

Charleston Naval Complex

Zone J Ecological Risk Assessment & Area of Concern 721 Updates

Cooper River
Shipyard Creek
Noisette Creek

History

● Zone J Water Bodies

- Noisette Creek
- Cooper River
- Shipyard Creek
- Screening Level Ecological Risk Assessments completed for each Water Body – Sediment locations identified in Cooper River, Shipyard Creek and Noisette Creek that exceeded ecological risk criteria
- Navy decided to re-sample selected sediment sample locations with high risk numbers to confirm presence of contamination. Original evaluation was calculated from late 1990s data.

● Area of Concern 721 RFI

- AOC 721 borders Noisette Creek in Zone C
- Soil and groundwater investigative activities for the RFI completed.
- During risk assessment evaluation surface soil locations were identified that exceeded risk. Arsenic main contaminant of concern.
- Interim Measure Work Plan was submitted and approval was given by regulatory agencies to complete removal action.

ZONE J PATH FORWARD

● Zone J Sampling and Analysis Plan – Spectra Tech

- 15 sediment sample locations will be sampled and analyzed to compile the necessary data (inorganics, SVOCs, pesticides, and PCBs). Five confirmatory samples/10 baseline sediment samples within the ebb and flow tide cycle.
- 10 non-CNC related sediments - Baseline condition of sediment within the Cooper River.
 - Useful in risk management as a tool for evaluating the degree of contamination adjacent to CNC as compared to other areas not impacted heavily by CNC operations.
- Plan Approval – Received SCDHEC comments. Navy/Spectra Tech responded
 - Once approved – 2 week mobilization
 - 2 weeks after receiving analytical data – Final Report from Spectra Tech
 - Data sent to EnSafe to recalculate ERM quotients .
 - Decision Point to determine if ERA is completed.

AOC 721 PATH FORWARD

● AOC 721 Removal Plan Plan – Spectra Tech

- Removal and offsite disposal of contaminated soil within the removal area excavated from a depth no greater than 1.5 feet bgs or upon encountering groundwater.
- A total estimated volume of 50 cubic yards will be excavated.
- Four confirmatory soil samples from the excavation floor collected after excavation is complete, and before placement of fill and final grading.
- Site Restoration
 - Area will be backfilled and compacted to achieve grade suitable to allow surface drainage.
- Site Closure Report
 - Project removal/closure activities
 - Management of wastes
 - Pertinent waste disposal documentation (manifests, bills of lading, shipping records, etc.)
- AOC 721 RFI Report – will be finalized to incorporate findings from removal activities.



CHARLESTON NAVAL COMPLEX PROJECT FIRM FIXED PRICE CONTRACT

**Presentation to Restoration Advisory Board
October 2005**

ACRONYMS

- **AOC – Area of Concern**
- **DNAPL – Dense Non-Aqueous Phase Liquid**
- **ERD – Enhanced Reductive Dechlorination**
- **GW – Ground Water**
- **LNAPL – Light Non-Aqueous Phase Liquid**
- **LTM – Long Term Monitoring**
- **MNA – Monitored Natural Attenuation**
- **PCB – Polychlorinated Biphenyl**
- **VOC – Volatile Organic Compound**
- **SVE - Soil Vapor Extraction**
- **SWMU – Solid Waste Management Unit**

Long-term O&M Sites with Regulatory Approval of Remedy

Located within Zones E & F (Industrial Zone) -

- SWMU 5/18/605 - Metals in GW - MNA with LTM
- SWMU 21/54 (Zone E) -Metals in GW - LTM only
- SWMU 87/172/564 - Low level VOC plume - MNA with LTM
- AOC 617 - Zinc in GW - Pump test confirmed pump and treat option not viable; MNA with LTM approved
- AOC 561 - Chlorobenzenes in GW - treated source area, possible biosparge as polishing activity and LTM
- AOC 613/615 & SWMU 175 - Small VOC plume -MNA with LTM
- SWMU 65 - Metals in GW - MNA with LTM
- AOC 569/570/578 - Small, low level VOC plume - MNA with LTM, possible enhancement

Long-term O&M Sites with Regulatory Approval of Remedy

Located within Zone G -

- SWMU 3 - Pesticides in GW - LTM only
- AOC 633 - Some LNAPL w/PCBs - LNAPL recovery ongoing and LTM
- SWMU 6/7/635 - Pesticides in GW - LTM; Issued CMS RtCs 01/13/05
- SWMU 8 - LNAPL in groundwater- LNAPL recovery & MNA with LTM

Sites that require more than LTM - Detailed Status

- AOC 607 (Zone F)
- SWMU 163/166 (Zone K – Annex)
- SWMU 196 (Zone H)
- SWMU 39 (Zone A)
- SWMU 9 (Zone H)
- SWMU 25/70 (Zone E)
- SWMU 17 (Zone H)

AOC 607 - Former Dry Cleaner

- VOC Concentrations greatly reduced over past 12 months - 94% reduction over baseline concentrations
- A pilot test using a lactate injection was very successful
- Final CMS with full-scale implementation plan submitted to SCDHEC, awaiting their response
- Expected recommendation after injection program is MNA with LTM
- Some injection possible for a limited area of the lower aquifer

SWMU 166/163 - Former Automotive Repair

- **Large TCE plume. Subcontractor performed two-phased iron injections from 2002 to 2004**
- **Site monitoring confirmed that the ZVI treatment did not achieve the 95% reduction as warranted by ARS at all the target treatment areas**
- **Significant TCE reduction in many areas but significant conversion of TCE to cis-DCE**
- **ERD pilot work plan approved by SCDHEC 09/16/05**
- **Will evaluate use of ERD for treatment of remaining source area and a biobarrier along I-26 property line to limit offsite migration**

SWMU 196 - Salvage Area by Landfill

- **Chlorobenzenes DNAPL in shallow groundwater**
- **Three phases of in-situ oxidation completed in source area – significant rebound observed in a few wells, suggesting DNAPL presence**
- **Implementing a pilot biosparging/SVE system for the residual groundwater plume – system activated in May 2005**
- **Groundwater plume discharges to Shipyard Creek; limited sediment sampling taking place at intervals agreed to with regulators**

SWMU 39 - Former Salvage Yard

- **The total extent of the plume was significantly greater than known when project was bid**
- **Perform limited source area treatment (ERD) followed by MNA and LTM - approved by SCDHEC.**
- **Installed new injection wells and completed initial injections in February 2005 – Continuing with scheduled injection activities**
- **TCE concentrations in some wells along western boundary now above MCL. No receptors exposed at this time but plan to propose installation of a biobarrier along western boundary to preclude offsite migration of plume above MCLs. Biobarrier will consist of a line of injection wells for substrate delivery**

SWMU 9 - Former Landfill

- **Received concurrence from SCDHEC on the CMS for implementation of a presumptive remedy - leaving waste in-place with limited improvements to existing cap (minimum 1 foot cover & drainage improvements), implementation of institutional & engineering controls and LTM.**
- **Evaluating current conditions to finalize design of cap enhancements**
- **Will perform field construction operations following approval of Corrective Measures Implementation Plan (CMIP) by SCDHEC**

SWMU 25/70 - Former Plating Shop

- **Primarily a hexachrome plume, with low levels of solvents**
- **In-situ remedy (iron injection) has been completed at source areas and monitoring to-date continues to show favorable progress - plume does not appear to be migrating significantly**
- **CMS was approved by SCDHEC 9/30/03 - recommended MNA with LTM and possible polishing operation if necessary**
- **If polishing is required, we will self perform using lactate injections**

SWMU 17 - Former Training Facility

- **Overlapping areas of contamination beneath a large complex building used by FLETC**
- **Contaminants include PCBs in soil; LNAPL, DNAPL (PCB) and dissolved chlorobenzenes in groundwater**
- **Initial interim measure for soil excavation was unsuccessful due to congestion and new structures**
- **Contamination not migrating significantly; limited remedial activity (passive LNAPL recovery, biosparging/SVE and LTM) proposed in CMS which is currently with SCDHEC for review**

New Sites/Potential New Sites

- Of the 17 new sites that have been identified to date, only 3 remain active – others have achieved or are expected to achieve NFA status:
- 1 associated with Grid well 11 (AOC 722)
 - Low levels of VOCs in groundwater – DHEC expected to concur with LTM as remedy
- 1 associated with a paint booth in building 177 (AOC 723)
 - VOC plume in this area probable from paint booth. CMS/Pilot Study work plan, Rev 1 with DHEC for review; Recommending treatment of plume with ERD/lactate injection and LTM. New injection wells have been installed.
- 1 associated with the fuel distribution system (FDS 022)
 - Have identified one well with petroleum contamination – working on Corrective Action Plan