



DEPARTMENT OF THE NAVY

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE INDIANA 47522-5001

8-1-2002
IN REPLY REFER TO:

5090
Ser 095/2263

09 AUG 2002

U.S. Environmental Protection Agency, Region V
Waste, Pesticides, & Toxics Division
Waste Management Branch
Corrective Action Section
Attn: Mr. Peter Ramanauskas (DW-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Dear Mr. Ramanauskas:

Crane Division, Naval Surface Warfare Center (NSWC Crane) submits, for your review' and approval, the Second Quarter 2002 Quarterly Interim Progress Report (IPR) for April 1 through June 30, 2002 dated August 2002. Two copies of the report are provided as enclosure (1). Enclosure (2) is the required certification statement.

NSWC 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

Encls:

- (1) IPR 2nd QUARTER 2002 (APR - JUN 2002)
- (2) Certification Statement

copy to:

Administrative Record
IDEM (D. Griffin)
SOUTHNAVFACENGCOM (Code ES32)
SOUTHNAVFACENGCOM ROICC (w/o encls)
TOLTEST Crane (w/o encls)

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.

Jane M. Harsule

SIGNATURE

DIRECTOR, ENVIRONMENTAL PROTECTION DEPARTMENT
BY DIRECTION OF THE COMMANDER

TITLE

8/08/02

DATE

**Naval Facilities Engineering Command
Naval Surface Warfare Center
Crane, Indiana**

**Full-Scale Operations
Soils Bioremediation Facility**

**Quarterly Interim Progress Report
2nd Quarter 2002
April 1 – June 30**

**Revision 0
August 2002**

TOLTEST, INC.

QUARTERLY INTERIM PROGRESS REPORT
2nd Quarter 2002
April 1 -June 30

Revision 0
August 2002

FULL-SCALE OPERATIONS
SOILS BIOREMEDIATION FACILITY
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA

ENVIRONMENTAL JOB ORDER CONTRACT
CONTRACT NO. N68950-96-D-0052
TOLTEST PROJECT NUMBER 37324.01

Submitted to:

OFFICER IN CHARGE OF NAVFAC CONTRACTS
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA

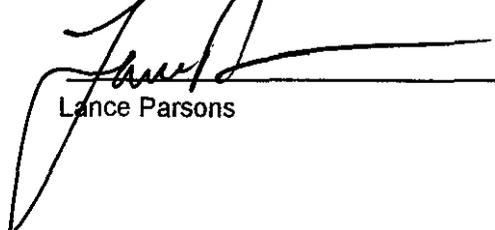
Submitted by:

TOLTEST, INC.
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Prepared/Reviewed by:
Project Manager/Environmental Specialist


Peter J. Chevalier
8/7/02
Date

Reviewed/Approved by:
Regional Manager


Lance Parsons
8/7/02
Date

EXECUTIVE SUMMARY

This interim progress report has been prepared by ToITest, Inc. (ToITest) for Southern Division, Naval Facilities Engineering Command. This report documents the progress at the Bioremediation Facility (Biofacility) for treatment of explosives-contaminated soil at the Naval Surface Warfare Center (NSWC) Crane, Indiana. On March 27, 1999, ToITest assumed responsibility for the excavation and treatment of contaminated soil at the Biofacility. This report summarizes the work actions performed from April 1 through June 30, 2002 pursuant to the requirements of the approved Full-Scale *Operational Plan* and the *Qualify Assurance Project Plan*. Full-scale bioremediation operations started in April 1998. All interim measures work actions have been performed in accordance with approved plans.

The scope of work includes initial site characterization by sampling and analysis, excavation and screening of explosives-contaminated soil, transportation of screened soil for treatment to the Biofacility, process monitoring and confirmatory sampling of the compost windrows, and disposal of treated soil.

All initial characterization soil sampling, post-excavation soil sampling, and contaminated soil excavation at Mine Fill A (MFA), Mine Fill B (MFB), and **Rockeye** (RKI) has been completed.

All contaminated soil has been processed at the Biofacility and transported back to the Solid Waste Management Unit of origin.

Decontamination of the Biofacility has commenced and all of the Navy equipment and tools have been turned over to the Navy. The retention ponds were cleaned and the sludge from the ponds was placed in the Middle compost building to dry. This sludge was analyzed and subsequently hauled to the MFB Permanent Placement Area for disposal. All three compost buildings have been decontaminated and wipe sampling to test the effectiveness of the decontamination process has been initiated.

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FIGURE

Figure 1 MFB Permanent Placement Area

APPENDIX A

Field Clarification Requests

- . FS035 Disposition of Retention Pond Sludges and **Windrow** N-216
- . FS036 Sampling Protocol for Determining the Effectiveness of Decontamination
- . FS037 Sampling Protocol for Determining the Presence of Contamination Outside the Biofacility Boundaries and Sampling of the Sludge in the Middle Compost Building

Appendix B

Analytical Results

1.0 INTRODUCTION

This Interim Progress Report (IPR) has been prepared by TolTest for the Southern Division, Naval Facilities Engineering Command to document the progress of the full-scale bioremediation operation of explosives-contaminated soil at NSWC Crane, Crane, Indiana. It summarizes the work actions performed by TolTest during the period April 1 through June 30, 2002 pursuant to the requirements of the approved Full-Scale Operational *Plan* (FSOP) [MK, 1998a] and the *Qualify Assurance Project Plan* (QAPP) [MK, 1998b]. Full-scale bioremediation operations started in April 1998. TolTest assumed responsibility of the project on March 27, 1999 from Morrison Knudsen Corp. (now Washington Group International, WGI) after the completion of their contract.

NSWC Crane, located in southwestern Indiana, provides support for equipment shipboard weapons systems, and ordnance. This site also supports Crane Army Ammunition Activity, which includes production and renovation, storage, shipment, and demilitarization and disposal of conventional ammunition. Explosive-compounds contaminated soils resulting from the above operations have been identified at four solid waste management units (SWMUs): Ammunition Burning Ground (ABG, SWMU-03/10); Rockeye Munitions Facility (RKI, SWMU-10/15); Mine Fill A (MFA, SWMU-12/14); and Mine Fill B (MFB, SWMU-13/14). No work has been performed at ABG pending the outcome of a risk assessment study.

On-site bioremediation of the high-explosives contaminated soil utilizing a **windrow** composting process was selected as the preferred treatment alternative for the Interim Measures at these four SWMUs.

The scope of work included initial site characterization by sampling and analysis, excavation and screening of explosives-contaminated soil, transportation of screened soil for treatment at the Biofacility, process monitoring, confirmatory sampling, disposal of treated soil, and site restoration. All work at MFA has been completed and has been included in the Interim Measures Report (IMR) for MFA prepared by WGI. All work at MFB has been completed by TolTest and has been included in the IMR for MFB. All work at RKI has been completed by TolTest and has been included in the IMR for RKI.

Subsequent IPRs will discuss only the remaining work to be performed at the Biofacility and production facilities (primarily decontamination and maintenance procedures).

2.0 EXCAVATION SITE ACTIVITIES

Work activities at the excavation site may include in-process sampling and screening, pre and post-excavation sampling, soil excavation, soil screening, and vegetation establishment. Fieldwork activities are performed in accordance with procedures included in the *FSOP* [MK, 1998a] and the *QAPP* [MK, 1998b]. Final drawings showing grid locations, post-excavation sample locations, and extent of excavation are included in the *IMRs*.

2.1 Pre-Excavation Soil Sampling

Pre-excavation sampling is performed to provide initial site characterization and delineate the extent of contamination. The horizontal boundaries of contamination are influenced by the presence of buildings, roads, railroad tracks, and grids with either no detectable levels of contaminants or levels that are below the cleanup goals.

All pre-excavation sampling at MFA, MFB, and RKI was completed prior to this reporting period.

2.2 In-Process Excavation Soil Sampling

All field screening of in-process excavation soil samples for MFA, MFB, and RKI was completed prior to this reporting period.

2.3 Post-Excavation Soil Sampling

All post-excavation samples for MFA, MFB, and RKI were obtained prior to this reporting period.

2.4 Soil Excavation and Screening

Soil excavation operations at all three *SWMUs* are now complete and all contaminated soil has been processed in *windrows* at the Biofacility. A total of **44,451.28** tons of soil were excavated from the three *SWMU* sites as follows: MFA **21,045.39**, MFB **22,115.20**, RKI **1,272.68**, and MFA Battery 18.01.

3.0 BIOFACILITY OPERATIONS

Treatment of high-explosives contaminated soil by composting involves microbial degradation of the explosives by optimizing the availability of organic material, temperature, moisture content, pH, and oxygen. The composting operation process description is provided in Section 5.0 of the approved *FSOP* (MK, 1998a).

3.1 Amendments

The compost mix used in full-scale operations consists of 25% soil, 15% chicken manure, and 60% straw by volume.

3.2 Windrow Construction and Treatment

All windrow-composting operations are complete and all contaminated soil has been processed prior to this reporting period.

3.3 Retention Pond Maintenance

Retention pond monitoring and water control is an ongoing maintenance item at the Biofacility. Both retention ponds overflowed during this reporting period due to exceptionally high rainfall, Pond 2 overflowed on May 8 and no water from the pond could be pumped into the sewer system due to the full level of the NSWC Crane landfill leachate pond. Consequently the discharge valve on Pond 2 was opened and water was allowed to flow into the adjacent drainage ditch for 2.5 hours to lower the water level in the pond. A sample of the pond water could not be obtained from the discharge pipe since the discharge pipe outflow in the adjacent drainage ditch was under water. Therefore a pond water sample was obtained from the surface of the pond and analyzed for NSWC Crane discharge parameters. Results of the analysis indicated that all parameters except Carbonaceous Biological Oxygen Demand (CBOD) met surface discharge limits. The CBOD result of 23.6 mg/L exceeded the surface discharge limit of 15 mg/L.

Both retention ponds were overflowing on May 13 and again no water could be pumped into the sewer system. Both pond discharge valves were opened for 3.5 hours to lower the water level in the pond. A sample of the water in Pond 1 was obtained from the surface of the pond and analyzed for NSWC Crane discharge parameters. Results of the analysis indicated that all parameters except CBOD met surface discharge limits. The CBOD result was 27.1 mg/L.

Personnel from NSWC Crane Environmental Protection Department (EPD) gave **ToiTest** the approval to open both retention pond discharge valves and completely drain the ponds. This action was based on: 1) the most recent pond water analyses indicated the CBOD was the only parameter that exceeded surface discharge limits; and 2) there was no activity at the Biofacility since the last pond water sampling event that would have contaminated the asphalt area that drains into the retention ponds. Both pond valves were opened on May 13th and closed two days later. Both releases were noted in the NSWC Crane Monthly Storm Water Reports.

3.4 Facility Decontamination

In the previous reporting period, sediment, sludge, and compost from cleaning the retention ponds and sumps, the North and South compost buildings, and the asphalt area were placed in the Middle compost building along with approximately 10,000 gallons of water generated during the decontamination process. This mixture was periodically mixed and pushed around with a backhoe until all the water had evaporated. The sludge was then pushed together to form one pile of approximately 10 cubic yards. One composite sample (from five sub-samples) was obtained from this pile and sent to an off-site lab for explosives analysis in accordance with Field Clarification Request (FCR) FSO35 and FS037 (see Appendix A). The results were non-detect for all explosive compounds (see Appendix B). The sludge was subsequently hauled to and put to grade at the Permanent Placement Area (PPA) at Mine Fill B (see Figure 1).

The Middle compost building was then decontaminated by spraying the ceiling, walls, and floor with a power washer. The water from this process was pumped into the sewer system.

The water in the sump of the North compost building was sampled and analyzed for NSWC Crane discharge parameters. Results indicated that CBOD, reported at 26.4 mg/L, exceeded the 15 mg/L surface discharge limit. The explosive compound RDX was detected at 1.94 ug/L, which is below the surface discharge limit. However, the RDX compound was qualified with a "P" code indicating that there was a greater than 25% difference between the primary and secondary columns. All other parameters met surface discharge limits.

3.5 Wipe Sampling

On June 13th, 15 wipe samples were obtained in accordance with Phase one of FCR-FSO36 (see Appendix A) to determine the effectiveness of the decontamination process on the compost buildings. The floor of the North compost building and the walls and ceiling of the South compost building were sampled and analyzed for explosives. All Phase one results (included in

Appendix B) were non-detect. The remaining sampling listed in FCR-FS036 will be conducted during the next reporting period.

Wipe sample locations were spaced throughout the building and were biased to areas that were stained or showed potential surface contamination. Each compost building is constructed with 13 steel columns numbered 1 through 13, with column 1 on the east-end of the building, column 13 on the west-end. Two horizontal steel beams divide each wall section between columns into three subsections (identified as top, middle, and bottom). Samples were taken between columns as identified in Table 1. Floor samples were taken either on the north or south side of the building, and wall samples were taken either in the bottom, middle, or top section of the wall. Samples were identified as follows: BIO-N-WXX where BIO indicates the Biofacility; N (or S) identifies the building; W indicates a wipe sample; and XX is the sample number.

TABLE 1 WIPE SAMPLE LOCATIONS					
Building South, Wall Samples			Building North, Floor Samples		
Sample #	Between Columns:	Sample Location:	Sample #	Between Columns:	Building Side:
01	1 & 2	South Wall, Middle Section	01	3 & 4	South
02	6 & 7	South Wall, Top Section	02	4 & 5	South
03	11 & 12	South Wall, Middle Section	03	9 & 10	South
04	10 & 11	North Wall, Bottom Section	04	12 & 13	South
05	8 & 9	North Wall, Top Section	05	11 & 12	North
06	4 & 5	North Wall, Bottom Section	06	8 & 9	North
07	7 & 8	Ceiling	07	4 & 5	North
-	-	-	08	2 & 3	North

3.6 Confirmation **Sampling**

The potential for contamination outside the boundaries of the Biofacility exists since: 1) the retention ponds have overflowed and the pond discharge valves were intentionally opened on several occasions; and 2) several holes and rips have been identified in the pond liners.

Overflows of the ponds and deliberate releases of pond water through the discharge valves have potentially contaminated the adjacent drainage ditch. To determine if explosive's contamination exists in the ditch, grids will be established along the length of the ditch and the soil will be sampled and analyzed in accordance with **FCR-FS037**.

The rips in the liners have potentially allowed pond water to contaminate the groundwater that has accumulated under the liners. To determine this, the groundwater will be sampled and analyzed in accordance with **FCR-FS037**.

The ditch and groundwater sampling is scheduled to be completed in the next reporting period

4.0 ANALYTICAL DATA INTERPRETATION AND VALIDATION

All data associated with the sampling events identified in sections 3.3 and 3.4 of this report were verified. At least 10% of the samples were validated and compared with field and laboratory quality control (QC) sample data to assess the data's usability for supporting full-scale operations. Data was verified by reviewing chain-of-custody forms, sample preservation records, analytical holding times, requested turnaround times, sample data in comparison to QC data, and reporting requirements. In addition, 10% of the data was validated using the validation procedures specified in Section 9.2.2 of the *QAPP*.

Laboratory QC consists of method blank, sample matrix spike (MS), sample matrix spike duplicate (MSD), laboratory control sample (LCS), and laboratory control sample duplicate (LCSD) analyses to evaluate laboratory accuracy and precision. Laboratory quality control was performed consistent with the requirements of the *QAPP*. Method blanks, LCS, and LCSD were acceptable in every analytical batch. The **MS/MSD** results were acceptable for most analytical batches. In each instance where the **MS/MSD** recoveries were outside laboratory control limits, the **LCS/LCSD** recoveries were within control limits. Comparing the analytical reporting limits to the industrial and residential clean-up levels, the data is determined to be acceptable to show that clean-up goals have been successfully met.

Based on technical review of the field and laboratory QC data, analyses were performed within acceptable accuracy and precision requirements specified in the *QAPP*. The confirmation data meets the project's data quality objectives and are therefore considered usable to support full-scale operations.

5.0 DISPOSITION OF TREATED SOIL AND SITE RESTORATION

All treated soil (compost) has been transported back to the SWMU of origination. The compost was placed either in the PPA or used as backfill in the open excavations. The sludge generated from the Biofacility decontamination was placed and graded at the MFB PPA. Site restoration (seeding, mulching, and watering) is complete at RKI. The screener site and the PPA at MFB were seeded, mulched with straw, and a sprinkler system was set up and watering was commenced in this reporting period. Disposal activity discussed in previous quarterly progress reports has been summarized in the **IMRs** for MFA, MFB, and RKI.

6.0 STATUS OF VARIOUS REPORTS

The Supplemental Toxicity Report for MFA and MFB, the RKI Toxicity Report, and the RKI IMR are under review by U.S. EPA Region V personnel. The MFB IMR will be submitted to EPD in early July for review and comment. Revised pages for the MFA Addendum will be submitted to EPD for incorporation and submittal for final approval by the U.S.EPA.

7.0 QUALITY CONTROL

No quality control inspections were conducted during this reporting period since all excavation and production associated with the Biofacility has been completed. Work completed during this reporting period were mainly maintenance items and sampling events.

8.0 SAFETY AND INDUSTRIAL HYGIENE

8.1 General Safety

During this reporting period, **ToiTest** expended 761 hours. There were no OSHA recordable injuries. The project has a cumulative total of 72,782 man-hours by the end of this reporting period.

No formal safety inspections were performed during this quarter, outside of the regular daily safety meetings when work was performed.

8.2 Industrial Hygiene Sampling

No airborne monitoring for ammonia was performed during this reporting period and no explosives monitoring was conducted since composting operations were concluded prior to this reporting period.

No noise monitoring was performed during this reporting period. By the end of the reporting period, all equipment had been decontaminated and parked in the North compost building.

9.0 FACILITY MAINTENANCE AND REPAIRS

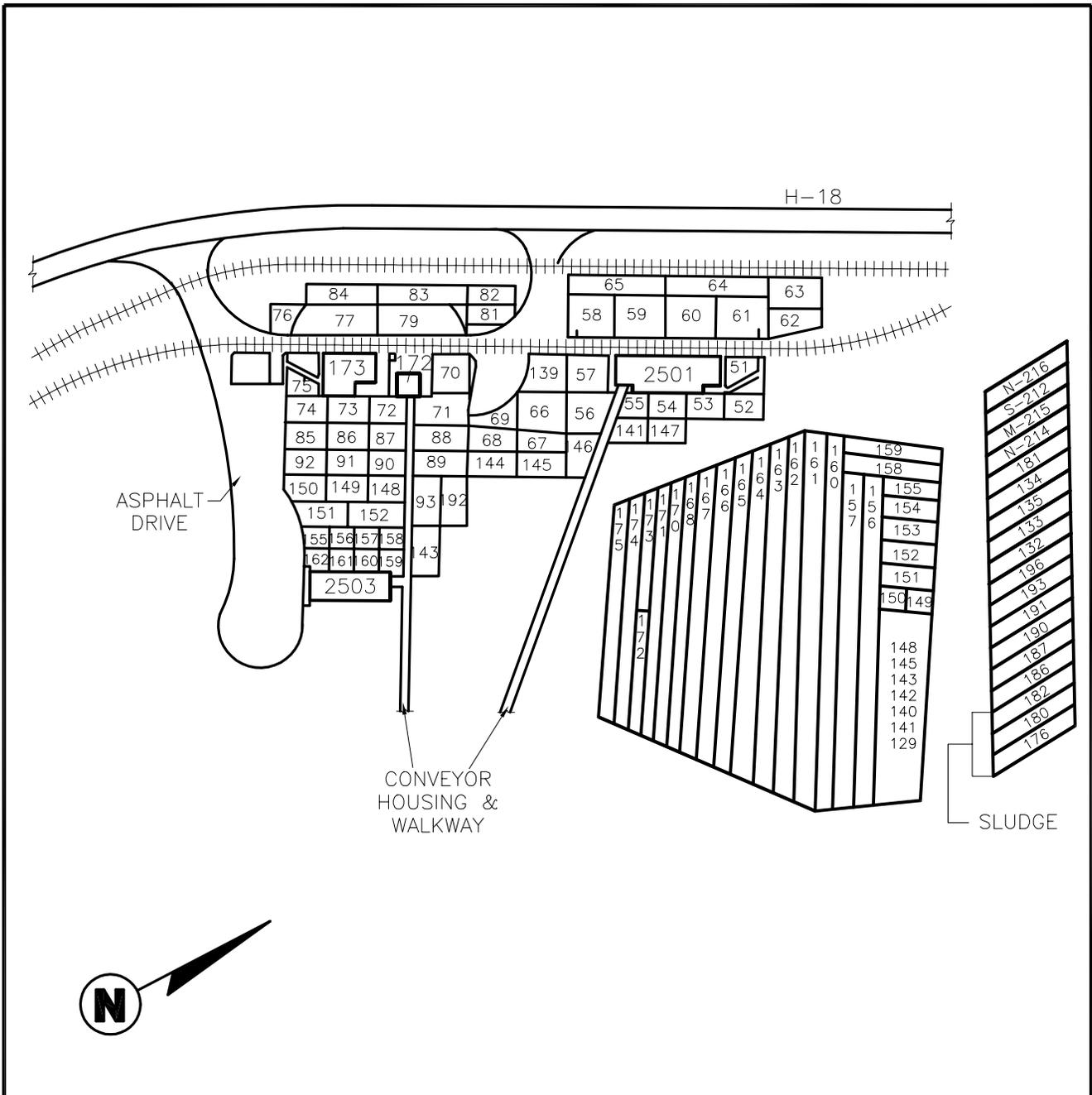
The following maintenance and repairs were performed during this reporting period:

- Put drip pans under the equipment in the North compost building
- Performed maintenance on one of the three-inch diesel water pumps

10.0 REFERENCES

- MK, 1998a. *Full-Scale Operational Plan for Soils Bioremediation Facility, NS WC Crane, Crane, Indiana*. Delivery Order Number 0009, Contract Number N62467-93-D-1106. Prepared by Morrison Knudsen Corporation, Environmental Services Group, Revision 2, March 12, 1998.
- MK, 1998b. *Quality Assurance Project Plan for Full-Scale Operations, Soils Bioremediation Facility, NSWC Crane, Crane, Indiana*. Delivery Order Number 0009, Contract Number N62467-93-D-1106. Prepared by Morrison Knudsen Corporation, Environmental Services Group, Revision 2, March 12, 1998.

FIGURE1
MFB Permanent Placement Area



MEASUREMENTS ARE APPROXIMATE
NOT TO SCALE

FIGURE 1
MFB PERMANENT PLACEMENT AREA
BACKFILL OPERATIONS
MINE FILL B
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA

PREPARED FOR
NAVAL FACILITIES ENGINEERING COMMAND
NSWC CRANE, IN

DRAWN MRC/3-2-01

DRAWING NO.: 3732401-2002 Q2

REVISED MRC/7-17-02

CHKD:

APPR:

JOB NO.: 37324.01

SHEET NUMBER

1 of 1

TOLQUEST, INC.

APPENDIXA

Field Clarification Requests

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC08	Subcontract No.: N/A	FCR No.: FC08-FCR-FS035 Rev. 0
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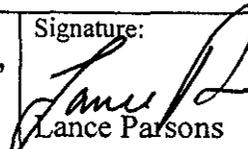
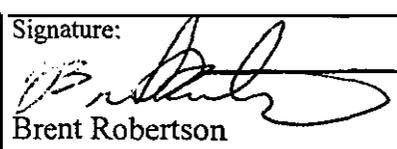
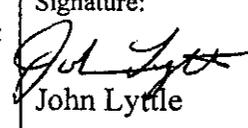
Disposition of Retention Pond Sludges and Windrow N-216	Page 1 of 1
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Reference Documents:
Full-Scale Operational Plan Soils Bioremediation Facility (FSOP), March 1998 Rev. 2

Problem /Change Description:
The general consensus between TolTest, Crane EPD, and US EPA Region V has been that the sludge and sediments in the bottom of the Bioremediation Facility (Biofacility) retention ponds would be processed in the final compost windrow. However, water control problems experienced by the Navy have prevented TolTest from pumping down and cleaning the retention ponds. Therefore the retention pond sludge is not available to be placed on the last windrow which TolTest is ready to build (windrow N-216).

Initiated by TolTest Env. Spec.	Signature: Peter J. Chevalier	Organization: TolTest, Inc.	Date: 11/29/2001
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Resolution
TolTest will proceed with building windrow N-216 in order to facilitate closure of the Biofacility. When conditions permit it, the retention ponds will be pumped down and cleaned. At that time, the sludge will be sampled and characterized to determine disposal options, as stated in Section 7.2.4 of the FSOP.

Approval by TolTest, Regional Manager	Signature:  Lance Parsons	Date: 12/12/01	Approval by ROICC/NTR or RPM	Signature:  Brent Robertson	Date: 12/7/01
Approval by TolTest QC/SHSO	Signature:  John Lytle	Date: 12/13/01	Approval by EPD ECOTR:	Signature:  Christine Freeman	Date: 12/3/01

Regulator Approval/Notification Recommended:
Yes No
See attached faxed signature

Crane Naval Surface Warfare Center	EJOC Contract N68950-96-D-0052
TolTest, Inc.	

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC08	Subcontract No.: N/A	FCR No.: FC08-FCR-FS035 Rev. 0
Disposition of Retention Pond Sludges and Windrow N-216		Page 1 of 1

Reference Documents:
Full-Scale Operational Plan Soils Bioremediation Facility (FSOP), March 1998 Rev. 2

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Initiated by TolTest Env. Spec.	Signature: Peter J. Chevalier	Organization: TolTest, Inc.	Date: 11/29/2001
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Resolution:

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Approval by TolTest, Regional Manager	Signature: Lance Persons	Date:	Approval by ROICC/NTR or RPM	Signature: Brent Robertson	Date:
Approval by TolTest QC/SHSO	Signature: John Lyttle	Date:	Approval by EPD ECOTR:	Signature: Christine Freeman	Date:

Regulator Approval/Notification Recommended:
Yes No

[Handwritten Signature] 12/4/01

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC08	Subcontract No.: N/A	FCR No.: FC08-FCR-FS036 Rev. 1
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Sampling Protocol for Determining the Effectiveness of Decontamination	Page 1 of 2
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Reference Documents:
Full-Scale Operational Plan Soils Bioremediation Facility (FSOP), March 1998 Rev. 2

Problem / Change Description:
As currently written, the FSOP requires that the fluids in the **sumps** of the Bioremediation Facility (Biofacility) compost buildings be **sampled and** analyzed for disposal purposes and that final rinse samples be collected from the walls and floor of each building. **However**, this procedure is not acceptable to U.S. EPA Region V personnel to fully determine the effectiveness of the **decontamination efforts** at the **Biofacility**.

Initiated by TolTest Env. Spec.	Signature:  Peter J. Chevalier	Organization: TolTest, Inc.	Date: 4/5/2002
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Resolution:
To determine the effectiveness of the decontamination procedures, the following sampling and analytical procedures are proposed. **Human** health concerns for **future** use of the Biofacility will be addressed by removing all visible soil and compost. Since the explosives were bound to the soil and compost, removing all visible soil and compost **will** eliminate any **health** concerns.

Slump water samples will be obtained by first tilling the **sump with** potable water (this will simulate the worst case scenario of **overflow** of the **sump** to the pond). Wipe **samples will** be obtained **by** swabbing a 100 square centimeter area in a back and forth, up and down manner completely covering the area. Wipes, **acetonitrile**, and sample jars will be supplied by the off-site laboratory.

Compost building sampling **will** be completed in **two** phases. The first phase will be to collect samples from the walls, ceiling, and **floor** of the compost building which had the highest level of contamination associated **with** it during the **composting** process. A **fewer** number of samples will be obtained **from** the remaining surfaces in the second phase of sampling (as described below).

Since **all** of the contaminated soil brought into the Biofacility was stored in the North compost building, the floor of this building **would** have experienced the highest levels of contamination. During **composting**, the SCARAB window **turning** machine would have caused more dispersal of material inside the building than **just** depositing the material for storage. Since many more **windrows** were processed in the Middle and South building **than** in the North building, the walls and ceilings of the Middle **and** South **buildings** would have been impacted with compost and soil to a greater extent than the North building. Therefore the first phase of **sampling** will include sampling the floor **and** sump of the North building and the walls and ceiling of the South building (the **Middle building** has not yet been decontaminated).

- Phase one sampling will consist of the following:
- Eight wipe samples from the floor of the North building (one from each eighth floor section)
 - One wipe sample from the ceiling of the **South** building (from the center of the ceiling)
 - Three wipe samples on each of the two walls in the South building (one from each third **wall** section)

- Phase **two** sampling will consist of the following:
- **Four** wipe samples from the floor of the both the Middle and **South** buildings
 - One wipe sample from the ceiling of the **Middle** and North buildings
 - Two wipe samples from the walls of both the Middle and North buildings

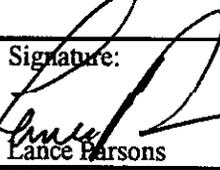
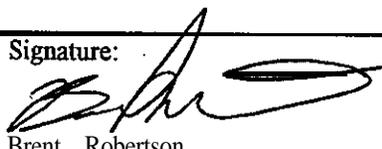
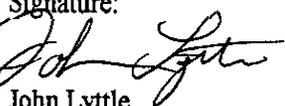
Wipe samples will be obtained from a random location within **each section unless biased toward an area with** surface **staining**.

Additional sampling (**unrelated** to phase) will be completed as follows:

- . One sample of the water from each compost building sump
- . one sample of the water from the **truck** wash bay sump
- . Two wipe samples from the on-site laboratory trailer (one floor and one counter top)
- . Two wipe samples from the floor of the shower trailer (gross **decon** area and shower **area**)

The retention ponds will be managed and sampled **on** an ongoing basis until decontamination procedures are completed.

All wipe samples will be analyzed for explosives (**HMX, RDX, and TNT** only) by method 8330. Water samples will be analyzed for NSW **Crane NPDES** discharge **parameters**. **Cleanup** goals are as follows: wipe samples will be non-detect; **water** from the **truck** wash sump, pond **water, and** building sump water will be direct surface discharge limits.

Approval by TolTest, Regional Manager	Signature:  Lance Parsons	Date: 4/5/02	Approval by OICC/NTR or RPM	Signature:  Brent Robertson	Date 6/24/02
Approval by TolTest QC/SHSO	Signature:  John Lytle	ate: 4/5/02	Approval by EPD ECOTR:	Signature  Christine Freeman	Date 5/15/02

Regulator Approval/Notification Recommended:

Yes No

See attached faxed signature

08-FCR-ES036 page 2

Additional sampling (unrelated to phase) will be completed as follows:

- One sample of the water from each compost building sump
- One sample of the water from the truck wash bay sump
- Two wipe samples from the on-site laboratory trailer (one floor and one counter top)
- Two wipe samples from the floor of the shower trailer (gross decon area and shower area)

The retention ponds will be managed and sampled on an ongoing basis until decontamination procedures are completed.

All wipe samples will be analyzed for explosives (HMX, RDX, and TNT only) by method 8330. Water samples will be analyzed for NSWC Crane NPDES discharge parameters. Cleanup goals are as follows: wipe samples will be non-detect; water from the truck wash sump, pond water, and building sump water will be direct surface discharge limits.

Approval by ToITest, Regional Manager	Signature: Lance Parsons	Date:	Approval by OICC/NTR or RPM	Signature: Brent Robertson	Date:
Approval by ToITest QC/SHSO	Signature: John Lytle	Date:	Approval by EPD ECOTR:	Signature Christine Freeman	Date

Regulator Approval/Notification Recommended:
Yes No

[Handwritten Signature] 4/12/2002

Crane Naval Surface Warfare Center
TolTest, Inc.

EJOC Contract N68950-96-D-0052

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC08 Subcontract No.: N/A FCR No.: FCO8-FCR-FS037 Rev. 0

Sampling Protocol for Determining the Presence of Contamination Outside the Biofacility Boundaries and Sampling of Sludge in the Middle Compost Building Page 1 of 1

Reference Documents:
Full-Scale Operational Plan Soils Bioremediation Facility (F-SOP), March 1998 Rev. 2
Quality Assurance Project Plan for Full-Scale Bioremediation Soils Bioremediation Facility (QAPP), March 1998 Rev. 2

Problem / Change Description:
Heavy rains experienced at the Biofacility have on several occasions filled the retention ponds to overflowing. To prevent erosion of the pond walls, pond water was released through the drainage pipe into the adjacent drainage ditch to lower the water level in the ponds. This action caused potential contamination of the drainage ditch from the pond water. Groundwater has also been potentially contaminated with pond water since several holes in both pond liners were discovered when the ponds were cleaned in early 2002. The sludge generated from pond and building sump cleaning activities has dried sufficiently in the Middle compost building to allow the sludge to be sampled and removed from the building.

Initiated by TolTest Env. Spec. Signature: Peter J. Chevalier Organization: TolTest, Inc. Date: 5/14/2002

Resolution:
To determine whether the drainage ditch adjacent to the retention ponds has been contaminated from the discharge of pond water, the soil within the ditch will be sampled and analyzed. Sampling will follow the methodology as described in the QAPP for pre-excavation grid sampling. The grid area will remain 400 square feet but grid dimensions will be 5' x 80' (instead of 20' x 20') so that sampling will be concentrated within the ditch. One grid will be placed at the outlet of Pond 2 (which is up-gradient of Pond 1) and go down-gradient, a second grid will be placed at the outlet of Pond 1 and go down-gradient, and a third will be placed adjacent to and down-gradient of the second grid. Analysis will only be for explosives since this was the only constituent of concern at the Biofacility.

Groundwater under the pond liners will be sampled through collection pipe (installed as a result of FCR-FS03 1) and analyzed for explosives only. A clean, disposable bailer will be inserted into the collection pipe to obtain the sample which will then be transferred into a sample bottle.

A composite sample of the sludge in the Middle compost building (a total of approximately 10 cubic yards) will be obtained and analyzed for explosives. If results meet residential cleanup goals, the sludge will be transported to Mine Fill B and used as top cover over previously placed compost or placed at the Permanent Placement Area. If the results meet industrial cleanup goals, the compost will be transported to MFB and buried at least two feet deep in an area previously excavated and backfilled with compost. If results exceed industrial cleanup goals, NSWC Crane will determine disposal options.

Approval by TolTest Regional Manager	Signature: Lance Parsons	Date: 5/14/02	Approval by OICC/NTR or RPM	Signature: Brent Robertson	Date: 6/24/02
Approval by TolTest QC/SHSO	Signature: John Lytle	Date: 5/14/02	Approval by EPD ECOTR:	Signature: Christine D Freeman	Date: 5/15/02

Regulator Approval/Notification Recommended:
Yes No

See attached faxed signature

ane Naval Surface Warfare Center	EJOC Contract N68950-96-D-0052
TolTest, Inc.	

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC08	Subcontract No.: N/A	FCR No.: FC08-FCR-FS037 Rev. 0
Sampling Protocol for Determining the Presence of Contamination Outside the Facility Boundaries and Sampling of Sludge in the Middle Compost Building		Page 1 of 1

Reference Documents:
 &Scale Operational Plan Soils Bioremediation Facility (FSOP), March 1998 Rev. 2
 Quality Assurance Project Plan for Full-Scale Bioremediation Soils Bioremediation Facility (QAPP), March 1998 Rev. 2

Problem / Change Description:
 Heavy rains experienced at the Biofacility have on occasion filled the retention ponds to overflowing. To prevent erosion of the pond walls, pond water was released through the drainage pipe into the adjacent drainage ditch to lower the water level in the ponds. This action caused potential contamination of the drainage ditch from the pond water. Groundwater has also been potentially contaminated with pond water since several holes in both pond liners were discovered when the ponds were cleaned in early 2002. The sludge generated from pond and building sump cleaning activities has dried sufficiently in the Middle compost building to allow the sludge to be sampled and removed from the building.

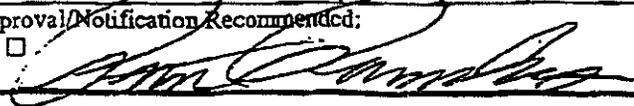
Initiated by TolTest Inv. Spec.	Signature: Peter J. Chevalier	Organization: TolTest, Inc.	Date: 5/14/2002
---------------------------------	----------------------------------	--------------------------------	--------------------

Resolution:
 To determine whether the drainage ditch adjacent to the retention ponds has been contaminated from the discharge of pond water, the soil within the ditch will be sampled and analyzed. Sampling will follow the methodology as described in the QAPP for pre-excavation grid sampling. The grid area will remain 400 square feet but grid dimensions will be 5' x 80' (instead of 20' x 20') so that sampling will be concentrated within the ditch. One grid will be placed at the outlet of Pond 2 (which is up-gradient of Pond 1) and go down-gradient, a second grid will be placed at the outlet of Pond 1 and go down-gradient, and a third will be placed adjacent to and down-gradient of the second grid. Analysis will only be for explosives since this was the only constituent of concern at the Biofacility.

Groundwater under the pond liners will be sampled through collection pipe (installed as a result of FCR-FS031) and analyzed for explosives only. A clean, disposable bailer will be inserted into the collection pipe to obtain the sample which will then be transferred into a sample bottle.

A composite sample of the sludge in the Middle compost building (a total of approximately 10 cubic yards) will be obtained and analyzed for explosives. If results meet residential cleanup goals, the sludge will be transported to Mine Fill B and used as top cover over previously placed compost or placed at the Permanent Placement Area. If the results meet industrial cleanup goals, the compost will be transported to MFB and buried at least two feet deep in an area previously excavated and backfilled with compost. If results exceed industrial cleanup goals, NSWC Crane will determine disposal options.

Approval by TolTest Regional Manager	Signature: Lance Parsons	Date:	Approval by OICC/NTR or RPM	Signature: Brent Robertson	Date:
Approval by TolTest QC/SHSO	Signature: John Lytle	Date:	Approval by EPD ECOTR:	Signature: Christine Freeman	Date:

Regulator Approval/Notification Recommended:
 Yes No  5/15/02

APPENDIX B

Analytical Results

Southwest Laboratory of Oklahoma, Inc.
 Laboratory Results Summary Report
 By Sample Point

Date: 05/02/2002
 Page: 1

Client: TOLTEST, INC.

Project: NSWC CRANE

Parameters	Units					
Sample Point->		BIO-M-SLUDGE				
Sample Date->		04/24/2002				
Matrix: SOIL		LAB#->	49504.01			
IC PARAMETERS						
MX	UG/KG	476	U			
DX	UG/KG	476	U			
NB	UG/KG	476	U			
NB	UG/KG	476	U			
ETRYL	UG/KG	476	U			
B	UG/KG	476	U			
NT	UG/KG	476	U			
ADNT	UG/KG	476	U			
ADNT	UG/KG	476	U			
GDNT	UG/KG	476	U			
ADNT	UG/KG	476	U			
NT	UG/KG	476	U			
NT	UG/KG	476	U			
NT	UG/KG	476	U			

ANALYZED BUT NOT DETECTED
 enclosure for additional qualifiers
 1. 0NNYYNMM

Southwest Laboratory of Oklahoma, Inc.
 Laboratory Results Summary Report
 By Sample Point

Date: 06/21/2002
 Page: 1

Client: TOLTEST, INC.

Project: 8417 Wipe

Sample Point->	BIO-S-W01	BIO-S-W02	BIO-S-W03	BIO-S-W04	BIO-S-W05	BIO-S-W06
Matrix: WATER						
Sample Date->	06/13/2002	06/13/2002	06/13/2002	06/13/2002	06/13/2002	06/13/2002
LAB#->	50022.01	50022.02	50022.03	50022.04	50022.05	50022.06
Parameters	Units					
GC PARAMETERS						
HMX	UG/L	1.00 U				
RDX	UG/L	1.00 U				
TNT	UG/L	1.00 U				

U: ANALYZED BUT NOT DETECTED
 See enclosure for additional qualifiers
 LMW1.0NNYNNN

Southwest Laboratory of Oklahoma, Inc.
 Laboratory Results Summary Report
 By Sample Point

Date: 06/21/2002
 Page: 2

Client: TOLTEST, INC.

Project: 8417 Wipe

Sample Point->	BIO-S-W07	BIO-N-W01	BIO-N-W02	BIO-N-W03	BIO-N-W04	BIO-N-W05	
Sample Date->	06/13/2002	06/13/2002	06/13/2002	06/13/2002	06/13/2002	06/13/2002	
Matrix: WATER	LAB#->	50022.07	50022.08	50022.09	50022.10	50022.11	50022.12
Parameters	Units						
HMX	UG/L	1.00 U	1.00 U				
RDX	UG/L	1.00 U	1.00 U				
TNT	UG/L	1.00 U	1.00 U				

U: ANALYZED BUT NOT DETECTED
 See enclosure for additional qualifiers
 LMW1.0NNYYNNN

Southwest Laboratory of Oklahoma, Inc.
 Laboratory Results Summary Report
 By Sample Point

Date: 06/21/2002
 Page: 3

Client: TOLTEST, INC.

Project: 8417 Wipe

Sample Point->	BIO-N-W06	BIO-N-W07	BIO-N-W08	BIO-W-TB		
Matrix: WATER	06/13/2002	06/13/2002	06/13/2002	06/13/2002		
Sample Date->						
LAB#->	50022.13	50022.14	50022.15	50022.16		
Parameters	Units					
HMX	UG/L	1.00 U	1.00 U	1.00 U	1.00 U	
RDX	UG/L	1.00 U	1.00 U	1.00 U	1.00 U	
TNT	UG/L	1.00 U	1.00 U	1.00 U	1.00 U	

U: ANALYZED BUT NOT DETECTED
 See enclosure for additional qualifiers
 LMW1.0NNYYNNN

See Labs

Project No.: <u>3732410</u>		Project/Location: <u>SWC Crane BioFacility</u>		Sampler's Name: <u>Peter J. Chevalier</u>		Total No. of Containers <u>5330</u>	Parameters				
PO. No.:		Project Mgr.:		Sampler's Signature: <u>[Signature]</u>			Preserved Yes/No	LAB USE ONLY			
Phone No.:		Sample I.D.		Date Sampled	Time Sampled	Type	Matrix	Sample Location	Lab #		
1	BIO-S-W01	6/13/02	0905	Wipe	Wipe	Sbldg	Swall End	1	-		
2	BIO-S-W02		0915			Sbldg	Swall Middle	1	-		
3	BIO-S-W03		0925			Sbldg	Swall West	1	-		
4	BIO-S-W04		0935			Sbldg	N wall West	1	-		
5	BIO-S-W05		0945			Sbldg	N wall Middle	1	-		
6	BIO-S-W06		1005			Sbldg	N wall End	1	-		
7	BIO-S-W07		0955			Sbldg	ceiling	1	-		
8	BIO-N-W01		1510			N bldg	Floor #1	1	-		
9	BIO-N-W02		1520			N bldg	Floor #2	1	-		
10	BIO-N-W03		1530			N bldg	Floor #3				
Relinquished By: <u>[Signature]</u>		Date / Time: <u>6/14/02 1800</u>		Received By: <u>[Signature]</u>		Date / Time: <u>6/14/02 08:15</u>		LAB USE ONLY			
Relinquished By:		Date / Time:		Received By:		Date / Time:		Were samples delivered <input type="checkbox"/> in person <input type="checkbox"/> by courier Were samples preserved <input type="checkbox"/> in field <input type="checkbox"/> in lab <input type="checkbox"/> N/A Temp of samples <u>5.8</u> °C Did samples arrive intact and sealed? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> N/A Were proper containers used? <input type="checkbox"/> yes <input type="checkbox"/> no Was container labeled properly for contents? <input type="checkbox"/> yes <input type="checkbox"/> no Were samples packaged properly for type of material? <input type="checkbox"/> yes <input type="checkbox"/> no Was shipping label completed properly per regulations? (49 CFR 170, etc.) <input type="checkbox"/> yes <input type="checkbox"/> no Comments: _____			
Relinquished By:		Date / Time:		Received By:		Date / Time:					
Relinquished By:		Date / Time:		Received By:		Date / Time:					

TAT

