

DEPARTMENT OF THE NAVY

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

N00164.AR.000776
NSWC CRANE
5090.3a

IN REPLY REFER TO:

5090/S4.7.2
Ser 095/2354

05 NOV 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 Third Quarter 2002 Quarterly Interim Progress Report (IPR) for July 1 through September 30, 2002 dated November 2002. Two copies of the report are provided as enclosure (1). This report serves as the last quarterly report for this phase of Full Scale Bioremediation Facility Operations. Further correspondence will follow if a new phase of operations is deemed necessary. 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

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

Encls:

- (1) IPR 3rd QUARTER 2002 (JUL - SEP 2002)
- (2) Certification Statement

Copy to:

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

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

**Full-Scale Operations
Soils Bioremediation Facility**

**Quarterly Interim Progress Report
3rd Quarter 2002
July 1 –September 30**

**Revision 0
November 2002**

TOLTEST, INC.

QUARTERLY INTERIM PROGRESS REPORT

3rd Quarter 2002

July 1 –September 30

Revision 0

November 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**

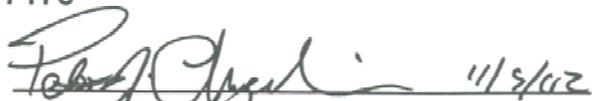
Submitted to:

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

Submitted by:

**TOLTEST, INC.
1915 NORTH 12TH STREET
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Prepared/Reviewed by:
Project Manager/Environmental Specialist


Peter J. Chevalier 11/9/02
Date

Reviewed/Approved by:
Regional Manager


Lance Parsons 11/8/02
Date

EXECUTIVE SUMMARY

This interim progress report has been prepared by TolTest, Inc. (TolTest) 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, TolTest assumed responsibility for the excavation and treatment of contaminated soil at the Biofacility. This report summarizes the work actions performed from July 1 through September 30, 2002 pursuant to the requirements of the approved *Full-Scale Operational Plan* and the *Quality 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 , Mine Fill B , and Rockeye 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 been completed and TolTest has turned over all of the Navy equipment, tools, job trailers, and keys to the Navy.

TABLE OF CONTENTS

	<u>Page No.</u>
EXECUTIVE SUMMARY	E1
1.0 INTRODUCTION	1
2.0 EXCAVATION SITE ACTIVITIES	2
2.1 <u>Pre-Excavation Soil Sampling</u>	2
2.2 <u>In-Process Excavation Soil Sampling</u>	2
2.3 <u>Post-Excavation Soil Sampling</u>	2
2.4 <u>Soil Excavation and Screening</u>	2
3.0 BIOFACILITY OPERATIONS	3
3.1 <u>Facility Closure Sampling</u>	3
3.1.1 <i>Retention Pond Maintenance</i>	3
3.1.2 <i>Building Sump Sampling</i>	3
3.1.3 <i>Wipe Sampling</i>	4
3.2 <u>Confirmation Sampling</u>	5
3.2.1 <i>Groundwater Sampling</i>	6
3.2.2 <i>Drainage Ditch Sampling</i>	6
3.2.3 <i>Decontamination Approval</i>	6
4.0 ANALYTICAL DATA INTERPRETATION AND VALIDATION	7
5.0 DISPOSITION OF TREATED SOIL AND SITE RESTORATION	8
6.0 STATUS OF VARIOUS REPORTS	9
7.0 QUALITY CONTROL	10
8.0 SAFETY AND INDUSTRIAL HYGIENE	11
8.1 <u>General Safety</u>	11
8.2 <u>Industrial Hygiene Sampling</u>	11
9.0 FACILITY MAINTENANCE AND REPAIRS	12
10.0 REFERENCES	13
TABLE 1 Wipe Sample Locations	5

APPENDIX A

Biofacility Decontamination Closure Sampling: Tabulation, Summary, and Data Sheets

APPENDIX B

Field Clarification Requests

- 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 C

U.S. EPA No Further Action Required for Bioremediation Facility Decontamination

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 July 1 through September 30, 2002 pursuant to the requirements of the approved *Full-Scale Operational Plan* (FSOP) [MK, 1998a] and the *Quality 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.

Decontamination of the Biofacility has been completed and TolTest has turned over all of the Navy equipment, tools, job trailers, and facility keys to the Navy. This is therefore the last IPR to be generated by TolTest for work associated with the Biofacility.

2.0 EXCAVATION SITE ACTIVITIES

Work activities at the excavation site included in-process sampling and screening, pre and post-excavation sampling, soil excavation, soil screening, and vegetation establishment. Fieldwork activities were 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. A description of the composting operation is provided in Section 5.0 of the approved *FSOP* [MK, 1998a]. All windrow composting operations at the Biofacility are complete and all contaminated soil has been processed prior to this reporting period.

3.1 Facility Closure Sampling

Samples associated with closure of the Biofacility obtained in this reporting period are discussed in the following sections. Previous sampling events associated with closure of the facility are discussed in the 2nd Quarter, 2002, Quarterly IPR (TT, 2002). Tabulated and summarized results of all facility closure sampling events are provided in Appendix A along with the laboratory data sheets.

3.1.1 Retention Pond Maintenance

Retention pond monitoring and water control was an ongoing maintenance item at the Biofacility through the end of this reporting period. The ponds were cleaned by pumping groundwater from underneath the liner into the ponds and then pumping the water into the sewer system. A sample was obtained from each pond following cleaning and analyzed for NSWC Crane discharge parameters. Results of the analysis indicated that all parameters met surface discharge limits except CBOD5. Additional samples were collected on September 16, 2002 and taken to the NSWC Crane Sewage Treatment Plant Lab for CBOD5 analysis. The results of these samples were under the surface discharge limits. Consequently, the discharge valves on both ponds were opened on September 30, 2002.

3.1.2 Building Sump Sampling

Samples from the Middle and South compost building sumps were obtained after the buildings and sumps were cleaned with a high-pressure water sprayer (power washer). Approximately 500 gallons of potable water were drained across the floor of each building and allowed to collect in the building sump. A sample of the water was then collected from the sump and analyzed for discharge parameters. Results indicate that all parameters met surface discharge limits except CBOD, which exceeded the surface discharge limit but was below the sewer discharge limit.

In the event of an overflow, the water in the building sumps, which exceeds surface discharge limits, would drain into the retention ponds. The relatively small amount of sump water would mix with and be diluted by the large amount of retention pond water. Since the retention pond water has been shown to meet surface discharge limits, it is of no consequence that the sump water exceeds surface discharge limits.

A sample of the truck decontamination facility sump was obtained after the sump was cleaned and 500 gallons of potable water were emptied into it. Results indicate that all parameters met surface discharge limits.

3.1.3 Wipe Sampling

On July 7th, 18 wipe samples were obtained in accordance with Phase two of FCR-FS036 (see Appendix B) to determine the effectiveness of the decontamination process on the compost buildings. The floor of the South compost building, the walls and ceiling of the North compost building, and the floor, walls, and ceiling of the Middle compost building were sampled and analyzed for explosives. Results indicated that explosives were detected in two wall samples from the North compost building and one floor sample from the South compost building.

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 or M) identifies the building; W indicates a wipe sample; and XX is the sample number for a particular building.

On July 22, 2002, two wipe samples were obtained from the shower trailer and two from the laboratory trailer. One shower trailer sample was obtained in the gross decontamination area at the south end of the trailer and the other from the shower stall area in the middle of the trailer. The laboratory trailer samples were obtained from the floor and counter top. All samples were analyzed for explosive compounds and all samples were non-detect.

TABLE 1		
WIPE SAMPLE LOCATIONS		
Sample #	Between Columns	Sample Location
South Building		
08	4 & 5	Southeast floor
09	3 & 4	Northeast floor
10	8 & 9	Southwest floor
11	12 & 13	Northwest floor
North Building		
09	2 & 3	Southeast wall, top section
10	12 & 13	Southwest wall, bottom section
11	3 & 4	Northeast wall, middle section
12	10 & 11	Northwest wall, middle section
13	7 & 8	Ceiling
Middle Building		
01	5 & 6	Southeast floor
02	1 & 2	Northeast floor
03	9 & 10	Southwest floor
04	12 & 13	Northwest floor
05	6 & 7	Southeast wall, middle section
06	11 & 12	Southwest wall, bottom section
07	2 & 3	Northeast wall, middle section
08	9 & 10	Northwest wall, top section
09	4 & 5	ceiling

3.2 Confirmation Sampling

The potential for contamination outside the boundaries of the Biofacility existed due to the release of potentially contaminated water from the facility. The retention ponds had overflowed and the pond discharge valves were intentionally opened on several occasions, causing potential contamination of the adjacent drainage ditch. Several holes and rips had been identified in the pond liners potentially allowing pond water to contaminate the groundwater. To determine whether contamination existed, the groundwater underneath the pond liners and the adjacent drainage ditch was sampled and analyzed in accordance with FCR-FS037 (Appendix B).

3.2.1 Groundwater Sampling

Groundwater samples were obtained from beneath both retention pond liners on August 8, 2002 and analyzed for explosive compounds. Results indicate that all results were non-detect.

3.2.2 Drainage Ditch Sampling

Sampling of the soil in the three drainage ditch grids was accomplished on August 13, 2002. Results indicate that all results were non-detect for explosive compounds.

3.2.3 Decontamination Approval

In an email dated 8/26/2002, Peter Ramanauskas of U.S. EPA Region V informed Christine Freeman of EPD that no further decontamination action was necessary at the Biofacility. This email is included in Appendix C.

4.0 ANALYTICAL DATA INTERPRETATION AND VALIDATION

All data associated with the sampling events identified in section 3.0 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, MS and MSD samples were acceptable in the sample batches analyzed during this reporting period. The LCS/LCSD results were acceptable for most analytical batches. The LCS/LCSD samples associated with the decontamination sump sample collected on July 22, 2002 had slightly high recoveries for two of the explosive analytes. The LCS sample had high percent recoveries for Tetryl and TNT, and the LCSD sample had a high recovery for TNT. The MS/MSD samples were not analyzed with this data set. The decontamination sump sample results were non-detect for the explosive analytes. The possible effect on the sample results for TNT would be potential high bias or false positives, and if TNT was actually present in the sample the analyte would have been detected. The raw data indicated no other analytical anomalies associated with the data and the other method quality control analyses were within specified limits, hence the data was accepted for this sample. 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. Site restoration (seeding, mulching, and watering) at MFB was continued 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

During this quarterly reporting period, U.S. EPA Region V personnel approved the RKI IMR and RKI Toxicity Test Report. The MFB IMR was submitted for U.S. EPA review and approval. Response to comment and replacement pages for the MFA Addendum #1 were submitted to the U.S. EPA. Comments were received from U.S. EPA and response to comments and replacement pages were submitted to the U.S. EPA for the Supplemental Toxicity Test Report for MFA and MFB. Finally, the 2nd Quarter 2002 QIPR was submitted to U.S. EPA, comments received from U.S. EPA, and response to comments and replacement page were submitted by the Navy to 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 196 hours. There were no OSHA recordable injuries. The project has a cumulative total of 72,978 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:

- The boots were installed around the groundwater extraction pipes in both retention ponds and the pond liner rips were repaired.
- The last five-gallon container of waste acetone (from field test kit usage) was brought to Ammunition Burning Ground for disposal.

10.0 REFERENCES

- MK, 1998a. *Full-Scale Operational Plan for 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.
- 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.
- TT, 2002. *Full-Scale Operations, Soil Bioremediation Facility, Quarterly Interim Progress Report, 2nd Quarter 2002*. ToITest Inc, Revision 0, August 2002.

APPENDIX A
Biofacility Decontamination Closure Sampling:
Tabulation, Summary, and Data Sheets

BIOFACILITY DECONTAMINATION CLOSURE SAMPLING

SUMMARY OF ANALYSIS

Water Samples

Compost Building Sump Samples

All three samples exceeded the surface discharge limit for CBOD (but met the sewage treatment plant limit).

HMX and RDX were detected at very low levels in the North building sample.

All other criteria met surface discharge limits in all three samples

Decontamination Sump Sample

Met the surface discharge limits for all criteria.

Retention Ponds

Both samples exceeded the surface discharge limit for CBOD (but met the sewage treatment plant limit). Subsequent re-analysis after a rain event indicated that both ponds met the surface discharge limit for CBOD. All other criteria met surface discharge limits.

Groundwater Samples

No explosives were detected in either sample.

Wipe Samples (analyzed for HMX, RDX, and TNT only)

North Compost Building

HMX was detected in one sample from the North wall and one sample from the South wall.

Middle Compost Building

All samples were non-detect.

South Compost Building

RDX was detected at a very low level in one floor sample. All other samples were non-detect.

Shower Trailer and Lab Trailer

All samples were non-detect.

Middle Building Sludge Sample

Non-detect for all 14 explosive compounds.

Drainage Ditch Samples

All samples non-detect for all 14 explosive compounds.

BIOFACILITY DECONTAMINATION CLOSURE SAMPLING

WATER SAMPLE ANALYSIS (all results in mg/l)

	Discharge Limits		Building Sump Samples				Retention Ponds		Groundwater	
	STP	Direct	North	Middle	South	Decon	Pond 1	Pond 2	Pond 1	Pond 2
HMX	2.0 total of all 3	BDL	0.000342 PJ	ND	ND	ND	ND	ND	ND	ND
RDX			0.00194 P	ND	ND	ND	ND	ND	ND	ND
TNT			ND	ND	ND	ND	ND	ND	ND	ND
Nitrate	90	No standard	0.24	0.24	0.4	ND	ND	ND		
CBOD	75	15	26.4	25.8	23.9	ND	3.03	4.98		
TSS	500	15	4	ND	ND	ND	ND	6		
Ammonia (May1-Nov30)	69.8	3	ND	ND	ND	ND	ND	1.1		
Ammonia (Dec.1-Apr30)	139.6	6	na	na	na	na	na	na		
Oil & Grease	15	No sheen	ND	ND	ND	nd	2.9	2.9		
Cadmium	0.0321	0.003	ND	ND	ND	ND	ND	ND		
Chromium	8.59	0.59	0.0017	ND	ND	0.00083	ND	0.0013		
Copper	0.201	0.02	0.0014	0.0071	ND	0.0095	ND	ND		
Lead	0.151	0.012	ND	ND	ND	ND	ND	0.0054		
Nickel	2.34	0.164	ND	ND	ND	ND	ND	ND		
Zinc	4.26	0.308	0.0252	0.0603	0.047	0.0364	ND	0.265		
Silver	0.134	0.01	ND	ND	ND	ND	ND	ND		
Mercury	0.0011	0.0001	ND	ND	ND	ND	ND	ND		
Cyanide	0.109	0.009	0.0027	0.0065	0.0037	ND	0.0022	0.004		

STP- sewage treatment plant

Direct - direct surface discharge

Decon - truck decontamination facility sump

CBOD - carbonaceous biological oxygen demand

TSS - total suspended solids

BDL - below detection limit

ND - non-detect

na - not applicable

J - Indicates an estimated value. The mass spectral data indicate the presence of the compound that meets the identification criteria. However, the result is less than the sample quantitation limit but greater than zero.

P - Indicates a difference in quantitation of greater than 25% between primary and secondary columns.

BIOFACILITY DECONTAMINATION CLOSURE SAMPLING

WIPE SAMPLE ANALYSIS (all results in ug/wipe)

North Building													
	Floor, South Side				Floor, North Side				North Wall		South Wall		Ceiling
	East	East Middle	West Middle	West	East	East Middle	West Middle	West	East	West	East	West	
HMX	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.58 P	ND	1.47 P	ND
RDX	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TNT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Middle Building									
	Floor, South Side		Floor, North Side		South Wall		North Wall		Ceiling
	East	West	East	West	East	West	East	West	
HMX	ND	ND	ND	ND	ND	ND	ND	ND	ND
RDX	ND	ND	ND	ND	ND	ND	ND	ND	ND
TNT	ND	ND	ND	ND	ND	ND	ND	ND	ND

South Building											
	Floor, South Side		Floor, North Side		South Wall			North Wall			Ceiling
	East	West	East	West	East	Middle	West	East	Middle	West	
HMX	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RDX	ND	ND	ND	0.4 J	ND	ND	ND	ND	ND	ND	ND
TNT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

	Shower Trailer		Lab Trailer	
	Gross Decon	Shower Area	Floor	Counter Top
HMX	ND	ND	ND	ND
RDX	ND	ND	ND	ND
TNT	ND	ND	ND	ND

J - Indicates an estimated value. The mass spectral data indicate the presence of the compound that meets the identification criteria. However, the result is less than the sample quantitation limit but greater than zero.

P - Indicates a difference in quantitation of greater than 25% between primary and secondary columns.

ND - non-detect

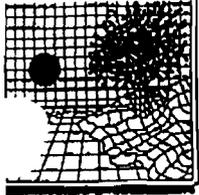
JUL-11-02

03:02PM FROM: TolTest Inc.

+419-321-6259

T-161 P.002/007

F-971



SOUTHWEST LABORATORY OF OKLAHOMA, INC.
 1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599
LABORATORY RESULTS

LAB ID : 50020.01
 SAMPLE : WWC-001
 LOG : 50020
 MATRIX : W

REPORTED : 06/24/02
 SAMPLED : 06/13/02
 SUBMITTED: 06/14/02

PARAMETER	REPORTING		RESULTS	DATE/TIME ANALYZED	ANALYST	METHOD REFERENCE
	LIMIT**	UNITS				
AMMONIA (N)	1.0	mg/l	ND	06-19-02 10:45	SB	EPA 350.2
CARB. BOD	15.0	mg/l	26.4	06-14-02 11:56	KAL	SM 5210B
OIL AND GREASE	2.0	mg/l	ND	06-21-02 13:25	SB	EPA 1664
TOTAL SUSPENDED SOLIDS	4.0	mg/l	4.0	06-18-02 09:25	SB	SM 2540D/EPA 160.2
NITRATE	0.10	mg/l	0.24	06-14-02 16:24	DT	EPA300

AS RECEIVED* = RESULTS REPORTED AS RECEIVED
 ND = NOT DETECTED ABOVE QUANTITATION LIMIT
 SUR = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
 NA = NOT APPLICABLE
 METHODOLOGY: SM = STANDARD METHODS, 19TH EDITION, 1995
 A = #EPA600/4-79-020, MARCH 1985
 SW = SW 846 Rev. 4 1996

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

WWC-001

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50020

Matrix: (soil/water) WATER Lab Sample ID: 50020.01

Sample Amt: 770 ML % Moisture: _____ Date Received: 06/14/02

Extraction Volume: 10 ML Date Extracted: 06/17/02

Extraction Method: SHAKER Date Analyzed: 06/19/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/L	Q
2691-41-0	-----HMX	0.342		PJ
121-82-4	-----RDX	1.94		P
99-35-4	-----TNB	0.650		U
99-65-0	-----DNB	0.650		U
479-45-8	-----TETRYL	0.650		U
98-95-3	-----NB	0.650		U
118-96-7	-----TNT	0.650		U
1946-51-0	-----4ADNT	0.650		U
35572-78-2	-----2ADNT	0.650		U
606-20-2	-----26DNT	0.650		U
121-14-2	-----24DNT	0.650		U
88-72-2	-----2NT	0.650		U
99-99-0	-----4NT	0.650		U
99-08-1	-----3NT	0.650		U
	3,4-DNT surrogate spiked	10.39		



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Sent From: Corporate Plymouth Pittsburgh Other

BIO-482

Chain of Cust Record

37130

Page 1 of 1

Project No.: 37324.01		Client:															
P.O. No.:		Project/Location: NSWC Crane Biofacility															
Project Mgr.:		Sampler's Name: Peter J. Chavalier															
Phone No.:		Sampler's Signature: [Signature]															
Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters				Lab #					
1	WWC-001	6/17/02	1530	G	liquid	building N sump	8	TSS 160.2	Nitrate 300.0	CR600 405.1	ODG 413.1	Amm. 350.2	EXP. 6330	Metals	Cyanide gully	Preserved Yes/No	LAB USE ONLY
2																	
3																	
4																	
5						metals: Cd, Cr, Cu, Pb, Ni,											
6						Zn, Ag, Hg											
7																	
8																	
9																	
10																	
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	LAB USE ONLY												
	[Signature]	6/17/02 1530			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					°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										
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	Comments:												

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
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
Matrix: WATER						
Parameters	Units					
GC PARAMETERS						
HMX	UG/L	1.00 U				
RDX	UG/L	1.00 U				
TNT	UG/L	1.00 U				

: ANALYZED BUT NOT DETECTED
 See enclosure for additional qualifiers
 MW1.08VYV888

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
LAB#->	50022.07	50022.08	50022.09	50022.10	50022.11	50022.12
Matrix: WATER						
Parameters	Units					
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
 L#W1.ONNYNNN

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		
Sample Date-->	06/13/2002	06/13/2002	06/13/2002	06/13/2002		
LAB#-->	50022.13	50022.14	50022.15	50022.16		
Matrix: WATER						
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
 LMM1.ONNYYNNN



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 Sent From: Corporate Plymouth Pittsburgh Other

Project No.: 37324.01 Client: _____
 Project/Location: NSWC Crane Biofacility
 Project Mgr.: _____ Sampler's Name: Peter J. Chevalier
 Phone No.: _____ Sampler's Signature: [Signature]

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters												
								1	2	3	4	5	6	7	8	9	10	11	12	
1	B10-S-W01	6/13/02	0905	Wipe	Wipe	S bldg Small End	1	-												
2	B10-S-W02		0915			S bldg Small Middle	1	-												
3	B10-S-W03		0925			S bldg Small West	1	-												
4	B10-S-W04		0935			S bldg N wall West	1	-												
5	B10-S-W05		0945			S bldg N wall Middle	1	-												
6	B10-S-W06		1005			S bldg N wall End	1	-												
7	B10-S-W07		0955			S bldg ceiling	1	-												
8	B10-N-W01		1510			N bldg Floor #1	1	-												
9	B10-N-W02		1520			N bldg Floor #2	1	-												
10	B10-N-W03		1530			N bldg Floor #3														

Relinquished By:	Date / Time	Received By:	Date / Time	LAB USE ONLY
<u>[Signature]</u>	6/13/02 18:00	<u>[Signature]</u>	6/14/02 08:15	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: _____ TAT _____
Relinquished By:	Date / Time	Received By:	Date / Time	
Relinquished By:	Date / Time	Received By:	Date / Time	



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 Sent From: Corporate Plymouth Pittsburgh Other

310-483

Project No.: 37324.01		Client:							
Project/Location: NSWC Crane Bldg Facility		Sampler's Name: Peter J. Chevalier							
Sampler's Signature: [Signature]		Total No. of Containers: 8330							
Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Parameters	Preserved Yes/No	LAB USE ONLY	Lab #
B10-N-W04	6/13/02	1540	Wipe	Wipe	N Bldg Floor #4				
B10-N-W05		1550			N Bldg Floor #5				
B10-N-W06		1600			N Bldg Floor #6				
B10-N-W07		1610			N Bldg Floor #7				
B10-N-W08		1620			N Bldg Floor #8				
B10-W-T13		1650			trip blank				
8330: HMX, RDX, & TNT only									
Relinquished By: [Signature]		Date / Time: 6/13/02 1800		Received By: [Signature]		Date / Time: 6/14/02 08:15		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	
Relinquished By:		Date / Time:		Received By:		Date / Time:		Comments: _____	
Relinquished By:		Date / Time:		Received By:		Date / Time:		TAT	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BOI-S-W08

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.01

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/15/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BOI-S-W09

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.02

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/15/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0	-----HMX	1.00	U
121-82-4	-----RDX	1.00	U
118-96-7	-----TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BOI-S-W10

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.03

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/15/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0	HMX	1.00	U
121-82-4	RDX	1.00	U
118-96-7	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BOI-S-W11

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.04

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/15/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0	-----HMX	1.00	U
121-82-4	-----RDX	0.400	J
118-96-7	-----TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BOI-N-W09

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.05

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/15/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/WIPE Q
2691-41-0	HMX	1.00	U
121-82-4	RDX	1.00	U
118-96-7	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BOI-N-W10

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.06

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/15/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0	HMX	1.47	P
121-82-4	RDX	1.00	U
118-96-7	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BOI-N-W11

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.07

Sample Amt: 1 WIPE & Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/15/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/WIPE Q
2691-41-0	-----HMX	1.00	U
121-82-4	-----RDX	1.00	U
118-96-7	-----TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-N-W12

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.08

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0	HMX	3.58	P
121-82-4	RDX	1.00	U
118-96-7	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-N-W13

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.09

Sample Amt: 1 WIPE & Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/WIPE Q
2691-41-0	EMX	1.00	U
121-82-4	RDX	1.00	U
118-96-7	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W01

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.10

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS: UG/WIPE Q

2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
3,4-DNT surrogate	spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W02

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.11

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W03

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.12

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDY	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W04

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.13

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/WIPE Q
2691-41-0	-----HMX	1.00	U
121-82-4	-----RDX	1.00	U
118-96-7	-----TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W05

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.14

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0	HMX	1.00	U
121-82-4	RDX	1.00	U
118-96-7	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W06

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.15

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W07

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.16

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W08

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.17

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-M-W09

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.18

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-W-TB071002

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50253

Matrix: (soil/water) WIPE Lab Sample ID: 50253.19

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 20 ML Date Extracted: 07/12/02

Extraction Method: SONC Date Analyzed: 07/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0	-----HMX	1.00	U
121-82-4	-----RDX	1.00	U
118-96-7	-----TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	



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 Sent From: Corporate Plymouth Pittsburgh Other

BIO-425

Sw Labs

Project No.: 37826.02		Client:		Parameters													
P.O. No.:		Project/Location: N5WC Crano Biofacility		Total No. of Containers: 8330 (HMX ROX, TNT, etc.)													
Project Mgr.:		Sampler's Name: Peter J. Chavaler		Preserved Yes/No													
Phone No.:		Sampler's Signature: [Signature]		LAB USE ONLY													
Item No.	Sample ID.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters									
1	BIO-SW08	7/10/02	0935	G	wipe	S bldg SE floor	1										
2	BIO-S-W09		0939			NE floor	1										
3	BIO-S-W10		0943			SW floor	1										
4	BIO-S-W11		0947			NW floor	1										
5	BIO-N-W09		1031			N bldg SE wall	1										
6	BIO-N-W10		1035			SW wall	1										
7	BIO-N-W11		1039			NE wall	1										
8	BIO-N-W12		1044			NW wall	1										
9	BIO-N-W13		1049			ceiling	1										
10	BIO-M-W01		0915			M bldg SE floor	1										
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	LAB USE ONLY												
	[Signature]	7/10/02 1720			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 _____ °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: _____												
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time													
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time													
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time													



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 Sent From: Corporate Plymouth Pittsburgh Other

Chain of Cust Record

37136 Page 2 of 2

Sw Labs

B/W-485

Project No.: 37826.02		Client:		Project/Location: Nswr (C. v. P) Bioreactivity		Parameters	
P.O. No.:		Project Mgr.:		Sampler's Name: Peter J. Chevillier		Total No. of Containers	
Phone No.:		Sampler's Signature: [Signature]		Sample Location		Preserved Yes/No	
LAB USE ONLY		LAB USE ONLY		LAB USE ONLY		LAB USE ONLY	
Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Lab #
1	B/W-M-W02	7/10/02	0919	G	wipe	M bldg NE floor	
2	B/W-M-W03		0923			SW floor	
3	B/W-M-W04		0927			NW floor	
4	B/W-M-W05		1002			SE wall	
5	B/W-M-W06		1007			SW wall	
6	B/W-M-W07		1013			NE wall	
7	B/W-M-W08		1016			NW wall	
8	B/W-M-W09		1020			ceiling	
9	B/W-W-TB071002		0910			trip blank	
10							

Item No.	Relinquished By: [Signature]	Date / Time: 7/10/02 1730	Received By:	Date / Time:	LAB USE ONLY		
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Were samples delivered	<input type="checkbox"/> in person	<input type="checkbox"/> by courier
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Were samples preserved	<input type="checkbox"/> in field	<input type="checkbox"/> in lab <input type="checkbox"/> N/A
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Temp of samples	_____ °C	
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Did samples arrive intact and sealed?	<input type="checkbox"/> yes	<input type="checkbox"/> no <input type="checkbox"/> N/A
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Were proper containers used?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Was container labeled properly for contents?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Were samples packaged properly for type of material?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Was shipping label completed properly per regulations? (49 CFR 170, etc.)	<input type="checkbox"/> yes	<input type="checkbox"/> no
Item No.	Relinquished By:	Date / Time:	Received By:	Date / Time:	Comments:	TAT	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

WWC-002

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50252

Matrix: (soil/water) WATER Lab Sample ID: 50252.01

Sample Amt: 770 ML % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 10 ML Date Extracted: 07/15/02

Extraction Method: SHAKER Date Analyzed: 07/17/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/L	Q
2691-41-0	HMX	0.650		U
121-82-4	RDX	0.650		U
99-35-4	TNB	0.650		U
99-65-0	DNB	0.650		U
479-45-8	TETRYL	0.650		U
98-95-3	NB	0.650		U
118-96-7	TNT	0.650		U
1946-51-0	4ADNT	0.650		U
35572-78-2	2ADNT	0.650		U
606-20-2	26DNT	0.650		U
121-14-2	24DNT	0.650		U
88-72-2	2NT	0.650		U
99-99-0	4NT	0.650		U
99-08-1	3NT	0.650		U
	3,4-DNT surrogate spiked	10.39		

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

WWC-003

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50252

Matrix: (soil/water) WATER Lab Sample ID: 50252.02

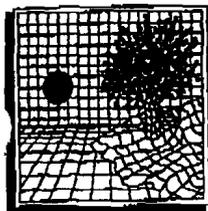
Sample Amt: 770 ML % Moisture: _____ Date Received: 07/11/02

Extraction Volume: 10 ML Date Extracted: 07/15/02

Extraction Method: SHAKER Date Analyzed: 07/17/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/L	Q
2691-41-0	-----HMX	0.650		U
121-82-4	-----RDX	0.650		U
99-35-4	-----TNB	0.650		U
99-65-0	-----DNB	0.650		U
479-45-8	-----TETRYL	0.650		U
98-95-3	-----NB	0.650		U
118-96-7	-----TNT	0.650		U
1946-51-0	-----4ADNT	0.650		U
35572-78-2	-----2ADNT	0.650		U
606-20-2	-----26DNT	0.650		U
121-14-2	-----24DNT	0.650		U
88-72-2	-----2NT	0.650		U
99-99-0	-----4NT	0.650		U
99-08-1	-----3NT	0.650		U
3,4-DNT surrogate spiked		10.39		



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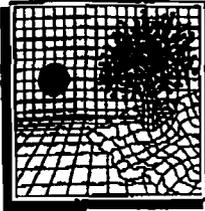
LABORATORY RESULTS

LAB ID : 50252.01
 SAMPLE : WWC-002
 SDG : 50252
 MATRIX : W

REPORTED : 07/16/02
 SAMPLED : 07/10/02
 SUBMITTED: 07/11/02

PARAMETER	REPORTING		RESULTS	DATE/TIME		METHOD	
	LIMIT**	UNITS		ANALYZED	ANALYST	REFERENCE	
AMMONIA (N)	1.0	mg/l	ND	07-15-02	10:45	SB	EPA350.2
Carb. BOD	15.0	mg/l	25.8	07-11-02	13:13	KAL	EPA405.1/SM5210B
O&G-Hex	2.0	mg/l	ND	07-12-02	09:35	SB	EPA1664 "
TOTAL SUSPENDED SOLIDS	4.0	mg/l	ND	07-11-02	14:20	SB	SM2540D/EPA160.2
NITRATE	0.10	mg/l	0.24	07-12-02	09:53	DT	EPA300

COMPOUND* = RESULTS REPORTED AS RECEIVED
 ND = NOT DETECTED ABOVE QUANTITATION LIMIT
 * = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
 N/A = NOT APPLICABLE
 METHODOLOGY: SM = STANDARD METHODS, 19TH EDITION, 1995
 EPA = #EPA600/4-79-020, MARCH 1985
 SW = SW 846 Rev. 4 1996



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LABORATORY RESULTS

LAB ID : 50252.02
 SAMPLE : WWC-003
 SDG : 50252
 MATRIX : W

REPORTED : 07/16/02
 SAMPLED : 07/10/02
 SUBMITTED: 07/11/02

PARAMETER	REPORTING		RESULTS	DATE/TIME		METHOD	
	LIMIT**	UNITS		ANALYZED	ANALYST	REFERENCE	
AMMONIA (N)	1.0	mg/l	ND	07-15-02	10:45	SB	EPA350.2
Carb. BOD	15.0	mg/l	23.9	07-11-02	13:13	KAL	EPA405.1/SM5210B
O&G-Hex	2.0	mg/l	ND	07-12-02	09:35	SB	EPA1664
TOTAL SUSPENDED SOLIDS	4.0	mg/l	ND	07-11-02	14:20	SB	SM2540D/EPA160.2
NITRATE	0.10	mg/l	0.40	07-12-02	10:09	DT	EPA300

COMPOUND* = RESULTS REPORTED AS RECEIVED

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

N/A = NOT APPLICABLE

METHODOLOGY: SM = STANDARD METHODS, 19TH EDITION, 1995

EPA = #EPA600/4-79-020, MARCH 1985

SW = SW 846 Rev. 4 1996



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 Sent From: Corporate Plymouth Pittsburgh Other

Chain of Cust Record

37137 Page 1 of 1

SW Labs

BN - 486

Project No.: 37826-02		Client:																	
P.O. No.:		Project/Location: NSWC Crane Biofacility																	
Project Mgr.:		Sampler's Name: Peter S. Chumley																	
Phone No.:		Sampler's Signature: [Signature]																	
Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters							Lab #				
1	WWC-052	7/1/02	1320	G	liquid	Bldg M sump	8	11.2 TSS	3200 Nit.	4051 CBOD	4131 OJsh	3512 Amm.	8330 i.r.p.	6000/1210	4000 Cyn.	Preserved Yes/No	LAB USE ONLY		
2	WWC-053	7/1/02	1330	G	liquid	Bldg S sump	8												
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
Item No.	Relinquished By: [Signature]		Date / Time: 7/1/02 1730	Received By:		Date / Time:	LAB USE ONLY												
Item No.	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 _____ °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: _____												
Item No.	Relinquished By:		Date / Time:	Received By:		Date / Time:													
Item No.	Relinquished By:		Date / Time:	Received By:		Date / Time:													

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-ST-W01

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50336

Matrix: (soil/water) WIPE Lab Sample ID: 50336.01

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/23/02

Extraction Volume: 20 ML Date Extracted: 07/23/02

Extraction Method: SONC Date Analyzed: 07/25/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0	-----HMX	1.00	U
121-82-4	-----RDX	1.00	U
118-96-7	-----TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-ST-W02

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50336

Matrix: (soil/water) WIPE Lab Sample ID: 50336.02

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/23/02

Extraction Volume: 20 ML Date Extracted: 07/23/02

Extraction Method: SONC Date Analyzed: 07/25/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/WIPE Q
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDY	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-LT-W01

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50336

Matrix: (soil/water) WIPE Lab Sample ID: 50336.03

Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/23/02

Extraction Volume: 20 ML Date Extracted: 07/23/02

Extraction Method: SONC Date Analyzed: 07/25/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-LT-W02

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50336

Matrix: (soil/water) WIPE Lab Sample ID: 50336.04

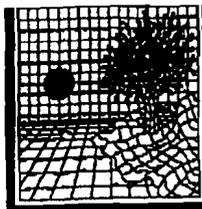
Sample Amt: 1 WIPE % Moisture: _____ Date Received: 07/23/02

Extraction Volume: 20 ML Date Extracted: 07/23/02

Extraction Method: SONC Date Analyzed: 07/25/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/WIPE Q	
2691-41-0-----	HMX	1.00	U
121-82-4-----	RDX	1.00	U
118-96-7-----	TNT	1.00	U
	3,4-DNT surrogate spiked	16.00	



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LABORATORY RESULTS

LAB ID : 50337.01
 SAMPLE : WWC-004
 SDG : 50337
 MATRIX : W

REPORTED : 08/01/02
 SAMPLED : 07/22/02
 SUBMITTED: 07/23/02

PARAMETER	REPORTING		RESULTS	DATE/TIME		METHOD	
	LIMIT	UNITS		ANALYZED	ANALYST	REFERENCE	
AMMONIA (N)	1.0	mg/l	ND	07-31-02	13:25	SB	EPA350.2
Carb. BOD	4.0	mg/l	ND	07-24-02	08:10	KAL	EPA405.1/SM5210B
O&G-Hex	2.0	mg/l	ND	07-29-02	13:20	SB	EPA1664
TOTAL SUSPENDED SOLIDS	4.0	mg/l	ND	07-29-02	10:30	SB	SM2540D/EPA160.2
NITRATE	0.10	mg/l	ND	07-24-02	11:01	DT	EPA300.0/SW9056

COMPOUND* = RESULTS REPORTED AS RECEIVED

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

N/A = NOT APPLICABLE

METHODOLOGY: SM = STANDARD METHODS, 19TH EDITION, 1995

EPA = #EPA600/4-79-020, MARCH 1985

SW = SW 846 Rev. 4 1996

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

WWC-004

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50337

Matrix: (soil/water) WATER Lab Sample ID: 50337.01

Sample Amt: 770 ML % Moisture: _____ Date Received: 07/23/02

Extraction Volume: 10 ML Date Extracted: 07/26/02

Extraction Method: SHAKER Date Analyzed: 07/29/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/L	Q
2691-41-0	HMX	0.650		U
121-82-4	RDX	0.650		U
99-35-4	TNB	0.650		U
99-65-0	DNB	0.650		U
479-45-8	TETRYL	0.650		U
98-95-3	NB	0.650		U
118-96-7	TNT	0.650		U
1946-51-0	4ADNT	0.650		U
35572-78-2	2ADNT	0.650		U
606-20-2	26DNT	0.650		U
121-14-2	24DNT	0.650		U
88-72-2	2NI	0.650		U
99-99-0	4NI	0.650		U
99-08-1	3NI	0.650		U
	3,4-DNT surrogate spiked	10.39		



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 Sent From: Corporate Plymouth Pittsburgh Other

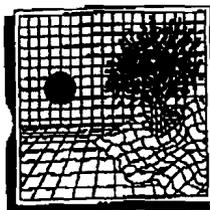
Chain of Cust Record

BIU-488

37139 Page 1 of 1

SWLabs

Project No.: 37826.02		Client:															
P.O. No.:		Project/Location: NSWC Crane Base Facility															
Project Mgr.:		Sampler's Name: Peter J. Chevalier															
Phone No.:		Sampler's Signature: [Signature]															
Item No.	Sample ID.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters		Lab #							
1	WWC-001	7/2/02	1105	G	liquid	decon sump	8	ISS 140.2	Ultrale 20.0	CBQ 405.1	029 413.1	AMM 350.2	Exp. 8330	GMW 7470	7/9/02	Preserved Yes/No	LAB USE ONLY
2																	
3																	
4																	
5						metals: Cd, Cr, Cu, Pb, Ni,											
6						Zn, Ag, Hg											
7																	
8																	
9																	
10																	
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	LAB USE ONLY												
	[Signature]	7/2/02 / 1600			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 _____ °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: _____												
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time													
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time													
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time													



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LABORATORY RESULTS

LAB ID : 50455.01
 SAMPLE : RPW-094
 SDG : 50455
 MATRIX : W

REPORTED : 08/12/02
 SAMPLED : 08/01/02
 SUBMITTED: 08/02/02

PARAMETER	REPORTING		RESULTS	DATE/TIME		METHOD	
	LIMIT	UNITS		ANALYZED	ANALYST	REFERENCE	
AMMONIA (N)	1.0	mg/l	ND	08-07-02	13:30	SB	EPA350.2
Carb. BOD	15.0	mg/l	25.4	08-02-02	13:23	KAL	EPA405.1/SM5210B
O&G-Hex	2.0	mg/l	2.9	08-05-02	14:00	SB	EPA1664
TOTAL SUSPENDED SOLIDS	4.0	mg/l	ND	08-05-02	09:25	SB	SM2540D/EPA160.2
NITRATE	0.10	mg/l	ND	08-02-02	14:20	DT	EPA300.0/SW9056

COMPOUND* = RESULTS REPORTED AS RECEIVED

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

N/A = NOT APPLICABLE

METHODOLOGY: SM = STANDARD METHODS, 19TH EDITION, 1995

EPA = #EPA600/4-79-020, MARCH 1985

SW = SW 846 Rev. 4 1996

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

RPW-094

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50479

Matrix: (soil/water) WATER Lab Sample ID: 50479.01

Sample Amt: 770 ML % Moisture: _____ Date Received: 08/06/02

Extraction Volume: 10 ML Date Extracted: 08/07/02

Extraction Method: SHAKER Date Analyzed: 08/10/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/L	Q
2691-41-0	HMX	0.650		U
121-82-4	RDX	0.650		U
99-35-4	TNE	0.650		U
99-65-0	DNB	0.650		U
479-45-8	TETRYL	0.650		U
98-95-3	NB	0.650		U
118-96-7	TNT	0.650		U
1946-51-0	4ADNT	0.650		U
35572-78-2	2ADNT	0.650		U
606-20-2	26DNT	0.650		U
121-14-2	24DNT	0.650		U
88-72-2	2NT	0.650		U
99-99-0	4NT	0.650		U
99-08-1	3NT	0.650		U
	3,4-DNT surrogate spiked	10.39		

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

RPW-095

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50455

Matrix: (soil/water) WATER Lab Sample ID: 50455.02

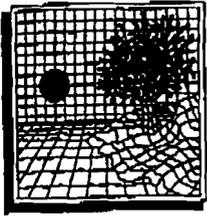
Sample Amt: 770 ML % Moisture: _____ Date Received: 08/02/02

Extraction Volume: 10 ML Date Extracted: 08/05/02

Extraction Method: SHAKER Date Analyzed: 08/10/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/L	Q
2691-41-0	HMX	0.650		U
121-82-4	RDX	0.650		U
99-35-4	TNB	0.650		U
99-65-0	DNB	0.650		U
479-45-8	TETRYL	0.650		U
98-95-3	NB	0.650		U
118-96-7	TNT	0.650		U
1946-51-0	4ADNT	0.650		U
35572-78-2	2ADNT	0.650		U
606-20-2	26DNT	0.650		U
121-14-2	24DNT	0.650		U
88-72-2	2NT	0.650		U
99-99-0	4NT	0.650		U
99-08-1	3NT	0.650		U
	3,4-DNT surrogate spiked	10.39		



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599
LABORATORY RESULTS

LAB ID : 50455.02
 SAMPLE : RPW-095
 SDG : 50455
 MATRIX : W

REPORTED : 08/12/02
 SAMPLED : 08/01/02
 SUBMITTED: 08/02/02

PARAMETER	REPORTING		RESULTS	DATE/TIME		METHOD	
	LIMIT	UNITS		ANALYZED	ANALYST	REFERENCE	
AMMONIA (N)	1.0	mg/l	1.1	08-07-02	13:30	SB	EPA350.2
Carb. BOD	15.0	mg/l	28.2	08-02-02	13:23	KAL	EPA405.1/SM5210B
O&G-Hex	2.0	mg/l	2.9	08-09-02	09:30	SB	EPA1664
TOTAL SUSPENDED SOLIDS	4.0	mg/l	6.0	08-05-02	09:25	SB	SM2540D/EPA160.2
NITRATE	0.10	mg/l	ND	08-02-02	14:36	DT	EPA300.0/SW9056

COMPOUND* = RESULTS REPORTED AS RECEIVED

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

N/A = NOT APPLICABLE

METHODOLOGY: SM = STANDARD METHODS, 19TH EDITION, 1995

EPA = #EPA600/4-79-020, MARCH 1985

SW = SW 846 Rev. 4 1996

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-GW-1

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50479

Matrix: (soil/water) WATER Lab Sample ID: 50479.02

Sample Amt: 770 ML % Moisture: _____ Date Received: 08/06/02

Extraction Volume: 10 ML Date Extracted: 08/07/02

Extraction Method: SHAKER Date Analyzed: 08/10/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/L	Q
2691-41-0	HMX	0.650		U
121-82-4	RDX	0.650		U
99-35-4	TNB	0.650		U
99-65-0	DNB	0.650		U
479-45-8	TETRYL	0.650		U
98-95-3	NB	0.650		U
118-96-7	TNT	0.650		U
1946-51-0	4ADNT	0.650		U
35572-78-2	2ADNT	0.650		U
606-20-2	26DNT	0.650		U
121-14-2	24DNT	0.650		U
88-72-2	2NT	0.650		U
99-99-0	4NT	0.650		U
99-08-1	3NT	0.650		U
	3,4-DNT surrogate spiked	10.39		

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-GW-2

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50479

Matrix: (soil/water) WATER Lab Sample ID: 50479.03

Sample Amt: 770 ML % Moisture: _____ Date Received: 08/06/02

Extraction Volume: 10 ML Date Extracted: 08/07/02

Extraction Method: SHAKER Date Analyzed: 08/10/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/L	Q
2691-41-0	HMX	0.650	U	
121-82-4	RDX	0.650	U	
99-35-4	TNB	0.650	U	
99-65-0	DNB	0.650	U	
479-45-8	TETRYL	0.650	U	
98-95-3	NB	0.650	U	
118-96-7	TNT	0.650	U	
1946-51-0	4ADNT	0.650	U	
35572-78-2	2ADNT	0.650	U	
606-20-2	26DNT	0.650	U	
121-14-2	24DNT	0.650	U	
88-72-2	2NT	0.650	U	
99-99-0	4NT	0.650	U	
99-08-1	3NT	0.650	U	
	3,4-DNT surrogate spiked	10.39		



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 Sent From: Corporate Plymouth Pittsburgh Other

BU-487 489

40059

Suslabs

Project No.: 3782602		Client:																		
P.O. No.:		Project/Location: NSWC Crane Biofacility																		
Project Mgr.:		Sampler's Name: Peter Chamberlain																		
Phone No.:		Sampler's Signature: [Signature]																		
Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters							Lab #					
1	RPW-094	8/1/02	1510	G	liquid	Pond 1	8	755 160.2	41-100 300.0	CBAD 405.1	206 413.1	Amto. 350.2	Exp. 8330	600 7170	Standard	Preserved Yes/No	LAB USE ONLY			
2	BU- GW-1	8/1/02	1230	G	liquid	Groundwater under Pond 1	2													
3																				
4																				
5						See note CUC 490														
6																				
7																				
8																				
9																				
10																				
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	LAB USE ONLY															
	[Signature]	8/1/02 1800			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	_____ °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													
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	Comments:	TAT														



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Sent From: Corporate Plymouth Pittsburgh Other

BIU-488490

40061

Page 1 of

contaminants

Project No.: 37826-012		Client:												
P.O. No.:		Project/Location: ASWC Crane Base Facility												
Project Mgr.:		Sampler's Name: Peter Chouh												
Phone No.:		Sampler's Signature: [Signature]												
Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters				Lab #		
1	RPW-095	8/1/02	1540	G	liquid	Pond 2	8	2001/5/1	2001/5/1	2001/5/1	2001/5/1	2001/5/1	2001/5/1	
2	BIU-64-2	8/1/02	1245	G	liquid	groundwater under Pond 2	2							
3														
4														
5						GW-2 was unacceptable								
6						since the wrong type of bottle								
7						was used (poly instead of								
8						glass). Same for GW-1								
9						and RPW-094 (for 8330 only)								
10														
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	LAB USE ONLY									
	[Signature]	8/1/02 1900			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 _____ °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: _____									
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time										
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time										
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time										

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-G1-1

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50555

Matrix: (soil/water) SOIL Lab Sample ID: 50555.01

Sample Amt: 2.0 G % Moisture: 7 Date Received: 08/14/02

Extraction Volume: 20 ML Date Extracted: 08/14/02

Extraction Method: SONC Date Analyzed: 08/15/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/KG	Q
2691-41-0	HMX	500		U
121-82-4	RDX	500		U
99-35-4	TNB	500		U
99-65-0	DNB	500		U
479-45-8	TETRYL	500		U
98-95-3	NB	500		U
118-96-7	TNT	500		U
1946-51-0	4ADNT	500		U
35572-78-2	2ADNT	500		U
606-20-2	26DNT	500		U
121-14-2	24DNT	500		U
88-72-2	2NT	500		U
99-99-0	4NT	500		U
99-08-1	3NT	500		U
	3,4-DNT surrogate spiked	8000.00		

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-G2-1

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50555

Matrix: (soil/water) SOIL Lab Sample ID: 50555.02

Sample Amt: 2.0 G % Moisture: 16 Date Received: 08/14/02

Extraction Volume: 20 ML Date Extracted: 08/14/02

Extraction Method: SONC Date Analyzed: 08/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/KG	Q
2691-41-0	-----HMX	500	U	
121-82-4	-----RDX	500	U	
99-35-4	-----TNB	500	U	
99-65-0	-----DNE	500	U	
479-45-8	-----TETRYL	500	U	
98-95-3	-----NB	500	U	
118-96-7	-----TNT	500	U	
1946-51-0	-----4ADNT	500	U	
35572-78-2	-----2ADNT	500	U	
606-20-2	-----26DNT	500	U	
121-14-2	-----24DNT	500	U	
88-72-2	-----2NT	500	U	
99-99-0	-----4NT	500	U	
99-08-1	-----3NT	500	U	
	3,4-DNT surrogate spiked	8000.00		

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-G2-2

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50555

Matrix: (soil/water) SOIL Lab Sample ID: 50555.03

Sample Amt: 2.0 G % Moisture: 18 Date Received: 08/14/02

Extraction Volume: 20 ML Date Extracted: 08/14/02

Extraction Method: SONC Date Analyzed: 08/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/KG	Q
2691-41-0	-----HMX	500		U
121-82-4	-----RDX	500		U
99-35-4	-----TNE	500		U
99-65-0	-----DNE	500		U
479-45-8	-----TETRYL	500		U
98-95-3	-----NE	500		U
118-96-7	-----TNT	500		U
1946-51-0	-----4ADNT	500		U
35572-78-2	-----2ADNT	500		U
606-20-2	-----26DNT	500		U
121-14-2	-----24DNT	500		U
88-72-2	-----2NT	500		U
99-99-0	-----4NT	500		U
99-08-1	-----3NT	500		U
	3,4-DNT surrogate spiked	8000.00		

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-G3-1

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50555

Matrix: (soil/water) SOIL Lab Sample ID: 50555.04

Sample Amt: 2.0 G % Moisture: 15 Date Received: 08/14/02

Extraction Volume: 20 ML Date Extracted: 08/14/02

Extraction Method: SONC Date Analyzed: 08/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/KG	Q
2691-41-0	-----HMX	500		U
121-82-4	-----RDX	500		U
99-35-4	-----TNB	500		U
99-65-0	-----DNB	500		U
479-45-8	-----TETRYL	500		U
98-95-3	-----NB	500		U
118-96-7	-----TNT	500		U
1946-51-0	-----4ADNT	500		U
35572-78-2	-----2ADNT	500		U
606-20-2	-----26DNT	500		U
121-14-2	-----24DNT	500		U
88-72-2	-----2NT	500		U
99-99-0	-----4NT	500		U
99-08-1	-----3NT	500		U
	3,4-DNT surrogate spiked	8000.00		

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-G3-2

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50555

Matrix: (soil/water) SOIL Lab Sample ID: 50555.05

Sample Amt: 2.0 G % Moisture: 13 Date Received: 08/14/02

Extraction Volume: 20 ML Date Extracted: 08/14/02

Extraction Method: SONC Date Analyzed: 08/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/KG	Q
2691-41-0	HMX	500		U
121-82-4	RDY	500		U
99-35-4	TNB	500		U
99-65-0	DNB	500		U
479-45-8	TETRYL	500		U
98-95-3	NB	500		U
118-96-7	TNT	500		U
1946-51-0	4ADNT	500		U
35572-78-2	2ADNT	500		U
606-20-2	26DNT	500		U
121-14-2	24DNT	500		U
88-72-2	2NT	500		U
99-99-0	4NT	500		U
99-08-1	3NT	500		U
3,4-DNT surrogate spiked		8000.00		

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIO-G-FB

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 50555

Matrix: (soil/water) SOIL Lab Sample ID: 50555.06

Sample Amt: 2.0 G % Moisture: 19 Date Received: 08/14/02

Extraction Volume: 20 ML Date Extracted: 08/14/02

Extraction Method: SONC Date Analyzed: 08/16/02

GPC Cleanup: (Y/N) N Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION	UNITS: UG/KG	Q
2691-41-0	HMX	500		U
121-82-4	RDX	500		U
99-35-4	TNB	500		U
99-65-0	DNB	500		U
479-45-8	TETRYL	500		U
98-95-3	NB	500		U
118-96-7	TNT	500		U
1946-51-0	4ADNT	500		U
35572-78-2	2ADNT	500		U
606-20-2	26DNT	500		U
121-14-2	24DNT	500		U
88-72-2	2NT	500		U
99-99-0	4NT	500		U
99-08-1	3NT	500		U
3,4-DNT surrogate spiked		8000.00		



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Project No. 37826.02 Client: _____
 P.O. No.: _____ Project/Location: NSWC Crane BioFacility
 Project Mgr.: _____ Sampler's Name: Peter J. Shevliker
 Phone No.: _____ Sampler's Signature: [Signature]

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters													
								1	2	3	4	5	6	7	8	9	10	Preserved Yes/No	LAB USE ONLY	Lab #	
1	B10-61-1	8/13/02	0920	G	soil	Grid 1 0-12"	1	/													
2	B10-62-1		0940	G		Grid 2 0-12"	1	/													
3	B10-62-2		0955	G		Grid 2 24-36"	1	/													
4	B10-63-1		1015	G		Grid 3 0-12"	1	/													
5	B10-63-2		1035	G		Grid 3 24-36"	1	/													
6	B10-6-FD		-	G	soil	Field dup	1	/													
7																					
8																					
9																					
10																					

Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	LAB USE ONLY
	<u>[Signature]</u>	8/13/02 1800			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 _____ °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: _____

Peter J. Chevalier

From: "Stone Nannette L CNIN" <Stone_Nann@crane.navy.mil>
To: "Freeman Christine D CNIN" <freeman_cd@crane.navy.mil>
Sent: Wednesday, October 30, 2002 4:24 PM
Subject: FW: CBOD RESULTS FOR PONDS

-----Original Message-----

From: White Charles M CNIN
Sent: Friday, September 27, 2002 9:33 AM
To: Stone Nannette L CNIN
Subject:

Nann, the CBOD results for Toltest are 4.98mg/l for pond-2. For pond-1 the result is 3.03mg/l.



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 Sent From: Corporate Plymouth Pittsburgh Other

B10-493

NSWC STP

Project No.: 37826.07		Client:																		
P.O. No.:		Project/Location: NSWC Crane Bldg Facility																		
Project Mgr.:		Sampler's Name: Peter J. Chevalier																		
Phone No.:		Sampler's Signature: [Signature]																		
Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters										Preserved Yes/No	LAB USE ONLY	Lab #
1	RAW-096	9/16/02	0720	G	liquid	Pond 1	1													
2	RAW-097	9/16/02	0705	G	liquid	Pond 2	1													
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
Item No.	Relinquished By: [Signature]		Date / Time: 9/16/02 08:00		Received By: [Signature]		Date / Time: 9/16/02 08:00		LAB USE ONLY											
Item No.	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 _____ °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: _____											
Item No.	Relinquished By:		Date / Time:		Received By:		Date / Time:		Comments: _____											
Item No.	Relinquished By:		Date / Time:		Received By:		Date / Time:		Comments: _____											

APPENDIX B

Field Clarification Requests

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC08	Subcontract No.: N/A	FCR No.: FC08-FCR-FS036 Rev. 1
Sampling Protocol for Determining the Effectiveness of Decontamination		Page 1 of 2

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
--	--	---------------------------------------	--------------------------

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.

Sump water samples will be obtained by first filling 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

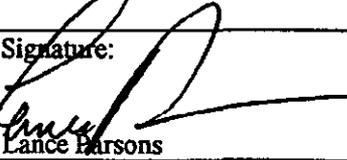
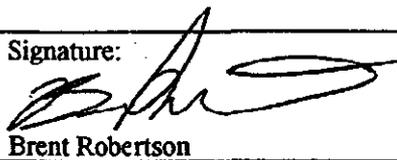
Wipe samples will be obtained from a random location within each section unless biased toward an area with surface staining.

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 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 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 Lyttle	Date: 4/5/02	Approval by EPD ECOTR:	Signature:  Christine Freeman	Date: 5/15/02

Regulator Approval/Notification Recommended:

Yes No

See attached faxed signature

708-FCR-FS036 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
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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
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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 (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 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.

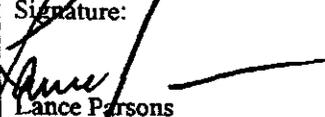
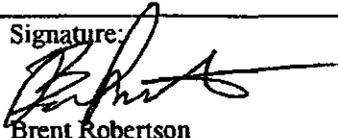
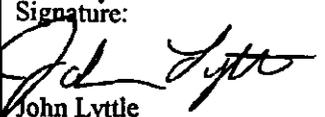
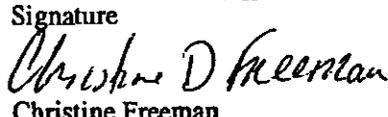
Initiated by TolTest Env. Spec.	Signature:  Peter J. Chevalier	Organization: TolTest, Inc.	Date: 5/14/2002
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Resolution:

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.

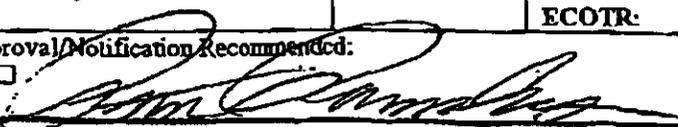
A composite sample of the sludge in the Middle compost building (a total of approximately 10 cubic yards) will be obtained and analyzed for explosives. If results meet residential cleanup goals, the sludge will be transported to Mine Fill B and used as top cover over previously placed compost or placed 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: 5/14/02	Approval by OICC/NTR or RPM	Signature:  Brent Robertson	Date: 6/24/02
Approval by TolTest QC/SHSO	Signature:  John Lyttle	Date: 5/14/02	Approval by EPD ECOTR:	Signature:  Christine Freeman	Date: 5/15/02

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-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 (FSOP), March 1998 Rev. 2 Quality Assurance Project Plan for Full-Scale Bioremediation Soils Bioremediation Facility (QAPP), March 1998 Rev. 2			
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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-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 OICCNTR or RPM
Approval by TolTest QC/SHSO	Signature: John Lytle	Date:	Approval by EPD ECOTR:
			Signature: Brent Robertson
			Signature: Christine Freeman
			Date:
Regulator Approval/Notification Recommended: Yes <input type="checkbox"/> No <input type="checkbox"/>			
			5/15/02

APPENDIX C

U.S. EPA No Further Action Required for Bioremediation Facility Decontamination

From: Ramanauskas.Peter@epamail.epa.gov [SMTP:Ramanauskas.Peter@epamail.epa.gov]

Sent: Monday, August 26, 2002 8:38 AM

To: Freeman Christine D CNIN

Cc: gateswh@efdsouth.navfac.navy.mil

Subject: Re: BIOFACILITY DECON RESULTS

Thanks Chris,

No further decon action is required at the Biofacility.

Thanks!

Pete

Freeman Christine D CNIN

To: Peter Ramanauskas/R5/USEPA/US@EPA

<freeman_cd@cran cc: "William H. Gates (E-mail)"e.navy.mil>

<gateswh@efdsouth.navfac.navy.mil>

Subject: BIOFACILITY DECON RESULTS

08/20/02 02:37 PM

Pete,

Attached are the decon results for the Biofacility efforts. Only the ditch sampling is outstanding.

Please review and let us know if you agree that no further decon action is required within the facility. The CBOD issue will be worked through our NPDES personnel and IDEM representatives.

<<decon results.xls>>

Thanks,

Christine

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.

James M. Henscher

SIGNATURE

DIRECTOR, ENVIRONMENTAL PROTECTION DEPARTMENT
BY DIRECTION OF THE COMMANDER

TITLE

11/05/02

DATE