FINAL

Plan Of Operations Addendum

TNT Area B and Pentolite Road Red Water Pond Area
Interim Soil Removal Action
Determination of Contamination Extent
Plum Brook Ordnance Works
Sandusky, Ohio

Contract No. DACW69-03-D-0007
Work Order No. 0004

Prepared for:

Department of the Army
Huntington District, Corps of Engineers
Huntington, WV

Prepared by:

WTI
Rt. 2 Box 33-B
Poca, WV 25159
(304) 755-8448
(304) 755-1099 FAX

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Definitions and Acronyms

ARAR	Applicable or Relevant, and Appropriate Requirements
CFR	Code of Federal Regulations
COC	Constituents of Concern
CY	Cubic Yards
DNT	Dinitrotoluene
EPA	Environmental Protection Agency
HSWA	Hazardous and Solid Waste Amendments
HTRW	Hazardous, Toxic, and Radioactive Waste
IQCT	Independent Quality Control Team
IDW	Investigation Derived Waste
MDL	Minimum Detection Limit
NASA	National Aeronautic and Space Administration
OEPA	Ohio Environmental Protection Agency
PAH	Polynuclear Aromatic Hydrocarbons
PBS	Plum Brook Station
PCBs	Polychlorinated Biphenyls
POC	Point of Contact – technical point of contact for the U.S. Army Corps of Engineers
PPM	Parts Per Million
PRGs	Preliminary Remedial Goals
PRRWP	Pentolite Road Red Water Pond
QC	Quality Control

QCR	Quality Control Report
RCRA	Resource Conservation Recovery Act
RI	Remedial Investigation
REIC	Research Environmental and Industrial Consultants
RGO	Remedial Goal Option
SAP	Sampling and Analysis Plan
SOW	Scope of Work
SSHO	Site-specific Safety and Health Officer
USACE	United States Army Corps of Engineers
TAL	Target Analyte Metals
TCLP	Toxicity Characteristic Leaching Procedure
TNT	Trinitrotoluene

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1.0 PROJECT DESCRIPTION

1.1 Introduction

In Spring 2003, soil stockpiles from the 2,4,6-trinitrotoluene (TNT) B pits from soil excavation and removal activities at former Buildings 463 and 452 were sampled for waste characterization purposes for subsequent disposal. Analytical results revealed that both stockpiles were hazardous. Stockpile 463 had elevated levels of 2,4-dinitrotoluene (DNT) above the regulatory value of 0.13 mg/l for the toxicity characteristic leaching procedure (TCLP) analysis. Stockpile 452 had elevated levels for both 2,4-DNT and lead (lead regulatory value is 5.0 mg/l). Additionally, the concentrations of the contaminants not only made the material characteristically hazardous but the concentrations also exceeded the land disposal restrictions; therefore, preventing land filling of this material without prior treatment. A total of approximately 1,725 tons of nitroaromatic-contaminated soil required treatment prior to disposal.

In accordance with the previous contract (DACW69-00-D-0021, Work Order No. 020), stockpile 452 was treated with MAECTITE® to chemically fixate the lead. The soil was treated on August 6th, 2003 and six samples were collected of the treated soil on August 7, 2003 to confirm the effectiveness of the treatment. Analytical results from the six composite soil samples were all "not detected" for TCLP lead. After the treatment for lead, the stockpiles only required treatment to lower the concentration of 2,4-DNT.

The pit excavations (452 and 463) are currently open and filled with water. The accumulated water in the pits has been analyzed and found to be non-hazardous; therefore, Ohio Environmental Protection Agency (OEPA) and National Aeronautic and Space Administration (NASA) have given permission for the water to be disposed of in the West Area Red Water Ponds. Prior to filling the pits with clean backfill, the water will be removed and discharged into the West Area Red Water Pond at a rate that will not disturb or erode existing sediment or vegetation.

During the Fall and Winter of 2003, bioremediation via composting of the TNT B and Pentolite Road Red Water Pond (PRRWP) stockpiles was completed with disposal of non-hazardous composted material to the Erie County and Ottawa County Landfills. However, as outlined in the Scope of Work (SOW) Modification #1, the open TNT B pits 452 and 463 are still considered contaminated as well as the area in the PRRWP, which was previously lined with plastic and backfilled with clean soil. There are three other TNT B areas that have yet to be excavated (i.e., 412, 456 and the Northeast Nailhouse). Based on past experience, it is not feasible to continue excavation on not only the open pits but also the other three TNT B pits and the PRRWP pit until clean closure can be obtained. This modification details that the Contractor shall determine the extent of the contamination through exploratory trenching efforts. Sampling shall be for those contaminant levels designated in the TNT B and PRRWP Feasibility Studies and Risk Assessments (IT Corporation, 1998). These levels can be found in the original SOW for both TNT B and PRRWP Interim Soil Removal Actions as well as in the Final Plan of Operations (WTI, September 2002), the Final Plan of Operations Addendum (WTI, October 2003), and Section 3.1 of this addendum.

1.2 Objectives

WTI shall determine the extent of contamination through trenching and sampling efforts for the TNT B pits 452 and 463 (which may not be backfilled prior to beginning this effort). Also, excavation and/or trenching will be performed in the previously unexcavated areas of 412, 456 and the Northeast Nailhouse as well as the PRRWP pit area.

2.0 PROJECT ORGANIZATION

A project that is properly organized with personnel responsibilities well-delineated results in a successful project conclusion. A listing of functional areas and qualified personnel are given for this project.

A. Government Technical Point of Contact (POC) —This is the technical POC representing the United States Army Corp of Engineers (USACE) who will serve as a liaison between the USACE and the contractor.

USACE POC		Phone Number
Lisa Humphreys		(304) 399-5953
	(cellular phone)	(304) 617-1461

B. NASA POC— This is the technical POC representing NASA.

NASA POC	Phone Number
Amy Bower	(419) 621-3233
Robert Lallier	(419) 621-3234

C. **Contractor's Operations Manager** —The Operations Manager has overall responsibility to see that the project is completed in accordance with the Scope of Work.

WTI Operations Manager		Phone Number
Jeff Cooper		(304) 755-8448
	(cellular phone)	(304) 549-2098

D. **Project Supervisor**—The Project Supervisor will be in charge of all field activities and will report directly to the Operations Manager. An On-site Supervisor may also be assigned to the project. The On-site Supervisor will report directly to the Project Supervisor.

Supervisors		Phone Number
Gary Cooper (Project Supervisor)		(304) 755-8448
	(cellular phone)	(304) 561-7397
Zatto Hager (On-site Supervisor)		(304) 755-8448
	(cellular phone)	(304) 550-5566

E. **Contractor's Technical Contacts** – The technical contacts will provide scientific and technical insight for the project. Joseph Wheeler will serve as the main technical contact, and Ruth Porter will serve as contact for chemistry related questions.

WTI Technical Contact		Phone Number
Joseph Wheeler		(304) 755-8448
	(cellular phone)	(304) 549-2096
Ruth Porter		(304) 755-8448

F. **Site Safety and Health Officer (SSHO)** – The SSHO will be responsible for safety on site. Personnel from Pinnacle Environmental, a company specializing in safety and health issues, will serve as the safety officer.

SSHO		Phone Number
Andrea Thomas		(304) 757-5204
	(cellular phone)	(304) 539-2952

G. **QC Officers**—One of the following will perform quality control (QC) duties at the site. The QC Officer has the authority to stop the work if QC is not being met. The QC Officer shall be responsible for sampling activities and field screening of samples.

WTI QC Officer		Phone Number
Senah Gussler		(304) 755-8448
	(cellular phone)	(740) 479-4215
Rodney Roberts		(304) 755-8448
	(cellular phone)	(304) 552-3489

H. **Field Personnel** – These personnel are responsible for assisting the On-site Supervisor in completing the tasks required under this contract.

WTI Field Personnel	Phone Number
Gary Henry	(304) 755-8448
Lynn Moles	
Chester Porter	
Malcolm Slone	
Dwayne James	
Keith Meeks	
David John Walker	

I. **WTI's Independent Quality Control Team (IQCT)--** An internal quality control team will independently review the work plans and reports to ensure that they meet requirements of the Scope of Work. The IQCT may perform on-site QC audits.

WTI Independent Quality Control Team	Phone Number
Julie Glockner	(740) 574-6144
Eric Foster	(740) 574-6144

J. **Research Environmental and Industrial Consultants (REIC) Laboratory–**Samples will be sent to the following USACE certified laboratory. REIC Laboratory is located in Beaver, West Virginia.

REIC Contact	Phone Number
Grant Wilton	(800) 999-0105

K. **Disposal Facility for Contaminated Soil—** Non-hazardous soil removed from the site may be disposed of at the Erie County Landfill and at the BFI Ottawa County Landfill.

Non-hazardous Landfills	Phone Number
Fred Dobbert (Erie County)	(419) 433-3624
Rosana Marinchick (Ottawa County)	(440) 774-4808

L. **Barnes Nursery—**This company will be used for the transportation of any non-hazardous materials removed from the site and may be used to transport clean backfill material to the site. Furthermore, backfill material will be obtained from this company.

Barnes Nursery Contact	Phone Number
Leslie Morgan	(800) 421-8722

M. **EQ Environmental**—The hazardous disposal facility for hazardous investigation derived Waste (IDW) is EQ Environmental located in Michigan.

EQ Environmental Contact	Phone Number
Debbie Chamberlain	(800) 592-5489

N. **Enviro-Clean Inc.**—Non-hazardous investigation derived waste containing liquids will be transported to Enviro-Clean Inc. located in Wooster, Ohio for ultimate disposal.

Enviro-Clean Inc.	Phone Number
Joe Mamone	(330) 264-8080

O. **Eco First**—This company will be responsible for the transportation of any hazardous IDW to EQ Environmental for disposal.

Eco First Contact	Phone Number
Dana Tomes	(304) 736-7303

P. **Waste Management** –This company will be responsible for the transportation and disposal of hazardous soil removed from the site. Hazardous soil will be disposed of at Waste Management's facility in Model City, New York.

Waste Management Contact	Phone Number
Kathy Morin	(716) 754-0455

3.0 APPLICABLE OR RELEVANT, AND APPROPRIATE REQUIREMENTS (ARARs)

Pit and/or trench excavations will be stopped if groundwater is encountered during excavation activities. Water (groundwater, surface run-off, and so forth) that enters a pit and/or trench will be sampled and analyzed for nitroaromatics. Other analytical parameters may be added at the discretion of the USACE POC. After review of analytical data, the water will be disposed of in accordance with Federal, State, and Local regulations.

3.1 Site Remedial Action Levels

3.1.1 TNT B Area

Remedial Investigation (RI) fieldwork was conducted in 1998 in order to provide a basis for taking an action at the site (IT Corporation, 1998). As part of the RI, a human health risk assessment was conducted for the TNT B area. Thirteen constituents of concern (COC) were identified in surface and subsurface soil. Based on the results of the human health risk

assessment, it was determined that remedial actions were to be taken to prevent human exposure via any exposure route (ingestion, inhalation, or dermal contact) to soil that exceeds the preliminary remediation goals (PRGs). These remedial goals are applicable to soil removal activities at the site.

Table 1—Chemicals of Concern for the TNT B Area

Chemical of Concern	PRGs (mg/kg)[1]
Nitroaromatics	
2-amino-4,6-DNT	0.40
4-amino-2,6-DNT	0.40
2,4-DNT	7.50
2,6-DNT	2.75
2-nitrotoluene	74
2,4,6-TNT	3.36
Polychlorinated Biphenyls (PCBs)	
Aroclor 1254	0.16
Aroclor 1260	2.87
Polynuclear Aromatic Hydrocarbons (PAHs)	
Benzo (a) anthracene	5.43
Benzo (a) pyrene	0.54
Benzo (a) fluoranthene	5.43
Dibenz (a,h) anthracene	0.65
Indeno (1,2,3-cd) pyrene	5.43

[1] mg/kg is equal to parts per million (ppm)

3.1.2 PRRWP Area

Remedial Investigation fieldwork was conducted in 1998 in order to provide a basis for taking an action at the site (IT Corporation, 1998). As part of the RI, a human health risk assessment was conducted for the Pentolite Road Red Water Ponds (IT Corporation, 1998). The only COC identified in the surface and subsurface soil was 2,4,6-TNT. Based on the results of the human health risk assessment, it was determined that remedial actions were to be taken to prevent human exposure via any exposure route (ingestion, inhalation, or dermal contact) to soil that exceeds the remedial goal option (RGO) of 13.8 ppm for TNT.

Table 2—Chemical of Concern for the PRRWP Area

Chemical of Concern	RGO (mg/kg)[1]
Nitroaromatics	
2,4,6-TNT	13.80

[1] mg/kg is equal to parts per million (ppm)

3.2 Resource Conservation and Recovery Act (RCRA)

Subtitle C of the federal Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, authorizes EPA to regulate the management of hazardous wastes. The designation of a waste as hazardous subjects all those charged with managing that waste to the stringent "cradle-to-grave" requirements of RCRA Subtitle C. It is crucial, therefore, for all those managing wastes to properly identify them and determine whether or not those wastes are in fact "hazardous". There are four kinds of hazardous wastes as defined by Subtitle C of RCRA:

- Solid wastes, which exhibit hazardous characteristics (i.e., ignitability, corrosivity, reactivity, or toxicity).
- Solid wastes specifically listed by the Agency as being hazardous.
- A waste that is considered a declared waste.
- A waste mixed with a known hazardous waste.

The toxicity characteristic identifies wastes that are likely to leach hazardous concentrations of certain toxic contaminants into groundwater under improper storage conditions. The toxicity of a waste can be determined by applying the TCLP, a test designed to simulate the leaching of toxic constituents. Full TCLP analysis (volatiles, semi-volatiles, metals, herbicides, and pesticides) will be performed on all soil and investigation derived waste that is to be removed from the project site. Analytical data from the TCLP analysis will be compared to the RCRA regulatory levels for TCLP constituents.

4.0 PROJECT ACTIVITIES

All work shall be coordinated with the USACE POC and the NASA Plum Brook Station (PBS) POC. WTI shall notify both parties prior to mobilizing to the site. Pursuant to the SOW (modification #3) issued under Contract DACW69-03-D-007, Work Order 0004, the tasks shown in the previous contracts (DACW69-00-D-0021, Work Order No. 020 and DACW69-03-D-007, Work Order No. 4) shall be revised as shown in Sections 4.2 through 4.5.3 that follow. Task numbers shown in Sections 4.2 through 4.5.3 are those given in the previously approved contract. Not all tasks required amendment; therefore, only the task changes required by the modified SOW are addressed in the following sections.

4.1 On-site Equipment

WTI may use the following equipment on-site to perform the activities associated with this project:

- Tracked excavators (PC-220 or comparable)
- Vacuum truck (3000-gallon CUSCO or comparable)
- Bulldozer (D5C or comparable)
- Endloader (rubber tired)

- Vibratory roller to compact clay
- Dump trailers
- Dump trucks (articulated)
- Tractor and trailer used for mobilization of equipment
- Hand tools (rakes, shovels, etc.)
- Water pump (4") and hoses

4.2 Preparation and Submission of an Addendum to the Plan of Operations (Task 3)

This addendum to the Plan of Operations is a supplement to the original Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003). This plan is to be used in conjunction with the previously approved Final Plans of Operation.

Because the trenching efforts are slightly different than the actual excavation and bioremediation efforts previously required under this SOW and associated modifications, WTI shall prepare an addendum to the Plan of Operations outlining the technical requirements of the SOW which shall include, but not be limited to how WTI will perform the work, designate those employees performing the work, equipment and materials used to accomplish the work sampling efforts and any and all other pertinent information necessary to complete this SOW. Because the sampling efforts and analytical requirements are the same as outlined in the original SOW, an addendum to the Sampling and Analysis Plan (SAP) is not required, other than making sure that the assumptions used for sampling distances, depths and parameters analyzed are addressed.

4.3 Field Activities and Utilities (Task 4)

WTI shall coordinate with PBS in a timely manner to ensure that no buried utilities will be encountered during trenching activities. Intrusive activities will not begin until the area has been cleared of utilities and NASA has issued an excavation permit.

4.4 Excavation of Contaminated Material (Task 6)

Due to the expense of the ex situ treatment and associated disposal/use for the previously stockpiled soils from pits 452 and 463, no further excavation was conducted in the Fall of 2003. Due to additional funding becoming available, WTI shall use trenching efforts to determine the extent of the contamination for TNT B pits 452, 463, 412, 456, and Northeast Nailhouse as well as the PRRWP pit area designated in the original SOW.

4.4.1 TNT B Pit 452

WTI shall dig a 10" wide trench (or smallest excavator bucket as possible), at a depth of 10 feet (depth designated in the original SOW) around the perimeter of the existing pit. At this time it is assumed that the approximate distance of the perimeter trench around the existing pit will be 40 to 50 feet on all four sides. However, the exact distance for placement of the trench will be determined in consultation with the USACE POC.

Should the pit already be backfilled by the time WTI begins field work, then WTI shall use the outer edge of the plastic (at the known wall of contamination) as a starting point for the measurement. WTI shall sample and analyze for the parameters specified in the original SOW (total nitroaromatics, PAHs, and PCBs) and compare this analytical data against the PRG / cleanup requirements (Section 3.1.1, Table 1) previously set for this project. Additionally, target analyte list (TAL) metals shall be sampled for and analyzed in accordance with the original SOW even though there are no PRGs established for metals. Lead has previously been detected in soil samples from the area. In consultation with the USACE POC, an action level of 400 mg/kg was previously established for lead contaminated areas. WTI shall assume that grab samples will be taken at approximately 20' intervals (on the outside wall of the trench) along the length of the trench. Grab samples will be collected from the areas (at approximately 20' distances) that appear to be the most contaminated based upon visual and olfactory observations. WTI shall transport the excavated soil by truck to the stockpile area where the soil will be stored until analytical data is obtained. Soil from the various investigation areas will not be combined but will be stockpiled separately. Due to the analytical history of soil in this area, WTI will assume disposal of the excavated soil will be made at a permitted hazardous waste landfill licensed to accept such waste. Refer to Section 5.2 for analytical requirements for the stockpiled soil. The trench and the pit, if not previously backfilled, shall be backfilled with clean soil. If groundwater is encountered during excavation or is the excavation floor starts getting "soupy" (an indication groundwater is near), then excavation activities will be stopped and WTI will confer with the USACE POC on whether to perform further excavation. Any water that enters the trench or pit shall be removed by a vacuum truck or water pump prior to performing backfilling operations. If water is encountered, it will be containerized (55-gallon drums, vacuum truck tank, or frac tank) analyzed and disposed of in accordance with the procedures outlined in the Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003). Seeding and mulching activities will be performed after backfilling operations have been completed. Approximately 88 cubic yards (CY) of soil is expected to be removed during the trenching operations.

4.4.2 TNT B Pit 463

WTI shall dig a 10" wide trench (or smallest excavator bucket as possible), at a depth of 10 feet (depth designated in the original SOW) around the perimeter of the existing pit. At this time it is assumed that the approximate distance of the perimeter trench around the existing pit will be 40 to 50 feet on all four sides. However, the exact distance for placement of the trench will be determined in consultation with the USACE POC.

Should the pit already be backfilled by the time WTI begins field work, then WTI shall use the outer edge of the plastic (at the known wall of contamination) as a starting point for the measurement. WTI shall sample and analyze for the parameters specified in the original SOW (total nitroaromatics, PAHs, and PCBs) and compare this analytical data against the PRG / cleanup requirements (Section 3.1.1, Table 1) previously set for this project. Additionally, target analyte list (TAL) metals shall be sampled for and analyzed in accordance with the original SOW even though there are no PRGs established for metals. Lead has previously been detected in soil samples from the area. In consultation with the USACE POC, an action level of 400 mg/kg was previously established for lead contaminated areas. WTI shall assume that grab

samples will be taken at approximately 20' intervals (on the outside wall of the trench) along the length of the trench. Grab samples will be collected from the areas (at approximately 20' distances) that appear to be the most contaminated based upon visual and olfactory observations. WTI shall transport the excavated soil by truck to the stockpile area where the soil will be stored until analytical data is obtained. Soil from the various investigation areas will not be combined but will be stockpiled separately. Due to the analytical history of soil in this area, WTI will assume disposal of the excavated soil will be made at a permitted hazardous waste landfill licensed to accept such waste. Refer to Section 5.2 for analytical requirements for the stockpiled soil. The trench and the pit, if not previously backfilled, shall be backfilled with clean soil. If groundwater is encountered during excavation or is the excavation floor starts getting "soupy" (an indication groundwater is near), then excavation activities will be stopped and WTI will confer with the USACE POC on whether to perform further excavation. Any water that enters the trench or pit shall be removed by a vacuum truck or water pump prior to performing backfilling operations. If water is encountered, it will be containerized (55-gallon drums, vacuum truck tank, or frac tank) analyzed and disposed of in accordance with the procedures outlined in the Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003). Seeding and mulching activities will be performed after backfilling operations have been completed. Approximately 88 cubic yards (CY) of soil is expected to be removed during the trenching operations.

4.4.3 TNT B Pit 412

The area proposed for excavation in the original SOW consisted of three distinct pits (designated as Areas A, B, and C) in the area of Building 412. The dimensions of the proposed pits given in the original SOW for Areas A, B, and C were 50' x 20' x 6', 10' x 10' x 6', and 10' x 10' x 6', respectively. The pit locations were surveyed and staked at the dimensions previously mentioned during the initial removal activities at the TNT B site. If the stakes have been removed, the proposed pit location and dimensions will require re-surveying and re-staking. WTI shall dig a 10" wide trench (or smallest excavator bucket as possible), at a depth of 6 feet (depth designated in the original SOW) around the perimeter of the proposed pits. At this time it is uncertain whether one perimeter trench will be excavated that would include all three areas together or whether trenches will be dug around the three individual areas. This determination will be made in consultation with the USACE POC and will depend upon many factors such as, but not limited to, distances of the three areas from each other, the presence of buildings/structures, and the presence of aboveground or underground utilities. At this time it is assumed that all trenching efforts in this area will remove approximately 88 CY.

WTI shall sample and analyze for the parameters specified in the original SOW (total nitroaromatics, PAHs, and PCBs) and compare this analytical data against the PRG / cleanup requirements (Section 3.1.1, Table 1) previously set for this project. Additionally, target analyte list (TAL) metals shall be sampled for and analyzed in accordance with the original SOW even though there are no PRGs established for metals. Lead has previously been detected in soil samples from the area. In consultation with the USACE POC, an action level of 400 mg/kg was previously established for lead contaminated areas. WTI shall assume that grab samples will be taken at approximately 20' intervals (on the outside wall of the trench) along the length of the

trench. Grab samples will be collected from the areas (at approximately 20' distances) that appear to be the most contaminated based upon visual and olfactory observations. WTI shall transport the excavated soil by truck to the stockpile area where the soil will be stored until analytical data is obtained. Soil from the various investigation areas will not be combined but will be stockpiled separately. Due to the analytical history of soil in this area, WTI will assume disposal of the excavated soil will be made at a permitted hazardous waste landfill licensed to accept such waste. Refer to Section 5.2 for analytical requirements for the stockpiled soil. The trench shall be backfilled with clean soil. If groundwater is encountered during excavation or is the excavation floor starts getting "soupy" (an indication groundwater is near), then excavation activities will be stopped and WTI will confer with the USACE POC on whether to perform further excavation. Any water that enters the trench or pit shall be removed by a vacuum truck or water pump prior to performing backfilling operations. If water is encountered, it will be containerized (55-gallon drums, vacuum truck tank, or frac tank) analyzed and disposed of in accordance with the procedures outlined in the Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003). Seeding and mulching activities will be performed after backfilling operations have been completed.

4.4.4 TNT B Pit 456

The area proposed for excavation in the original SOW consisted of seven distinct pits (designated as Areas A, B, C, D, E, F, and G) in the area of Building 456. With the exception of Area B, soil excavation and removal activities have been performed for six of the seven distinct pit areas located in the vicinity of Building 456. The dimensions of the proposed pit for Area B were given in the original SOW as 24' x 24' x 4'. The Area B pit location was surveyed and staked at the dimension previously mentioned during the initial removal activities at the site. If the stakes have been removed, the proposed pit location and dimensions will require re-surveying and re-staking. Because this pit is smaller in size than most of the initially identified areas, WTI shall excavate the area based upon the original dimensions (24' x 24' x 4') and not perform trenching operations. If excavation of the pit is performed rather than trenching operations, then the TNT B Pit 456 would fall under the original SOW, which would mean that the material removed would likely require lead stabilization. If during excavation, it becomes apparent that contamination is likely to exceed the original dimensions of the pit, personnel shall then excavate a perimeter trench around the pit in an attempt to determine the extent of contamination. The exact distance for placement of the trench, if one is necessary, will be determined in consultation with the USACE POC. At this time it is assumed that all excavation activities in this area will remove approximately 88 CY.

WTI shall sample and analyze for the parameters specified in the original SOW (total nitroaromatics, PAHs, and PCBs) and compare this analytical data against the PRG / cleanup requirements (Section 3.1.1, Table 1) previously set for this project. Additionally, target analyte list (TAL) metals shall be sampled for and analyzed in accordance with the original SOW even though there are no PRGs established for metals. Lead has previously been detected in soil samples from the area. In consultation with the USACE POC, an action level of 400 mg/kg was previously established for lead contaminated areas. WTI shall assume that grab samples will be taken at approximately 20' intervals (on the outside wall of the trench) along the length of the trench. Grab samples will be collected from the areas (at approximately 20' distances) that

appear to be the most contaminated based upon visual and olfactory observations. WTI shall transport the excavated soil by truck to the stockpile area where the soil will be stored until analytical data is obtained. Soil from the various investigation areas will not be combined but will be stockpiled separately. Due to the analytical history of soil in this area, WTI will assume disposal of the excavated soil will be made at a permitted hazardous waste landfill licensed to accept such waste. Refer to Section 5.2 for analytical requirements for the stockpiled soil. The pit shall be backfilled with clean soil. If groundwater is encountered during excavation or is the excavation floor starts getting "soupy" (an indication groundwater is near), then excavation activities will be stopped and WTI will confer with the USACE POC on whether to perform further excavation. Any water that enters the trench or pit shall be removed by a vacuum truck or water pump prior to performing backfilling operations. If water is encountered, it will be containerized (55-gallon drums, vacuum truck tank, or frac tank) analyzed and disposed of in accordance with the procedures outlined in the Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003). Seeding and mulching activities will be performed after backfilling operations have been completed.

4.4.5 TNT B Pit Northeast Nailhouse

The area proposed for excavation in the original SOW had dimensions of 15'x 15' x 4'. The pit location was surveyed and staked at the dimension previously mentioned during the initial removal activities at the TNT B site. If the stakes have been removed, the proposed pit location and dimensions will require re-surveying and re-staking. Because this pit is smaller in size than most of the initially identified areas, WTI shall excavate the area based upon the original dimensions (15' x 15' x 4') and not perform trenching operations. If excavation of the pit is performed rather than trenching operations, then the TNT B Pit 456 would fall under the original SOW, which would mean that the material removed would likely require lead stabilization. If during excavation, it becomes apparent that contamination is likely to exceed the original dimensions of the pit, personnel shall then excavate a perimeter trench around the pit in an attempt to determine the extent of contamination. The exact distance for placement of the trench, if one is necessary, will be determined in consultation with the USACE POC. Excavation activities (pit excavation and trenching, if necessary) in this area will remove approximately .88 CY.

WTI shall sample and analyze for the parameters specified in the original SOW (total nitroaromatics, PAHs, and PCBs) and compare this analytical data against the PRG / cleanup requirements (Section 3.1.1, Table 1) previously set for this project. Additionally, target analyte list (TAL) metals shall be sampled for and analyzed in accordance with the original SOW even though there are no PRGs established for metals. Lead has previously been detected in soil samples from the area. In consultation with the USACE POC, an action level of 400 mg/kg was previously established for lead contaminated areas. WTI shall assume that grab samples will be taken at approximately 20' intervals (on the outside wall of the trench) along the length of the trench. Grab samples will be collected from the areas (at approximately 20' distances) that appear to be the most contaminated based upon visual and olfactory observations. WTI shall

transport the excavated soil by truck to the stockpile area where the soil will be stored until analytical data is obtained. Soil from the various investigation areas will not be combined but will be stockpiled separately. Due to the analytical history of soil in this area, WTI will assume disposal of the excavated soil will be made at a permitted hazardous waste landfill licensed to accept such waste. Refer to Section 5.2 for analytical requirements for the stockpiled soil. The pit shall be backfilled with clean soil. If groundwater is encountered during excavation or is the excavation floor starts getting "soupy" (an indication groundwater is near), then excavation activities will be stopped and WTI will confer with the USACE POC on whether to perform further excavation. Any water that enters the trench or pit shall be removed by a vacuum truck or water pump prior to performing backfilling operations. If water is encountered, it will be containerized (55-gallon drums, vacuum truck tank, or frac tank) analyzed and disposed of in accordance with the procedures outlined in the Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003). Seeding and mulching activities will be performed after backfilling operations have been completed.

4.4.6 PRRWP Pit

Because there was evidence of a dark seam at approximate 4 -5' depth (which is believed to be the actual pond floor), WTI shall dig a 10" wide trench (or smallest excavator bucket as possible), at the seam depth around the east and south perimeter of the existing pit. The analytical data from the north and west walls were found to be clean when compared to the RGO's for the area. The pit has already been backfilled; therefore, WTI shall start at the outer edge of the plastic (at the known wall of contamination) and begin measurements for trenching activities from this location. At this time it is assumed that the approximate distance of the perimeter trench around the existing east and south pit walls will be 40 to 50 feet on all four sides. However, the exact distance for placement and direction of the trench will be determined in consultation with the USACE POC. At this time it is assumed that all excavation activities in this area will remove approximately 88 CY.

WTI shall sample for the parameters specified in the original SOW (total nitroaromatics) and analyze them against the RGO / cleanup requirements (Section 3.1.1, Table 2) previously set for this project. WTI shall assume that grab samples will be taken at approximately 20' intervals (on the outside wall of the trench) along the length of the trench. Grab samples will be collected from the areas (at approximately 20' distances) that appear to be the most contaminated based upon visual and olfactory observations. WTI shall transport the excavated soil by truck to the stockpile area where the soil will be stored until analytical data is obtained. Soil from the various investigation areas will not be combined but will be stockpiled separately. Due to the analytical history of soil in this area, WTI will assume disposal of the excavated soil will be made at a permitted hazardous waste landfill licensed to accept such waste. Refer to Section 5.2 for analytical requirements for the stockpiled soil. The trench shall be backfilled with clean soil. If groundwater is encountered during excavation or is the excavation floor starts getting "soupy" (an indication groundwater is near), then excavation activities will be stopped and WTI will confer with the USACE POC on whether to perform further excavation. Any water that enters the trench or pit shall be removed by a vacuum truck or water pump prior to performing

backfilling operations. If water is encountered, it will be containerized (55-gallon drums, vacuum truck tank, or frac tank) analyzed and disposed of in accordance with the procedures outlined in the Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003). Seeding and mulching activities will be performed after backfilling operations have been completed.

4.5 Stabilization and Ex Situ Treatment (Task 7)

It is assumed that the soil being removed will meet requirements for disposal at an approved hazardous waste landfill; therefore, stabilization of lead contaminated soil should not be required prior to disposal. However, should analytical data reveal that the excavated soil can be disposed of at a non-hazardous landfill if lead stabilization is performed, then this SOW will be modified to cover such stabilization.

4.5.1 Treatment of Contaminated Stockpiled Soil (Task 7C)

Stockpiled soil from the trenching operations shall be tested prior to disposal and disposed of at an approved landfill, whether at a non-hazardous or hazardous waste landfill. It is anticipated that WTI shall stockpile the contaminated soil on plastic in the same stockpile location used for the previous TNT B removal action, pending NASA approval.

4.5.2 Transportation (Task 7D)

Non-hazardous stockpiled material shall be transported to an appropriate non-hazardous landfill for disposal. If stockpiled soil is found to be hazardous, it may be stabilized/treated as necessary for lead and/or 2,4-DNT to render it non-hazardous or it may be transported to an appropriate hazardous landfill for disposal. Decisions on stabilization or disposal of the material as hazardous waste shall be made by the USACE POC.

4.5.3 Fencing (Task 7J)

WTI shall use standard safety fence around the open trench excavations. Additional security precautions are not necessary, since the NASA site is a secure site with its own security force.

5.0 SAMPLING AND ANALYTICAL REQUIREMENTS

WTI will use REIC Laboratory of Beaver, West Virginia to perform the analytical testing for the confirmation and waste characterization samples associated with this project. REIC is a USACE certified laboratory. REIC's detection and quanitation limits are based upon their minimum detection limit (MDL) studies and are specific for each media and the instrumentation that is being used. The laboratory shall follow the most currently promulgated Environmental Protection Agency (EPA) methods.

5.1 Confirmation Sampling (Task 9)

For trenching operations, WTI shall collect a grab sample at 20' intervals (on the outside wall of the trench) along the length of the trench. Pits that are excavated pursuant to the original SOW, shall be sampled in accordance with provisions of Section 5.2 of the Final Plan of Operations (WTI, September 2002) which requires a sample every 20' along a pit wall. Based on current sampling requirements to define Risk Assessment levels and meet or exceed PRG/RGO goals, it is assumed that 120 samples for nitroaromatics (20 additional samples were included for PRRWP area), 100 samples for metals, 100 samples for PAHs, and 100 samples for PCBs shall be collected. Refer to Table 3 for the analytical parameters for the confirmation sampling.

Table 3—Chemical Analyses for Confirmation Sampling

Analytical Parameter	Number of Samples	Number of QC Samples[1]	Method	Size & Container Type[2]	Preservative	Maximum Holding Time
TNT B Pits 452, 463, 412, 456, and the Northeast Nailhouse						
Target analyte list (TAL) metals	100	10	SW846/3050B, 6010B, 7471A	1 9-ounce glass	Ice 4°C	28 days for mercury, 6 months for other metals
Polynuclear aromatic hydrocarbons (PAHs)	100	10	SW846/8270C	1 9-ounce glass	Ice 4°C	14 days until extraction, analyze within 40 days of extraction
Polychlorinated biphenyls (PCBs)	100	10	SW846/8082A	1 4-ounce glass	Ice 4°C	14 days until extraction; analyze within 40 days of extraction
Total Nitroaromatics	100	10	SW-846/8330	1 9-ounce glass	Ice 4°C	Extract 14 days Analyze 40 days
PRRWP Area						
Total Nitroaromatics	20	2	SW-846/8330	1 9-ounce glass	Ice 4°C	Extract 14 days Analyze 40 days

[1] QC Samples will be collected at a rate of 10%.

[2] Several analyses may be taken from one container, the laboratory will provide and mark all containers

5.1.1 Field Screening

Field screening for nitroaromatics and lead will be performed. The TNT EnSys® Soil Test System will be used for field screening of nitroaromatics and the Palintest Scanning Analyzer will be used for field screening of lead. Field screening for these parameters will be performed in accordance with the methodology described in Section 5.0 of the Final Plan of Operations (WTI, September 2002).

5.2 Sampling and Analytical Requirements for Disposal of Excavated Soil

Due to the analytical history of soil in the areas being excavated, WTI will assume that disposal of the excavated soil from each area will have to be performed at a permitted hazardous waste landfill licensed to accept such waste. Analytical data from previous sampling in the TNT B area revealed that samples exhibited the characteristic of hazardous waste because samples failed the TCLP testing for 2,4-DNT (0.13 mg/l) and lead (5.0 mg/l). Samples from the Pentolite Red Water Pond area were characteristically hazardous based on the concentration of 2,4-DNT. A sample will be collected from each of the six distinct stockpiles (representing the six excavation areas) and analyzed for waste characterization purposes (Refer to Table 4). If analytical data reveals that any of the stockpiles are non-hazardous, then additional sampling and analysis may be necessary prior to disposal of the soil in a non-hazardous facility. In this case, it is anticipated that the additional analytical required will be benzene, toluene, ethylbenzene, xylene, and total petroleum hydrocarbons/diesel range organics/gasoline range organics/oil range organics.

Table 4—Chemical Analyses for Waste Characterization Purposes

Analytical Parameter	Number of Samples	Number of QC Samples[1]	Method	Size & Container Type[2]	Preservative	Maximum Holding Time
Contaminated Soil						
Toxicity Characteristic Leaching Procedure (TCLP) metals	6	0	SW846/1311, 6010B, 7471A	250 grams/glass	Ice 4°C	28 days for mercury, 6 months for other metals
TCLP volatiles	6	0	SW846/1311, 8260B	250 grams/glass	Ice 4°C, no headspace	14 days
TCLP semi-volatiles	6	0	SW846/1311, 8270C	250 grams/glass	Ice 4°C	14 days until extraction, analyze within 40 days of extraction
TCLP herbicides and pesticides	6	0	SW846/1311, 8081, 8151	250 grams/glass	Ice 4°C	14 days until extraction, analyze within 40 days of extraction
Flashpoint	6	0	SW846/1030	250 grams/glass	Ice 4°C	6 months
Corrosivity (pH)	6	0	SW 846 9045C	250 grams/glass	None required	6 months

[1] No Quality Control Samples will be collected for waste characterization purposes.

[2] Several analyses may be taken from one container, the laboratory will provide and mark all containers

6.0 EQUIPMENT DECONTAMINATION

The steps of the decontamination process for heavy equipment (backhoe, heavy equipment, so forth) will be as follows:

- Brush off the equipment to remove gross contamination
- Wash equipment with soap (Alconox or equivalent non-phosphate soap) and water using a pressure washer
- Rinse equipment with uncontaminated water

Heavy equipment will not be decontaminated until it is ready to be removed from the site or it is going to be used in an uncontaminated area. A decontamination pad will be constructed for collection of the decontamination fluids.

Laboratory equipment (pipets, cuvettes, beakers, and so forth), as appropriate, associated with the field screening will be decontaminated. Disposable pipets may be used. Cleaning of laboratory equipment shall be as follows:

- Wash lab equipment with soap and water
- Rinse lab equipment with a triple distilled water rinse
- Rinse lab equipment with acetone (solvent used in the field test kits)

All rinsates will be collected and properly disposed. Drums, buckets, water, detergent, and brushes will be located in the work area. Drums will be available for containerizing the decontamination waste.

7.0 INVESTIGATION DERIVED WASTE

The disposition of investigation derived waste was addressed in Section 6.1 of the Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003) requires only minor modification in this addendum to address the sampling and analysis of the IDW. Refer to Table 5 for the analytical parameters for IDW.

Table 5—Chemical Analysis for IDW Waste Characterization Purposes

Analytical Parameter	Number of Samples	Number of QC Samples	Method	Size & Container Type	Preservative	Maximum Holding Time
Investigation Derived Waste						
Toxicity Characteristic Leaching Procedure (TCLP) metals	1	0	SW846/1311, 6010B, 7471A	250 grams/glass	Ice 4°C	28 days for mercury, 6 months for other metals
TCLP volatiles	1	0	SW846/1311, 8260B	250 grams/glass	Ice 4°C, no headspace	14 days
TCLP semi-volatiles	1	0	SW846/1311, 8270C	250 grams/glass	Ice 4°C	14 days until extraction, analyze within 40 days of extraction
TCLP herbicides and pesticides	1	0	SW846/1311, 8081, 8151	250 grams/glass	Ice 4°C	14 days until extraction, analyze within 40 days of extraction
Flashpoint	1	0	SW846/1030	250 grams/glass	Ice 4°C	6 months
Corrosivity (pH)	1	0	SW846/9045C	250 grams/glass	None required	6 months

8. 0 FIELD DOCUMENTATION PROCEDURES

Field documentation procedures were described in Section 7.0 of the Final Plan of Operations (WTI, September 2002) and do not require modification or addition in this addendum to address the additional tasks to be performed at the site.

9.0 SAMPLE PACKING AND TRANSPORTATION

Sample packing and transportation procedures were described in Section 8.0 of the Final Plan of Operations (WTI, September 2002) and do not require modification or addition in this addendum to address the additional tasks to be performed at the site.

10.0 CONTRACTOR CHEMICAL QUALITY CONTROL

Contractor chemical quality control, which includes lab quality control procedures, were described in Section 9.0 of the Final Plan of Operations (WTI, September 2002) and do not require modification or addition in this addendum to address the additional tasks to be performed at the site.

11.0 DAILY QUALITY CONTROL REPORTS (QCR)

Daily quality control reports were described in Section 10.0 of the Final Plan of Operations (WTI, September 2002) and do not require modification or addition in this addendum to address the additional tasks to be performed at the site.

12.0 CORRECTIVE ACTION

Corrective action procedures were described in Section 11.0 of the Final Plan of Operations (WTI, September 2002) and do not require modification or addition in this addendum to address the additional tasks to be performed at the site.

13.0 SPILL PREVENTION, CONTAINMENT, AND COUNTERMEASURE PLAN

Spill prevention, containment, and countermeasures procedures were described in Section 12.0 of the Final Plan of Operations (WTI, September 2002) and requires only minor modification to the Sections on Potential Spills (12.1), Spill Prevention (12.2), and Spill Containment (12.4).

13.1 Potential Spills

Potential spills from site activities were addressed in Section 12.1 of the Final Plan of Operations (WTI, September 2002) and does not require modification in this addendum. The following potential sources for spills that were identified and addressed in the Final Plan of Operations (WTI, September 2002) are pertinent to the work activities to be completed under this addendum.

- Spills or leaks of decontamination liquids from equipment decontamination activities.
- Spills or leaks of decontamination liquids from personnel decontamination activities.
- Petroleum leaks from trucks or heavy equipment used at the site.
- Spills of chemicals (acetone, nitric acid, Tornado-50 cleaner, and hexane) used on site

Refer to Section 13 of the Final Plan of Operations (WTI, September 2002) for discussion of spill prevention, spill response, spill containment, spill reporting, and contingencies for the potential spills that may occur due to site activities.

14.0 PROTECTION OF RIVERS, STREAMS, AND IMPOUNDMENTS

Protection of rivers, streams, and impoundments were described in Section 13.0 of the Final Plan of Operations (WTI, September 2002) and does not require modification for these work activities.

15.0 AIR EMISSION CONTROLS

Air emission controls for dust were described in Section 14.0 of the Final Plan of Operations (WTI, September 2002) and do not require modification or addition in this addendum.

16.0 PROJECT SCHEDULE

The proposed project schedule is as follows:

Submission of 10 copies of the Draft Plan of Operations Addendum	February 1, 2004
Submission of six copies of the Final Plan of Operations Addendum	5 days after receipt of comments
Field Work	Within 1 to 2 week of approval of the plans

17.0 REFERENCES

The following reference materials were used in compiling the information contained in this Plan of Operations Addendum and/or will be used in other documents associated with this project.

EM-200-1-6, "*Chemical Quality Assurance for Hazardous, Toxic and Radioactive Waste Projects (HTRW),*" U.S. Army Corps of Engineers, October 1997

ER-1110-1-263, "*Chemical Data Quality Management for Hazardous Waste Remedial Activities,*" U.S. Army Corps of Engineers, April 1998

CELRHR 5-2-7, "*Quality Management Plan,*" U.S. Army Corps of Engineers, May, 1999

EM 200-1-2, "*Technical Project Planning Process,*" U.S. Army Corps of Engineers, August 1998

ER 1165-2-132, "*HTRW Guidance for Civil Works Projects*," U.S. Army Corps of Engineers, June 1992

40 Code of Federal Register (CFR) Part 261, "*Identification and Listing of Hazardous Waste,*" United States Environmental Protection Agency

"*Final Plan of Operations*", Plum Brook Ordnance Works, Plum Brook, Ohio, WTI, September 2002

"*Final Plan of Operations Addendum*", Plum Brook Ordnance Works, Plum Brook, Ohio, WTI, October 2003

"*Remedial Investigation and Feasibility Studies*", Plum Brook Ordnance Works, Plum Brook, Ohio, IT Corporation, 1998

APPENDIX A Modified Scope of Work

SCOPE OF WORK – MODIFICATION 3
TNT B AREA B AND PENTOLITE ROAD REDWATER POND AREA
INTERIM SOIL REMOVAL ACTION
DETERMINATION OF CONTAMINATION EXTENT
PLUM BROOK ORDNANCE WORKS
SANDUSKY, OHIO
CONTRACT NO. DACW69-03-D-007, WORK ORDER NO. 4
16 DECEMBER 2003

The following is provided as a modification to the SOW and the previous modifications 1 and 2. All other sections not identified as a modification (including those under the other contracts associated with this work) are to remain active as part of the SOW and complied with by the Contractor.

1. Section 1.0 Introduction. Please add the following paragraph to the end of Section 1.0 from modification #1.

In the Fall and Winter of 2003, bioremediation of the TNT B and Pentolite Road Redwater Ponds Area (PRRWP) stockpiles were completed with disposal to the Erie County Landfill as non-hazardous. However, as outlined in the Modification #1, the open TNT B pits 452 and 463 were still considered contaminated as well as the area in the PRRPWP, which was previously lined with plastic and backfilled with clean soil. There are 3 other TNT B areas that have yet to be excavated (i.e., 412, 456 and the Northeast Nailhouse). Based on past experience, it is not feasible to blindly continue excavation on not only the open pits but also the other 3 TNT B pits and the PRRWP pit until clean closure can be obtained. This modification details that the Contractor shall determine the extent of the contamination through exploratory trenching efforts. Sampling shall be for those contaminant levels designated in the TNT B and PRRWP Feasibility Studies and Risk Assessments (same as those used during previous efforts for this project). These levels can be found in the original SOWs for both TNT B and PRRWP Interim Soil Removal Actions.

2. Section 2.0 Objectives. Please add the following paragraph to the end of this section.

The Contractor shall determine the extent of contamination through trenching and sampling efforts for not only the TNT B pits 452 and 463 (which may or maynot be backfilled prior to beginning this effort) but also for the unexcavated areas 412, 452 and the Northeast Nailhouse as well as the PRRWP pit area.

3. Section 3.0 Tasks. Please revise the following tasks as shown.

Section 3.3 (Task 3) Preparation and Submission of an Addendum to the Plan of Operations, if required. Add this paragraph to the end of this section.

Because the trenching efforts are slightly different than the actual excavation and bioremediation efforts previously required under this SOW and associated modifications, the Contractor shall prepare an addendum to the Plan of Operations outlining the technical requirements of this SOW which shall include, but not be limited to how the Contractor will perform the work, designate those employees performing the work, equipment and materials used to accomplish the work sampling efforts and any and all other pertinent information necessary to complete this SOW. Because the sampling efforts and analytical requirements are the same as outlined in the original SOW, no additional SAP is required, other than making sure the assumptions used for sampling distances, depths and parameters analyzed.

Section 3.4 (Task 4) Field Activities / Utilities. Please add this sentence to the end of paragraph.

The Contractor shall coordinate with PBS in a timely manner to ensure no buried utilities will be encountered during trenching activities.

Section 3.6 (Task 6) Excavation of Contaminated Material. Please add these paragraphs to the end of this section.

Due to additional funding becoming available, the Contractor shall use trenching efforts to determine the extent of the contamination for TNT B pits 452, 463, 412, 456 and Northeast Nailhouse as well as the PRRWP pit area designate in the original SOWs.

See the following breakout for trenching assumptions for each pit:

TNT B pit 452 – The Contractor shall dig a 10" wide trench (or smallest excavator bucket as possible), at depths originally outlined in the original SOW for a distance of 100' on the north, south, east and west sides of the existing pit. Should the pit already be backfilled by the time the Contractor begins field work, then the Contractor shall start at the outer edge of the plastic (at the known wall of contamination) and begin his 100' trench in that location. The contractor shall sample for the parameters specified in the original SOW and analyze them against the RGO / cleanup requirements previously set for this project. The Contractor shall assume samples will be taken at 20' intervals (alternating wall sides) within the trench length. The Contractor shall stockpile once it is removed from the excavation. The soil will require analytical testing prior to disposal at an approved facility. Due to history of soil in this area, the Contractor shall assume disposal of the excavated soil to a permitted HW landfill licensed to accept such waste. The pit shall be backfilled with clean soil. The Contractor shall estimate excavation of approximately 88 CY.

TNT B pit 463 – The Contractor shall dig a 10" wide trench (or smallest excavator bucket as possible), at depths originally outlined in the original SOW for a distance of 100' on the north, south, east and west sides of the existing pit. Should the pit already be backfilled by the time the Contractor begins field work, then the Contractor shall start at the outer edge of the plastic (at the known wall of contamination) and begin his 100'

trench in that location. The contractor shall sample for the parameters specified in the original SOW and analyze them against the RGO / cleanup requirements previously set for this project. The Contractor shall assume samples will be taken at 20' intervals (alternating wall sides) within the trench length. The Contractor shall stockpile once it is removed from the excavation. The soil will require analytical testing prior to disposal at an approved facility. Due to history of soil in this area, the Contractor shall assume disposal of the excavated soil to a permitted HW landfill licensed to accept such waste. The Contractor shall use an appropriate source of backfill material that has already been tested for HTRW concerns (i.e., same as was used for previous backfilling operations). The Contractor shall estimate excavation of approximately 88 CY.

TNT B pit 412 – The Contractor shall dig a 10" wide trench (or smallest excavator bucket as possible), at depths originally outlined in the original SOW for a distance of 100' on the north, south, east and west sides of the existing pit. Because there has been no excavation in this area, the Contractor shall begin the excavation / trenching in the center of the surveyed contaminated boundary and proceed with the 10" trenches in the north, south, east and west directions. The contractor shall sample for the parameters specified in the original SOW and analyze them against the RGO / cleanup requirements previously set for this project. The Contractor shall assume samples will be taken at 20' intervals (alternating wall sides) within the trench length. The Contractor shall stockpile once it is removed from the excavation. The soil will require analytical testing prior to disposal at an approved facility. Due to history of soil in this area, the Contractor shall assume disposal of the excavated soil to a permitted HW landfill licensed to accept such waste. The Contractor shall use an appropriate source of backfill material that has already been tested for HTRW concerns (i.e., same as was used for previous backfilling operations). The Contractor shall estimate excavation of approximately 88 CY.

TNT B pit 456 – The Contractor shall dig a 10" wide trench (or smallest excavator bucket as possible), at depths originally outlined in the original SOW for a distance of 100' on the north, south, east and west sides of the existing pit. Because this pit was smaller than most (i.e., assumed 85 CY were contaminated), it may be feasible to only dig the original allotted size and sample as outlined in the original SOW to determine if the contaminated boundary that was assumed was actually correct. If it is determined that it is not correct, then the Contractor shall continue to trench the 4 boundaries to determine the additional contamination limits. The contractor shall sample for the parameters specified in the original SOW and analyze them against the RGO / cleanup requirements previously set for this project. The Contractor shall assume samples will be taken at 20' intervals (alternating wall sides) within the trench length. The Contractor shall stockpile once it is removed from the excavation. The soil will require analytical testing prior to disposal at an approved facility. Due to history of soil in this area, the Contractor shall assume disposal of the excavated soil to a permitted HW landfill licensed to accept such waste. The Contractor shall use an appropriate source of backfill material that has already been tested for HTRW concerns (i.e., same as was used for previous backfilling operations). The Contractor shall estimate excavation of approximately 88 CY.

TNT B pit Northeast Nailhouse – The Contractor shall dig a 10" wide trench (or smallest excavator bucket as possible), at depths originally outlined in the original SOW for a distance of 100' on the north, south, east and west sides of the existing pit. Because this pit was smaller than most (i.e., assumed 33 CY were contaminated), it may be feasible to only dig the original allotted size and sample as outlined in the original SOW to determine if the contaminated boundary that was assumed was actually correct. If it is determined that it is not correct, then the Contractor shall continue to trench the 4 boundaries to determine the additional contamination limits. The contractor shall sample for the parameters specified in the original SOW and analyze them against the RGO / cleanup requirements previously set for this project. The Contractor shall assume samples will be taken at 20' intervals (alternating wall sides) within the trench length. The Contractor shall stockpile once it is removed from the excavation. The soil will require analytical testing prior to disposal at an approved facility. Due to history of soil in this area, the Contractor shall assume disposal of the excavated soil to a permitted HW landfill licensed to accept such waste. The Contractor shall use an appropriate source of backfill material that has already been tested for HTRW concerns (i.e., same as was used for previous backfilling operations). The Contractor shall estimate excavation of approximately 88 CY.

Pentolite Road Red Water Pond Area – Because there was evidence of a dark seam at approximate 4 -5' depth (which is believed to be the actual pond floor), the Contractor shall dig a 10" wide trench (or smallest excavator bucket as possible), at the seam depth for a distance of 100' on the north, south, east and west sides of the existing pit. The pit has already been backfilled, therefore, the Contractor shall start at the outer edge of the plastic (at the known wall of contamination) and begin his 100' trench in that location. The contractor shall sample for the parameters specified in the original SOW and analyze them against the RGO / cleanup requirements previously set for this project (which were different than those set for TNT B). The Contractor shall assume samples will be taken at 20' intervals (alternating wall sides) within the trench length. The Contractor shall stockpile once it is removed from the excavation. The soil will require analytical testing prior to disposal at an approved facility. Due to history of soil in this area, the Contractor shall assume disposal of the excavated soil to a permitted HW landfill licensed to accept such waste. The Contractor shall use an appropriate source of backfill material that has already been tested for HTRW concerns (i.e., same as was used for previous backfilling operations). The Contractor shall estimate excavation of approximately 88 CY.

Section 3.7 (Task 7) Stabilization

Since the above soil is assumed to be disposed of at an approved hazardous waste landfill, stabilization of the lead should not be required prior to disposal. Should analytical be such that the excavated soil can be disposed of at a non-haz landfill but still require lead stabilization, then this SOW will be modified to cover stabilization.

Section 3.7.2.3 Task 7C: Treatment of Contaminated Stockpile Soil. Please add this paragraph to the end of this section.

Stockpiled soil from the trenching operations shall be tested prior to disposal and disposed of at an approved landfill, whether at a non-haz or hazardous waste landfill. The Contractor shall designate the stockpile area in the Plan of Operations addendum and shall sample, if necessary, the area prior to placement of stockpile material. This area shall be surveyed / mapped for future reporting efforts in the final closure report.

Section 3.7.2.10 Task 7J Please add the following sentence to the end of this paragraph.

The Contractor shall use the standard safety fence around the open trench excavations.

Section 3.9 (Task 9) Confirmation Sampling Please add the following paragraph to the end of this section.

For trenching operations, the Contractor shall assume samples to be taken every 20' along the 100' trench, alternating wall sides. Based on current sampling requirements to define Risk Assessment levels and meet or exceed RGO goals, the Contractor shall assume 120 samples for nitroaromatics (20 additional samples were included for PRRWP area), 100 samples for metals, 100 samples for PAHs, and 100 samples for PCBs. Depending on the landfill used, requirements for disposal may include additional testing.

APPENDIX B Field Activity Forms

CONTRACTOR'S QUALITY CONTROL REPORT (QCR) (ER 1180-1-6)	DATE:	REPORT NO.

CONTRACT NUMBER AND NAME OF CONTRACTOR	DESCRIPTION AND LOCATION OF THE WORK:

WEATHER CLASSIFICATION:

CLASS A No interruptions of any kind from weather conditions occurring on this or previous shifts.

CLASS B Weather occurred during this shift that caused a complete stoppage of all work.

CLASS C Weather occurred during this shift that caused a partial stoppage of work.

CLASS D Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather.

CLASS E Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner.

OTHER Explain.

CLASSIFICATION:

CLASS _____

TEMPERATURE:

MAX ___ MIN ___

PRECIPITATION:

INCHES _____

CONTRACTOR/SUBCONTRACTORS AND AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY: *(Attach list of items of equipment either idle or working as appropriate.)*

a._____

b._____

c._____

d._____

e._____

f._____

g._____

1. WORK PERFORMED TODAY: *(Indicate location and description of work performed. Refer to work performed by prime and /or subcontractors by letter in Table above.)*

2. TYPE AND RESULTS OF INSPECTION: *(Indicate whether: P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)*

3. TESTS REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:

4. VERBAL INSTRUCTIONS RECEIVED: (*List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.*)

5. REMARKS: (*Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, causes and extent thereof; days of no work with reasons for same.*)

6. SAFETY: (*Include any infractions of approved safety plan, safety manual or instructions from Government personnel. Specify corrective actions taken.*)

INSPECTOR

CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

CONTRACTOR'S APPROVED AUTHORIZED REPRESENTATIVE

DAILY PRE-OPERATIONAL CHECKLIST FOR CRAWLER TRACTORS, DOZERS, SCRAPERS, MOTOR GRADERS, BACKHOES, HEAVY HAULAGE UNITS

U.S. Army Engineer, Huntington District

INSTRUCTIONS

SECTION 1 – GENERAL INFORMATION:

a. Date – Enter month, day, and year of Safety Inspection.
b. Owner / User – Enter designated ownership of equipment (Corps, Corps leased or Contractor by name).
c. Contract Number – Contractors enter the respective contract number.
d. Type of Equipment – Enter Ford 515 Backhoe, JD 450 Bulldozer, etc.
e. Number – Enter equipment number Contractor has issued on large scale operations.
f. Inspected By – Enter signature and title of Corps or Contractor inspector (Corps inspector may be a maintenance leader, maintenance mechanic or operator and a Contractor inspector may be a mechanic, operator or service person).
g. Reviewed By – Enter signature and title of Corps or Contractor reviewer (Corps reviewer may be a maintenance leader, maintenance mechanic, manager or supervisor and a Contractor reviewer may be the mechanic, shift leader, foreman or superintendent). Before a signature and title of Corps or Contractor reviewer is entered the checklist must be reviewed and the equipment spot checked unannounced to ensure inspections are performed.

SECTION 2 – DAILY PRE-OPERATIONAL CHECKLIST: Check Yes, No or Not Applicable if question or statement does not apply.

SECTION 3 – RECEIPT OF ACKNOWLEDGMENT: Enter signature, title and date signed by personnel acknowledging receipt of the checklist. If Corps personnel was the inspector and reviewer a Corps manager, supervisor or responsible employee will sign the receipt of acknowledgment. If a Contractor personnel was the inspector and reviewer the checklist becomes a part of the official project file and a copy is furnished to the Contracting Officer Representative (COR), the COR will then sign the receipt of acknowledgment. The COR may request a copy of the checklist at any time. The COR or a representative may perform an unannounced spot check inspection to ensure compliance of safety inspection requirements. To determine if inspector and reviewer are Corps or Contractor personnel see SECTION 1, item f. and g.

SECTION 1 GENERAL INFORMATION

a. Date	b. Owner/User	c. Contract Number
d. Type of Equipment		e. Number
f. Inspected By (Signature) (Title)	g. Reviewed By (Signature) (Title)	

SECTION 2 DAILY PRE-OPERATIONAL CHECKLIST

NOTE: Reference U.S. Army Corps of Engineers Safety and Health Requirements Manual (EM 385-1-1, April 1981, as revised). (Equipment must be in full compliance with checklist and contract requirements.)

	Yes	No	Not Appl
1. Are the rollover protection system and seat belts in good condition?			
2. Are all lights operable? Service, warning, signal and tail.			
3. If equipment is used on highways or streets are slow moving vehicle signs installed? (Must be installed prior to use on highways or streets.)			
4. Is safe 3-point access provided the operator to the operating compartment?			
5. Is proper protection provided the operator? Grills, screens, canopies, etc.			
6. Are brakes (service and parking) operable?			
7. Are the reverse alarm signals operable?			
8. Is cab glass free from breaks, cracks or distortion?			
9. Are shields, guards, and covers in place?			
10. Are air tanks drained and in good condition?			
11. Is there any physical damage evident to the unit?			
12. Are tracks in good condition and properly adjusted?			
13. Is there any evidence of damage to undercarriage and track mountings?			
14. Are the blade, C-frame, hydraulic lines and cylinders in good operating condition?			
15. Are all towing devices adequate and properly mounted?			
16. Are the winch unit and cables in good working condition?			
17. Are all tires and [illegible]			

	Yes	No	Not Appl
18. Are tires properly inflated according to manufacturers recommendations?			
19. Is the unit equipped with the required fire extinguisher? (5:B.C. Rating minimum)			
20. Does the unit have an approved first aid kit? (16-unit minimum)			
21. Are all instruments operable? (Ammeters, pressure gauges, temperature gauges & tachometers.)			
22. Are operating levers, pedals, etc., operable?			
23. Are outriggers operable?			
24. Are oil levels as recommended?			
25. Remarks:			

SECTION 3 RECEIPT OF ACKNOWLEDGMENT

Receipt Acknowledged by: *(Title)* *(Date)*

or fety aff only)	REPORT NO.	EROC CODE	UNITED STATES ARMY CORPS OF ENGINEERS ACCIDENT INVESTIGATION REPORT *(For Use of this Form See Help Menu and USACE Suppl to AR 385-40)*	REQUIREMENT CONTROL SYMBOL: CEEC-S-8(R2)

1. ACCIDENT CLASSIFICATION

PERSONNEL CLASSIFICATION	INJURY/ILLNESS/FATAL	PROPERTY DAMAGE	MOTOR VEHICLE INVOLVED	DIVING
OVERNMENT ☐ CIVILIAN ☐ MILITARY	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ CONTRACTOR	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ PUBLIC	☐ FATAL ☐ OTHER		☐	

2. PERSONAL DATA

Name *(Last, First, MI)*	b. AGE	c. SEX ☐ MALE ☐ FEMALE	d. SOCIAL SECURITY NUMBER	e. GRADE

f. JOB SERIES/TITLE	g. DUTY STATUS AT TIME OF ACCIDENT	h. EMPLOYMENT STATUS AT TIME OF ACCIDENT
	☐ ON DUTY ☐ TDY ☐ OFF DUTY	☐ ARMY ACTIVE ☐ ARMY RESERVE ☐ VOLUNTEER ☐ PERMANENT ☐ NON-NATIONAL ☐ SEASONAL ☐ TEMPORARY ☐ STUDENT ☐ OTHER (Specify)

3. GENERAL INFORMATION

a. DATE OF ACCIDENT *(month/day/year)*	b. TIME OF ACCIDENT *(Military time)* hrs	c. EXACT LOCATION OF ACCIDENT	d. CONTRACTOR'S NAME (1) PRIME: (2) SUBCONTRACTOR:

e. CONTRACT NUMBER	f. TYPE OF CONTRACT	g. HAZARDOUS/TOXIC WASTE ACTIVITY
☐ CIVIL WORKS ☐ MILITARY ☐ OTHER *(Specify)*	☐ CONSTRUCTION ☐ SERVICE ☐ A/E ☐ DREDGE ☐ OTHER *(Specify)*	☐ SUPERFUND ☐ DERP ☐ IRP ☐ OTHER *(Specify)*

4. CONSTRUCTION ACTIVITIES ONLY *(Fill in line and corresponding code number in box from list - see help menu)*

a. CONSTRUCTION ACTIVITY	(CODE) #	b. TYPE OF CONSTRUCTION EQUIPMENT	(CODE) #

5. INJURY/ILLNESS INFORMATION *(Include name on line and corresponding code number in box for items e, f & g - see help menu)*

a. SEVERITY OF ILLNESS/INJURY	(CODE) #	B. ESTIMATED DAYS LOST	C. ESTIMATED DAYS HOSPITALIZED	D. ESTIMATED DAYS RESTRICTED DUTY

b. BODY PART AFFECTED	(CODE)	g. TYPE AND SOURCE OF INJURY/ILLNESS	(CODE)
PRIMARY	#	TYPE	#
SECONDARY	#	SOURCE	#
f. NATURE OF ILLNESS / INJURY	#		

6. PUBLIC FATALITY *(Fill in line and correspondence code number in box - see help menu)*

a. ACTIVITY AT TIME OF ACCIDENT	(CODE) #	b. PERSONAL FLOATATION DEVICE USED? ☐ YES ☐ NO ☐ N/A

7. MOTOR VEHICLE ACCIDENT

a. TYPE OF VEHICLE	b. TYPE OF COLLISION	c. SEAT BELTS	USED	NOT USED	NOT AVAILABLE
☐ PICKUP/VAN ☐ AUTOMOBILE ☐ TRUCK ☐ OTHER *(Specify)*	☐ SIDE SWIPE ☐ HEAD ON ☐ REAR END ☐ BROADSIDE ☐ ROLL OVER ☐ BACKING ☐ OTHER *(Specify)*	(1) FRONT SEAT			
		(2) REAR SEAT			

8. PROPERTY/MATERIAL INVOLVED

a. NAME OF ITEM	B. OWNERSHIP	C. $ AMOUNT OF DAMAGE
(1)		
(2)		
(3)		

9. VESSEL/FLOATING PLANT ACCIDENT *(Fill in line and correspondence code number in box from list - see help menu)*

a. TYPE OF VESSEL/FLOATING PLANT	(CODE) #	b. TYPE OF COLLISION/MISHAP	(CODE) #

10. ACCIDENT DESCRIPTION *(Use additional paper, if necessary)*

See attached page

11. CAUSAL FACTOR(S) *(Read Instruction Before Completing)*

a. (Explain YES answers in item 13)	YES	NO
DESIGN: Was design of facility, workplace or equipment a factor?	☐	☐
INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor?	☐	☐
PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor?	☐	☐
OPERATING PROCEDURES: Were operating procedures a factor?	☐	☐
JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred?	☐	☐
HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident?	☐	☐
ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident?	☐	☐

a. *(CONTINUED)*	YES	NO
CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident?	☐	☐
OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident?	☐	☐
SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task?	☐	☐
PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident?	☐	☐
DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident	☐	☐

b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?

☐ YES *(If yes, attach a copy.)* ☐ NO

12. TRAINING

a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?	b. TYPE OF TRAINING.	c. DATE OF MOST RECENT FORMAL TRAINING.
☐ YES ☐ NO	☐ CLASSROOM ☐ ON JOB	(Month) (Day) (Year)

13. FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES *(See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)*

a. DIRECT CAUSE

See attached page.

b. INDIRECT CAUSE(S)

See attached page.

14. ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).

DESCRIBE FULLY:

See attached page.

15. DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.

a. BEGINNING (Month/Day/Year)	b. ANTICIPATED COMPLETION (Month/Day/Year)

c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT	d. DATE *(Mo/Da/Yr)*	e. ORGANIZATION IDENTIFIER *(Div, Br, Sect)*	f. OFFICE SYMBOL
CORPS _____ CONTRACTOR _____			

16. MANAGEMENT REVIEW *(1st)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE

17. MANAGEMENT REVIEW *(2nd - Chief Operations, Construction, Engineering, etc.)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE

18. SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW

a. ☐ CONCUR b. ☐ NON CONCUR c. ADDITIONAL ACTIONS/COMMENTS

SIGNATURE	TITLE	DATE

19. COMMAND APPROVAL

COMMENTS

COMMANDER SIGNATURE	DATE

10. ACCIDENT DESCRIPTION *(Continuation)*

13a. DIRECT CAUSE *(Continuation)*

13b. **INDIRECT CAUSES** *(Continuation)*

14. **ACTION(S) TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE(S)** *(Continuation)*

REIC

CHAIN OF CUSTODY RECORD NO. 62531

EI Consultants, nc.
225 Industrial Park Rd.
P.O. Box 286, Beaver, WV 25813
Phone: 304-255-2500 or 800-999-0105
FAX: 304-255-2572

CLIENT: _____
ADDRESS: _____
CITY/STATE/ZIP: _____
BILL TO: _____
CITY/STATE/ZIP: _____

CONTACT PERSON: _____
TELEPHONE/FAX: _____
SITE ID & STATE: _____
PROJECT ID: _____
SAMPLER: _____

SAMPLE LOG AND ANALYSIS REQUEST

TURNAROUND TIME REQUIREMENTS
REGULAR: ___
*RUSH: ___ 5-Day
___ 3-Day
___ 2-Day
___ 1-Day
*Rush work needs prior Laboratory approval and will include surcharges

PRESERVATIVES
0 No Preservative
1 Hydrochloric Acid
2 Nitric Acid
3 Sulfuric Acid
4 Sodium Thiosulfate
5 Sodium Hydroxide
6 Zinc Acetate
7 EDTA

PRESERVATIVE CODES
NOTE PRESERVATIVES →

SAMPLE ID	NO. & TYPE OF CONTAINERS	SAMPLING DATE / TIME	MATRIX	SAMPLE COMP / GRAB	ANALYSIS REQUESTED & METHOD													COMMENTS

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

al Requests:

Sample Condition: Good? Y N

Temperature Upon Arrival °C

nent: Hand-Del: Courier: UPS: FedEx:

Shipment Date: FAX Results: Y N

APPENDIX C Updated Training Certificates

This is to certify that

GARY COOPER

has successfully completed the training course

Hazardous Waste Operations and Emergency Response

8-Hour Annual Refresher Course (29 CFR 1910.120)

conducted by ECO-FIRST, Inc.,

on January 23, 2004, at Poca, West Virginia

Instructor: Dana L. Tomes

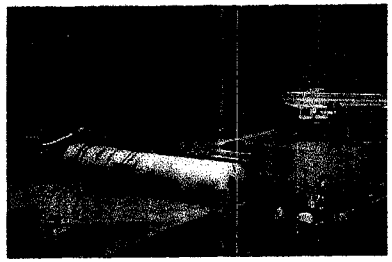
Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

MALCOM SLONE



has successfully completed the training course

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Instructor: Dana L. Tomes

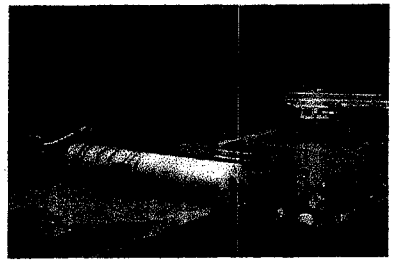
Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

JOSEPH T. WHEELER



has successfully completed the training course

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conducted by ECO-FIRST, Inc.,

on January 23, 2004, at Poca, West Virginia

Instructor: Dana L. Tomes

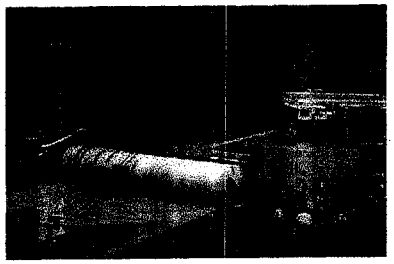
Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

CHESTER H. PORTER



has successfully completed the training course

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Instructor: Dana L. Tomes

Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

KEITH MEEKS

has successfully completed the training course

Hazardous Waste Operations and Emergency Response

8-Hour Annual Refresher Course (29 CFR 1910.120)

conducted by ECO-FIRST, Inc.,

on January 23, 2004, at Poca, West Virginia

Instructor: Dana L. Tomes

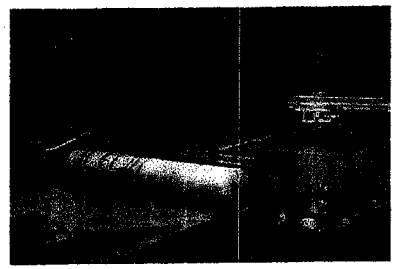
Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

GARY HENRY



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on January 23, 2004, at Poca, West Virginia

Instructor: Dana L. Tomes

Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

JEFF COOPER

has successfully completed the training course

Hazardous Waste Operations and Emergency Response

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on January 23, 2004, at Poca, West Virginia

Instructor: Dana L. Tomes

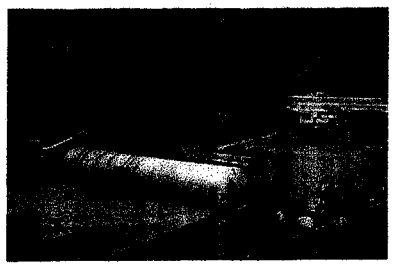
Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

ZATTO HAGER II



has successfully completed the training course

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conducted by ECO-FIRST, Inc.,

on January 23, 2004, at Poca, West Virginia

Instructor: Dana L. Tomes

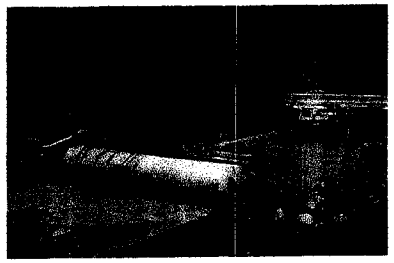
Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

LYNN D. MOLES



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Instructor: Dana L. Tomes

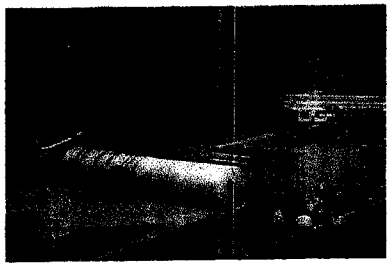
Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

This is to certify that

DAVID WALKER



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conducted by ECO-FIRST, Inc.,

on January 23, 2004, at Poca, West Virginia

Instructor: Dana L. Tomes

Dana L. Tomes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Lynn D. Moles

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03
Issue Date

03/2005
Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Ray E. Lutes

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03
Issue Date

03/2005
Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Senah Gussler

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03
Issue Date

03/2005
Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Gary Henry

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03
Issue Date

03/2005
Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

David Walker

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03
Issue Date

03/2005
Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Darrell Salmons

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03
Issue Date

03/2005
Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Gene Wheeler

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03
Issue Date

03/2005
Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

George Linville

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date

03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Jeff Cooper

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date

03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Heath Adkins

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date

03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Malcom Slone

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date

03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Laundell Finley

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date

03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Zatto Hager II

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date

03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Steve Arbogast

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 **03/2005**

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Mark Meadows

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 **03/2005**

American Red Cross

This recognizes that
RUTH PORTER
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross

This recognizes that
RODNEY ROBERTS
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross We'll be there.

This recognizes that
PAUL SALUJA
has completed the requirements for
COMMUNITY FIRST AID
conducted by
PUTNAM CO. CHAPTER
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross

This recognizes that
C. DAVID STROH
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross We'll be there.

This recognizes that
DAVID WALKER
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross We'll be there.

This recognizes that
GENE WHEELER
has completed the requirements for
COMMUNITY FIRST AID
conducted by
PUTNAM CO. CHAPTER
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross We'll be there.

This recognizes that
Joe Wheeler
has completed the requirements for
First Aid Basics
conducted by
Putnam County Chapter
Date completed 3-27-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

This is to certify that:
MICHAEL EVANS
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
RODNEY ROBERTS
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
LAUNDELL FINLEY
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
DARRELL SALMONS
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
HEATH ADKINS
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
RONALD EVANS
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
DANNY MOORE
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
MARK MEADOWS
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
LYNN D. MOLES
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

This is to certify that:
DAVID WALKER
has successfully completed the training course

"Basic First Aid"
(Based on National Safety Council Standards)

This training was conducted on 03-21-03
at Poca, West Virginia, by ECO-FIRST, Inc.
This certification expires on 03-21-06.

Authorized Signature: Dana L. Tomes

American Red Cross

This recognizes that
D. HEATH ADKINS
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross
We'll be there.

This recognizes that
JAMES COOPER
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross

This recognizes that
STEVE ARBOGAST
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross
We'll be there.

This recognizes that
Jeff Cooper
has completed the requirements for
Community Fust Aid
conducted by
Putnam Co. Chapter
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
DAVID BEAM
has completed the requirements for
Community Fust Aid
conducted by
PUTNAM CO. CHAPTER
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross

This recognizes that
MICHAEL EVANS
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross
We'll be there.

This recognizes that
GARY COOPER
has completed the requirements for
Community Fust Aid
conducted by
Putnam Co. Chapter
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
CHRIS FRITZ
has completed the requirements for
COMMUNITY FIRST AID
conducted by
PUTNAM CO. CHAPTER
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross

This recognizes that
LOUNDELL FINLEY
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross
We'll be there.

This recognizes that
GEORGE LIGVILLE
has completed the requirements for
COMMUNITY FIRST AID
conducted by
Putnam Co. CHAPTER
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross

This recognizes that
JULIE GLOCKNER
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross

This recognizes that
MARK MEADOWS
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 years from completion date.

American Red Cross
We'll be there.

This recognizes that
SENAH GUSSLER
has completed the requirements for
Community Fust Aid
conducted by
Putnam Co. CHAPTER
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
LYNN MOLES
has completed the requirements for
STANDARD FIRST AID
conducted by
PUTNAM
Date completed 2-25-2000
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
GREG HAGER
has completed the requirements for
Community Fust Aid
conducted by
PUTNAM Co. CHAPTER
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
JAMES MOSCHINO
has completed the requirements for
Community Fust Aid
conducted by
PUTNAM Co. CHAPTER
Date completed 03-02-01
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Michael Evans

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date
03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Rodney Roberts

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date
03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Dwayne James

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date
03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Keith Meeks

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date
03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Chester H. Porter

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date
03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Ruth Porter

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date
03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Danny Moore

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date
03/2005 — Recommended Renewal Date

American Heart Association
Fighting Heart Disease and Stroke

Heartsaver AED

Ronald Evans

This card certifies that the above individual has successfully completed the national cognitive and skills evaluations in accordance with the curriculum of the AHA for the Heartsaver AED Program. Adult AED & CPR / Pediatric CPR

03/21/03 — Issue Date
03/2005 — Recommended Renewal Date

American Red Cross
We'll be there.

This recognizes that
Ray Lutes
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 2-28-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Zatto Hager
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 2-28-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Bear Slone
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 2-28-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Brian Rakes
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 3-12-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Eldon Haggar
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 3-12-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Chester Porter
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 2-28-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Ruth Porter
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 2-28-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Keith Meeks
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 2-28-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Dwayne James
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 2-28-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that
Gary Henery
has completed the requirements for
Standard First Aid
conducted by
Central WV Chapter
Date completed 2-28-02
The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

This is to certify that

SENAH GUSSLER

has successfully completed the training course

Basic Cardiac Life Support (CPR)

4-Hour American Heart Association Initial Course

conducted by ECO-FIRST, Inc.,

on March 15, 2002, at Wheelersburg, Ohio.

Instructor: Dana L. Tornes

Dana L. Tornes

ECO-FIRST, INC.

LESAGE, WEST VIRGINIA

233-25-0066
Social Security Number

This is to Certify That

MINDY L. TILLEY

has successfully completed the Hazardous Waste Operations and Emergency Response 8-Hour Annual Training Program specifically designed in accordance with 29 CFR 1910.120.

0.8 CEU Hours

Date Completed: 5-6-03

Donald R Davis CIH

Donald R. Davis, CIH / Instructor

OSHA

U.S. Department of Labor
Occupational Safety and Health Administration

ANDREA THOMAS

has successfully completed a 30-hour Occupational Safety and Health Training Course in

General Industry Safety & Health

(Trainer) 12/19/01 (Date)

OSHA

U.S. Department of Labor

Occupational Safety & Health Administration Training Institute

THE NATIONAL RESOURCE CENTER

This acknowledges that

ANDREA R. THOMAS

is an OSHA General Industry Outreach Trainer

Trainers are authorized to conduct 10- and 30- hour General Industry outreach training in accordance with guidelines provided by the OSHA Training Institute.

Director: Expires 7/23/06

APPENDIX D QC Documentation

QUALITY ASSURANCE CERTIFICATION

TNT Area B and Pentolite Road Redwater Pond Area
Interim Soil Removal Action
Determination of Contamination Extent
Plum Brook Ordnance Works
Sandusky, Ohio

Contract No. DACW69-03-D-0007
Work Order No. 0004

This document is provided to certify that the Independent Quality Control Team (IQCT) have reviewed the Plan of Operations Addendum in accordance with the Quality Control Plan. All comments resulting from the various reviews have been resolved and/or incorporated.

Assignment	Name	Signature	Date
Senior Review			
	Julie Glockner	Julie Glockner	1/16/04
Peer Review			
	Eric Foster	Eric Foster	1/16/04

Comments on Plan of Operations Addendum

TNT Area B and Pentolite Road Red Water Pond Area
Interim Soil Removal Action
Determination of Contamination Extent
Plum Brook Ordnance Works
Sandusky, Ohio

Contract No. DACW69-03-D-0007
Work Order No. 0004

The following comments were provided by the WTI Independent Quality Control Team (IQCT). All comments resulting from this review has been resolved and/or incorporated.

1. Comment: Definitions and Acronyms page, include the following abbreviations and define: ppm and QCR.

Response: Concur, change made

2. Comment: Page 2, 1st paragraph on page, 1st sentence: revise "Red Water" to "Red Water" for consistency as it appears this way throughout plan.

Response: Concur, change made

3. Comment: Page 2, 1st paragraph on page, 4th sentence: suggest rewording sentence to omit "blindly" as field screening tools are used for excavation efforts along with previous investigation report findings and clarify where "clean closure can be obtained" (i.e. it seems that some of the pits referenced in this sentence have not been excavated while some have).

Response: Concur, change made

4. Comment: Page 2, Section 1.2, 2nd sentence: in this sentence, 452 is referenced as an unexcavated area whereas in the first sentence it is referenced as an excavated area.

Response: the reference should be to pit 456 which has not yet been excavated

5. Comment: Page 5, Section 3.1.1, 2nd sentence, revise sentence to "TNT B area" instead of "TNTB".

Response: Concur, change made

6. Comment: Page 6, Section 3.1.2, Table 2 title, revise to "Chemical of Concern" instead of "Chemicals of Concern" as there is only one chemical of concern.

Response: Concur, change made

7. Comment: Page 7, Section 4.0, 3rd sentence, consider rewording sentence as the same contract number is used as a present contract and as a previous contract.

Response: Concur, that this was confusing but the contract numbers are correct. Clarification was made to indicated that this Modification #3

8. Comment: Page 7, Section 4.1, 4th bulleted item, have only heard "enloader" associated with hearse type equipment, check spelling to verify whether it is "endloader" instead of "enloader".

Response: Concur, change made

9. Comment: Page 8, Section 4.4, last sentence in paragraph, change "designate" to "designated".

Response: Concur, change made

10. Comment: Sections 4.4.1 thru 4.4.6, there is mention of water being being removed from the trenches if encountered. Is there any contingency plan for dealing with any water (e.i. testing and disposition)?

Response: Concur, statement was added to indicate that the water would be sampled and disposed in accordance with the provisions of the previously approved plans

11. Comment: Page 12, Section 4.5.1, 2nd sentence, there is mention of designating the stockpile area in this addendum but I did not see it. Please revise or omit.

Response: Concur, WTI intends to use the same area previously used for the TNT B stockpile area, pending NASA approval.

12. Comment: Page 13, Table 3 and Page 14, Table 4, please verify hold times for PAHs, PCBs, and total nitroaromatics (I thought there was a 14 day hold until extraction on solid samples for semi-volatile and PCB analysis); are holding times correct for flashpoint and pH on Table 4?

Response: Concur, change made—the 7 day hold times were for liquid samples and these are not.

13. Comment: Page 17, Section 16.0, are copies of submittals correct (10 draft/6 final)?

Response: This is the number of copies of submittals previously requested for this project.

1. Page 2, 4th sentence. Change "3" to "three" TNT B pits.

Response: Concur, change made

2. Section 1.2, 2nd sentence. Unexcavated areas are 412 and 456, not 452.

Response: Concur, change made

3. Section 2.0 A. Lisa Humphreys' phone number is now 399-5953, not 529-5953.

Response: Concur, change made

4. Section 3.1.1, 2nd sentence. For clarity, change sentence to read "...was conducted for the TNT B area".

Response: Concur, change made

5. Section 3.1.2, 2nd sentence. Since the ponds were previously defined as the PRRWP area, change sentence to read "...was conducted for the PRRWP Area".

Response: Concur, change made

6. Section 4.1, 4th bullet. Change "enloader" to "endloader".

Response: Concur, change made

7. Section 4.2, 1st sentence. Change "2202" to "2002".

Response: Concur, change made

8. Section 4.4, 2nd sentence. Add a "d" to "designate".

Response: Concur, change made

9. Section 4.4.1, 2nd paragraph, 2nd sentence. It is stated that TAL metals will be compared to cleanup requirements in Table 1, but there are no metals listed in the table. Please specify cleanup requirements for metals.

Response: Concur, it has been clarified that TAL metals are not listed in the PRGs and that the only TAL metal of concern is lead. Furthermore, the previously designated action level of 400 mg/kg will be utilized for the TNT B site.

10. Section 4.4.3, 3rd sentence. Change "dimension" to "dimensions".

Response: Concur, change made

11. Section 4.4.4, 1st paragraph, last sentence. It states that approximately 88 CY will be removed, but based on the dimensions of the pit, there would be at least 256 CY. Revise estimate as necessary, and check references to 88 CY for other pits/trenches.

Response: Do not Concur, the estimated yardage is approximately 85 CY

12. Section 13.1, 1st sentence. Change to "...does not **require** modification".

Response: Concur, change made

Comments on Plan of Operations Addendum

TNT Area B and Pentolite Road Red Water Pond Area
Interim Soil Removal Action
Determination of Contamination Extent
Plum Brook Ordnance Works
Sandusky, Ohio

Contract No. DACW69-03-D-0007
Work Order No. 0004

The following comments were provided by the Huntington District of the USACE. All comments resulting from this review has been resolved and/or incorporated.

The following comments were provided by Frank Albert, CELRH-EC-CE,

1. Section 1.1

a. 1st paragraph, 1st sentence. Recommend adding the word *soil* where it is stated "*In Spring 2003,* ***soil*** *stockpiles....* Also, recommend that *pits 463 and 452* be identified as pits from soil excavation and removal actions at former *Buildings* 463/452.

b. 3rd paragraph, 2nd sentence. Please revise *(EPA)* to ***OEPA*** since this is an abbreviation for Ohio EPA and not federal EPA.

c. 4th paragraph --- 1st sentence. Please revise this sentence to make additions and corrections noted in italics "...bioremediation ***(via composting)*** of the...stockpiles ***was*** (~~were~~) completed..."

o 6th sentence. Recommend adding references for the Remedial Investigation and Feasibility Studies that were performed by Shaw Corp.

Response: A. Concur, added the word "soil"

B. Revised to OEPA

C. made additions and corrections noted in italics "...bioremediation ***(via composting)*** of the...stockpiles ***was*** (~~were~~) completed

D. Referenced the Remedial Investigation and Feasibility Studies that were performed by IT Corporation. Shaw Corporation later bought out IT however at the time of the investigation the company was named IT.

2. Section 2.0

a. C. Recommend adding the WTI phone number, (304) 755-8448.

b. E. Recommend adding Ruth Porter for technical contact for chemistry questions.

c. F. Recommend adding a cell phone number for both personnel, as applicable.

d. G. Recommend adding a cell phone number for both personnel, as applicable.

e. L. It is stated that Barnes Nursery *may* be used for transportation of non-hazardous material and to transport material to the site. If there is the potential for other transporters, please list them, or clarify the statement.

Response: Concur to all, added the WTI Number 755-8448 to section C. Added Ruth Porter as contact for chemistry questions, added cell phone numbers for personnel listed tin Section F and G, as applicable, restated section L to indicated that Barnes Nursery will be used.

3. Section 3.0. Since water is being discharged into the West Area Red Water Pond area, it appears that state surface water discharge standards should be listed as an ARAR.

Response: In consultation with the USACE POC, it was determined that this would be worded to indicated that samples will be collected and analyzed and the water would be disposed of in accordance with applicable Federal, state, and local regulations.

4. Section 3.1.1, 1st and 2nd sentence. Please reference that the RI fieldwork and HHRA were performed and prepared by Shaw Corp.

Response: concur to add reference, added reference for IT Corporation because they performed the work. This was prior to the purchase of IT by Shaw.

5. Section 3.1.2, 1st and 2nd sentence. Please reference that the RI fieldwork and HHRA were performed and prepared by Shaw Corp.

Response: concur to add reference, added reference for IT Corporation because they performed the work. This was prior to the purchase of IT by Shaw.

6. Section 4.2, 2nd paragraph, 2nd sentence. You may consider stating that ***an addendum to the SAP*** is not required, rather than "no additional SAP is required", since sampling and analysis activities default to the SAP that was prepared under the initial SOW.

Response: Concur, stated that an addendum to the SAP is not required.

7. Section 4.3, 2nd sentence. You may consider stating that "...intrusive activities will not begin until ***the area has been cleared of utilities*** *and* an excavation permit has been issued ***by NASA.***

8. Response: Concur, stated that intrusive activities will not begin until ***the area has been cleared of utilities*** *and* an excavation permit has been issued ***by NASA.***

9. Section 4.4.1, 2nd paragraph

a. 6th sentence. Recommend elaborating on how the samples will be taken at the 20' intervals, i.e., is the sample a composite for the entire depth of the trench, etc.?
b. 7th sentence. It is not clearly stated that the soil excavated from the trenches is loaded and taken to the stockpile area; however, it is noted in Section 4.5.1. You may consider clarifying that the material will be taken to the stockpile area.
c. 13th sentence. It is stated that a water pump may be used to remove water that enters the trench; however, it is not stated how the water will be contained.

Response: Added or changed the wording to the following:

WTI shall assume that grab samples will be taken at approximately 20' intervals (on the outside wall of the trench) along the length of the trench. Grab samples will be collected from the areas (at approximately 20' distances) that appear to be the most contaminated based upon visual and olfactory observations. WTI shall transport the excavated soil by truck to the stockpile area where the soil will be stored until analytical data is obtained. Soil from the various investigation areas will not be combined but will be stockpiled separately.

Any water that enters the trench or pit shall be removed by a vacuum truck or water pump prior to performing backfilling operations. If water is encountered, it will be containerized (55-gallon drums, vacuum truck tank, or frac tank) analyzed and disposed of in accordance with the procedures outlined in the

Final Plan of Operations (WTI, September 2002) and the Final Plan of Operations Addendum (WTI, October 2003).

10. Section2 4.4.2, 4.4.3, 4.4.4., 4.4.5, and 4.4.6. Note the comments provided for Section 4.4.1, 2nd paragraph, and please make any appropriate revisions. (NOTE: the sentence and/or paragraphs numbers vary slightly per section).

Response: Concur, refer to the response for Comment 9--- changes were made in these sections as shown in the response to comment 9

11. Section 4.5.2, 2nd sentence. Does stabilization/treatment only refer to stabilization of lead-contaminated soil (MAECTITE®) or composting to reduce 2,4 DNT levels for disposal, or are there other reasons for the stabilization/treatment? Also, it appears that the USACE will make the determination if the soil shall be stabilized and/or treated, or disposed as hazardous, please revise.

Response: Concur, it has been clarified that stabilization/treatment may include both 2,4-DNT and lead and that the decision to perform treatment or disposal will be made by the USACE POC.

12. Section 5.0. Since the abbreviation *EPA* as used here means USEPA, recommend defining EPA.

Response: Concur defined EPA

13. Table 3, minor comment. The preservative method for PCBs is stated differently from the other parameters; however, the method appears to be the same; please clarify.

Response: Concur that there was an error, the preservative method has been corrected.

14. Section 5.2. The disposal levels for the soil should be stated, unless these were stated in previous plans; if so, please reference the applicable plan and section.

Response: Concur, sentences were added indicating that the soil from the site previously was characteristically hazardous for 2,4-DNT and lead based on TCLP data in excess of 0.13 mg/l (DNT) and 5.0 mg/l (lead).

14. Section 17.0. Please include Shaw Corp. references for the RI/FS, if these were not provided in previous plans.

Response: concur to add reference, added reference for IT Corporation because they performed the work. This was prior to the purchase of IT by Shaw.

The following comments were provided by Lisa Humphreys, CELRH-EC-CE, 304-399-5953 or 304-617-1461 (cell).

15. Section 2.0. Project Organization. Please include Gary Cooper's name as being the overall field/project supervisor as well as reachable phone numbers, office and mobile. Also, please include his updated training certificates in the appendices.

Response: Concur, added Mr. Cooper and appropriate information for him.

16. Section 2.0. Project Organization. Since the project field personnel are at the site most of the time, please include a cell phone number along with the office number where they can be reached.

Response: Concur, added cell phone numbers as appropriate

17. Section 4.4 Excavation of Contamination Material (Task 6). Please detail in the individual pit paragraphs that if groundwater is encountered during excavation or if the excavation floor starts getting "soupy" (an indication groundwater is near), then the Contractor shall stop excavating and confer with USACE on any further excavation of the floor. By not doing this, WTI could incur additional sampling and disposal costs which would not be paid for by USACE

Response: Concur, added that if groundwater is encountered during excavation or if the excavation floor starts getting "soupy" (an indication groundwater is near), then the Contractor shall stop excavating and confer with USACE on any further excavation of the floor.

18. Section 4.4.4 TNT B Pit 456. Excavation of Pit 456 rather than trenching in this area would fall under the initial SOW which in turn would mean that most likely this material would require lead stabilization of the excavated material. Please indicate this fact in this section so that the Contractor will know that if the decision is kept to excavate the contaminated design limits rather than the trench line alone, then this work will fall under a previous work order and should be noted accordingly, which would then free up the designated 88 CY estimated for this pit.

Response: added the following
If excavation of the pit is performed rather than trenching operations, then the TNT B Pit 456 would fall under the original SOW, which would mean that the material removed would likely require lead stabilization.

19. Section 4.4.5 TNT B Pit Northeast Nailhouse. Excavation of the Northeast Nailhouse rather than trenching in this area would fall under the initial SOW which in turn would mean that most likely this material would require lead stabilization of the excavated material. Please indicate this fact in this section so that the Contractor will know that if the decision is kept to excavate the contaminated design limits rather than the trench line alone, then this work will fall under a previous work order and should be noted accordingly, which would then free up the designated 88 CY estimated for this pit.

Response: added the following
If excavation of the pit is performed rather than trenching operations, then the TNT B Pit 456 would fall under the original SOW, which would mean that the material removed would likely require lead stabilization.

20. Section 4.4.6 PRRWP Pit. Please detail the facts that the north and west walls of this pit were found clean from previous excavation activities when the analytical results were compared to the RGO standards set for this area. Only the east and south walls would have to be excavated further to determine horizontal extent. Therefore a diamond shape trench option would not be the most feasible for this area. Please detail that the Contractor shall confer with the USACE Field POC to determine which direction of trenching would best fit this scenario without going over the allotted 88 CY quantity for exaction in this area.

Response: Reworded the 1st paragraph as follows:

Because there was evidence of a dark seam at approximate 4 -5' depth (which is believed to be the actual pond floor), WTI shall dig a 10" wide trench (or smallest excavator bucket as possible), at the seam depth around the east and south perimeter of the existing pit. The analytical data from the north and west walls were found to be clean when compared to the RGO's for the area. The pit has already been backfilled; therefore, WTI shall start at the outer edge of the plastic (at the known wall of contamination) and begin measurements for trenching activities from this location. At this time it is assumed that the approximate distance of the perimeter trench around the existing east and south pit walls will be 40 to 50 feet on all four sides. However, the exact distance for placement and direction of the trench will be determined in

consultation with the USACE POC. At this time it is assumed that all excavation activities in this area will remove approximately 88 CY.

21. Section 5.1 Confirmation Sampling (Task 9), first sentence. Please verify that the sampling will be along the outer trench wall (should the excavation be a diamond shape), rather than alternating wall sides for sampling locations.

Response: Concur, sentence now clearly states that the samples will be collected along the outer trench wall.

22. Section 6.0 Equipment Decontamination. The plan mentions decon with "soap and water". Please designate what brand/type of soap is going to be used.

Response: Concur, added that Alconox or an equivalent non-phosphate soap will be used.