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SITE SUMMARY TABLES VOLUME I OF I CNC CHARLESTON SC
8/17/1999
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**CHARLESTON NAVAL COMPLEX
SITE SUMMARY TABLES
NORTH CHARLESTON, SOUTH CAROLINA**



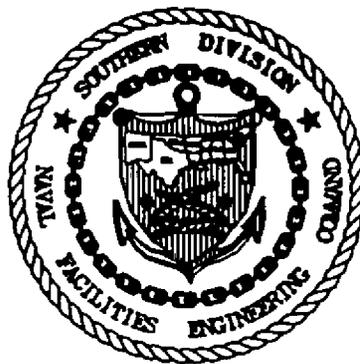
Volume I of I

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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.

SWMU/AOC GROUPING	AOC NAME	STUDY ZONE	RFI	CMS REQUIREMENT (all zone E sites assume industria.	BASIS FOR RECOMMENDATION a)	COCs SOIL	Gv
SWMU 5 SWMU 18 AOC 605 AOC 621	Battery Electrolyte Treatment Area PCB Spill Area Battery Electrolyte Treatment Area Battery Cracking Pad	E E E E	Y Y Y Y	Soil: NFA GW: CMS	Soil: residential mean risk = 6E-5 mean HI = 1.5. Industrial mean risk = 1E-5 and the mean HI = 0.07. GW risk primarily confined to 605G001, and 605G003. Risk ranges 1E-5 to 1E-3. HI ranges from 1 to 10 Arsenic and antimony detected at < MCLs IM Complete - excavated 340 CY of soil to lead levels below 1300 mg/kg. DET doing additional excavation work	antimony arsenic BEQs beryllium copper zinc	antimony arsenic dioxin lead
SWMU 21 SWMU 54	Waste Paint Storage Pad Former Abrasive Blast Area	E E	Y Y	Soil: CMS GW: CMS ISM sediment removal from Cooper River along quay wall. approximately 6000 CY	Soil: residential mean risk = 2E-5 mean HI = 0.9. No industrial risk. Arsenic and beryllium detections only marginally exceeded the RCs GW: residential mean risk = 9E-5, mean HI = 2. metals detections are sporadic and generally < MCLs IM Complete - removed abrasive blast material on ground surface and/or visible	arsenic BEQs beryllium	antimony arsenic thallium lead
SWMU 22 SWMU 25 AOC 554	Old Plating shop Wastewater Treatment System Building 44, Old Plating Operation Former Paint Shop	E E E	N Y Y	Soil: NFA GW: CMS	Soil: residential mean risk = 4E-6 and HI ranges from 0.001 to 0.5. No industrial risk/ hazard GW: risk range 5E-7 to 6E-6 and HI range is 0.5 to 24. This site is not a GW source and the chromium risk is overstated. Hotspot at well 025003 IM Complete - consisted of demolition of Building 44, removing water from Vault 7A and doing additional sampling	BEQs	chlordan cadmium chromium nickel PCE TCE
SWMU 23 SWMU 63 AOC 540 AOC 541 AOC 542 AOC 543	New Plating Shop Wastewater Treatment System Battery Charging Station Plating Plant, Building 226 Oil Storage Shops Old OxyAcetylene Plant and Paint Shop Former Building 1026	E E E E E E	N N Y Y Y Y	Soil: NFA GW: NFA	Soil: residential mean risk 6E-6 and mean HI is 0.3 (BEQs are primary driver of risk) Industrial mean risk = 1E-6, HI from 0.01 to 0.08. Antimony and aroclor-1254 only detected once. Not significant contributor Site is covered with asphalt and concrete No GW COPCs identified	antimony aroclor 1254 BEQs	None
SWMU 53 AOC 526	Building 212 SAA Building 212 Paint Area	E E	N Y	Soil: NFA GW: NFA	BEQs only chemical detected above residential and industrial RGOs Soil: residential mean risk = 5E-6 and mean HI = 0.04 Industrial mean risk = 1E-6. No COPCs contribute to projected HIs No COPCs for GW	BEQs	None

SWMU 65 AOC 544 AOC 546	Lead Storage Area Building 221 Pickling Plant Galvanizing Shop	E E E	N Y Y	Soil: NFA GW: NFA	Only aldrin and dieldrin detected above industrial RGOs. Soils: residential mean risk is 5E-6 and the HI ranges from 0.0001 to 0.4. Industrial mean risk = 8E-7 and HI ranges from 0.0004 to 0.03 The entire site is paved and/or covered Groundwater residential risk ranges from 1E-4 to 1E-3 with a mean of 4E-4. The HI ranges from 2 to 19 with a mean of 5	aldrin dieldrin BEQs	shallow - aluminum antimony arsenic beryllium alpha-BHC beta-BHC chromium TEQs mercury TCE vanadium vinyl chloride deep - 1,2-dichloroethene TCE vinyl chloride
SWMU 67	Mercury Gauge Room	E	Y	RFI NFA	No COPCs identified	none	none
SWMU 70 AOC 548 AOC 549	Dip Tank Area Building 5 Elevator Scrap Yard	E E E	N Y Y	Soil: NFA GW: see the technical memo dated 5/28/99)	Soils - mean residential risk = 6E-6 and mean HI = 0.4. Industrial mean risk = 1E-6 and HI < 0.3 GW: mean risk = 5E-6 and mean HI = 138. (HI being driven by chromium) Chromium risk likely overstated chlorinated organics detected at MCL levels.	BEQs Copper Lead	antimony benzene chloroform thallium PCE TCE chromium
SWMU 81	< 90 Day Accumulation Area	E	Y	RFI NFA ISM: sediment removal from Cooper River along quay wall. approximately 3100 CY	No formal HHRA conducted. No COPCs identified Concrete and sediment only sampled	none	none
SWMU 83 SWMU 84 AOC 574	Foundry Lead Storage Building 9 Fuel Tank	E E E	Y N Y	Soil: NFA (IM Summary) GW: CMS	Soil: Industrial risk is 3E-7 to 1E-4 and HI < 1 at all locations Lead detected > 400 mg/kg in 7 of 27 samples and > 1300 mg/kg in 1 of 27 Groundwater risk from 2E-4 to 2E-3 and HI from 2 to 14 IM Complete - removed 45 CY of petroleum contaminated soil	arsenic antimony copper BEQs	shallow arsenic manganese deep arsenic

SWMU 87	< 90 Day Accumulation Area	E	N	Soil: NFA	Soil: ILCR between 1E-4 and 1E-6 for residential exposure	arsenic	
SWMU 172	Building 80 Steam Cleaning Operations	E	N		Industrial risk 1E-6 to 2E-5 and HI < 1	BEQs	
AOC 564	Oil/Water Separator	E	Y	GW: CMS	Shallow GW ILCR < 1E-4 & HI < 3 Contamination primarily in well 172001	dieldrin	shallow: 1,2-dichloroethane 1,4-dichlorobenzene chlorobenzene vinyl chloride deep arsenic manganese
SWMU 97	< 90 Day Accumulation Area	E	Y	Soil: NFA GW: NFA	No COCs identified for surface soil GW: mean residential ILCR = 7E-4 & mean HI = 7.5 this is based on one well point and is due to arsenic. Detections < MCL	none	arsenic
SWMU 100	Building 218 SAA	E	Y	Soil: NFA GW: NFA	No COCs identified for surface soils GW: mean residential ILCR = 4E-3 & mean HI = 4 this is based on one well point and is due to arsenic. Detections < MCL	none	arsenic
SWMU 102	Mercury Spill Area	E	N	Soil: NFA GW: NFA	Soil: residential mean ILCR = 7E-5 & mean HI = 0.5 Industrial mean risk = 1E-5 and HI ranges from 0.006 to 0.06. Arsenic is at or below background No COCs identified for groundwater	arsenic BEQs mercury	None
SWMU 106	Blast Area, Dry Dock #3	E	N	Soil: NFA	Soil: residential mean ILCR = 2E-5 & mean HI = 0.4	arsenic	shallow:
AOC 603	Burning Dump, Dry Dock #3	E	Y	GW: NFA	Industrial mean risk = 3E-6 and HI 0.001 to 0.06 shallow gw: ILCR = 8E-4 & HI = 7 (one well only) As and Be < MCL in all 4 qtrs deep gw ILCR = 8E-5 & HI = 2 Arsenic was detected at elevated levels in grid wells GDE002 and GDE003. Manganese was also detected in the grid wells	BEQs	arsenic deep beryllium manganese
SWMU 145	Mercury Spill Area, Building 113	E	N	Soil: NFA GW: CMS	No COCs identified for surface soils arsenic detections were above MCL in 4th qtr. sampling (deep well). Detection was consistent with surrounding wells No shallow gw COCs identified	none	shallow: none deep: arsenic

SWMU 170	Drydock #1, PCB Removal Area	E	Y	RFI NFA	Soil: mean residential risk < 1E-6. No COPCs contribute to projected HIs	aroclor-1260	NA
SWMU 171	Drydock #2, PCB Removal Area	E	Y		No industrial COPCs were identified No groundwater samples were collected		
SWMU 173	Building 1297 Storage Area	E	N	RFI NFA	No COCs identified for surface soils No groundwater sampled	none	NA
AOC 525	Paint Shop, Building 223	E	Y	RFI NFA	No COCs identified for soil or groundwater	none	none
AOC 528	Steam Cleaning Shop, Building 59	E	Y	Soil: NFA GW: NFA	Soil: BEQs detected in one soil sample from one boring. Residential risk = 2E-6. No COPCs contribute to projected HIs No industrial COPCs were identified. No groundwater COCs were identified	BEQs	none
AOC 530	Paint and Oil Storage, Building 35	E	Y	Soil: CMS GW: CMS	Soil: residential mean risk > 1E-4 and HI = 1 Industrial mean risk = 4E-5 and HI 0.004 to 0.2 Lead above 400 mg/kg in 4 of 11 samples. Max detection (1060 mg/kg) below industrial level of 1300 mg/kg GW: arsenic detections did not exceed MCL and was below RC. 1,1-dichloroethene only detected in one round	arsenic BEQs lead antimony cadmium mercury	arsenic 1,1-dichloroethene
AOC 531	Substation and Storage, Building 459	E	Y	see AOC 530	Concentrations of arsenic and BEQs above RGOs Arsenic concentration consistent with RC Point risk range from 2.3E-4 to 1.7E-5 HI = 3.5 at one location, all others < 0.3. Industrial mean risk = 2E-5. HI range from 0.005 to 0.2 PCB not a industrial COPC. No groundwater sampled at this site	arsenic BEQs aroclor-1260	NA
AOC 538	Building 6 Forge Shop	E	Y	Soil: NFA	Soil: residential mean risk = 2E-6. BEQs above RGOs in only 4 of 11 samples. No COPCs contribute to projected HIs. No industrial COPCs were identified	BEQs	shallow: arsenic thallium
AOC 539	Building 6 Propeller Shop	E	Y	GW: CMS	arsenic was above MCL and RGO in all 4 qtrs of sampling. Max risk = 1.3E-3 and HI = 13 thallium was above MCL in 3rd qtr sample only		deep: 1,2-dichloroethene TCE

AOC 550	Boiler House, Former Building 1111	E	Y	Soil: NFA GW: CMS	No COCs were identified for surface soil Arsenic was detected in all 4 qtrs at or above RC of 18.7 ug/L. Arsenic was detected above MCL in two qtrs. No COPCs were identified based on screening criteria No point risk numbers were calculated	None	Arsenic
AOC 551 AOC 552	Boiler House, Building 1119 Former Galvanizing Shop, Former Building 1030	E E	Y Y	Soil: NFA GW: CMS	BEQs were above residential RGOs in 5 of 10 samples. Mean residential risk = 2 E-6 & HI 0.0027 to 0.08 No industrial COPCs were identified No COPCs were identified for shallow gw based on screening criteria. Thallium was detected above MCL in fourth qtr sample only. Arsenic was above RGO and RC in all four qtrs, but less than MCL. PCE was detected in one qtr > RGO TCE detected in 3 of 6 samples, > RBC but < MCL Detections of PCE, TCE also noted in nearby grid wells GDE017 and GDE026	BEQs lead mercury	Shallow thallium deep: arsenic PCE TCE
AOC 555	Latrine and Substation, Former Building 29	E	Y	RFI NFA ISM: sediment removal from Cooper River along adjacent to drydock and pier approximately 160 CY	Only sediment was sampled No HHRA was conducted	NA	NA
AOC 556	Drydock Discharges	E	Y	RFI NFA ISM: sediment removal from Cooper River along adjacent to drydock and pier approximately 59000 CY	only sediment and surface water sampled No HHRA was conducted	NA	NA
AOC 558	Substation, Building 77	E	Y	RFI NFA	Only wipe samples and concrete core samples collected. No HHRA was conducted.	NA	NA
AOC 559 AOC 560 AOC 561	Central Power Station, Building 32 Disinfector, Former Building 34 Substation, Building 451B	E E E	Y Y Y	Soil: NFA GW CMS	Industrial cumulative risk = 4E-5 and HI = 0.11 for shallow gw, risk is 2E-4 and HI is 46 in well 559005 (detections concentrated in the one well) deep well 559G03D has a HI of 3 due to thallium deep well 559G04D has a risk of 1.3E-6 due to chloroform and TCE Thallium only detected in 1st round. TCE at or below MCL in all sample rounds	arsenic beryllium BEQs n-nitrosomethylethylamine	shallow: benzene chlorobenzene 1,2-dichlorobenzene 1,4-dichlorobenzene deep: chloroform TCE thallium
AOC 562	Substation, Building 84	E	Y	RFI NFA	No COPCs were identified	NA	NA

AOC 563	Locomotive House, Former Building 37	E	Y	Soil: NFA GW: CMS	Soil: residential mean risk = 4E-7. No COPCs contribute to projected HIs No industrial COPCs were identified GW risk is 1E-4 to 8E-4 and HI > 3 Arsenic is primary contributor to risk/HI arsenic < MCL in all 4 qtrs. TCE > RGO and MCL in all 4 qtrs	BEQs	arsenic chromium TCE 1,2-dichloroethene aluminum vanadium
AOC 566	Paint Shop Storage, Building 194	E	Y	Soil: NFA GW: CMS	Soil: residential mean risk = 2E-6 and HI range 0.1 to 0.4. Industrial mean risk = 5E-7. No industrial COPCs contribute to soil HI one shallow gw well - risk < 1E-5 and HI < 0.5 one deep gw well and risk > 1E-4 and HI > 3 As > MCL in subsequent samples. Be < MCL	antimony BEQs	shallow beryllium deep arsenic manganese
AOC 567	Substation, Building 75	E	Y	RFI: NFA	Residential HI range from 0.03 to 0.2 no concentrations detected above RGOs no groundwater samples collected	antimony	NA
AOC 569	Former Gas Station and Oil Storage	E	Y	Soil: NFA	Soil: residential risk range 4E-6 to 3E-4, mean of 2E-5. HI range 0.06 to 3, mean of 0.5 Industrial mean risk = 5E-6 and HI from 0.002 to 0.2 Lead detected at 3.6 to 567 mg/kg. Only one detection > 400 mg/kg residential cleanup and no detection > 1300 mg/kg industrial cleanup level for shallow gw, detections were above RGOs in the 1st qtr samples. Not duplicated in subsequent rounds. Risk > 1E-4 in wells 570002 and 570004 (1st round due to arsenic) HI = 16 in well 570002 (1st round due to arsenic and chromium) for deep gw, risk = 2.8E-6 in one well, and HI > 3 in one well	antimony arsenic BEQs chromium lead	shallow: arsenic beryllium chloroform chromium lead PCE TCE vanadium aluminum deep: 1,2-dichloroethene thallium TCE
AOC 570	Former Coal Storage Area	E	Y	Soil: NFA			
AOC 578	Transportation Shop and Garage, Building 25	E	Y	GW: CMS			
AOC 571	Paint Booth, Building 177	E	Y	RFI: NFA	Concrete core and air samples collected from interior of paint booth. No COCs were identified.	NA	NA
AOC 572	Motor Area, Building 177	E	Y	Soil: NFA GW: CMS	BEQs were above residential RGOs in 10 of 11 samples. Mean risk = 1E-5. No COPCs contribute to projected HIs BEQs were above industrial RGOs in only 6 of 11 samples. Mean risk = 2E-6. No COPCs contribute to projected HIs. Lead was only detected above 400 mg/kg (residential cleanup level) in one sample at 445 mg/kg No groundwater COCs were identified	BEQs Lead	NA

AOC 573	Anodizing Processing Area, Building 177	E	Y	See AOC 572	Soil: BEQs were above residential RGOs in 4 of 5 samples. The mean risk = 2E-5. No COPCs contributed to HI. BEQs were above industrial RGOs in 2 of 5 samples. Mean risk = 5E-6. No COPCs contribute to projected HIs. No groundwater COCs were identified.	BEQs	NA
AOC 576	Oil and Paint Storehouse/Print Office	E	Y	Soil: NFA	Soil: BEQs were above residential RGOs in 5 of 5 samples. Mean risk = 4E-6. No COPCs contributed to project HI. No industrial COPCs were identified for soil. shallow gw: mean risk = 1E-4 and mean HI = 0.28. deep gw: risk = 8E-4 and HI = 10 (only one deep well sample point). Be and bromodichloromethane were detected consistently over 4 qtrs. pentachlorophenol only detected once. Organics primarily seen in wells 576002 & 57602D. Detections were not confirmed by nearby grid well GDE013.	BEQs	shallow: beryllium bromodichloromethane pentachlorophenol aluminum deep: arsenic manganese
AOC 579	Former Paint Shop, Building 1035	E	Y	Soil: NFA GW: NA	Soil: BEQs were above residential RGOs in 6 of 6 samples. Mean residential risk = 4E-5 and HI = 0.8. Industrial mean risk = 6E-6 and HI 0.003 to 0.1. All other COCs were above RGOs in only one sample (579SB002). No GW samples collected.	BEQs arsenic antimony copper mercury	NA
AOC 580	Former Pattern and Electric Shop	E	Y	Soil: NFA GW: CMS	Soil: mean residential risk = 7E-5 and HI = 1.4. detections were above RGOs in 5 of 9 samples. Industrial mean risk = 1E-5 and mean HI = 0.06. Arsenic < RGOs. Lead detected in 9 of 9 samples (46 to 1180 mg/kg). 2 detections above 400 mg/kg. No shallow gw COCs identified. Only one deep well sampled. risk = 2E-3 and HI = 21.	BEQs arsenic antimony copper manganese vanadium lead	shallow: none deep: arsenic manganese
AOC 583	Northeast Corner of Building 236	E	Y	Soil: NFA GW: NFA	Soil: mean residential risk = 2E-6 and mean HI = 0.2. BEQs were above residential RGOs in 5 of 9 samples. Antimony and Chromium did not exceed RGOs. No industrial COPCs were identified. No GW COPCs identified based on screening criteria.	BEQs antimony chromium	NA

AOC 586	Temporary Powerhouse	E	Y	Soil: NFA GW NFA	Soil: mean residential risk = 6E-6 PCB and BEQs were above RGOs in 2 of 4 samples Manganese did not exceed RGOs and mean HI = 0.07 Industrial risk was < 1E-6 No industrial COPCs identified which contribute to HI. No GW COPCs identified based on screening criteria	Aroclor-1260 BEQs manganese	none
AOC 590	Alley between Buildings 1760 and 79	E	Y	Soil: NFA GW CMS	Soil: BEQs were above residential RGOs in 5 of 6 samples. Mean risk = 2E-5 Antimony, chromium, and mercury did not exceed RGOs. Mean HI = 0.3 Chromium risk likely overstated Industrial mean risk = 3E-6. BEQs/arsenic were above RGOs in 5 of 6 samples. No industrial COPCs contribute to HI. Lead detected in 6 of 6 samples (26 to 871 mg/kg). Only 1 detection > 400 mg/kg Shallow GW: risk = 4.4E-4 and HI = 4.2 Only one shallow well sampled Deep GW: risk = 8.3E-5 and HI = 0.3 Beryllium only above RGO in first qtr Beryllium was below RC in 2, 3, 4 qtrs Neither arsenic or beryllium above MCLs in any sample.	BEQs lead antimony chromium mercury	shallow: arsenic deep beryllium barium
AOC 592	Former Asbestos Shredding Shelter	E	Y	RFI NFA	Sampled for asbestos only. No HHRA conducted	NA	NA
AOC 596	Former Torpedo Storage	E	Y	Soil: NFA GW: CMS	Soil: arsenic above RGO in 12 of 12 samples BEQs above RGO in 7 of 12 Mean residential risk = 2E-4 and mean HI = 0.9 Industrial mean risk = 3E-5. 2 borings driving risk (SB006 & SB013). HI range 0.01 to 0.4 No COPCs were identified in shallow GW Deep GW risk ranged from 1E-3 to 3E-4 and HI ranged from 9 to 3 All arsenic detections are < MCL	arsenic BEQs	shallow: none deep arsenic

ADC 597	Substation, Building 91	E	Y	Soil: NFA	Soil: detections were above residential RGOs in 4 of 4 samples. Mean risk = 6E-5 and mean HI = 1.4 Mean industrial risk = 9E-6. HI ranged from 0.002 to 0.2. Hot spot at boring 597SB002 No GW samples collected.	aroclor-1248 aroclor-1254 aroclor-1260 arsenic antimony	NA
				GW: NA			
ADC 598 ADC 599	Sonar Dome Area Pump House, Pier J	E E	Y Y	Soil: NFA	Soil: BEQs were detected above residential and industrial RGOs. Residential mean risk = 5E-5 and HI 0.02 to 0.2. Industrial mean risk = 1E-5 and no COPCs contribute to projected HIs. Lead was above residential cleanup level (400 mg/kg) in 2 borings and above industrial cleanup level (1300 mg/kg) in one boring. GW: heptachlor only detected in one well in one qtr. Risk = 8E-6 and HI < 1.	BEQs lead antimony	barium heptachlor
				GW: CMS			
ADC 602	Substation and Storage, Building 95	E	Y	RFI NFA	Soil: PCBs only detected in 1 of 4 samples. residential mean risk = 5E-7 and HI < 0.2. No industrial COPCs were identified. NO GW sampling at this site.	aroclor-1260 aroclor-1254	NA
ADC 604	Substation and Storage, Building 96	E	Y	RFI NFA	No COPCs were identified for this site.	NA	NA

SWMU/AOC GROUPING	AOC NAME	STUDY ZONE	RFI	CMS REQUIREMENT	BASIS FOR REC	ENDATION	PLANNED REUSE	COCs SOIL	GW	Tech Appr.
SWMU 4 AOC 619	Pesticide Storage Building Former Oil Storage Yard	F F	Y Y	Soil: NFA GW CMS	Soil: Residential cumulative risk = 3E-6 and cumulative HI = 0.054 Industrial cumulative risk = 7E-7 and HI = 0.003. GW: residential cumulative risk = 2E-6 and HI = 5. Risk due solely to chloromethane. chloromethane was only detected in 1st round sample thallium was detected above MCL		Industrial	BEQs	chloromethane thallium	
SWMU 36 AOC 620	Building 68 Battery Shop Building 68 Battery Shop	F F	Y Y	Soil: CMS GW NFA	Soil: Residential cumulative risk = 1.4E-4 and cumulative HI = 2.2. Industrial cumulative risk = 1.6E-5 and cumulative HI = 0.11 chromium hazard is likely overstated RFI notes releases of battery acid to soil beneath building 2 detections of lead > 1300 mg/kg @ 036SB001 & 620SB004 GW: no residential risk projected cumulative HI = 9 barium detections were all below MCL thallium was detected above MCL but detections were sporadic (inconsistent from well to well and round to round)		Industrial	aroclor-1254 aroclor-1260 BEQs aluminum arsenic chromium lead	barium thallium	
SWMU 109	Abrasive Blast Media Storage Area	F	Y	Soil: CMS GW NA	Soil: Residential cumulative risk = 4E-4 and cumulative HI = 7 Industrial cumulative risk = 5E-5 and cumulative HI = 0.3 No GW COPCs were identified for this site			arsenic beryllium chromium manganese vanadium BEQs	none	

AOC 607	Dry Cleaning Building 1189	F	Y	Soil: NFA GW: CMS	<p>No surface soil COCs were identified for this site.</p> <p>GW: future industrial exposure cumulative risk = 5E-3 and cumulative HI = 53</p> <p>treatability study is underway - dewater and vapor extraction of vadose and saturated source zones (anticipate 80% - 90% source reduction)</p>	none	<p>aluminum</p> <p>antimony</p> <p>arsenic</p> <p>chloromethane</p> <p>chromium</p> <p>1,1-dichloroethene</p> <p>1,2-dichloroethene (total)</p> <p>pentachlorophenol</p> <p>PCE</p> <p>TCE</p> <p>vanadium</p> <p>vinyl chloride</p>	
AOC 609	Service Station, Building 1346	F	Y	Soil: NFA GW: Return to the PST program	<p>Soil Residential cumulative risk = 3E-4 and cumulative HI = 6</p> <p>Industrial cumulative risk = 4E-5 and cumulative HI = 0.3 Site is paved</p> <p>GW: future industrial exposure cumulative risk = 7E-3 and cumulative HI = 207</p> <p>per the RFI an active free product removal system is in place</p>	Active Site Houses vehicle maint facility for SC Electric & Gas	<p>antimony</p> <p>arsenic</p> <p>beryllium</p> <p>manganese</p> <p>BEQs</p>	<p>aluminum</p> <p>arsenic</p> <p>2,4-dimethylphenol</p> <p>2-methylphenol</p> <p>4-methylphenol</p> <p>naphthalene</p> <p>benzene</p> <p>ethylbenzene</p> <p>toluene</p> <p>xylene</p>
AOC 611	Grease Rack and Hobby Shop Former Building 1264	F	Y	NFA	<p>Soil Residential cumulative risk = 5E-4 and cumulative HI = 8</p> <p>Industrial cumulative risk = 7E-5 and cumulative HI = 0.4</p> <p>IM complete - approximately 280 CY of soil contaminated with arsenic and BEQs have been removed for the site.</p> <p>Groundwater was not sampled at this site</p>	Located adjacent to AOC 609 (former service station)	<p>arsenic</p> <p>chromium</p> <p>copper</p> <p>mercury</p> <p>BEQs</p> <p>aroclor-1260</p>	none

AOC 613	Old Locomotive Repair Shop	F	Y	Soil CMS	<p>Soil: Residential cumulative risk = 5E-5 and cumulative HI = 1.</p> <p>Industrial cumulative risk = 8E-6 and cumulative HI = 0.06</p> <p>GW: future industrial exposure cumulative risk = 4E-3 and cumulative HI = 910</p> <p>For gw the risk is driven primarily by benzene and arsenic, while the HI is driven by the semi-volatile organics.</p> <p>The FDS investigation encompasses a portion of this area (on NW side)</p>	<p>City of Charleston Vehicle Maintenance Shop is located in the area of this combined AOC (new facility) Area is completely paved and/or covered by buildings</p>	<p>BEQs aluminum arsenic beryllium</p>	<p>aluminum arsenic beryllium cadmium chromium manganese thallium vanadium zinc acenaphthene bis(2-ethylhexyl)phthalate fluorene 2-methylnaphthalene phenanthrene pyrene benzene 1,2-dichloroethene(total) PCE toluene</p>
AOC 615	Old Chain Locker	F	Y					
SWMU 175	Crane Painting Area	F	Y	GW CMS				
AOC 616	Paint Shop, Former Building 1201	F	Y	NFA	<p>No COCs were identified for surface soils.</p> <p>No groundwater samples were collected at this site</p>		none	NA
AOC 617	Galvanizing Plant, Former Bldg 1176	F	Y	Soil NFA GW CMS	<p>Soil: Residential cumulative risk = 3E-6 No COPCs were identified that contribute to the HI.</p> <p>Industrial cumulative risk = 7E-7 No COPCs were identified that contribute to the HI</p> <p>GW: future industrial exposure cumulative risk = 2E-4 and HI = 11.</p> <p>Risk is driven solely by arsenic. It was not detected above MCL in first 3 qtrs of sampling. HI is driven by Mn, Tl, and Zn All three exceed MCLs Only two wells at this site.</p>	<p>Industrial Area located adjacent to the City of Charleston Maintenance Facility</p>	<p>BEQs</p>	<p>aluminum arsenic cadmium cobalt manganese nickel thallium zinc</p>

SWMU/AOC GROUPING	S ¹ OC NAME	STUDY ZONE	RFI	CMS REQUIREMENT	BASIS FOR RECO ¹	DATION	PLANNED REUSE	COCs SOIL	GW	Tech App ¹
AOC 628	Sandblasting Area, SE of Building 68	G	Y	Soil: CMS GW NA	Soil: residential cumulative risk = 6E-5 and cumulative HI = 1 Industrial cumulative risk = 9E-6 and cumulative HI = 0.05. No groundwater samples were collected at this site			arsenic chromium BEQs	NA	
AOC 633	Substation, Building 451C	G	Y	NFA	No COCs were identified for surface soils. IM Planned - No groundwater samples were collected at this site			none	NA	
AOC 634	Flammable Material Storage Building 1814	G	Y	NFA	No COCs were identified for surface soils No groundwater samples were collected at this site.			none	NA	
AOC 638	Former Torpedo Workshop, Bldg 132	G	Y	NFA	Soil: residential cumulative risk = 4E-6 No COPCs were identified that contribute to HI Industrial cumulative risk = 7E-7 and no COPCs were identified that contribute to HI No COCs were identified for groundwater This site is locate within the FDS investigation area.			BEQs	none	
AOC 642	Former Pistol Range (Present Parking Lot)	G	Y	NFA	Soil: residential cumulative risk = 1E-4 and cumulative HI = 2.9 Industrial cumulative risk = 2E-5 and cumulative HI = 0.14. arsenic is primary driver of risk and HI at this site. No groundwater samples were collected SWMU 9 (landfill) boundaries have been extended such that this area falls with the LF boundaries			arsenic beryllium nickel thallium	NA	

SWMU 8 AOC 636	Oil Sludge Pit Torpedo Magazine, Building 161 Area	G G	Y Y	Soil: NFA GW: CMS	<p>Soil: residential cumulative risk = 6E-5 and cumulative HI = 1</p> <p>Industrial cumulative risk = 1E-5 and cumulative HI = 0.07.</p> <p>GW future industrial exposure cumulative risk = 2E-6 and cumulative HI = 1</p> <p>GW risk due solely to BEHP. This was detected in only one sample approx one order of magnitude above RBC.</p> <p>Antimony was only detected in 2 samples (both above MCL). Barium was not detected above MCL. Thallium was detected in 5 samples (all above MCL). Only one vanadium detection above RBC (no MCL for vanadium).</p> <p>IM complete at SWMU 8: removed contam soil and oil sludge. Passive collection system currently being installed. Includes gravel backfilled trenches with passive collection standpipes. Approximately ___ CY of petroleum contam soil and ___ gallons of oil sludge removed.</p>	antimony arsenic chromium thallium BEQs aroclor-1260	antimony barium thallium vanadium bis(2-ethylhexyl)phthalate
AOC 637	Dump Area, Building 161 Area	G	Y	Soil: CMS GW: CMS	<p>Soil: residential cumulative risk = 8E-5 and cumulative HI = 1</p> <p>Industrial cumulative risk = 1E-5 and cumulative HI = 0.05</p> <p>GW: future industrial exposure cumulative risk = 9E-5 and cumulative HI = 3.</p> <p>This site is located with the boundaries of the SWMU 9 landfill</p>	arsenic thallium BEQs hydrazine	antimony barium chromium lead thallium 4-methylphenol naphthalene benzene chlorobenzene ethylbenzene xylene hydrazine tetryl

SWMU 11	Causic Pond	G	Y	Soil: CMS GW: NFA	<p>Lead was identified as residential COC Lead exceeded the residential clean-up level of 400 mg/kg in one sample only 011SB001 @ 1100 mg/kg</p> <p>No industrial COPCs were identified for surface soil.</p> <p>IM Complete - removed calcium hydroxide contaminated soil from ditch/drainage area Approximately 260 CY of soil removed</p> <p>No groundwater COPCs were identified</p> <p>RFi noted that gw beneath site is neutral pH 6.3 to 7.3</p>	lead	none
SWMU 120	Pier M Laydown Area	G	Y	NFA	<p>Soil: residential cumulative risk = 2E-6 and cumulative HI = 0.5</p> <p>Industrial cumulative risk = 4E-7 and cumulative HI = 0.02.</p> <p>BEQs were the sole contributor to risk</p> <p>GW future industrial exposure cumulative risk = 3E-4 and cumulative HI = 1 (due solely to arsenic) Arsenic only detected above MCL only 1 of 9 samples (60 ug/L)</p>	likely to remain industrial use	BEQs arsenic
AOC 643	Substation, Building 125	G	Y	Soil: NFA GW: NA	<p>Soil: residential cumulative risk = 2E-4 and cumulative HI = 3</p> <p>Industrial cumulative risk = 2E-5 and cumulative HI = 0.1.</p> <p>gw not sampled at this site</p>	BEQs aroclor-1260 arsenic chromium vanadium	NA

SWMU 3	Pesticide Mixing Area	G	Y	Soil: NFA GW: CMS	Soil: residential cumulative risk = 2E-5 and cumulative HI = 0.3 Industrial cumulative risk = 3E-6 and cumulative HI = 0.02. GW future residential exposure cumulative risk = 7E-5 and cumulative HI = 5. (due primarily to thallium) IM Complete - 22 CY of pesticide contaminated soil removed Well DD3GW003 properly closed	aroclor-1248 alpha-Chlordane gamma-Chlordane	aluminum beryllium chromium thallium vanadium
SWMU 6 SWMU 7 AOC 635	Public Works Storage Yard PCB Transformer Storage Yard Paint and Oil Storehouse, Bldg 3902	G G G	Y Y Y	Soil: NFA GW CMS	Soil: residential cumulative risk = 5E-4 and cumulative HI = 2 Industrial cumulative risk = 9E-5 and cumulative HI = 0.11 GW: future industrial exposure cumulative risk = 1E-3 and cumulative HI = 9. (due primarily to As & Be). detections of arsenic were above MCL. pentachlorophenol only detected in one sample in first round IM Measures Complete - Over 500 CY of PCB contaminated soil removed, 40 CY of pesticide contaminated soil removed, and 45 CY of petroleum contaminated soil removed. Confirmation samples showed concentrations above RGOs	antimony arsenic thallium BEQs aroclor-1254 aroclor-1260 4,4'-DDB 4,4'-DDE 4,4'-DDT dioxin equivalents	arsenic barium beryllium pentachlorophenol
AOC 646	Operational Storage, Building 3906Q	G	Y	NFA	Soil: residential cumulative risk = 2E-6 No COPCs were identified which contribute to HI Industrial cumulative risk = 4E-7 and no COPCs were identified that contribute to HI. Groundwater was not sampled at this site	BEQs	NA

AOC 706	Area behind Building 246	G	Y	Soil: NFA GW: CMS	<p>No COCs were identified for the soil pathway under the residential or industrial scenario.</p> <p>GW: future residential cumulative HI = 8 (no COCs contribute to risk) Future industrial cumulative HI = 1. (no COCs contribute to risk)</p> <p>These HI predictions are due primarily to thallium. Only one well is installed at this site Thallium was detected in 1 of 2 samples at 9 ug/L (MCL = 2 ug/L)</p>	None	barium thallium
SWMU 24	Waste Oil Reclamation Facility	G	Y	Soil: NFA GW: CMS	<p>Soil residential cumulative risk = 4E-5. No COPCs were identified which contribute to HI.</p> <p>Industrial cumulative risk = 8E-6 No COPCs were identified which contribute to HI</p> <p>GW: future residential cumulative risk = 2E-3 and cumulative HI = 18. Future industrial cumulative risk = 5E-4 and cumulative HI = 3. Risk is based solely on arsenic. Arsenic was detected in 1 of 8 SWMU 24 samples but only once over the MCL. Arsenic was only detected in 3 of 9 samples at SWMU 3 (which is within SWMU 24) and all were well below MCL</p>	BEQs	arsenic

Unit	Name	CMS Recommendation	Basis	Reuse	Soil COC	GW COC	Technical Approach
AOC 671	metering house and 2 25K gal. USTs	soil: NFA GW: CMS	soil: residential - 4.7E-6/NA 1 sample > BEQ RBC (1088 vs 87 ppb) and only detected in one soil sample no COCs identified for the industrial scenario. GW: 3E-4/5 arsenic > MCL 1 well 1 qtr only mercury > MCL 1 well 1 qtr only manganese > RBC 5 wells yet < BG thallium > MCL 2 wells		BEQ	arsenic (primary), mercury, manganese, thallium	
AOC 672/673	electric substation (672) and paint/oil storage (673)	soil: CMS GW: NFA	soil: 8.9E-5/1.5 arsenic > BG, yet all were J values (3 to 43J ppm vs BG of 21.6 ppm). Detections > background located around perimeter of Building 673. GW not sampled at this site		arsenic	NA	
AOC 675/676/677	25K gal. UST and 500 gal o/water sep. (675), incinerator (676), and boiler house (677)	soil: NFA GW: recommend transfer to PST program	soil: no COCs identified for the residential or industrial scenario. GW: NA/3.34. Thallium was only detected in the 4th qtr sample > MCL but < bg. Dimethoate only analyzed for in 1st round sample. Free product found in well 675002		NA	thallium, dimethoate	
AOC 678/679	fire fighting school (678) and wash rack (679)	NFA	soil: 3E-6/0.13. Isodrin was detected in only 2 of 20 samples at borings 679SB006 and 679SB007. No COCs identified for the industrial scenario. No COPCs were identified for the groundwater at this site	Ind	isodrin	none	
AOC 680	grinding room and brake repair	soil: NFA GW: CMS	soil: residential 4E-6/NA industrial 8E-7/NA. GW: residential 1E-3/11 industrial 3E-4/2. PCE was detected at < MCL. Only one round of samples analyzed for inorganics During removal of a UST adjacent to Bldg 26, petroleum contamination in the soil was noted.		BEQs	arsenic PCE	

AOC 681	blast booth	Recommended for transfer to PST program	Pending Ac	'um	Pending Addendum	Pending Addendum	
AOC 685	smoke drum site	soil: CMS GW: NA	soil: residential 4.7E-5/1.03 industrial 7E-6/0.07	may require additional delineation of BEQ impact N and SE of site groundwater not sampled at this site	BEQ (primary), arsenic, aluminum, chromium	NA	
AOC 687/SWMU 16	ammo bunker (687) and earthen roof of bunker (16)	soil: CMS GW: CMS	soil: residential 2.6E-5/NA industrial 5E-6/0.02	1 sed sample BEQ/chlordane (1133/5200 ppb) of 4 soil, 2 sed, and 1 grid samples (sample 687M0002) GW residential 1.3E-4/14.6 Industrial 3E-4/2 arsenic 1 well > MCL, sporadic thallium 2 wells > MCL, sporadic chromium > BG 1 well yet < MCL	BEQ, chlordane	arsenic, chromium, thallium	
AOC 688	ammo bunker	soil: NFA GW: NA	soil: no COCs identified for the residential or industrial scenario	GW: not sampled at this site	None	NA	
AOC 689/690	marina area parking lot (689) and road network (690)	soil: corrective measures GW: NA	soil: residential 4.7E-5/0.9 industrial 6E-6/0.04	BEQ > RBC several spots arsenic > bg 2 samples 4 amino > RGO 1 sample (only detected in one sample) the northern portion of this site is within the SWMU 9 (landfill) boundary	GW: not sampled at this site	BEQ, arsenic, NA 4-amino biphenol	
SWMU 12	fire fighter training area	soil: NFA GW: CMS	soil: no COCs identified for the residential or industrial scenario	GW: residential 4.7E-3/48 industrial 1E-3/7 arsenic, nickel, and BEHP were problematic and primarily in one well	Additional samples collected 12/98 did not indicate concentrations > RBC	None	arsenic, nickel, and BEHP were problematic; thallium, cadmium and dioxins were secondary
SWMU 177/RTC	reserve training center	Soil: CMS GW: CMS	soil: residential 1.4E-5/NA industrial 3E-6/NA	No groundwater COCs identified for the residential or industrial scenario	NOAA Facility	BEQ	None

DMA

dredge
material area

soil: NFA GW: NA

soil: no CC identified for
the residen. or industrial
scenario GW: no samples
collected at this site.

None

NA

SWMU/AOC GROUPING	SOC NAME	STUDY ZONE	RFI	CMS REQUIREMENT	BASIS FOR RECOMMENDATION	PLANNED REUSE	COCs SOIL	GW	Technical Approach
SWMU 161	Vehicle Maintenance Shop, Naval Annex	K	Y	NFA	No COCs were identified in the surface soil or shallow groundwater at this site Site encompassed in SWMU 166 area		none	none	
SWMU 162	Sludge Drying Field, Naval Annex	K	Y	Soil: CMS GW NFA	Soil: future residential cumulative risk = 2E-5 and cumulative HI = 3. Industrial cumulative risk = 3E-6 and HI = 0.1 No COPCs were identified in the 1st qtr groundwater samples Handled sewage treatment plant sludge		arsenic BEQs mercury	none	
SWMU 163	Concrete Pit Area, Naval Annex	K	Y	NFA	Soil: future residential cumulative risk = 1E-5 and cumulative HI = 0.3 No COCs were identified for the future industrial scenario for surface soils GW: future residential cumulative risk = 4E-5 and cumulative HI = 0.4 Future industrial cumulative risk = 1E-5 and HI = 0.06 risk is due solely to arsenic and is based on one detection from one well		arsenic beryllium BEQs	arsenic	
SWMU 164	Blasting Operation, Naval Annex	K	Y	NFA	Soil: future residential cumulative risk = 5E-5 and cumulative HI = 0.5 Industrial cumulative risk = 9E-6 and cumulative HI = 0.02 No groundwater samples were collected at this site GW investigated adjacent to this site as part of the SWMU 166 investigation. GW problems (if any) would be handled as part of the SWMU 166 CM.		arsenic beryllium BEQs	NA	
SWMU 185	Sewer System and Former Septic Tank System	K	Y	NFA	No COPCs were identified for either soil or groundwater at this site This site is adjacent to SWMU 166		none	none	

SWMU 693 SWMU 694	11 / Former Naval Ammunition Depot Clouter Island	K K	Y Y	NFA: responsibility assigned to the Corps of Engineers	Soil: future residential cumulative risk = 6E-5 and cumulative HI = 2. Industrial cumulative risk = 9E-6 and cumulative HI = 0.09 GW: future residential cumulative risk = 2E-3 and cumulative HI = 22 Future industrial cumulative risk = 5E-4 and cumulative HI = 3 Risk is driven primarily by arsenic. Arsenic was detected in 7 of 12 samples with two detections > MCL.	aluminum antimony arsenic beryllium chromium vanadium BEQs	arsenic cadmium manganese
AOC 695	Electric Locomotive Shed Former Bldg 119, Clouter Island	K	Y	NFA: responsibility assigned to the Corps of Engineers	Sediment samples only collected for this site. No formal HHRA conducted for this site	NA	NA
AOC 696	Transformer Area Near Bldg 2509 Naval Annex	K	Y	NFA	Soil: future residential cumulative risk = 2E-5 and cumulative HI = 0.2 Industrial cumulative risk = 2E-6 and cumulative HI = 0.01 risk is driven primarily by arsenic. Only one soil sample was analyzed for arsenic at this site. IM Complete - 40 CY of PCB impacted soil removed and 10 CY of As/Be impacted soil removed The transformer station, fence, and concrete slab was demolished and removed. Subsequent to this action an additional 30 CY of impacted soil was excavated and disposed PCB cleaned to < 1 ppm Be cleaned to < 0.15 ppm (RBC) As cleaned to < 3 ppm (background) GW not sampled at this site	arsenic beryllium	NA

AOC 698	Boiler House, Bldg 2509, Naval Annex	K	Y	Transfer to PST Program	<p>Soil: future residential cumulative risk = 3E-5 and cumulative HI = 0.7</p> <p>Industrial cumulative risk = 5E-6 and cumulative HI = 0.03</p> <p>DRO detected at 149 mg/kg. Only analyzed in one soil sample</p> <p>** DRO diesel and gasoline detected in gw samples</p> <p>GW: future residential cumulative risk = 1E-5 cumulative HI = 0.2 Future industrial cumulative risk = 3E-6 and cumulative HI = 0.3</p> <p>risk in gw is driven primarily by delta-BHC this compound was detected once in the one monitoring well.</p>	arsenic beryllium heptachlor epoxide	benzene delta-BHC
SWMU 166	Automobile Service Shop, Naval Annex	K	Y	Soil NFA GW CMS	<p>Soil: future residential cumulative risk = 2E-6 and cumulative HI = 0.26 Industrial cumulative risk = 8E-7 and cumulative HI = 0.06</p> <p>GW: future residential cumulative risk = 1E-3 and cumulative HI = 7.0 Future industrial cumulative risk = 2E-4 and cumulative HI = 1.1</p> <p>IM Complete - 905 tons of soil and concrete debris excavated and removed Soil located below the gw table may still contain TCE at levels > cleanup level</p> <p>Treatability Study in Progress</p>	TCE	benzene chloromethane 1,1-dichloroethene 1,2-dichloroethene PCE TCE vinyl chloride