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NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF WASTE MANAGEMENT

September 8, 1998



JAMES B. HUNT JR.  
GOVERNOR

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WILLIAM L. MEYER  
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Commander, Atlantic Division  
Naval Facilities Engineering Command  
Code 1823  
Attention: MCB Camp Lejeune, RPM  
Ms. Katherine Landman  
Norfolk, Virginia 23511-6287

Commanding General  
Attention: AC/S, EMD/IRD  
Marine Corps Base  
PSC Box 20004  
Camp Lejeune, NC 28542-0004

RE: NC Superfund Section Comments  
Sample Record of Decision  
OU12, (Site 3)  
Marine Corps Base, Camp Lejeune

Dear Ms. Landman:

The referenced document has been received and reviewed by the North Carolina Superfund Section and our comments are attached. Please call me at (919) 733-2801, extension 278 if you have any questions.

Sincerely,

David J. Lown, LG, PE  
Geological Engineer  
Superfund Section

Attachments

cc: Gena Townsend, US EPA Region IV  
Neal Paul, MCB Camp Lejeune  
Diane Rossi, DENR - Wilmington Regional Office  
Rob Gelblum, AG's Office

ATTACHMENT 1

NC Superfund Section Comments  
Sample Record of Decision  
OU12 (Site 3)  
Marine Corps Base, Camp Lejeune

1. In Table 7 of the ROD, several contaminants are designated "NE", indicating that they do not have established NC groundwater (2L) standards. NCAC 15A 02L.0202(c) states, "...substances which are not naturally occurring and for which no standard is specified shall not be permitted in detectable concentrations in Class GA or Class GSA groundwaters." The criteria for establishing a groundwater quality standard is contained in paragraph (d) of the same section. Some of these compounds have Interim 2L Standards. Screening levels for the groundwater contaminants are given in Table 1.

To meet the administrative requirements of the ARAR, if neither a 2L standard nor an interim standard is available, Region III Tap Water standards may be used as screening levels. If the Region III standard is for a non-carcinogen, only one-tenth the value should be used. With the complete characterization of contamination, the final remediation goals for contaminants, as opposed to screening levels, may be adjusted.

2. Contaminants that exceed the NC groundwater standards are shown in Table 1. If the groundwater standard is exceeded, then a soil-to-groundwater (S-3:G-1) level is listed. The contaminants that exceed the Region III residential levels are shown in Table 2. Table 3 shows contaminants that exceed the Region III residential levels and/or the S-3:G-1 levels. The action level is the most stringent of the two.

Except for soils that only exceed the Region III residential levels, the soil is being cleaned to protect groundwater. Because the S-3:G-1 levels are conservative, additional site-specific data may be collected to set cleanup levels. Additional soil sampling to determine the leaching characteristics using a leach test, such as the Synthetic Precipitation Leaching Procedure (SPLP, EPA SW-846 Method 1312, USEPA, 1994), may be warranted. The leach test results and a dilution factor can be used in place of the soil-to-groundwater equation to determine cleanup levels that are protective of groundwater. Remediation goals determined from site-specific data, such as leach tests, should be higher than Method 1, S-3:G-1 screening levels.

3. The ARARs that apply to this site should be listed in the ROD.
4. Comments on the LUCIP are contained in Attachment 2.

**Table 1. Soil Contaminants of Potential Concern Based on Groundwater OU01, Site 3  
 OU01, Site 3**

Source: Table 13 and Table 7 of ROD

GW Exceedences	GW Standard (mg/L)	GW Std. Source	Surface Soil Max. Concentration (mg/kg)	Subsurface Soil Max. Concentration (mg/kg)	S-3:G-1 (mg/kg)	S-3:G-1 Source	Soil COC
Benzene	0.001	a	ND	0.002	0.0056	d	
Benzo(a)anthracene	0.00005	b	8.3	8	0.343	d	f
Benzo(a)pyrene	0.0000047	b	8.7	3.3J	0.065	e	g
Benzo(b)fluoranthene	0.000047	b	13	3.5J	1.16	e	g
Benzo(k)fluoranthene	0.00047	b	9	3.3J	11.6	e	
Carbazole	0.0033	c	0.830J	4.9	0.273	e	f
Chrysene	0.005	b	12	8.4	38.1	d	f
Dibenzofuran	0.0024	c	ND	36	80	e	
Dimethylphenol 2,4-	0.14	b	ND	ND			
Methylnaphthalene 2-	0.028	b	41J	31	4.9	e	f
Methylphenol 2-	0.18	c	ND	2J	1.05	e	g
Methylphenol 4-	0.0035	b	ND	5.9J	0.0174	e	g
Naphthalene	0.021	a	0.200J	95	0.585	d	f
Phenanthrene	0.21	a	ND	110	59.6	d	g
Phenol	0.3	a	0.038J	7.2	1.75	d	g

a 2L standard

b Interim 2L Standard

c Region III Tap Water (Non-carcinogen values are multiplied by 0.10.)

d NC Draft Risk Analysis Framework, Table 3.4.

e Calculated Using NC Draft Risk Analysis Framework General Formula for S-3 Soil.

f Presently listed as a COC in ROD, Table 12.

g Compound to be added to the COC list.

ND Not detected.

**Table 2. Contaminants above Region III RBCs  
 OU01, Site 3**

Surface Soils

Source: Table 5 of ROD

	Region III RBC Residential Soil (mg/kg)	Maximum Concentration (mg/kg)	COC
Benzo(a)anthracene	0.88	8.3	a
Benzo(b)fluoranthene	0.88	13	b
Benzo(k)fluoranthene	8.8	9	c
Benzo(a)pyrene	0.088	8.7	b
Indeno(1,2,3-cd)pyrene	0.88	6.8	c
Dibenzo(a,h)anthracene	0.088	2.9	c

Subsurface Soils

Source: Table 6 of ROD

Benzo(a)anthracene	0.88	8	a
Benzo(b)fluoranthene	0.88	3.5J	b
Benzo(a)pyrene	0.088	3.3J	b
Indeno(1,2,3-cd)pyrene	0.88	3.1J	c

a List as a COC in ROD, Table 12.

b Listed as a COC in Table 1.

c Should be added to the COC list.

**Table 3. Soil Contaminants of Concern and Proposed  
 Action Levels  
 OU01, Site 3**

Contaminant	Soil to Groundwater (Table 1)	Region III RBC Residential Soil (Table 2)	Proposed Action Level
Benzo(a)anthracene	0.343	0.88	0.343
Benzo(a)pyrene	0.065	0.088	0.065
Benzo(b)fluoranthene	1.16	0.88	0.88
Benzo(k)fluoranthene	NA	8.8	8.8
Carbazole	0.273	NA	0.273
Dibenzo(a,h)anthracene	NA	0.088	0.088
Indeno(1,2,3-cd)pyrene	NA	0.88	0.88
Methylnaphthalene 2-	4.9	NA	4.9
Methylphenol 2-	1.05	NA	1.05
Methylphenol 4-	0.0174	NA	0.0174
Naphthalene	0.585	NA	0.585
Phenanthrene	59.6	NA	59.6
Phenol	1.75	NA	1.75

NA Contaminant not detected above action level.

## ATTACHMENT 2

[Strikethroughs and underlines added by NCDENR Sept. 4, 1998]

### ATTACHMENT B

#### LAND USE CONTROL IMPLEMENTATION PLAN (LUCIP) MCB CAMP LEJEUNE OU NO. 12 (SITE 3) OLD CREOSOTE PLANT

##### GENERAL

The following details outline the Land Use Control Implementation Plan (LUCIP) for MCB, Camp Lejeune, Site 3, Old Creosote Plant. Site 3 is the sole site comprising Operable Unit (OU) No.12. An overall Land Use Control Assurance Plan (LUCAP) is currently being prepared by MCB Camp Lejeune. This initial LUCIP is included in the Final Record of Decision (ROD) for the site as an attachment to the ROD; all requirements specified in this LUCIP are ~~to be treated~~ as conditions of the ROD. This initial LUCIP shall be appended to the LUCAP within sixty day (60) of the latter of (a) the date that the ROD for Site 3 is signed, and (b) the date that concurrence is received from USEPA and NCDENR on the Final LUCAP.

Subsequent changes to the LUCIP which do not impact the selected remedy will be treated as non-significant changes to the ROD. Other changes to the LUCIP will be documented, as appropriate, through ~~the appropriate process to change the ROD (e.g. an Explanation of Significant Differences, or a ROD amendment)~~. Thus, all proposed changes to the LUCIP will be submitted to the state and EPA for review and concurrence prior to implementation. Proposed changes which receive state and EPA concurrence will be implemented by modification of the LUCIP maintained with the MCB, Camp Lejeune LUCAP. Thus, the LUCAP will be maintained as the source of the current LUCIP for the site, as documented through the changes to the ROD. The LUCIP for Site 3 will be updated at least annually to include revised site boundaries and boundaries of site restrictions based on the current status of remedial actions and monitoring results.

Because the LUCAP for MCB Camp Lejeune is not yet completed, it is understood by all parties that ~~the~~ concurrence by USEPA and NCDENR of with the ROD for Site 3 is dependent upon MCB Camp Lejeune's timely completion of the LUCAP and future compliance with the terms of the LUCAP. If the LUCAP is not completed in a timely manner, or if, once the LUCAP is completed, MCB Camp Lejeune fails to substantially comply with its provisions or the LUCAP is unilaterally terminated, the protectiveness of the remedy selected in the ROD ~~may~~ will be reconsidered and additional measures may be required to adequately ensure future protection of human health and the environment. The LUCAP, and LUCIPs for those sites which have signed RODs that pre-date the LUCAP, are currently scheduled for submittal no later than December 31, 1998.

## MONITORING PROGRAM

- MCB Camp Lejeune shall conduct site monitoring of groundwater to evaluate the effectiveness of the soil removal ~~on~~ in decreasing groundwater contaminant levels and the progress of ~~the~~ natural attenuation of groundwater contaminants. Monitoring will also serve to ensure that there are no further releases from the site that could cause unacceptable risks to human health or the environment.
- Within 180 days of the date that the Final Record of Decision for Site 3 is signed, MCB Camp Lejeune shall submit a Monitoring Plan for Site 3 to USEPA and NCDENR for concurrence. The Monitoring Plan shall be prepared in accordance with applicable or relevant and appropriate Federal and State regulations and guidance. The plan shall provide specific details of the monitoring program including the media to be sampled, the sample locations, the specific analyses to be performed, and the sampling frequency. The ~~initial~~ plan shall at a minimum provide for quarterly collection of groundwater samples with analyses for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).
- The Monitoring Plan shall include provisions for loading of periodic monitoring event results into the basewide Geographic Information System (GIS). Periodic monitoring event results include (1) analytical results from samples collected during the monitoring event, (2) location information for any new monitoring wells installed during the event, and (3) a status notation (“abandoned”) for any monitoring wells permanently removed from service.
- Changes to the Monitoring Plan (including changes to sampling frequency, media samples, sample locations, analyses performed, and installation or abandonment of monitoring wells) may be required by USEPA or NCDENR, or proposed by MCB Camp Lejeune based on review of results from the regular monitoring program or other circumstances. Changes to the Monitoring Plan shall be submitted to USEPA and NCDENR for concurrence as non-significant changes to the ROD.
- Monitoring may be discontinued upon demonstration that continued attainment of remedial goals has been achieved. Discontinuation of the monitoring program shall be submitted for USEPA and NCDENR concurrence as a ~~non-significant change to the ROD.~~

## SITE BOUNDARY IDENTIFICATION

- The geographic boundary of the site is identified in Figure B-1. This boundary indicates the ~~composite~~ outermost border of all restricted portions of the site (i.e. no restricted areas lie outside this boundary).
- The geographic boundary of the current soil contamination is identified in Figure B-2. This boundary indicates the limits of soil contamination prior to implementation of the remedial action for soil.

- The geographic boundaries of the current shallow and deep groundwater contamination are identified in Figure B-3. These boundaries indicate the current limits of groundwater contamination at the depths specified.

#### **LAND USE RESTRICTIONS**

- The land use at Site 3 will be temporarily restricted to prevent any construction at the site, except for implementation of the selected remedy. These restrictions will remain in place only until the selected soil remedy can be implemented.
- Specific geographic boundaries of temporary land use restrictions are identified in Figure B-4, Boundary of Temporary Land Use Restrictions.
- Intrusive activities (e.g. excavation of soil or insertion of objects into the ground, except for monitoring purposes) below the water table within 1000 ft of contaminated groundwater are prohibited. Specific exceptions may be made with NCDENR and USEPA concurrence.
- Specific geographic boundaries of the land use restrictions for intrusive activities are identified in Figure B-5, Boundary of Land Use Restrictions for Intrusive Activities.

#### **AQUIFER USE RESTRICTIONS**

- All use of groundwater located beneath Site 3, other than for monitoring purposes, is prohibited.
- The installation of any well, other than those constructed for monitoring purposes, within 1000 ft of contaminated groundwater is prohibited.
- Specific geographic boundaries of the restricted aquifers (including both the contaminated zones and the 1000ft buffer) are identified in Figure B-6, Boundary of Aquifer Use Restrictions.

#### **SITE ACCESS RESTRICTIONS**

- Site access is unrestricted.

#### **NOTIFICATION RECORDATION**

- Within 180 days of the date that the ~~Final~~ Record of Decision for Site 3 is signed, MCB Camp Lejeune shall submit for NCDENR concurrence a plat entitled "Notice of Inactive Hazardous Substance or Waste Disposal Site" ("Notice"). The Notice shall include a legal description of the site that would be sufficient as a description in an instrument of conveyance, shall meet the requirements of North Carolina General Statute 47-30 for maps and plats, and shall identify:
  - (1) The location and dimensions of the disposal areas and areas of potential environmental

concern with respect to permanently surveyed benchmarks.

- (2) The type, location, and quantity of hazardous substances known by the owner of the site to exist on the site.
- (3) The institutional controls required under this ROD other than the Notice.

The Notice ~~shall~~ may also include the following statements:

- (1) ~~This~~ Notice ~~in no way should be interpreted as~~ is not a disposition or alienation of any real property interest held by the United States for the property in question.
- (2) ~~This~~ Notice creates no independent enforcement authorities in the State or third parties.
- (3) ~~Nothing in the~~ This Notice ~~should be construed to~~ does not create any obligation inconsistent with those imposed on the Navy/Marine Corps under the CERCLA Decision Document (Record of Decision) for the site.

- Within 15 days of receipt of NCDENR concurrence with the Notice, MCB Camp Lejeune shall file with the Onslow County Register of Deeds Office the copy of the Notice concurred with by NCDENR and shall send to NCDENR a copy thereof certifying filing ~~by the Onslow County Register of Deeds Office.~~

#### **BASE IMPLEMENTATION**

- Within sixty (60) days of the date that the Final Record of Decision for Site 3 is signed, the land use and aquifer use restrictions described in the Record of Decision (collectively referred to as "site restrictions") shall be provided to the MCB Camp Lejeune planning department for immediate implementation and inclusion in the next publication of the Base Master Plan (BMP). The BMP is updated approximately every five (5) years. A copy of the site restrictions as inserted into the BMP will be provided to NCDENR and USEPA upon publication. In addition, a copy of the site restrictions as inserted into each subsequent publication of the BMP will be provided to NCDENR and USEPA upon publication as long as the restrictions remain in effect.
- Within sixty (60) days of the latter of (a) the date that the Final ROD for Site 3 is signed and (b) the date that the MCB Camp Lejeune GIS system modification to allow inclusion of specific boundaries of site restrictions is completed, MCB Camp Lejeune shall record the specific boundaries of site restrictions as described in this ROD in the basewide Geographic Information System (GIS) and provide NCDENR written notification of such recording. The MCB Camp Lejeune GIS system is currently being modified to allow inclusion of specific boundaries of site restrictions as follows: (a) overall site boundary (inclusive of all areas of previous investigation and current areas of concern), (b) limits of shallow groundwater contamination and shallow groundwater use restrictions, (c) limits of deep groundwater contamination and deep groundwater use restrictions, (d) limits of soil contamination and land use restrictions, (e) limits of surface water and sediment contamination. This modification is anticipated to be completed by July 15, 1999.

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- Within sixty (60) days of the date that the Final Site 3 ROD is signed, MCB Camp Lejeune shall record in the basewide GIS (a) the location of all permanent monitoring wells remaining on site at the signing of this ROD, and (b) all analytical results of samples collected from these monitoring wells during the remedial investigation.
- Within sixty (60) days of submission of periodic monitoring event results to USEPA and NCDENR, MCB Camp Lejeune shall record in the basewide GIS (a) all analytical results of samples collected during the monitoring event, (b) the location of any new permanent monitoring wells installed on site during the event, and (c) a status notation of “abandoned” for any monitoring wells permanently removed from ~~of~~ service.
- The Commanding General, MCB Camp Lejeune, or his designee, will submit to NCDENR and USEPA at least annually a certification that compliance with the site restrictions as specified in this ROD, or as modified with USEPA and NCDENR concurrence, has been confirmed through visual inspection and that the restrictions are being actively enforced. In the event that deviations from this condition have been implemented with concurrence from NCDENR and USEPA, then this certification will fully describe such deviations and provide or reference appropriate supporting documentation. To reduce administrative burden, this certification may occur concurrently with certification for other sites at MCB Camp Lejeune such that a single certification document encompassing all applicable sites is submitted once each year.
- Within sixty (60) days of the latter of (a) date that the Final Site 3 ROD is signed, and (b) the date that concurrence is received from USEPA and NCDENR on the LUCAP for MCB Camp Lejeune, the site restrictions specified in this LUCIP shall be incorporated into the LUCAP.
- Modifications to the site restrictions specified in the ROD require USEPA and NCDENR concurrence. Proposed modifications which receive such concurrence shall be updated in appropriate documentation following the relevant and appropriate procedures outlined for implementation of this ROD. Examples include, but are not limited to, the Base Master Plan, the basewide GIS, the LUCAP/LUCIP, and the Notification of Inactive Hazardous Substance or Waste Disposal Site.

## PROPERTY TRANSFER

- If the site is ever transferred to another Federal government entity (“transferee”), the Navy/Marine Corps shall take the following steps to ensure that the site restrictions described above will remain in effect after the transfer:
  - (1) The transfer document shall contain in the description section, in type no smaller than that used in the body of the document, a statement that the property has been used as a hazardous waste disposal site, and a reference by book and page to the recordation of the Notice described under the “Notification Recordation” section above, and shall have attached to it a copy of that Notice.
  - (2) The transfer document shall identify the institutional controls included in this ROD and require that these restrictions be upheld by the transferee.
  - (3) The transfer document may transfer one or more ~~shall identify the transferee’s responsibilities and any continuing~~ Navy/Marine Corps responsibilities under this with regards to upholding the requirements of the ROD, to the transferee. such that all responsibilities identified in this ROD are clearly assigned. Any responsibilities not so transferred shall remain with the Navy/Marine Corps. These responsibilities include site restrictions, site maintenance, ~~(monitoring wells, monitoring events,~~ reporting, and transfer/conveyance requirements).
  
- If the site is ever leased or a temporary easement is granted to a non-Federal entity (“tenant”), the Navy/Marine Corps shall take the following steps to ensure that the institutional control described above will remain in effect during the lease period:
  - (1) The ~~lease or temporary easement~~ (“transfer document”) shall contain in the description section, in type no smaller than that used in the body of the document, a statement that the property has been used as a hazardous waste disposal site, and a reference by book and page to the recordation of the Notice described under the “Notification Recordation” section above, and shall have attached to it a copy of that Notice.
  - (2) The transfer document ~~lease~~ shall identify the site restrictions established in the ROD and the requirement that these restrictions be upheld by the tenant.
  
- If the site is ever sold, conveyed, or transferred, or if a permanent easement is granted to a non-Federal entity (“transferee”), and the Navy/Marine Corps is the agency empowered to conduct the real estate transaction, the Navy/Marine Corps shall take the following steps to ensure that the institutional controls described above will remain in effect after the transfer:
  - (1) The deed or other instrument of transfer (“transfer document”) shall contain in the description section, in type no smaller than that used in the body of the document, a statement that the property has been used as a hazardous waste disposal site, a reference by book and page to the recordation of the Notice described under the “Notification Recordation” section above, and shall have attached to it a copy of that Notice.
  - ~~(2) The transfer document shall have attached to it a copy of the Notice.~~
  - ~~(3)~~(2) The transfer document shall include a covenant which imposes the same site restrictions as described in the ROD.

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- If the site is ever sold, conveyed, or transferred, or if a permanent easement is granted to a non-Federal entity (“transferee”), and the Navy/Marine Corps is not the agency empowered to conduct the real estate transaction, the Navy/Marine Corps shall take all steps necessary and permissible to ensure that the disposal agency takes the steps described in the preceding paragraph, unless the property has been remediated to residential standards prior to such transfer. In any event, the disposal agency shall be responsible for taking the steps described in the preceding paragraph absent prior remediation to residential standards.