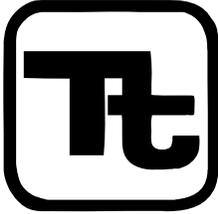


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FINAL TECHNICAL MEMORANDUM INTERIM MEASURES AT SOLID WASTE  
MANAGEMENT UNIT 5 ( SWMU 5) NSA CRANE IN  
02/03/2010  
TETRA TECH



## TECHNICAL MEMORANDUM - FINAL

**DATE:** February 3, 2010, Revision 0 – Final

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Mr. Tom Brent, NSA Crane

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Project File – CTO C063

**SUBJECT:** NSA Crane  
Interim Measures at Solid Waste Management Unit (SWMU) 5

The purpose of this Technical Memorandum is to describe the interim measures that will be performed at SWMU 5 – Old Burn Pit (Site). The interim measures will consist of excavation of lead-contaminated soil, and removal of metallic surface debris. The interim measures will be performed in a manner that minimizes disruption to the existing vegetation. The interim measures shall be performed by a subcontractor to Tetra Tech NUS, Inc. (TtNUS) under Navy CLEAN IV Contract Number N62472-03-D-0057.

This Technical Memorandum, including two attachments, presents background information about the project and describes the process that will be used to implement the interim measures. Attachment A contains figures; Attachment B contains the Subcontractor Statement-of-Work (SOW). These two attachments were used to procure a subcontractor (Lee & Ryan) and to implement the interim measures. The interim measures are schedule to be performed in the second half of February 2010.

## **1.0 BACKGROUND**

SWMU 5 is located in the northwestern corner of Naval Support Activity (NSA) Crane (Figure 1). The Site occupies approximately 25 acres and is bounded on the west by Highway 331 and on the east by the power line running along a ridge west-northwest of Lake Oberlin. The southern boundary and northern boundary are as shown on Figure 2. The Site consists of two areas – the burn pit area to the south and the gully area to the north. The burn pit area to the south has been regraded and currently contains a gravel trailer parking area and a grassy area. The gully area to the north has naturally revegetated; it is currently wooded and is the area in which the interim measures will be performed.

SWMU 5 was an active waste disposal area from 1942 to 1972. It is currently inactive, and no additional waste disposal activities are proposed for the Site. Undefined amounts of rubbish including wood, paper, construction material, and industrial wastes were burned at the Site in the burn pit area. Reportedly, no explosive materials or wastes were burned at SWMU 5. As rubbish was burned, residual ash and metal debris from the burning activities were continually pushed off the burn pit into the gully area to the north. Because the interim measures will be performed in the gully area, it will henceforth be referred to as the “Work Area” (Figure 3) in this Technical Memorandum

## **2.0 SITE DESCRIPTION**

The 25 acres of SWMU 5 include the approximate 9-acre burn pit area to the south, and the 16-acre Work Area to the north (Figure 2). The burn pit area of SWMU 5 is used as a parking area for delivery trailers and is not part of the Work Area. Current and likely future land use at SWMU 5 is expected to be limited to industrial uses or remain undeveloped.

The 16 acres of the Work Area are currently forested with mixed hardwoods approximately 30 feet high and dense underbrush. There is a grass-covered trail extending north into the southeast side of the Work Area from the gravel parking (burn pit) area. One branch of the trail extends northwest to monitoring well 05-07, another branch of the trail turns west through the area containing the lead contaminated soil to be excavated (Figure 3). The section of the trail which extends to monitoring well 05-07 appears to be located on part of the gully that has been filled with ash and has a hummocky appearance (Figures 3 and 4). The Work Area contains miscellaneous metal debris including drums, partially decomposed drums, and other metal objects that have become partially buried or exposed as the gully has eroded and the ash has settled. The majority of visible metal debris is located east and west of monitoring well 05-07 and northeast of monitoring well 05-06 along the sides of the gully. Separate grass covered trails extend into

the west side of the Work Area from Highway 331 to monitoring well 05-06 (from the south) and 05-08 (from the north).

Although the gravel parking area is fairly uniform and flat, there is slight relief in the center grassed portion of the parking area. The topography of the Work Area consists of undulating terrain dissected by many small drainageways (Figure 3). Surface elevations across the Work Area generally increase from west to east. Surface elevations range from slightly over 550 feet above mean sea level (msl) along the unnamed creek on the west side to 680 feet above msl on the northeastern side of SWMU 5. Thus, there is about 130 feet of relief at the SWMU. The main gully in the Work Area has an east-west orientation on the north side of the Work Area; the gully then turns southwest and flows through a pipe under Highway 331. The middle section of the east-west area of the gully near monitoring well 05-07 appears to have been filled with ash and debris from previous Old Burn Pit activities. Water flowing in the east side of the gully is slowed by the fill material. Other areas of the gully have a gradual slope. As a result, ponding appears to occur during high-flow precipitation events in at least two locations (Figure 5).

Surface water runoff from SWMU 5 drains into Culpepper Branch, a tributary of First Creek. Several dendritic drainageways exist in the northern portion of SWMU 5 that convey surface water from the northeast to the west, toward an unnamed drainageway that flows through a culvert beneath Highway 331 and the railroad tracks that form the western border of SWMU 5. The unnamed drainageway then joins several other gullies to form a larger tributary stream that flows southward for approximately 700 feet and ultimately discharges into Culpepper Branch.

### **3.0 PREVIOUS INVESTIGATIONS**

Environmental investigations were performed at SWMU 5 from 1981 to 2005, including an Initial Assessment Study (IAS) and RCRA Facility Investigations (RFI) analyses. Surface soil, subsurface soil, sediment, surface water, and groundwater samples were collected and analyzed for the full list of Appendix IX constituents [volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals], and miscellaneous inorganics. Surface water samples also were analyzed for total and dissolved metals, hardness, and total suspended solids (TSS), and sediment samples were analyzed for total organic carbon (TOC) to assist in assessing the potential risks to human health and ecological receptors. Additionally, soil characteristic parameters [cation exchange capacity (CEC), pH, and TOC] were analyzed to determine the potential fate and transport of contaminants at the Site and the potential for risks outside the Site boundaries. Using the analytical data obtained during the SWMU 5 2005 RFI, TtNUS performed human health and ecological risk assessments. Lead concentrations that could create an unacceptable ecological risk were identified in

one soil hotspot location in the Work Area (Figure 5). No other unacceptable risks to human health or ecological receptors were identified in the risk assessments.

Based on the results of the 2005 RFI, a Corrective Measures Proposal (CMP) Report for SWMU 5 was developed and finalized in September 2006 (Tetra Tech). The CMP combined historical site investigations along with current site conditions to expand upon the SWMU 5 risk assessments. The CMP determined that it is possible that some individual plants and/or invertebrates are being impacted at locations where metals concentrations in soil are elevated. However, as discussed in OSWER Directive 9285.7-28P, Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites, remedial actions generally should not be designed to protect organisms on an individual basis (with the exception of certain protected species) but to protect local populations and communities of biota (1999).

Multiple drums (primarily crushed and/or partially decomposed) were, and are present, in the Work Area. In response to this finding, an interim measures sampling program was conducted in 1990. The field investigation consisted of the collection of eight soil samples from the surficial soil surrounding the drums and two samples from material within the drums. The samples were analyzed to determine whether the soil and material in the drums would be considered Resource Conservation and Recovery Act of 1976 (RCRA) hazardous wastes. Toxicity Characteristic Leaching Procedure (TCLP) results for these samples were less than regulatory limits, indicating that the materials in the drums were not classified as a RCRA hazardous wastes.

Lead was the only chemical of concern detected at a concentration that presented an unacceptable risk to ecological receptors. However, it was determined during the development of the CMP (Tetra Tech, 2006) that because the site comprises only a small portion of the overall habitat for ecological receptors in this area, any localized impacts to ecological receptors (including wildlife) at SWMU 5 will not impact the overall ecology in this area of NSA Crane. Based on this observation, potential risk to ecological receptors is not a basis for the interim measures at SWMU 5.

Since the TCLP test results for soil surrounding and within the metallic surface debris located in the SWMU 5 Work Area were less than regulatory limits, the debris will be removed strictly for aesthetic purposes and to prevent any future questions regarding the status of the debris. Debris removal will occur within the boundaries of the Work Area, as presented on Figure 6.

During discussions with regulators, an overall strategy was developed that addressed the lead hot spot while minimizing disruption of the ecological community that has been established at the site. Therefore, limited excavation of the 05SB06 lead hot spot (Figure 5) is proposed to address the unacceptable ecological risk in the Work Area, while minimizing disturbance of the established ecological community. The Media Cleanup Standard (MCS) for lead contamination at SWMU 5 was determined to be 800 mg/kg, which is consistent with an industrial/construction site and is protective of site workers. Additional details regarding the strategy for interim measures at SWMU 5 are provided in the SWMU 5 Addendum to the SWMU 12 UFP-SAP (Uniform Federal Policy - Sampling and Analysis Plan) which has been prepared and submitted separately.

#### **4.0 INTERIM MEASURES IMPLEMENTATION**

TtNUS will implement interim measures in the Work Area with a subcontractor. The responsibilities, requirements, and performance standards for the activities which shall be performed by the Subcontractor are further detailed and described in Attachment B – Statement-of-Work. Tetra Tech has procured the subcontractor (Lee & Ryan) and will manage and oversee the work, perform post excavation informational sampling, and prepare an interim measures report as described in Section 5 of this Technical Memorandum.

The generalized sequence of events that will be or have been performed to implement the interim measures and the primary entity responsible for each step are as follows:

1. Subcontractor procurement – TtNUS completed this task in January 2010 and procured Lee & Ryan to complete the tasks described in Attachment B.
2. Pre-Start Meeting / Field Inspection of SWMU 5 Work Area – Lee & Ryan, TtNUS, and Navy representatives completed this task in January 2010.
3. Acquire necessary permits – Lee & Ryan and TtNUS.
4. Kickoff meeting– Lee & Ryan, TtNUS, and Navy representatives.
5. Install erosion control features for the gravel construction entrance / Construct the gravel construction entrance (Figure 6) – Lee & Ryan.

6. Clear areas for support structures and temporary access roads / Construct the support structures and clear temporary access roads as necessary (Figure 6) – Lee & Ryan.
7. Install utility protection systems by obtaining information on utility locations and adequately protecting any utilities located in the active work area– Lee & Ryan.
8. Install erosion control features protective of excavation area – Lee & Ryan.
9. Excavate/remove soil, collect and analyze disposal characterization samples, and transport soil to the approved off-site disposal facility – Lee & Ryan.
10. Collect informational samples of excavation area – TtNUS.
11. Perform additional excavation (Implementation Sequence Item No. 7) if required by the Navy per results of informational sampling – Lee & Ryan; Collect additional informational samples – TtNUS.
12. Restore the excavation areas as required following confirmation that the excavation is complete – Lee & Ryan.
13. Conduct a metal identification survey of Work Area to identify and locate surface debris throughout the Work Area – Lee & Ryan.
14. Remove metallic surface debris (and other surface debris, if encountered) from the Work Area and transport debris to the approved off-site recycling or disposal facility. Minimize disruption to existing vegetation and restore disturbed areas. – Lee & Ryan.
15. Perform visual inspection of debris removal areas – TtNUS.
16. Perform additional debris removal (Implementation Sequence Item No. 12) if required based on visual inspection results – Lee & Ryan; Perform additional visual inspection – TtNUS.
17. Following transportation and disposal (or recycling) of all excavated soil and removed debris, remove the decontamination pad – Lee & Ryan; Collect verification samples from within the footprint of the support structures – TtNUS.

18. Following TtNUS verification that the ground below the support structures were not impacted by construction activities, regrade as necessary and establish permanent stabilization – Lee & Ryan.
19. Perform monthly inspections and routine maintenance of all erosion and sediment control devices left on site for a maximum of 6 months following demobilization – Lee & Ryan
20. Following permanent stabilization of all disturbed areas and TtNUS approval of permanent stabilization, remove all remaining erosion controls and immediately stabilize all remaining disturbed areas – Lee & Ryan.
21. Prepare and issue an Interim Measures Report that summarizes the work performed – TtNUS.

A work assignment responsibility chart (Table 1) further identifies the responsibilities of Lee & Ryan, the Navy, and TtNUS during the implementation of the interim measures work.

## **5.0 TTNUS ROLES AND RESPONSIBILITIES**

TtNUS primary roles and responsibilities include:

- Subcontractor procurement
- Subcontractor oversight and management
- Post excavation informational sampling and analysis
- Support structures sampling and verification
- Debris removal verification
- Interim Measures report preparation

TtNUS responsibilities, requirements, and performance standards are further detailed and described below.

Subcontractor Procurement – TtNUS prepared a Request for Proposal (RFP) for the activities described in Attachment B. The RFP and Amendment 1 to the RFP were issued to three qualified companies in December 2009. Each of the three solicited companies submitted a proposal in December 2009. Upon receipt of the proposals, TtNUS submitted additional questions to each of the companies. All three companies issued responses to the additional questions in December 2009-January 2010. TtNUS reviewed the submittals from each company and performed a best value evaluation. The evaluation criteria was weighted to consist of 60% weight to technical approach (qualifications, experience, proposed work plan, and schedule) and 40% weight to cost. Based on the evaluation, TtNUS selected Lee & Ryan

because their proposal provided the best value to the Navy. The subcontract was awarded on January 9, 2010.

Subcontractor Oversight and Management – TtNUS shall provide a full-time on-site representative to oversee, manage and monitor the work performed by Lee & Ryan.

Post Excavation Informational Sampling and Analysis – TtNUS shall collect informational samples from the excavation floor and sidewalls for informational purposes only. This work shall be performed in accordance with the SWMU 5 Addendum to the SWMU 12 UFP-SAP. Because of the proposed size of the excavation (6 feet by 6 feet), TtNUS proposes to collect one composite (two sampling locations – north and south) sample from the bottom of the excavation, and one grab sample from each directionally facing sidewall. The informational samples will be analyzed for lead. The informational sample results will be compared to the lead site cleanup goal of 800 mg/kg. No further excavation is required per the agreement with EPA Region 5. Additional excavation may be performed at the discretion of the Navy RPM. Additional informational samples will be collected (by TtNUS) if additional excavation is performed.

Additional informational excavation floor samples will be collected at a rate of one composite sample for every 100 sf of exposed surface area, with a minimum of one sample collected from each depth interval. Additional excavation sidewall samples will be collected at a rate of one grab sample for every 25 linear feet of exposed sidewall, with a minimum of one sample collected from each directionally facing sidewall.

To minimize downtime associated with waiting for sampling results from a fixed-base laboratory, informational samples will be analyzed for lead in the field by TtNUS using X-ray fluorescence (XRF). If a sample has an XRF result that exceeds 800 mg/kg, the Navy may authorize additional excavation. If a sample has an XRF result that is less than 800 mg/kg, the composite sample will be sent to the fixed-base laboratory for verification of XRF data.

The turnaround time for the XRF sample results is 1 day. Samples collected on day 1 will be prepared and analyzed following the collection of all required samples, and the results of these samples will be made available the morning of day 2. Additionally, 24-hour turnaround times will be requested for all fixed-base laboratory analyses so as to minimize excavation equipment and field personnel downtime while samples are analyzed. The turnaround time for fixed-base laboratory sample results may take 3 to 5 working days, which includes time for sample shipment and results evaluation.

Support Facility Sampling and Verification – TtNUS shall collect verification samples from the soil located beneath the support structures after interim measures implementation at the frequency of one verification sample for every 1000 square feet of support area, with a minimum of one verification sample from each support structure. Sidewall samples are not included in the support structure verification sampling program because no excavation will occur at the support structure areas. Based on the anticipated footprints of the support structures (each support facility footprint equals the actual footprint plus an additional 10 feet in all directions), it is estimated that one verification sample will be collected from the support structure area (the decontamination pad). If additional support structures are constructed by Lee & Ryan, one sample will be collected from each support structure. The verification samples will be analyzed for lead by a fixed-base laboratory. The results of the verification samples will be compared to the lead MCS of 800 mg/kg. These results will be reported to the Navy.

Debris Removal Verification – Metallic and nonmetallic surface debris within the Work Area (as shown on Figure 6) shall be removed and disposed off-site. All surface debris that is located during the metal identification survey, including non-metallic debris, will be subject to the performance standards described in Attachment B. Lee & Ryan will discuss findings of the metal identification survey with TtNUS to determine the locations of debris removal based on site conditions and the nature of the debris. Following debris removal, TtNUS shall perform a visual survey to verify that appropriate debris removal has been performed and that no further removal is necessary. The visual survey will also be used to verify that any slope stability issues originating from debris removal actions have been appropriately addressed. In the event that the results of the visual survey prove to be unacceptable to TtNUS (debris previously flagged and approved for removal remains on site or slope stability issues caused by debris removal are unrepaired), TtNUS may direct the Lee & Ryan to perform further debris removal actions or slope repair actions. The extent of additional debris removal will depend on site conditions and the nature of the debris. The extent of additional slope repair will depend on site conditions.

Interim Measures Report - TtNUS will prepare an Interim Measures Report that will summarize the work performed, and present analytical data. The Interim Measures Report will be based, in part, on submittals provided by Lee & Ryan which are specified in the Statement-of-Work (Attachment B).

**TABLE 1  
 INTERIM MEASURES WORK ASSIGNMENT RESPONSIBILITY CHART  
 SWMU 5 – OLD BURN PIT SITE  
 NSA CRANE  
 CRANE, INDIANA**

Work Item	Interim Measures Contractor Lee & Ryan <sup>(1)</sup>	NSA Crane	Tetra Tech
Pre-Start Meeting	X	X	X
Kickoff Meeting	X	X	X
Interim Measures Implementation	X		X <sup>(8)</sup>
Subcontractor Work Plan <sup>(2)</sup>	X		X <sup>(8)</sup>
Pre-Construction Conditions <sup>(1)</sup>	X	X	X
Identification of Locations and Flagging of Soil Excavation Limits	X		X <sup>(8)</sup>
Identification of Locations and Flagging of Debris Removal Limits	X		X <sup>(8)</sup>
Site-Specific Health and Safety Plan / Activity Hazard Analysis	X		X <sup>(8)</sup>
Project Quality Control Plan	X		X <sup>(8)</sup>
Environmental Conditions Report	X <sup>(3)</sup>		X
Permits			
- Safety & Building Availability Permit	X		X <sup>(8)</sup>
- Digging Permit	X <sup>(4)</sup>	X <sup>(4)</sup>	X <sup>(8)</sup>
- Flame Tool / Hot Work Permit	X		X <sup>(8)</sup>
- HERO Permit (approval for portable radios)	X		X <sup>(8)</sup>
- Tree Clearing Permit		X	
Field Work Reports and Submittals <sup>(5)</sup>	X		X <sup>(8)</sup>
Sampling and Analysis	X <sup>(6)</sup>		X <sup>(6)</sup>
Wastewater Disposal (Decontamination Water)	X	X <sup>(7)</sup>	X <sup>(8)</sup>
Interim Measures Report	X <sup>(5)</sup>		X

**NOTES:**

1. In addition to the listed items, Lee & Ryan is required to perform all interim measures implementation activities in accordance with the Statement of Work provided in Attachment B.
2. Lee & Ryan's Work Plan includes, but is not limited to, an excavation/removal and handling plan, waste management plan, environmental protection plan, erosion and sediment control plan, characterization sampling plan, and transportation and disposal plan.
3. Lee & Ryan will participate in documenting environmental conditions before, during, and after implementation of the interim measures.
4. Lee & Ryan completes the permit form. NSA Crane performs the utility clearance.
5. Lee & Ryan will furnish items identified in the Statement of Work provided in Attachment B.
6. Lee & Ryan will be responsible for the collection of characterization samples required for off-site disposal of excavated soil. Tetra Tech will collect informational samples from the excavation area and verification samples from the surface soils below the support facilities. Lee & Ryan will coordinate and accommodate Tetra Tech sampling and field activities.
7. Lee & Ryan will be responsible for collection, storage, characterization, and transportation to an off-site treatment and/or disposal facility per direction by NSA Crane.
8. TtNUS has procured Lee & Ryan, and Lee & Ryan's actions will be overseen by TtNUS.

HERO – Hazards of Electromagnetic Radiation to Ordnance

X – Indicates responsible party