

**REVIEW
COMMENT**

PROJECT: Phase IV Remedial Investigation
DOCUMENT: Draft Work Plan (S&W 2004)

LOCATION: Northeast Cape, St. Lawrence Is., AK

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-ES		DATE: 10 June, 2004 REVIEWER: Ronald J. Scrudato PHONE: (315) 312-2883	Response By: Randy Hessong, Shannon & Wilson Field Team Leader; 21 June 2004		
Item No.	Drawing Sht. No., Spec. Para.	COMMENTS (paraphrased for brevity)	Response / Recommended Responder	Correction to Document	Back check by: (Initials)
1.	Page 1	Define GWP	Should say "WP" / S&W author	Change GWP to WP	
2.	Page 6	Pages 2-5 missing.	There was an error in the automatic document pagination. / S&W Author	Correct pagination.	
3.	Page 7	It needs to be recognized that the NEC may become a third permanent community on St. Lawrence Island and therefore will require the range of facilities and resources (i.e. potable water source) that will be needed to maintain and effectively operate a town. ...	Comment not directed toward Phase IV RI WP specifics / USACE – A statement acknowledging the possibility of future permanent residents will be added.	A statement will be added at the end of the first paragraph of Section 2.1 (p. 7) stating "The establishment of a permanent community at Northeast Cape is being discussed by the residents of St. Lawrence Island.	
4 and 5.	Section 2.2, Page 8	-Information and observations related to surface and subsurface hydrology and contaminants of concern, request for a better understanding of NEC hydrology-	USACE – Water level information from all existing monitoring wells at the Main Complex will be collected, to gain a better understanding of the hydrology in that vicinity.		
6.	Page 11	ADEC standards should be reviewed in relation to the analytical protocols used to characterize soils and waters at the NEC	Comment not directed toward Phase IV RI WP / ADEC		
7.	Page 12 Sec. 4.1	If this was a burn site, dioxins and dibenzofurans (combustion byproduct of polychlorinated biphenyls), as	Concern for products of incomplete combustion is understood, but not in		

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		well as the listed suite of contaminants, should also be included in the proposed analysis.	SOW. / USACE – There has been no evidence of burning activities or a pit in the vicinity of Site 1, the planned additional samples are to verify no impacts from the hypothesized area of concern.		
8.	Sec. 4.2.2	All drilled borings and or monitoring wells should be sampled at the base of each drill hole. Within Site 88, drilling results indicated contaminants were found near or at the base of select drill holes indicating the vertical extent of the contamination remains undetermined.	Soil samples collected from borings will be selected for analysis based on headspace screening and field observations. Soil samples from the groundwater interface generally provide more useful information than soil samples from below the water table. With split spoon sampling, the depth from which a sample is collected is the important parameter, not whether it is near the bottom of the final boring.	A statement will be added to Section 5.4 of the Work Plan and Section 5.2.2 of the FSP stating “The determination of the vertical extent of contamination is desired at most locations. Recognizing that soils from below the water table often exhibit lower headspace results than soils above the water table for the same magnitude of contamination, consideration will be	

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				given to soils below the water table when selecting samples for analytical testing.”	
9(a).	Page 13, Sec. 4.2.2	Please cite the proposed detection limits for each of the proposed analytes to be sampled and analyzed as well as the ADEC standards.	See Table A2-1 in the QAPP	None	
9(b).	Page 13, Sec. 4.2.2	Both water and sediments need to be sampled and analyzed from this area and the sampling and analytical protocols (filtered/unfiltered), including detection limits, need to be specified.	The SOW specifies water OR sediment if water is not present. Filtering water is not specified, the FSP discusses sampling protocol, and Table A2-1 of the QAPP includes detection limits. / USACE – The primary objective of this investigation is to delineate the extent of previously observed shallow groundwater contamination.		
10.	Sec. 4.3.2	PCBs have been found at the Cargo Beach Drum Field and should be included in the planned sampling including water and soil samples. Please list the anticipated analytical protocols including filtering and detection limits and changes in concentrations with depth that will provide insight to the depth and extent of soil contamination. Additionally, shouldn't there be a northern monitoring well to ensure understanding of the potential migration to the north/northeast?	PCB analysis of soil is planned, and the analytical protocols are included in the FSP. PCB analysis of water is not in the SOW / USACE - PCB analysis of the groundwater samples was added to the SOW by Modification 001. However, PCBs have not been historically detected at Site 6. In previous work, the laboratory detection limits exceeded ADEC screening		

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			levels due to matrix interference and high levels of fuels in the samples. A well point to the north of Site 6 was sampled in 2001 and no contamination was detected.		
11.	Page 14, Sec. 4.4.1	Bore holes and well points should be advanced and sampled from within the buried waste materials, not the overlying cover material. At this juncture, it is not known if the underlying buried wastes contain significant concentrations of contaminants.	Not in SOW / USACE – The objective of the additional sampling is to refine the extent of potential PCB contamination detected during the 2001 investigation. The FUDS program is focused on migration of contaminants away from landfills, not within.		
12(a).	Page 15, Sec. 4.6.2	It will be important to sample and analyze the base (last 3-6 inches) of each advanced boring to ensure maximum depth of contamination is defined by this phase of the remediation process. It also seems additional borings will be required to gain a better appreciation of the lateral and vertical extent of contamination.	Deepest interval is to be analyzed, as stated in WP. Also see Item 8 Not in SOW / USACE	None Show buried drum location on Figure 8 / S&W drafting	
12(b).	Page 15, Sec. 4.6.2	It will also be important to learn more about the groundwater geochemistry of this site particularly the natural attenuation characteristics. I suggest that the following parameters be monitored: water and soil temperatures, pH, ORP, dissolved oxygen, sulfates, specific conductivity, dissolved iron and alkalinity.	This comment is believed to have come from Section 4.7.2 rather than 4.6.2. The parameters noted are planned to be measured in the groundwater and are described in the text as “natural attenuation indicators.”	None	

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12(c).	Page 15, Sec. 4.6.2	In addition, I suggest that the above listed parameters be determined at each of the proposed soil/groundwater well points in order to learn more about the potential for assessing proposed remedial alternatives and that the data be included in all subsequent reports.	Not in SOW / USACE		
13(a).	Page 16, Sec. 4.7.2	If they (existing wells) are not able to be sampled, what will be done? This is an important and upgradient area that has the potential to impact large downgradient regions of the NEC site.	Based on Task Order 006, Modification 1, all ten wells installed at Site 88 in 2002 and two wells from Site 11 will be sampled if possible. This will maximize the data from all intact wells in the vicinity.	WP will be modified to reflect Mod 1 changes in scope.	
13(b).	Page 16, Sec. 4.7.2	Will there be two additional wells developed? If so, why are the downgradient northern and western areas not included in the proposed monitoring?	The two new wells shown on Figure 8 are discussed in Sec. 4.6. Additional locations not in SOW / USACE – The SOW was modified to include sampling of all 10 existing monitoring wells at the Main Complex.		
13(c).	Page 16, Sec. 4.7.2	Please list the range of natural attenuation parameters to be monitored at this site.	See Tables A1-2 and A2-1 in the SAP		
14(a).	Page 17, Sec. 4.9.2	I again recommend basal (bottom 3-6") samples be collected in order to ensure the vertical extent of contamination is effectively determined.	See Item 8	See item 8	
14(b).	Pages 17&18, Sec. 4.9.2	Based on the trace metal concentrations in the sediment core samples collected from the Suqi drainage, mercury and arsenic concentrations are elevated in the sediments and should be included in the suite of analytes.	Based on Task Order 006, Modification 1, mercury analysis has been added to the suite of metals analysis at several sites.	Update WP, FSP, and QAPP the reflect addition of mercury analyses	

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14(c).	Pages 17&18, Sec. 4.9.2	Why not collect and analyze samples from all existing wells to gain a better understanding of the extent and degree of groundwater contamination? I believe additional wells will be required to effectively define the lateral and vertical impacts at this site.	Based on Task Order 006, Modification 1, all ten wells installed at Site 88 in 2002 will be sampled. / USACE – Installation of additional MWs is not possible at this time.	WP will be modified to reflect Mod 1 changes in scope.	
14(d).	Pages 17&18, Sec. 4.9.2	What are the source(s) of the contamination? Will the proposed remedial investigations define the source(s) of the petroleum and the effects Site 88 has on the downgradient regions of the NEC site?	The primary sources have been removed. Impacted soil can be a secondary source. The planned sampling will help characterize the secondary source and concentrations moving in groundwater. / USACE – The objective of this investigation is to determine the lateral extent of fuel contamination at the Main Complex.		
14(e).	Pages 17&18, Sec. 4.9.2	Please list the suite of natural attenuation parameters to be monitored.	See Tables A1-2 and A2-1		
15(a).	Pages 20&21, Sec. 4.12.2.	Plans should be made to collect basal samples to ensure depth of contamination is defined.	See Item 8	See Item 8	
15(b)	Pages 20&21, Sec. 4.12.2.	Is the proposed well located sufficiently and effectively downgradient of potential source(s)?	USACE – The planned monitoring well located south of the former water storage building is intended to be upgradient of Site 22, but downgradient of potential influence from the White Alice Site.		
16(a).	Page 21, Sec. 4.13	This description poorly defines the site and the diagram (figure) is not useful in its current state.	S&W has not been to the site, and has not received a good diagram of the site.	Request better descriptions and	

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			<p>USACE / USACE has provided approximate locations of the temporary construction building locations, based on analysis of historical aerial photographs. The former buildings were removed, thus they do not appear on the standard as-built drawing basemap.</p>	<p>drawings from USACE. Show Contractor's Camp, and Water Storage Building on Figure 13</p>	
<p>16(b).</p>	<p>Pages 21&22 Sec. 4.13.2</p>	<p>How will one well be used to define the hydrology of the site? Appears this site will require greater attention to effectively define the lateral and vertical extent of groundwater impacts including source areas.</p>	<p>As discussed during the Review Conference and incorporated into Modification 1, a shallow well will be drilled and sampled at the site to investigate the nature of a potential confining layer and to assess the water quality of the shallow aquifer (if any). If contamination is not present in the shallow aquifer, the deep well will be installed. A conductor casing will be grouted into the confining layer. The well will then be extended out the bottom of the conductor casing to the desired depth. The field crew will be prepared to deal with the possible artesian conditions that were identified during explorations at the site in the 1950's.</p>	<p>Section 4.13.2 will be revised to reflect the change in scope and procedures for completing the well under artesian conditions.</p>	

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17	Pages 22&23, Sec. 4.14.2	...why not define the extent of groundwater impacts deriving and contributed by this facility....Groundwater contaminants including PCB concentrations are needed.... A minimum of three groundwater monitoring wells should be developed....groundwater natural attenuation parameters should be assessed, as well as the concentration of select trace metals including arsenic and mercury.	Not in SOW / USACE – No groundwater monitoring is planned for the White Alice site. The primary purpose of the sampling effort is to define the lateral and vertical extent of soil contamination for remedial design purposes (estimated quantities).		
18	Page 25, Sec. 4.16additional substances have been defined (in the Suqi. Drainage) from the sampling conducted by the NIEHS group in 2002 and 2003 including mirex, a chlorinated compound used as a fire retardant, and the pesticides hexachlorobenzene (HCB) and a DDT degradation product, DDE, as well as, mercury and arsenic. All of these substances are elevated in the sediment core sample intervals that correspond with the time period the military occupied the NEC area.	Scoping question / USACE – Modification 001 to the SOW added analysis of mercury and PCBs to the planned sediment samples.	WP will be modified to reflect Mod 1 changes in scope.	
End		Attached excel files and charts.	Not received		