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STATEMENT OF BASIS FOR AREAS OF CONCERN 693 AND 694 ZONE K CLOUTER ISLAND CNC CHARLESTON SC

5/21/2014

TETRA TECH

STATEMENT OF BASIS

Charleston Naval Complex
Installation Restoration Program
Charleston, South Carolina

Facility: Charleston Naval Complex
Unit Type: AOCs 693 and 694 (Zone K-Clouter Island)
Contaminants: None
Media: Groundwater/Soil
Proposed Remedy: Land Use Controls (LUCs)

INTRODUCTION

The purpose of this Statement of Basis (SB) is to present the decision for Areas of Concern (AOC) 693 and 694 (Zone K-Clouter Island), which is Land Use Controls (LUCs), and to invite public comment on this proposed decision. This SB provides background information for AOCs 693 and 694, and explains the reasons why LUCs is proposed. See Figure 1 for a site location map.

Figure 1- AOCs 693 and 694 at Charleston Naval Complex, Charleston, South Carolina

Charleston Naval Complex (CNC) is located on the western bank of the Cooper River in Charleston Harbor at the confluence of the Ashley, Cooper, and Wando Rivers and their tributaries. AOCs 693 and 694 are located on the east bank of the Cooper River and east of the CNC. Clouter Island consists for four dredge spoil areas and occupies approximately 1,400 acres of former tidal marshes. This SB presents the proposed remedy that LUCs are recommended for AOCs 693 and 694. A detailed site map of AOCs 693 and 694 is provided as Figure 2.

Figure 2 – AOCs 693 and 694 Location, Charleston Naval Complex, Clouter Island, South Carolina

The CNC and South Carolina Department of Health and Environmental Control (SCDHEC) jointly developed the specific site remedy described herein and are issuing this SB as part of their public participation responsibilities under Section 7004(b) of the RCRA Title 42, United States Code Section 6974(b), and applicable state law. This document is intended to inform the general public of the proposed remedy for this site and follows the United States Environmental Protection Agency (USEPA) Office of Solid Waste and Emergency Response (OSWER) Directive 9902.6. SCDHEC will not approve the proposed remedy until the public comment period has ended and all information submitted during the public comment period has been

reviewed and considered. SCDHEC may modify the proposed corrective action or select another action based on new information or public comments received on this SB. Therefore, the public is invited to review and comment on all alternatives, including any potential corrective measures that were not previously considered.

The information summarized in this SB can be found in greater detail in documents contained in the Information Repository for this facility. This SB does not replace those documents. Historical documents can be found in the administrative record at the Base Realignment and Closure Program Management Office (BRAC PMO) located in North Charleston, South Carolina and the SCDHEC office located in Columbia, South Carolina (addresses provided at the conclusion of this document). SCDHEC encourages the public to review these documents in order to gain a more thorough understanding of the site and the activities that have been conducted.

PROPOSED REMEDIES

The recommended alternative for AOCs 693 and 694 is LUCs. This remedy was selected by SCDHEC in their December 21, 2012 approval letter regarding the *Corrective Measures Study for AOC 693 – Fuse and Primer House, Former Building 117 and AOC 694 – Former Naval Ammunition Depot at Charleston Naval Complex (CNC)* (Tetra Tech, October 2012 and September 2013), addressed to Mr. David Criswell of the BRAC PMO, under the condition that the USACE, the current property owner, accepts the LUCs. The USACE accepted the LUCs in their May 20, 2014 letter addressed to the BRAC PMO. SCDHEC approved the Final CMS in a letter dated May 21, 2014, following receipt of the USACE acceptance letter.

SITE BACKGROUND

AOCs 693 and 694 were identified on Clouter Island because of the former ammunition depot and past uses. The ammunition depot was used to store various types of military ordnance. The former storage buildings have since been removed with the foundation for these buildings left in place. AOC 693 consists of Building 117, a two-room fuse and primer house, which operated from 1930 to 1939 and remains intact. AOC 694 is the former Naval Ammunition Depot in operation from the 1920s to the 1940s, consisting of an area surrounding former Building 117. The exact location and dimensions of this former explosives storage area are not known. Remnants of three other structures also remain within the former depot. The northernmost structure is the foundation of Building 106, the Fixed Ammo Storehouse. The foundation of Building 102, the Shell House, is approximately 200 feet south of Building 106. The former site of Building 103, the Magazine, is located between the remains of Buildings 102 and 117. Facilities 376 and 377 were used by the Navy as part of dredging operations and are located on the western part of the island, approximately 1,800 feet north of Building 102.

PREVIOUS INVESTIGATIONS

The following investigations have been performed previously at AOCs 693 and 694: Final RCRA Facility Assessment, 1995; Zone K RCRA Facility Investigation (RFI) Report, 1999; and Clouter Island RFI Report Addendum, 2002.

RFI field activities for Clouter Island began in 1996. AOCs 693 and 694 were investigated together due to proximity and similar histories. Soil samples collected during the 1997 phase of the RFI were collected from 25 locations around the site (four locations for AOC 693 and 21 for AOC 694). See Figure 3 for the soil sample locations. Shallow temporary wells were installed in April 1997, as shown in Figure 4. Quarterly groundwater sampling of these wells began in May

1997 and was completed in March 1998. Additional sampling was performed in January 1999. Soil sampling was performed at four locations for dioxins and metals only, and groundwater samples for dioxins, metals, and total dissolved solids (TDS) analyses were collected.

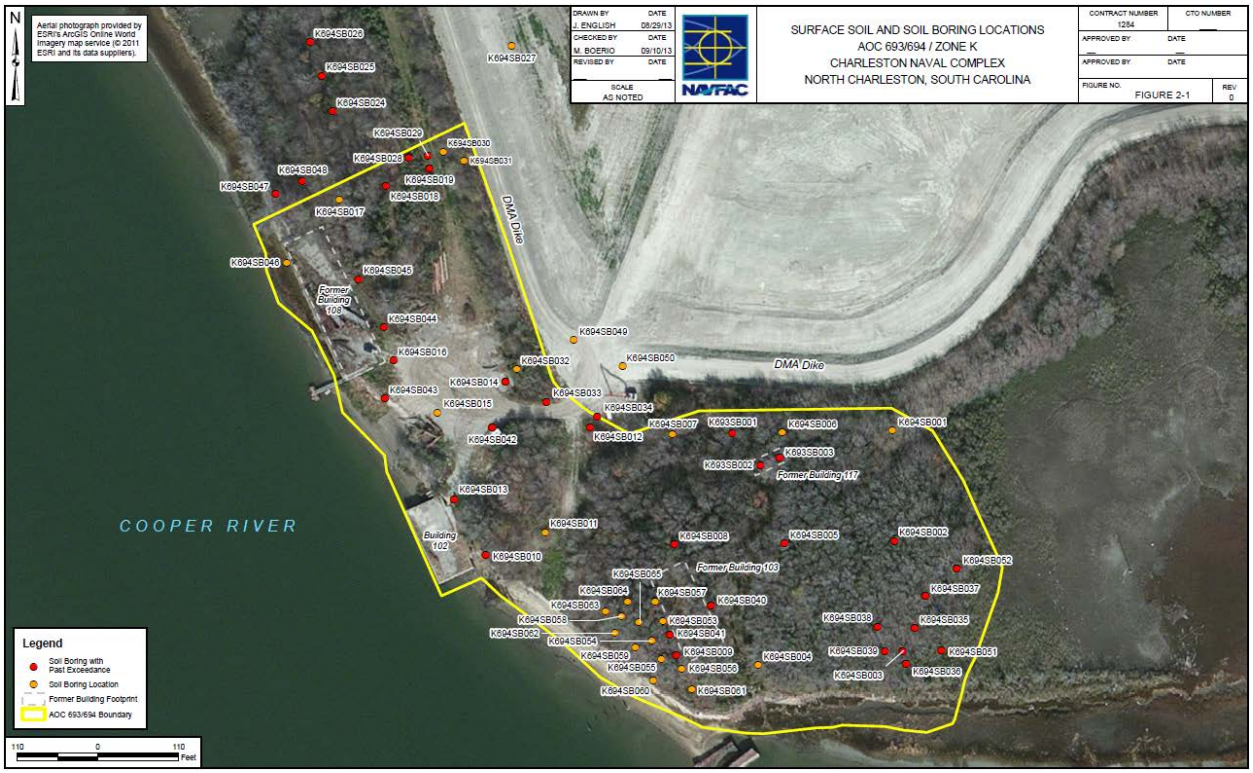

Figure 3 – Historical Soil Sample Locations

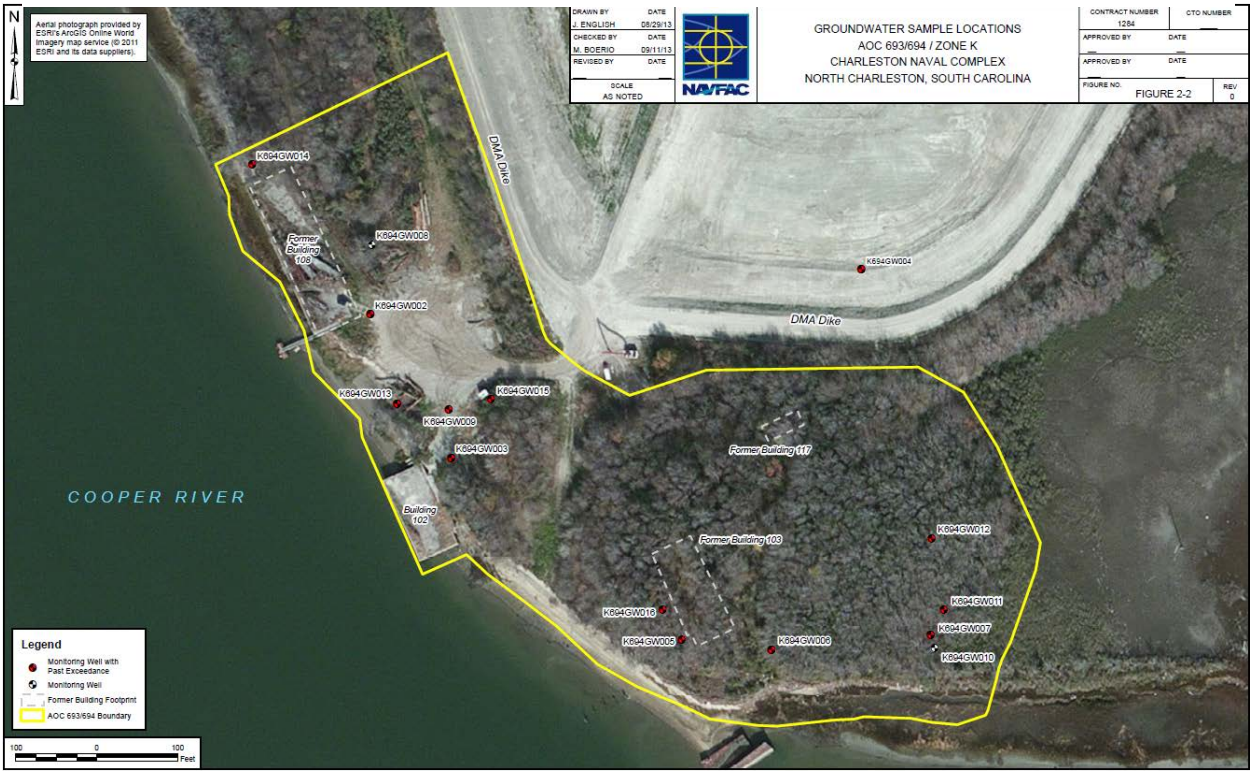

Figure 4 – Historical Groundwater Sample Locations

The Zone K RFI Work Plan Addendum that included AOCs 693 and 694 was developed based on results of the initial RFI and implemented in 1999. The work plan addendum focused on delineating data gaps identified in the RFI report and further investigation of the former buildings. Soil samples were collected from eight locations during October 1999 for development of the November 1999 work plan addendum and site-specific soil screening levels (SSLs). Soil samples were collected from 25 locations and groundwater was collected twice (December 1999 and January 2000) from temporary shallow wells installed in December 1999. Soil samples were collected in April 2002 from 10 locations to delineate lead exceedances. Several new temporary wells were installed to determine if lead was leaching into groundwater and to delineate the extent of arsenic in groundwater. All new and existing temporary wells installed for the RFI were abandoned subsequent to the completion of the sampling event. An additional round of soil samples were collected in May 2002 from four locations to complete delineation of lead detected in April 2002.

SITE RISKS

The primary risk at AOCs 693 and 694 are attributable to heavy metals and benzo(a)pyrene equivalents (BEQs). The baseline human health risk assessment (HHRA) for AOCs 693 and 694 was performed to characterize the potential risks to likely human receptors under current and future land use. Potential receptors under current land use are site workers. Potential receptors under future land use are site workers and hypothetical on-site residents (adolescent and adult). The future land use evaluation was based on the assumption that if various site conditions were to change in the future, potential exposure could occur if the site were developed. The 2002 RFI recommended no further action for soil because the iron intake from incidental soil ingestion at AOCs 693 and 694 [0.3 milligrams per kilogram per day (mg/kg/day)] would be less than the recommended daily intake from an iron supplement. The groundwater associated hazard index (HI) for the resident adult was 9, and the groundwater associated HI for the resident child was 20, but the 2002 RFI pointed out that groundwater is not considered a potential potable source. With this in mind, the 2002 RFI recommended no further action for groundwater.

The ecological risk assessment was based on surface soil data from four surface soil samples collected at AOC 693 and 65 grid-based surfaces samples collected throughout AOC 694. The soil data were evaluated for exposure to terrestrial invertebrates, plants, and wildlife. Concentrations of some metals, especially arsenic, copper, and zinc, in some sample indicate risks to terrestrial vegetation. No evidence of stressed vegetation was identified, however, during frequent trips to the area where samples were collected. A low level of chronic risk was predicted for herbivorous mammals, based primarily on exposure to arsenic and copper.

SCOPE OF CORRECTIVE ACTION

LUCs are appropriate and recommended for AOCs 693 and 694.

SUMMARY OF ALTERNATIVES

Table 1: Summary of Comparative Analysis of Soil Alternatives

Evaluation Criterion	Alternative S-1: No Action	Alternative S-2: Limited Action - Land Use Controls (LUCs)
Protection of Human Health and Environment	Would not be protective of human health and the environment because no action would occur.	Would be protective of human health and would not be protective of the environment.
Attainment of MCSs	Would not attain MCSs.	Would eventually attain MCSs through natural attenuation.
Control of Source Releases	Would not control source releases.	Would not control source releases.
Comply with Applicable Standards for Management of Wastes	No state or federal regulations apply to this alternative.	No state or federal regulations apply to this alternative.
Long-Term Reliability and Effectiveness	Would not be effective or reliable because contaminants would remain.	AOCs 693/694 are located within a secure area; the long-term reliability and effectiveness of implemented land use controls is certain.
Reduction of Contaminant Toxicity, Mobility, or Volume	Would not reduce contaminant toxicity, mobility or volume.	Would not reduce contaminant toxicity, mobility, or volume.
Short-Term Effectiveness	Would not result in any short-term risks because no action would occur.	Proper usage and oversight of PPE would mitigate risks associated with potential worker exposure to contamination.
Implementability	Technical and administrative implementation would be extremely simple because there would be no action to implement.	Alternative S-2 would be easily implementable. The methods used to implement LUCs are standard practice, a program is in place, and personnel needed to implement the alternative are readily available.
Costs: Capital O&M NPW	 $0 $0 $0	 $20,000 $46,000 $66,000 (30-Year)

MCSs Media Cleanup Standard
NPW Net present worth
O&M Operation and maintenance
PPE Personal protective equipment

Table 2: Summary of Comparative Analysis of Groundwater Analysis

Evaluation Criterion	Alternative G-1: No Action	Alternative G-2: Limited Action - Land Use Controls (LUCs)
Protection of Human Health and Environment	Would not be protective of human health and the environment because no action would occur.	Would be protective of human health and the environment.
Attainment of MCSs	Would not attain MCSs.	Would attain MCSs eventually through natural attenuation.
Control of Source Releases	Would not control source releases.	Would not control source releases.
Compliance with Applicable Standards for Management of Wastes	No applicable waste management standards with which to comply.	No applicable waste management standards with which to comply.
Long-Term Reliability and Effectiveness	Would not be effective because contaminants would remain.	AOCs 693/694 are located within a secure area ; the long-term reliability and effectiveness of implemented land use controls is certain
Reduction of Contaminant Toxicity, Mobility, or Volume	Would not reduce contaminant toxicity, mobility or volume.	Some reduction in the toxicity and volume of contaminants might occur through natural dispersion, dilution, or other attenuation processes.
Short-Term Effectiveness	Would not result in any short-term risks because no action would occur.	Would not result in any short-term risks because no action would occur
Implementability	Technical and administrative implementation would be extremely simple because there would be no action to implement.	Technical implementability would be simple. Administrative implementation of the LUCs through the RCRA Permit LUC program would be simple. No major permits would be needed.
Costs: Capital O&M NPW	 $0 $0 $0	 $20,000 $46,000 $66,000 (30-Year)

LUC Land use control
MCSs Media Cleanup Standard
NPW Net present worth
O&M Operation and maintenance

EVALUATION OF ALTERNATIVES

The current and projected land use as a dredge spoil area would prevent active treatment alternatives from being effective given the shallow groundwater table and recharge of brackish water through dredge spoil materials containing naturally occurring elements.

CONTINGENCY REMEDIES

If LUCs are implemented, provisions in the CNC LUC program would address the possible need for new remedies if the area changes operational purpose.

ANTICIPATED IMPACTS OF CLEANUP ON THE LOCAL COMMUNITY

No significant impacts to the local community are associated with the proposed LUCs at AOCs 693 and 694.

STATUTORY AUTHORITIES

This document is being issued in accordance with 40 Code of Federal Regulations (CFR), in compliance with federal hazardous waste management requirements. The Charleston Naval Complex Corrective Action Program is conducted under the authority of Sections 3004(u), 3004(v), 3005(c)(3), 3008(h), 3013, 6001, and 7003 of the RCRA (42 U.S.C. 6901 et seq.) as amended by the Hazardous & Solid Waste Amendment of 1984 (HSWA) (Pub. L. No. 98-616, 98 Stat. 3221) and the Federal Facility Compliance Act of 1992 (FFCA) (Pub. L. 102-386, 106 Stat. 1505). This SB is part of the corrective action process and is a requirement of the Hazardous Waste Permit issued to Charleston Naval Complex by SCDHEC.

PUBLIC PARTICIPATION

The alternative selected for the site will be based on community acceptance. Public participation and comments are vital to a thorough evaluation. Documents generated following site investigation are available for public review.

A 45-day public comment period will be held (dates to be determined) during which time written comments will be accepted from the public. A public hearing will be held at public request. If a hearing has been requested, information regarding the date, time, and location will be published in the *Post & Courier* newspaper.

Contact information is listed below for submission of comments regarding this Statement of Basis, request for public hearing, or for review of available documentation.

Mr. Art Sanford
Restoration Program Manager
Navy BRAC Program Management Office EAST
203 S. Davis Drive Building 247
Joint Base Charleston, SC 29404
(843) 963-4974
Between the hours of 8:30 AM and 4:30 PM

or

Ms. Meredith Amick, PE
Bureau of Land and Waste Management
Division of Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
(803) 898-0368
Between the hours of 8:30 AM and 4:30 PM

REFERENCES

SCDHEC, Letter to Mr. David Criswell. Review of CMS for AOC 694 and 694, Charleston Naval Complex, December 21, 2012.

SCDHEC, Letter to Mr. David Criswell. Review of CMS for AOC 694 and 694, Charleston Naval Complex, May 21, 2014.

Tetra Tech, Corrective Measures Study for AOC 693- Fuse and Primer House, Former Building 117, and AOC 694- Former Naval Ammunition Depot at Charleston Naval Complex, North Charleston, South Carolina, September 2013.

USACE, Letter to NAVFAC BRAC PMO EAST. Land Use Controls for Clouter Creek Disposal Area Berkeley County, South Carolina, May 20, 2014.