

Wagner, Glenn

From: Capito, Bonnie P CIV NAVFAC Lant (bonnie.capito@navy.mil)
Sent: Wednesday, July 29, 2009 9:24 AM
To: Wagner, Glenn
Subject: FW: MCAS Cherry Point - EPA comments Draft ROD OU14
Signed By: There are problems with the signature. Click the signature button for details.

Attachments: Pages from Draft OU14 ROD combined comment summary 7-21-09.pdf



Pages from Draft
OU14 ROD comb...

-----Original Message-----

From: Nielsen, Janice L CIV NAVFAC MidLant
Sent: Wednesday, July 29, 2009 6:51 AM
To: Capito, Bonnie P CIV NAVFAC Lant
Subject: MCAS Cherry Point - EPA comments Draft ROD OU14

Bonnie: Attached are the comments from EPA on the draft OU14, Site 90 ROD. Thanks, Jan

Jan Nielsen
NAVFAC Mid-Atlantic
Remedial Project Manager, Cherry Point MCAS Marine Corps North Carolina IPT
(757)322-8339

-----Original Message-----

From: Townsend.Gena@epamail.epa.gov (mailto:Townsend.Gena@epamail.epa.gov)
Sent: Tuesday, July 21, 2009 16:55
To: GeorgeL100@aol.com; townsend.gena@epa.gov; jeffrey.christopher@usmc.mil;
george.lane@ncdenr.gov; doug.bitterman@ch2m.com; tim.wenk@ch2m.com; erica@rhea.us;
Nielsen, Janice L CIV NAVFAC MidLant
Cc: Haire.Stacey@epamail.epa.gov
Subject: EPA comments Draft ROD OU14

Hi all,

Attached are EPA's comments on the draft OU14 ROD. I am attaching the pdf comment summary which contains EPA's embedded comments. I have only included the pages of the ROD that contained comments. In an effort to save time and cost, please submit the corrected version (draft final) electronically. This is the version that EPA will use to send the land use control language to EPA HQs for verification. Once we (Region 4) gets the approval from HQs to move ahead, the document can be prepared as final and submitted for signature. If they are any questions or clarification, please call. I will be in the office until Thursday and will be on travel next week to Camp Lejeune. Doug, If you need to get in touch with me next week, call Matt and have him give me a message. I will get back to you as soon as I can.

(See attached file: Pages from Draft OU14 ROD combined comment summary 7-21-09.pdf)

Gena D. Townsend
US EPA
61 Forsyth Street, SW
Atlanta, Georgia 30303
Tel. No: (404) 562-8538

Townsend.Gena@epa.gov



1 Declaration ¹

This Record of Decision (ROD) presents the selected remedy for Operable Unit (OU) 14, which consists of one site (Site 90)¹ at Marine Corps Air Station (MCAS) Cherry Point, North Carolina. ²MCAS Cherry Point was placed on the National Priorities List (NPL) on December 16, 1994 (Comprehensive Environmental Response, Compensation, and Liability Information System [CERCLIS] National Superfund database identification number: NC1170027261). The remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended ³by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). ⁴This decision is based on information contained in the Administrative Record² for the site. Information not specifically summarized in this ROD but contained in the Administrative Record has been considered and is relevant to the selection of the remedy at OU14. Thus, the ROD is based upon and relies upon the entire Administrative Record file for the site in making the remedy selection decision. ⁵

The United States Department of the Navy (Navy) [consisting of the Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic Division and the MCAS Cherry Point Environmental Affairs Department (EAD)], and the United States Environmental Protection Agency (USEPA) Region 4 jointly selected the remedy for OU14, with the concurrence of the North Carolina Department of Environment and Natural Resources (NCDENR). The Navy is the lead agency and provides funding for site cleanup at MCAS Cherry Point under its Environmental Restoration Program (ERP). The Federal Facility Agreement (FFA) for MCAS Cherry Point documents how the Navy and Marine Corps intend to meet and implement CERCLA in partnership with USEPA and NCDENR. ⁶

OU14 is one of nine OUs that have been identified at MCAS Cherry Point. CERCLA environmental investigations began in 1983 with an Initial Assessment Study (IAS). Additional investigations and remedial actions are ongoing. The Site Management Plan (SMP) for MCAS Cherry Point further details the schedule for CERCLA remediation activities and is updated annually. OU14 consists of a chlorinated volatile organic compound (VOC) groundwater plume that underlies the area including and surrounding Building 130. This ROD documents the selected remedial action for OU14 and does not include or affect any other sites at the facility. ⁷

¹ Operable Unit 14 and Site 90 are synonymous, and are referred to in the remainder of this document as "OU14".

² Bold blue text identifies detailed site information available in the Administrative Record and listed in the References table in Section 4.2.

Summary of Comments on 1

Page: 1

Sequence number: 1
Author: GTOWNSEN
Subject: Note
Date: 7/21/2009 4:19:11 PM

 In an effort to be consistent with the new formatted ROD approach, it is EPA's desire to have the Cherry Point and Camp Lejeune's ROD follow the same formatting. Please insert headings where appropriate within the document. I am providing the Camp Lejeune ROD (a few pages) as an example. It appears that the only differences are with the "Declaration" section.

Sequence number: 2
Author: EPA Employee
Subject: Highlight
Date: 7/2/2009 9:59:21 AM

T

Sequence number: 3
Author: EPA Employee
Subject: Note
Date: 7/21/2009 2:17:58 PM

 EPA's Guidance
Section 2.B (Enforcement Activities)

NOTE: This needs to be added to text - As a result of the NPL listing and pursuant to CERCLA, the USEPA Region 4, NCDENR, the Navy, and the Marine Corps entered into a FFA for MCAS Cherry Point in 2005. The primary purpose of the FFA is to ensure that the environmental impacts associated with past and present activities at the Base are thoroughly investigated. The Environmental Restoration Program (ERP) is responsible for ensuring that appropriate CERCLA response alternatives are developed and implemented as necessary to protect public health, welfare, and the environment. No enforcement activities have been recorded at Site 90.

Sequence number: 4
Author: gtownsen
Subject: Underline
Date: 7/7/2009 10:22:07 AM

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Sequence number: 5
Author: gtownsen
Subject: Note
Date: 7/7/2009 10:26:11 AM

 This information is related to the selected remedy and should be included in the paragraph below.

Sequence number: 6
Author: EPA Employee
Subject: Line
Date: 7/2/2009 12:14:48 PM



Sequence number: 7
Author: GTOWNSEN

Comments from page 1 continued on next page



1 Declaration

This Record of Decision (ROD) presents the selected remedy for Operable Unit (OU) 14, which consists of one site (Site 90)¹ at Marine Corps Air Station (MCAS) Cherry Point, North Carolina. MCAS Cherry Point was placed on the National Priorities List (NPL) on December 16, 1994 (Comprehensive Environmental Response, Compensation, and Liability Information System [CERCLIS] National Superfund database identification number: NC1170027261). The remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record² for the site. Information not specifically summarized in this ROD but contained in the Administrative Record has been considered and is relevant to the selection of the remedy at OU14. Thus, the ROD is based upon and relies upon the entire Administrative Record file for the site in making the remedy selection decision.  

The United States Department of the Navy (Navy) [consisting of the Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic Division and the MCAS Cherry Point Environmental Affairs Department (EAD)], and the United States Environmental Protection Agency (USEPA) Region 4 jointly selected the remedy for OU14, with the concurrence of the North Carolina Department of Environment and Natural Resources (NCDENR). The Navy is the lead agency and provides funding for site cleanup at MCAS Cherry Point under its Environmental Restoration Program (ERP). The Federal Facility Agreement (FFA) for MCAS Cherry Point documents how the Navy and Marine Corps intend to meet and implement CERCLA in partnership with USEPA and NCDENR. 

OU14 is one of nine OUs that have been identified at MCAS Cherry Point. CERCLA environmental investigations began in 1983 with an Initial Assessment Study (IAS). Additional investigations and remedial actions are ongoing. The Site Management Plan (SMP) for MCAS Cherry Point further details the schedule for CERCLA remediation activities and is updated annually. OU14 consists of a chlorinated volatile organic compound (VOC) groundwater plume that underlies the area including and surrounding Building 130. This ROD documents the selected remedial action for OU14 and does not include or affect any other sites at the facility.

¹ Operable Unit 14 and Site 90 are synonymous, and are referred to in the remainder of this document as "OU14".

² Bold blue text identifies detailed site information available in the Administrative Record and listed in the References table in Section 4.2.

Subject: Note

Date: 7/21/2009 2:16:55 PM

 Insert a sentence clarifying that OU14 is not hydrologically or causally connected to any other sites or OUs.



Draft

Record of Decision Operable Unit 10, Site 35

Marine Corps Base Camp Lejeune, North Carolina
May, 2009

1 Declaration

2 Site Name and Location

This Record of Decision (ROD) presents the Selected Remedy for Site 35, Operable Unit (OU) 10, Former Camp Geiger Fuel Farm, at Marine Corps Base (MCB) Camp Lejeune, Jacksonville, North Carolina. MCB Camp Lejeune was placed on the United States Environmental Protection Agency (USEPA) National Priorities List (NPL) effective November 4, 1989 (EPA ID: NC6170022580).

3 Statement of Basis and Purpose

The remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for the site. Information not specifically summarized in this ROD or its references but contained in the Administrative Record has been considered and is relevant to the selection of the remedy at OU 10. Thus, the ROD is based upon and relies upon the entire Administrative Record file in making the decision.

The United States Department of the Navy (Navy) is the lead agency and provides funding for site cleanups at MCB Camp Lejeune. The remedy set forth in this ROD has been selected by the Navy, MCB Camp Lejeune, and USEPA. The North Carolina Department of Environment and Natural Resources (NCDENR), the support regulatory agency, actively participated throughout the investigation process and, hence, has reviewed this ROD and the materials on which it is based and concurs with this Selected Remedy.

4 Scope and Role of Response Action

OU 10 is one of 22 OUs in the Installation Restoration Program (IRP) that are part of the comprehensive environmental investigation and cleanup currently being performed at MCB Camp Lejeune under the CERCLA program. The status of all the IRP sites at MCB Camp Lejeune can be found in the current version of the Site Management Plan (SMP), which is located in the Administrative Record. OU 10 is solely comprised of Site 35.

Two interim RODs for Site 35, one for contaminated soil and one for the northeast portion of the shallow groundwater plume near the former fuel farm, were executed in 1994 and 1995,

Page: 2

Sequence number: 1
Author: GTOWNSEN
Subject: Note
Date: 7/21/2009 9:27:58 AM

 Example pages 1-4 from Camp Lejeune ROD. Note the highlighted section headings.

Sequence number: 2
Author: GTOWNSEN
Subject: Highlight
Date: 7/21/2009 9:28:11 AM

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Sequence number: 3
Author: GTOWNSEN
Subject: Highlight
Date: 7/21/2009 9:28:14 AM

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Sequence number: 4
Author: GTOWNSEN
Subject: Highlight
Date: 7/21/2009 9:28:18 AM

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respectively. The Selected Remedy for soil was excavation and offsite disposal of contaminated soils. The Selected Remedy for groundwater was *in-situ* air sparging using a vertical trench. The air sparging system is currently still in operation; however, the Selected Remedy in this ROD is for the entire shallow and intermediate groundwater plume and the existing air sparging system will be discontinued. This ROD documents the final remedial action for Site 35, supersedes any previous RODs, and does not include or affect any other sites at the facility.

1 Selected Remedy

2 Assessment of the Site

The response action selected in this ROD is necessary to protect the public health, welfare, and/or the environment from actual or threatened releases of hazardous substances. Previous investigations have identified the presence of chlorinated volatile organic compounds (CVOCs) including 1,1,2,2-tetrachloroethane (1,1,2,2-PCA), tetrachloroethene (PCE), trichloroethene (TCE), *cis*-1,2-dichloroethene (*cis*-1,2-DCE), and vinyl chloride (VC); and benzene in groundwater at concentrations that pose a potential threat to human health if used as a potable water supply. The response action for Site 35 addresses CVOC and benzene contamination in shallow and intermediate groundwater.

The Selected Remedy for Site 35 is Air Sparging using a Horizontal Well, Monitoring of the Natural Degradation of Chemicals of Concern (COCs), and Land Use Controls (LUCs). Long-term groundwater monitoring will be conducted and LUCs will be maintained on groundwater and associated property use within the boundaries of Site 35 until the concentrations of hazardous substances in the groundwater have been reduced to levels that allow for unlimited use and unrestricted exposure.

3 Statutory Determinations

The Selected Remedy meets the statutory requirements and is protective of human health and the environment, complies with federal and state regulations that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions to the maximum extent practicable. Because this remedy will result in pollutants or contaminants remaining onsite in groundwater above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within 5 years after the initiation of the remedial action to ensure that the remedy is protective of human health and the environment.

4 Data Certification Checklist

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record¹ file for MCB Camp Lejeune Site 35.

- COCs and their respective concentrations (Section 2.3 and associated tables)
- Baseline risk represented by the COCs (Section 2.5)

¹Bold blue text identifies detailed site information available in the Administrative Record and listed in the References Table.

Sequence number: 1
Author: GTOWNSEN
Subject: Highlight
Date: 7/21/2009 9:28:44 AM

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Sequence number: 2
Author: GTOWNSEN
Subject: Highlight
Date: 7/21/2009 9:28:29 AM

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Sequence number: 3
Author: GTOWNSEN
Subject: Highlight
Date: 7/21/2009 9:28:33 AM

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Sequence number: 4
Author: GTOWNSEN
Subject: Highlight
Date: 7/21/2009 9:28:47 AM

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- Cleanup levels established for COCs and the basis for these levels (Section 2.7)
- How source materials constituting principal threats will be addressed (Section 2.6)
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (Section 2.4)
- Potential land and groundwater use that will be available at the site as a result of the Selected Remedy (Section 2.9.3)
- Estimated capital costs, annual operation and maintenance (O&M) costs, and total present-worth costs, and the number of years over which the remedy costs are projected (Section 2.8 and Table 6)
- Key factors that led to selecting the remedy (i.e., a description of how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision) (Section 2.9)

If contamination posing an unacceptable risk to human health or the environment is discovered after execution of this ROD, the Navy and MCB Camp Lejeune will undertake all necessary actions to ensure continued protection of human health and the environment.

1 1.3 Authorizing Signatures

This ROD presents the Selected Remedy at Site 35, OU 10, Former Camp Geiger Area Fuel Farm, at the MCB Camp Lejeune, located in Onslow County, North Carolina.

R. P. Flatau, Jr.
Colonel, United States Marine Corps
Commanding Officer
Marine Corps Base, Camp Lejeune

Date

Franklin E. Hill, Director
Superfund Division
U.S. 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

Sequence number: 1
Author: GTOWNSEN
Subject: Highlight
Date: 7/21/2009 9:28:59 AM

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1.1 Selected Remedy

As a result of environmental investigations completed under CERCLA at OU14, chlorinated VOCs were identified in groundwater at concentrations that pose a potential threat to human health. A remedial action is required to return the aquifer to beneficial use because the groundwater is considered a potential source of drinking water. The response action presented in this ROD is necessary to protect the public health, welfare, and the environment from actual or threatened releases of contaminants from the site.

No significant chlorinated VOC contamination was found at OU14 in soil, sediment, or surface water, and no further action is required for these media. The no further action determination for these media is addressed by this ROD, which is the final ROD for OU14.

The selected remedy for groundwater contamination at OU14 is Monitored Natural Attenuation (MNA) and Land Use Controls (LUCs). MNA involves the collection of monitoring data to verify the effectiveness of naturally occurring processes to reduce contaminant concentrations over time. LUCs maintain groundwater and associated property-use restrictions until the contaminant concentrations in groundwater have been reduced to levels that allow for unlimited use/ unrestricted exposure (UU/UE).

The selected remedy meets the statutory requirements and is protective of human health and the environment, complies with Federal and State regulations that are applicable or relevant and appropriate to the remedial action, is cost-effective, and uses permanent solutions and alternative treatment technologies to the maximum extent practicable. Although the selected remedy for groundwater does not strictly meet the statutory preference for treatment as a principle element, the selected remedy represents the maximum extent to which permanent solutions and treatment are practicable at OU14. Because of the low volume and concentrations of COCs present, treatment would not be cost effective. Since the remedy will result in pollutants or contaminants remaining onsite in groundwater above levels that allow for UU/UE, a statutory review will be conducted every 5 years after the initiation of remedial action to ensure the remedy is protective of human health and the environment.

1.2 Data Certification Checklist

The following information was considered in the selection of the remedy for OU14:

- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater (Section 2.4)
- Chemicals of concern (COCs) and their respective concentrations (Section 2.5)
- Baseline risk represented by the COCs (Section 2.5)
- Cleanup levels established for COCs and the basis for these levels (Section 2.7)
- Estimated capital, annual operation and maintenance, total present-worth costs, discount rate, and the number of years over which the remedy cost estimates are projected (Section 2.8)
- Key factors that led to selecting the remedy (Section 2.9.1)
- Potential land and groundwater use that will be available at the site as a result of the selected remedy (Section 2.9.3)

Page: 6

Sequence number: 1

Author: GTOWNSEN

Subject: Note

Date: 7/21/2009 2:20:16 PM

 replace the word "contaminants" with "hazardous substances" since that is what we are cleaning up at this Site.

Sequence number: 2

Author: GTOWNSEN

Subject: Note

Date: 7/21/2009 2:24:58 PM

 add a bullet noting: that there has been no principle threat waste identified at the Site (Section 2.6)

1.3 Authorizing Signatures



F.P. Bottorff
Colonel, U.S. Marine Corps
Commanding Officer
MCAS Cherry Point

Date



3 Dexter R. Matthews, Director
Division of Waste Management
NCDENR

Date

5 Beverly H. Banister, Acting Director
Waste Management Division
USEPA - Region 4



Date

Page: 7

Sequence number: 1

Author: EPA Employee

Subject: Note

Date: 7/2/2009 9:43:47 AM

 Add: **This ROD presents the Selected Remedy at Site 90, OU 14, at the MCAS Cherry Point, located in Craven County, North Carolina.**

Sequence number: 2

Author: EPA Employee

Subject: Note

Date: 7/2/2009 1:57:08 PM

 Move to the bottom and add this language:

With concurrence from:

**Dexter R. Matthews, Director
Division of Waste Management
NCDENR**

Sequence number: 3

Author: EPA Employee

Subject: Highlight

Date: 7/2/2009 9:44:35 AM

T

Sequence number: 4

Author: EPA Employee

Subject: Note

Date: 7/2/2009 9:37:53 AM

 Change to:

**Franklin E. Hill, Director
Superfund Division
U.S. Environmental Protection Agency Region 4**

Sequence number: 5

Author: EPA Employee

Subject: Highlight

Date: 7/2/2009 9:33:51 AM

T

TABLE 3
Summary of Potential Human Health Risks

Receptor	Media	Pathway	Chemical of Concern	EPC (µg/l)	RME Cancer Risk	RME Non-Cancer Risk (HI)	CTF Cancer Risk	CTE Non-Cancer Risk (HI)	Cancer Toxicity Factor (CSF) mg/kg-day ⁻¹	Non-Cancer Toxicity Factor (RfD) mg/kg-day
Future Adult Resident	Groundwater	Ingestion	Iron	1.3x10 ⁻⁴	NA	1.2	NA	0.84	N/A	0.3
		<i>Total Receptor</i>	-	-	NA	4.2	NA	2.9	-	-
Future Child Resident	Groundwater	Ingestion	Iron	1.3x10 ⁻⁴	NA	2.8	NA	2.8	N/A	0.3
			Arsenic	6.4	NA	1.4	NA	1.4	1.5	3.0x10 ⁻⁴
			Benzene	82	NA	1.3	NA	1.3	5.5x10 ⁻²	4.0x10 ⁻³
			Manganese	410	NA	1.3	NA	1.3	N/A	2.0x10 ⁻²
			Benzene	82	NA	1.3	NA	1.3	2.7x10 ⁻²	8.6x10 ⁻³
		<i>Total Receptor</i>	-	-	NA	9.8	NA	9.8	-	-
Future Child and Adult Lifetime Resident	Groundwater	Ingestion	Arsenic	6.4	1.4x10 ⁻⁴	NA	7.6x10 ⁻⁵	NA	1.5	3.0x10 ⁻⁴
			Vinyl Chloride	5.8	1.3x10 ⁻⁴	NA	6.9x10 ⁻⁵	NA	1.5	3.0x10 ⁻³
			Benzene	82	6.8x10 ⁻⁵	NA	3.6x10 ⁻⁵	NA	5.5x10 ⁻²	4.0x10 ⁻³
			PCE	1	8.1x10 ⁻⁶	NA	4.3x10 ⁻⁶	NA	0.54	1.0x10 ⁻²
			1,2-DCA	3.8	5.2x10 ⁻⁶	NA	2.8x10 ⁻⁶	NA	9.1x10 ⁻²	2.0x10 ⁻²
			TCE	15	2.4x10 ⁻⁵	NA	1.3x10 ⁻⁵	NA	1.1x10 ⁻²	6.0x10 ⁻³
		Inhalation/Dermal	Vinyl Chloride	5.8	1.3x10 ⁻⁴	NA	6.9x10 ⁻⁵	NA	3.1x10 ⁻²	2.9x10 ⁻²
			Benzene	82	6.8x10 ⁻⁵	NA	3.6x10 ⁻⁵	NA	2.7x10 ⁻²	8.6x10 ⁻³
			PCE	1	8.1x10 ⁻⁶	NA	4.3x10 ⁻⁶	NA	2.1x10 ⁻²	8.0x10 ⁻²
			1,2-DCA	3.8	5.2x10 ⁻⁶	NA	2.8x10 ⁻⁶	NA	9.1x10 ⁻²	1.4x10 ⁻³
			TCE	15	2.4x10 ⁻⁵	NA	1.3x10 ⁻⁵	NA	6.0x10 ⁻³	N/A
			<i>Total Receptor</i>	-	-	5.7x10 ⁻⁴	NA	3.0x10 ⁻⁴	NA	-
Construction Worker	Groundwater	<i>Total Receptor</i>	<i>No Individual COC</i>	-	7.9x10 ⁻⁶	2.6	4.3x10 ⁻⁶	1.5	-	

Potential unacceptable risks are shaded yellow.

EPC = Exposure Point Concentration

NA = Not Applicable

RME = Reasonable Maximum Exposure

CTE = Central Tendency Exposure

HI = Hazard Index

PCE = Tetrachloroethene

1,2-DCA = 1,2-dichloroethane

TCE = Trichloroethene

µg/L = micrograms per liter

* More detailed information related to the human health risk assessment is included in the OU14 Remedial Investigation included in the Administrative Record.

Sequence number: 1
Author: GTOWNSEN
Subject: Note
Date: 7/7/2009 10:55:29 AM

 This should also be highlighted, it exceeds the risk range.

Sequence number: 2
Author: GTOWNSEN
Subject: Highlight
Date: 7/6/2009 8:57:41 AM

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2.5.2 Screening-level Ecological Risk Assessment

A **Screening-level Ecological Risk Assessment (SERA)** was conducted for the unnamed stream at OU14, and included the evaluation of the environmental setting, chemical fate and transport, ecotoxicity and potential ecological receptors, and complete exposure pathways. The SERA includes Steps 1 and 2 of the eight-step USEPA ERA process. Potentially complete exposure pathways were identified for lower trophic-level aquatic receptor populations such as aquatic plants, fish, and macro-invertebrates (e.g., mayflies, aquatic worms, crustaceans, and mollusks).

Potential risks to ecological receptors from exposure to all detected contaminants were calculated using conservative exposure assumptions. The SERA concluded that ecological risks are negligible and no further ecological investigation or risk analysis is warranted for the unnamed stream at OU14. Therefore, Steps 3 through 7 were not completed.

The RI specifies the SERA assumptions and uncertainties inherent in the risk assessment process due to the number of samples collected or their location, the literature-based values used to calculate risk, and risk characterization across multiple media and exposure pathways.

1 Basis for Action

All aquifers are classified by the State of North Carolina as a potential source of drinking water. As per the State's anti-degradation policy, NCDENR requires the restoration of groundwater to beneficial use and for the protection of human health. Consequently, NCDENR identifies the NCGWQS as an applicable requirement for groundwater remediation. **Details of the ARARs** are included in Appendix A and provided in the OU14 FS, included in the Administrative Record for MCAS Cherry Point.

The COCs in groundwater retained at OU14 that require a response action are summarized in Table 4.

 3 is the current judgment of the Navy, in partnership with USEPA and NCDENR that the response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment at OU14.  2

2.6 Principal Threat Waste

Principal threat wastes are generally considered to be hazardous or highly toxic source materials that result in ongoing contamination to surrounding media, generally cannot be reliably contained, or present a significant risk to human health or the environment should exposure occur. Although a remedial response action is necessary at OU14, based on the lack of significant source materials, the low chlorinated VOC concentrations observed in groundwater, the results of the human health and ecological risk assessments, and the unrealistic exposure scenarios to COC-impacted groundwater, there are no wastes that constitute a principal threat at OU14.

Sequence number: 1
Author: GTOWNSEN
Subject: Note
Date: 7/6/2009 9:08:53 AM

 Add this statement:

Based on the HHRA, exposure to groundwater at OU14 poses an unacceptable risk to human health due to the presence of

Sequence number: 2
Author: GTOWNSEN
Subject: Note
Date: 7/7/2009 10:57:02 AM

 Replace the current wording with the below wording:

It is the current judgment of the Navy, MCAS Cherry Point and USEPA, in concurrence with NCDENR, that the Selected Remedy in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

Sequence number: 3
Author: GTOWNSEN
Subject: Highlight
Date: 7/6/2009 9:04:47 AM

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2.7 Remedial Action Objectives

Remedial action objectives are established based on attainment of regulatory requirements, standards, and guidance; contaminated media; chemicals of concern; potential receptors and exposure scenarios; and human health and ecological risks. The following remedial action objectives were developed for the groundwater contamination at OU14 to address the potential human health risk associated with future potable use of groundwater:

- Prevent human exposure to groundwater of the surficial aquifer that contains COCs above cleanup levels.
- Reduce exceedances of COCs to cleanup levels.
- Achieve suitability of OU14 groundwater for unlimited use with a reasonable approach and within a reasonable timeframe.
- Prevent migration or discharge of COCs in groundwater of the surficial aquifer to sediment and surface water in the unnamed stream at levels that would cause unacceptable risks to human or ecological receptors.
- Prevent unacceptable risks to human receptors from exposure to indoor air vapors that result from subsurface COCs.

Specific remediation goals (cleanup levels) were developed to meet these remedial action objectives as presented in Table 4. The remediation goals selected for the site were generally the NCGWQS, the most conservative chemical-specific ARAR. Since there is no NCGWQS for bromomethane, the site-specific risk-based Remedial Goal Option calculated from the HHRA is used.

TABLE 4
Performance Standards

Chemical of Concern	Groundwater Performance Standard (µg/L)	Basis
1,1-Dichloroethane (1,1-DCA)	70	NC2L
1,2-Dichloroethane (1,2-DCA)	0.38	NC2L
Bromomethane	21.1	Calculated Site-Specific RGO
Chloromethane	2.6	NC2L
cis-1,2-Dichloroethene (cis-1,2-DCE)	70	NC2L
Methylene Chloride	4.6	NC2L
Tetrachloroethene (PCE)	0.7	NC2L
Trichloroethene (TCE)	2.8	NC2L
Vinyl Chloride	0.015	NC2L

NC2L – North Carolina 2L Groundwater Standard

RGO – Remedial Goal Option

µg/L – micrograms per liter

Sequence number: 1
Author: GTOWNSEN
Subject: Note
Date: 7/6/2009 9:18:11 AM



Add:
Restore groundwater quality at OU 14 to the NCGWQS and maximum contaminant level (MCL) standards based on the classification of the aquifer as a potential source of drinking water (Class GA or Class GSA) under 15A NCAC 02L.0201.



2.8 Description of Remedial Alternatives

To address the protection of groundwater and potential human exposure to groundwater, a preliminary screening of General Response Actions (GRAs) and remedial technologies was completed to refine the remedy selection process, as detailed in the OU14 FS. Following the preliminary screening, five remedial alternatives were developed for detailed evaluation:

- Alternative 1 - No Action
- Alternative 2 - LUCs
- Alternative 3 - MNA and LUCs
- Alternative 4 - Biosparge, MNA, and LUCs
- Alternative 5 - Enhanced Reductive Dechlorination (ERD), MNA, and LUCs

2.8.1 Description of Remedial Alternatives

Table 5 provides the major components, details, and costs of each remedial alternative identified for OU14. Each remedial alternative, with the exception of the no-action alternative, was developed to meet the remedial action objectives (RAOs). Consistent with the NCP, a no action alternative was evaluated as a baseline for the comparative analysis.

TABLE 5
Remedial Alternatives

Alternative	Components	Details	Cost
1. No Action <i>No action for COCs in groundwater and no restriction on activities.</i>	Existing groundwater	- No action - Natural attenuation would reduce chemical concentrations over time, but no monitoring of groundwater conditions is conducted	No cost
2. Land Use Controls (LUCs) <i>Prevents human exposure to COCs in groundwater and indoor air vapor by placing restrictions on land use (including underlying aquifer resources).</i>	LUCs	- LUCs to restrict access to Surficial Aquifer groundwater within potentially contaminated areas until the remediation goals are achieved - LUCs to ensure that the potential for vapor intrusion is evaluated during new building construction or the modification of existing structures within potentially contaminated areas	Capital Cost: \$11,000 Present Value of Future, Annual Operations and Maintenance (O&M) Costs: \$695,000 Total Present-Worth Cost: \$706,000 Discount Rate: 2.7% Assumed timeframe: 100 years
3. Monitored Natural Attenuation (MNA) and LUCs <i>Groundwater monitoring to assess COC concentrations until remediation goals have been met via natural attenuation processes. Also includes LUCs.</i>	Biodegradation and other natural attenuation mechanisms to remove COCs from groundwater Periodic groundwater sampling LUCs	- Installation of additional monitoring wells and periodic groundwater monitoring for COCs and natural attenuation parameters until the remediation goals are achieved - LUCs to restrict access to Surficial Aquifer groundwater within potentially contaminated areas until the remediation goals are achieved - LUCs to ensure that the potential for vapor intrusion is evaluated during new building construction or the modification of existing structures within potentially contaminated areas	Capital Cost: \$413,000 Present Value of Future, Annual O&M Costs: \$1,863,000 Total Present-Worth Cost: \$2,076,000 Discount Rate: 2.7% Assumed timeframe: 100 years

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 Change Heading to read:

"Description and Evaluation of Alternatives" or "Description and Comparative Analysis of Remedial Alternatives"

considerably higher implementation and O&M costs than Alternative 3. The estimated present-worth costs of Alternatives 4 and 5 are \$5,076,000 and \$6,207,000, respectively.

Modifying Criteria

State Acceptance. State involvement has been continual throughout the CERCLA process for OU14 and NCDENR supports the selected remedy. The State of North Carolina concurs with the selected remedy.

Community Acceptance. The Proposed Plan was issued for public review from May 1 to June 15, 2009 and was discussed at a public meeting on May 21, 2009. The transcript from the public meeting is provided in Appendix B. Aside from questions and comments voiced and addressed at the public meeting, no other public comments on the Proposed Plan were received.

2.9 Selected Remedy

The selected remedy for OU14 groundwater is Alternative 3, MNA and LUCs. This selected remedy is the preferred alternative presented in the Proposed Plan. No further action is required for soil, sediment, or surface water.

2.9.1 Rationale for Selected Remedy

Based on the evaluation of the data and information currently available, the Navy, in partnership with EPA, believes the selected remedy meets the threshold criteria and provides the **best balance of tradeoffs** among the other alternatives with respect to the balancing and modifying criteria.

As described in the OU14 RI, the evaluation of natural attenuation parameters indicates that conditions are generally favorable for natural attenuation at OU14. The presence of daughter products of parent compounds indicates that natural attenuation is occurring. The low chlorinated VOC concentrations observed are amenable to natural attenuation, and the plumes appear to have stabilized. No ongoing sources have been identified at OU14.

Petroleum-related contamination is also expected to facilitate biodegradation of the chlorinated VOCs where the two plumes are commingled, and will continue to act as an energy source for naturally-occurring, dechlorinating bacteria in the aquifer. Similarly, active remediation systems for treatment of the petroleum-related contamination have a beneficial impact by reducing chlorinated VOC concentrations.

The HHRA and ERA for OU14 indicated no unacceptable risks to current receptors. The only unacceptable human health risks were to future construction workers and hypothetical future residents from exposure to groundwater of the surficial aquifer. Residential land use and use of surficial aquifer groundwater as a potable water source at OU14 are not likely to occur.

Since OU14 is an active flightline area, implementation of Alternatives 4 and 5 would be disruptive to military operations. Alternative 4 would also increase the risk of indoor air vapor intrusion issues from both chlorinated VOC and petroleum contamination, and may also be temporarily disruptive to ongoing remediation efforts to recover petroleum free product. Alternative 5 is based on the enhancement of anaerobic conditions for

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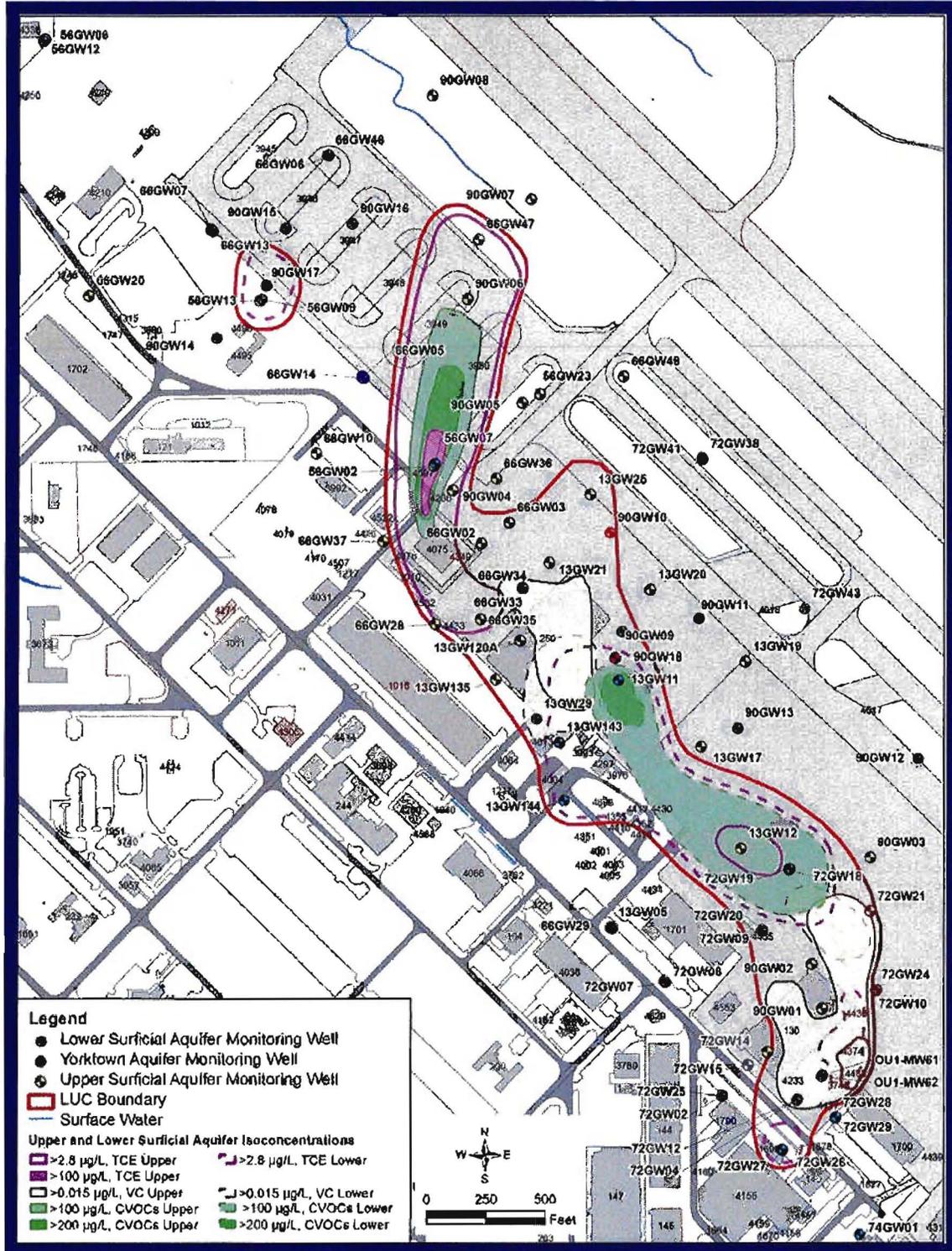
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 The last sentence needs more. "Residential land use and use of surficial aquifer groundwater as a potable water source at OU14 are not likely to occur" . . . because . . . [needs better description of risk assumptions].
Example wording: " because the land is an active airstrip on a military installation for which there is no indication of imminent closure or reassignment of mission".



FIGURE 6
Land Use Control (LUC) Boundaries



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 The land use control boundary should be drawn in a more amenable way to support the surveying that will be required to comply with the State's Plat map requirements. Although, it is not impossible to survey the current shape, it would require a larger effort. Also, the outline is portraying the extent of the contamination and would not be protective if a well(s) were installed just outside of the current boundary. In other words, there should be two boundaries: 1) no intrusive activities that come in contact with the gw should occur in this area and 2) no gw wells or usage of gw, except for monitoring, should be installed within this area. The second area should be larger than the first. This would allow for construction activities to occur outside of the actual gw contamination zone while still prohibiting the use of the gw.

The performance objectives of the LUCs include:

- Prohibiting all uses of groundwater from the surficial aquifer within the LUC boundaries (except for monitoring and remediation purposes), including but not limited to, human consumption, dewatering, irrigation, heating/cooling and industrial processes, unless prior written approval is obtained from the USEPA and NCDENR
- Prohibiting unauthorized intrusive activities below the water table within the LUC boundaries, unless prior written approval is obtained from the USEPA and NCDENR
- Evaluating the potential for vapor intrusion impacts from new building construction or from major physical modifications or changes in occupancy/usage of existing structures within the LUC boundaries
- Maintaining the integrity of any existing or future monitoring or remediation system at the site.

A technical memorandum will be prepared periodically to summarize the analytical results and document progress towards remediation goals.

2.9.3 Expected Outcomes of the Selected Remedy

~~3] The current land use at OU14 is expected to remain the same. Access to the flightline area is restricted. In accordance with the objectives of the LUCs, groundwater use will be limited to monitoring or remedial purposes. 4] Groundwater quality will be assessed through LTM to provide evidence that attenuation is occurring. When a single COC is at or below its respective remediation goal for four consecutive sampling events, the COC will no longer require monitoring.~~

The time required to meet cleanup levels using the selected remedy is conservatively estimated to be 100 years. However, the estimate does not account for several factors at OU14 that may facilitate the attenuation of COCs, such as the presence of petroleum-related contamination. Baseline and performance sampling would provide temporal and geochemical data to more accurately estimate the time to achieve RAOs.

5] The Navy will prepare and submit to USEPA and NCDENR for review and concurrence a RD document that will contain remedy implementation and maintenance actions, including a long-term monitoring plan and a plan for periodic inspections related to maintaining LUCs. The Navy will implement, maintain, monitor, and enforce the LUCs according to the RD.

2.9.4 Statutory Determinations

In accordance with the NCP, the selected remedy meets the following statutory determinations.

- **Protection of Human Health and the Environment** - The selected remedy is needed to restore groundwater to levels consistent with potential drinking water use and will protect human health and the environment through MNA and LUCs. Long-term groundwater monitoring will monitor the effectiveness of the natural attenuation processes in reducing the COC concentrations to achieve the remediation goals. LUCs will limit groundwater use from the surficial aquifer to monitoring and remedial

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Add this language:

Although the Navy may later transfer these procedural responsibilities to another party by contract, property agreement, or through other means, the Navy and MCAS Cherry Point shall retain ultimate responsibility for the remedy integrity.

Sequence number: 2
Author: GTOWNSEN
Subject: Note
Date: 7/21/2009 4:15:50 PM



Change the first paragraph to read: "The expected outcome of the selected remedy is to allow for unrestricted use of the groundwater. However, the use of the site is not expected to change once the groundwater cleanup levels are met. This site is beneath and around an active runway and is expected to continue to serve this military purpose for the foreseeable future. In accordance with the objectives of the LUCs, groundwater use will be limited to monitoring or remedial purposes until the remedial goals are achieved. The monitored natural attenuation portion of the remedy will require assessment thru long term groundwater monitoring of the groundwater quality to provide evidence that natural attenuation is occurring. When a single COC is at or below its respective remediation goal for four consecutive sampling events, the COC will no longer require monitoring."

Sequence number: 3
Author: GTOWNSEN
Subject: Cross-Out
Date: 7/21/2009 4:14:16 PM



Sequence number: 4
Author: GTOWNSEN
Subject: Cross-Out
Date: 7/21/2009 3:26:50 PM



Sequence number: 5
Author: gtownsen
Subject: Underline
Date: 7/7/2009 10:11:38 AM



Sequence number: 6
Author: gtownsen
Subject: Note
Date: 7/7/2009 10:40:46 AM



ROD checklist item #7 & #9

Comments from page 29 continued on next page

The performance objectives of the LUCs include:

- Prohibiting all uses of groundwater from the surficial aquifer within the LUC boundaries (except for monitoring and remediation purposes), including but not limited to, human consumption, dewatering, irrigation, heating/cooling and industrial processes, unless prior written approval is obtained from the USEPA and NCDENR
- Prohibiting unauthorized intrusive activities below the water table within the LUC boundaries, unless prior written approval is obtained from the USEPA and NCDENR
- Evaluating the potential for vapor intrusion impacts from new building construction or from major physical modifications or changes in occupancy/usage of existing structures within the LUC boundaries
- Maintaining the integrity of any existing or future monitoring or remediation system at the site.

A technical memorandum will be prepared periodically to summarize the analytical results and document progress towards remediation goals.

2.9.3 Expected Outcomes of the Selected Remedy

~~The current land use at OU14 is expected to remain the same. Access to the flightline area is restricted. In accordance with the objectives of the LUCs, groundwater use will be limited to monitoring or remedial purposes. Groundwater quality will be assessed through LTM to provide evidence that attenuation is occurring. When a single COC is at or below its respective remediation goal for four consecutive sampling events, the COC will no longer require monitoring.~~

The time required to meet cleanup levels using the selected remedy is conservatively estimated to be 100 years. However, the estimate does not account for several factors at OU14 that may facilitate the attenuation of COCs, such as the presence of petroleum-related contamination. Baseline and performance sampling would provide temporal and geochemical data to more accurately estimate the time to achieve RAOs.

Following signature of the ROD, the Navy will prepare and submit to USEPA and NCDENR for review and concurrence a RD document that will contain remedy implementation and maintenance actions, including a long-term monitoring plan and a plan for periodic inspections related to maintaining LUCs. The Navy will implement, maintain, monitor, and enforce the LUCs according to the RD.

2.9.4 Statutory Determinations

In accordance with the NCP, the selected remedy meets the following statutory determinations.

- **Protection of Human Health and the Environment** - The selected remedy is needed to restore groundwater to levels consistent with potential drinking water use and will protect human health and the environment through MNA and LUCs. Long-term groundwater monitoring will monitor the effectiveness of the natural attenuation processes in reducing the COC concentrations to achieve the remediation goals. LUCs will limit groundwater use from the surficial aquifer to monitoring and remedial

Replace text with this language:

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 ROD signature, for review and approval. The Navy/MCAS Cherry Point is responsible for implementing, maintaining, inspecting, reporting on, and enforcing the LUCs described in this ROD in accordance with the ROD and the approved RD.

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Author: gtownsen
Subject: Underline
Date: 7/7/2009 9:56:39 AM

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Sequence number: 8
Author: gtownsen
Subject: Underline
Date: 7/7/2009 9:56:31 AM

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purposes, prohibit unauthorized intrusive activities below the water table, evaluate the potential for vapor intrusion impacts to new buildings or the modification of existing structures, and maintain the integrity of any existing or future monitoring or remediation at the site.

- **Compliance with ARARs** - The selected remedy will attain the Federal and State ARARs presented herein (Attachment B, Tables B-1 through B-3).
- **Cost-Effectiveness** - The selected remedy provides the most reasonable value relative to the cost.
- **Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable** - The selected remedy represents the maximum extent to which permanent solutions and alternative treatment technologies can be used in a practicable manner at OU14. An MNA remedy was chosen because the volumes and concentrations of COCs are low, and the remedy is expected to be successful in attaining performance standards in groundwater. MNA has been successful in meeting performance standards at other MCAS Cherry Point sites.
- **Preference for Treatment as a Principal Element** - Although the selected remedy for groundwater does not provide for treatment as a principle element, reduction of groundwater contamination is expected over time due to natural processes. The selected remedy for groundwater represents the maximum extent to which permanent solutions and treatment are practicable at OU14, because based on the low volume and concentrations of COCs present, treatment would not be cost effective.
- **Five-Year Review Requirements** - Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site in groundwater above levels that allow for UU/UE, a statutory review will be conducted no less often than each 5 years after the initiation of remedial action to ensure that the remedy is protective of human health and the environment.



2.10 Community Participation

Community participation at MCAS Cherry Point includes a Restoration Advisory Board (RAB), public meetings, a public information repository, newsletters and fact sheets, public notices, and an ERP web site. The Community Involvement Plan for MCAS Cherry Point provides detailed information on community participation for the ERP.

The RAB was formed in 1995 and consists of community members and representatives of the USEPA, NCDENR, Navy, and Marine Corps. RAB meetings are held approximately every 3 months and are open to the public to provide opportunity for public comment and input. The investigations at OU14, the findings, and potential remedial approaches have been presented and discussed at the RAB meetings. The Community Involvement Plan and technical reports supporting the remedial decision are available for download by the public via the MCAS Cherry Point ERP Public website: <http://public.lantops-ir.org/sites/public/cherrypoint/>. These and other MCAS Cherry Point Administrative Record documents can be accessed by clicking on the "Admin Records" link at the top of the web site home page. If a computer and internet access is not available from home, access to the MCAS Cherry Point ERP Public web site may be obtained from the following location:

Sequence number: 1

Author: GTOWNSEN

Subject: Note

Date: 7/7/2009 11:00:27 AM

 EPA's guidance Section 2.N is missing from doc.

Suggest adding:

"2.10 Documentation of Significant Changes - The PRAP for OU 14 was released for public comment on May1, 2009. The Navy reviewed all comments submitted during the public comment period. It was determined that no significant changes to the remedy, as originally identified in the PRAP were necessary or appropriate."
