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MCAS CHERRY POINT
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PROPOSED PLAN FOR OPERABLE UNIT 2 (OU 2) SITE 10 HOT SPOT 2 MCAS CHERRY
POINT NC
04/01/2011
RHEA ENGINEERS & CONSULTANTS



Proposed Plan
Operable Unit 2, Site 10, Hot Spot 2
Marine Corps Air Station Cherry Point, North Carolina
April 2011

1.0 INTRODUCTION

This Proposed Plan presents a revision to the selected remedy for the **volatile organic compound (VOC)**-contaminated soil area located within **Operable Unit (OU) 2 - Site 10, Hot Spot 2** at Marine Corps Air Station (MCAS), Cherry Point, North Carolina. The initial remedy was selected in the August 1999 **Record of Decision (ROD)**. The remedy presented in the 1999 ROD stipulated in-situ soil treatment by **soil vapor extraction (SVE)** at known major soil “hot spots” (secondary source areas) that were contaminated with organics. Four hot spot areas were identified for remediation within OU2 at the Site 10 (landfill) area. The in-situ SVE system’s low rate of contaminant removal was no longer contributing to the achievement of the cleanup goals at Hot Spot 2. The resulting levels remained above the remediation goals set forth in the ROD; therefore the system was taken off-line and dismantled. The existing OU2 remedy components for **Land Use Controls (LUCs)** and **Long-Term Monitoring (LTM)** described in the 1999 ROD will be maintained.

The OU2, Site 10 area was investigated and characterized between 1994 and 1996. Based on characterization results, a **Feasibility Study (FS)** and **Proposed Remedial Action Plan (PRAP)** identified remedial technologies documented in the 1999 ROD to address impacted soil and groundwater and identified the following major components of the remedy:

- Monitored natural attenuation (MNA) of groundwater (using LTM to evaluate the effectiveness of the natural attenuation process).
- Soil vapor extraction at major soil hot spots (secondary source areas to groundwater).
- **Institutional controls** including land and groundwater use restrictions.

The SVE system prescribed in the ROD was designed to remediate VOCs from the soils at Hot Spots 1, 2, 3, and 4 within Site 10 where constituent concentrations exceeded levels protective of groundwater. Remediation goals were met at Hot Spots 1, 3, and 4, but not at Hot Spot 2. The groundwater and institutional control components of the remedy continue to be addressed under the existing ROD.

Mark Your Calendar for the Public Comment Period

Public Comment Period

April 11, 2011 – June 10, 2011

Submit Written Comments

The Navy, USEPA and NCDENR will accept written comments on the Proposed Plan during the public comment period. To submit comments or obtain further information, please refer to the insert page.



Attend the Public Meeting

April 27, 2011

Time – 6:00 pm

Place – Havelock Tourist and Event Center

201 Tourist Center Drive

Havelock, North Carolina 28532

Phone: (252) 444-4348

The Navy will hold a public meeting to explain the Proposed Plan and the alternatives presented in the Feasibility Study. Verbal and written comments will also be accepted at this meeting.

Location of Information Repository:

For more information, check the MCAS Cherry Point **Environmental Restoration (ER) Program** public web site:

<https://portal.navfac.navy.mil>

(see Section 10.3 for complete instructions)

If you do not have personal access to the internet, access to the MCAS ER Program public web site may be obtained at:

Havelock-Craven County Library

The preferred alternative is **Soil Cover with Groundwater Monitoring**. This remedy will include the installation of a soil cover over areas that exceed the NC soil screening levels (SSLs) to prevent direct exposure and limit infiltration and migration of soil/waste contamination to groundwater. The cover will consist of a minimum of two-foot-thick clean backfill material and will extend a minimum of 10 feet beyond the area of concern. Groundwater monitoring will include comparison of groundwater results to an action level to ensure protection of Slocum Creek.

This Proposed Plan is issued by the United States Department of the Navy (Navy), i.e., Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic, lead agency for site activities, and the MCAS Cherry Point Environmental Affairs Department (EAD), and the United States Environmental Protection Agency (USEPA) Region 4 (lead regulatory agency), in consultation with the North Carolina Department of Environment and Natural Resources (NCDENR). This Proposed Plan fulfills the public participation requirements

under the **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)** Section 117(a) and Section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**.

The Navy and USEPA, in consultation with NCDENR, will make the final decision on the remedial approach for OU2, Site 10, Hot Spot 2 after reviewing and considering information submitted during the 45-day **public comment period**. The Navy and MCAS Cherry Point, along with USEPA, may amend this Proposed Plan based on new information or comments from the public; therefore, public comment on the Proposed Plan is invited and strongly encouraged. Information on how to participate in the decision-making process is presented in Section 10.0.

This Proposed Plan summarizes information that can be found in the **Remedial Investigation (RI)** Report (Brown & Root, now Tetra Tech NUS [TTNUS], 1996), Feasibility Study for OU2 (Brown & Root, 1997), ROD (Tetra Tech NUS, 1999), OU2 Site 10 Hot Spot 2 **Focused Feasibility Study (FFS)** (Rhēa Engineers & Consultants, Inc., 2011), and other documents contained in the **Administrative Record** and information repository for MCAS Cherry Point (see Section 10 for access information). The Navy encourages the public to review these documents to gain a more comprehensive understanding of the site. Also, a glossary of key terms used in this Proposed Plan is attached. Key terms are identified in **bold** print the first time they appear.

2.0 SITE BACKGROUND
2.1 SITE DESCRIPTION AND BACKGROUND

MCAS Cherry Point is a 13,164-acre military reservation located adjacent to the city of Havelock in southeastern Craven County, North Carolina (Figure 1). The Air Station was commissioned in 1942 and an aircraft assembly and repair facility, Fleet Readiness Center East, was added in 1943. Hazardous wastes were generated through historical aircraft assembly and maintenance operations. In 1994, MCAS Cherry Point was placed on USEPA's **National Priority List (NPL)**, established under CERCLA for sites contaminated by releases of hazardous substances.



OU2 is comprised of four sites, including: Site 10 – Old Sanitary Landfill, Site 44A – Former Sludge Application Area, Site 46 – Polishing Pond No. 1 and No. 2, and Site 76 – Vehicle Maintenance Area (Hobby Shop), located along the west-central portion of MCAS Cherry Point (Figure 2). It is bound by the Sewage Treatment Plant to the north, Roosevelt Boulevard to the east, a residential area to the south, and Slocum Creek to the west.

The Old Sanitary Landfill (Site 10) served as the primary disposal site at the Air Station from 1955 until the early to mid-1980s. Contaminated material and **petroleum, oil, and lubricants (POLs)** were land-applied, burned, stored in unlined pits, and buried at the landfill. The southern part of Site 10 was used for fire-training exercises. Soil areas with the potential to secondarily contaminate groundwater were identified in the RI and identified as hot spots (Figure 3).

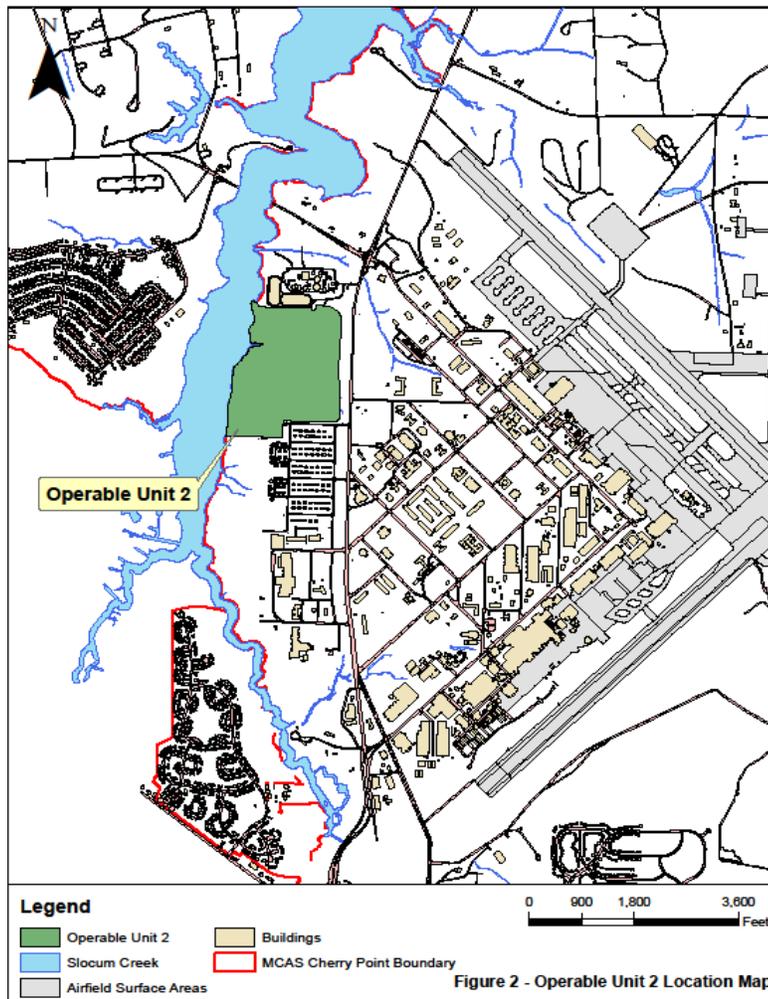
2.2 SUMMARY OF PREVIOUS INVESTIGATIONS AND CLEANUP ACTIONS

The OU2, Site 10 area has been investigated and characterized since 1994. In accordance with the 1999 ROD, an SVE system was installed and operated at soil Hot Spots 1, 2, 3, and 4 to mitigate migration of contaminants from the soil to groundwater. The institutional controls component of the remedy continues to prevent exposure to contaminated soil and buried waste. The goal of the SVE system was to reduce certain VOCs in each of the four soil hot spot areas below target cleanup levels (i.e., ROD standards, S-3 Soil Screening Levels).

2.2.1 Site 10 SVE System

The SVE system was operated from March 1998 until September 2003. Two rounds of soil sampling were performed in 2000 and 2003 to evaluate the effectiveness of the SVE remediation. The VOC concentrations in the soil samples collected in 2000 at Hot Spots 1, 2, 3, and 4 were still above the remediation goals. The 2003 soil sampling data indicated that VOCs had reached the remediation goals, except for one exceedance of methylene chloride at Hot Spot 2.

The Remedial Action Operation Optimization Report (URS, 2003) recommended that the SVE system operations be discontinued because the resulting low rate of contaminant removal was no longer contributing to the achievement of the cleanup goals. Acting on the recommendations of the report, the SVE system was



deactivated with concurrence of USEPA and NCDENR in 2003.

Additional soil samples were collected between 2004 and 2006 at Hot Spots 1, 2, 3, and 4, to verify that the remediation goals had been achieved. Hot Spots 1 and 4 were removed from the program in 2004 and Hot Spot 3 was removed in 2005. VOC constituents continued to exceed the remediation goals within Hot Spot 2.

Additional details regarding the activities leading to the deactivation of the SVE system are included in the Final Quarterly Operation and Maintenance (O&M) Report 3rd Quarter 2003 (July 2003 through September 2003) and Annual Status Report (October 2002 through September 2003), (AGVIQ Environmental Services [AGVIQ]/CH2M HILL, 2006). The remaining components of the SVE system were decommissioned in April 2010, and no SVE system components remain at the site.

2.2.2 Hot Spot 2 Soil Sampling

Samples were collected from three sampling locations within Hot Spot 2 in the 3 to 5 feet below ground surface (bgs) sampling interval. The VOCs benzene, vinyl chloride, chlorobenzene, 1,4-dichlorobenzene (p-dichlorobenzene), cis-1,2-dichlorobenzene, ethylbenzene, methylene chloride, naphthalene, and trichloroethane (TCE) were all detected above the cleanup goals in November 2006; therefore, it was concluded that the SVE system did not successfully remediate the Hot Spot 2 soil.

Additional soil samples were collected from Hot Spot 2 during three separate sampling events, completed in July 2007, December 2007, and July/August 2008, to further define (i.e., delineate) the lateral extent of VOC contamination in Hot Spot 2. Samples were collected from the 3 to 5 feet bgs sampling interval and analyzed for the following select VOC constituents, or a subset of these constituents:

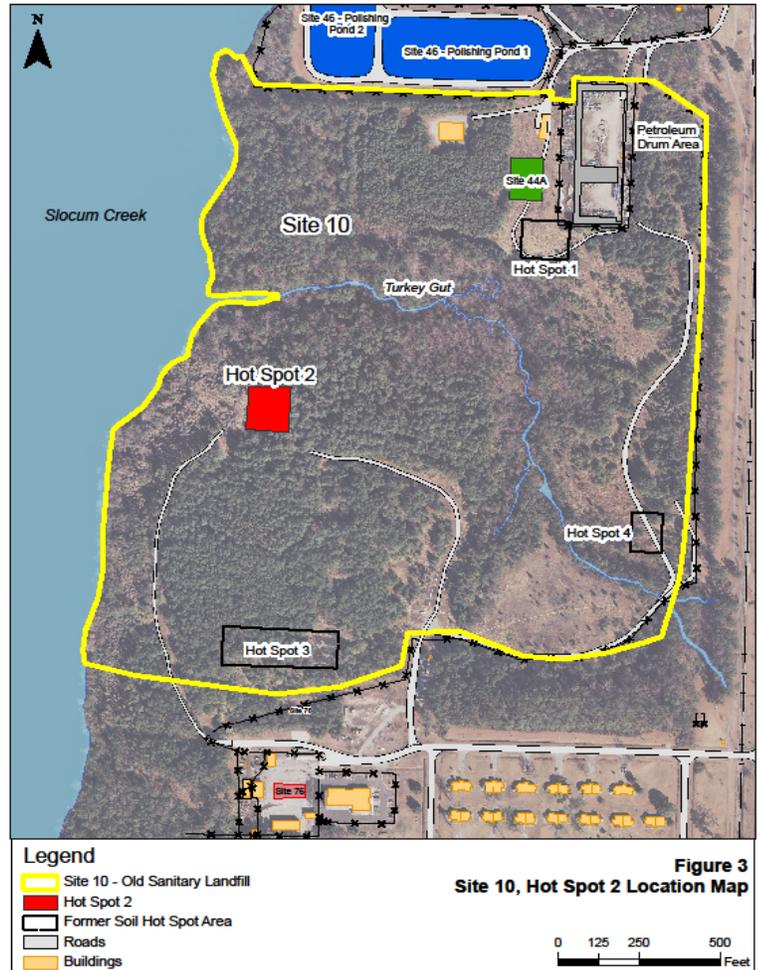
- Benzene
- Chlorobenzene
- 1,4-dichlorobenzene
- Cis-1,2-dichloroethene
- Ethylbenzene
- Methylene chloride
- Naphthalene
- TCE
- Vinyl chloride

During the 2007 and 2008 soil sampling events, it was noted that various types of waste, including wood, glass, and paper were retrieved in the sample cores. Upon further evaluation of the area, it was discovered that waste materials were visible within the surface soils and there were land depressions throughout. Based on the significant presence of exposed waste at Hot Spot 2, the Navy and Marine Corps, in partnership with the USEPA and NCDENR, concluded that remediation of VOCs in soil that are intermingled with waste materials is neither appropriate nor cost-effective.

3.0 SITE CHARACTERISTICS

3.1 SITE TOPOGRAPHY

The southern portion of Hot Spot 2 is partially wooded and several depressions and undulations are present that may indicate soil erosion or consolidation of subsurface waste. The surficial material at OU2 consists of both fill (sand, silt, and clay mixed with refuse consisting of domestic trash, wood, plastic, rubber, glass, asphalt, concrete, and metal fragments) and natural materials (ROD, 1998). Sampling activities conducted in 2007 and 2008 confirmed the presence of waste, including wood, glass, and paper, within the surficial material at Hot Spot 2.



3.2 NATURE AND EXTENT OF CONTAMINATION

The VOCs benzene, chlorobenzene, 1,4-dichlorobenzene, cis-1,2-dichloroethene, methylene chloride, naphthalene, TCE, and vinyl chloride were detected in soils at concentrations above the NC SSLs within the southern portion of Hot Spot 2 during the supplemental sampling performed in 2007 and 2008.

The 2007 and 2008 soil sampling events have made it clear that Hot Spot 2 is not an area of contaminated soil like Hot Spots 1, 3, and 4. It is, instead, exposed waste that should be handled in the same manner as the ROD addresses the rest of the waste in the landfill. It may not be appropriate to apply NC SSLs to an area of exposed waste such as Hot Spot 2. The 1999 ROD establishes LUCs to maintain the soil cover, coupled with MNA of the groundwater, as adequate remedial activities for the old landfill. With the addition of a clean soil cover to maintain, Hot Spot 2 would be similar to the rest of the landfill and could be similarly maintained and monitored. The area of soil contamination above the NC SSLs within the southern portion of Hot Spot 2 is approximately 9,000 square feet (0.2 acres) (Figure 4).

One groundwater monitoring well, OU2-MW21, is located within the southern portion of Hot Spot 2. Analytical results for groundwater collected from this well have indicated elevated concentrations of benzene, chlorobenzene, naphthalene, vinyl chloride, 2-methylnaphthalene, and arsenic above the **North Carolina 2L Groundwater Quality Standards (NC 2L Standards)** during the LTM



groundwater sampling from 2004 through 2010. These constituents have been detected above the NC 2L Standards at other well locations within OU2 and are being addressed under the existing ROD groundwater remedy.

4.0 SCOPE AND ROLE OF RESPONSE ACTION

OU2 is one of several ER Program operable units addressed under CERCLA at MCAS Cherry Point. Addressing the soil and waste environmental media at OU2, Hot Spot 2 is a specific and incremental step in the overall remedial process for MCAS Cherry Point. The role of the Preferred Alternative presented in this Proposed Plan is to address the soil and waste at OU2, Hot Spot 2. This Proposed Plan reflects the final action for Hot Spot 2 under CERCLA, and does not include or affect any other sites or operable units at MCAS Cherry Point. OU2 groundwater will continue to be addressed separately under the current ROD remedy.

5.0 SUMMARY OF SITE RISKS

5.1 HUMAN HEALTH RISK ASSESSMENT

The **Human Health Risk Assessment (HHRA)** completed as part of the RI evaluated potential exposures associated with site soils for maintenance and construction workers, adolescent trespassers, full time employees, adult resident (six year exposure), child/adult resident (30 year exposure), and child resident receptors with respect to current and future land use scenarios. Potential soil exposures may include direct contact with contaminated soil, incidental ingestion, and dermal absorption. The RI concluded that risks associated with surface soil were exceeded for

What is Human Health Risk and How is it Calculated?

A human health risk assessment estimates the "baseline risk." This is an estimate of the likelihood of health problems occurring if no cleanup action was taken at a site. To estimate the baseline risk at a site, the Navy performs the following four-step process:

- Step 1: Analyze Contamination
- Step 2: Estimate Exposure
- Step 3: Assess Potential Health Dangers
- Step 4: Characterize Site Risk

In **Step 1**, the Navy looks at the concentrations of contaminants found at a site as well as past scientific studies on the effects these contaminants have had on people (or animals, when human studies are unavailable). Comparisons between site-specific concentrations and concentrations reported in past studies help the Navy to determine which contaminants are most likely to pose the greatest threat to human health.

In **Step 2**, the Navy considers the different ways that people might be exposed to the contaminants identified in Step 1, the concentrations that people might be exposed to, and the potential frequency (how often) and length of exposure. Using this information, the Navy calculates a "reasonable maximum exposure (RME)" scenario that portrays the highest level of human exposure that could reasonably be expected to occur.

In **Step 3**, the Navy uses the information from Step 2 combined with information on the toxicity of each chemical to assess potential health risks. The Navy considers two types of risk: (1) cancer risk, and (2) noncancer risk. The likelihood of any kind of cancer resulting from a contaminated site is generally expressed as an upper bound probability; for example, a "1 in 10,000 chance." In other words, for every 10,000 people that could be exposed, one extra cancer may occur as a result of exposure to site contaminants. An extra cancer case means that one more person could get cancer than normally would be expected to from all other causes. For noncancer health effects, the Navy calculates a "hazard index." The hazard index represents the ratio between the "reference dose," the dosage at which no adverse health effects are expected to occur, and the "reasonable maximum exposure," the estimated maximum exposure level for a given category of individuals coming into contact with contaminants at the Site. The key concept is that a "threshold level" (measured usually as a hazard index of less than 1) exists below which noncancer health effects are no longer predicted.

In **Step 4**, the Navy determines whether site risks are great enough to cause health problems for people at or near the site. The results of the three previous steps are combined, evaluated, and summarized. The Navy adds up the potential risks from the individual contaminants and exposure pathways and calculates a total site risk.

receptors and exposure pathways outside of the USEPA “acceptable” risk range (i.e., cancer risk of 1E-6 to 1E-4 and Hazard Index [HI] below 1.0) for future residents.

The institutional controls prescribed in the ROD are in place to eliminate or reduce pathways of exposure to soil contaminants and buried wastes. The SVE system prescribed in the ROD was designed to remediate the VOCs from the soils at Hot Spots 1, 2, 3, and 4 within Site 10 where constituents exceeded the concentrations protective of groundwater. Remediation goals were met at Hot Spots 1, 3, and 4. Several **constituents of concern (COCs)**, including benzene, vinyl chloride, chlorobenzene, 1,4-dichlorobenzene, cis-1,2-dichlorobenzene, ethylbenzene, methylene chloride, naphthalene, and TCE remain at Hot Spot 2 at concentrations exceeding the NC SSLs.

5.2 ECOLOGICAL RISK ASSESSMENT

An ecological risk assessment was completed during the RI to evaluate potential risks to ecological receptors under existing site conditions. Maximum and mean soil exposure point concentrations and estimate dose received by receptors were compared to benchmark values that are protective of ecological receptors. The ecological risk assessment concluded that based on maximum contaminant concentrations, the benchmark values for soils were only exceeded at six sample locations, suggesting a lack of widespread contamination. The RI concluded that there is no significant risk posed to ecological receptors from OU2 site contaminants in soil.

6.0 REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are statements that define the extent to which sites require cleanup to protect human health and the environment. Consistent with the 1999 ROD, the RAOs for addressing contaminated soil and waste at Hot Spot 2 are: *“Prevent exposure to contaminated soil and buried waste”* and *“Mitigate migration of contaminants from the soil (major secondary source areas) to the environment.”*

The SVE system remedy that operated until 2003 achieved the RAOs at Hot Spots 1, 3, and 4. The SVE system did not achieve the RAOs at Hot Spot 2 – primarily because the Hot Spot contains more exposed waste than contaminated soil. The other RAOs identified in the ROD are being met through the existing LUCs and the LTM program for OU2, including Hot Spot 2.

7.0 SUMMARY OF REMEDIAL ALTERNATIVES

The OU2 Site 10 Hot Spot 2 FFS was conducted in accordance with USEPA guidance (Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final, October 1988; and A Guide to Developing and Documenting Cost Estimates

During the Feasibility Study, July 2000). A preliminary screening of response actions and remedial technologies was completed to refine the potential components of remedial alternatives to be evaluated in the FFS. Three remedial alternatives were developed for detailed evaluation and include:

- Alternative 1 – No Action
- Alternative 2 – Excavation with Off-Site Disposal
- Alternative 3 – Soil Cover with Groundwater Monitoring

Each alternative was developed to meet the RAO, with the exception of the no action alternative, which was evaluated as a baseline for comparison. A more detailed description of each alternative is provided in the FFS. Table 1 provides the major components, details, and cost of each remedial alternative identified for Hot Spot 2.

8.0 EVALUATION OF REMEDIAL ALTERNATIVES

The three remedial alternatives presented in Section 7 were evaluated against the first seven (Threshold and Balancing Criteria) of the nine criteria identified in the NCP. The two remaining criteria (Modifying) will be considered after the public comment period for this Proposed Plan.

8.1 THE NCP EVALUATION CRITERIA

The NCP outlines the approach for comparing remedial alternatives. Evaluation of the alternatives uses nine evaluation criteria. To be considered for selection as the Preferred Alternative, a remedial alternative must meet the following two threshold criteria:

- Overall protection of human health and the environment
- Compliance with **Applicable or Relevant and Appropriate Requirements (ARARs)**

Primary balancing criteria are technical criteria based on environmental protection, cost, and engineering feasibility, and are considered to determine which alternative provides the best combination of attributes.

The primary balancing criteria are:

- Long-term effectiveness and permanence
- Reduction in toxicity, mobility, or volume through treatment
- Implementability
- Short-term effectiveness
- Cost

Upon receipt of public comments, this proposed plan will be evaluated against two modifying criteria:

- Acceptance by State
- Acceptance by Community

TABLE 1 – REMEDIAL ALTERNATIVES

ALTERNATIVE	COMPONENTS	DETAILS	COST
1. No Action		No Action	No Cost
2. Excavation and Off-Site Disposal	<ul style="list-style-type: none"> -Excavation of Soil/Waste -Off-Site Disposal -Backfill -Site Restoration 	<p>Abandonment of monitoring well OU2-MW21, located within the removal area, prior to soil/waste removal.</p> <p>Excavation of approximately 2,500 tons of soil and waste materials to the limit of 2007 and 2008 sample locations that were below the NC SSLs. Segregating waste from soil. Off-site disposal of segregated waste and soil to an appropriate licensed facility(ies) based on analytical results and waste classification.</p> <p>Following the excavation operation, the site would be restored by placing clean backfill to bring the site back to original grade. All disturbed areas would be revegetated with native grasses and plant species to control erosion. Access roads and other infrastructure that are disturbed or destroyed in the excavation process will be restored.</p> <p>Existing remedy components, LUCs and LTM, will be maintained consistent with the 1999 ROD.</p>	<p>Capital Cost: \$540,200</p> <p>O&M Cost (30 years): \$0</p> <p>Present - Worth Cost: \$540,200</p>
3. Soil Cover with Groundwater Monitoring	<ul style="list-style-type: none"> -Soil Cover -Site Restoration - Groundwater Monitoring 	<p>Abandonment of monitoring well OU2-MW21, located within the removal area, prior to placement of cover.</p> <p>Installation of a soil cover over areas that exceed the NC SSLs. A minimum two-foot-thick clean backfill soil cover will be placed over the area and will extend a minimum of 10 feet beyond the area of concern. The soil cover will be placed and graded to prevent direct exposure and to limit infiltration, erosion, and migration of soil/waste contamination to groundwater.</p> <p>The disturbed areas will be revegetated with native grasses to control erosion. Access roads or other infrastructure that are disturbed in the backfilling process will be restored.</p> <p>Groundwater monitoring will continue to be performed to verify that contaminants are not migrating off site. This will be accomplished by comparing the results of the groundwater wells along Slocum Creek to 10-times the applicable North Carolina 2B Surface Water and Wetland Standards (NC 2B Standard) or national USEPA surface water criteria. Protective action will be taken if the groundwater results in wells adjacent to Slocum Creek exceed 10-times the applicable standard.</p> <p>Existing remedy components, LUCs and LTM, will be maintained consistent with the 1999 ROD.</p>	<p>Capital Cost: \$246,000</p> <p>O&M Cost (30 years): \$0</p> <p>Present- Worth Cost: \$246,000</p>

8.2 RELATIVE EVALUATION OF ALTERNATIVES

The comparative analysis of alternatives with respect to the evaluation criteria is summarized below. The FFS (Rhëa, 2010) provides a detailed discussion of the evaluation. Table 2 below provides a relative ranking of the alternatives.

8.2.1 Threshold Criteria

Overall Protection of Human Health and the Environment: This criterion addresses whether or not an alternative provides adequate protection and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering, or institutional controls.

Alternative 1 (No Action) does not protect human health and the environment. Alternative 2 (Excavation with Off-Site Disposal) and Alternative 3 (Soil Cover with Groundwater Monitoring) are both protective of human health and the environment because they achieve the soil RAO (mitigate migration of contaminants from the soil [major secondary source areas] to the environment) by either removing the impacted soil/waste or installing a soil cover over the area of impacted soil/waste.

Compliance with ARARs: There are three types of ARARs, chemical-specific, location-specific, and action-specific. Alternative 1 does not comply with the ARARs because no remedial action is taken. Alternatives 2 and 3 comply with the ARARs.

Because Alternative 1 does not meet the two threshold criteria, it was eliminated from consideration as the Preferred Alternative and will not be discussed further in this Proposed Plan.

8.2.2 Primary Balancing Criteria

Long-Term Effectiveness and Permanence: The long-term effectiveness and permanence criterion refers to the magnitude of residual risk and the ability of an alternative to maintain reliable protection of human health and the environment over time.

Alternatives 2 and 3 are expected to be effective and permanent remedies to achieve the RAO. Alternative 2 is effective because the contaminated soil/waste (up to 5 feet in depth) will be removed from the site. Alternative 3 will also be effective in the long-term because the soil cover will be protected from intrusive activities by existing LUCs, and the long-term effectiveness of the alternative will be monitored through the LTM program.

Reduction of Toxicity, Mobility, or Volume through Treatment: The reduction of toxicity, mobility, or volume through treatment criteria refers to the anticipated performance of the treatment options that may be employed within an alternative. None of the alternatives will reduce toxicity, mobility, or volume of contaminants through treatment.

Short-Term Effectiveness: Short-term effectiveness refers to the speed at which the alternative achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may occur during the construction and implementation period.

TABLE 2 – RELATIVE RANKING OF REMEDIAL ALTERNATIVES

CERCLA CRITERIA	NO ACTION	EXCAVATION AND OFF-SITE DISPOSAL	SOIL COVER WITH GROUNDWATER MONITORING
Overall Protection of Human Health and the Environment	☐	■	■
Compliance with ARARs	☐	■	■
Long-Term Effectiveness and Performance	☐	■	■
Reduction in Toxicity, Mobility, and Volume through Treatment	☐	☐	☐
Short-Term Effectiveness	☐	■	■
Implementability	☐	■	■
Cost (Total Present Worth)	\$0	\$540,200	\$246,000

Ranking: ☐Low ■Moderate ■High
High rankings are the most favorable.

Alternative 2 has a greater short-term risk for workers and community members potentially exposed to soil and waste during excavation, removal, and transportation than Alternative 3, where there is minimal disturbance and exposure of waste during placement of the soil cover. Alternative 2 also poses potential risk of disturbing contained material (e.g., exposing drums or containers) and releasing the contamination to the environment. Alternative 3 will not disturb the waste and will be effective in protecting human health and the environment in a shorter time frame than Alternative 2.

Implementability: The implementability criterion refers to the technical and administrative feasibility of an alternative, including the availability of materials and services required to implement the chosen solution.

Alternatives 2 and 3 include construction activities and operations that involve readily accessible equipment and trained personnel. Due to the unknown distribution of the waste material within Hot Spot 2, efforts in coordinating excavation and off-site disposal (including waste characterization, Department of Transportation requirements, disposal facility requirements, and trucking arrangements) Alternative 2 is more technically challenging to implement than Alternative 3.

Alternative 2 has the most significant concerns regarding implementability due to the intrusive nature of the remedy. While the excavation of this material could be performed by trained environmental contractors, removal and transportation of contaminated soil comingled with waste from an existing landfill to a secondary landfill is not routine. The unknown extent and distribution of the refuse contained in Hot Spot 2 poses additional concerns and challenges related to transport and disposal. The removal area is within a landfill (i.e., typically heterogeneous in nature); therefore, it may be difficult to obtain approval to dispose of this comingled material at an appropriately permitted facility. Multiple waste streams could potentially be generated. Any intact or partially intact drums discovered during excavation activities would have to be characterized and addressed separately. Tires, aluminum cans, batteries, and white goods are not permitted to be disposed of at non-hazardous waste (i.e., Subtitle D) facilities and would have to be addressed separately.

Cost: Alternative 3 is the least costly alternative and has an estimated present-worth cost of \$246,000. Alternative 2 has a present-worth cost of \$540,200. Alternative 3 is the most cost effective alternative because it meets the RAO at a lower cost than Alternative 2.

8.2.3 Modifying Criteria

State Acceptance: State involvement has been continual throughout the CERCLA process for OU2 and the NCDENR supports the Preferred Alternative. Their final

concurrence will be provided following the review of all comments received during the public comment period.

Community Acceptance: Community acceptance will be evaluated after the public comment period, and public comments will be addressed and documented in the forthcoming Amended ROD for OU2 Soils.

9.0 THE PREFERRED ALTERNATIVE

Based on the consideration of the requirements of CERCLA, the detailed analysis of potential alternatives using the evaluation criteria, and current and proposed exposure scenarios, the preferred remedial alternative for Hot Spot 2 is **Alternative 3 – Soil Cover with Groundwater Monitoring**. Existing LUCs and LTM at OU2, including Hot Spot 2, will be maintained. This alternative provides the best balance with respect to the seven CERCLA evaluation criteria. The preferred alternative is cost-effective and will meet the RAOs of preventing exposure to contaminated soil and buried waste and mitigating migration of contaminants from the soil (major secondary source areas) to the environment.

10.0 PUBLIC PARTICIPATION

Public participation at MCAS Cherry Point includes a **Restoration Advisory Board (RAB)**, public meetings, a public information repository, newsletters, fact sheets, public notices, and an Environmental Restoration Program web site. The Community Involvement Plan for MCAS Cherry Point provides detailed information on community participation for the ER Program. The RAB was formed in December 1995 and consists of community members and representatives of the USEPA, NCDENR, NAVFAC Mid-Atlantic, and MCAS Cherry Point. RAB meetings are usually held quarterly and are open to the public to provide an opportunity for comments and questions. The OU2 investigations, findings, and the potential remedial approaches have been presented and discussed at multiple RAB meetings.

Nearby residents and other interested parties are strongly encouraged to use the comment period to relay any questions and concerns about Site 10, Hot Spot 2 and the Proposed Action. The Navy will summarize and respond to comments in a responsiveness summary, which will then become part of the official **ROD Amendment**.

This Proposed Plan fulfills the public participation requirements of CERCLA Section 117(a), which specifies that the lead agency (i.e., the Navy) must publish a plan outlining any remedial alternatives evaluated or removal actions completed for the site and identifying the Amended Proposed Action. All documents referenced in this Proposed Plan are available for public review as part of the Administrative Record for MCAS Cherry Point. Instructions for accessing the Administrative Record are provided in Section 10.3.

10.1 PUBLIC COMMENT PERIOD

The public comment period for the Proposed Plan provides an opportunity for the community to provide input regarding the proposed action for Site 10, Hot Spot 2. The public comment period will be from April 11, 2011 through June 10, 2011, and a public meeting will be held on April 27, 2011 at 6:00 at the Havelock Tourist and Event Center. All interested parties are encouraged to participate in the Navy's CERCLA activities at MCAS Cherry Point. The meeting will provide an additional opportunity to submit comments on the Proposed Plan. A public notice will be published in area newspapers announcing the availability of the Proposed Plan and the public comment period. In addition, a public notice will also be published in area newspapers announcing the date, time, and location of the public meeting.

Written comments must be postmarked no later than June 10, 2011. The back page included with this Proposed Plan may be used to provide written comments. Please fold the page and add postage where indicated. The use of this form is not required.

During the comment period, interested parties may submit written comments to the following addresses:

Mr. Jason Williams, Code OPNCEV
NAVFAC Mid-Atlantic
LRA, Building C, NC IPT
6506 Hampton Blvd.
Norfolk, VA 23508-1278
(757) 322-4088

Ms. Gena Townsend
US Environmental Protection Agency, Region 4
Superfund Division
Atlanta Federal Center
61 Forsyth St.
Atlanta, GA 30303
(404) 562-8538

Mr. George Lane
NC Dept. of Environment and Natural Resources
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10.2 AMENDMENT TO THE RECORD OF DECISION

After the public comment period, the Navy and MCAS Cherry Point, in conjunction with the USEPA and with concurrence from NCDENR, will determine whether the preferred alternative – **Soil Cover with Groundwater Monitoring** – proposed in this plan should be modified on the basis of comments received. Any required modifications will be made by the Navy and MCAS Cherry Point. If modifications substantially change the proposed action, additional public comments may be requested. If not, the Navy, MCAS Cherry Point, and USEPA will prepare and sign the Amendment to the ROD, with concurrence from the State of North Carolina. The Amended ROD will detail the proposed action chosen for Site 10, Hot Spot 2 and will include the Navy's responses to comments received from the public.

10.3 AVAILABLE INFORMATION

The Community Involvement Plan and technical reports supporting the remedial decision making process for OU2 are available for download by the public via the MCAS Cherry Point ER Program Public web site: <https://portal.navfac.navy.mil>. These and other MCAS Cherry Point Administrative Record documents can be accessed by the following steps:

1. Click on "Environmental" (on left)
2. Click on "Environmental Restoration" (tab)
3. Select North Carolina on the interactive map
4. Select Cherry Point from the drop-down menu
5. Click on the Administrative Records tab
6. Click on the Administrative Records link near the bottom of the page.

If a computer and internet access is not available from your home, access to the MCAS Cherry Point ER Program Public web site may be obtained at the following location:

Havelock-Craven County Library
301 Cunningham Blvd.
Havelock, NC 28532
Phone: 252-447-7509

11.0 REFERENCES

AGVIQ/CH2M HILL, 2006. *Final Quarterly O&M Status Report 3rd Quarter 2003 (July 2003 through September 2003) and Annual O&M Status Report (October 2002 through September 2003) Operable Unit 2, Site 10.* June.

Brown & Root Environmental, 1996. *Remedial Investigation Operable Unit 2 for Marine Corps Air Station Cherry Point, North Carolina.* June.

Brown & Root Environmental, 1996. *Proposed Remedial Action Plan for Operable Unit 2, Marine Corps Air Station Cherry Point, North Carolina*. June.

Brown & Root Environmental, 1997. *Feasibility Study for Operable Unit 2, Marine Corps Air Station Cherry Point, North Carolina*. July.

OHM Remediation Services Group (OHM). May 1999, Rev. February 2000, April 2002. *Long Term Monitoring Remedial Action Plan for Operation of the Soil Vapor Extraction Remediation System at Operable Unit 02 Site 10 Soils MCAS Cherry Point, North Carolina*.

OHM, 2000. *Remedial Action Report for Construction and Operation of the Soil Vapor Extraction Remediation System for Operable Unit 02, Soils, MCAS Cherry Point, North Carolina*. October.

Rhēa Engineers & Consultants, 2011. *Final Focused Feasibility Study for Operable Unit 2, Site 10, Hot Spot 2, MCAS Cherry Point, North Carolina*. February.

Tetra Tech NUS, 1999. *Record of Decision for Operable Unit 2, Marine Corps Air Station Cherry Point, North Carolina*. September.

United States Environmental Protection Agency (USEPA), 1998. *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final*. October.

USEPA, 2000. *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*. July.

URS Group, Inc., 2003. *Marine Corps Air Station, Cherry Point, North Carolina, Remedial Action Operation (RAO) Optimization Report*. February.

12.0 GLOSSARY

Administrative Record: A compilation of documents and information for CERCLA sites that is made available to the public for review.

Applicable or Relevant and Appropriate Requirements (ARARs): Requirements, including cleanup standards, standards of control and other substantive environmental protection requirements and criteria, for hazardous substances as specified under Federal and state laws and regulations, that must be met when complying with CERCLA and SARA.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A Federal law passed in 1980 (United States Code Title 42, Chapter 103), commonly referred to as the “Superfund” Program, that regulates and provides for cleanup and emergency response in connection with numerous existing, inactive

hazardous waste disposal sites that endanger public health and safety or the environment. CERCLA was amended by Superfund Amendments and Reauthorization Act (SARA) in 1986.

Constituents of Concern (COCs): Specific constituents that are identified for evaluation in the risk assessment process.

Environmental Affairs Department (EAD): A department within the Marine Corps Air Station Cherry Point that exists to sustain and enhance mission readiness through compliance with relevant laws and regulations, prevention of pollution, and continual program improvement through an environmental management system.

Environmental Restoration (ER) Program: Established in 1984 to help identify, investigate, and cleanup contamination on Department of Defense (DOD) properties; conducted under the auspices of CERCLA of 1980 and SARA of 1986; the DOD equivalent to the USEPA.

Feasibility Study (FS): An analysis in which the data collected during the Remedial Investigation (RI) are used to develop and evaluate a list of potential remediation alternatives. A detailed technical evaluation is performed on each remedial alternative that considers the nine evaluation criteria specified by USEPA guidance.

Focused Feasibility Study (FFS): A Feasibility Study that focuses on a single site and/or matrix within the defined Operable Unit.

Human Health Risk Assessment (HHRA): A qualitative and quantitative evaluation of the risk posed to human health by the presence of specific pollutants. Elements include: identification of the hazardous substances present in the environmental media, assessment of exposure and exposure pathways, assessment of the toxicity of the site’s hazardous substances and characterization of human health risks.

Institutional Controls: Administrative or legal mechanisms designed to protect public health and the environment from residual contamination at environmental restoration sites. For example, land use restrictions imposed by the property owner in a property deed would limit access to or use of the property.

Land Use Controls (LUCs): Legal and administrative measures to protect human health and the environment when residual contamination is left on site. LUCs limit human exposure by restricting activity, use, and access to properties with residual contamination.

Long-Term Monitoring (LTM): Site sampling and analysis required to confirm that site cleanup requirements continue to be met after the remedial action (RA) has been

accomplished or that site contaminant levels continue to be below concentrations which require RA. Alternatively, LTM can be used to confirm requirements are being met for a natural attenuation remedy.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The Federal regulations that guide determination of the sites to be corrected under both the Superfund (CERCLA) program and the program to prevent or control spills into surface waters or elsewhere.

National Priority List (NPL): A list developed by USEPA of uncontrolled hazardous substance release sites in the United States that are considered priorities for long term remedial evaluation and response.

North Carolina Department of Environment and Natural Resources (NCDENR): The state agency responsible for administration and enforcement of environmental regulations in North Carolina.

North Carolina 2B Surface Water and Wetland Standard (NC 2B Standards): The Classifications and Water Quality Standards Applicable to Surface Waters and Wetlands of North Carolina, North Carolina Administrative Code, Title 15A, NCDENR Division of Water Quality, Subchapter 2B.

North Carolina 2L Groundwater Quality Standard (NC 2L Standards): The Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina, North Carolina Administrative Code, Title 15A, NCDENR Division of Water Quality, Subchapter 2L.

Operable Unit (OU): Consists of one or more potentially contaminated sites that have been grouped together due to their proximity to each other or due to similarity of contamination.

Petroleum, Oil, and Lubricants (POLs): For example: jet fuel, gasoline, diesel fuel, and/or POL sludge.

Preferred Alternative: With respect to the nine criteria specified in the NCP for evaluating remedial alternatives, the Preferred Alternative is the proposed remedy that meets the threshold criteria and is deemed to provide the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria.

Present-Worth Cost: Total cost of the remedial action, discounted to the value of current dollars. The present-worth cost includes upfront capital costs required to implement the remedial action, as well as the present value costs of future long-term operations, maintenance, and monitoring.

Proposed Remedial Action Plan (PRAP): A document that presents the proposed action or preferred remedial alternative and requests public input regarding its proposed selection.

Public Comment Period: The time allowed for the members of a potentially affected community to express views and concerns regarding an action proposed to be taken by USEPA, such as a rulemaking, permit, or Superfund-remedy selection.

Record of Decision (ROD): A legal document that describes the cleanup action or remedy selected for a site, the basis for choosing that remedy, and public comments that were considered regarding the selected remedy.

Remedial Action (RA): A cleanup method proposed or selected to address contaminants at a site.

Remedial Action Objectives (RAOs): Statements that define the extent to which the sites require cleanup to protect health and the environment.

Remedial Investigation (RI): A study in support of the selection of a remedy at a site where hazardous substances have been released. The RI identifies the nature and extent of contamination and analyzes human health and ecological risk associated with the contamination.

Restoration Advisory Board (RAB): An advisory group for the restoration process with members from the public, the Navy, and the regulatory agencies. The purpose of the RAB is to gain effective input from the stakeholders on cleanup activities and increase installation responsiveness to the community's environmental restoration concerns.

ROD Amendment: A legal document that presents a revision to the selected action or remedy described in the original ROD.

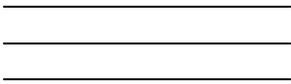
Soil Screening Level (SSL): Calculated soil contaminant concentrations for the protection of the groundwaters of North Carolina. They reflect the levels of each chemical above which the potential exists for the contaminant to migrate through the soil and contaminate the groundwater. The SSLs are calculated by multiplying the North Carolina Groundwater Quality Standards (NC 2L Standards) by soil contaminant fate and transport factors.

Soil Vapor Extraction (SVE): An in-situ soil aeration process designed and operated to maximize the volatilization of low-molecular-weight compounds, with some biodegradation occurring.

United States Environmental Protection Agency (USEPA): The Federal agency responsible for administration and enforcement of CERCLA (and other Federal environmental statutes and regulations).

Volatile Organic Compounds (VOCs): Organic compounds (i.e. they contain carbon) that readily evaporate, or volatilize.

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Place
stamp
here

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