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State of North Carolina  
Department of Environment, Health, and Natural Resources  
Division of Solid Waste Management  
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor  
William W. Cobey, Jr., Secretary

William L. Meyer  
Director

February 19, 1992

Commander, Atlantic Division  
Naval Facilities Engineering Command  
Code 1822

Attention: MCB Camp Lejeune RPM  
Ms. Laurie Boucher  
Norfolk, Virginia 23511-6287

Commanding General

Attention: AC/S, Environmental Management  
Building 1, Marine Corps Base  
Camp Lejeune, North Carolina 28542-5001

Subject: USMC Camp Lejeune Military Reservation  
NC6 170 022 580  
Jacksonville, Onslow County, North Carolina

Dear Sir and Madam:

The North Carolina Superfund Section has received and reviewed the Draft Final Site Assessment Report for Sites 6, 48, and 69. Our comments on this document are as follows:

1. On page 4-4 reference is made to the "northwest-southeast" geological cross section. The geological cross section presented in Figure 4-4, however, is shown to run north-south.
2. On page 5-1 concern is expressed regarding the number of laboratory contaminants found in many of the QA/QC samples. The presence of these compounds in field samples can not be dismissed as laboratory contamination without resampling to document their absence in the site environment.
3. Table 5-2 on page 5-5 is unreadable. This table should be enlarged and reprinted.

4. On page 5-2 a discussion is presented addressing filtered versus unfiltered samples. The following excerpt from the EPA Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, 1 February 1991, is presented here for your information:

4.9.5.2 Filtering - As a standard Branch policy, ground-water samples will not be filtered. However, if samples are filtered, then both filtered and non-filtered samples will be submitted for analyses. Proper well installation and development as well as proper purging techniques should be utilized to minimize the turbidity of samples. If filtered samples for metals analyses must be collected, an additional unfiltered sample will also be collected for metals analyses. Samples for organic compounds analyses shall not be filtered.
5. A summary of the Water Quality Standards for Freshwater Classes and Tidal Saltwater Classifications is included as an attachment to this letter. This summary should be used to revise Tables 5-3, 5-6, 6-1, 6-3, 6-8, and 6-12. The Potential Chemicals of Concern (PCOC) indicated in Tables 6-3, 6-8, and 6-12 should be re-evaluated using this summary.
6. It was noted that no groundwater monitoring has been conducted at Site 48. Although the presence of mercury is recognized in the discussion on page 5-12, it is recommended that a groundwater monitoring program be initiated at Site 48 to define the extent of possible groundwater contamination.
7. On page 5-22, the "standing water sample collected on the south side of the site" is referenced to as 69GW1. The proper designation for this sample is assumed to be 69SW1 and should be corrected.
8. Section 6-1 of this Site Assessment Report was reviewed as only a chapter in the Site Assessment Report. It is assumed that a full human health and ecological risk assessment for each site, including modeling exposure concentrations to receptor populations, will be prepared and submitted for review.

Commander, Atlantic Division  
19 February 1992  
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The North Carolina Superfund Section appreciated the opportunity to comment on this document. If you have any questions please contact me at (919) 733-2801.

Sincerely,

A handwritten signature in cursive script that reads "Jack Butler".

Jack Butler,  
Environmental Engineer  
North Carolina Superfund Section

cc: Michelle M. Glenn, EPA Region IV

attachment

WATER QUALITY STANDARDS FOR FRESHWATER CLASSES

Parameters	Standards For All Freshwater		More Stringent Standards To Support Additional Uses	
	Aquatic Life	Human Health	WS Classes	Trout
Arsenic (ug/l)	50			
Barium (mg/l)				
Benzene (ug/l)		71.4	1.0	
Beryllium (ng/l)		117	1.19	
Cadmium (ug/l)	2.0		6.8	
Carbon tetrachloride (ug/l)		4.42		0.4
Chloride (mg/l)	230 (AL)		0.254	
Chlorinated benzenes (ug/l)			250	
Chlorine, total residual (ug/l)	17 (AL)		488	
Chlorophyll a, corrected (ug/l)	40 (N)			17
Chromium, total (ug/l)	50			15 (N)
Coliform, total (MFTCC/100ml)			50 (N)(2)	
Coliform, fecal (MFTCC/100ml)		200 (N)		
Copper (ug/l)	7 (AL)			
Cyanide (ug/l)	5.0			
Dioxin (ng/l)		0.000014	0.000013	
Dissolved gases	(N)			
Dissolved oxygen (mg/l)	5.0 (Sw)(1)			6.0
Fluoride (mg/l)	1.8			
Hardness, total (mg/l)			100	
Hexachlorobutadiene (ug/l)		49.7	0.445	
Iron (mg/l)	1.0 (AL)			
Lead (ug/l)	25 (N)			
Manganese (ug/l)			50 (WSII & III:200)	
MBAS (ug/l)	500			
(Methylene-Blue-Active Substances)				
Mercury (ug/l)	0.012			
Nickel (ug/l)	88		25	
Nitrate nitrogen (mg/l)			10	
Pesticides:				
Aldrin (ng/l)	2.0	0.136	0.127	
Chlordane (ng/l)	4.0	0.588	0.575	
DDT (ng/l)	1.0	0.591	0.588	
Demeton (ng/l)	100			
Dieldrin (ng/l)	2.0	0.144	0.135	
Endosulfan (ng/l)	50			
Endrin (ng/l)	2.0			
Guthion (ng/l)	10			
Heptachlor (ng/l)	4.0	0.214	0.208	
Lindane (ng/l)	10			
Methoxychlor (ng/l)	30			
Mirex (ng/l)	1.0			
Parathion (ng/l)	13			
Toxaphene (ng/l)	0.2			
2,4-D (ug/l)			100	
2,4,5-TP (Silvex) (ug/l)			10	
pH (units)	6.0-9.0 (Sw)			
Phenolic compounds (ug/l)		(N)	1.0 (N)	
Polychlorinated biphenyls (ng/l)	1.0	0.079		
Polynuclear aromatic hydrocarbons (ng/l)		31.1	2.8	
Radioactive substances		(N)		
Selenium (ug/l)	5			
Silver (ug/l)	0.06 (AL)			
Solids, total dissolved (mg/l)			500	
Solids, suspended	(N)			
Sulfates (mg/l)			250	
Temperature	(N)			
Tetrachloroethane (1,1,2,2) (ug/l)		10.8	0.172	
Tetrachloroethylene (ug/l)			0.8	
Toluene (ug/l)	11			0.36
Toxic Substances	(N)			
Trialkyltin (ug/l)	0.008			
Trichloroethylene (ug/l)		92.4	3.08	
Turbidity (NTU)	50; 25 (N)			10 (N)
Vinyl chloride (ug/l)		525	2	
Zinc (ug/l)	50 (AL)			

- Note: (N) See 2B .0211 (b), (c), (d), or (e) for narrative description of limits.
- (AL) Values represent action levels as specified in .0211 (b)(4).
- (Sw) Designated swamp waters may have a pH as low as 4.3 and dissolved oxygen less than 5.0 mg/l if due to natural conditions.
- (1) An instantaneous reading may be as low as 4.0 ug/l but the daily average must be 5.0 ug/l or more.
- (2) Applies only to unfiltered water supplies.

WATER QUALITY STANDARDS FOR TIDAL SALTWATER CLASSIFICATIONS

Parameters	Standards For All Tidal Saltwaters		More Stringent Standards To Support Additional Uses
	Aquatic Life	Human Health	Class SA
Arsenic (ug/l)	50		
Benzene (ug/l)		71.4	
Beryllium (ng/l)		117	
Cadmium (ug/l)	5.0		
Carbon tetrachloride (ug/l)		4.42	
Chlorophyll a (ug/l)	40 (N)		
Chromium, total (ug/l)	20		
Coliform, fecal (MFFCC/100ml)		200 (N)	14 (N)
Copper (ug/l)	3 (AL)		
Cyanide (ug/l)	1.0		
Dioxin (ng/l)		0.000014	
Dissolved gases	(N)		
Dissolved oxygen (mg/l)	5.0 (1)		
Hexachlorobutadiene (ug/l)		49.7	
Lead (ug/l)	25 (N)		
Mercury (ug/l)	0.025		
Nickel (ug/l)	8.3		
Phenolic compounds		(N)	
Polychlorinated biphenyls (ng/l)	1.0	0.079	
Polynuclear aromatic hydrocarbons (ng/l)		31.1	
Pesticides (ng/l)			
Aldrin	3.0	0.136	
Chlordane	4.0	0.588	
DDT	1.0	0.591	
Demeton	100		
Dieldrin	2.0	0.144	
Endosulfan	9.0		
Endrin	2.0		
Guthion	10		
Heptachlor	4.0	0.214	
Lindane	4.0		
Methoxychlor	30		
Mirex	1.0		
Parathion	178		
Toxaphene	0.2		
pH (units)	6.8-8.5 (1)		
Radioactive substances		(N)	
Salinity	(N)		
Selenium (ug/l)	71		
Silver (ug/l)	0.1 (AL)		
Solids, suspended	(N)		
Temperature	(N)		
Tetrachloroethane (1,1,2,2) (ug/l)		10.8	
Toxic substances	(N)		
Trialkyltin (ug/l)	0.002		
Trichloroethylene (ug/l)		92.4	
Turbidity (NTU)	25 (N)		
Vinyl chloride (ug/l)		525	
Zinc (ug/l)	86 (AL)		

Note: (N) See 2B .0212 (b), (c), or (d) for narrative description of limits.  
 (AL) Values represent action levels as specified in .0212(b)(4).  
 (1) Designated swamp waters may have a pH as low as 4.3 and dissolved oxygen less than 5.0 mg/l if due to natural conditions.

RWQ3.STA