DEPARTMENT OF THE NAVY
CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE INDIANA 47522-5000

IN REPLY REFER TO:
5090
Ser 095/9106

21 MAY 1999

U.S. Environmental Protection Agency, Region V
Waste, Pesticides, & Toxics Division
Waste Management Branch
Illinois, Indiana, and Michigan Section
Attn: Ms. Carol Witt-Smith (DW-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Dear Ms. Witt-Smith:

Crane Division, Naval Surface Warfare Center (NAVSURFWARCENDIV Crane) submits, as enclosure (1), three copies of the Revised pages for the TolTest Mine Fill A (SWMU 12/14) and Mine Fill B (SWMU 13/14) Site Specific Safety and Health Plan (SSHP) - Appendix A2 for incorporation into the Final Full Scale (FS) Operational Plan (OP) for the Bioremediation Project. Enclosure (2) is the required certification statement.

NAVSURFWARCENDIV Crane point of contact is Ms. Christine D. Freeman, Code 09511, telephone 812-854-4423.

Sincerely,

JAMES M. HUNSICKER
Director, Environmental Protection Department
By direction of
the Commander

Encl:
(1) Appendix A2 Replacement Pages - SWMUs 12/14 & 13/14 SSHP
(2) Certification Statement

copy to:
ADMINISTRATIVE RECORD (2 copies)
COMNAVSEASYSCOM (SEA OOT)
IDEM
NAVSURFWARCENDIV ROICC
SOUTHNAVFACENGCOM (Code 1864)
TOLTEST Crane

TOLTEST, INC.

Founded in 1927
Toledo, Ohio • Detroit, Michigan • Monroe, Michigan • Pittsburgh, Pennsylvania

May 6,1999

TolTest-EJOC-99-05
Delivery Order File I Outgoing

Ms. Christine Freeman
Environmental Contracting Officer Technical Rep.
Naval Surface Warfare Center, Building 3260
300 Highway 361
Crane, Indiana 475228082

SUBJECT: REVISED PAGES FOR TOLTEST TASKSPECIFIC SITE SAFETY AND HEALTH PLAN, DELIVERY ORDER FC03, BIO-REMEDIATION OPERATIONS AT THE NSWC, CRANE, INDIANA

Ref: Contract N68950-96-D-0052; Environmental Job Order Contract, Various Midwest States, Great Lakes, Illinois

Dear Christine:

TolTest, Inc. is submitting to the Navy, replacement pages and the Field Standard Operating Procedures SSHP 1.0 per our prior tele-conference between myself, EPD and EPA Region V.

Copies of the following referenced data is included in this package.

- FSOP SSHP-1 .O Time Integrated Industrial Hygiene Air Sampling
- Revised page (attachment A6 of 13)
- Revised page (attachment A9 of 13)
- Revised page (Attachment A) Chemical Hygiene Plan cover
- Revised page (A2-39)
- Attachment C (Field Standard Operating Procedure SSHP-1 .O) cover page

Please feel free to contact me (812) 854-6941 should you have any questions or any more documentation to clear up this matter.

TolTest, Inc.

Lance Parsons
Project Manager

cc: Brent Robertson
Ernest Enrique

1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186, Phone (419) 241-7175, FAX (419) 321-6259
Quality Engineering. Consulting and Testing Services

1.0 PURPOSE

This procedure describes the material and methods in detail which will be used for time integrated industrial hygiene air sampling of bioaerosols and explosive residues.

2.0 SCOPE

This procedure applies to the Naval Surface Warfare Center, Crane, Indiana site for Bioremediation Facility full scale operations. This procedure only includes time integrated air sampling as described in Section 7.3 of the Task-Specific Site Safety and Health Plan (SSHP) (MK. 1998).

3.0 PREREQUISITES

Prior to calibration of sampling pumps, the temperature, barometric pressure, and relative humidity data will be obtained from the Bloomington Airport Tower or equivalent source and recorded on Attachment 1. The phone number for the Tower is 812-825-7421. The following conversion formulae are applicable:

Degree Celsius (“C) = 5/9(°F - 32)
Degrees Kelvin (“K) = °C + 273
millimeters mercury (mm Hg) = inches Hg x 25.40

4.0 MATERIAL

The following material (equipment) will be used for air sampling.

4.1 Bioaerosols

Included will be a high volume sampling pump with Single-Stage Andersen Impactor calibrated using 4 liter (L) glass calibration jar or equivalent with calibration specific petri dishes. All sampling and calibration equipment will be supplied by laboratory on a rental agreement. Seventy percent ethanol or greater will be supplied by the laboratory. Miscellaneous consumables such as disposable gloves, freezer bags, spray bottle, and pans will be purchased prior to start-up by the Site Safety and Health Officer (SSHO).

Samples will be collected by impaction on preselected growth media plates

using a high volume sampling pump with Single-Stage Andersen Impactor. The growth media will be Standard Method Agar (SMA) for bacteria and acidified Potato Dextrose Agar (PDA) for fungi (molds and yeast). The choice of growth media may change depending on additional expert advice from microbiology laboratory. The Andersen Single-Stage Impactor uses plastic petri dishes containing 20 mil-liter (mL) of the appropriate growth media prepared by the analytical laboratory and shipped to the field.

Both the SMA and acidified PDA are supplied to the analytical laboratory by Becton Dickinson and Company or equivalent. The approximate formula for SMA per liter (L) purified water is: 5.0 gram (g) pancreatic digest of casein; 2.5 g yeast extract; 1 .O g dextrose; and 15.0 g agar. The approximate formula for acidified PDA per L purified water is: 4.0 g potato, infusion from (solids); 20.0 g dextrose; and 15.0 g agar.

The calibration specific petri dishes are extra sampling petri dishes filled with either SMA or acidified PDA. They are used only for determining the pre- and post-sampling flow rates of the sampling pump.

4.2 Explosive Residues

Included will be Gillian multi-flow sampling pumps, Gillabrator calibrator, and tygon tubing. An OSHA Versatile Sampler (OVS) Tube Holder from SKC Corporation will be used to hold the OVS Tube in place and fastened to the worker, or for area samples, fastened to a step ladder or stanchions inside of the composting structure. Refer to SKC 1997 Comprehensive Catalog and Air Sampling Guide on page 34 (SKC, 1997) for this holder.

Samples will be collected on sorbent and filter tube, 270/140 XAD-2 and glass fiber filter, OVS Tubes. OSHA Method 44 (OSHA, 1983) recommends collection of 2,4-DNT and 2,4,6-TNT on modified Tenax-GC Tubes (100 milligram (mg) /50 mg sections). The modification includes placing an 8 millimeter (mm) glass fiber filter inside of the tube ahead of the first resin bed. OSHA's Chemical Sampling Information (CSI, 1996) database available through the OSHA Computerized Information System (OCIS) recommends 37 mm glass fiber filter for collection of RDX and HMX.

By design, the OSHA OVS tube satisfies requirements for both an adsorbent bed and a filter media. During pilot scale testing, the analytical laboratory

recommended using the XAD-2 tube instead of Tenax, and stated the XAD-2 tube will provide equivalent if not better collection efficiency than Tenax and costs less per OVS tube. This was confirmed by an SKC Corporation representative by telephone. The Tenax tubes are mainly designed where thermal desorption techniques are used in the analysis of the sample media. A description of the XAD-2 tube is provided in the SKC 1997 Comprehensive Catalog and Air Sampling Guide on page 29 (SKC, 1997).

5.0 METHODS

The following methods will be used for air sampling.

5.1 Bioaerosols

During active composting, ten area samples will be obtained inside of the composting structure and ten area samples outside of the structure approximately 100 m away from and upwind from the composting structures. Two sampling campaigns are anticipated, one in late spring and one during the summer. The samples will be obtained approximately two and three days into the composting process. Samples inside of the structure will be taken during windrow turning and immediately thereafter. One sample set consists of the following:

1. Bacteria - 1 petri dish containing SMA
2. Fungi (molds and yeast) - 1 petri dish containing acidified PDA

Therefore ten sample sets inside of the structure for bacteria will require 10 petri dishes and ten sample sets for Fungi (molds and yeast) inside of the structure will require 10 petri dishes for a total of 20 petri dishes. Subsequent bacterial pathogen isolation will be performed on all of the SMA petri dishes by the laboratory.

The outside samples will total 20 the same as the inside samples. Bacterial isolation will be performed on the SMA petri dishes. Eight field culture blanks will be obtained in the field consisting of two sets of petri dishes, four inside and four outside. Of the four inside, two will be SMA containing petri dishes and two will be acidified PDA containing petri dishes. The same breakdown applies to the outside field culture blanks.

5.1.1 Procedure

Bioaerosol samples will be collected in accordance with the guidance presented in the American Industrial Hygiene Association (AIHA), Field Guide for the Determination of Biological Contaminants in Environmental Samples (AIHA, 1996).

The airflow for the sampling unit will be adjusted to 28.3 liters per minute (L/min) and verified using a factory calibrated electronic bubble-tube calibrator with a capacity to 30 L/min. Prior to calibration, the temperature, pressure, and relative humidity will be recorded on a Calibration Data Form. During calibration, a designated calibration only plastic petri dish will be inserted into the impactor stage. The impactor will be placed in a 4 L calibration jar or equivalent as described in Bisesi and Kohn, (1995). The pre-sampling flowrate (Q_{pre}) will be determined using the electronic bubble-tube calibrator based on the average result of three measurement trials and recorded on the Calibration Data Form.

Prior to sampling, each petri dish will be removed from storage and allowed to warm to ambient temperature for approximately 1 hour. Each petri dish will be labeled specifying sample number, type of sample, location, and date. After calibration, the impactor will be disassembled and sprayed and swabbed with seventy percent ethanol (or equivalent) and air dried on disposable pans pre-wiped with ethanol. Disposable latex gloves will be worn when disinfecting and handling the impactor and petri dishes.

After air drying, the impactor will be loaded with a sample petri dish. The petri dish sample lid will be placed concave surface down on disposable pans pre-wiped with ethanol and inserted into a large freezer bag pre-wiped with ethanol.

At the sampling site, the sampling pump and impactor will be placed on a folding table at approximately 1.0 m above the floor or ground. The sampling pump will be turned “ON” and start time recorded using an electronic timer. After a specified time, the pump will be turned “OFF” and stop time recorded. Sampling time will be set at 5 minutes and may be modified based upon discussion with microbiology laboratory.

After completing sampling, the impactor will be disassembled and the covers of the petri dish installed and taped. The petri dish will be placed in a cooler filled with blue ice right-side-up. The blue ice will maintain storage temperatures of about 4 °C during shipment to the laboratory for incubation by Federal Express (FED EX) overnight delivery. One set of negative controls (two field sample

blanks) for every ten collected samples will be prepared. A set of negative controls will be prepared by loading the sampling impactor with a filled petri dish, followed by removal of the petri dish without activating the sampling pump. Shipment and storage of negative control plates coincides with the field samples.

In addition to the field blanks, two travel control blanks will be sent by the analytical laboratory with the shipment of petri dishes. The travel control blanks are not opened in the field and are returned to the laboratory with the field samples for analysis to determine if contamination could have occurred. A Field Monitoring Data Form (Attachment 2) and Chain-of-Custody form (Attachment 3) will be completed and attached to the cooler along with the Calibration Data Form. As part of the analytical laboratory quality control program, two sets of positive and two sets of negative control blanks will be prepared and analyzed by the laboratory.

After completing the field samples, the "calibration only" petri dish will again inserted into the impactor stage and post-sample calibration flow rate (Q_{post}) data will be obtained based on the average result of three measurement trials and recorded on the Calibration Data Form. Q_{post} will be checked to make sure its value is within 10% of Q_{pre} . If not, the difference will be noted on the Calibration Data Form under Calibration Notes and the samples treated as suspect. Percent error in the calibration check is calculated using the following equation:

$$\% \text{ error} = \frac{Q_{pre} - Q_{post}}{Q_{pre}} \times 100$$

The average flow rate (Q_{avg}) will be calculated based on the average of the pre- and post-sampling flow rates and recorded on the calibration log sheet using the following equation:

$$Q_{avg} = \frac{Q_{pre} + Q_{post}}{2}$$

Q_{avg} becomes the actual flow rate in the field and is corrected in the field to standard flow rate (Q_{std}), where standard temperature and pressure equal 25 °C (298 °K) and 760 mm Hg , respectively.

$Q_{std} = Q_{avg} \times (298/T) \times (P/760)$, where T = ambient temperature in °K and P = ambient barometric pressure in mm Hg.

5.1.2 Sample Analysis

A separate growth media as described in the Material section was used for each of the following constituents and analyzed accordingly:

1. SMA for total bacteria (total plate count), subculture for additional bacterial pathogens including *E.coli* as a marker from manure.

2. Acidified PDA for fungi (molds and yeast), looking especially for *Aspergillus* species including *Aspergillus fumigatus.*

At the laboratory, as soon as possible and before 24 hr, the sample plates will be placed right-side-up for fungi and upside down for bacteria in an incubator set at an appropriate temperature for incubation. For bacteria, the incubation temperature will be 35 ± 1 °C for 48 hours ± 2 hr. For fungi (molds and yeast), the incubation temperature will be 22.5 ± 2.5 °C for 120-168 hours.

Analysis for bacteria (total plate count) will be completed by laboratory using a Quebec colony counter, dark-field, with suitable light source and grid plate in accordance with Food and Drug Administration (FDA) Bacteriological Analytical Manual or equivalent method. Subsequent bacterial pathogen isolations will be performed by streaking for isolation, using morphologically distinct representative colonies, onto SMA from the inoculated plates. Plates will be incubated and single consistent colonies will then be inoculated onto selective and differential agars to culture for the following species of bacteria or as modified by laboratory: *Pseudomonas aeruginosa; Pseudomonas fluorescens*; *Pseudomonas putida*; *Pseudomonas cepacia* (approximately 50% of strains); *Pseudomonas pseudoalcagenes* (approximately 50% of strains); *Pseudomonas species VE-2* (approximately 50% of strains); *Staphylococcus aureus; Staphylococcus epidermis; Eschenchia coli (E.coli)*; *Salmonella typhi*; *Salmonella enteritidis; Salmonella choleraesuis; Citrobacter freundii*; *Citrobacter diversus; Cifrobacter amalonnaticus; Enterobacter cloacae*; *Enterobacter aerogenes; Enterobacter agglomerans; Enferbacter gergoviae; Proteus vulgaris;* and *Morganella morganii.* Analysis for fungi (molds and yeast) will be completed by laboratory using a Quebec colony counter, dark-field, with suitable light source and grid plate in based on procedures for determining plate count developed by the Association of Official Analytical Chemists (AOAC), and by the American Public Health Association (APHA) or equivalent method.

The concentration of microorganisms will be determined based on the number of colonies counted divided by the volume of air sampled. The concentration is expressed in units of colony forming units per cubic meter of air (cfu/m^3) as calculated in the following equation:

$$\text{Bioaerosol concentration } (cfu/m^3) = \frac{\text{Number of colonies counted}}{\text{Vol. of air sampled in } m^3}$$

5.1.3 Data Analysis

The laboratory will report quantitative laboratory analysis for each sample in raw data (as total count) and cfu/m^3. The laboratory will also report qualitative laboratory analysis results for each sample by identifying the type of microorganism found. *Aspergillus* species and bacterial pathogenic species including *E.coli* will be reported as detected or non-detect.

5.2 Explosives Residues

Every calender quarter during composting operations, four personal samples of full shift duration, or if necessary, split shift duration will be obtained from the maximally exposed individuals. The personal samples are compliance samples.

Three area samples will be obtained inside of the cornposting structure near the work area during active cornposting. The sample pump and media will be secured to a stepladder or stanchions at approximately 1.5 m height above the floor. Area samples should be biased by representing the worst-case exposure.

52.1 Procedure

To obtain a full shift sample of eight hours (hr) of approximately 240 L air volume, the flow rate of the pump will be adjusted to 0.5 L/min and verified using a factory calibrated electronic bubble-tube calibrator with a capacity to 4 L/min. If split shift samples of four hour duration are obtained, the pump will be adjusted to 1 .O L/min. Prior to calibration, the temperature, pressure, and relative humidity will be recorded on a Calibration Data Form. Both ends of a labeled OVS tube will be broken open and inserted into the tygon tubing for calibration. An OVS tube holder is not used during calibration. For calibration, the sampling train will consist of a multi-flow pump with tygon tubing connected to an OVS tube and a moisture trap. The sampling pump will be adjusted to approximately 0.5 L/min or 1 .O Umin. The OVS tube holder will be inserted into the sampling train after calibration.

The pre-sampling flowrate (Q,) will be determined using the electronic bubble-tube calibrator based on the average result of three measurement trials and recorded on the Calibration Data Form.

The OVS tube holder containing a labeled sampling tube will be positioned vertically and attached to the worker within the breathing zone, and the air sampling pump will be secured to a sampling belt worn over-top of the workers disposable Tyvek® coveralls. The sampling train will be positioned and secured approximately 1.5 m above the floor for area sampling.

At the sampling site, the sampling pump will be turned “ON” and stat-l time recorded. After a specified time (approximately 4 or 8 hours), the pump will be turned “OFF” and stop time recorded. The sample train will be removed from the

worker and the post-sample calibration flow rate (Q_{post}) data will be obtained based on the average result of three measurement trials and recorded on the Calibration Data Form. Q_{post} will be checked to make sure its value is within 10% of Q_{pre} If not, the difference will be noted on the Calibration Data Form under Calibration Notes and the samples treated as suspect. Percent error in the calibration check is calculated using the following equation:

$$\% \text{ error} = \frac{Q_{pre} - Q_{post}}{Q_{pre}} \times 100$$

The average flow rate (Q_{avg}) will be calculated based on the average of the pre- and post-sampling flow rates and recorded on the calibration log sheet using the following equation:

$$Q_{avg} = \frac{Q_{pre} + Q_{post}}{2}$$

Q_{avg} becomes the actual flow rate in the field and is corrected in the field to standard flow rate (Q,), where standard temperature and pressure equal 25 °C (298 °K) and 760 mm Hg , respectively.

$Q_{std} = Q_{avg} \times (298/T) \times (P/760)$, where T = ambient temperature in °K and P = ambient barometric pressure in mm Hg.

After post-calibration, the OVS tube will be removed from the holder, the OVS tube label will be checked and the end caps secured in place. The OVS tube end caps will be custody sealed, wrapped in protective covering, and placed in a cooler filled with blue ice. The blue ice will maintain storage temperatures at approximately 4°C during shipment to the laboratory by Federal Express (FED EX) overnight delivery. A Field Monitoring Data Form (Attachment 2) and Chain-Of-Custody form (Attachment 3) will be completed and attached to the cooler along with the Calibration Data Form.

One negative control (field blank) will be obtained for every ten collected samples. The negative control will be prepared by assembling the sample train with an opened OVS tube inserted into the tube holder, followed by removal of the OVS tube without activating the sampling pump.

5.2.2 Sample Analysis

At the laboratory, the samples will be analyzed per USEPA Method 8330 (USEPA SW846, 1994) using a Hewlet Packard 1040A UV-VIS Diode Array High Pressure Liquid Chromatography (HPLC) detector system or equivalent providing a scan for specific analytes and isomers including HMX; RDX; 1,3,5-TNB; 1,3-DNB; Tetryl; Nitrobenzene; 2,4,6-TNT; 4-Amino-2,6-DNT; 2-Amino-4,6-DNT; 2,4-DNT; 2,6-DNT; 2-Nitrotoluene; 3-Nitrotoluene; and 4-Nitrotoluene.

Samples will be extracted with acetonitrile and analyzed by HPLC. The area of the peaks of the unknown sample will be compared to standard injections. Desorption efficiency (DE), expressed in percent, will be calculated by the analytical laboratory and factored in to determine the mass of analyte on the OVS Tube sections. The concentration (C), of analyte in the air volume sampled (V) in L will be calculated from the following equation:

$$C\ (mg/m^3) = \frac{[W_p + W_f + W_b - (B_p + B_f + B_b)] \times 10^3}{V\ (L)}$$

where:

C = concentration of analyte in air, in mg/m^3.
W_p = mass of analyte found in sample prefilter, in mg.
W_f = mass of analyte found in the sample front, in mg.
W_b = mass of analyte found in the sample back, in mg.
B_p = mass of analyte found in the blank prefilter, in mg.
B, = mass of analyte found in the blank front, in mg.
B_b = mass of analyte found in the blank back, in mg.
V = volume of air sampled, in L.

During sample analysis, if $W_b > W_f/10$, the analytical laboratory will report breakthrough and possible sample loss. The OSHA Method 44 uses gas chromatography with thermal energy analyzer and explosives analysis package (GC/TEA/EAP), but lists HPLC as one of several very adequate analytical techniques for DNT and TNT. The OSHA OCIS CSI (CSI, 1996) lists HPLC-UV for RDX and HMX analysis. By using EPA Method 8330, an analysis of the key analytes can be conducted from a single media using one method.

5.2.3 Data Analysis

The laboratory will report analysis results in mg/m^3 for each detected constituent. The laboratory will calculate desorption efficiency and the results of at least one matrix control blank per sample batch.

6.0 COMPLETION REPORT

The Safety Supervisor is responsible for preparing a summary report on results of all time-integrated industrial hygiene sampling results for the first year of full scale operations. Refer to the SSHP document section 13.5.

7.0 REFERENCES

American Industrial Hygiene Association (AIHA) 1996 Andersen multi-hole impactor samplers. In: Dillion, H.K.; Heinsohn, P.A.; and Miller, J.D., eds., Field Guide for the Determination of Biological Contaminants in Environmental Samples: Section 4. Viable air sampling instruments: description and operating procedures. AIHA, Fairfax, Virginia, pp. 82-85.

Bisesi, MS. and Kohn, J.P. 1995 Industrial Hygiene Evaluation Methods. Lewis Publishers (CRC Press, Inc.), Boca Raton, FL., pp 15-1-15-5.

Occupational Safety and Health Administration (OSHA) 1983 Method number 44 for 2,4-Dinitrotoluene (DNT) and 2,4,6-Trinitrotoluene. In: OSHA Computerized Information System (OCIS), Analytical Methods, http:// 198.17.175.40/ SLTC/ methods.html

OSHA Chemical Sampling Information (CSI) 1996 Chemical sampling information for Cyclonite, HMX, and 2,4,6-Trinitrotoluene. In: OSHA Computerized Information System (OCIS), Chemical Sampling Information, http:// 198.17.175.40/ OCIS/ toc.chemsamp.html

Site Safety and Health Plan (MK) 1998 Task-specific site safety and health plan, pilot scale, soils bioremediation facility. North Charleston, South Carolina, Morrison Knudsen Corporation, Rev 1.

SKC Inc. 1997 Comprehensive catalog and air sampling guide. Eighty Four, PA., SKC Inc., p. 29.

USEPA SW846. 1994 Test methods for the evaluation of solid waste. Washington DC. United States Environmental Protection Agency, Volume 1, Section B, Method 8330.

8.0 ATTACHMENTS

1. Calibration Data Form: Low, High, and Multi-Flow Sampling Pumps.
2. Field Monitoring Data Form: Integrated Monitoring for Particulates, Gases, Vapors, or Bioaerosols.
3. Chain Of Custody Record.

Attachment 1 Calibration Data Form: Low, High, and Multi-Flow Sampling Pumps

Name and Location of Calibration: _____

Calibration Conducted By: _____ Date Calibration Conducted: _____

Calibration Instrument (Type/Manufacturer/Model): _____

Air Sampling Pump (Type/Manufacturer/Model): _____

Collection Medium In Line: _____ Calibrator Volume: _____

Air Temperature: _____ °C Air Pressure: _____ mm Hg Relative Humidity: _____ %

Pump No.	Pre-Sampling Calibration Flow Rate (Q_{pre})					Post-Sampling Calibration Flow Rate (Q_{post})					Avg. Flow Rate	Std. Flow Rate
	Q (L/min)				Q_{pre}	Q (units)				Q_{post}	Q_{avg}	Q_{Std}
	Q_1	Q_2	Q_3	Avg	L/min	Q_1	Q_2	Q_3	Avg	L/min	L/min	L/min

Calibration Notes:

Attachment 2. Field Monitoring Data Form: Integrated Monitoring for Particulates, Gases, Vapors, or Bioaerosols

Facility Name and Location: _____ Contaminant Sampled:

Monitoring Conducted By and Date: _____ Collection Media: _____

Monitoring Instrument (Type/Manufacturer/Model): _____ _____

Air Temperature: °C Air Pressure: mm Hg Relative Humidity: %

Identification of Personnel or Area	Field Sample ID No.	Pump No.	Q_{pre} L/min	Q_{post} L/min	Q_{avg} L/min	Sample Start-Time	Sample Stop Time	Total Sample Time (T)	Volume Sampled (Vol)

Field Notes:

(4) Distribution. When chemicals are hand carried, the container will placed in an outside container or bucket. Solvents and acids should use container materials compatible with the material being transported.

(5) Laboratory storage. Amounts permitted will be as small as practical. Storage on bench tops and in hoods is not permitted except in direct use containers. Exposure to heat or direct sunlight will be avoided. Periodic inventories will be conducted, with unneeded items being properly discarded or returned to the storeroom/stockroom and flammable storage cabinets.

Note: Maximum storage of acetone in the Laboratory Trailer is 3-Gallons and the containers are to be stored in a flammable storage cabinet. Additional storage of acetone is limited to the capacities of the outside flammable storage cabinet.

(6) Flammables must never be stored with oxidizers.

(7) If carcinogenic or teratogenic materials are in use or storage, warning signs must be displayed.

1.5.2 **General Rules for all Laboratory Work with Chemicals -** The following will be used for essentially all laboratory work with chemicals:

(1) Accidents and spills-Eye Contact: Promptly flush eyes with water for a prolonged period (minimum of 15 minutes) and seek medical attention.

Note: Contact lenses are not permitted when working with hazardous chemicals.

precautions can be taken. Remove laboratory coats and/or aprons immediately on significant contamination. Use hot gloves or tongs to handle hot glassware or crucibles. Hot pads should be used to cool items.

(12) Planning: Seek information and advice about hazards from the CHO and/or the SSHO, plan appropriate protective procedures, and plan positioning of equipment before beginning any new operation. Critical or hazardous operations require a Standard Operating Procedure (SOP).

(13) Labconco Basic 47 Fume Hood: Use the hood for operations which might result in release of toxic and irritant chemical vapors or dust. As a rule of thumb, use a hood or other local ventilation device when working with any appreciably volatile substance with a TLV of less than 50 ppm. Confirm adequate hood performance before use; keep hood closed at all times except when adjustments within the hood are being made; keep materials stored in hoods to a minimum and do not allow them to block vents or air flow. Maximum quantity of Acetone for in process use within the ventilation hood is limited to 250 mL.

Note: “hood on” operation should be verified by visual indicator to worker outside the hood area.

(14) ELE International Electric Drying Oven: do not place combustible, flammable or explosive material into the oven. Follow manufacturers recommendation for service checks including the operational check of the temperature limit switch.

(15) Refrigerators used for the storage of potentially flammable materials must be approved for the hazard class.

(16) Vigilance: Be alert to unsafe conditions and see that they are corrected when detected.

ATTACHMENT A

Chemical Hygiene Plan

9.2 Contamination Reduction Zone

The contamination reduction zone (CRZ) is the transition area between the contaminated area, the EZ and the clean area, the support zone (SZ). While designed primarily to reduce the possibility of the SZ becoming contaminated or affected by EZ activities, the CRZ is also used for decontamination of personnel and equipment. No personnel or equipment will be allowed to exit the CRZ and EZ without being properly decontaminated (except in emergency situations). The immediate area around the EZ extending outward as much as necessary to accommodate the complete length of the longest piece of heavy equipment will be designated the CRZ. Used PPE will be removed and stored in properly marked containers.

9.3 Support Zone

The SZ is the outermost area of the site and is considered a non-contaminated or clean area. The SZ contains the site office, first aid stations, and other investigative and cleanup support.

Normal work clothes are appropriate apparel within this zone; potentially contaminated personal clothing, equipment, etc., are not permitted. No equipment or personnel will be permitted to enter the SZ from the exclusion zone without first passing though the CRZ.

9.4 Work Zone Controls

Before site operations begin, the TolTest site office shall be identified with signs identifying as such. TolTest shall post signs at entrances to the CRZ and EZ stating the following or equivalent:

HAZARDOUS AREA KEEP OUT
AUTHORIZED PERSONNEL ONLY
PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED IN THIS AREA

TolTest shall post signs at the entrance to the CRZ before operations begin, stating:

NO SMOKING, DRINKING OR EATING BEYOND THIS POINT

ATTACHMENT C

Field Standard Operating Procedure SSHP-1 .O

Additional Revised Pages
for TolTest
Task-Specific Site Safety and Health Plan

In addition to TolTest revision pages, the following pages need to be updated:

- Revised page (A2-39) - some text was deleted in the TolTest revision page
- Replace pages Al-52 through Al-70 in Appendix A2 with A2-52 through A2-70 (page numbers were not changed between Morrison Knudsen prepare Appendix Al and TolTest prepared A2).

contamination will be removed in the EZ followed by additional decontamination in the CRZ. The SSHO will monitor activities in the EZ from his position in the CRZ.

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PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED IN THIS AREA

TolTest shall post signs at the entrance to the CRZ before operations begin, stating:

Table A-I
Site Description and Contaminants

Identifier	Location/Description	Scope of Work	Contaminants
SWMU 12/14	Mine Fill A, west central portion of NSWC. H-17 off of H-45.	Soil excavation and transport to Bioremediation Facility, site restoration, and soil sampling.	Major contaminants include TNT, HMX and RDX in soils are the most significant.
SWMU 13/14	Mine Fill B, west central portion of NSWC, H-17 off of H-45	Soil excavation and transport to Bioremediation Facility, site restoration, and soil sampling.	Major contaminants include TNT, HMX and RDX in soils are the most significant. PCS soils are present in different areas.
Bioremediation Facility	Located south of Burns City Gate off of H-161.	Soil excavated from SWMU 12/14 will be processed at this facility using composting technology.	Contaminants in Soil to be processed and mixed with amendments are described in Section 1.2.

Table A-2
Potential Contaminants

Potential Contaminant	Description	Exposure Limits	Signs and Symptoms	First Aid
Acetone (may occur in very low levels if any at all)	Colorless liquid with a fragrant, mint-like odor.	OSHA PEL of 1000 ppm as 8 hr TWA.	Irritant to ayes, nose, and respiratory system. May cause dermatitis upon skin contact.	Irrigate eyes immediately with water. Soap wash skin promptly. Seek medical attention immediately.
Ammonia (varying levels, off gas component from manures) (considered highest chemical hazard on this job)	Colorless gas with a pungent, suffocating odor.	OSHA STEL of 50 ppm. NIOSH REL of 7.5 ppm, STEL of 35 ppm. ACGIH TLV-TWA of 25 ppm and STEL of 35 ppm.	Irritant to eyes, nose and throat.	Remove to fresh air. Irrigate eyes immediately with water. Provide respiratory support. Seek medical attention immediately.
Carbon Dioxide, off-gas component of aerobic composting.	Colorless, odorless gas. Normal constituent of air, about 3,000 ppm.	OSHA PEL of 5,000 ppm.	Cause headache, dizziness, restlessness; dyspnea, increased heart rate, pulse and blood pressure; convulsions and asphyxia at high concentrations	Provide respiratory support. Seek medical attention immediately.
Hydrogen Sulfide (May be off gas component of composting)	Colorless gas with a strong odor of rotten eggs.	OSHA Ceiling of 20 ppm, NIOSH Ceiling of 10 ppm.	Irritant to eyes and respiratory system. Causes dizziness, headache and eye pain. CNS depressant. Asphyxiant.	Irrigate eyes immediately with water. Provide respiratory support. Seek medical attention immediately.
Diesel exhaust including oxides of nitrogen.	Appearance and odor vary depending upon the specific diesel exhaust component.	Use STEL of 1 ppm.	Irritant to eyes and respiratory system, may cause pulmonary function changes.	Remove to fresh air, provide respiratory support. Seek medical attention immediately.

DNT (Dinitrotoluene) (Majority of amino DNTs undetected in soil samples, can exist as metabolite during composting)	Orange-yellow crystalline solid with a characteristic odor. Note: ski" designation.	OSHA PEL 1.5 mg/m^3 as 8 hr. ACGIH 8 hr TWA of 0.15 mg/m^3	Causes anoxia; cyanosis; anemia; jaundice; reproductive effects; suspected human carcinogen.	Irrigate eyes immediately with water. Water flush promptly. Soap wash skin promptly. Provide respiratory support. Seek medical attention immediately.
HMX (Cyclotetramethylenetetranitramine)	White-crystalline solid.	No exposure limits listed.	May cause Irritation to eyes. skin and respiratory system.	Irrigate eyes immediately with water. Water flush promptly. Soap wash skin promptly. Provide respiratory support. Seek medical attention immediately.
RDX (Cyclonite)	White crystalline powder, combustible solid.	OSHA PEL 1.5 mg/m^3 as 8 hr. ACGIH 8 hr TWA of 1.5 mg/m^3 Note: skin designation	Skin, eye and respiratory irritations. Very similar to TNT.	Irrigate eyes immediately with water. Soap wash skin promptly. Provide respiratory support. Seek medical attention immediately.
TNT (Trinitrotoluene)	Colorless to pale yellow, odorless solid or crushed flakes. Combustible solid.	OSHA PEL 1.5 mg/m^3 as 8 hr. TWA, ACGIH 8 hr TWA of 0.5 mg/m^3. Note: skin designation.	Causes liver damage, jaundice; cyanosis; sneezing; cough; sore throat; peripheral neuropathy; muscle pain, kidney damage; cataract: sensitive dermatitis; leukocytosis; anemia and cardiac irregularities.	Irrigate eyes immediately with water. Soap wash skin promptly. Provide respiratory support. Seek medical attention immediately.

Biological constituents to include bacteria and fungi (yeasts and molds). Constituents will be present in amendments and "ray become airborne during composting operations.	Microbiological organisms	None established, will compare to background levels or other data from current literature. Bacterial or fungal concentrations above 10,000 colony forming units per meter cubed (cfu/m^3) in total or above 500 cfu/m^3 for each specific group of organisms or species of a potentially pathogenic nature should be considered a threat to the worker□s health. For gram-negative bacteria, a TLV of 1000 cfu/m^3 has been proposed, since a number of species of this group are able to release pathogenic endotoxins. which may cause an additional health hazard.	Varies, depending on sensitivity. Can include respiratory system irritation, distress and infections.	Remove from source, seek medical attention.
Note: Data is Table derived from NIOSH 1994, OSHA 1997 and ACGIH 19961997				

Table A-3 Personnel Contacts and Telephone Numbers

Person or Agency	Telephone
USWC Crane Fire Department (Base)	**1333 emergency** **(812) 854-1235**
USWC Crane Ambulance (Base)	**1333 emergency** **(812) 854-1100**
USWC Crane Security (Base)	**(812) 854-3318**
NSWC Crane Environmental Protection Department	(812) 8544423
Chief Duty Officer (CDO)	**(812)** 854-1225
Crane Army Ammunition Activity (CAAA) Security	(812) 854 3960
ROICC (NTR)	(812) 8543318
SOUTHNAVFACENGCOM	(803) 743-0582
NSWC Crane E.O.D. (Base)	(812) 854-3456
NSWC Crane Safety Director	(812) 854-3601
Poison Control Center	(800) 942-5969
NSWC Base Medical Facility	(812) 854-1220, 4319
Bedford Medical Center, 2900 West 16th Street, Bedford, IN 47432	(812) 275-1200
Bloomington Hospital, 601 West Second Street, Bloomington, IN	(812) 336-9515
NSWC Crane Public Works Department (Base)	(812) 854-1834
TolTest Program Manager (Ernest Enrique)	(419) 241-7175
TolTest NSWC Site Project Manager (Lance Parsons)	Office (812) 854-6942 Home (812) 6364877
TolTest NSWC Site Superintendent (Denny Waggoner)	Office (812) 854-6941 Home (812) 247-2266
TolTest NSWC Site Safety and Health Officer (SSHO) (Travis Nowak)	**Office: (812) 854-6942**
TolTest Project Engineer (Toledo, OH office)	419-241-7175
TolTest Site Quality Assurance/Quality Control Representative	Office: (812) 854-6941
TolTest Health and Safety Program Manager (Toledo, Ohio)	(419) 241.7175

Table A-3 Personnel Contacts and Telephone Numbers

NSWC Crane PWD/Eng. Dept	(812) 854-1834
NSWC Base Commander	(812) 854-1210
USEPA (Region 5) Emergency	(312) 353-2318
IDEM, State of Indiana Emergency	(317) 233-7745
National Response Center	(800) 424-8802

Directions to NSWC Medical Department On-site:

The NSWC Fire Department coordinates the on-site ambulance service. The Medical Department is located in Building 12. off of H-2 just north of H-5.

Directions to Bedford Medical Center:

From the Bloomington Gate, head east on Highway 58 to the city of Bedford, turn left onto 16th. This Gate is open 24 hours. The approximate distance to hospital is 22 miles.

From the Bedford Gate, head east on Highway 158 to the city of Bedford, 158 turns left onto 16th Street. The distance to hospital is approximately 22 miles. This gate is open during the hours of 6 AM to 8 AM and 3 PM to 6 PM on Mondays through Fridays exclusive of holidays.

Directions to Bloomington Hospital:

Exit NSWC Crane on H5-45 through the Bloomington Gate, then follow Highway 45 North to Bloomington. At the intersection of Highway 45 and Highway 37, continue straight ahead over the bypass (Bloomtield Road), and follow Bloomfield Road north until it becomes 2nd Street. Continue on 2nd Street and the hospital will be on right-hand side of the road.

Note: TolTest SSHO is to ensure this Table and Figure A-l are included with the Soil Excavation Maps posted at the job site. In addition, the Table and Figure must be posted at each office location.

Notify the TolTest SSHO of any changes in work conditions which may affect the health and safety aspects of the task. The Superintendents or designated supervisors are responsible for conducting Plan-of-the-Day meetings and Pre-Entry were necessary, weekly safety meetings, and conducting or ensuring that other training is completed.

Table A-4
Training Requirements

Identifier	Location	40-Hr. Haz. Waste	Haz. Waste Annual Ref.	Haz. Waste Super -visor	Weekly Safety Mtg.	Haz. Com.	CPR/ First Aid	Respira-tory Protec-tion	Site-Specif ific	POD, Pre-Entry Brief	Other
SWMU 12/14	Mine Fill A	Y	Y	Y	Y	Y	Y	Y	Y	Y	N[2]
SWMU 13/14	Mine Fill B	Y	Y	Y	Y	Y	Y	Y	Y	Y	N[2]
Full Scale operation of facility	Bioremediation Facility	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y[1,2,3]

Y = Yes, N = No, 0 = Optional

Notes:

1 - 49 CFR Part 172 Subpart H for personnel required to classify, mark, select packaging, inspect, load and transport hazardous materials.

2 - Fire Extinguishers

3 - Chemical Hygiene Plan for Laboratory Workers

Table A-5 Selection of Personal Protective Equipment

PPE	Level D	Modified Level D	Level C	Level B
Coveralls or other approved working apparel	Yes	Yes	Yes	na
Chemical-resistant clothing (coveralls; hooded, one- or two-piece chemical-resistant coveralls)		Yes	Yes	na
Boots, chemical resistant	Yes	Yes	Yes	na
Boot covers (outer), chemical resistant (disposable)		Optional	Optional	na
Safety glasses or chemical splash goggles, meeting ANSI Z87.1-1979 for "Industrial Safety Glasses"	Yes	Yes	Yes	na
Face shield	Optional	Optional	Optional	na
Gloves (cotton/leather)	Optional	Optional	Optional	na
Gloves (inner), chemical resistant or liners		Yes	Yes	na
Gloves (outer, chemical resistant		Yes	Yes	na
Approved Disposable Dust Mask		Optional		na
Air-purifying respirator, half-face or full face with suitable cartridge (MSHA or NIOSH approved)			Yes	na

Note: Optional requirements to be determined by the TolTest SSHO based on additional evaluation of site conditions and hazards analysis. Note: safety glasses not required when wearing full-face APR.

Na - not applicable

Table A-6
Minimum Personal Protective Equipmentt Requirements by Task

Site	Activity	PPE
Soil excavation at SWMU #12/14 & SWMU # 13/14	1. Excavate, screen, and load soils for Composting 2. Site restoration 3. Decontamination and rock washing 4. Transporting contaminated soil (driving trucks)	1. Modified Level D, modify based on air monitoring/sampling results. 2. Level D 3. Modified Level D, use rain suit 4. Level D
SWMU Sampling	1. Obtain soil and/or ~~groundwater~~ water samples	1. Modified Level D
Full Scale Operations of Bioremediation Facility	1. Offload and grind amendments 2. Load amendment blend in windrows 3. Offload contaminated soil into windrows 4. Turn and mix windrows 5. Monitor windrow parameters and field screening/confirmation sampling 6. Load and transport treated soils 7. Decontamination water management 8. Composting building housekeeping 9. Maintenance and Upkeep of Equipment	1. Level C, modify where necessary 2. Level C, modify where necessary. 3. Modified Level D. 4. Level C, modify where necessary. 5. Level C if working in building during windrow turning. Modify when necessary. 6. Level D 7. Modified Level D. 8. Level C, modify where necessary 9. Level D, modify per task based on manufacturer's recommendation.

Level C respiratory protection includes full-face air purifying respirator (APR) with Ammonia/Methylamine Cartridge/P100 Filters. Existing inventory of HEPA/ammonia cartridges may be used until supply is exhausted.

Clothing includes dedicated coveralls; 16 inch PVC boots; Tyvek; double nitrile gloves; safety glasses.

Modified Level D includes same protective clothing as Level C except for Dust Masks instead of APR. Where specified, Dust Masks should be 3 M Brand 8210 (N95) or Brand 8511 (N95). Dust Masks must be replaced at minimum of daily per manufacturers instructions. Existing inventory of 3M Brand 8710 Dust/Mist Respirator may be used until supply is exhausted.

In some cases leather work gloves can be substituted for chemical protective gloves (e.g. handling amendments, off-loading amendments and building maintenance).

Table A-7
Airborne Contaminant Response Criteria

Contaminant	Level	PPE	Monitoring Frequency	Actions Taken
Explosives Residues	Less than action level for the explosive compound having the lowest AL (DNB, 0.5 mg/m^3) and/or no visible observation of excessive dusts	Modified Level D	Periodic per plan	Continue monitoring and/or sampling and observations
	Greater than action level or visible observation of excessive dusts.	Level c	To be determined by SSHO	To be determined by SSHO
	Greater than OSHA PEL or greater than 10 mg/m^3 total dust.	To be determined by SSHO	To be determined by SSHO	To be determined by SSHO
Hydrogen Sulfide	Greater than 10 ppm	To be determined by SSHO	Periodic per plan inside of Composting Facility	Stop work, shut off equipment and evacuate Composting Facility. Notify SSHO; ventilate structure

Carbon Dioxide (CO_2)	Greater than 4,000 ppm	To be determined by SSHO	Periodic per plan inside of Composting Facility	Stop work, shut off equipment and evacuate Composting Facility. Notify SSHO; ventilate structure
Ammonia Off-gas from Compost Piles	Greater than 25 ppm and < 300 ppm > 300 ppm	Level C Supplied Air respiratory protection	Periodic per plan inside of Composting Facility To be determined by SSHO	Level C PPE to be used. Stop work, shut off equipment and evacuate Composting Facility. Notify SSHO; ventilate structure, and upgrade respirator protection if entry required.
% LEL	Equal to or greater than 10%.	To be determined by SSHO	To be determined by SSHO	Stop work, shut off equipment. remove ignition sources if safe to do so; notify SSHO

Table A-8
Frequency of Physiological Monitoring for Fit and Acclimatized Workers[1]

ADJUSTED TEMPERATURE[2]	IMPERMEABLE ENSEMBLE
90°F (32.2°C) or above	After each 15 minutes of work
87.5°-90°F (30.8°-32.2°C)	After each 30 minutes of work
82.5°-87.5°F (28.1°-30.8°C)	After each 60 minutes of work
77.5°-82.5°F (25.3°-28.1°C)	After each 90 minutes of work
72.5°-77.5°F (22.5°-25.3°C)	After each 120 minutes of work

'For work levels of 250 kilocalories/hour.

'Calculate the adjusted air temperature (ta adj) by using this equation:

ta adj °F = ta°F + (13 x % sunshine).

Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow.

(100 percent sunshine = no cloud cover and a sharp, distinct shadow: 0 percent sunshine = no shadows.)

Note: Reprinted from *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985).*

Table A-9
Monitoring and Sampling Requirements

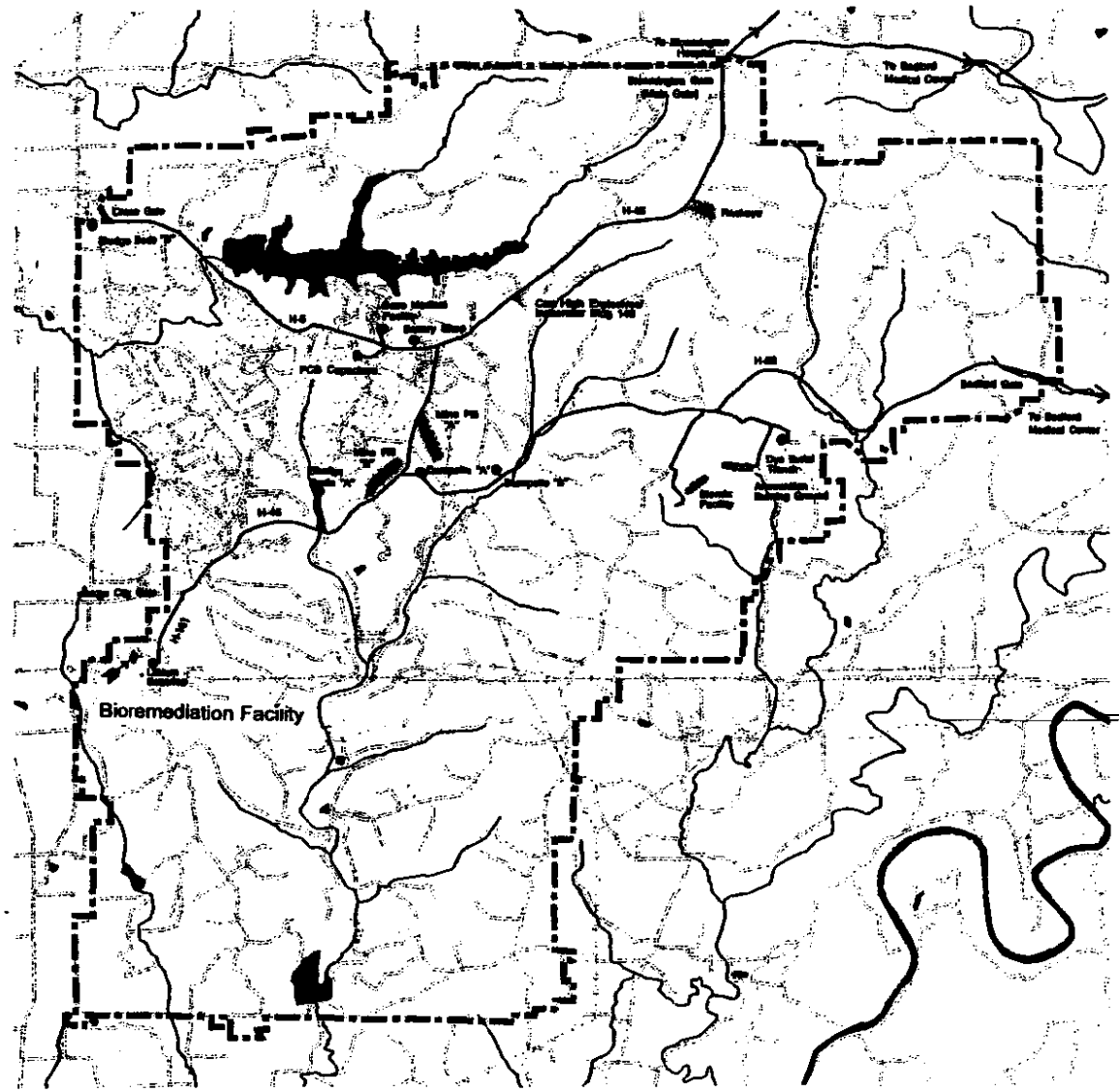
Site	Activity	Monitor				Sample	
		Dust	Perimeter (Dust)	Noise	Heat Stress	Biological	Explosives
SWMU 12/14	1. Excavate, screen, and load soils for Composting	Y	Y	Y	O	N	Y
Start-up and Opera-tions of Biore-media-tion Facility	1. Offload and grind amendments.	Y	Y	Y	O	O	N
	2. Load amendment blend in windrows.	Y	N	Y	O	Y	N
	3. Offload contaminated soil into windrows.	Y	N	Y	O	N	N
	4. Turn and mix windrows.	Y	Y	Y	O	Y	y

Y = Yes, O = Optional at discretion of SSHO, N = Not required

Notes:

1 = See Section 7 for additional monitoring using colorimetric indicator tubes.

FIGURES



DIRECTIONS:

1. DIRECTIONS TO NSWC MEDICAL DEPARTMENT ON SITE:

   THE NSWC MEDICAL DEPARTMENT MANAGES AND COORDINATES THE ON-SITE AMBULANCE SERVICE. LOCATED IN BUILDING 12 OFF H-2 JUST NORTH OF H-5.

2. DIRECTIONS TO BEDFORD MEDICAL CENTER:

   FROM THE BLOOMINGTON GATE, HEAD EAST ON HIGHWAY 58 TO THE CITY OF BEDFORD. TURN LEFT ONTO 16TH. THIS GATE IS OPEN 24 HOURS. THE APPROXIMATE DISTANCE TO HOSPITAL IS 22 MILES.

   FROM THE BEDFORD GATE, HEAD EAST ON HIGHWAY 158 TO THE CITY OF BEDFORD. 158 TURNS LEFT ONTO 16TH STREET. THE DISTANCE TO HOSPITAL IS APPROXIMATELY 22 MILES. THIS GATE IS OPEN DURING THE HOURS OF 6 AM TO 8 AM AND 3 PM TO 6 PM ON MONDAYS THROUGH FRIDAYS EXCLUSIVE OF HOLIDAYS.

3. DIRECTIONS TO BLOOMINGTON HOSPITAL:

   EXIT BASE ON H5-45 THROUGH THE BLOOMINGTON GATE. FOLLOW HIGHWAY 45 NORTH TO BLOOMINGTON. AT HIGHWAY 45 AND HIGHWAY 37, CONTINUE GOING STRAIGHT OVER THE BYPASS (BLOOMFIELD ROAD). FOLLOW BLOOMFIELD ROAD NORTH WHICH TURNS INTO 2ND STREET. FOLLOW 2ND STREET AND HOSPITAL IS ON YOUR RIGHT.

LEGEND:

PRIMARY ROUTE

NSWC BOUNDARY

1 inch = 1.5 miles

REV	DATE		APPROVE
0	02/19/98	ISSUED FOR APPROVAL	

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL SERVICES

FULL SCALE
OPERATIONAL PLAN
NSWC CRANE
CRANE, IN

FIGURE A-1
DIRECTIONS TO THE
NEAREST MEDICAL FACILITY

DWG DATE: 1/26/98 | FILE NAME: FIGA-1.DGN

Figure A-2 Safety Meeting Report

Type of Meeting: _____

Topic: _____

The following personnel were present for meeting conducted at _____ (time) on _____ (date) at _____ (location).

NAME	SIGNATURE	ORGANIZATION

Printed Name of Meeting Chairman _____ Signature _____ Date _____

Figure A-3 Pre-Entry Briefing Signature Sheet

Work area(s) to be entered ___

The following personnel have had a pre-site entry briefing conducted at _____ __ (time) on _____ (date) at _____ (location), and are familiar with this plan's provisions, and are willing to meet the requirements of this plan.

NAME	SIGNATURE	ORGANIZATION

Printed Name of Supervisor Signature Date

Figure A-4 SSHP Weekly Inspection Checklist

Surveillance No. _____

SURVEILLANCE NO:	ACTIVIN:		PROJECT NO:
DATE:	LOCATION:		SURVEYED ORGANIZATION: PRIME: SUBTIER:
	SITE/AREA CONTACT:	RESPONSIBLE MANAGER:	

ITEM NO.	DESCRIPTION OF SURVEYED ITEMS	N/A SAT UNSAT	DESCRIPTION OF DISCREPANCY/ NON-COMPLIANCE	ACT OR COND	CAT	REQUIRED ABATEMENT DATE	CORRECTIVE ACTION TAKEN AND DATE ABATEMENT COMPLETED
1	Activity hazard analysis prepared for each major work phase? (EM 385-1-1, Section 01.A.09)						
2	All hazards including chemical/biological and physical adequately described?						
4	All site personnel completed required training?						
5	All site personnel medically qualified?						
6	PPE available and in good condition?						
7	PPE work per SSHP and/or SSHO direction?						
8	PPE donning/doffing procedures in place?						
9	Written SOP available describing respirator selection and use?						
10	Air monitoring conducted per SSHP?						
11	Monitoring equipment properly maintained and calibrated?						
12	Employees notified of monitoring results?						
13	Chain of custody prepared and maintained for all samples?						
14	Weekly safety meeting held?						
15	Pre entry briefs held?						
16	Haz Com programs in place?						
17	Competent person evaluates excavation?						
18	Personnel responsible for work maintains control of area and general safety requirements are being followed? Note: fire extinguishers, eyewash, first aid kits and spill response equipment.						

ITEM NO.	DESCRIPTION OF SURVEYED ITEMS	N/A SAT UNSAT	DESCRIPTION OF DISCREPANCY/ NON-COMPLIANCE	ACT OR COND	CAT	REQUIRED ABATEMENT DATE	CORRECTIVE ACTION TAKEN AND DATE ABATEMENT COMPLETED
19	Soil Excavation Maps prepared and updated?						
20	All personnel materials decontaminated prior to exiting contamination reduction zone?						
21	Decon stations properly established?						
22	Proper personal hygiene practices observed?						
23	Decon solutions collected and properly disposed of?						
24	At least one employee on each shift trained in CPR and first aid and BLOOD BORNE pathogens?						
25	First aid kit at each work site?						
26	All first aid and medical cases promptly reported to TolTest SSHO?						
27	List of emergency services/contact is up to date and posted?						
28	Assembly points identified and communicated to employees?						
29	Communication methods are adequate						
30	Records of all injuries and illnesses maintained by TolTest SSHO?						
31	Equipment operational checklists developed as needed?						
32	Two-way radios available per SSHP?						
33	Cellular telephone available as needed?						
34	Emergency alarms available?						
35	Drills and exercises conducted to test communication methods?						
36	Suitable quantities of spill supplies available?						
37	Operations arranged to minimize spills?						

Inspection Performed By: _____ Date: _____

Abatement Accepted By: _____ Date: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE

JAMES M. HUMSICKER
Director, Environmental Protection Department
By direction of
THE Commander

21 MAY 1999
DATE

Enclosure (2)