services Corporation. 1996. *Contractor's Closeout Report, Time Critical Removal Action Plan, Soil Remediation, Operable Unit 11, Site 80, MCB Camp Lejeune, Jacksonville, North Carolina*. October.

Attachment 1

VED, FOR THE PURPOSES OF N.C.G.S. 130A-310.8.

Jack Butler
W. JACK BUTLER
 CHIEF SUPERFUND SECTION DIVISION OF WASTE MANAGEMENT
 NORTH CAROLINA
 WAKE COUNTY

Holly A. Murray
 A NOTARY PUBLIC OF SAID COUNTY AND
 STATE DO HEREBY CERTIFY THAT *Jack Butler* DID
 PERSONALLY APPEAR AND SIGN BEFORE ME THIS 26th DAY OF January
 2008.
Holly A. Murray
 NOTARY PUBLIC (SIGNATURE) (OFFICIAL SEAL)



MY COMMISSION EXPIRES 7/6 2008 AND
 I SURVEYOR'S CERTIFICATION AND SEAL (USING A PERMANENT INK STAMP).

BRENT A. LANIER, PROFESSIONAL LAND SURVEYOR NO. 3611, CERTIFY TO
 ME OR MORE OF THE FOLLOWING AS INDICATED:

- A. THAT THIS PLAT IS OF A SURVEY THAT CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND;
- B. THAT THIS PLAT IS OF A SURVEY THAT IS LOCATED IN SUCH PORTION OF A COUNTY OR MUNICIPALITY THAT IS UNREGULATED AS TO AN ORDINANCE THAT REGULATES PARCELS OF LAND;
- C. THAT THIS PLAT IS OF A SURVEY OF AN EXISTING PARCEL OR PARCELS OF LAND;
- D. THAT THIS PLAT IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION;
- E. THAT THIS INFORMATION AVAILABLE TO THIS SURVEYOR IS SUCH THAT I AM UNABLE TO MAKE A DETERMINATION TO THE BEST OF MY PROFESSIONAL ABILITY AS TO PROVISIONS CONTAINED IN (A) THROUGH (D) ABOVE.

NORTH CAROLINA ONSLOW COUNTY

Doc ID: 00252720001 Type: CRP
 Recorded: 02/08/2007 at 11:50:21 AM
 Fee Amt: \$21.00 Page 1 of 1
 Onslow County, NC
 Brent A. Lanier, K. Washington Register of Deeds
 BK 52 PG 186
Slide L-1701

LED FOR REGISTRATION AT _____ O'CLOCK _____ M.
 ON THE _____ DAY OF _____, 2008.
 RECORDED IN MAP BOOK _____ PAGE _____
 LIDE _____

ILDRED M. THOMAS, REGISTER OF DEEDS ONSLOW COUNTY

CERTIFICATE OF SURVEY AND ACCURACY

BRENT A. LANIER, CERTIFY THAT THIS MAP WAS DRAWN
 UNDER MY DIRECTION AND SUPERVISION FROM AN ACTUAL
 SURVEY OF LAND MADE UNDER MY SUPERVISION (DEED DESCRIPTION
 RECORDED IN: SEE TITLE REFERENCE.) THAT THE BOUNDARIES NOT
 SURVEYED ARE SHOWN AS BROKEN LINES, AND ARE REFERENCED AS
 SHOWN ON PLAT; THAT THE ERROR OF CLOSURE AS CALCULATED
 BY LATITUDES AND DEPARTURES IS 1:10,000
 THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH
 G.S. 17-30 AS AMENDED, WITNESS MY HAND AND SEAL
 THE 26th DAY OF January, 2008.



BRENT A. LANIER, P.L.S. L-3611

NOTES:

THE AREAS AND TYPE OF CONTAMINATION DEPICTED UPON THE MAP
 ARE APPROXIMATIONS DERIVED FROM THE BEST AVAILABLE INFORMATION
 AT THE TIME OF FILING.

TYPES OF HAZARDOUS SUBSTANCES KNOWN:

NO CONTAMINANTS OF CONCERN REMAIN

SPECIFIC QUANTITIES OF HAZARDOUS SUBSTANCES UNKNOWN.

DATUM: NORTH CAROLINA GRID NAD 83 FEET

BOUNDARY SOURCE: CH2M HILL INC., DECEMBER 2005

MAP SOURCE: VECTOR DATA FROM 1996

FLYOVER OF CAMP LEJEUNE.

CONTROL POINT REFERENCE: U.S.M.C. MONUMENT PW-112

SCALE FACTOR: 0.9999151

ALL DISTANCES ARE GRID

1. ALL COORDINATES ARE IN NAD 83 STATE PLANE FEET

2. ALL IRON STAKES AND SPIKES SHOWN WERE SET

3. BOUNDARIES WERE SURVEYED, FEATURES INSIDE

BOUNDARY LINES WERE FROM MAP SOURCE AND

FIELD VERIFIED

LEGEND

- BOUNDARY OF INTRUSIVE ACTIVITIES (SOIL)
- ▭ STRUCTURE
- ▲ IRON STAKE

LINE	BEARING	DISTANCE
L19	N 71°34'31" E	11.93
L20	S 88°29'39" E	35.86
L21	S 81°07'33" E	30.56
L22	S 63°27'14" E	16.87
L23	S 42°17'51" E	14.02
L24	S 31°14'56" E	36.38
L25	S 10°18'55" E	21.08
L26	S 10°18'55" E	21.07
L27	S 21°49'07" E	15.23
L28	S 71°34'40" E	8.95
L29	S 75°04'54" E	14.64
L30	S 71°35'22" E	11.93
L31	S 38°40'51" E	12.08
L32	S 23°13'55" W	7.18
L33	S 34°14'24" W	28.50
L34	S 48°17'24" W	24.04
L35	N 38°53'59" E	385.97
L36	S 39°35'14" W	112.51

LINE	BEARING	DISTANCE
L1	N 26°09'25" W	169.06
L2	N 25°49'19" W	158.10
L3	N 39°41'40" W	100.44
L4	N 35°14'23" W	19.62
L5	N 27°40'31" W	22.35
L6	N 00°00'10" E	16.96
L7	N 22°15'36" E	29.97
L8	N 48°12'20" E	24.04
L9	N 77°54'54" E	27.01
L10	S 80°20'48" E	44.97
L11	S 81°41'30" E	71.72
L12	S 82°02'12" E	95.26
L13	N 82°52'43" E	30.42
L14	N 59°03'54" E	22.00
L15	N 47°00'20" E	19.35
L16	N 35°10'05" E	52.27
L17	N 40°47'27" E	36.10
L18	N 43°41'46" E	28.68

BOUNDARY OF INTRUSIVE ACTIVITIES (SOIL)
 AND SITE 80 BOUNDARY
 2.93 ACRES

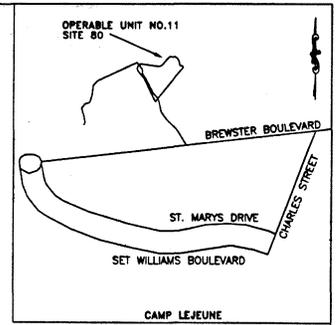
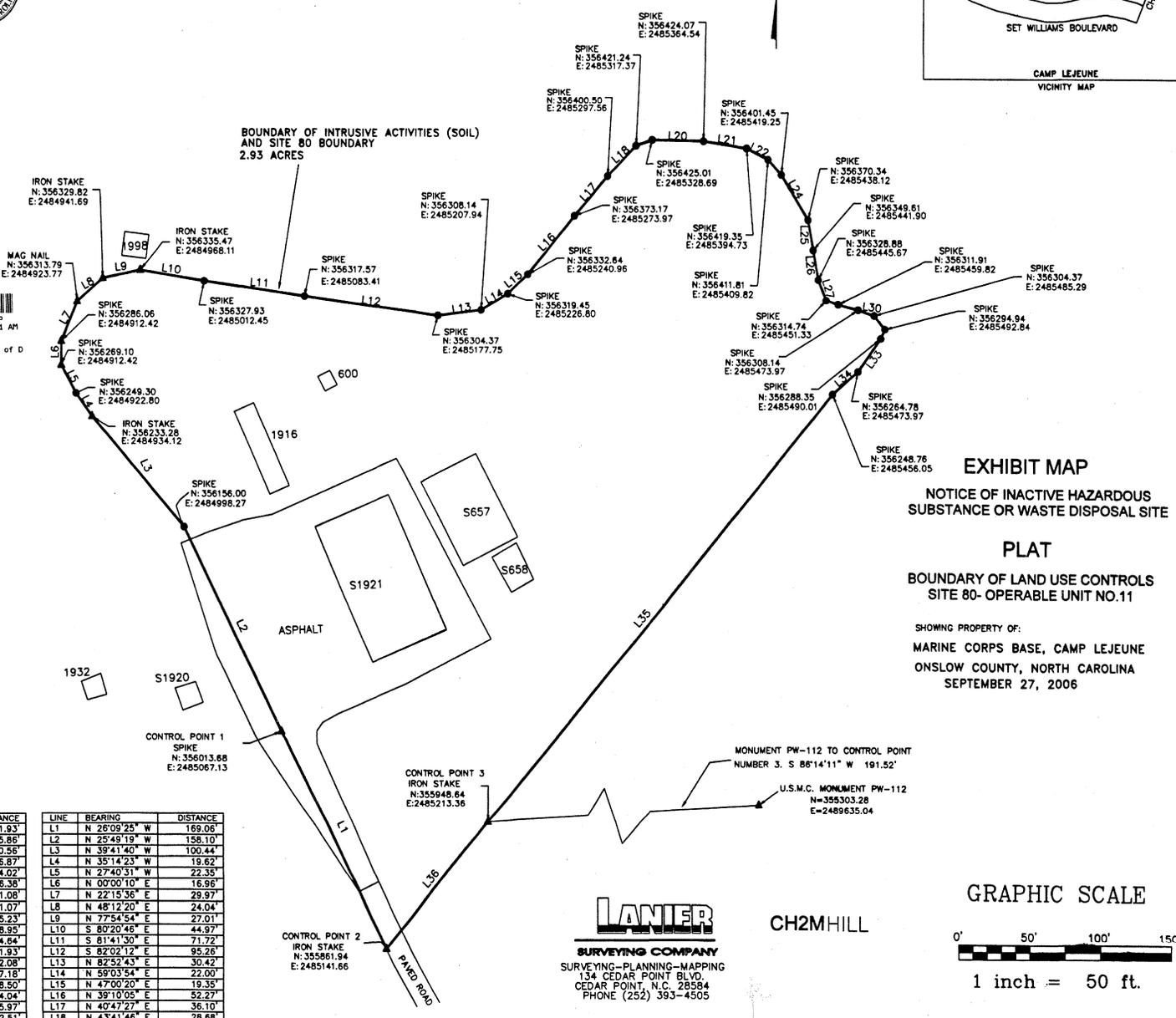


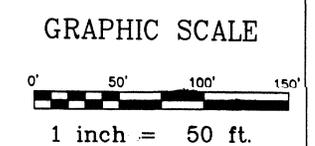
EXHIBIT MAP
 NOTICE OF INACTIVE HAZARDOUS
 SUBSTANCE OR WASTE DISPOSAL SITE

PLAT
 BOUNDARY OF LAND USE CONTROLS
 SITE 80- OPERABLE UNIT NO.11

SHOWING PROPERTY OF:
 MARINE CORPS BASE, CAMP LEJEUNE
 ONSLOW COUNTY, NORTH CAROLINA
 SEPTEMBER 27, 2006

LANIER
 SURVEYING COMPANY
 SURVEYING-PLANNING-MAPPING
 134 CEDAR POINT BLVD.
 CEDAR POINT, N.C. 28584
 PHONE (252) 393-4505

CH2MHILL



Approved Dexter Matthews FOR THE PURPOSES OF N.C.G.S. 130A-310.8

DEXTER MATTHEWS, INTERIM DIRECTOR
DIVISION OF WASTE MANAGEMENT

NORTH CAROLINA
ONSLOW COUNTY

Sue S. Hodge, A NOTARY PUBLIC OF SAID COUNTY AND STATE, DO HEREBY CERTIFY THAT DEXTER MATTHEWS DID PERSONALLY APPEAR AND SIGN BEFORE ME THIS THE 20th DAY OF July, 2001.

Sue S. Hodge
NOTARY PUBLIC (SIGNATURE)



MY COMMISSION EXPIRES December 21, 2002 AND I HAVE A SURVEYOR'S CERTIFICATION AND SEAL (USING A PERMANENT INK STAMP).

I, BRENT A. LANIER, PROFESSIONAL LAND SURVEYOR NO. 3611, CERTIFY TO ONE OR MORE OF THE FOLLOWING AS INDICATED:

- A. THAT THIS PLAT IS OF A SURVEY THAT CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND;
- B. THAT THIS PLAT IS OF A SURVEY THAT IS LOCATED IN SUCH PORTION OF A COUNTY OR MUNICIPALITY THAT IS UNREGULATED AS TO AN ORDINANCE THAT REGULATES PARCELS OF LAND;
- C. THAT THIS PLAT IS OF A SURVEY OF AN EXISTING PARCEL OR PARCELS OF LAND;
- D. THAT THIS PLAT IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION;
- E. THAT THE INFORMATION AVAILABLE TO THIS SURVEYOR IS SUCH THAT I AM UNABLE TO MAKE A DETERMINATION TO THE BEST OF MY PROFESSIONAL ABILITY AS TO PROVISIONS CONTAINED IN (A) THROUGH (D) ABOVE.

NORTH CAROLINA ONSLOW COUNTY

FILED FOR REGISTRATION AT 4:00 O'CLOCK P.M.
ON THE 15th DAY OF February, 2002
RECORDED IN MAP BOOK 42, PAGE 110
SLIDE 6-1297

Mildred M. Thomas
MILDRED M. THOMAS, REGISTER OF DEEDS ONSLOW COUNTY

CERTIFICATE OF SURVEY AND ACCURACY

I, BRENT A. LANIER, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY DIRECTION AND SUPERVISION FROM AN ACTUAL SURVEY OF LAND MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN: SEE TITLE REFERENCE.) THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES, AND ARE REFERENCED AS SHOWN ON PLAT; THAT THE ERROR OF CLOSURE AS CALCULATED BY LATITUDES AND DEPARTURES IS NOT APPLICABLE THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY HAND AND SEAL THIS THE 21st DAY OF November, 2001

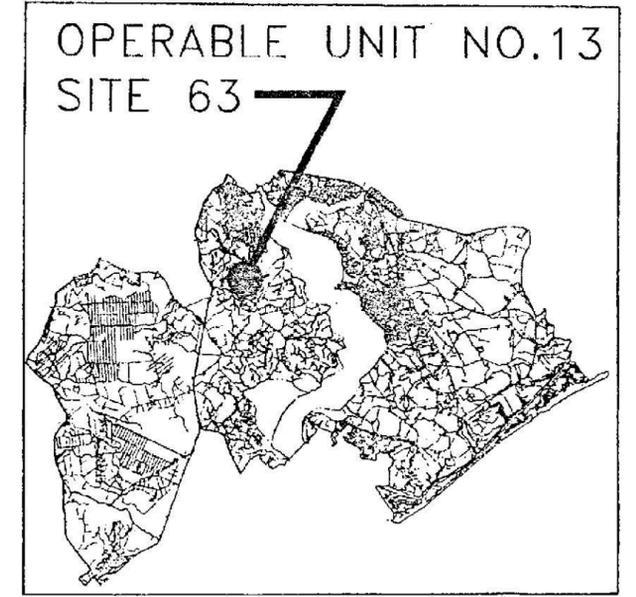
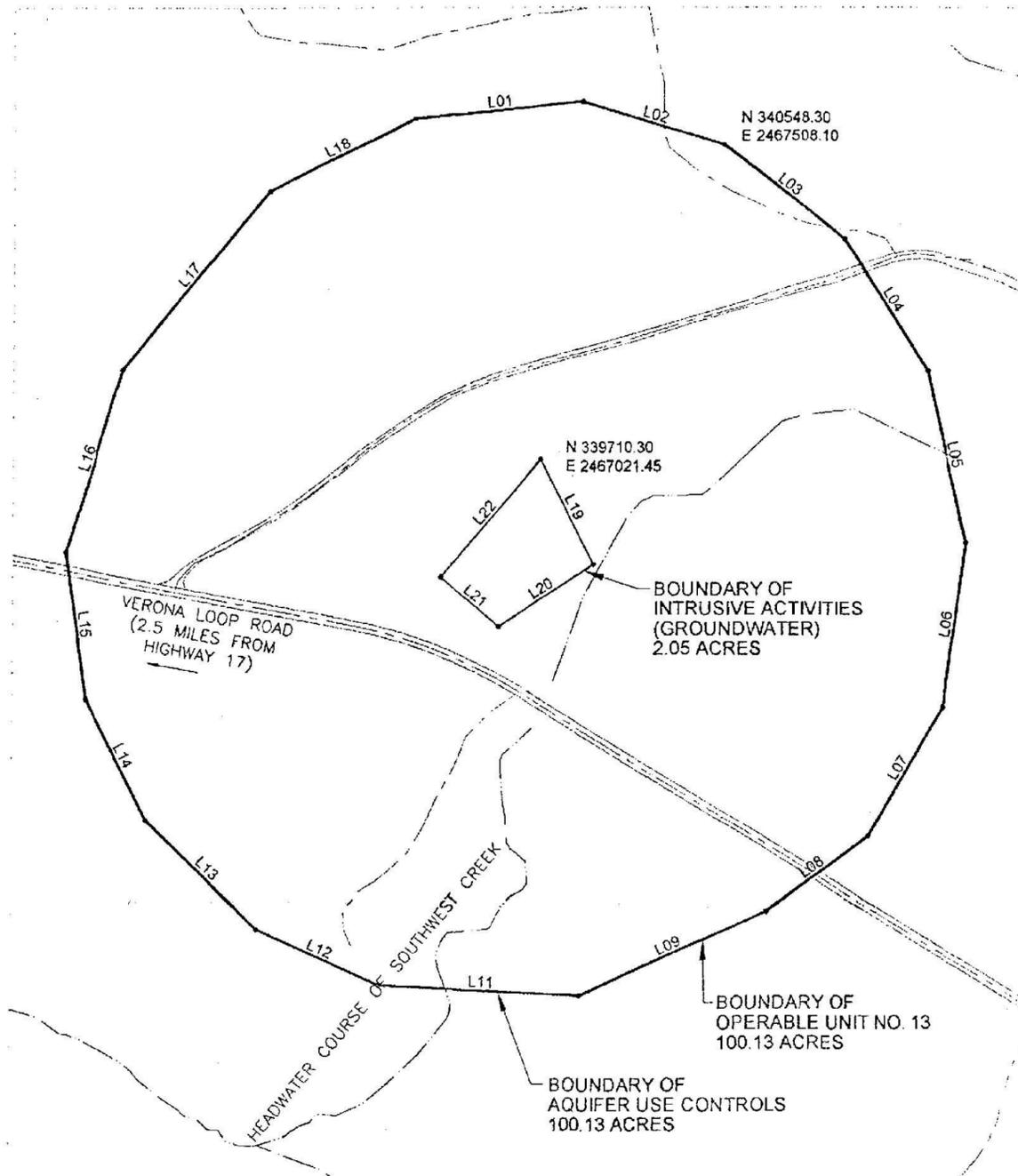
Brent A. Lanier
BRENT A. LANIER, P.L.S. L-3611

LEGEND

- BOUNDARY OF THE OPERABLE UNIT
- BOUNDARY OF AQUIFER USE CONTROLS
- BOUNDARY OF INTRUSIVE ACTIVITIES (GROUNDWATER)
- — WATER COURSE

NOTES:

1. THE AREAS AND TYPE OF CONTAMINATION DEPICTED UPON THE MAP ARE APPROXIMATIONS DERIVED FROM THE BEST AVAILABLE INFORMATION AT THE TIME OF FILING.
2. TYPES OF HAZARDOUS SUBSTANCES KNOWN:
GROUNDWATER— METALS
SOIL— METALS
3. THIS MAP IS NOT FROM AN ACTUAL SURVEY
4. SPECIFIC QUANTITIES OF HAZARDOUS SUBSTANCES UNKNOWN.
5. DATUM: NORTH CAROLINA GRID NAD 83
6. BOUNDARY SOURCE: BAKER ENVIRONMENTAL INC., JUNE 2001
7. MAP SOURCE: VECTOR DATA FROM 1996 FLYOVER OF CAMP LEJEUNE.
8. CONTROL POINT REFERENCE: N.C.G.S. STA. TERRANCE



VICINITY MAP

EXHIBIT MAP
NOTICE OF INACTIVE HAZARDOUS
SUBSTANCE OR WASTE DISPOSAL SITE

PLAT
BOUNDARY OF LAND USE CONTROLS
SITE 63 - OPERABLE UNIT NO. 13

SHOWING PROPERTY OF:
MARINE CORPS BASE, CAMP LEJEUNE
ONSLOW COUNTY, NORTH CAROLINA
JULY 16, 2001

LINE	LENGTH	BEARING
L01	455.41	N84°31'03"E
L02	391.75	S73°15'10"E
L03	405.25	S51°11'07"E
L04	414.04	S32°51'38"E
L05	466.84	S12°31'52"E
L06	435.51	S07°39'33"W
L07	399.89	S30°04'24"W
L08	466.84	S12°31'52"E
L09	335.17	S53°23'02"W
L10	542.13	S65°39'17"W
L11	540.47	N86°55'38"W
L12	353.87	N65°01'22"W
L13	414.93	N45°42'46"W
L14	362.29	N26°49'35"W
L15	389.92	N08°03'21"W
L16	505.52	N17°31'43"E
L17	614.38	N39°46'04"E
L18	429.05	N62°47'18"E
L19	312.28	S27°24'51"E
L20	305.95	S57°58'53"W
L21	202.84	N49°59'24"W
L22	411.01	N41°14'56"E

42/110

LANIER

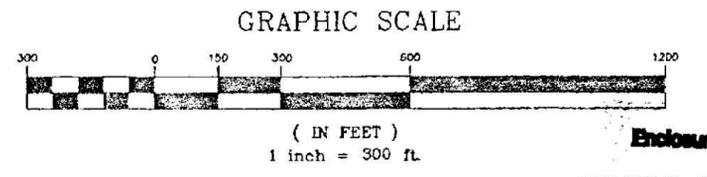
SURVEYING COMPANY

SURVEYING-PLANNING-MAPPING

239 NEW BRIDGE STREET

JACKSONVILLE, N.C. 28540

PHONE (910) 455-3889



APPROVED, FOR THE PURPOSES OF N.C.G.S. 130A-310.8.

Jack Butler
JACK BUTLER
CHIEF SUPERFUND SECTION DIVISION OF WASTE MANAGEMENT
NORTH CAROLINA
WAKE COUNTY

Holly A. Murray, A NOTARY PUBLIC OF SAID COUNTY AND STATE, DO HEREBY CERTIFY THAT *Jack Butler* DID PERSONALLY APPEAR AND SIGN BEFORE ME THIS 14th DAY OF January, 2007.

Holly A. Murray
NOTARY PUBLIC (SIGNATURE) (OFFICIAL SEAL)

MY COMMISSION EXPIRES 7/6 2008, AND

A SURVEYOR'S CERTIFICATION AND SEAL (USING A PERMANENT INK STAMP).

I, BRENT A. LANIER, PROFESSIONAL LAND SURVEYOR NO. 3611, CERTIFY TO ONE OR MORE OF THE FOLLOWING AS INDICATED:

- A. THAT THIS PLAT IS OF A SURVEY THAT CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND;
- B. THAT THIS PLAT IS OF A SURVEY THAT IS LOCATED IN SUCH PORTION OF A COUNTY OR MUNICIPALITY THAT IS UNREGULATED AS TO AN ORDINANCE THAT REGULATES PARCELS OF LAND;
- C. THAT THIS PLAT IS OF A SURVEY OF AN EXISTING PARCEL OR PARCELS OF LAND;
- D. THAT THIS PLAT IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION;
- E. THAT THE INFORMATION AVAILABLE TO THIS SURVEYOR IS SUCH THAT I AM UNABLE TO MAKE A DETERMINATION TO THE BEST OF MY PROFESSIONAL ABILITY AS TO PROVISIONS CONTAINED IN (A) THROUGH (D) ABOVE.

NORTH CAROLINA ONSLOW COUNTY

FILED FOR REGISTRATION AT O'CLOCK M.
ON THE DAY OF , 2007.
RECORDED IN MAP BOOK PAGE
SLIDE

MILDRED M. THOMAS, REGISTER OF DEEDS ONSLOW COUNTY

CERTIFICATE OF SURVEY AND ACCURACY

I, BRENT A. LANIER, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY DIRECTION AND SUPERVISION FROM AN ACTUAL SURVEY OF LAND MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN: SEE TITLE REFERENCE). THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES, AND ARE REFERENCED AS SHOWN ON PLAT; THAT THE ERROR OF CLOSURE AS CALCULATED BY LATITUDES AND DEPARTURES IS 1:10,000. THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED, WITNESS MY HAND AND SEAL ON THIS 24th DAY OF February, 2007.

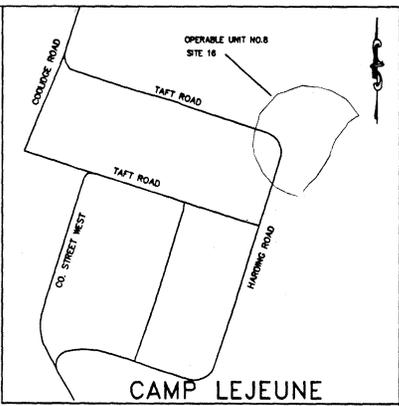
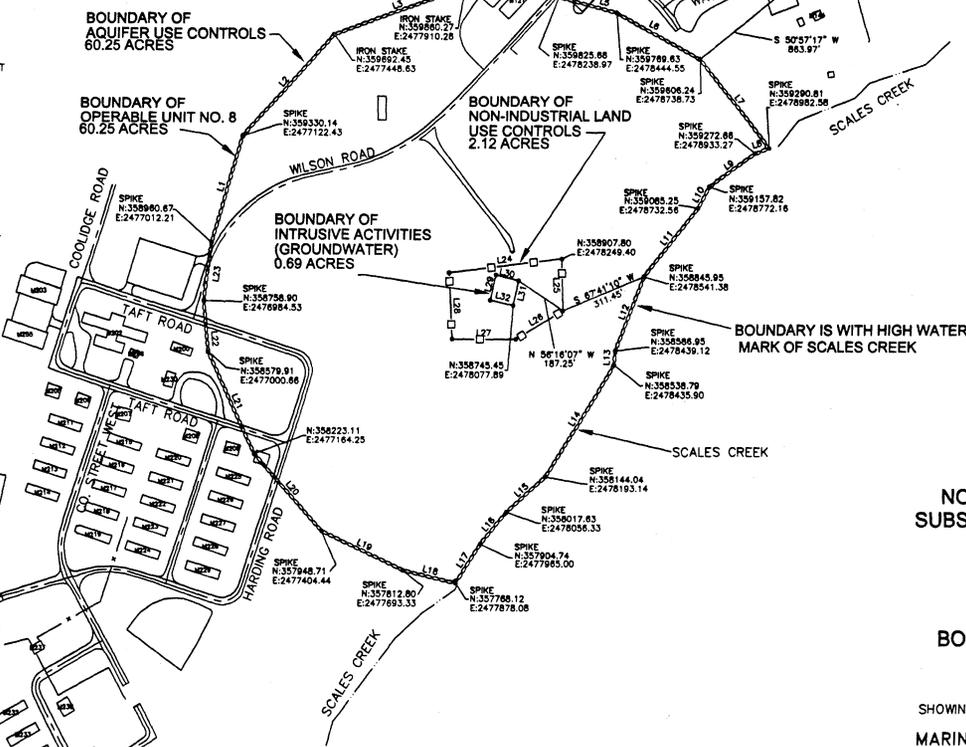
Brent A. Lanier
BRENT A. LANIER, P.L.S. L-3611

LEGEND

- BOUNDARY OF AQUIFER USE CONTROLS
- BOUNDARY OF INTRUSIVE ACTIVITIES (GROUNDWATER)
- BOUNDARY OF NON-INDUSTRIAL LAND USE CONTROLS
- WATER COURSE

NOTES:

- THE AREAS AND TYPE OF CONTAMINATION DEPICTED UPON THE MAP ARE APPROXIMATIONS DERIVED FROM THE BEST AVAILABLE INFORMATION AT THE TIME OF FILING.
- TYPES OF HAZARDOUS SUBSTANCES KNOWN: GROUNDWATER - PETROLEUM, OIL, AND LUBRICANTS (POL) WASTES SOIL - PCBs
- QUANTITIES OF HAZARDOUS SUBSTANCES UNKNOWN.
- DATUM: NORTH CAROLINA GRID NAD 83
- BOUNDARY SOURCE: BAKER ENVIRONMENTAL INC., JUNE 2001
- MAP SOURCE: VECTOR DATA FROM 1996 FLYOVER OF CAMP LEJEUNE
- CONTROL POINT REFERENCE: U.S.M.C. STA. PW-8
- SCALE FACTOR: 0.9999192
- ALL DISTANCES ARE GRID
- ALL COORDINATES ARE IN NAD 83 STATE PLANE FEET
- ALL IRON STAKES AND SPIKES SHOWN WERE SET
- BOUNDARIES WERE SURVEYED, FEATURES INSIDE BOUNDARY LINES WERE FROM MAP SOURCE AND FIELD VERIFIED



CAMP LEJEUNE VICINITY MAP

EXHIBIT MAP

NOTICE OF INACTIVE HAZARDOUS SUBSTANCE OR WASTE DISPOSAL SITE

PLAT

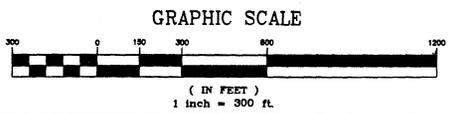
BOUNDARY OF LAND USE CONTROLS SITE 16 - OPERABLE UNIT NO. 8

SHOWING PROPERTY OF:
MARINE CORPS BASE, CAMP LEJEUNE
ONSLOW COUNTY, NORTH CAROLINA
SEPTEMBER 27, 2006

LINE	BEARING	DISTANCE
L1	N 16°36'45" E	385.56
L2	N 43°59'57" E	467.52
L3	N 70°01'25" E	491.21
L4	S 83°59'55" E	330.50
L5	S 74°44'58" E	213.29
L6	S 80°57'14" E	336.53
L7	S 37°42'14" E	398.69
L8	S 82°47'61" W	52.54
L9	S 54°31'03" W	197.85
L10	S 28°37'31" W	82.67
L11	S 38°37'15" W	306.39
L12	S 21°32'44" W	278.48
L13	S 03°49'50" W	48.28
L14	S 31°59'25" W	45.53
L15	S 47°15'50" W	188.28
L16	S 38°58'21" W	143.21
L17	S 32°27'51" W	161.82
L18	N 76°24'23" W	190.07
L19	N 84°48'21" W	319.28
L20	N 41°11'46" W	354.67
L21	N 24°37'52" W	392.51
L22	N 05°09'00" W	178.72
L23	N 07°48'58" E	203.65
L24	N 82°47'42" E	400.00
L25	S 01°13'04" E	180.15
L26	S 58°56'29" W	193.24
L27	N 80°00'00" W	223.00
L28	N 02°27'58" W	230.00
L29	N 12°53'46" E	89.21
L30	S 77°06'14" W	82.68
L31	S 12°53'46" E	89.21
L32	N 77°06'14" W	82.68

Doc ID: 002282730001 Type: CRP
Recorded: 02/08/2007 at 12:00:41 PM
Fee Amt: \$21.00 Page 1 of 1
Onslow County, NC
Brent A. Lanier, K. Washington Register of D
BK 52 pg 187
Slide L102

LANIER **CH2MHILL**
SURVEYING COMPANY
SURVEYING-PLANNING-MAPPING
134 CEDAR POINT BLVD.
CEDAR POINT, N.C. 28584
PHONE (252)393-4505





EMD

This Site: EMD

Camp Lejeune Installations and Environment Department > EMD > Official Document Inventory > Comments on the Draft ESD OU#8 Site 16, 11,80 and 13

Official Document Inventory: Comments on the Draft ESD OU#8 Site 16, 11,80 and 13

| | | |

ID# 14330
Document Type Correspondence
Date Received/Created 5/3/2012
Date Signed
Document Status Informational
Mail Status Incoming
Document Title Comments on the Draft ESD OU#8 Site 16, 11,80 and 13
Author NCDENR
Program
Keywords
Building/Room # Bldg 12/Rm 241
Storage
Location
Route EQB PM _____ Lowder *EC 5-3-12* Ledford _____ Townson
Mailing Instructions General
Tickler Status
Tickler Due Date
Comments
Permanent File *yes jca 5/3/12*
Working File Link

Content Type: Item
 Version: 1.0
 Created at 5/3/2012 2:04 PM by Ledford CIV Judith C
 Last modified at 5/3/2012 2:04 PM by Ledford CIV Judith C



North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

May 1, 2012

Mr. Bryan Beck
NAVFAC Mid-Atlantic
Code: OPCEV
NC/Caribbean IPT, EV Business Line
6506 Hampton Blvd
Norfolk, VA 23508-1273

RE: Comments on the Draft ESD OU# 8 (Site 16), 11 (Site 80), and 13 (Site 63)
MCB Camp Lejeune, NC
NC6170022580
Jacksonville, Onslow County, North Carolina

Dear Mr. Beck:

The NC Superfund Section has received and reviewed the Draft Explanation of Significant Difference (ESD) dated April 2012 for Operable Unit (OU) # 8 (Site 16), 11 (Site 80), and 13 (Site 63) at the Camp Lejeune, MCB Superfund Site Located in Jacksonville, NC. The State has no further comments on the Draft ESD document and concurs with the details of the ESD.

If you have any questions or comments, please contact me, at (919) 707-8341 or email randy.mcelveen@ncdenr.gov

Sincerely,

Randy McElveen
Environmental Engineer
NC Superfund Section

Cc: Dave Lown, NC Superfund Section, Electronic only
Charity Rychak, EMD/IR
Gena Townsend, USEPA
Dave Cleland, NAVFAC