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STATEMENT OF BASIS FOR ZONE J AREAS OF CONCERN 555, 556, 557, 691 AND 692
AND ZONE K AREA OF CONCERN 695 CNC CHARLESTON SC
7/26/2013
RESOLUTION CONSULTANTS

STATEMENT OF BASIS

Charleston Naval Complex Installation Restoration Program Charleston, South Carolina

Facility: Charleston Naval Complex

Unit Type: Zone J (AOCs 555, 556, 557, 691, & 692) and Zone K (AOC 695)

Contaminants: None

Media: Surface Water, Sediments

Proposed Remedy: No Further Action (NFA)

INTRODUCTION

The purpose of this Statement of Basis (SB) is to present the decision for Zone J (AOCs 555, 556, 557, 691, & 692) and Zone K (AOC 695), which is No Further Action (NFA), and to invite public comment on this proposed decision. This SB provides Zone J background information and explains the reasons why NFA is proposed. See Figure 1 for a facility location map.

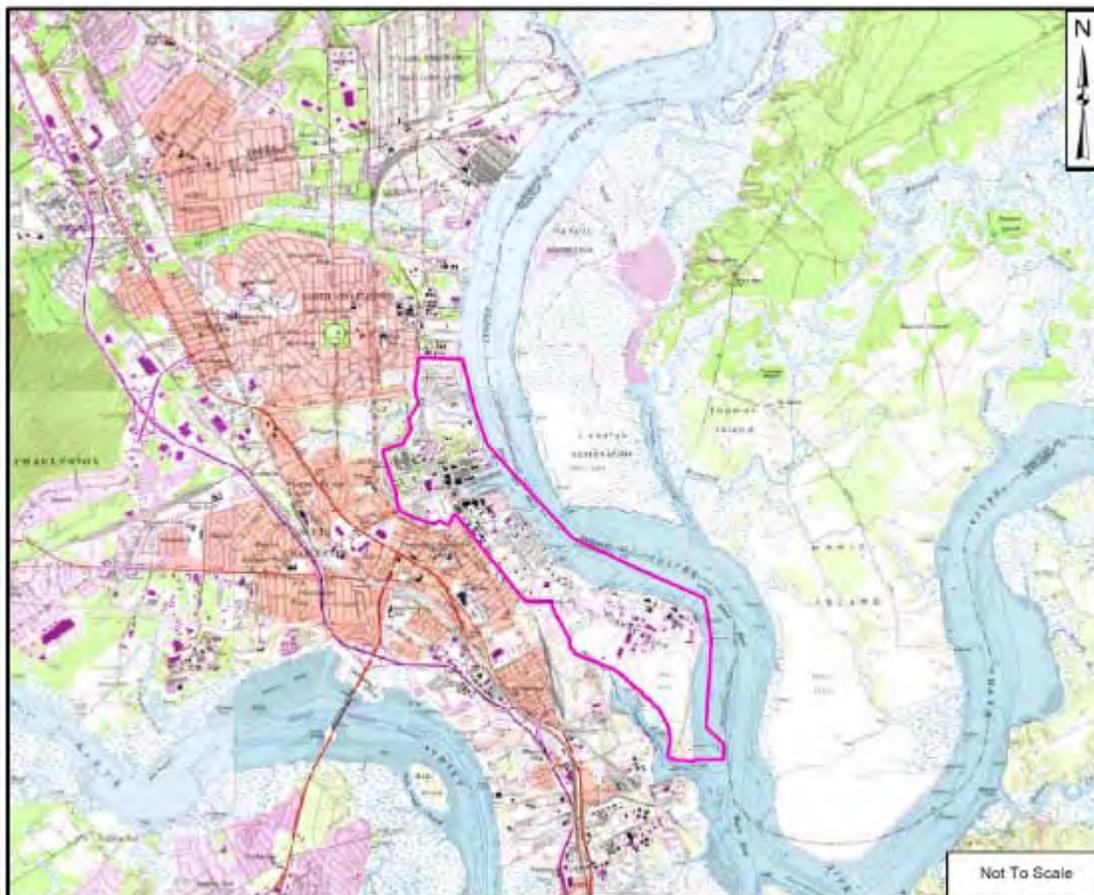


Figure 1 - Charleston Naval Complex, South Carolina

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. CNC consists of 12 investigative zones (Zones A through L) for Resource Conservation and Recovery Act (RCRA) corrective action processes. Zone J is comprised of portions of the Cooper River, Shipyard Creek, Noisette Creek and adjoining marshlands.

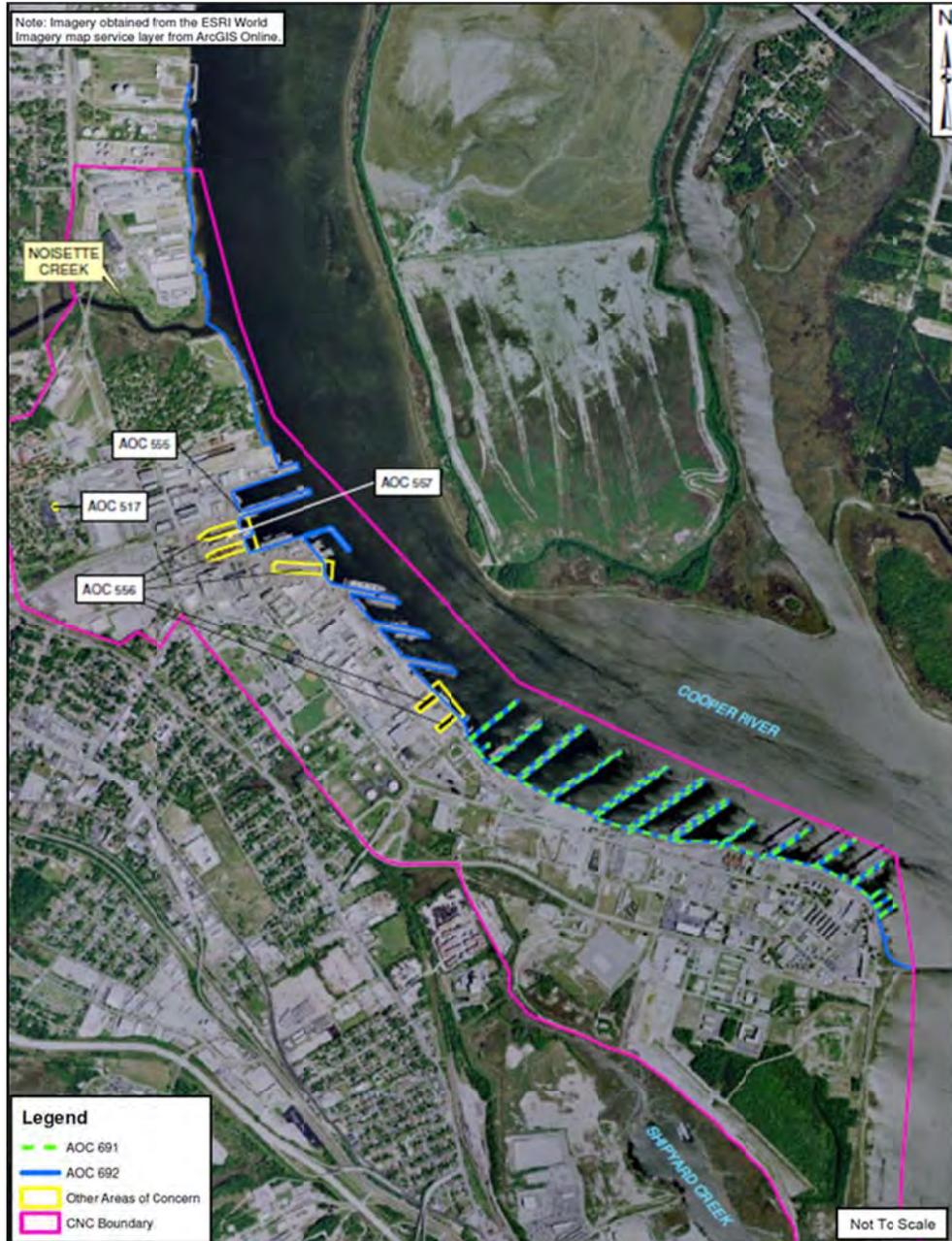


Figure 2 - Zone J Location, Charleston Naval Complex, South Carolina

This SB presents the proposed remedy that NFA is required for Zone J and its associated areas of concern (AOCs): AOCs 555, 556, 557, 691, 692, and AOC 695 located within Zone K. A site map for Zone J, not including Zone K, is provided as Figure 2. The CNC on Figure 2 is outlined in blue and Zone J encompasses areas which lie within the Cooper River, Noisette Creek, and

Shipyards Creek and includes AOCs 555, 556, 557, 691, and 692. Zone K consists of two noncontiguous properties, one of which is Clouter Island. Clouter Island is an undeveloped parcel located directly across (east) from the CNC. Clouter Island has historically been used for deposition of harbor and river dredge spoils. A site map for AOC 695, located on the southwestern portion of Clouter Island, is provided as Figure 3.



Figure 3 - Zone K (AOC 695) Location, 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 proposal. 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 BRAC PMO office located in Charleston, SC 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 Zone J and its associated AOCs is NFA. This remedy was selected by SCDHEC in the June 7, 2013 approval letter for the *RCRA Facilities Investigation (RFI) Report for Zone J* (TetraTech, Inc., May, 2013).

SITE BACKGROUND

Zone J incorporates portions of the Cooper River, Shipyard Creek, and Noisette Creek, all of which are within the Charleston Harbor estuary. Noisette Creek is a tidal tributary of the Cooper River. Shipyard Creek is a tributary that flows into the Cooper River along the southern end of Zone J. Zone J is subjected to twice-daily tidal ebb and flow, which mix salt water and fresh water and transport sediments within the estuary. Zone J is associated with AOCs 555, 556, 557, 691, and 692, and AOC 695 at Zone K (Clouter Island) due to the storm water runoff that discharges into Zone J.

Zone J is an inactive site which includes the property along the waterfront at CNC. Due to the site's proximity to the water, potential contamination can be related to boat traffic, small spills that occur within Charleston Harbor, and drainage from water bodies that contribute to the water bodies associated with Zone J. Most spills that occur are diesel fuel, typically less than 50 gallons. In September 2002, a large spill occurred where approximately 12,500 gallons of No. 6 heavy fuel oil was accidentally released from a container ship into the Cooper River and Charleston Harbor. Released oil was found concentrated in several areas, including a portion of Zone J. The U.S. Coast Guard, SCDHEC, and Evergreen International (the owner of the container ship), with the assistance of various agencies completed the response and cleanup efforts.

SITE INVESTIGATIONS

A detailed summary of the investigations conducted at Zone J can be found in the *RCRA Facility Investigation (RFI) Report*, prepared by Tetra Tech, and submitted to SCDHEC by the Navy in May 2013. Preliminary sampling of Zone J water bodies was completed in September 1997 (EnSafe, 1997). Several investigations of surface water and sediment were subsequently conducted to determine the nature and extent of contamination, evaluate contaminant migration pathways and linkages with upland sites, evaluate hydrodynamics in the Cooper River estuary, characterize reference conditions, and to evaluate ecological risks (Tetra Tech, May 2013).

In July 2000, the Navy submitted the *Draft RFI Report – Part One* (Ensafe, 2000) to SCDHEC. This document reviewed the contaminant transport/migration pathways from the CNC to the surrounding water bodies and included a Screening Level Ecological Risk Assessment (SLERA). Upon review of this report, the CNC BRAC Cleanup Team, which consists of regulators, the Navy, and environmental consultants, decided that additional evaluations were needed to determine the association between CNC sites and Zone J, as well as a more thorough understanding of the background chemical conditions within the surrounding water bodies in areas not likely impacted by activities conducted at the CNC.

The *Zone J RFI Storm Water Effluent Evaluation Report* (EnSafe, 2003a) and the *Zone J RFI Storm Water Effluent Evaluation Report Addendum* (EnSafe, 2003b), evaluated stormwater data from CNC drainage basins that discharged into the surrounding water bodies. The *Zone J RFI Storm Water Effluent Evaluation Report* (EnSafe, 2003a) focused on CNC outfalls associated with Noisette Creek and Shipyard Creek. The *Zone J RFI Storm Water Effluent Evaluation Addendum* (EnSafe, 2003b), focused on CNC outfalls associated with the Cooper River. The

two reports identified several potential storm water contaminants in 10 drainage basins that discharge to Zone J.

The *Zone J RFI Storm Water Effluent Evaluation Report* (EnSafe, 2003a) also presented a comprehensive evaluation of the dynamic nature of the Charleston Harbor Estuary and how it relates to the movement of both CNC-related contaminants and non-CNC related contaminants in the surrounding water bodies. Factors such as tides, freshwater inflow, and bathymetry affect the transport of potential contaminants from the CNC stormwater to the Charleston Harbor Estuary. These same factors have the potential to carry non-CNC related contaminants into the surrounding water bodies from other potential sources located within the Charleston Harbor Estuary. The study concluded that, during a tidal cycle, some contaminants released from CNC can be flushed out of the harbor during one tidal cycle, and some contaminants released from CNC can be transported into the Wando and Ashley Rivers. Similarly, the Zone J water bodies can be receptors of contaminants from numerous remote locations in the Ashley and Wando Rivers and Charleston Harbor.

Due to the dynamic nature of the Charleston Harbor Estuary, it was concluded that although numerous surface water samples have been collected and analyzed at Zone J investigation, no clear trends in surface water contamination have been identified. Overall, evaluations of surface water samples collected during the investigations at Zone J have indicated that surface water concentrations at Zone J are similar to surface water concentrations elsewhere in the harbor, or that ecological risks posed by CNC-related chemicals in surface water are negligible. Because of this, and since sediments amass contaminants over time and can indicate a history of contamination, the CNC BRAC Cleanup Team decided that future sampling activities would focus on the impact of contaminants to the sediments within Zone J and concluded that the potential for significant risk existed at five areas with elevated sediment contaminant concentrations and potential links to a CNC source. The five areas consisted of three locations in the Cooper River, one location in Shipyard Creek and one location in Noisette Creek. Other locations within Zone J were determined to represent either areas of insignificant risk or areas with contamination that was not linked with CNC sources. The CNC BRAC Cleanup Team also decided that sediment samples would be collected and analyzed to generate background reference values in Cooper River and Charleston Harbor.

The 2013 RFI Report (TetraTech, Inc., May, 2013) presented a comprehensive evaluation of the sediment data collected from multiple sampling events. The purpose of the 2013 RFI was to assess potential Navy-related impacts to Zone J water bodies and marshes (Tetra Tech, May 2013). The RFI included a Human Health Risk Assessment (HHRA) designed to characterize the potential risks to likely human receptors under current and potential future land uses and an Ecological Risk Assessment (ERA) to evaluate the toxic effects that sediment at Zone J could have on benthic organisms (invertebrates that reside in or on the sediment).

SITE RISKS

The baseline HHRA for Zone J was performed as part of the 2013 RFI to characterize the potential risks to likely human receptors under current and potential future land use scenarios, in accordance with USEPA guidelines (USEPA, 1989, 1991, 1993a, 1997a, 2001a; 2002). Since each water body is distinctly different in size, flow, and level of near-shore industrialization, the risks posed to Noisette Creek, Shipyard Creek, and the Cooper River were evaluated separately. Potential receptors retained for quantitative evaluation consisted of current/future recreational fishermen. The risk assessment was performed to evaluate the potential ingestion of fish by a recreational fisherman assumed to catch and eat fish from Noisette Creek, Shipyard

Creek, and/or the Cooper River. Fish tissue concentrations (estimated using sediment concentrations) were evaluated in the assessment.

Ecological risk assessments were conducted for Zone J as part of the 2013 RFI to evaluate the potential for adverse ecological impacts of CNC-related contamination and to determine the appropriate path forward (e.g., no further action, remediation, monitoring). Separate ecological risk assessments were conducted for Noisette Creek, Shipyard Creek, and the Cooper River, all in accordance with USEPA and Navy guidelines (USEPA, 1997c, 2001b; Navy, 1999). A summary of site risks is presented in Table 1.

Table 1. Summary of Site Risks

Human Health Risk Assessment Summary	Carcinogenic effects are not anticipated for recreational fishermen consuming fish from Noisette Creek, Shipyard Creek, or the Cooper River, under both the CTE and RME scenarios.
	Non-carcinogenic effects are not anticipated for recreational fishermen consuming fish from Noisette Creek, Shipyard Creek, or the Cooper River, under both the CTE and RME scenarios.
Ecological Risk Assessment Summary	Potential risks to benthic invertebrates, piscivorous birds, and piscivorous mammals in Noisette Creek are minimal.
	Bioaccumulative COPCs pose minimal risks to piscivorous birds and piscivorous mammals in Shipyard Creek. Some COPCs (particularly, Aroclor-1260, chromium, copper, lead, and zinc) pose risks to benthic receptors in Shipyard Creek. The probable sources of these COPCs have been remediated and sediment concentrations of COPCs in Shipyard Creek tended to be less in 2008 than in 1994. In addition, sediment contamination is limited to a small area.
	Bioaccumulative COPCs pose minimal risks to piscivorous birds and piscivorous mammals in the Cooper River. Some COPCs (particularly PAHs, copper, and zinc) pose risks to benthic receptors in the Cooper River. All three Cooper River sample locations are in an industrial shipyard that is periodically dredged for ship traffic.
Conclusions	Further evaluation or remedial action based on human health or ecological risks is not warranted for sediment in Noisette Creek, Shipyard Creek, or the Cooper River. Thus, further evaluation or remedial action is not warranted for potential, historical sediment contamination resulting from wastes associated with AOCs 555, 556, 557, 691, and 692.
	Wastes associated with AOC 695 in Zone K pose negligible risks to human health or the environment, so further evaluation or remedial action based on human health or ecological risks is not warranted for sediment at AOC 695.

SCOPE OF CORRECTIVE ACTION

NFA is required for Zone J and AOCs 555, 556, 557, 691, and 692, and AOC 695 at Zone K.

CONTINGENCY REMEDIES

Contingency remedies are not necessary for NFA at Zone J and the associated AOCs.

ANTICIPATED IMPACTS OF CLEANUP ON THE LOCAL COMMUNITY

No significant impacts to the local community are associated with the proposed NFA at Zone J and the associated AOCs.

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 final remediation method 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 and remediation activities 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. David Criswell
Restoration Program Manager
Navy BRAC Program Management Office SE
4130 Faber Place Drive Suite 202
North Charleston, SC 29405
(843) 743-2130
Between the hours of 8:30 AM and 4:30 PM

or

Ms. Meredith Amick
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

EnSafe, *Zone J Draft RFI Report - Part One*, Department of the Navy, Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, April 2000.

EnSafe, *Zone J RFI Storm Water Effluent Evaluation Report, Revision 1*, Department of the Navy, Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina. July 2003.

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Spectra Tech, Inc., *Zone J Completion Report*, Charleston Naval Complex, North Charleston, South Carolina, March 2006.

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USEPA, 1989. *Risk Assessment Guidance for Superfund - Volume I - Human Health Evaluation Manual (Part A) - Interim Final*, EPA/540/1-89/002, Office of Emergency and Remedial Response, December 1989.

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USEPA, 1993a. *Distribution of Preliminary Review Draft: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure*, Office of Solid Waste and Emergency Response, Washington, D.C. May 1993.

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USEPA, 2001b. *ECO Update, The Role of Screening Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments*, Publication 9345.0-14, EPA 540/F-01/014, Office of Solid Waste and Emergency and Response, June 2001.

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