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TECHNICAL MEMORANDUM ZONE E RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION ADDITIONAL AREAS OF CONCERN AND SOLID WASTE MANAGEMENT UNITS CNC CHARLESTON SC

10/25/1999

ENSAFE

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY
CHARLESTON NAVAL COMPLEX
NORTH CHARLESTON, SOUTH CAROLINA
CTO-029

TECHNICAL MEMORANDUM
ZONE E RFI
ADDITIONAL AOCs/SWMUs

SOUTHDIV CONTRACT
NUMBER: N62467-89-D-0318

Prepared for:

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA

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Release of this document requires prior notification of the Commanding Officer of the Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina.

ENSAFE

TECHNICAL MEMORANDUM

To: M.A.Hunt, SOUTHDIV

FROM: Greg Temple, Todd Haverkost, EnSafe

Date: 25 October 1999

Re: Additional AOCs/SWMUs to be included in the Zone E RFI — Charleston Naval Complex

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A comparison made between the Draft Zone E RFI Report and the Zone E sites requiring investigation as listed in Appendix A of the Part B permit for Charleston Naval Complex dated 28 August 1998 has revealed that several sites were not addressed in the RFI report. Work at the sites was either performed after submittal of the draft report or the sites were inadvertently omitted from the RFI work plan and consequently the report as well since no site characterization work has been performed to date. The purpose of this memo is to provide a brief description of the sites, summarize any information that is available that was not presented in the RFI report, and provide a description of the pending work that will be proposed in an addendum to the Zone E RFI Work Plan that will be submitted in November 1999. The sites in question are listed in the table below. Figure 1 shows the location of these sites in relation to the other sites that were investigated as part of the Zone E RFI.

Additional AOCs/SWMUs — Zone E RFI
Charleston Naval Complex

AOC/SWMU	Status	** Recommendations
SWMU 80 (Included w/ AOC 566)	Included in Work Plan Addendum	* NFA; Include background in Final RFI Report w/ AOC 566
SWMU 181	Included in Work Plan Addendum	Collect Soil Samples at 3 Locations
SWMU 188	Included in Work Plan Addendum	Collect Soil Samples at 2 Locations

Additional AOCs/SWMUs — Zone E RFI Charleston Naval Complex		
AOC/SWMU	**Status**	**** Recommendations**
AOC 537	Included in Work Plan Addendum; Surface Wipe Samples Have Been Collected at Several Locations	Collect Soil Samples at 3 Locations
AOC 557	Included in Work Plan Addendum	* NFA
AOC 575	Included in Work Plan Addendum; Surface Wipe Samples Have Been Collected at Several Locations	Collect Soil Samples at 2 Locations
AOC 621 (Included w/ SWMUs 5, 18 and AOC 605)	Included in Work Plan Addendum; Interim Measures Have Been Conducted and Soil Samples Have Been Collected	Collect Soil Sample at 13 Additional Locations for Further Delineation
AOC 701	Included in Work Plan Addendum	* NFA
AOC 702	Included in Work Plan Addendum	* NFA
AOC 703	Included in Work Plan Addendum	* NFA; Review Analytical Results from AOC 567
AOC 704	Included in Work Plan Addendum	* NFA

Notes: * NFA - No Further Action Recommended

** Recommendations have been presented in the Zone E RFI Work Plan Addendum (approval by SCDHEC is pending as of the date of this memorandum)

Wipe sample results for AOCs 537 and 575 are included in Attachment A of this memorandum

AOC/SWMU DESCRIPTIONS AND STATUS

SWMU 80, Paint Shop Storage, Building 194

SWMU 80 consists of Building 194, a single-story concrete block structure with a steel roof and concrete floor. The 850-square-foot building was constructed in 1964 and was used to store supplies such as tools, hoses, and equipment. In the past, this building was used to store and

prepare unused abrasive blasting grit. A flammable locker outside the building was used as a waste paint satellite accumulation area. A paint mixing area was located south of the flammable locker. Exterior paints for ships and submarines were mixed outside in this area on a wooden pallet covered with a tarp roof. Approximately 36,000 gallons of paint per year were used in the ship and submarine painting operations. Asphalt and concrete parking areas are located around the site. SWMU 80 was recommended for CSI in the RFA and is shown in Figure 2. Materials used within this unit included paint wastes, abrasive blasting grit, and solvents. The constituents of concern included heavy metals (lead and copper) and VOCs. This SWMU is co-;ocated with AOC 566 which was investigated during the initial phase of the RFI. The results of the AOC 566 RFI were presented in Volume V, Section 10.32 of the *Draft Zone E RFI Report*. It is the Navy's opinion that the sample locations for AOC 566 will adequately serve to characterize SWMU 80. Information regarding SWMU 80 will be included in the site-specific section for AOC 566 in the Final Zone E RFI Report.

SWMU 181, Former Satellite Accumulation Area, Metal Trades, CNSY Permit #99

SWMU 181 is the former location of an SAA located on Pier C and was an element of the CNSY hazardous waste management system. Hazardous wastes were accumulated [in accordance with 40 CFR 262.34(c) and SCHWMR R.61-79.262.34(c)] within this unit. Hazardous waste was then transferred to Building 1640, a permitted hazardous waste storage facility where hazardous wastes generated base-wide were stored prior to shipment offsite for treatment and/or disposal. The SAA was approximately an 8' x 8' x 8' metal structure which was permitted on June 29, 1994 and was removed prior to 1996. Waste materials accumulated within this unit included paint cans and rags. The constituents of concern include VOCs, metals, and petroleum hydrocarbons.

Even though a review of the Navy's spill reports and inspection reports did not reveal any history of releases from this site, there was some evidence of paint spills and petroleum-like staining

which appeared to be contained within the area of the SAA. Several large stains were noted on the asphalt surface approximately 20 feet southeast of the unit. No drains or storm sewers were located within 50 feet of the unit. The media most likely to have been impacted by a release from this unit would be the soil underlying the asphalt. Confirmatory soil borings are proposed for three locations at SWMU 181 and samples collected from the upper (0 - 1' bgs) and lower-interval (3 - 5' bgs) at each location to either confirm or refute the presence of contamination from this site. Samples will be submitted for the standard suite of analysis including VOCs, SVOCs, metal, PCB/pesticides, and cyanide. If contamination is detected additional sampling may be required to fulfill the requirements of a RFI. Otherwise, the results of the confirmatory sampling will be presented in the Final Zone E RFI Report and no further action proposed.

SWMU 188, Satellite Accumulation Area, Paint Waste, CNSY Permit #103

SWMU 188 is the former location of an SAA located on the south side of Dry Dock #5 and was an element of the CNSY hazardous waste management system. Hazardous wastes were accumulated [in accordance with 40 CFR 262.34(c) and SCHWMR R.61-79.262.34(c)] within this unit. Hazardous waste was then transferred to Building 1640, a permitted hazardous waste storage facility where hazardous wastes generated base-wide were stored prior to shipment offsite for treatment and/or disposal. This SAA was approximately an 8' x 6' x 6' metal storage structure which was permitted on September 6, 1994 and was removed prior to 1996. Waste materials accumulated within this unit included waste paint and solvents. The constituents of concern include metals and VOCs.

Once again a review of the Navy's spill reports and inspection reports did not reveal any history of releases from this site, there was some evidence of paint spills and petroleum-like staining which appeared to be contained within the area of the SAA. Several large stains were noted on the asphalt surface approximately 20 feet southeast of the unit. No drains or storm sewers were

located within 50 feet of the unit. The media most likely to have been impacted by a release from this unit would be the soil underlying the asphalt. Confirmatory soil borings are proposed for two locations at SWMU 188 and samples collected from the upper (0 - 1' bgs) and lower-interval (3 - 5' bgs) at each location. Samples will be submitted for the standard suite of analysis including VOCs, SVOCs, metal, PCB/pesticides, and cyanide. If contamination is detected additional sampling may be required to fulfill the requirements of a RFI. Otherwise, the results of the confirmatory sampling will be presented in the Final Zone E RFI Report and no further action proposed.

AOC 537, Substation, Building 342

AOC 537 consists of the electrical substation at Building 342. Building 342 is a 2,728 square-foot single-story concrete-block structure with a concrete slab floor and roof, built in the early 1970s. The building contained an electrical transformer substation, electrical parts storage, and an insulation shop. In 1987, eight transformers in Building 342 were tested and found to contain less than 50 ppm PCBs. Previous equipment used at this facility is unknown. Currently the substation contains breakers, dry transformers, and high-voltage switches. Several pipes which may indicate the presence of USTs were located adjacent to Building 342, however, after research it was discovered that no USTs ever existed in this area. Waste materials associated with this unit include dielectric fluid, insulation, and an oily substance on the floor of the insulation shop. The constituents of concern include PCBs, calcium silicate particulates, VOCs, BTEX, PAHs, heavy metals, and petroleum hydrocarbons. Test results from the dielectric fluid in the transformers indicated the transformer dielectric fluid contains less than 50 ppb PCBs.

A visual inspection of the site revealed staining outside of the building along the rear sidewalk. and the EBS report indicated staining was evident on a concrete sidewalk outside of the building, but no source was indicated. Wipe samples were collected at AOC 537 in 1996 from the surface areas of the substation, including the floor and the equipment. Two of the wipe samples were positive for Arochlor 1260. The analytical data for these samples is located in Attachment A. Soil borings are proposed for three locations at AOC 537 to determine if the soil underlying the site has been impacted. Soil samples are proposed to be collected from the upper (0 - 1' bgs) and lower-interval (3 - 5' bgs) at each location. Samples will be submitted for the standard suite of analysis including VOCs, SVOCs, metals, PCB/pesticides, and cyanide.

AOC 557, Latrine, Former Building 1020

AOC 557 consisted of former Building 1020, a latrine constructed in 1909 and used until 1939. The latrine did not exist after 1939. During operation, wastes are believed to have been discharged into the Cooper River. No other information was found during this assessment regarding the size, design features, or operating practices of this site. The constituents of concern were organic wastes and heavy metals. Surface water and sediment are the media most likely to have been impacted if a release occurred from this site. Wastes from the latrine are believed to have been discharged to the Cooper River since that was common practice prior to the early 1970s. Currently, this site is covered with asphalt and there is no physical indication of where the site was actually located. Due to the fact that this site no longer exists and any discharges which occurred would have been directly into the river (covered under Zone J), no further action will be proposed for this site.

This recommendation will be made in the forthcoming Zone E RFI Work Plan Addendum and is subject to approval of the Project Team.

AOC 575, Substation, Building 454

AOC 575 consists of Building 454, an electrical substation. Built in 1964, it is a single-story, block structure with a concrete slab floor and roof. In 1989, the substation was renovated, however, the extent of this work was not determined. Immediately adjacent to Building 454, within a fenced area, is a concrete slab mounted with a weatherproof metal enclosure. This enclosure houses high-voltage switches and transformers. The east side of Building 454 houses a battery bank that provides emergency power for the facility; the west side houses a battery charger. The transformer currently in operation does not contain PCBs. Information regarding PCB use prior 1989 was not available. Materials handled at this unit include dielectric fluid and lead-acid batteries. The constituents of concern are PCBs, lead, and acid. Potential migration pathways include soil, groundwater and surface water.

A visual inspection of the site revealed staining beneath the battery bank. Wipe samples were collected at AOC 575 in 1996 from the surface areas of the substation, including the floor and the equipment. Two of the wipe samples were positive for Arochlor 1260. The analytical data for these samples is located in Attachment A. Soil borings are proposed for two locations at AOC 575 and soil samples collected from the upper (0 - 1' bgs) and lower-interval (3 - 5' bgs) at each location. Samples will be submitted for the standard suite of analysis including VOCs, SVOCs, metals, PCB/pesticides, and cyanide. Results from soil samples collected at AOC 576 (576SB002) will also be used in the investigation of AOC 575. These results will be presented in the Final Zone E RFI Report.

AOC 621, Battery Cracking Area

AOC 621 consisted of the battery cracking area associated with SWMUs 5, 18, and AOC 605 which were investigated during the RFI. The unit is a concrete pad surrounded by a 1-foot concrete containment wall. From the early 1950s to the mid 1970s, this work area was used for

wrecking submarine batteries, with operations including the cracking of batteries and the draining of their acids. This task was accomplished to recover lead and container cells, which were sold for scrap. A collection sump drained acid from the pad to the neutralization facility. An adjacent crane was used to move batteries around the work area. The surrounding areas are paved with concrete and asphalt, with the exception of an area of soil and gravel to the south and west. The waste materials associated with this unit are generated from batteries. The constituents of concern include acids and heavy metals.

An Interim Measures (IM) removal action conducted at SWMU 5 resulted in a partial removal of the battery cracking pad (*Interim Measure Completion Report*, Environmental Detachment Charleston, April 10, 1998). At the request of SCDHEC, EnSafe collected confirmation samples from around the remaining portion of the pad. The samples were analyzed for Appendix IX parameters. Lead was the only constituent of concern detected and the concentration at one location was 129,000 ppm. Based on those results a grid pattern was established and samples were collected from 24 additional locations. Many of these samples contained lead at levels above the 1300 ppm industrial action level established for CNC. Figure 3 depicts the sample locations and results associated with them. The figure also shows additional sample locations which are being proposed as part of the forthcoming Zone E RFI Work Plan Addendum.

Samples will be collected from the upper (0 - 1' bgs) and lower-interval (3 - 5'bgs) at each location and analyzed for lead. Additional samples will also be collected from the upper and lower-interval at four locations along the southern portion of the sample grid and analyzed for pesticides in order to delineate the extent of DDT. These results will be presented in the Final Zone E RFI Report.

AOC 701, McMillan Avenue Gas Station

AOC 701 consists of the former McMillan Avenue gasoline station, Building 1141. The station was built in 1941 and was used as a service station until 1979 when it was renovated and converted into the security building. An addition was completed in 1987, and Building 1141 was used as the security building. According to Naval Base Charleston personnel, two underground storage tanks were situated on the northwest side of the building. These tanks were located, filled with sand, and closed-in-place in 1973. According to a tank closure memorandum obtained from the CNSY Occupational Safety, Health, and Environmental Office which contains closure pictures and laboratory analytical results, a SCDHEC representative stated that due to tank closure prior to 1974, no regulatory notification of the tanks existence would be required. Analytical data showed surrounding soil to be clean at the time of tank closure. Waste materials associated with this unit include gasoline, oil, batteries, anti-freeze, and grease. The constituents of concern include metals, VOCs, acids, and petroleum hydrocarbons.

Soil, groundwater, surface water, sediment, air and subsurface gas are all potential migration pathways because of the USTs located at the site and the potential for leaks. The preliminary review found no spill reports, inspection reports, employee interviews, or visual observations which would indicate any release at this unit. No residential areas or sensitive environments are in the vicinity of this AOC. Naval Base Charleston employees that may frequent the vicinity of the unit as well as any future users of the site. A CSI was recommended to determine whether or not any environmental impact has been caused by the USTs at this site. Additional research was conducted to determine whether any action had been conducted by the UST program and whether additional sampling will be required. Based on information received through research, no further action is proposed for this site. Analytical results and information regarding closure of these USTs will be included in the Final Zone E RFI Report.

AOC 702, Paint Accumulation, Pier D

AOC 702 consisted of paint stains from former painting operations on Pier D. Pier D is constructed of concrete with several drainage holes that discharge directly into the Cooper River. Painting operations are no longer performed on the pier, but evidence of past spills existed during the RFA along the entire length of the pier. The exact dates of painting operations are unknown, but according to CNSY personnel, painting operations began prior to 1973. Waste materials accumulated within this unit include spilled paint. The constituents of concern include metals and VOCs.

Surface water runoff and sediment are potential migration pathways for this unit. Due to the presence of VOCs, air is also considered a migration pathway for this unit. Soil, groundwater, and subsurface gas are not considered pathways because the pier projects solely into the river and contact with these media is, therefore, not possible. The preliminary review found no spill reports, inspection reports, or employee interviews which would indicate any release at this unit. However, paint stains were observed along the entire length of the pier during the visual site inspection. Some of the stains are adjacent to the pier drains and suggest that spilled paint has been released to the Cooper River. Due to the proximity of this unit to the Cooper River and drainage holes along the pier, potential exposure would be possible for ecological receptors in the Cooper River through uncontrolled surface water runoff. No residential areas are in the vicinity of this AOC. Due to the limited access to this AOC, exposure potential is limited to Naval Base Charleston personnel that may frequent the vicinity of the AOC and future users of the site.

Based on this information, no further action is recommended for this site due to the fact that it would be inconsistent with the approach employed throughout Zone E and any releases that may have occurred to the Cooper River will be addressed as part of the Zone J investigation of ecological receptors and water bodies at Naval Base Charleston.

AOC 703, Paint Accumulation, Pier F

AOC 703 consisted of paint stains from former painting operations on Pier F. Pier F is constructed of concrete and projects out over the Cooper River. Painting operations are no longer performed on the pier, but evidence of past spills existed during the RFA in an area along the northern quaywall. The exact dates of painting operations are unknown, but according to CNSY personnel, painting operations began prior to 1973. Waste materials accumulated within this unit include spilled paint. The constituents of concern include metals and VOCs.

Surface water runoff and sediment are potential migration pathways for this unit. Due to the presence of VOCs, air is also considered a migration pathway for this unit. Soil, groundwater, and subsurface gas are not considered pathways because the pier projects solely into the river and contact with these media is, therefore, not possible. The preliminary review found no spill reports, inspection reports, or employee interviews which would indicate any release at this unit. However, paint stains were observed during the visual site inspection along a section of the pier where painting operations were conducted. Due to the proximity of this unit to the Cooper River, potential exposure would be possible for ecological receptors in the Cooper River through uncontrolled surface water runoff. No residential areas are in the vicinity of this AOC. Due to the limited access to this AOC, exposure potential is limited to Naval Base Charleston personnel that may frequent the vicinity of the AOC and future users of the site.

Analytical results from AOC 567 (Figure 2), which is located adjacent to the southern edge of AOC 703, will be reviewed for some indication as to the metal concentrations beneath AOC 703 and other paint accumulation areas. Based on this information, no further action is recommended for this site due to the fact that it would be inconsistent with the approach employed throughout Zone E and any releases that may have occurred to the Cooper River will be addressed as part of the Zone J investigation of ecological receptors and water bodies at Naval Base Charleston.

AOC 704, Paint Accumulation, Building 301B

AOC 704 consisted of paint spills on the concrete surface west of Building 301B. These spills were the result of painting operations conducted in the past on nearby piers. The concrete surface is in poor condition with several cracks exposing the underlying soil. The exact dates of painting operations at the nearby piers are unknown, but according to CNSY personnel, painting operations began prior to 1973. Waste materials accumulated within this unit include spilled paint. The constituents of concern include metals and VOCs.

Due to the proximity of the Cooper River and the mobility of the volatile constituents, surface water and air are both potential pathways of this AOC. Soil, groundwater, and subsurface gas are also potential migration pathways because of cracks in the asphalt/concrete surface surrounding this AOC. The preliminary review found no spill reports, inspection reports, or employee interviews which would indicate any release at this unit. However, paint stains were observed on the west side of Building 301B during the visual site inspection for the RFA. Some of the stains suggest that paint has spilled directly adjacent to the drains and discharged to the Cooper River.

Due to the proximity of this unit to the Cooper River, potential exposure would be possible for ecological receptors in the Cooper River through uncontrolled surface water runoff. No residential areas are in the vicinity of this AOC. Due to the limited access to this AOC, exposure potential is limited to Naval Base Charleston personnel that may frequent the vicinity of the AOC and future users of the site. Based on this information, no further action is recommended for this site due to the fact that it would be inconsistent with the approach employed throughout Zone E and any releases that may have occurred to the Cooper River will be addressed as part of the Zone J investigation of ecological receptors and water bodies at Naval Base Charleston.

Attachment A

Surface Wipe Sample Results For AOCs 537 and 575

NAVAL BASE CHARLESTON, SOUTH CAROLINA
CHARLESTON ZONE E
WIPE SAMPLE RESULTS

SW846-PCB	SAMPLE ID ------>	537-J-B001-01	537-J-F001-01	537-J-F002-01	537-J-F003-01	537-J-F004-01	575-J-F001-01
	ORIGINAL ID ----->	537JB00101	537JF00101	537JF00201	537JF00301	537JF00401	575JF00101
	LAB SAMPLE ID --->	31591.01	31591.09	31591.02	31591.03	31591.04	31591.05
	ID FROM REPORT -->	537JB00101	537JF00101	537JF00201	537JF00301	537JF00401	575JF00101
	SAMPLE DATE ----->	10/22/97	10/22/97	10/22/97	10/22/97	10/22/97	10/22/97
	DATE EXTRACTED -->	10/28/97	10/28/97	10/28/97	10/28/97	10/28/97	10/28/97
	DATE ANALYZED --->	11/01/97	11/01/97	11/01/97	11/01/97	11/01/97	11/01/97
	MATRIX ---------->	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe
	UNITS ----------->	UG/WI	UG/WI	UG/WI	UG/WI	UG/WI	UG/WI

CAS #	Parameter	31591	VAL	31591	VAL	31591	VAL	31591	VAL	31591	VAL	31591	VAL
12674-11-2	Aroclor-1016	1.	U	1.	U	1.	U	1.	U	1.	U	1.	U
11104-28-2	Aroclor-1221	1.	U	1.	U	1.	U	1.	U	1.	U	1.	U
11141-16-5	Aroclor-1232	1.	U	1.	U	1.	U	1.	U	1.	U	1.	U
53469-21-9	Aroclor-1242	1.	U	1.	U	1.	U	1.	U	1.	U	1.	U
12672-29-6	Aroclor-1248	1.	U	1.	U	1.	U	1.	U	1.	U	1.	U
11097-69-1	Aroclor-1254	2.	U	2.	U	2.	U	2.	U	2.	U	2.	U
11096-82-5	Aroclor-1260	2.	U	4.7	J	4.6	J	2.	U	2.	U	2.	U

*** Validation Complete ***

NAVAL BASE CHARLESTON, SOUTH CAROLINA
CHARLESTON ZONE E
WIPE SAMPLE RESULTS

SW846-PCB							
SAMPLE ID ------->	575-J-F002-01		575-J-F003-01		575-J-F004-01		
ORIGINAL ID ----->	575JF00201		575JF00301		575JF00401		
LAB SAMPLE ID --->	31591.06		31591.07		31591.08		
ID FROM REPORT -->	575JF00201		575JF00301		575JF00401		
SAMPLE DATE ----->	10/22/97		10/22/97		10/22/97		
DATE EXTRACTED -->	10/28/97		10/28/97		10/28/97		
DATE ANALYZED --->	11/01/97		11/01/97		11/01/97		
MATRIX ---------->	Wipe		Wipe		Wipe		
UNITS ----------->	UG/WI		UG/WI		UG/WI		
CAS #	Parameter	31591 VAL	31591 VAL		31591 VAL		
12674-11-2	Aroclor-1016	1. U	1. U		1. U		
11104-28-2	Aroclor-1221	1. U	1. U		1. U		
11141-16-5	Aroclor-1232	1. U	1. U		1. U		
53469-21-9	Aroclor-1242	1. U	1. U		1. U		
12672-29-6	Aroclor-1248	1. U	1. U		1. U		
11097-69-1	Aroclor-1254	2. U	2. U		2. U		
11096-82-5	Aroclor-1260	2. U	0.72 J		0.46 J		

*** Validation Complete ***