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STATEMENT OF BASIS FOR THE LAND USE CONTROL ZONE CNC CHARLESTON SC

8/17/2010

TETRA TECH

STATEMENT OF BASIS FOR THE LAND USE CONTROL ZONE

This Statement of Basis (SB) addresses the Land Use Control (LUC) Zone at Charleston Naval Complex (CNC) in Charleston, South Carolina. The LUC Zone (formerly known as LUC Zone E) was established to describe the areas surrounding 39 identified SWMUs and/or AOCs that have not yet been remediated to residential standards and because of the continuing industrial use of those areas. The LUC Zone is included in Appendix B-8 of the U.S. Navy's Resource Conservation and Recovery Act (RCRA) Permit Renewal Application (dated March 25, 2010), which designates these areas at CNC as requiring LUCs and is shown on Figure 1. LUCs are engineering controls (such as fences, soil caps, building slabs, etc.) and/or institutional controls (non-physical legal obligations that restrict a land's use and allowable activities) that are implemented to prevent adverse human or environmental exposure to hazards at a site.

PROPOSED REMEDIES

Coinciding with the closure of the Charleston Naval Base (the prior name of CNC), the CNC Redevelopment Authority (RDA) was established to oversee the reuse and redevelopment of the base. Part of the CNC RDA's mission is as a stakeholder in the South Carolina Department of Health and Environmental Control (SCDHEC) base-wide Voluntary Cleanup Program. As ownership/operation of individual portions of the base are transferred to other governmental and commercial entities, purchasers may sign Voluntary Cleanup Contracts, prepared by the SCDHEC, for their parcels. The Voluntary Cleanup Contracts allows non-responsible parties to take over the ownership/operation of a parcel, while ensuring that the agreed-to remedial actions are performed in accordance with regulatory guidelines.

As part of the Voluntary Cleanup Program for transferred parcels in the LUC Zone, annual inspections are required of new property owners certifying that the LUCs established by the Navy and SCDHEC are being met, and copies of the inspection reports are required to be submitted to the Navy by the end of January of the following year. The Navy then submits the reports to SCDHEC and the United States Environmental Protection Agency (USEPA) for review and concurrence.

The *Corrective Measures Implementation Plan, LUC Sites, Charleston Naval Complex* (CH2MHill-Jones [CH2M-Jones], 2007) outlined the procedures necessary to implement LUCs at each SWMU and AOC in the LUC Zone in accordance with the Navy's RCRA Permit, as well as all Navy and SCDHEC policies for sites where LUCs constitute the final selected remedy. The LUCs outlined in the 2007 Corrective Measures Implementation Plan (CMIP) were selected to achieve the following objectives in the LUC Zone:

- Prevent exposure to contaminated soil and/or groundwater through ingestion or by dermal absorption (i.e., contact with exposed skin).
- Prevent development of impacted property or prevent activities that have the potential to interfere with implementation of selected remedies at each SWMU and AOC.
- Prevent exposure by site receptors to soil and/or groundwater contamination.

SCDHEC approved the 2007 CMIP via written correspondence on August 13, 2007, thereby approving the use of LUCs in the LUC Zone (in lieu of other remedies) and ensuring that current and future owners/users of this portion of CNC continue to perform the annual inspections. An example of an annual inspection form to be used is presented as Attachment 1.

The Navy, with support from SCDHEC and USEPA, has also developed a process for current and future property owners/operators performing construction activities within the LUC Zone. The process involves the completion and submittal of a "Process to Conduct Construction Activities" application by the owner/operator for review and approval by the Navy, SCDHEC, and USEPA. The requirements for requesting approval to conduct construction activities in areas under LUCs at CNC are presented as Attachment 2.

SITE DESCRIPTION

CNC was formed following closure of the Charleston Naval Base in accordance with 1993 Base Realignment and Closure (BRAC) recommendations. As part of the closure, the Navy conducted extensive facility-wide investigations and multiple site-specific response actions at the CNC. Due to the size of the Charleston Naval Base and level of effort required to complete such environmental activities, CNC was divided into 12 investigation zones (Zones A through L).

The 39 SWMUs/AOCs in the LUC Zone were initially investigated through either a Compliance Sampling Inspection (CSI) or RCRA Facility Investigation (RFI). Under the RCRA Corrective Action (CA) process, sites that present an unacceptable risk to potential receptors under the expected land use scenario must have appropriate CAs implemented. As such, LUCs were previously implemented as the final remedial action at the 39 SWMU/AOC sites as part of the *Interim Measures Work Plan* (CH2M-Jones, 2004) to allow for transfer of the properties from the Navy to the CNC RDA. The *Interim Measures Work Plan* presented the LUCs to be implemented, required inspection frequency, and reporting requirements for each site. Per the 2007 CMIP, each of the sites in the LUC Zone presents a relatively low degree of risk to receptors and therefore, could be managed through the use of LUCs. In accordance with the RCRA Permit for CNC, the LUCs in the LUC Zone must be maintained and annual inspections must be

conducted until such time that concentrations of soil and/or groundwater contaminants decrease to levels that could allow for unrestricted use of the property.

The LUC Zone includes the portions of Zones E, F, G, and I at CNC that are adjacent to the 39 identified SWMUs and AOCs. The majority of the LUC Zone is within Zone E or the industrial portion of Zone F at CNC. Both of these areas provided heavy marine and industrial operations during the active years of the Charleston Naval Base, currently provide a similar role to the CNC, and are expected to continue to be used for non-residential purposes in the future. For these reasons, the CNC BRAC Closure Team agreed to apply the LUCs throughout the entire LUC Zone, including areas outside of the physical boundaries of the respective SWMUs and AOCs. The locations of the LUC Zone and Zones E, F, G, and I at CNC are presented on Figure 1.

SUMMARY OF SITE RISK

Impacted surface soil, subsurface soil, and groundwater exist throughout the LUC Zone as a result of operations at the 39 identified SWMUs/AOCs present. The LUCs applied across the individual zones within the LUC Zone are as follows:

- Zone E – Groundwater Use Restriction (G), Use Restriction (U), Digging/Excavation Restriction (D), and Engineering Controls (E)
- Zone F – W, U, D, and E
- Zone G – W, U, and D
- Zone I – W, U, D, and E

Attachment 3 presents the following information associated with each SWMU/AOC within the LUC Zone:

- Location
- Type of contamination
- Risk assessment conclusions
- Reference to the applicable decision document
- Exposure pathways
- Applicable LUCs to be implemented

As approved by SCDHEC, potential ecological risks attributed to soil and groundwater contamination in the LUC Zone have not been evaluated due to the current and future industrial use of the area and were not addressed in the 2007 CMIP.

ANTICIPATED IMPACTS OF CLEANUP ON THE LOCAL COMMUNITY

No significant health risks or impacts to the local community associated with implementation of the LUC remedies are anticipated under current and likely future land use scenarios.

REFERENCES

CH2M-Jones (CH2MHill, Inc., and J.A. Jones, Inc.), 2004. Interim Measures Work Plan, Charleston Naval Complex.

CH2M-Jones (CH2MHill, Inc., and J.A. Jones, Inc.), 2007. Corrective Measures Implementation Plan, LUC Sites, Charleston Naval Complex.

Figure 1 – Location of the LUC Zone and Zones E, F, G, and I at CNC

NOTE: Original figure created in color

- Railroads
- Roads
- Shoreline
- SWMU/AOC
- Buildings
- Zone Boundary

Restricted Land Use
- W Groundwater Use Restriction
- U Use Restriction
- D Digging/Excavation Restriction
- E Engineering Controls

Figure 3-1
Areal Extent of LUCs Being Applied in this CMIP
Zones E, F, G and I
Charleston Naval Complex

CH2MHILL

Attachment 1 – Example of Annual LUC Inspection Form

**Note: This process memorandum is not guidance and should not be referenced as such.*

ATTACHMENT 2
CORRECTIVE ACTION CHECKLIST:
CORRECTIVE MEASURES IMPLEMENTATION CHECKLIST

I. SITE INFORMATION	
Site Name (e.g. SWMU name, property boundary, tax identification number, etc.):	Date Of Inspection:
Permit Holder:	EPA ID # for facility in which LUCs are required:
Permit Holder Address:	Weather/Temperature:

Corrective action Includes: (Circle all that apply)

Land Use Controls	Phytoremediation
Landfill cover/containment	Monitored natural attenuation
Groundwater containment	Vertical barrier walls
Groundwater pump and treatment	Surface water collection and treatment

Other: _____

LUC Performance Objectives: (Include all that apply)
(e.g. Prevent access to groundwater until cleanup levels are met, Maintain a vegetative soil layer limiting exposure)_____

_____
_____
_____
_____
_____
_____
_____

Type of inspection (e.g., walk through, drive-by)_____
Frequency_____

Agency, office, or company conducting the inspection: _____

Contact _____
Name Title Phone no.

_____
Signature Date

Attachments: (e.g. Inspection team roster attached, Site map attached, Photographs attached)

II. INTERVIEWS (Check all that apply)

1. Site Manager: _____
Name Title Date

Interviewed: at site at office by phone Phone no.

Present at time of inspection: Yes No

Problems/Suggestions: _____

Reports attached _____

2. Staff: _____
Name Title Date

Interviewed: at site at office by phone Phone no.

Present at time of inspection: Yes No

Problems/Suggestions: _____

Reports attached _____

3. Local Regulatory Authorities/Agencies
(e.g. State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.)
Fill in all that apply.

Agency _____

Contact _____ _____ _____ _____
Name Title Date Phone no.

Present at time of inspection Yes No

Problems/Suggestions: _____

Reports attached: _____
_____

Agency _____

Contact _____ _____ _____ _____
Name Title Date Phone no.

Problems/Suggestions: _____

Report attached: _____

Agency _____

Contact _____ _____ _____ _____
Name Title Date Phone no.

Present at time of inspection Yes No

Problems/Suggestions: _____

Report attached: _____
_____

Agency _____

Contact _____ _____ _____ _____
Name Title Date Phone no.

Present at time of inspection Yes No

Problems/Suggestions: _____

Report attached: _____

4. Other Interviews (Summary attached): Yes No

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents

O&M manual	Readily available	Up to date	N/A
As-built drawings	Readily available	Up to date	N/A
Maintenance logs	Readily available	Up to date	N/A

Remarks _____
_____

2. Site-Specific Health and Safety Plan Readily available Up to date N/A

Contingency plan/emergency response plan	Readily available	Up to date	N/A
Description of required PPE	Yes	No	N/A

Remarks _____
_____

3. Applicable Permits (Readily available)

Hazardous Waste Management
Yes No Permit # _____ Expiration Date _____

Air discharge permit
Yes No Permit # _____ Expiration Date _____

Effluent discharge
Yes No Permit # _____ Expiration Date _____

Waste disposal, POTW
Yes No Permit # _____ Expiration Date _____

Other Permits

	Yes No Permit #_____ Expiration Date_____ Remarks_____			
4.	**Discharge Compliance Records**			
	Air	Readily available	Up to date	N/A
	Water (effluent)	Readily available	Up to date	N/A
	Other Permits	Readily available	Up to date	N/A
	Remarks_____			
5.	**Daily Access/Security Log**	Readily available	Up to date	N/A
	Remarks_____			
	IV. LAND USE CONTROLS (LUCs)	Applicable		N/A
	If deficiencies are noted, the locations should be documented on a site map and with photos			
A.	**Engineering Controls**	Applicable		N/A
1.	**Fencing**	Yes	No	N/A
		Are they secured?	Yes	No
	Remarks_____			
2.	**Barriers**	Yes	No	N/A
		Are they in place?	Yes	No
	Remarks_____			
3.	**Signs**	Yes	No	N/A
		Are they damaged?	Yes	No
	Remarks_____			

B.	**Prohibitive Directive**	Applicable	N/A
1.	**Signs and other security measures** Yes No N/A Are they damaged? Yes No Remarks_____		
2.	**Well Installation** Yes N/A Were wells installed? Yes No Remarks_____		
3.	**Digging/Excavation** Yes N/A Did excavation occur? Yes No Authorization/Dig Permit #:_____ Remarks_____		
4.	**Other** Yes N/A Remarks_____		
C.	**Institutional Controls**	Applicable	N/A
1.	**Deed And Restrictive Covenant** Yes N/A Readily Available Yes No Remarks_____		
2.	**Other** Yes No N/A Remarks_____		
3.	**Local Land use changes** Yes No N/A Do the changes in land use potentially affect the corrective action? Yes No Remarks_____		
4.	**Land use changes off site** Yes No N/A Do the changes in land use potentially affect the corrective action? Yes No Remarks_____		

V. SITE CONDITIONS

If deficiencies are noted, the locations should be documented on a site map and with photos

1. Provide general description (i.e. roads, buildings, etc.)

_____

_____

_____

VI. LANDFILL COVERS

If deficiencies are noted, the locations should be documented on a site map and with photos

		Applicable	N/A
A.	**Landfill Surface**		
1.	**Settlement** (Low spots) Yes No Areal extent_____ Depth_____ Photograph Attached Yes No Corrective measures implemented to rectify settlement Yes No N/A Remarks_____		
2.	**Cracks** Yes No Lengths_____ Widths_____ Depths_____ Photograph Attached Yes No Corrective measures implemented to rectify cracking Yes No N/A Remarks_____		
3.	**Erosion** Yes No Areal extent_____ Depth_____ Photograph Attached Yes No Corrective measures implemented to rectify erosion Yes No N/A Remarks_____		
4.	**Holes** Yes No Areal extent_____ Depth_____ Photograph Attached Yes No Corrective measures implemented to rectify holes Yes No N/A Remarks_____		
5.	**Vegetative Cover** Type (grass, trees, etc.)_____ Cover properly established Yes No Has vegetation damaged cover? Yes No Photograph Attached Yes No Corrective measures implemented to rectify cover Yes No N/A Remarks_____		
6.	**Alternative Cover** (armored rock, etc.) Yes No Has cover been damaged? Yes No Photograph Attached Yes No		

	Corrective measures implemented to rectify cover	Yes	No	N/A
	Remarks_____			
	_____			
7.	**Bulges**	Yes	No	
	Areal extent_____ Height_____			
	Photograph Attached Yes	No		
	Corrective measures implemented to rectify bulging	Yes	No	N/A
	Remarks_____			
	_____			
8.	**Wet Areas/Water Damage**	Yes	No	
	Wet areas Areal extent_____			
	Ponding Areal extent_____			
	Seeps Areal extent_____			
	Soft subgrade Areal extent_____			
	Photograph Attached Yes	No		
	Corrective measures implemented to rectify conditions	Yes	No	N/A
	Remarks_____			
	_____			
9.	**Slope Instability** Yes	No		
	Areal extent_____			
	Photograph Attached Yes	No		
	Corrective measures implemented to rectify instability	Yes	No	N/A
	Remarks_____			
	_____			
B.	**Benches** Applicable	N/A		
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	**Flows Bypass Bench** Yes	No		
	Photograph Attached Yes	No		
	Corrective measures implemented to rectify bench	Yes	No	N/A
	Remarks_____			
	_____			
2.	**Bench Breached** Yes No			
	Photograph Attached Yes No			
	Corrective measures implemented to rectify bench	Yes	No	N/A
	Remarks_____			
	_____			
3.	**Bench Overtopped**	Yes	No	
	Photograph Attached	Yes	No	
	Corrective measures implemented to rectify bench	Yes	No	N/A
	Remarks_____			
	_____			

C. Letdown Channels Applicable N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. Settlement Yes No
Areal extent_____ Depth_____
Photograph Attached Yes No
Corrective measures implemented to rectify settlement Yes No N/A
Remarks_____

2. Material Degradation Yes No
Material type_____ Areal extent_____
Photograph Attached Yes No
Corrective measures implemented to rectify degradation Yes No N/A
Remarks_____

3. Erosion Yes No
Areal extent_____ Depth_____
Photograph Attached Yes No
Corrective measures implemented to rectify erosion Yes No N/A
Remarks_____

4. Undercutting Yes No
Areal extent_____ Depth_____
Photograph Attached Yes No
Corrective measures implemented to rectify undercutting Yes No N/A
Remarks_____

5. Obstructions Yes No
Size_____ Type_____ Areal extent_____
Photograph Attached Yes No
Corrective measures implemented to rectify obstruction Yes No N/A
Remarks_____

6. Excessive Vegetative Growth Yes No
Type_____ Areal extent_____
Photograph Attached Yes No
Corrective measures implemented to rectify excess growth Yes No N/A
Remarks_____

D. Cover Penetrations Applicable N/A

1. Gas Vents (circle all that apply)

Active Passive

Properly secured/locked Functioning Routinely sampled

Good condition Needs Maintenance N /A

Evidence of leakage at penetration Yes No N/A

Remarks_____

_____

2. Gas Monitoring Probes (circle all that apply)

Properly secured/locked Functioning Routinely sampled

Good condition Needs Maintenance N /A

Evidence of leakage at penetration Yes No N/A

Remarks_____

_____

3. Monitoring Wells (within surface area of landfill) (circle all that apply)

Properly secured/locked Functioning Routinely sampled

Good condition Needs Maintenance N /A

Evidence of leakage at penetration Yes No N/A

Remarks_____

_____

4. Leachate Extraction Wells (circle all that apply)

Properly secured/locked Functioning Routinely sampled

Good condition Needs Maintenance N /A

Evidence of leakage at penetration Yes No N/A

Remarks_____

_____

5. Leachate Extraction Records Readily available Up to date N/A

Remarks_____

_____

6. Settlement Monuments Located Routinely surveyed N/A

Settle Monument Records_____

Remarks_____

_____

E. Gas Collection and Treatment Applicable N/A

1. Gas Treatment Facilities (circle all that apply)

Flaring Thermal destruction Collection for reuse

Damaged? Yes No

Remarks_____

_____

2. Gas Collection Wells, Manifolds and Piping

Damaged? Yes No

Remarks_____

3. Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings)

Damaged? Yes No

Remarks_____

	_____			
4.	**Gas Generation Records**	Readily available	Up to date	N/A
	Remarks_____			
	_____			
F.	**Cover Drainage Layer**	Applicable	N/A	
1.	**Outlet Pipes Inspected**	Functioning	N/A	
	Damaged?	Yes	No	
	Remarks_____			
	_____			
2.	**Outlet Rock Inspected**	Functioning	N/A	
	Damaged?	Yes	No	
	Remarks_____			
	_____			
G.	**Detention/Sedimentation Ponds**	Applicable	N/A	
1.	**Siltation**	Yes	No	
	Areal extent_____	Depth_____		
	Photograph Attached	Yes	No	
	Remarks_____			
	_____			
2.	**Erosion**	Yes	No	
	Areal extent_____	Depth _____		
	Location shown on site map	Yes	No	
	Photograph Attached	Yes	No	
	Remarks_____			
	_____			
3.	**Outlet**	Functioning	N/A	
	Damaged?	Yes	No	
	Remarks_____			
	_____			
H.	**Retaining Walls**	Applicable	N/A	
1.	**Deformations**	Yes	No	
	Horizontal displacement_____	Vertical displacement_____		
	Rotational displacement_____			
	Photograph Attached	Yes	No	
	Remarks_____			
	_____			
2.	**Degradation**	Yes	No	
	Photograph Attached	Yes	No	
	Remarks_____			

I.	**Perimeter Ditches/Off-Site Discharge**		Applicable	N/A
1.	**Siltation**	Yes	No	
	Areal extent_____ Depth_____			
	Photograph Attached	Yes	No	
	Remarks_____			
	_____			
2.	**Vegetative Growth**	Yes	No	
	Does vegetation impede flow?	Yes	No	
	Areal extent_____ Type_____			
	Photograph Attached	Yes	No	
	Remarks_____			
	_____			
3.	**Erosion**	Yes	No	
	Areal extent_____ Depth_____			
	Photograph Attached	Yes	No	
	Remarks_____			
	_____			
4.	**Discharge Structure**	Yes	No	
	Damaged?	Yes	No	
	Remarks_____			
	_____			

	VII. VERTICAL BARRIER WALLS	Applicable	N/A
	If deficiencies are noted, the locations should be documented on a site map and with photos		
1.	**Settlement**	Yes	No
	Areal extent_____ Depth_____		
	Photograph Attached	Yes	No
	Remarks_____		
	_____		
2.	**Performance Monitoring**		
	Type of monitoring_____	Yes	No
	Frequency_____		
	Evidence of breaching	Yes	No
	Head differential_____		
	Remarks_____		
	_____		

	VIII. GROUNDWATER/SURFACE WATER REMEDIES	Applicable	N/A
	If deficiencies are noted, the locations should be documented on a site map and with photos		
A.	**Groundwater Wells, Pumps, and Pipelines**	Applicable	N/A

1. Pumps, Well head Plumbing, and Electrical

Damaged? Yes No
Maintenance Needed? Yes No
Remarks_____

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

Damaged? Yes No
Remarks_____

3. Monitoring Wells

Properly secured/locked Yes No
Damaged? Yes No
Maintenance Needed? Yes No
All required wells located Yes No
Routinely Sampled? Yes No
Abandoned well(s) Yes No
List abandoned well(s)_____
Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines Applicable N/A

1. Collection Structures, Pumps, and Electrical

Damaged? Yes No
Remarks_____

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

Damaged? Yes No
Remarks_____

C. Treatment System Applicable N/A

1. Treatment Train (Check components that apply)

Metals removal Oil/water separation Bioremediation
Air stripping Carbon absorbers Phytoremediation
Monitored Natural Attenuation
Others_____

a. Filters_____

b. Additive (e.g., chelation agent, flocculent)_____

c. Others_____

2. Sampling ports properly marked and functional Yes No N/A
Remarks_____

3.	**Sampling/maintenance log displayed and up to date** Yes	No	N/A	
	Remarks_____			
4.	**Equipment properly identified** Yes	No	N/A	
	Remarks_____			
5.	**Quantity of groundwater treated annually**_____			
	Remarks_____			
6.	**Quantity of surface water treated annually**_____			
	Remarks_____			
7.	**Electrical Enclosures and Panels (properly rated and functional)**			
	Damaged? Yes	No		
	Remarks_____			
8.	**Tanks, Vaults, Storage Vessels** (circle all that apply)			
	Good condition Proper secondary containment	Needs Maintenance	N/A	
	Remarks_____			
9.	**Discharge Structure and Appurtenances**			
	Damaged Yes	No		
	Remarks_____			
10.	**Treatment Building(s)**			
	Good condition (esp. roof and doorways)	Needs repair	N/A	
	Chemicals and equipment properly stored	Yes	No	N/A
	Remarks_____			
D.	**Groundwater Monitoring**	Applicable	N/A	
1.	**Monitoring Data**			
	Is routinely submitted on time	Readily available	Up to date	N/A
	Is of acceptable quality	Readily available	Up to date	N/A
	Remarks_____			
2.	**Groundwater Monitoring Records**	Readily available	Up to date	N/A
	Remarks_____			
3.	**Monitoring data suggests:**			
	Groundwater plume is effectively contained	Yes	No	N/A
	Contaminant concentrations	Increasing	Decreasing	N/A
	Plume has moved offsite	Yes	No	N/A
	Remarks_____			

IX. OTHER REMEDIES

If deficiencies are noted, the locations should be documented on a site map and with photos

If there are remedies applied at the sites, which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the corrective action. An example would be soil vapor extraction.

Remarks_____

X. OVERALL SITE OBSERVATIONS

A. Implementation of the Corrective action

Describe issues and observations relating to whether the corrective action is effective and functioning as designed. Begin with a brief statement of what the corrective action is to accomplish (e.g., to contain plume, minimize infiltration and gas emissions)

B. Adequacy of O&M

Do you think the corrective action is effective Yes No

Remarks_____

C. Evaluation of Land Use Controls (LUCs) Applicable N/A

1. Implementation and Enforcement

Site conditions imply LUCs not properly implemented Yes No N/A

Site conditions imply LUCs not being fully enforced Yes No N/A

Remarks_____

D. Reporting

Reporting is up-to-date	Yes	No	N/A
Has there been a property conveyance since last inspection?	Yes	No	
If yes, attach copy of property conveyance documents			
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions:_____

Report attached:_____

E. Early Indicators of Potential Corrective action Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unexpected repairs, which suggest that the protectiveness of the corrective action may be compromised in the future.

_____
_____
_____
_____
_____

F. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the corrective action.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

XI. CONTACT INFORMATION

A. Inspector

Name (print)_____

Signature _____

Date _____

B. Responsible Party

Name (print)_____

Signature _____

Date _____

Attachment 2 – Requirements for Applications Requesting Approval to Conduct Construction Activities in Areas with LUCs at CNC

Process to Conduct Construction Activities in Areas under Land Use Controls at the Charleston Naval Complex

Background

The Department of the Navy (Navy) continues to complete necessary Corrective Actions for past releases of hazardous wastes and/or hazardous constituents at the Charleston Naval Complex (CNC) as required by the Hazardous Waste Permit (SC0 170 022 560) issued to the Navy by the South Carolina Department of Health and Environmental Control (SCDHEC). To facilitate those Corrective Actions and to ensure that human health and the environment are adequately protected both in the interim and long term, certain Land Use Controls (LUCs) were imposed via deed recorded restrictions at the time of property conveyance from the Navy to the Charleston Naval Complex Redevelopment Authority (CNCRDA). Those LUCs may be short term or long term depending on several factors: the physical and chemical properties of the contamination; the concentration of contaminants and the properties of the media where the contamination is located; and subsequent landowner election to remove residual contamination for specific redevelopment objectives. Because these legally imposed restrictions can be violated if not properly observed during construction activities by subsequent landowners or operators, appropriate LUC management procedures must be followed in order to ensure that the integrity of those contaminated site remedies which have been or which may later be completed by the Navy will be maintained.

In addition to deeds, restrictions are also provided in a Restrictive Covenant (RC) as well as Voluntary Cleanup Contracts (VCC) which are in place to ensure that LUCs remain effective.

Construction Activities Criteria

The Navy, in conjunction with the SCDHEC (Bureau of Land and Waste Management) and the U.S. Environmental Protection Agency (EPA), has developed a process for use by subsequent landowners or operators when conducting construction activities in areas where LUCs exist. The process includes submittal of information necessary to evaluate whether construction activities may have an adverse effect on LUCs and remedies in place at the CNC. This information will be provided via a LUC Area Construction Permit to the Navy for authorization to proceed. A copy of the LUC Area Construction Permit form is provided in enclosure (1).

Prior to Construction: Each landowner shall submit information to the Navy a minimum of 90 days prior to beginning any on-site construction activity which will impact a site-remedy based LUC. For smaller projects, a shorter timeframe may be negotiated with the Navy (and SCDHEC) as needed. Provision of information to the Navy does not relieve the landowner from compliance with all applicable federal, state, and local regulations which otherwise apply. In addition, a 60-day written notification requirement applies in those cases where the landowner intends to change the approved land use.

The following information shall be provided by the landowner and will be included with the LUC Area Construction Permit:

1. A description of the intended reuse(s) of the property and new facilities / utilities intended to be constructed.

2. A proposed construction plan, including engineering plans and specifications. This includes construction methods, engineering calculations, and onsite tests that demonstrate knowledge of site conditions, infrastructure, utilities, and site geology.

3. A schedule setting forth the planned timeframe for construction.

4. A site plan with appropriate figures that identifies: the extent of the proposed construction relative to the location of all known SWMUs, AOCs, and associated LUCs on the property; location of groundwater monitoring wells; site topography; current and future underground utilities and any other intended underground infrastructure(s); and the direction of future storm water runoff.

5. A description of the residual contamination known to exist on the property and site remedy related LUCs in place, and any potential effect the proposed construction may have on these existing site conditions and controls. The Navy will provide source information to assist the Landowner, during the Permit application process, to identify residual contamination at the proposed construction areas. The Landowner and/or its construction agents (i.e., A-E consultants, contractors, subcontractors) will, in turn, perform testing of environmental media utilizing this source information as well as other information gathered during construction activities. The Landowner and/or its construction agents are responsible for the quality and adequacy of testing and disposal of environmental media targeted for off-site disposal.

6. An acknowledgment that all General Contractor personnel and the Project Manager for each Subcontractor which may be involved in site excavation activities have (or will prior to the start of any site excavation activities) been provided with a copy of the LUC Construction Area Permit for the project so that they will be aware of known residual contamination on the property, the LUCs in place, and any potential effect the proposed construction may have on these existing site conditions and controls.

7. A description of how hazards will be controlled where construction activities have the potential to interfere with these existing site remedies and imposed LUCs.

8. If applicable, design plans for any desired irrigation or dewatering well(s) and proposed well locations both on the property and relative to the location of each SWMU or AOC situated on the property.

9. A description of what actions will be taken to monitor impacts to the remedy as a result of construction activities. This includes, at a minimum, impacts to groundwater

flow direction, vertical migration of residual contamination and the potential for contaminants to migrate to indoor air.

10. A description of what actions will be taken in the event the human or ecological exposure assumptions used in deriving the LUC(s) component of any interim or final SCDHEC approved site remedy are altered. In accordance with the Navy's RCRA permit, this would constitute a Land Use Change and would require a permit modification request. The Navy will provide to the Landowner and/or its construction agents source information which includes exposure assumptions used in deriving LUCs. These sources will include the "Interim Measures Work Plan (IMWP)" and "Corrective Measures Implementation Plan (CMIP) for Land-Use Control Sites". These sources provide concise summary information about LUC sites, including: site description, site concerns, exposure potential and control (i.e., risk, reuse, exposure, and LUCs), and other references. It is the responsibility of the Landowner and/or its construction agents to review these sources of information and to implement exposure controls which meet all federal, state, and local laws and regulations.

Each landowner must receive authorization to proceed prior to initiating proposed activities. The Navy as RCRA permittee will consult with and obtain approval from SCDHEC in determining the adequacy of the proposed construction with respect to maintaining remedy integrity. The Navy will then provide a written response to the landowner regarding their submittal via the LUC Area Construction Permit. The response may authorize the landowner to proceed with construction activities, request further information, provide terms or conditions regarding construction activities, and in rare instances deny construction activities. Navy authorization to proceed with construction does not constitute approval of methods by which environmental, safety, and other regulations are satisfied.

During Construction: Each landowner shall adhere with all applicable federal, state, and local regulations. Specifically, each landowner shall properly address the following issues during construction:

1. Control of exposure to residual contamination to workers on-site, personnel at adjacent businesses, and nearby residences. For example, control of fugitive dust emissions, personal protective equipment (PPE), and exclusion zones are examples of exposure controls.

2. Reporting any previously unknown contamination to the Navy. All work must stop upon discovery of unknown contamination.

3. Management of excess contaminated soil or groundwater.

4. Provision of information to contractors and subcontractors regarding residual contamination on property, including safety meetings, posting of information at job-site, etc.

After Construction: Upon the completion of an approved construction activity where the potential existed for disturbance of residual contamination at a site or area with LUCs, the landowner shall:

1. Provide a post-completion LUC compliance report or similar report if required by their VCC;

2. Assume responsibility for any additional site monitoring or other responsibilities agreed to as part of the LUC Area Construction Permit process; and

3. Provide SCDHEC and the Navy with continued access to the site for remedy integrity inspection and surveillance purposes.

Voluntary Cleanup Contracts

The use of Voluntary Cleanup Contracts (VCCs) under the state Brownfields Program is recommended in order for subsequent landowners to obtain liability protection from SCDHEC based upon their (and/or day-to-day operators of the property) future actions to ensure the proper maintenance of all imposed LUCs and associated site remedy(ies) integrity. It is recommended that each landowner either assume responsibility under the existing CNCRDA VCC or negotiate a separate VCC with the SCDHEC that provides a Non-Responsible or Responsible Party status based on compliance with the aforementioned conditions and intended future operations on their property.

Attachment 3 – Summary of Risks, Exposure Assumptions, and Contaminants for SWMUs/AOCs within the LUC Zone

TABLE 2-1
Summary of Risks, Exposure Assumptions, and COCs for Sites
Corrective Measures Implementation Plan, LUC Sites, Charleston Naval Complex

SWMU/AOC Number	SWMU/AOC Name	Study Zone	Expected Land Use	Surface Soil COCs	Subsurface Soil COCs	Groundwater COCs	Risk Assessment Conclusions	Reference Document for COC Determination	Exposure Assumptions and Site Conditions Limiting Exposure	Land Use Controls to be Implemented
SWMU 23	New Plating Shop Wastewater Treatment System	E	Industrial	BEQs (unrestricted and industrial use); lead (unrestricted land use only)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil. Lead in surface soil exceeds concentrations considered acceptable for unrestricted land use.	RFI Report Addendum and CMS Work Plan, Combined SWMU 23, Rev 0, CH2M-Jones, November 2002	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
SWMU 24	Waste Oil Reclamation Facility	G	Industrial	BEQs (unrestricted and industrial land use)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, SWMU 24, Rev 1, January 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ exceedances only occur within the secondary containment area for Tank 0039A, therefore routine exposure to BEQs is not expected to occur under the industrial use scenario	Use restrictions (no residential or unrestricted land use allowed). Because of the location of SWMU 3 within the boundaries of SWMU 24, groundwater withdrawal and dig restrictions will also be implemented.
SWMU 36	Building 68, Battery Shop	F	Industrial	Arsenic (unrestricted land use only). None for industrial use.	None	None	Potential risk from arsenic in surface soil exceeds risk from exposure to background concentrations	RFI Report Addendum and IM Completion Report, AOC SWMU 36/AOC 620, Rev 0, February 2003, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
SWMU 53	Building 212 SAA	E	Industrial	BEQs (unrestricted and industrial use)	BEQs (unrestricted and industrial use)	None	BEQs in surface and subsurface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, Rev.1, SWMU 53 and AOC 526, March 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ exceedances occur only below pavement, thus the potential for exposure is minimal.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.

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Corrective Measures Implementation Plan, LUC Sites, Charleston Naval Complex

SWMU/AOC Number	SWMU/AOC Name	Study Zone	Expected Land Use	Surface Soil COCs	Subsurface Soil COCs	Groundwater COCs	Risk Assessment Conclusions	Reference Document for COC Determination	Exposure Assumptions and Site Conditions Limiting Exposure	Land Use Controls to be Implemented
SWMU 63	Battery Charging Station	E	Industrial	BEQs (unrestricted and industrial use); lead (unrestricted land use only)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil. Lead in soil above residential risk criteria create unacceptable risk for residential receptors.	RFI Report Addendum and CMS Work Plan, Combined SWMU 23, Rev 0, CH2M-Jones, November 2002	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
SWMU 67	Mercury Gauge Room	E	Industrial	BEQs (unrestricted and industrial use)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, SWMU 67, Rev 3, October 2004, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ exceedances only occur beneath pavement or adjacent to railroad tracks.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
SWMU 83	Foundry	E	Industrial	BEQs (unrestricted and industrial use)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, Rev.1, Combined SWMU 83, May 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ exceedance occur primarily beneath paved areas so the potential for exposure is low.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
SWMU 84	Lead Storage	E	Industrial	BEQs (unrestricted and industrial use)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, Rev.1, Combined SWMU 83, May 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ exceedance occur primarily beneath paved areas so the potential for exposure is low.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.

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Corrective Measures Implementation Plan, LUC Sites, Charleston Naval Complex

SWMU/AOC Number	SWMU/AOC Name	Study Zone	Expected Land Use	Surface Soil COCs	Subsurface Soil COCs	Groundwater COCs	Risk Assessment Conclusions	Reference Document for COC Determination	Exposure Assumptions and Site Conditions Limiting Exposure	Land Use Controls to be Implemented
SWMU 102	Mercury Spill Area	E	Industrial	BEQs (unrestricted and industrial use); mercury (unrestricted land use only)	Mercury	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil. Mercury in surface and subsurface soil exceeds concentrations that might pose a risk to groundwater via leaching. The exposure point concentration for mercury was below the level expected to cause unacceptable indoor air risks.	RFI Report Addendum and CMS Work Plan, Rev.1, SWMU 102 and AOC 590, May 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ and mercury exceedances only occur beneath pavement or concrete floors so potential for exposure or leaching to groundwater is minimal.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 525	Paint Shop, Building 223	E	Industrial	Acetone	Acetone	None	The only potential COC identitied at the site was acetone in soil under the unpaved land use scenario. Although this is considered as possibly due to laboratory contamination, it was retained as a COC to be conservative.	RFI Report Addendum, Rev 1, AOC 525, November 2003, CH2M-Jones	The presence of the building and pavement at the site effetively preclude exposure to the contamination and prevent downward leaching of contamination.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 526	Building 212 Paint Area	E	Industrial	BEQs (unrestricted and industrial use)	BEQs (unrestricted and industrial use)	None	BEQs in surface and subsurface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, Rev.1, SWMU 53 and AOC 526, March 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ exceedances occur only below pavement, thus the potential for exposure is minimal.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 528	Steam Cleaning Shop	E	Industrial	None	None	None	Contamination above background levels was not found at this site.	RFI Report Addendum, AOC 528, Rev 0, July 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Although contamination above background levels was not found at the site, land use controls, including use, groundwater, dig, and engineering control restrictions will be implemented due to the location of this site within the former industrial area of the CNC.

TABLE 2-1
Summary of Risks, Exposure Assumptions, and COCs for Sites
Corrective Measures Implementation Plan, LUC Sites, Charleston Naval Complex

SWMU/AOC Number	SWMU/AOC Name	Study Zone	Expected Land Use	Surface Soil COCs	Subsurface Soil COCs	Groundwater COCs	Risk Assessment Conclusions	Reference Document for COC Determination	Exposure Assumptions and Site Conditions Limiting Exposure	Land Use Controls to be Implemented
AOC 530	Paint and Oil Storage	E	Industrial	Arsenic and BEQs (unrestricted and industrial land use)	None	None	Arsenic and BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, AOCs530/531, Rev 1, August 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 531	Substation and Storage	E	Industrial	Arsenic and BEQs (unrestricted and industrial land use)	None	None	Arsenic and BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, AOCs530/531, Rev 1, August 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 540	Plating Plant, Building 226	E	Industrial	BEQs (unrestricted and industrial use); lead (unrestricted land use only)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil. Lead in soil above residential risk criteria create unacceptable risk for residential receptors.	RFI Report Addendum and CMS Work Plan, Combined SWMU 23, Rev 0, November 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 541	Oil Storage Shops	E	Industrial	BEQs (unrestricted and industrial use); lead (unrestricted land use only)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil. Lead in soil above residential risk criteria create unacceptable risk for residential receptors.	RFI Report Addendum and CMS Work Plan, Combined SWMU 23, Rev 0, November 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 542	Old OxyAcetylene Plant and Paint Shop	E	Industrial	BEQs (unrestricted and industrial use); lead (unrestricted land use only)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil. Lead in soil above residential risk criteria create unacceptable risk for residential receptors.	RFI Report Addendum and CMS Work Plan, Combined SWMU 23, Rev 0, November 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.

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Corrective Measures Implementation Plan, LUC Sites, Charleston Naval Complex

SWMU/AOC Number	SWMU/AOC Name	Study Zone	Expected Land Use	Surface Soil COCs	Subsurface Soil COCs	Groundwater COCs	Risk Assessment Conclusions	Reference Document for COC Determination	Exposure Assumptions and Site Conditions Limiting Exposure	Land Use Controls to be Implemented
AOC 543	Former Building 1026	E	Industrial	BEQs (unrestricted and industrial use); lead (unrestricted land use only)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil. Lead in soil above residential risk criteria create unacceptable risk for residential receptors.	RFI Report Addendum and CMS Work Plan, Combined SWMU 23, Rev 0, November 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 550	Boilerhouse	E	Industrial	None (for industrial land use)	None (for industrial land use)	None (for industrial land use)	No COCs were identified for the industrial land use scenario.	RFI Report Addendum, AOC 550, Rev 2, September 2003, CH2M-Jones	Potential human receptors would be limited to site workers.	Although COCs for the industrial land use scenario were not indeitified at the site, land use controls, including use, groundwater, dig, and engineering control restrictions, will be implemented due to the location of this site within the former industrial area of the CNC.
AOC 551	Boilerhouse	E	Industrial	None	None	None	Contamination above background levels was not found at this site.	RFI Report Addendum, AOCs 551 and 552, Rev 1, December 2003, CH2M-Jones	Potential human receptors would be limited to site workers.	Although contamination above background levels was not found at the site, land use controls, including use, groundwater, dig, and engineering control restrictions will be implemented due to the location of this site within the former industrial area of the CNC.
AOC 552	Former Galvanizing Shop	E	Industrial	None	None	None	Contamination above background levels was not found at this site.	RFI Report Addendum, AOCs 551 and 552, Rev 1, December 2003, CH2M-Jones	Potential human receptors would be limited to site workers.	Although contamination above background levels was not found at the site, land use controls, including use, groundwater, dig, and engineering control restrictions will be implemented due to the location of this site within the former industrial area of the CNC.

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SWMU/AOC Number	SWMU/AOC Name	Study Zone	Expected Land Use	Surface Soil COCs	Subsurface Soil COCs	Groundwater COCs	Risk Assessment Conclusions	Reference Document for COC Determination	Exposure Assumptions and Site Conditions Limiting Exposure	Land Use Controls to be Implemented
AOC 559	Central Power Station	E	Industrial	Arsenic (unrestricted land use only). None for industrial use.	None	None	Potential risk from arsenic in surface soil exceeds risk from exposure to background concentrations	RFI Report Addendum and CMS Work Plan, AOCs 559, 560, and 561, Rev 1, April 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 562	Substation	E	Industrial	None	None	None	Contamination above background levels was not found at this site.	RFI Report Addendum, AOC 562, Rev.0, July 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Although contamination above background levels was not found at the site, land use controls, including use, groundwater, dig, and engineering control restrictions will be implemented due to the location of this site within the former industrial area of the CNC.
AOC 563	Former Locomotive House	E	Industrial	None	None	VOCs in groundwater are present at the site but do not appear to have originated from this site. VOC contamination at the site is being addressed as part of AOC 723.	Contamination originating at the site above background levels was not found at this site.	RFI Report Addendum, AOC 563, Rev.1, June 2003, CH2M-Jones		
AOC 567	Substation	E	Industrial	None	None	None	Contamination above background levels was not found at this site.	RFI Report Addendum, AOC 567, Rev.0, May 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Although contamination above background levels was not found at the site, land use controls, including use, groundwater, dig, and engineering control restrictions will be implemented due to the location of this site within the former industrial area of the CNC.

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Corrective Measures Implementation Plan, LUC Sites, Charleston Naval Complex

SWMU/AOC Number	SWMU/AOC Name	Study Zone	Expected Land Use	Surface Soil COCs	Subsurface Soil COCs	Groundwater COCs	Risk Assessment Conclusions	Reference Document for COC Determination	Exposure Assumptions and Site Conditions Limiting Exposure	Land Use Controls to be Implemented
AOC 572	Building 177 Motor Area	E	Industrial	None	None	None	Contamination above background levels was not found at this site.	RFI Report Addendum, AOC 572, Rev.1, June 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Although contamination above background levels was not found at the site, land use controls, including use, groundwater, dig, and engineering control restrictions will be implemented due to the location of this site within the former industrial area of the CNC.
AOC 573	Anodizing Process Area	E	Industrial	BEQs (unrestricted and industrial use)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum, AOC 573, Rev 1, April 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ exceedances only occur within the beneath pavement or adjacent to railroad tracks.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 574	Building 9 Fuel Tank	E	Industrial	BEQs (unrestricted and industrial use)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, Rev.1, Combined SWMU 83, May 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ exceedance occur primarily beneath paved areas so the potential for exposure is low.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 575	Substation, Building 454	E	Industrial	None	None	None	Contamination above background levels was not found at this site.	RFI Report Addendum, AOC 575, Rev.0, August 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Although contamination above background levels was not found at the site, land use controls, including use, groundwater, dig, and engineering control restrictions will be implemented due to the location of this site within the former industrial area of the CNC.

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AOC 576	Oil and Paint Storehouse/Print Office	E	Industrial	None	None	None	Contamination above background levels was not found at this site.	RFI Report Addendum, AOC 576, Rev.0, June 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Although contamination above background levels was not found at the site, land use controls, including use, groundwater, dig, and engineering control restrictions will be implemented due to the location of this site within the former industrial area of the CNC.
AOC 586	Temporary Powerhouse	E	Industrial	PCB (Aroclor-1260)	None	None	Potential risk from PCB in surface soil exceeds the level considered acceptable for the unrestricted land use scenario.	RFI Report and CMS Work Plan, AOC 586, Rev 1, December 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 590	Alley Between Bldgs.79 and 1760	E	Industrial	BEQs (unrestricted and industrial use); mercury (unrestricted land use only)	Mercury	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil. Mercury in surface and subsurface soil exceeds concentrations that might pose a risk to groundwater via leaching. The exposure point concentration for mercury was below the level expected to cause unacceptable indoor air risks.	RFI Report Addendum and CMS Work Plan, Rev.1, SWMU 102 and AOC 590, May 2003, CH2M-Jones	Potential human receptors would be limited to site workers. BEQ and mercury exceedances only occur beneath pavement or concrete floors so potential for exposure or leaching to groundwater is minimal.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 596	Former Torpedo Storage	E	Industrial	BEQs (unrestricted and industrial use); arsenic (unrestricted land use only)	None	None	BEQs in surface soil above sitewide reference concentration create potential risk above that posed by BEQs in background soil. Potential risk from arsenic in surface soil exceeds levels considered acceptable for residential exposure.	RFI Report Addendum and CMS Work Plan, AOC 596, Rev 1, May 2003, CH2M-Jones	Potential human receptors would be limited to site workers. Soil COC exceedance occurs only in two limited area, one of which is below pavement. Therefore the potential for exposure is limited.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.

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SWMU/AOC Number	SWMU/AOC Name	Study Zone	Expected Land Use	Surface Soil COCs	Subsurface Soil COCs	Groundwater COCs	Risk Assessment Conclusions	Reference Document for COC Determination	Exposure Assumptions and Site Conditions Limiting Exposure	Land Use Controls to be Implemented
AOC 597	Substation	E	Industrial	PCBs (Aroclor-1248, Aroclor-1254, and Aroclor-1260) (unrestricted land use only). None for industrial land use.	None	None	PCBs in surface soil exceed concentrations considered acceptable for unrestricted land scenarios.	RFI Report Addendum and CMS Work Plan, AOC 597, Rev 0, July 2002, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 598	Sonar Dome Area	E	Industrial	BEQs (unrestricted and industrial use)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, AOCs 598 and 599, Rev 1, March 2003, CH2M-Jones	Potential human receptors would be limited to site workers. Site pavement prevents exposure to receptors from occurring.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 599	Pier J Pump House	E	Industrial	BEQs (unrestricted and industrial use)	None	None	BEQs in surface soil above sitewide reference concentration create risk above that posed by BEQs in background soil.	RFI Report Addendum and CMS Work Plan, AOCs 598 and 599, Rev 1, March 2003, CH2M-Jones	Potential human receptors would be limited to site workers. Site pavement prevents exposure to receptors from occurring.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 620	Battery Shop	F	Industrial	Arsenic (unrestricted land use only). None for industrial use.	None	None	Potential risk from arsenic in surface soil exceeds risk from exposure to background concentrations	RFI Report Addendum and IM Completion Report, AOC SWMU 36/AOC 620, Rev 0, February 2003, CH2M-Jones	Potential human receptors would be limited to site workers.	Use restrictions (no residential or unrestricted land use allowed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.
AOC 680	Brake Repair and Welding Area	I	Industrial	VOCs (unpaved land use scenario only)	VOCs (unpaved land use scenario only)	None	VOCs in soil may pose a risk to groundwater though leaching under the unpaved land use scenario.	CMS Work Plan Addendum and CMS Report, AOC 680, Rev 0, CH2M-Jones, April 2003	Site will remain paved.	Use restrictions (unpaved land use not allowed unless further evaluation completed). Because the site is in the former industrial portion of the CNC, groundwater, dig, and engineering control restrictions will also be implemented.