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RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT ZONE I VOLUME III OF VII SECTIONS 11 TO 13 CNC CHARLESTON SC

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

ZONE I
RCRA FACILITY INVESTIGATION REPORT

VOLUME III OF VII
SECTIONS 11 TO 13

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11.0 CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

The RFI in Zone I was conducted to determine if any sites designated as AOCs and/or SWMUs during the RFA pose unacceptable risk to human health or the environment and will require additional evaluation under the CMS. The conclusions reached regarding each site are based on a technical evaluation of the data following procedures outlined in the *Comprehensive RFI Work Plan*, regulatory guidance, and as required by the Part B permit. The CNC Charleston project team used conservative risk- and hazard-based thresholds to make preliminary recommendations for each site. The recommendations will be for no further action (NFA), additional evaluation under the CMS, or additional sampling needed to complete the RFI (in which case an addendum to the report will be required). The protocol for determining which course of action may be appropriate is as follows:

- **NFA** — Human health risks do not exceed the 1E-06 residential ILCR and the hazard index is <1. Potential risk to ecological receptors is low based on the criteria described in Section 11.14.

- **CMS** — One or more of the thresholds listed above for NFA is exceeded.

- **Additional Sampling Required** — Data gaps for one or more media investigated are significant enough to preclude a NFA or CMS recommendation.

The recommendations are to be considered preliminary until the risk managers with the USEPA, SCDHEC, and the Navy have reviewed the data and a final decision is reached. The USEPA and SCDHEC generally accept a residential risk range of 1E-04 to 1E-06 for human health because the baseline risk assessment is conservative. This means that some sites currently recommended for CMS may not require any further action after the following are considered: frequency of detection/spatial distribution, realistic exposure potential, nature of contaminants driving risk, and

data trends for quarterly groundwater monitoring events. Recommendations for no further action are not acceptable for sites where a potential risk exists under a residential scenario, even though industrial reuse of the property is expected since institutional controls for the site will be required. Final recommendations and the rationale for the risk management decisions will be documented in the final version of this report.

The preliminary recommendations for all the sites investigated in Zone I are summarized in Table 11.1.

Table 11.1
Site Conclusions and Zone I Preliminary Recommendations

Site Designation	Conclusion/Recommendations
AOC 671	Recommended for CMS — Surface Soil and Shallow Groundwater
AOC 672/673	Recommended for CMS — Surface Soil
AOC 675/676/677	Recommended for CMS — Shallow Groundwater
AOC 678/679	Recommended for CMS — Surface Soil
AOC 680	Recommended for CMS — Surface Soil and Shallow Groundwater
AOC 681	Recommended for CMS — Surface Soil and Shallow Groundwater
AOC 685	Recommended for CMS — Surface Soil
AOC 687/SWMU 16	Recommended for CMS — Surface Soil and Shallow Groundwater
AOC 688	No Further Action
AOC 689/690	Recommended for CMS — Surface Soil
SWMU 12	Recommended for CMS — Shallow Groundwater
SWMU 177/RTC	Recommended for CMS — Surface Soil
Dredged Materials Area (DMA)	No Further Action

The following sections summarize the recommendations for each site, level of risk/hazard posed by each of the sites recommended for corrective measures, the media affected, and the chemicals driving risk.

11.1 AOC 671, Metering House, (Former Building 3905G)

AOC 671 is a former metering house, Building 3905G, and two associated 25,000-gallon concrete USTs. The metering house and tanks were constructed in 1944 and used to store aviation gasoline until 1966. The area is currently an unused asphalt parking lot between Piers Q and R. Two raised circular areas in the asphalt are thought to represent the locations of the USTs. The lack of information documenting removal of these USTs and the surface expression suggest that the USTs are still in place. A concrete foundation along Hobson Avenue is all that remains of Building 3905G. No previous investigations or remedial actions have been documented for AOC 671.

A CMS is recommended for soil and shallow groundwater at AOC 671 based on ILCRs of 4.7E-06 and 8.2E-04 respectively. In addition, an HI of 15.1 for the shallow groundwater contributed to this recommendation. Table 11.2 lists the affected medium, the risk/hazard, and the chemicals that drive the risk.

Table 11.2
AOC 671
Conclusion Summary

Affected Medium	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Surface soil	Yes - ILCR = 4.7E-06 No - HI = ND	BEQs, N-nitroso-di-n-propylamine
Shallow Groundwater	Yes - ILCR = 8.2E-04 Yes - HI = 15.1	Arsenic Arsenic, Manganese, Mercury, and Thallium

11.2 AOC 672, Substation (Building 126) and AOC 673, Paint and Oil Storehouse (Building 169)

AOC 672 is the electrical substation in Building 126. This high-voltage substation was constructed in 1947 and modified in 1950. The structure is a single-story concrete-block building with a concrete floor and roof. A fenced area at the building's northwest corner enclosed several transformers which were mounted on a concrete pad, but have since been removed. The building area contains several high-voltage switches and breakers. Present equipment is non PCB, but historic equipment may have contained PCB dielectric fluid or PCB contaminated fluids.

AOC 673 is Building 169, a single-story, concrete-block structure constructed in 1949. Building 169 was once used to store paints, oils, and solvents associated with painting operations. In later years it was used to store fire-fighting equipment.

The combined AOC 672/673 area is located in a paved parking area between Piers P and Q.

This site is recommended for a surface soil CMS based on an ILCR of 8.9E-05 and an HI of 1.5. Table 11.3 lists the affected media, the risk/hazard, and the chemical that drives the risk.

Table 11.3
AOC 672/673
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemical Driving Risk
Surface Soil	Yes - ILCR = 8.9E-05	Arsenic
	Yes - HI = 1.5	Arsenic

11.3 AOC 675, Fuel Oil Storage, (Facility NS-4); AOC 676, Former Incinerator (Building NS-2); and AOC 677, Grounds, (Building NS-2)

AOC 675 is a 25,000-gallon UST (Facility NS-4), installed in 1952. A 495-gallon oil/water separator is located north of this UST. This UST stored fuel oil for a boiler house (Building NS-2) built in 1958. No. 5 fuel oil was used until 1991; from 1991 on, the UST stored cleaner-burning No. 2 fuel oil. The AOC 675 area was also used to refuel seaplanes, and petroleum contamination may have resulted from this activity. Actual dates of seaplane operations are unknown, but this activity was discontinued in the mid 1950s.

Former UST NS2A was an unregulated 560 gallon underground waste oil holding tank for an oil/water separator. It was located in a grass covered patch of ground between Buildings NS 2 and NS 3. This tank was closed by removal in April 1996. During removal it was noted that the tank was intact with no holes or pitting. The oil/water separator which was associated with the waste oil UST and is currently identified as NS 2A is located immediately east of the former waste oil UST. The oil/waste separator was left in place and its lines were plugged and capped.

Former UST NS 3-1 was a 280 gallon waste oil holding tank and oil/water separator located just north of Building NS 3. Building NS 3 is a former fuel pumping transfer station located just west of NS 4. The fuel transfer area was diked and sloped towards a storm drain in the east corner. The storm drain was connected to the storm sewer by two sets of valves and piping. The valves directed the storm water runoff directly to the storm sewer during normal operations or through the oil/water separator to the storm sewer in the event of a spill in the fuel transfer area.

AOC 676 is the location of a former incinerator which operated near the current location of Building NS-2. The incinerator was used during the 1940s: it is shown on base maps from 1947 to 1955. No records exist concerning its design, operation, or demolition. The materials burned

in the incinerator are unknown but may have included flammable hazardous materials (paints, solvents, and waste oils), as well as paper, wood, and general trash.

AOC 677 consists of the grounds surrounding Building NS-2, a boiler house. The facility was built in 1958; in 1977, the boilers were replaced with newer ones. There is a documented history of fuel oil spills at this site, ranging in size from 3 to 500 gallons. Fuel for the boilers were stored in the nearby 25,000-gallon UST at Facility NS-4 (AOC 675) as described above. Prior to 1979 the sump pump for the boilers discharged to the base storm sewer system. After 1979, the sump pump discharged to the sanitary sewer system via an oil/water separator. In 1990, the boilers were connected to the basewide steam system to provide backup power for the central power plant.

No COCs were identified at the combined AOCs for the surface soil samples, which indicates no threat to current or future human receptors. Therefore, no further action is recommended for the combined site soils. However, a CMS for shallow groundwater is recommended for the combined AOCs based on an HI of 3.34. Table 11.4 lists the affected media, the risk/hazard, and the chemicals that drive the risk.

Table 11.4
AOC 675/676/677
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Shallow Groundwater	No - ILCR = ND Yes - HI = 3.34	Thallium, Dimethoate

11.4 AOC 678 and AOC 679 (Firefighter School, Former Building 2-V), and AOC 679, (Former Wash Rack)

AOC 678 is the former site of Building 2-V, the Firefighter School, northeast of Building NS-1 in the northeastern portion of the southern peninsula. The firefighting school was reportedly constructed in 1947 and demolished circa 1955. Controlled fires may have been ignited and extinguished onsite for firefighter training. No other details regarding the design features or operating practices were available. Currently, the area is a paved parking lot.

AOC 679 consists of a former wash rack noted on early CNC maps for the 1930s and 1940s. This former wash rack was located off the west edge of Building NS-1. No information is available regarding the design features, years of operation, or operating practices for the wash rack. It is assumed that activities at this unit included washing or cleaning of equipment in an external wash area.

This site is recommended for a surface soils CMS based on an ILCR of 2.3E-6. Table 11.5 lists the affected media, the risk/hazard, and the chemicals that drive the risk.

Table 11.5
AOC 678/679
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Surface Soil	Yes - ILCR = 2.3E-6 No - HI = 0.03	Isodrin

11.5 AOC 680 (NS-26 Grinding Room/Brake Repair Area)

AOC 680 includes Building NS-26 and associated former grinding room/brake repair area. Building NS-26 was part of the Navy's Shore Intermediate Activity (SIMA) complex. The

building was constructed in 1958 and renovated in 1985. Structures associated with NS-26 include several storage sheds and steel storage trailers. In December 1996, a 200-gallon UST which contained waste oil was removed.

A CMS is recommended for surface soil and shallow groundwater at AOC 680 based on ILCRs of 3.8E-6 and 1.2E-3 respectively. In addition, an HI of 11 for the shallow groundwater contributed to this recommendation. Table 11.6 lists the affected media, the risk/hazard, and the chemicals that drive the risk.

Table 11.6
AOC 680
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Surface Soil	Yes - ILCR = 3.8E-6 No - HI = ND	BEQs
Shallow Groundwater	Yes - ILCR = 1.2E-3 Yes - HI = 11	Arsenic, Tetrachloroethene Arsenic

11.6 AOC 681 (Building 681 Blast Booth)

AOC 681 is the abrasive blast booth on the west side of Building 681 used for stripping miscellaneous ship and boiler components. The blasting agent (aluminum oxide) is recycled through a cyclone separator and the generated wastes, primarily paint dust, are directed into an outdoor hopper and then into 55-gallon drums for disposal.

Building 681 was constructed in 1985 to serve as a shop and administration building for Shore Intermediate Maintenance Activity (SIMA). The facility contained a hose shop; a canvas shop; a tool storage area; a valve shop; a lagging shop; an air conditioning and recovery shop;

a hydraulics shop; a paint booth; a blasting booth; a pump shop; a machine shop; an electrical shop; and a varnish dip tank. The facility is currently used as a vessel support facility for the U.S. Coast Guard.

Two underground storage tanks (681-1 and 681-2) were associated with this facility. The tanks were installed in 1985, when the facility was constructed. Both tanks were closed by removal in early 1997. UST 681-1 was an unregulated 100 gallon waste oil tank located on the southeast side of Building 681. UST 681-2 was an unregulated 20,000 gallon fuel oil tank located on the south side of Building 681. It stored fuel oil for boilers located in Buildings 681 and 680.

Building 680, which is located on the west side of Building 681, was constructed in 1975 and is used for maintenance activities similar to those conducted in Building 681. Engine parts and other equipment are cleaned in dip tanks and/or are sandblasted clean as part of repair and maintenance programs.

An oil/water separator is reportedly located between Buildings 680 and 681 and services both buildings. And, in addition, a sanitary and industrial sewer system site plan map from 1968 indicates that an oil/water separator and associated UST was located just at the northeast corner of what is now building 681.

A CMS is recommended for surface soil and groundwater at AOC 681 based on ILCRs of 2.0E-6 and 4.6E-6 respectively. Table 11.7 lists the affected media, the risk/hazard, and the chemicals that drive the risk.

Table 11.7
AOC 681
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Surface Soil	Yes - ILCR = 2.0E-6 No - HI = ND	BEQs
Shallow Groundwater	Yes - ILCR = 4.6E-6 No - HI = 0.07	BEHP

11.7 AOC 685, (Former Smoke Drum Site)

AOC 685, is a former smoke drum site, located on the west side of Juneau Avenue. The facility was in operation from 1941 until 1953. The smoke drum area was reported to have been used to burn classified documents and other materials, possibly paints, solvents, or waste oil. The area is now a grassy field with no visible evidence of the former site activities; no activities are currently associated with the site. Specific design features, dimensions, and operating practices of the smoke drum are unknown.

This site is recommended for a surface soil CMS based on an ILCR of 4.7E-05 and an HI of 1.03. Table 11.8 lists the affected media, the risk/hazard, and the chemicals that drive the risk.

Table 11.8
AOC 685
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Surface Soil	Yes - ILCR = 4.7E-05 Yes - HI = 1.03	Arsenic, BEQs Aluminum, Arsenic, Chromium

11.8 AOC 687 (Ammunition Storage Bunker), Building X-55, and SWMU 16 (Paint Storage Bunker)

AOC 687 consists of Building X-55, an earth covered ammunition storage bunker constructed in 1942. The concrete walls and ceiling of the bunker are 4 feet thick. The entire structure is covered by 2 feet of soil. Surrounding the bunker is a cement and soil berm designed to control the bunker door in the event of an explosion. The storage bunker is approximately 29 feet wide, 52 feet long, and 12 feet high. The area is surrounded by a chain-link fence. The AOC is located between Juneau Avenue and the Dredged Materials Area (DMA). The Cooper River and associated wetlands are to the east of the site across Juneau Avenue.

The bunker appears to have been used for ammunition storage since its construction in 1942. No other uses are known. At the time of the RFA, explosives and small arms ammunition were stored in the bunker. The magazine is currently empty, although no information is available regarding the dates of explosive/ammunition removal.

SWMU 16 (the earthen roof of Building X-55) has been associated with AOC 687 due to prior unauthorized storage of potentially hazardous material (empty paint containers). This paint container storage was identified as a one time occurrence and is not thought to represent a historical problem. Minor spills associated with the storage of the paint containers were cleaned and the paint containers themselves were removed from the site at the time of discovery.

A CMS is recommended for soil and shallow groundwater at AOC 687/SWMU 16 based on a ILCRs of 2.6E-05 and 1.3E-03 respectively. In addition, an HI of 14.6 for the shallow groundwater contributed to this recommendation. Table 11.9 lists the affected medium, the risk/hazard, and the chemicals that drive the risk.

Table 11.9
AOC 687/SWMU 16
Conclusion Summary

Affected Medium	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Surface soil	Yes - ILCR = 2.6E-05 No - HI = 0.28	BEQs, Chlordane Chromium, Chlordane
Shallow Groundwater	Yes - ILCR = 1.3E-04 Yes - HI = 14.6	Arsenic, Methylene Chloride Arsenic, Chromium, Methylene Chloride, and Thallium

11.9 AOC 688 (Ammunition Storage Bunker) Building X-56

AOC 688, an earth covered ammunition storage bunker identified as Building X-56, was constructed in 1942 as an ammunition storage magazine. The concrete walls and roof of the structure are 4 feet thick. The structure is completely covered by approximately 2 feet of soil. Immediately north of the magazine itself is a cement and soil containment berm designed to control the metal doors of the bunker in the event of an explosion. The area is surrounded by a chain-link fence. This AOC is located between Juneau Avenue and the Dredged Materials Area. The Cooper River and associated wetlands lie east of the site across Juneau Avenue.

The AOC, which was used originally as an ammunition bunker for an unknown period of time, was used as a lawnmower maintenance shop until approximately 1989, when it was again used for ammunition storage. A July 1989 environmental incident report documented the removal of five 55-gallon drums of paint contaminated soil and rags from the entrance to the facility. During the 1993 RFA 16 pounds of nitrogen based dynamite and 1,000 pounds of ammunition were stored in the bunker.

No COCs were identified at AOC 688, which indicates no threat to current or future human receptors. Therefore, no further action is recommended for this site.

11.10 AOC 689, Southern Tip of Base (Marina Parking Area) and AOC 690, Dredge Materials Road

AOC 689 is comprised of the unpaved marina parking area and the surrounding marshlands at the southern tip of the base. This site is bound to the east by the Cooper River, to the north by the Dredged Materials Area, and to the south and west by Shipyard Creek. The marina parking area has allegedly been used for unauthorized disposal of unknown materials during filling activities.

AOC 690 is the network of roadways at the southern tip of the base and along Shipyard Creek. This area includes the Lunsford Loop, a portion of Juneau Avenue, and West Road. This site extends along West Road on the boundaries between Zones I and H and the Dredged Materials Area. The roadside areas along these gravel roads, totaling approximately 4,500 feet, are reported locations of unauthorized hazardous materials dumping by Navy personnel.

This site is recommended for a surface soil CMS based on an ILCR of 4.7E-05. Table 11.10 lists the affected media, the risk/hazard, and the chemicals that drive the risk.

Table 11.10
AOC 689/690
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Surface Soil	Yes - ILCR = 4.7E-05	Arsenic, BEQs, 4-Aminobiphenyl
	No - HI = 0.70	Arsenic, Chromium

11.11 SWMU 12, (Old Firefighter Training Area)

SWMU 12 is the former firefighter training area located in the southwestern portion of the southern peninsula. At this SWMU, flammable liquids were pumped into a shallow 30- to 50-foot diameter pit, ignited, and then extinguished with water. Training occurred between 1966 and 1971; the frequency of training and types of flammable liquids used are not documented. A gravel road and clearing at the SWMU, currently used infrequently as a construction laydown yard, are reportedly near the former training area's location.

No COCs were identified at SWMU 12 for the surface soil samples, which indicates no threat to current or future human receptors. Therefore, no further action is recommended for the site soils. A CMS for shallow groundwater is recommended for this SWMU based on an ILCR of 4.7E-03 and an HI of 48. Table 11.11 lists the affected media, the risk/hazard, and the chemicals that drive the risk.

Table 11.11
SWMU 12
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Shallow Groundwater	Yes - ILCR = 4.7E-03 Yes - HI = 48	Arsenic, BEHP, TEQs Arsenic, Thallium, Cadmium, Nickel

11.12 SWMU 177/RTC

The SWMU 177/RTC was not addressed in the *Final Zone I RFI Work Plan* (E/A&H, February 1995). This site was determined by USEPA Region IV to warrant limited investigation in conjunction with current construction activities. SWMU 177/RTC consisted of two adjacent buildings, both designated as Building RTC-4. The original RTC-4 was a 24 x 60 foot metal

structure used to house heavy equipment including backhoes and trackhoes. The designation RTC-4 was given to a newer building constructed next to the former RTC-4. The newer RTC-4 was used to store lawn mowers and other lawn maintenance equipment. This unit was designated as a SWMU due to oil spillage associated with operations at the two buildings. Visual inspections during the RFA identified several areas of stained soil and concrete in and around the two buildings. These buildings were both less than 50 feet from the Cooper River.

These buildings were included in a lease agreement between the Navy and the National Oceanographic and Atmospheric Administration (NOAA) in the spring of 1995. Since taking over this area, NOAA has removed both buildings and has installed a diesel fuel AST and three generators at the site.

This site is recommended for a surface soil CMS based on an ILCR of 1.4E-05. Table 11.12 lists the affected media, the risk/hazard, and the chemicals that drive the risk.

Table 11.12
SWMU 177/RTC
Conclusion Summary

Affected Media	Unacceptable Risk/Hazard in Future Residential Scenario	Chemicals Driving Risk
Surface Soil	Yes - ILCR = 1.4E-05 No - HI = ND	BEQs

11.13 Dredged Materials Area

The Dredged Materials Area (DMA) encompasses approximately 68 acres at the southern end of the complex. The area, which is confined by a dike, has received materials from dredging operations in both the Cooper River and Shipyard Creek since the 1940s. Several dike relocation projects sponsored by the U.S. Army Corps of Engineers have been completed during in the area

and are on file in the Charleston Division office. Two spillways in the southern portion of the diked area allow deposited sediments to de-water. The southernmost spillway ultimately discharges to the Cooper River and the western spillway discharges directly to Shipyard Creek. The DMA is bounded on the southwest by West Road and Shipyard Creek and on the east by Juneau Avenue and the Cooper River.

No COCs were identified at the DMA, which indicates no threat to current or future human receptors. Therefore, no further action is recommended for this site.

11.14 Ecological Risk Summary

As described in Section 8, Zone I was segregated into three "subzones" for the purpose of the Ecological Risk Assessment (ERA). Subzone I-1 is identified as the 58-acre dredged materials area, which was used by the Navy for permitted spoils deposition. No AOCs or SWMUs are located within this subzone. Subzone I-2 is approximately 66-acres of forested habitat surrounding the DMA and throughout the southernmost peninsula of Zone I. Six AOC/SWMU sites are in this subzone. Subzone I-3, a 3.5-acre salt marsh immediately south of the DMA, is a typical estuarine intertidal emergent wetland. These subzones are outlined in Figure 8.2 in Section 8. Exposure routes directly related to soil pathways were evaluated for Subzones I-1 and I-2. Subzones I-1, I-2, and I-3 were also preliminarily characterized for sediment exposure routes to help determine the need for subsequent assessment during the Zone J RFI. Risk associated with exposure to ECPCs in surface soil was evaluated for terrestrial wildlife based on a model that predicts the amount of contaminant exposure via the diet and incidental soil ingestion. The risk evaluation is based on a comparison of predicted doses for representative wildlife species with doses representing thresholds for both lethal and sublethal effects. Evaluation of risk for soil invertebrates and plants was based on qualitative comparisons to literature effects levels for taxonomic groups similar to those potentially occurring at Zone I. Risks for aquatic organisms were evaluated by calculating HQs from benchmark values that are either promulgated or proposed by federal and state regulatory agencies.

11.14.1 Infaunal Invertebrates

Infaunal communities within each Zone I subzone are not at risk from organic ECPCs. For inorganic ECPCs in Subzone I-2 soils (copper and zinc), a relatively high risk to infaunal organisms is predicted.

11.14.2 Terrestrial Wildlife

No risk potential exists for terrestrial wildlife species exposed to soil ECPCs with Subzone I-1. Potential sublethal effects to passerine birds and small mammals exposed to soil metal concentrations in Subzone I-2 are predicted by the model.

11.14.3 Vegetation

No risk from soil ECPCs is predicted for vegetation in either Subzones I-1 or I-3. Copper, lead, and zinc concentrations detected in Subzone I-2 soils may pose a risk to early seedlings.

11.14.4 Aquatic Wildlife

No risks are predicted to aquatic wildlife from ECPCs in surface water in Subzone I-1. Potentially, low level risks to aquatic wildlife exist from sediment ECPCs in the DMA. For both inorganic and organic ECPCs, there were HQ values greater than one.

There is also potentially low risk from sediment ECPCs in the Subzone I-2 ditches due to several inorganic HQs greater than 1 (but less than 5). An elevated chlordane concentration in one sediment sample may warrant additional study of the ditches during the Zone J RFI.

Risk to aquatic receptors from sediment ECPCs in Subzone I-3 appears to be low. One organic (4,4'-DDE) had an HQ slightly greater than 10. With the exception of four inorganics, all calculated HQs were less than one.

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