FINAL
WORK PLAN ADDENDUM
SPRING 2006

FWA-102 FORMER COMMUNICATION SITE
(TAKU GARDENS)

FORT WAINWRIGHT, ALASKA

Contract No. W911KB-04-P-0136

Prepared for:

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AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
bgs	below ground surface
CoC	chain-of-custody
DFW	definable features of work
DPW	Directorate of Public Works
EOD	Explosive and Ordnance Demolition
FSP	Field Sampling Plan
IDW	investigation derived waste
NOAA	National Oceanic and Atmospheric Administration
North Wind	North Wind, Inc.
PDT	Project Delivery Team
POC	point of contact
PID	photoionization detector
PPE	personal protective equipment
PQL	practical quantitation limit
QAPP	Quality Assurance Project Plan
RI/FS	Risk Assessment/Feasibility Study
SAP	Sampling and Analysis Plan
SQUIRT	Screening Quick Reference Tables
SSHP	Site-Specific Safety and Health Plan
USACE	U. S. Army Corps of Engineers, Alaska District
USEPA	U.S. Environmental Protection Agency
UXO	unexploded ordnance

1.0 INTRODUCTION

The U.S. Army Corps of Engineers, Alaska District (USACE) tasked North Wind, Inc. (North Wind), with delineating the extent and nature of contamination at various locations on Fort Wainwright, Alaska under Contract No. W911KB-04-P-0136.

The *Site Characterization and Remediation Work Plan, Revision 2* (USACE, 2006a) includes the Sampling and Analysis Plan (SAP) (Appendix A) and Site-Specific Safety and Health Plan (SSHP) (Appendix B). The Work Plan provides the overall data quality objectives for the project but may not include all elements of the individual tasks performed under this contract. The SAP defines the methods that will be followed for sample collection and analysis. Therefore, this Work Plan Addendum for the investigation of select sites at the FWA-102, Former Communication Site (Taku Gardens) describes the known definable features of work (DFW), implementation strategy, and objectives for the task that will be performed during the spring and summer 2006 field effort.

The purpose of this additional field task is to identify contaminants that may be present in subsurface soil and groundwater at the site in areas not investigated in 2005. Analytical data may be compared to the Alaska Department of Environmental Conservation (ADEC) 18 Alaska Administrative Code (AAC) 75 Under 40 Inch Zone and groundwater criteria (ADEC, 2004) to evaluate potential areas of concern. The laboratories will provide reporting limits that are 10 times less than the action limits established by ADEC or U.S Environmental Protection Agency (USEPA). In some cases the laboratory reporting limits may exceed the criteria (e.g. elevated limits may be due to dilutions performed on samples containing high concentrations of target analytes, low percent solids, non-target analyte matrix interference). The reporting limit may become the action limit should available technology and cost limit reanalysis of the samples. The scope covered by this addendum is limited to the collection of samples from test pits, soil borings, sediments, and groundwater monitoring wells in areas that were not previously fully characterized.

The data collected during this field effort will supplement data collected in 2005 and support a future remedial investigation of the site. Figure 1-1 provides the locations where samples were

collected during the 2005 investigation. This figure does not represent all results that were reported for each location. Wipe samples that were collected from equipment, flower pots, and the dismantled outdoor recreational equipment are not on this map because the locations are not considered permanent. Additionally, the results for groundwater wells and soil borings are presented in tables and appendices included in the 2005 Field Report and not on the figure because the list of analytes is too extensive to present in this format. Approximately 2,000 samples were collected in 2005 and a small percentage of these samples were collected at depths greater than 4-feet below ground surface (bgs). Most soil samples collected in 2005 were collected from the surface of open trenches or stockpiles or from soil borings at depths ranging from 0-4 feet bgs. Therefore, the focus of this field effort will be on contamination at depths greater than 4 feet bgs. The analytical data collected in 2005 is provided in the *FWA-102 Former Communication Site, Field Data Report* (USACE, 2006b). A limited number of soil samples were collected to the depth of groundwater at 22 locations where soil borings were advanced using a direct push technology. The analytical data collected in 2005 is provided in the *FWA-102, Former Communication Site, Field Data Report* (USACE, 2006b). Results were screened against ADEC criteria.

The DFW for this field effort are separated into four phases that are summarized below and in greater detail in Section 2.0 of this addendum. Phases or elements of phases may be performed concurrently as needed.

Phase 1 will focus on areas where metal debris may be or is known to be buried that may present a hazard when drilling soil borings. Additional focus may be placed on identification of buried debris, potential hazards, and an analytical suite needed to fully characterize the chemical risk in soil and groundwater. A team of Explosive and Ordnance Demolition (EOD) experts will be on-site at all times during intrusive activities. Soil samples collected from the bucket of an excavator may be tested for the analytical parameters listed in Table 2-1.

Phase 2 includes the installation of soil borings that will be used to collect soil samples at depth to further characterize the site. Surface and sediment samples may also be collected during this phase to evaluate runoff and dewatering impacts.

Phase 3 will include installation of temporary wells in the areas where soil boring analytical data indicate potential impact to groundwater quality.

Phase 4 will focus on installation of permanent groundwater monitoring wells that will be used for long-term monitoring.

A separate work plan addendum will be written based on information collected during the 2005 and 2006 field efforts; it will discuss the details of the Risk Assessment/Feasibility Study (RI/FS) and baseline risk assessment to be performed at Taku Gardens.

Additional data is needed to fill data gaps and characterize areas of the site that were not accessible during 2005, or were not critical to construction activities on-site. The technical approach summarized in Table 2-1 for this field effort is based on the following information that was reviewed by the project team:

- Review of metals data against background levels at Fort Wainwright and in the Fairbanks area (USACE, 1994);
- Review of metals data against naturally occurring levels in Fairbanks, Alaska area (USGS, 1988);
- Results of foundation studies and HTRW surveys for replacement housing in areas FTW-251 and FTW-283 performed by USACE in 2004 (USACE, 2004b and 2004c);
- Geotechnical data collected by USACE in 2004;
- Analytical data reported in the 2005 Field Data Report (USACE, 2006b);
- Analytical data collected by Shannon and Wilson during construction activities in 2005;
- Photographs taken of construction activities in 2005;
- Field notes taken during construction activities in 2005;
- Dewatering activities and analytical data collected in 2005;
- Information collected during interviews with individuals familiar with historical activities at the site;
- Aerial photos of the site taken during the 1940s, 1950s, 1960s, and 2005 that document historical activities and changes to the site; and
- Data from two geophysical surveys indicating the location of metal anomalies.

2.0 FIELD ACTIVITIES

The field activities planned for 2006 under this work plan addendum will be approached in phases. Prior to the site characterization site, control activities may be required. These activities will include the installation of a settling pond in the southwest corner of the Taku Gardens site. This settling pond will be designed to collect storm water from natural drainage at the site. This temporary structure will be constructed with a lined bottom so that both sediment and water samples can be collected. The settling pond may be decommissioned after runoff is no longer a concern. During Phase 1, open excavations will be visually inspected by the North Wind field team for debris that would indicate the presence of material that may be considered hazardous to site personnel or the environment. Table 2-1 provides the approximate location and number of test pits that will be excavated in each area of concern. The depth will depend on the professional judgment of the field team and as observations at each excavation are made. The EOD personnel familiar with munitions and explosives per Engineering Pamphlet 75-1-2 (USACE, 2004a) will be on-site during the excavation activities to identify the types of debris uncovered and evaluate site safety for future activities. Additionally, North Wind's corporate health and safety policies require a person trained in the proper use of the Ludlum Model 3 Survey Meter with a Model 44-9 GM Pancake Probe (detector) to be on-site to screen excavations for potential radioactivity that exceeds background. This survey meter detects alpha, beta, and gamma radiation levels and measures low level radiation ranging from 0-200 milliroentgens/hour. The following requirements will apply to handling, storage and use of this meter:

1) The trained person conducting the radiological surveys will be the source custodian.

2) The instrument will be inspected upon receipt and the exempt sealed source will be surveyed (swipe) ensure integrity. This will be documented in the field logbook.

3) A separate controlled area will be designated for conducting daily source checks of the instrument. This uncontaminated area will be posted so that potentially contaminated materials are not placed in this area.

4) The sealed source will be stored in a secure area (locket cabinet or equivalent) when not in use. The source and source container must be properly labeled as radioactive material.

5) The response check/source check performed daily will be documented in the field logbook and on the required form (Refer to Appendix A for this form).

The information collected during this phase will be reviewed to evaluate plans for future activities at the site. The excavation of test pits will be primarily in areas that have known or suspected metal debris. Table 2-1 provides the approximate location of test pits that may be installed in Phase 1. Samples will be collected according to the procedure provided in Section 1.0 of the Work Plan SAP (USACE, 2006a).

Soil borings will be installed during Phase 2 in areas that are determined to be safe based on the results of Phase 1, and in areas not fully characterized at depth. Soil borings will be installed in areas where potential contamination may exist at depths greater than 4 feet. Soil borings may be installed to the depth of groundwater. Surface soil and sediment samples may also be collected during this phase to evaluate impact of runoff and dewatering activities at the site. Samples will be collected according to the procedures provided in Section 1.0 of the Work Plan SAP (USACE, 2006a).

Phase 3 will begin after soil boring data are reviewed. Temporary wells will be installed in areas where soil data indicate contamination levels may present a risk based on comparison with results to ADEC 18 AAC 75 criteria (ADEC, 2004) or USEPA where appropriate. Samples will be collected according to the procedures provided in Section 1.0 of the Work Plan SAP (USACE, 2006a).

The last phase of the task covered by this work plan addendum will involve the installation of permanent groundwater wells that can be used for long-term monitoring. The procedures described in the Fort Wainwright Site Characterization Work Plan (USACE, 2006a) will be followed for this task. Samples will be collected according to the procedures provided in Section 1.0 of the Work Plan SAP.

Table 2-1 summarizes the sample rationale and analytical suite that may be required for each location. Concerns listed in this table are based on soil data unless otherwise noted. Sample locations may require slight adjustments based on field team professional judgment, utility locations, and site activities. Field activities will begin after utility (above and below ground) locates and dig permits are finalized. The analytical methods that will be required to the various parameters listed are provided in the Quality Assurance Project Plan (QAPP), Section 2.0 of the Work Plan SAP (USACE, 2006a). The analytical suite may be modified from that listed in

Table 2-1. The final analytical suite will be determined and approved by USACE, Directorate of Public Works (DPW), ADEC, and USEPA. A kickoff meeting will be held at the DPW office on Fort Wainwright prior to beginning each phase of work. During this meeting, the task to be performed will be discussed, clearances will be obtained or verified, analytical approach will be discussed, and safety concerns will be addressed. A kickoff meeting will be held each time the investigation moves to another area.

Table 2-1 Sample Type, Location, Test Methods, and Rationale

Project Phase	Area	Method of Characterization	Concern	Magnetometer Indicates Metal Debris at Depth	Photo of Debris	Analytical Suite
PHASE 1 & 2	**B.1**	Test Pit E, S, and N of Bldg	1) Odor noted during construction activities at culvert location, 2) S&W field personnel became ill after working in this area, 3) location of 3 transformers noted in early photos of site, 4) contaminated soil removed (15 truck loads)	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels
PHASE 1 & 2	**B.2**	Test Pit E, S, and N of Bldg	1) Photoionization detector (PID) hits in field not confirmed by analytical data, 2) POL odor SW corner, 3) W. of B.2 fine sand, 4) hydraulic oil spill	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels
PHASE 1 & 2	**B.3**	Test Pit S and N of Bldg	1) Odor noted during construction activities, 2) S&W field personnel became ill after working in this area Sewer trench worse	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels
PHASE 1 & 2	**B.4**	Test Pit S and N of Bldg	Contamination associated with buried debris not documented in field construction notes	Yes	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels
NONE	**B.5**	NONE	NONE	NONE	NONE	NONE
NONE	**B.6**	Test Pit S and N of Bldg	NONE	Yes	NONE	NONE
NONE	**B.7**	Fully Characterized in 2005	1) POL soil and GW contamination exceeds ADEC criteria, 2) leaking drum removed with excavator bucket and placed in POL-stockpile, 3) debris left in sidewalls PID 80, 4) POL contamination, 5) timber between B.7 and B.8	Yes	NONE	NONE
NONE	**B.8**	Fully Characterized in 2005	POL soil and GW contamination exceeds ADEC criteria PID 1100, POL soil removed	NONE	Yes	NONE
NONE	**B.9**	Fully Characterized in 2005	1) POL soil and GW contamination exceeds ADEC criteria, 2) sweet odor noted during construction 3) strong odor PID insitu 5ppm hydrocarbon odor	Yes	Yes	NONE
NONE	**B.10**	Fully Characterized in 2005	1) POL soil and GW contamination exceeds ADEC criteria, 2) metal debris in SW sidewall	NONE	NONE	NONE
PHASE 1	**B.11**	Test Pit S and N of Bldg	1) WWII trench runs through area of B.11, 12, 13, and 14, 2) electrical contractor noted strange odor NE of B.11, 3) burned debris and 6X6 cylinder, PID 777 hydrocarbon odor, 4) crushed drums, 5) soil removed and transferred to stockpile (70 cy)	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue
PHASE 1	**B.12**	Test Pit S and N of Bldg	1) Sour milk odor noted S of building during construction, 2) decaying wood debris and burned wood	Yes		PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue
PHASE 1	**B.13**	Test Pit S and N of Bldg	1) Burnt wood NE side of area, ash appearance to soil, 2) crushed drums, 3/4" steel pipe, concrete pipe, 3) PID 71,000	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue
PHASE 1	**B.14**	Test Pit S and N of Bldg	WWII trench runs through area of B.11, 12, 13, and 14	Yes		PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue
PHASE 1	**B.15**	Test Pit N of Bldg	1) Crushed fuel drum w/ orange paint product or moisture in drum, 2) debris voids in side walls 3) canisters and other debris, 4) PID indicates fuel contamination, 5) septic odor, 6) debris left in sidewall	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue
PHASE 1	**B.16**	Test Pit N of Bldg	Septic odor	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue
PHASE 1	**B.17**	Test Pit N of Bldg	1) Crushed drum w/ orange paint	Yes	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue
NONE	**B.18**	NONE	NONE	NONE	NONE	NONE
PHASE 1	**B.19**	Test Pit N and E of Bldg	1) Bricks in excavation side wall, 2) sandy soils, 3) metal debris in walls, 4) airplane pieces removed, 5) POL detected during construction	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue, herbicides
PHASE 1	**B.20**	Test Pit N, S, and E of Bldg	Metal debris in NE wall	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue, herbicides
PHASE 1	**B.21**	Test Pit N, S, and W of Bldg	1) Foul odor, 2) spent artillery shells in excavation; 3) Fire Captain Scott Hunt indicated that drums were found in this area in response to a brush fire.	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.22**	Test Pit S and W of Bldg	1) Blue granular material, 2) drums and corroded metal in sidewall3) Fire Captain Scott Hunt indicated that drums were found in this area in response to a brush fire. 4) location of previous debris pile, 5) sample taken by USACE indicates PCBs and metals are present, 6) crushed drum with liquid inside and non-POL sheen, PID zero, 7) spent artillery shells, 8) stiff brown silt	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.23**	Test Pit S and N of Bldg	1) Spent artillery shells in excavation 6 inch diameter and 3 ft long, 2) drum with yellow paint, 3) 30 ft of orange staining and septic odor, 4) debris in sidewall of ramp	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions

Table 2-1 Sample Type, Location, Test Methods, and Rationale (Continued)

Project Phase	Area	Method of Characterization	Concern	Magnetometer Indicates Metal Debris at Depth	Photo of Debris	Analytical Suite
PHASE 1	**B.24**	Test Pit S and N of Bldg	1) Shells and debris in sidewall, 2) photo of cylinder leaking yellow frothy liquid into excavation, PID zero, 3) fine wet sand, 4) hydrocarbon odor, 5) crushed fuel tank	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.25**	Test Pit SW, SE, and N of Bldg	Debris between B.22 and B.25, drum storage area	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.26**	Test Pit SE, E, and N of Bldg	1) Burn area with burnt wood and black ash, 2) no building in place, 3) Fire Captain indicated drums containing transformers were stored east of this area and noting leakage during response to a brush fire, 4) foul odor	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.27**	Test Pit N, SE, and E of Bldg	1) layered fill and fine sand, 2) fuse rocket dummies N or B.27 near glycol line in stockpile; 3) Fire Captain indicated drums containing transformers were stored east of this area and noting leakage during response to a brush fire	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.28**	Test Pit NW and NE of Bldg	1) Analytical data report presence of TICS associated with 2005 sample, 2) sulfate 101 ppm and chloride 5.32 ppm, 3) Fire Marshal indicated drums were stored west of this area and may have contained transformers, 4) crushed 55 gal drum leaking oil, PID 38, 5) PID 45, chemical odor or septic odor not POL, 6) fine sand	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.29**	Test Pit N, S, and SE of Bldg	Fine sand, metal debris MH-6, septic odor	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.30**	Test Pit N and S of Bldg	1) Drums, 2) soft white-pinkish powder, 3) sulfate 701 ppm	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.31**	Test Pit N, SE, and E of Bldg	1) 5-gal and 55-gal containers of white powder with chlorine odor, 2) drums with one leaking oil onto ground, 3) PID reading of 235 ppm and soil was removed	NONE	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.32**	Test Pit N of Bldg	PID readings indicated volatile contaminants in area potential POL	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
NONE	**B.33**	NONE	PID 93	NONE	NONE	NONE
PHASE 1	**B.34**	Test Pit N of Bldg	NONE	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.35**	Test Pit N and W of Bldg	1) Burnt debris, 2) stiff fine sand	Yes	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
PHASE 1	**B.36**	Test Pit N and W of Bldg	1) Concrete pipe line and small metal piping, 2) foul decaying matter, septic odor, 3) burnt debris, 4) concrete pipe and 15 ft long 1ft dia pipe	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue, anions
NONE	**B.37**	NONE	(Fine sand)	NONE	NONE	NONE
PHASE 1	**B.38**	Test Pit N and S of Bldg	Several low level PCB hits in 2005 (0-4 ft bgs)	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1	**B.39**	Test Pit N and S of Bldg	Mothball odor, orange silt, clay, fine sand	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1	**B.40**	Test Pit between Bldgs 38 and 40	Low PCB hits in 2005 (near B.38)	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF
NONE	**B.41**	NONE	NONE	Yes	NONE	NONE
NONE	**B.42**	NONE	Fine sandy material in excavation	Yes	NONE	NONE
NONE	**B.43**	NONE	Brown/grey patches of silt	Yes	NONE	NONE
NONE	**B.44**	NONE	NONE	NONE	NONE	NONE
NONE	**B.45**	NONE	Found pad	NONE	NONE	NONE
NONE	**B.46**	NONE	Fine sand	NONE	NONE	NONE
PHASE 3	**B.47**	Test Pit N and S of Bldg	Fine sand	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue
PHASE 3	**B.48**	Test Pit N and S of Bldg	1) 2 crushed drums, 2) one drum mostly intact with white residue on bottom, 3) one drum with liquid draining from within, low PID reading, 4) foul septic odor, metal debris, 5) location of fuel bladder with strange odor, 6) gas cylinder, 7) orange paint on crushed drum, 8) cables	Yes	Yes	PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue
PHASE 3	**B.49**	Test Pit N and S of Bldg	Buried cables under overhead power lines	Yes	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, explosive residue

Table 2-1 Sample Type, Location, Test Methods, and Rationale (Continued)

Project Phase	Area	Method of Characterization	Concern	Magnetometer Indicates Metal Debris at Depth	Photo of Debris	Analytical Suite
PHASE 1& 2	**B.50**	Test Pits and Soil Borings	PCBs detected in 2005 surface samples and subsurface (include playground area)	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.51**	Test Pits and Soil Borings	Decomposing organic material odor, anaerobic odor, PCBs detected in 2005 surface samples; Aroclor 1254 was detected in this area at a concentration of 0.5 mg/kg. Aroclor 1260 was the common PCB detected in all other areas.	NONE	Yes	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.52**	Test Pits and Soil Borings	Mothball solvent odor, foul smell, PCBs detected 20065 utilitiy pole and cable in excavation as well as other unidentified debris; Fire Captain responded to a fire in an area involving drums oil orproduct and located an abandoned transformer near dumpsters in this area	Numerous Scattered Debris	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.53**	Test Pits and Soil Borings	Septic odor metal in sidewall, elevated PID not odor,	Numerous Scattered Debris	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.54**	Test Pits and Soil Borings	PCBs detected in 2005	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.55**	Test Pits and Soil Borings	High septic odor, organics, large Magnetomer Anomaly SE of building	Numerous Scattered Debris	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.56**	Test Pits and Soil Borings	S. B.56 WCC spilled oil and salt from a drum	Numerous Scattered Debris	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.57**	Test Pits and Soil Borings	1)Layer of black foul smelling organic material south side of B.52, 2) stiff silt, large. Magnetometer Anomoly SW of Bldg	Numerous Scattered Debris	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.58**	Test Pits and Soil Borings	MH-2 E of B.58 drum with small artillery w/powder, PID 7100 ppm W. wall stiff silty fine sand, organic staining	Numerous Scattered Debris	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1& 2	**B.59**	Test Pits and Soil Borings	Stiff dark brown silt	Numerous Scattered Debris	NONE	PCBs, VOCs, SVOCs, Metals, DF
NONE	**B.60**	NONE	Debris, organics, garbage PERMAFROST	NONE	NONE	NONE
NONE	**B.61**	NONE	PERMAFROST	NONE	NONE	NONE
NONE	**B.62**	NONE	Organics in sidewall PERMAFROST	NONE	NONE	NONE
NONE	**B.63**	NONE	PERMAFROST	NONE	NONE	NONE
NONE	**B.64**	NONE	White (creamy) powder clump in sidewall of trench E of area PERMAFROST	NONE	NONE	NONE
PHASE 1	**Corridor W of SAS**	Test Pit along W fenced area extending to B.1	Previous location of transformers	NONE	Yes	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1	**Area E of SAS**	Test Pit on E side in area where metal debris was buried in river meander	Metal debris in meander extends above Taku Gardens	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF
PHASE 1	**Corridor W of Sound Barrier**	Multiple Test Pits	UNKNOWN AREA POSSIBLE AREA OF DRUM AND TRANSFORMER STORAGE	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue, herbicides, anions
PHASE 21	**SW Drainage**	Surface Soil Samples	Runoff and snow melt may have impacted surface soil	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue, herbicides, anions
PHASE 2	**Effluent to Chena**	Sediment Samples	Sediments impacted by dewatering activities	NONE	NONE	PCBs, VOCs, SVOCs, Metals, DF, Fuels, perchlorate, explosive residue, herbicides, anions
PHASE 3	**4700A**	SB		NONE	Yes	PCBs, VOCs, SVOCs, Metals, DF
	MH-N		Photo of discolored soil in utilidor excavation	NONE	NONE	NONE
	MH-L		Anaerobic odor	NONE	NONE	NONE

Table 2-1 Sample Type, Location, Test Methods, and Rationale (Continued)

NOTES:

B.# - Building represents footprint area for building construction

DF	DIOXIN FURAN
SB	SOIL BORING
FUELS	GRO/ DRO/RRO
ANIONS	phosphate, chloride, sulfate, nitrate/nitrite
	PCB AREA
	PERMAFROST AREA
	MEANDER DEBRIS
	WWII DEBRIS
	BURN AREA
	TRANSFORMERS

Analytical suite may be modified to include pesticides, herbicides, anions, and other methods as data on past activities become available.
All changes to analytical suite will be approved by the USACE, DPW, EPA, and ADEC before samples are tested.
Extra containers of soil and water may be collected and held at the laboratory or on-site refrigerator until decisions are made.
Analytical procedures and reporting requirements are provided in the QAPP, Section 2.0 of the Work Plan SAP.
SAS – The after school activity building located to north of Taku Gardens.

2.1 Test Pits

Test pits will be used to obtain additional information on soil and site conditions in areas that may not have been previously disturbed during construction activities. Soil samples may be collected from test pits and tested for the analytical parameters listed in Table 2-1. Samples will be collected from the bucket of the excavator. Excavations will not be entered by field personnel. After excavations are photographed and soil samples are collected, uncontaminated soil will be placed back into the excavation. If excavated soil appears to be grossly contaminated (elevated PID reading, visual staining, odor, etc.) or contains debris, soil will be placed on a plastic liner until the project delivery team (PDT) determines how the soil shall be managed. Stockpiled soil will be covered if not immediately removed from the site or placed in drums. Debris removal will not be performed as part of this task. As necessary, North Wind will backfill and compact open excavations with clean borrow material and return all disturbed areas to their pre-existing surface elevations. If drums or cylinders containing liquid or solid material are found within the excavations, the Fort Wainwright point of contact (POC) and ADEC's Prevention and Emergency Response and Contaminated Sites Program leads will be notified. North Wind will containerize (over pack) any leaking containers encountered and will coordinate with the Fort Wainwright POC for disposal. The drums and other debris will be removed and stockpiled as soil is excavated during site characterization. Metal debris will be placed on liners near the excavations for inspection by unexploded ordnance (UXO) technicians and PDT. Final disposition will be determined by the PDT. North Wind may provide off-site transportation of uncomataminated metal debris as requested by the USACE. Excavated soil that appears to be contaminated based on visual observation, association with contaminated metal debris, or if the results of the PID heated headspace testing is greater than 100 ppm, will be placed in a temporary stockpile on the site. Excavations will be backfilled with uncontaminated soil from a source that will be determined by the PDT. If soil that has been removed is adequately characterized and determined to be uncontaminated, this soil will be used to backfill the excavation.

Table 2-2 provides the names of the key project team members and their contact numbers. The North Wind project manager shall be first in the line of contacts for project information and safety. Dan McGauhey is second in the line of contacts for site information. Joe Malen will be

contacted if field issues or concerns are identified after Robert Brock is notified. A Communications Plan will be developed that clearly defines the lines of communication and points of contact for the project.

Table 2-2 Project Team Points of Contact

Name	Project Role	Telephone Number(s)
Gloria Beckman	North Wind Project Manager	Ofc: 907-277-5488 Cell: 907-223-7870
Robert Brock	USACE Project Manager	907-753-5612; Cell 907-227-7202
Joe Malen	DPW Fort Wainwright POC	907-353-4512
Cristal Fosbrook	DPW Project Manager	907-384-2713
Therese Deardorff	DPW Technical Support	907-384-2716
Karen Dearborne	DPW Technical Support	907-384-2694
Julie Sharp-Dahl	USACE Environmental Scientist	907-753-5689
Dan McGauhey	North Wind Site Manager	Cell 907-441-7750
Julie Clark	North Wind Lead Field Sampler	Cell 907-441-2543
Bruce Miller	North Wind Health and Safety Manager	Ofc.: 208-520-4644 Cell: 208-528-8714
Joey Gillespie	North Wind Operations Manager	907-277-5488
Jacques Gusmano	USEPA	907-271-5083
Sharon Richmond	ADEC Project Manager	907-451-2158
Amanda Stark	ADEC Prevention and Emergency Response	907-451-2175
TBD*	ADEC Contaminated Sites	
TBD*	ADEC Spill Prevention and Response	

* Additional information will be provided in the Taku Gardens Communication Plan.

The Fort Wainwright Work Plan (USACE, 2006a) provides additional POC information for the project.

A trained person will use a radiation survey meter on-site to screen the area for potential radioactivity levels that may be above background. Screening will be performed on open excavations containing unidentifiable materials to ensure the health and safety of the site personnel. The Fort Wainwright, USEPA, and ADEC POCs will be contacted if radioactive levels exceed background. Background levels will be determined by collecting 10 readings from

a non-contaminated area, documented, and provided to the ADEC and USEPA before site activities begin.

2.2 Soil Borings

Soil borings will be advanced to the depth of groundwater and soil samples may be collected at 4-foot intervals beginning at 4 feet bgs. No samples will be collected from the 0-4 foot interval because soil at this depth has already been characterized or soil was removed during construction activities. Table 2-1 summarizes the analytical suite of parameters that may be performed on the samples collected from these borings. The analytical suite of methods maybe modified based on professional judgment of the project team's review of data collected from test pit excavations.

2.3 Temporary Groundwater Monitoring Wells

Temporary groundwater wells will be installed in select areas, sampled, and submitted for laboratory analysis. Location of the temporary wells will depend on information collected during the excavation and soil boring phases. Groundwater suite of analytical parameters may be based on the results of soil boring data that will be reviewed before the temporary wells are installed. Temporary wells will be developed and purged before they are sampled as described in the Field Sampling Plan (FSP) (Section 1 of Appendix A, in the Work Plan) (USACE, 2006a). Temporary wells will be decommissioned and abandoned after completion of sampling activities. The analytical suite of methods may be modified based on professional judgment of the PDT's review of data collected from test pit and soil boring samples.

2.4 Sediment and Surface Soil

Sediment samples may be collected from the area of the Chena River where water pumped from Taku Gardens was discharged into the river. The location of these samples will be based on the professional judgment of the project team and site information that was not available at the time this addendum was written. Sediment samples will be collected according to the procedure provided in the FSP Section 1.0 of the Work Plan SAP (USACE, 2006a). The laboratory reporting limits (also referred to as practical quantitation limits [PQL] as defined relative to the lowest calibration standard) are expected to be elevated as a result of low percent solids in samples with high percent moisture. The results of sediment samples may be compared to the

applicable National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQUIRT) -criteria for freshwater sediments if ecological risk is determined to be a concern. The sediment results may be compared to soil data collected from the area of Buildings 48 and 22 to evaluate potential dewatering discharge impact to the Chena River sediments. Surface soil samples may be collected in areas that were flooded by dewatering activities or seasonal runoff to evaluate cross contamination of site. The surface soil and sediment sample suite of analytical requirements is provided in Table 2-1. The analytical suite of methods may be revised based upon the professional judgment of the PDT.

2.5 Permanent Groundwater Monitoring Wells

Permanent groundwater monitoring wells will be installed during the 2006 summer field task after data from the spring task are reviewed. The procedures for installation, development, and sampling provided in the FSP from the Work Plan will be followed (USACE, 2006a). The analytical suite will be based upon the results of soil boring data and groundwater data collected from temporary wells.

2.6 Soil Stockpiles

Soil stockpiled in the exclusion zone or associated with exclusion zone excavation will not be removed from the site or used as backfill material until soil is adequately characterized according to ADEC criteria as defined in the Work Plan Rev 2 data quality objectives (USACE, 2006a). Additional characterization of soil excavated during this field effort or previous efforts may also be performed as determined by the PDT. Stockpiled soil may also be transported from Fort Wainwright to appropriate receiving facilities.

2.7 Field Sampling and Sample Identification

The samples shall be identified according to location and as defined in this section and section 1.6.4 of the Work Plan SAP (USACE, 2006a). Each chain-of-custody (CoC) form will have the following information at a minimum:

- Project laboratory, POC, and address;
- Sampling contractor's name, address, telephone number, fax number, and email address;

- Field sampler's name;
- Project name and number;
- Sample matrix;
- USACE Project Number (06-031);
- Preservation type;
- Quote number (see North Wind project manager for number);
- Analytical method;
- PID result if extremely high, or other information that may affect the laboratory's ability to safely analyze the sample and provide defensible data;
- Sample identification number with date and time collected, number of sample containers, and analyses requested;
- Requested turn around time, deliverable level, electronic data deliverable requested; and
- Signatures accompanying any transfer of custody from the sampler to the project laboratory.

Field sampling personnel will retain a copy of each CoC form for project records and will coordinate transport of samples. The designated field sampling personnel will relinquish the CoC form. Any individual retaining custody of sample containers throughout the transportation process will sign each cooler's respective CoC. In addition, field personnel will collect and retain any other transportation or shipment records for each project sample container in the project files. Original CoCs and shipping documents shall be sent to the project manager on Friday of each week. The analytical laboratory receiving samples shall provide copies of the CoCs, cooler receipt forms, and cooler custody seals to the North Wind project manager and USACE Environmental Scientist (Julie Sharp-Dahl at julie.l.dahl@poa02.usace.army.mil) within 24 hours of sample receipt at the laboratory. This information shall also be sent to the following USACE address: receipt.cooler@poa02.usace.army.mil.

This information and that described in Section 1.6.4 of the SAP (USACE, 2006a) shall be clearly and accurately documented in the field logbook.

Sample numbers shall be designated using the following nomenclature (no exceptions unless pre-approved by the North Wind project manager and USACE project chemist):

06-FTW-SITE NAME-SAMPLE ID-MATRIX

Where:

- 06 refers to the year the sample was collected
- FTW refers to the installation, in this case Fort Wainwright
- SITE NAME is a shortened version of the building or location on the installation where sampling was completed (For example: TGHP for Taku Gardens Housing Project)
- SAMPLE ID should include information the method of collection, location and the sample depth:

  For example, BH 4-8 for borehole sampled from the 4-8 foot interval, TW – for temporary monitoring well, or GW for permanent monitoring well
- MATRIX is designated by one of the following:

  1. SO – soil sample
  2. SD – sediment sample
  3. GW – groundwater sample
  4. SW – surface water sample

3.0 INVESTIGATION DERIVED WASTE

During this field investigation water, soil, and solid waste may be generated. All waste generated from site activities will be segregated by waste stream type and containerized on-site. All waste will be transferred to the Investigation Derived Waste (IDW) facility located east of Building 3489 and held until analytical data are obtained. Uncontaminated soil will be placed in the noise barrier soil berm east of Building 26. All solid waste such as personal protective equipment (PPE), gloves, and paper towels will be placed in the dumpster at Building 3489 if data show it is not contaminated with hazardous material. Waste water will be treated at the IDW facility if analytical data confirms it to be free of hazardous contaminants. All waste determined to be hazardous will be transferred to the operator of the Resource Conservation and Recovery Act facility located in Building 3489. No material considered hazardous (liquid or solid) will be disposed on-site or at the IDW facility. All records of disposal will be maintained by Dan McGauhey at the IDW facility.

4.0 REFERENCES

ADEC, 2004. Alaska Department of Environmental Conservation (ADEC), 18 Alaska Administrative Code (AAC) 75, *Oil and Other Hazardous Substances Pollution Control,* as amended through May 26, 2004.

U.S. Army Corps of Engineers (USACE), 2006a. *Site Characterization and Remediation, Work Plan.* (Prepared by North Wind), May 2006.

USACE, 2006b. *FWA-102 Former Communication Site (Taku Gardens) Field Data Report*, (Prepared by North Wind). February 2006.

USACE, 2004a. *Munitions and Explosives of Concern (MEC) Support During Hazardous, Toxic, and Radioactive Waste (HTRW) and Construction Activities.* August 2004.

USACE, 2004b. *Foundation Study HTRW Survey, Replace Family Housing (FTW-251)*, Fort Wainwright, Alaska. April 2004.

USACE, 2004c. *Foundation Study HTRW Survey, Replace Family Housing (FTW-283)*, Fort Wainwright, Alaska. April 2004.

USACE, 1994. *Background Data Analysis for Arsenic, Barium, Cadmium, Chromium, and Lead*. March 1994.

U.S. Geological Survey (USGS), 1988. *Concentrations in Soils and Other Surficial Materials of Alaska*, US Geological Survey Professional Paper 1458.

APPENDIX A

LUDLUM MODEL 3 SURVEY METER
DAILY OPERATIONAL CHECK INSTRUCTIONS AND FORM

Ludlum Model 3 Survey Meter Daily Operational Check Instruction

General Specifications:

INDICATED USE: General purpose survey
COMPATIBLE DETECTORS: G-M, scintillation
METER DIAL: 0 - 2 mR/hr, or 0 - 5k cpm, BAT TEST (*others available*)
MULTIPLIERS: X0.1, X1, X10,X100
LINEARITY: Reading within ±10% of true value with detector connected
CONNECTOR: Series "C"
AUDIO: Built in unimorph speaker with ON/OFF switch (*greater than 60 dB at 2 feet*)
CALIBRATION CONTROLS: Accessible from front of instrument (*protective cover provided*)
HIGH VOLTAGE: Adjustable from 200 - 1500 volts
THRESHOLD: 30 mV ± 10 mV
RESPONSE: Toggle switch for FAST (4 seconds) or SLOW (22 seconds) from 10% to 90% of final reading RESET: Push-button to zero meter
POWER: 2 each "D" cell batteries (*housed in sealed compartment that is externally accessible*)
BATTERY LIFE: Typically greater than 2000 hours with alkaline batteries (*battery condition can be checked on meter*)
METER: 2.5" (6.4 cm) arc, 1 mA analog type
CONSTRUCTION: Cast and drawn aluminum with beige polyurethane enamel paint
TEMPERATURE RANGE: -4°F(-20°C) to 122°F(50°C)
May be certified for operation from -40°F(-40°C) to 150°F(65°C)
SIZE: 6.5" (16.5 cm)H X 3.5" (8.9 cm)W X 8.5" (21.6 cm)L
WEIGHT: 3.5 lbs. (1.6 kg) including batteries

To check the operation of a Ludlum Model 3 meter with a 44-9 GM probe

- **Check battery -**
  - Turn the switch on the ratemeter to "BATT" or flip the "BATT" switch to "ON."
  - The needle on the meter face should move to a position within or beyond the indicated area on the meter face scale.
  - Replace batteries if needed before use of the ratemeter.
- **Check cable. Connections and Probe –**
  - Visually examine all cables and connections to ensure the detectors and meters are properly communicating.
  - Examine all membranes to verify there are no pin holes or other damaged areas.
- **Check speaker -**
  - If there is an audio switch on the ratemeter, turn it to "ON."
  - Set the ratemeter to a scale of "X1."
  - The ratemeter should "chirp" or "click."

    - If the speaker does not function, the survey meter can be used, but the surveyor will need to check the reading on the ratemeter face frequently.
- **Check background -**
    - Go to an area with an expected low background rate.
    - Note the count rate when the ratemeter is switched to the "X1" scale.
    - The background rate will vary from as little to 10 counts per minute up to several hundred counts per minute.
    - Do not use the survey meter if it does not register a background rate.
- **Check probe -**
    - Hold the supplied check source (Cs-137 sealed source) up to the probe window.
    - Note the counting rate.
    - Do not use the survey meter if the counts per minute registered does not fall within +/- 15% of the expected reading for that check source (based on the initial established instrument response).

APPENDIX IV Operational Check of Contamination Meters.

Ludlum 3 survey meter undergo an operational check annually in-house using a Cs-137 source.

RADIATION MONITOR OPERATIONAL VERIFICATION

CALIBRATION SOURCE = Cs-137 Sealed Source

DATE: ____________________

INSTRUMENT and PROBE			OPERATIONAL CHECK AND PARAMETERS				
MFR/Model	**S/N**	**Probe Type/Model**	**Battery check (Pass/Fail)**	**Cable and Connectors No damage**	**Background Response on X0.1 Scale (Pass/Fail)**	**On contact X100 (w/i 10%) (Pass/Fail)**	**Initials**
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	
			Pass/Fail		Pass/Fail	Pass/Fail	

DETERMING ON-SITE EFFICIENCY

The on-site instrument efficiency is determined as follows:

$$\varepsilon_i = \frac{R_g - R_b}{q_{2\pi,sc}}$$

Where:

$\sum_i$ is the instrument efficiency,
R_g is the gross count rate [counts per minute (cpm)],
R_b is the background count rate (cpm)
sc is the check source

The on-site efficiency is then compared to the documented vendor efficiency for the instrument. The average efficiency should be within ±10-percent of the listed vendor efficiency. If the efficiency falls out of acceptable ranges, corrective action measures will be performed.

The efficiency may be used to covert measured decays per minute (dpm) to counts per minute (cpm) as follows:

$$dpm = \frac{cpm}{\varepsilon_i}$$

APPENDIX B

RESPONSE TO COMMENTS

REVIEW COMMENT

PROJECT: FWA-102 Former Communication Site (Taku Gardens)
DOCUMENT: Final Work Plan Addendum Spring 2006 LOCATION: Wainwright

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-EE-	DATE: May 2, 2006 REVIEWER: Bob Brock PHONE:	Action taken on comment by: North Wind, Inc.

Item No.	Drawing Sht. No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	DESIGN OFFICE C - correction made (If not, explain)	Back check by: (Initials)
1.	General	Electronically edited file reflects edits and format changes made to the document. Delete and make word changes as directed throughout the document provided (Sections 1.0, 2.0, and 3.0). Some examples: Pg 1, 1.0; 3rd para, change "retesting" to "reanalysis"; and Pg 2, 1.0; 4th para, change "involves" to "includes".	Words were deleted and/or changed as directed per comments.		
2.	General	Remove references to trenches and/or change to test pits	References to trenches have been removed.		
3.	Pg i, ii	Update page numbers for the Table of Contents and List of Tables. Update List of Acronyms.	Page numbers and acronyms were updated as directed per comments.		
4.	Pg 1, 1.0; 3rd para	Change EPA to USEPA. Please give an example or two, e.g. elevated concentrations of target/non-target compounds, matrix interferences, moisture. General – delete and/or make word changes as indicated in text.	Examples were given and word changes were made as directed per comments.		
5.	Pg 2, 1.0; 1st para	Relocate sentences "A limited number of soil samples…" and "Approximately 2,000 samples …" within paragraph. Sentence "Most soil samples collected in 2005…"; change "and" to "or from soil borings"	Sentences were relocated and modified as directed per comments.		
6.	Pg 2, 1.0; 2nd para	First sentence: change "discussed as follows" to "summarized below and described". Replace ":" with "Phases or elements of phases may be performed concurrently as needed."	Sentences were modified as directed per comments.		
7.	Pg 4, 2.0; 1st para	Delete sentence "Additional runoff control will…". change sentence " The USACE will provide personnel…" to "EOD personnel…". "Change sentence "Additionally, a person trained…" to "Additionally, North Wind's corporate health and safety polices require a person trained…". General – delete and/or make word changes as indicated in text.	Sentences were modified as directed per comments.		

REVIEW COMMENT

PROJECT: FWA-102 Former Communication Site (Taku Gardens)
DOCUMENT: Final Work Plan Addendum Spring 2006 LOCATION: Wainwright

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-EE-	DATE: May 2, 2006 REVIEWER: Bob Brock PHONE:	Action taken on comment by: North Wind, Inc.

Item No.	Drawing Sht. No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	DESIGN OFFICE C - correction made (If not, explain)	Back check by: (Initials)
8.	Pg 6, 2.0; 1st para	First full sentence, add "Directorate of Public Works" before DPW and add "US" to EPA. re-write last sentence to read "A kick off meeting will be held each time the investigation moves to another area." General – delete and/or make word changes as indicated in text.	Sentences were modified as directed per comments.		
9.	Pg 11, 2.0; Table 2-2	Add Robert Brock's cell phone number, change "EPA" to "USEPA Remedial Project Manger" and "ADEC PM" to "ADEC Project Manager". Format table.	Table was formatted and Project Role changes were made as directed per comments.		
10.	Pg 11, 2.1; 1st para	Format section. Sentence "If excavated soil appears to be…" change "from" to "(elevated PID reading, visual staining, odor, etc.) or contains". Add "Debris removal will not be performed as part of this task. As necessary, North Wind will backfill and compact open excavations with clean borrow material and return all disturbed areas to their pre-existing surface elevations." to paragraph. General – delete and/or make word changes as indicated in text.	Section was formatted and sentences were added and/or modified as directed per comments.		
11.	Pg 12, 2.1; 1st para	Delete sentence "Debris removal will not be…". Re-write last sentence to read "North Wind will containerize (overpack) any leaking containers encountered and will coordinate with the Fort Wainwright POC for their disposal."	Sentences were modified as directed per comments.		
12.	Pg 12, 2.1; 4th para	Define "EPS".	Should be "EPA"		
13.	Pg 13, 2.4; 2nd para	Last sentence, "The analytical suite of…", change "depends" to "be revised based". General – delete and/or make word changes as indicated in text.	Sentences were modified as directed per comments.		

REVIEW COMMENT

PROJECT: FWA-102 Former Communication Site (Taku Gardens)
DOCUMENT: Final Work Plan Addendum Spring 2006 LOCATION: Wainwright

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-EE-	DATE: May 1, 2006 REVIEWER: Anchorage DPW PDT PHONE:	Action taken on comment by: North Wind, Inc.

Item No.	Drawing Sht. No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	DESIGN OFFICE C - correction made (If not, explain)	Back check by: (Initials)
1.	General Comment to the Table 2-1	Changes were made electronically to the table provided to DPW. These changes involved modification to analytical suites, etc.	North Wind used the modified table as it was edited and provided.		

REVIEW COMMENT

PROJECT: FWA-102 Former Communication Site (Taku Gardens)
DOCUMENT: Final Work Plan Addendum Spring 2006 LOCATION: Wainwright

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-EE-	DATE: May 1, 2006 REVIEWER: Cliff Seibel PHONE:	Action taken on comment by: North Wind, Inc.

Item No.	Drawing Sht. No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	DESIGN OFFICE C - correction made (If not, explain)	Back check by: (Initials)
1.	Pg 1, 1.0; End of 3rd para	…in areas that were not fully characterized." Does this mean that at the end of this survey that, if something extraordinary isn't discovered, the area will be considered fully characterized?	This is to be determined by the PDT (USACE, DPW, USEPA, and ADEC)		
2.	Pg 1, 1.0; 4th para	……support a future remedial investigation of the site." Does this mean the whole site will need an RI, or only the areas not cleared by this investigation?	The entire site will be involved in the RI.		
3.	Pg 2, 1.0	The phases don't seem to have changed. Do I understand that phase 1and 2 will not be accomplished concurrently?	Some elements of each phase may occur concurrently. Field conditions and construction contractor needs appear to be driving the time frame in which each element of each phase occurs.		
4.	Pg 4, 2.0; top of page	"Phase 1, open excavations will be visually inspected….I take it these will be excavations by North Wind? No extra inspection will be required in the excavations by WCC in the areas that have been opened to them?	These are North Wind excavations.		
5.	Table 2-1, B.6	Trenches and Pits with no concern or analytical suite?	Not an area of concern as area was characterized during POL investigation in 2005.		
6.	Table 2-1, B.22, 26, 28	Updated comments provided by Mr. Hunt have not been updated.	Table has been updated to include Mr. Hunt's comments.		
7.	Table 2-1, B.25	Did we have proof that this was a drum storage area, or arrived at by photo interpretation?	Photos, Mr. Hunt's comments, and geophysical survey support this determination.		
8.	Table 2-1, B.33	Not being characterized, but analytical suite listed. Being samples or not?	Table will be corrected and analytical suite deleted.		

REVIEW COMMENT

PROJECT: FWA-102 Former Communication Site (Taku Gardens)
DOCUMENT: Final Work Plan Addendum Spring 2006 LOCATION: Wainwright

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-EE-	DATE: May 1, 2006 REVIEWER: Cliff Seibel PHONE:	Action taken on comment by: North Wind, Inc.

Item No.	Drawing Sht. No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	DESIGN OFFICE C - correction made (If not, explain)	Back check by: (Initials)
9.	Table 2-1, B.48	Concern not updated. It was confirmed by the field screener that the "white residue on bottom" was frost.	Table was corrected		
10.	Table 2-1, Corridor W of SAS	Reason for investigation? Elec drawing reviewed on Sat. indicated small pole mounted transformers. Reason to believe contamination is there?	Potential contamination based on similarity to Area 52 where a pole mounted transformer was present in an aerial photo.		
11.	Table 2-1, Area E of SAS	Reason for expecting contamination? There was no survey in this location, so "Metal debris in meander…." Is an assumption.	Survey stops at fence line but does not confirm that metal debris also stops at fence line.		
12.	Pg. 10, 2.1; last para	"Debris removal will not be performed during this task….". I thought we had discussed this portion. Is it the intention to put debris back into the excavation if it is discovered and not judged hazardous? Is North Wind backfilling trenches they make?	Metal debris will be placed on liners until it is inspected and determined non-hazardous. Debris will be disposed as required by DPW.		
13.	Pg 11, 2.2	States no soil samples will be taken between 0-4 feet"….because soil at this depth has already been characterized or soil was removed during construction." If this is the situation, why is WCC prohibited from excavation down to 4 feet?	Noted.		

REVIEW COMMENT

PROJECT: FWA-102 Former Communication Site (Taku Gardens)
DOCUMENT: Final Work Plan Addendum Spring 2006 LOCATION: Wainwright

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-EE-	DATE: May 1, 2006 REVIEWER: Cliff Seibel PHONE:	Action taken on comment by: North Wind, Inc.

Item No.	Drawing Sht. No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	DESIGN OFFICE C - correction made (If not, explain)	Back check by: (Initials)
14.		I've been looking at the map, and still don't see PCB hits above 1 in the SW corner, at foundations 51, 53, and 55. Some are not labeled, and I looked back at the analyticals and didn't find anything.	One result reported this summer for B. 51 was greater than one; however, the result reported in final data was less than one. Area 51 remains a concern as not only Aroclor 1260 but also Aroclor 1254 was reported here. This is also the area reported by the USACE investigation with PCBs. The area has not been fully characterized and the fact that Aroclor 1254 was detected gives reason to believe there is another source of contamination not yet identified.		

REVIEW COMMENT

PROJECT: FWA-102 Former Communication Site (Taku Gardens)
DOCUMENT: Final Work Plan Addendum Spring 2006 LOCATION: Wainwright

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-EE-	DATE: May 1, 2006 REVIEWER: Sharon Richmond PHONE:	Action taken on comment by: North Wind, Inc.

Item No.	Drawing Sht. No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	DESIGN OFFICE C - correction made (If not, explain)	Back check by: (Initials)
1.	Pg 2; para 3	Please add a statement that Explosives and Ordnance Demolition experts will be present on site at all times.	This was added.		
2.	Pg 3; bullet 3	The meanings of "foundation studies" and "HTRW surveys" are unclear. Please provide copies of the referenced document to the Department.	USACE will provide this.		
3.	Pg 3; bullet 12	Which agencies performed the two geophysical surveys? Please provide these documents to the Department.	USACE will provide this		
4.	Pg 4, para 1	Please provide a copy of Engineering Pamphlet 75-1-2, Munitions and Explosives of Concern (MEC) Support during Hazardous, Toxic, and Radioactive Waste and Construction Activities.	USACE will provide this		
5.	Pg 4; para 1	An explanation of what types of radiation can be detected by a Gieger counter would be helpful. Also, the reason for including this testing during sampling is not provided.	Additional details on what type of survey monitor will be used are provided in the text. The reason for assuming radiological contamination may be present is based on a similar site that was investigated in 2002 (Arctic Surplus).		
6.	Pg 4; para 2	What criteria will determine whether the Chena River sediments will be tested?	The sediments will be tested and results will be compared to the SQUIRT table's appropriate criteria.		
7.	Table 2-1	It would be helpful to include building numbers in the "Method of Characterization" column.	The Building numbers are provided in the second column of the table (B.23, etc.)		
8.	Table 2-1	There are blank cells in this table. Is it possible to provide this information before our meeting April 4, 2006?	Information has been added		
9.	Table 2-1	In some instances, it is not clear whether contaminants are present in soil or groundwater.	It is all soil unless noted.		

REVIEW COMMENT

PROJECT: FWA-102 Former Communication Site (Taku Gardens)
DOCUMENT: Final Work Plan Addendum Spring 2006 LOCATION: Wainwright

U.S. ARMY CORPS OF ENGINEERS CEPOA-EN-EE-	DATE: May 1, 2006 REVIEWER: Sharon Richmond PHONE:	Action taken on comment by: North Wind, Inc.

Item No.	Drawing Sht. No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	DESIGN OFFICE C - correction made (If not, explain)	Back check by: (Initials)
10.	Table 2-1	In some instances, the "Method of Characterization" is not provided	Information has been added to the blank fields in this table		
11.		Will metal debris extending beyond Taku Gardens toward the school be investigated?	Yes. Test pits and soil borings are recommended.		
12.	Pg 9; para 2	In the event that leaking drums or containers are found, ADEC must be contacted. I think it would be helpful to coordinate reporting with ADEC's Prevention and Emergency Response Program (PERP) and the Contaminated Sites Program. May we discuss this during the April 4, 2006 meeting?	The Communication Plan will include this information.		
13.	Pg 10; para 3	Please add a sentence indicating that the US EPA and ADEC will be notified immediately if readings exceed background. Again, this should be discussed with PERP before work begins. It would also be helpful to provide the Department with background readings before field work begins.	This text was added and will be detailed in the Communication Plan.		
14.	Pg 10; para 3.4.5	Please add a statement to the effect that modification of analytical methods used will be approved by US EPA and ADEC.	A statement will be added that changes will be approved by the PDT.		
15.	Pg 11; para 1	I suggest that we decide whether this sampling will occur and if so, discuss locations of sediment sampling during our planned meeting.	As the addendum is written, before each area is investigated a kickoff will be held to discuss approach. This would be a good time to identify exact location for samples. Recommend that the ADEC and other interested parties participate in a field trip to help identify the locations that best support the reason for this sampling.		
16.	Pg 11; para 3	Will soil be stockpiled and sampled before determining whether it is contaminated?	Yes.		

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17.	General Comment	There are several US Geological Survey reports available that describe geochemistry of alluvial and bedrock sediments. I think it is important to make this distinction when determining background concentrations.	Thanks for the references they were very helpful		