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Interim Measures Report
Removal and Bioremediation of Mine Fill A Material
Addendum # 1

NSWC Crane
Crane, Indiana

Revision: Final [redacted]

Unit Identification Code: N00164
Contract No. N62467-93-D-1106

January 2002

Southern Division
Naval Facilities Engineering Command
North Charleston, South Carolina
29419-9010

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ADDENDUM # 1

NSWC CRANE
CRANE, INDIANA

January 25, 2001

Revision: Final Draft

CONTRACT N62467-93-D-1106
DELIVERY ORDER #0009
STATEMENT OF WORK #007

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EXECUTIVE SUMMARY

This addendum to the *Interim Measures Report for Mine Fill A* [MK, 2000] has been prepared by Washington Group International (formerly Morrison Knudsen Corporation (MK)) for Southern Division, Naval Facilities Engineering Command. This report documents the additional actions completed for the removal, and treatment through bioremediation of explosives-contaminated soil near Building 153/154 at Mine Fill A (MFA) at Naval Surface Warfare Center (NSWC) Crane in Crane, Indiana, and the subsequent on-site backfill of the treated material. The report summarizes the subsequent work actions performed pursuant to the requirements of the approved *Full-Scale Operational Plan* [MK, 1998a] and the *Quality Assurance Project Plan* [MK, 1998b]. The *Interim Measures Report for MFA* [MK, 2000] summarizes the field work performed by MK from April 1998 to March 1999 and by TolTest, Inc. from April 1999 to September 1999. This Addendum summarizes additional work performed by TolTest, Inc. in the MFA from September 1999 through December 2000.

The scope of work for the additional activities performed at MFA included the following:

- Excavation and screening of 596 additional tons of explosives-contaminated soil and 210.5 tons of rejects (rock and soil mixture) identified in the site characterization with limitations at some locations based on physical constraints such as buildings, railways, roads, etc.
- Collection and analysis of 65 additional confirmation samples at MFA that included sampling of excavations to verify that all soil exceeding the cleanup goals was removed (to the extent possible).
- Transportation of excavated, screened material to the on-site Bioremediation Facility for treatment.
- Treatment of the contaminated material at the Bioremediation Facility through composting to reduce the levels of the contaminants of concern to below the target cleanup goals.
- Confirmatory sampling of treated material to ensure cleanup goals were achieved. All treated material met either the industrial or residential cleanup levels for the constituents of concern.
- Transportation of the treated material back to MFA and backfilling the material. A total of approximately 1,575 tons of compost was returned to MFA.
- Confirmatory sampling of treated material that had been previously staged. All treated material met residential cleanup levels for the constituents of concern.

All interim measures work actions have been completed in accordance with the approved plans and approved field changes. This report summarizs the additional work performed at the 17 grid sections (23, 24, 26, 29, 33, 34, 35, 36, 38, 40, 131, 132, 133, 135, 171, 172, and 173) near Buildings 153/154 which had not been excavated at the time the *Interim Measures Report for MFA* [MK,2000] was submitted pending the completion of the supplemental toxicity testing of previously treated compost.

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ACRONYMS

°C	degrees Centigrade
CLP	Contract Laboratory Protocol
FCR	Field Change Request
FS-OP	Full-Scale Operational Plan
FS-QAPP	Quality Assurance Project Plan for Full-Scale Operations at the Bioremediation Facility
HMX	cycloteremethylenetetranitramine
ICS	Initial characterization sampling
IM	Interim Measure
IMR	Interim Measures Report
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MFA	Mine Fill A
MFB	Mine Fill B
MK	Morrison Knudsen Corporation
MS	matrix spike
MSD	matrix spike duplicate
NSWC	Naval Surface Warfare Center
PES	post excavation samples
ppm	parts per million
QC	quality control
RDX	cyclotrimethylene trinitramine
RKI	Rockeye Munitions Facility
RCRA	Resource Conservation and Recovery Act
SOP	standard operating procedure
SWMU	solid waste management unit
TNT	2,4,6-trinitrotoluene
U.S.EPA	United States Environmental Protection Agency
ug/kg	micrograms per kilogram
ug/L	micrograms per liter
VOC	volatile organic compound
WHC	water holding capacity

1.0
INTRODUCTION

This interim measures report (IMR) addendum has been prepared by Washington Group International (formerly Morrison Knudsen Corporation (MK)) for Southern Division, Naval Facilities Engineering Command. This report documents the additional actions performed after the IMR for Mine Fill A (MFA) [MK, 2000] was issued. These additional actions were performed during full scale operations during the excavation, on-site treatment through bioremediation (composting) of explosives-contaminated soil, and on-site backfill/staging of compost at MFA at Naval Surface Warfare Center (NSWC) Crane in Crane, Indiana. This Addendum IMR summarizes the additional work actions performed pursuant to the requirements of the approved *Full-Scale Operational Plan* (FS-OP) [MK, 1998a] and the *Quality Assurance Project Plan for Full-Scale Operations, Soils Bioremediation Facility* (FS-QAPP) [MK, 1998b]. This addendum covers field work at MFA which was performed by TolTest, Inc. from September 1999 through December 2000.

Background information regarding operations at NSWC Crane is summarized in the *IMR for MFA* [MK, 2000]. This Addendum to the IMR documents the excavation and treatment of 596 tons of impacted soil and 210.5 tons of rejects (rocks and soil mixture) from MFA, and the backfilling of the approximately 1,575 tons of generated compost that was performed at MFA after the completion of the supplemental toxicity testing of aged compost. The results of the supplemental toxicity testing are provided in the *Supplemental Toxicity Report, Full -Scale Bioremediation, NSWC Crane* [Toltest, 2001].

1.1 SCOPE OF WORK

The scope of work for the additional Interim Measures (IM) work completed at MFA included:

- Excavation of explosives-contaminated soil identified in the site characterization, screening of the material, and transportation of the screened soil to the Biofacility for treatment
- Field screening during excavation to assist in determining the extent of contamination
- Confirmatory sampling after excavation was completed to document site conditions
- Treatment of the contaminated soil at the Biofacility through composting, including process monitoring of the material during treatment
- Confirmation sampling of the treated material to ensure that it had met the cleanup objectives
- Transportation and backfill of the treated compost at MFA
- Confirmation sampling (re-sampling) of the treated material to ensure that it had met the residential cleanup objectives

Field clarification requests (FCRs) were generated to modify, clarify, and/or revise elements associated with the work. Table 1-1 references all pertiment FCRs for MFA and Appendix A of this Addendum contains FCR-FS-029 Rev. 1.

1.2 REPORT ORGANIZATION

This report is organized into nine sections and includes ten appendices. Section 1.0 provides a brief introduction of the site and identifies the scope of work covered by this report. Section 2.0 identifies and discusses the applicable site and regulatory compliance issues associated with the work. Section 3.0 provides a summary of the work performed at MFA including the excavation activities and confirmation sampling. A summary of the Biofacility composting operations is provided in Section 4.0. Information on disposition of treated compost soil is provided in Section 5.0. Details of the quality control (QC) checks performed during full-scale operations, including data QC, are included in Section 6.0. A summary of safety and industrial hygiene sampling and monitoring is provided in Section 7.0. Conclusions and

recommendations of full-scale operations at MFA are summarized in Section 8.0. A list of reference documents is provided in Section 9.0.

Pertinent information is provided in the following appendices:

Appendix A - Field Clarification Requests
Appendix B - Waste Disposal Documentation
Appendix C - Initial Characterization Sample Grid Location Drawings
Appendix D - Grid Excavation Sampling Summary
Appendix E - Initial Characterization Sample Results
Appendix F - Surveyed Drawings
Appendix G - Post-Excavation Sample Grid Location Drawings
Appendix H - Post-Excavation Sample Results
Appendix I - Windrow Recipes, Field Monitoring Results, and Day Zero/Day Last Sample Results Summary
Appendix J - Backfill Grid Location Drawings

TABLE 1-1
SUMMARY OF MFA FIELD CLARIFICATION REQUESTS
NSWC CRANE BIOREMEDIATION FACILITY

FCR-FS-#	Date Issued	Location	Description
023	8/3/99	IMR Rept	Clarification of reject pile from soil screening at MFA Allowed mixing of short windrows N-192 and N-197 containing rejects (rocks and soil mixture) with front-end loader instead of SCARAB.
025 Rev. 1	1/19/00	IMR Rept	Revised handling procedure for rocks screened out of excavated soil.
027	2/1/00	IMR Rept	Combines requirements for Excavation Completion Report and Compost Completion Report into one IMR.
029 Rev. 1	9/29/00	Addendum	Allows resampling of staged industrial windrows from MFA and MFB that did not meet residential cleanup objectives.

2.0
REGULATORY COMPLIANCE

Regulatory and site compliance issues involved in the operations at MFA and the Biofacility were discussed in the *IMR for MFA* [MK, 2000]. No new regulatory issues were addressed as part of the work associated with this addendum.

3.0
MFA SITE OPERATIONS

3.1 INITIAL CHARACTERIZATION SOIL SAMPLING

3.1.1 Sample Locations

Pre-excavation sampling was completed and reported in the *IMR for MFA* [MK, 2000]. No additional pre-excavation sampling was performed at MFA after the IMR Report was issued.

Initial Characterization Samples (ICS) were collected from 203 grid sections, and results of the ICS samples are shown in Appendix C of the *IMR for MFA* [MK, 2000].

3.1.2 Sample Collection and Analysis

Samples were collected, analyzed, and reported in the *IMR for MFA* [MK, 2000]. Table D-1 in Appendix D of the IMR Report identifies all ICS collected at MFA by grid section.

3.1.3 Sampling Data Summary

ICS results were summarized in the *IMR for MFA* [MK, 2000] on Table E-1 in Appendix E.

3.2 SOIL EXCAVATION, SCREENING, AND TRANSPORTATION

Soil excavation was performed near Buildings 153 and 154 and included the 17 remaining grid sections (23, 24, 26, 29, 33, 34, 35, 36, 38, 40, 131, 132, 133, 135, 171, 172, 173) that were not excavated as part of the initial interim measures due to pending soil toxicity discussions with the U.S. EPA. Surveyed drawings of these areas prior to excavation are included in Appendix F of this Addendum. Soil excavation and screening resumed in August 2000. All excavated soil was screened to remove oversized material (1½-inch or larger) prior to transport to the Biofacility. This was to ensure that the soil to be treated was homogenous so that the composting operation would be effective. Excavated soil was loaded into the soil screening equipment using a backhoe or loader. A step-by-step procedure for soil screening is provided in Field Standard Operating Procedure (SOP) 1.0 in Appendix D of the *FS-OP* [MK, 1998a].

Oversized material was separated into soil clods, vegetation, and rock. Soil clods and vegetation were spread out, allowed to sufficiently dry, then pulverized and re-screened, and incorporated into windrows. The rocks were washed, as described in Section 3.6, and backfilled.

Table 3-1 shows the quantity of soil that was excavated and screened at MFA August 2000 through December 2000. In August 1999, excavation ceased and was restarted in August 2000 after completion of the supplemental toxicity testing of treated composted soil. The toxicity testing procedure for the compost was submitted to U.S. EPA in April 2000 as a revision to Appendix G of the *FS-QAPP* [MK, 1998b]. Additional details were added to the procedure in June 2000.

TABLE 3-1 SOIL EXCAVATION AND SCREENING QUANTITIES NSWC CRANE MFA		
Month	**Quantity of Material Excavated and Screened[1] (Tons)**	**Cumulative Quantity (Tons)**
Previously Reported through August 1999		20,238
August 2000	211	20,449
September 2000	537	20,986
October 2000	59	21,045

Notes:

1- Quantities are taken from Quarterly Interim Progress Reports based on actual scale weights of soil trucked to the Biofacility.

3.3 IN-PROCESS EXCAVATION SOIL SAMPLING

Soil samples were collected during excavation activities at MFA to assist the field crew in determining the extent of excavation required at each grid section. Field screening test kits were used to test cyclotrimethylene trinitramine (RDX) levels in the in-process soil samples to provide quick field screening results. Soil sampling during excavation was performed as specified in the Soil Excavation Plan, Appendix E of the FS-OP [MK, 1998a]. Two composite samples were collected from each grid section for field screening with the test kits. One sample was collected from the base of the excavation and one from the sidewalls. If the fieled screening indicated that concentration of RDX was greater than industrial cleanup levels, subsequent layers of contaminated soil were removed until field screening indicated acceptable concentrations of explosives (below the industrial cleanup objectives) or physical impediments (buildings, railways, roadways, utilities, etc.) were encountered. Table 3-2 identifies the grid sections that were not excavated to the cleanup goals after the subsequent work described in this addendum and the reason why there was not additional excavation.

3.4 POST-EXCAVATION CONFIRMATION SOIL SAMPLING

Post-excavation confirmation soil samples (PES) were collected, following excavation and field screening, to determine the levels of SWMU-specific contaminants remaining in the soil. PES were collected by TolTest and included one composite sample from the base of each grid section and one composite sample from each 20 foot section of sidewall. Samples were analyzed for contaminants that were detected above the industrial cleanup objectives in the ICS. The samples were analyzed as spefified in the Soil Excavation Plan, Appendix E of the FS-OP [MK, 1998a]. analysis was performed by an off-site laboratory. Table D-1 in Appendix D identifies the PES collected from each grid. Appendix G includes grid location drawings that show the results of the post-excavation samples with respect to the cleanup goals. PES results are included in Appendix H.

3.5 EQUIPMENT DECONTAMINATION

After equipment was no longer required at MFA, it was decontaminated prior to being transported to another site (with the exception of equipment going to MFB from MFA since contaminants were the same - see FCR 18 included in IMR [MK, 2000]). All decontamination fluids were collected and used for moisture conditioning of windrows at the Biofacility.

3.6 ROCK WASHING

The procedure described in FCR 14, and included in the IMR [MK, 2000] was followed for rock washing. The rocks were washed with a high-pressure-low-volume sprayer to remove all visible soil contamination. The rocks were then returned to the bottom of an open excavation within the same SWMU and covered with no less than two feet of finished compost. The rinse water was used for moisture conditioning of the windrows.

TABLE 3-2
SUMMARY OF GRIDS NOT EXCAVATED TO CLEANUP GOALS
NSWC CRANE MFA

Grid Section	Building Location	Approximate Depth of Excavation	Reason Soil Not Excavated to Cleanup Goals
2	153/154	14 feet	Encountered blast wall footer
3	153/154	14 feet	Encountered blast wall footer
4	153/154	2 feet	Encountered utility lines
5	153/154	2 feet	Encountered bedrock
10	158/159	14 feet	Encountered blast wall footer
11	158/159	14 feet	Encountered blast wall footer
12	158/159	2 feet	Encountered utility lines
17	153/154	2 feet	Railroad track prevented further soil removal
27	153/154	14 feet 0 feet (under supports)	Soil left in place was structural support for a steam line
28	153/154	14 feet 0 feet (under supports)	Soil left in place was structural support for a steam line
56	158/159	14 feet 0 feet (under supports)	Soil left in place was structural support for a steam line
58	158/159	14 feet 0 feet (under supports)	Soil left in place was structural support for a steam line
59	158/159	2 feet	Encountered utility lines
62	158/159	14 feet	Encountered blast wall footer
63	158/159	2 feet	Encountered utility lines
64	158/159	14 feet	Encountered blast wall footer
65	158/159	14 feet	Encountered blast wall footer

TABLE 3-2 (Continued) SUMMARY OF GRIDS NOT EXCAVATED TO CLEANUP GOALS NSWC CRANE MFA			
Grid Section	**Building Location**	**Depth of Excavation**	**Reason Soil Not Excavated to Cleanup Goals**
72	152	19 feet	Encountered footer
103	157	10 feet	Soil was excavated to a depth of 10 feet. Excavation ceased per direction from NSWC Crane ECOTR
106	157	19 feet (near blast wall) 2 feet (in flat area)	Encountered overhead conveyor footers
126	153/154	2 feet	Encountered lightning mast footers
127	153/154	14 feet	Encountered blast wall footer
128	153/154	2 feet	Encountered lightning mast footers
134	153/154	2 feet	Encountered utility lines
149	158/159	2 feet	Encountered utility lines
150	158/159	2 feet	Encountered utility lines
200	153/154	2 feet	Encountered bedrock
202	153/154	2 feet	Encountered bedrock
203	153/154	2 feet	Encountered bedrock

4.0
BIOFACILITY COMPOSTING OPERATIONS

Explosive impacted soil excavated from MFA was treated in the Biofacility by composting to microbially degrade the explosive compounds in the soil. Organic amendments (chicken manure and straw) were mixed with the contaminated soil in windrows to form the compost. The amendments served as a carbon source for the microorganisms that were capable of degrading the explosives. The availability of organic materian and inorganic nutrients (such as nitrogen and phosphorus), temperature, moisture content, pH, and oxygen availability in the compost were optimized in order to enhance the process. Microbial activity in the soil was stimulated by heat that was generated and contained in the compost matrix. A full description of the composting operation process is provided in Section 5.0 of the approved *FS-OP* [MK, 1998a].

Section 4.1 describes maintenance and repairs of the Biofacility. Section 4.2 describes the supply and storage of the amendments. Section 4.3 describes the windrow construction process. Section 4.4 describes the monitoring of various constituents/properties in the soil to ensure optimum conditions were maintained and to track the progress of the treatment. Section 4.5 describes the monitoring of explosives in the treated soil.

Enough contaminated soil was excavated from MFA during this phase of work to form five windrows, bringing the total number of windrows to 107 for MFA. All windrows successfully achieved either the residential or industrial cleanup goals for the constituents of concern. Approximately 21,174 tons of soil were processed during the initial work at MFA and a subsequent 887 tons were later processed as discussed in this addendum resulting in a total of 22,061 tons. The quantities of soil processed are field estimates based on the number of loads of soil used to create each windrow, while quantities of soil excavated (Table 3-1) are actual scale weights. This accounts for the apparent treatment of more soil than was excavated. An additional five windrows which were disposed of in the staging area were resampled. The results of this re-analysis demonstrated that these staged windrows met residential cleanup criteria and were left in place at the staging area. Results of this re-analysis are provided in Appendix I.

TolTest closely monitored the bioremediation of the windrows with the use of available data, including field test kits, to determine when windrows reached cleanup goals and Day Last confirmation samples could be collected. This minimized the lengths of the biodegradation periods. Table 4-1 provides a summary of all windrows, including amendment quantities, process duration, and treatment level attained (industrial or residential).

4.1 BIOFACILITY MAINTENANCE AND REPAIRS

Routine maintenance and housekeeping activities were performed at the Biofacility. General building cleanliness was maintained during full-scale operations by using a front end loader and/or a skid steer loader to collect stray compost materials and reform the piles, as necessary. Brooms and shovels were used in inaccessible areas. Any ponded liquid inside the buildings was manually moved to the sump within 24 hours. Throughout operations, windrows were kept segregated, well-formed, and identified with signs containing the windrow number and date formed. Any ponded liquid on external asphalt surfaces was manually moved to the retention ponds within 24 hours.

Inspections of Biofacility buildings and associated structures were performed on a quarterly basis. Items found to be deficient were repaired or scheduled for repair at the earliest available period. Special attention was paid to specific items such as checking for settlement cracks in the Biofacility building floors and leaks in either storm-water retention pond liners or compost buildings. The Biofacility building floors and sumps were inspected for new cracks between building compost cycles in addition to the quarterly inspection. Any new cracks were scheduled for repair.

TABLE 4-1
MINE FILL A SOIL WINDROW TREATMENT/BACKFILL SUMMARY
NSWC CRANE

Windrow[1]	Soil Qty.[2,5] (tons)	Chicken Manure Qty.[2] (tons)	Straw Qty.[2] (tons)	Total Windrow Qty.[2] (tons)	Day Zero	Day Last	Process Duration (days)	Level Attained[3]	Date Backfilled/ Placed	Disposal Location
192	110.0	57.9	25.0	192.8	10/11/00	10/25/00	14	Residential	1/3/01	Dirt Pile Bldg 153
194	232.1	115.4	50.4	397.8	10/18/00	11/6/00	19	Residential	1/3/01	Dirt Pile Bldg 153
195	232.1	114.3	48.6	395.0	10/19/00	11/10/00	22	Residential	1/3/01	Dirt Pile Bldg 153
197	110.0	57.6	24.7	192.3	11/7/00	11/27/00	20	Residential	1/3/01	Dirt Pile Bldg 153
198	203.1	115.5	49.5	397.1	11/15/00	12/6/00	21	Residential	1/3/01	Dirt Pile Bldg 153
Re-sampled 92	232.1	109.0	49.2	390.3	7/28/99	10/24/00	454	Residential	1/31/01	B-154 Old Screener Site
Re-sampled 93	81.2	40.0	17.6	138.9	7/29/99	10/25/00	454	Residential	1/31/01	B-154 Old Screener Site
Re-sampled 98	232.1	113.0	50.0	395.1	8/10/99	10/26/00	443	Residential	1/31/01	B-154 Old Screener Site
Re-sampled 101	232.1	107.0	46.4	385.5	8/18/99	10/23/00	432	Residential	1/29/01	B-154 Old Screener Site
Re-sampled 102	75.4	46.0	19.9	158.7	8/19/99	10/25/00	433	Residential	1/29/01	B-154 Old Screener Site
TOTAL	887	461	198	1575			19.2			
PREVIOUS TOTAL FROM MFA IMR	21,174	10,612	5,238	37,024			9.2			
REVISED TOTAL FROM MFA IMR+ADDENDUM	22,061	11,073	5,436	38,599			Avg. 9.7[4]			

Notes:

1) Windrows constructed and processed by TolTest
2) Quantities are taken from the Record of Recipe Worksheets included in Appendix I with pounds converted to tons, rounded to the nearest ton. Quantities of soil are estimated.
3) Level attained is for most commonly detected explosive contaminants (HMX, RDX, TNT)
4) Average does not include 30% loading windrow, control windrow, or re-sampled staged windrows.
5) Estimated soil volume takes into account some soil that was used from MFB in the formation of windrows. For Windrow M-198 soil quantity = 203.1 tons/40 loads of material x 35 loads from MFA. For Windrow N-102 soil quantity = 75.4 tons/ 16 loads of material x 13 loads from MFA.

4.2 AMENDMENTS SUPPLY AND STORAGE

The compost mix used in full-scale operations included chicken manure and straw amendments that were added to the soil. Amendments were brought to the site and stored in the asphalt-paved amendment storage bins at the Biofacility. Table 4-2 summarizes the quantities of amendments received and used.

All trucks were weighed off-site, and verified prior to offloading of amendments on the truck scale at the entrance of the Biofacility. Most amendments were stored in the asphalt-paved amendment storage area. The straw field to the south of the Biofacility was used for long-term storage of straw.

Chicken manure was trucked to the Biofacility on an as-needed bases. The manure was from hens and contained approximately 1% feathers, eggs, or other natural impurities and was free of bedding material. All manure was delivered in bulk to the amendment storage area within one week prior to loading the windrows to ensure quality of freshness of the amendment and to avoid potential odor and leaching problems.

4.3 WINDROW CONSTRUCTION AND MAINTENANCE

The compost mix used in the Biofacility full-scale operations consisted of 25% soil, 15% chicken manure, and 60% straw by volume. Amendments were loaded on a volume basis using a center-pivot loader into a tractor-powered grinder/mixer unit as described in SOP 3.0 of Appendix D of the *FS-OP* [MK, 1998a]. The mixer then homogenized each load by mixing for 10 to 15 minutes. Water was added for dust control. The amendment blend was unloaded from the grinder/mixer unit through a side-mounted discharge conveyer forming a windrow approximately six feet high and 12 foot wide. The grinder/mixer then returned to the amendment storage area for reloading. This process continued until a windrow approximately 250 to 270 feet long was formed. A second windrow, adjacent to and partially overlapping the first windrow was then loaded into the building. This formed a single, larger windrow approximately 20 feet wide with two peaks 6 feet high. A full description of the windrow formation procedure is provided in SOP 4.0 of Appendix D of the *FS-OP* [MK, 1998a]. After the amendment blend was loaded in the building and shaped, stockpiled screened soil was delivered to the compost windrow in covered trailers or by loader bucket. The soil was loaded on a volume basis. A full description of the transport and loading of soil into the windrow is provided in SOP 5.0 of Appendix D of the *FS-OP* [MK, 1998a]. Records of recipes for the formation of each windrow formulated with explosive compound contaminated soil are provided in Appendix I of this IMR. The quantity of amendments used in each windrow is summarized in Table 4-1 and Table 4-2 shows the quarterly cumulative amount of amendments used.

After the soil was loaded into the windrows, the windrow/compost turning machine (SCARAB®) mixed and reformed the windrow to a pile approximately 20 feet wide and six feet tall. The SCARAB® generally made at least two or three passes during initial windrow construction to assure thorough mixing. Following formation, windrows were turned on a daily basis as described in SOP 6.0 of the *FS-OP* [MK, 1998a]. Water was added, as needed, to maintain optimum moisture levels (see Section 4.4.3).

Full-scale windrows generally extended the length of the Biofacility building and were 250 to 270 feet in length. Occasionally lengths and total volumes of soil and amendments were modified for operational reasons. In the case of Windrows 192 and 197, smaller windrows were formed and turning was performed using the front end loader due to rock content in the windrows.

TABLE 4-2 AMENDMENT QUANTITIES RECEIVED AND USED NSWC CRANE BIOFACILITY					
Quantities	**Cumulative Through August 1999**	**Operation Pending Toxicity Testing Sept., 1999 - Aug. 2000**	**TolTest Operation Third Quarter Sept. - Dec. 2000**	**TolTest Operation Forth Quarter Jan. - Mar. 2001**	**Cumulative**
Chicken Manure Used	10,612 tons	0	461	0	11,073 tons
Straw Used	5,226 tons	0	198	0	5,424 tons

The full scale windrows were monitored in 15 locations, as described in Section 4.4, in order to assess oxygen, temperature, pH and explosive concentrations. The 15 locations included five cross-sections through the windrow with three depths at each cross-section. Half-sized windrows were monitored in six locations to assess oxygen, temperature, pH, and explosive concentrations. The six locations included two cross-sections through the windrow with three depths at each cross-section as described in FCR-013 included in Appendix A of the IMR [MK, 2000].

During full scale operations of MFA, 102 windrows achieved Day Last status during the initial operation and another five achieved Day Last status during the additional Biofacility operation.

4.4 WINDROW TREATMENT FIELD PROCESS MONITORING

Process monitoring of each windrow included the daily monitoring of oxygen and temperature both prior to and after windrow turning with the SCARAB®. In addition, moisture levels and pH were monitored periodically with field instruments to demonstrate acceptable conditions for biological degradation. Field test kits were used to monitor the levels of explosive contaminants in the compost. Monitoring locations and frequencies for each of these parameters are described in Section 6.0 of the *FS-OP* [MK, 1998a]. All field instrumentation was calibrated daily prior to use. A summary of the monitoring data is provided, by windrow, in Appendix I.

4.4.1 Temperature

Temperature was monitored during soil treatment, as it is the primary indicator of successful thermophilic composting. The process goal was to maintain average windrow temperatures near 55°C during treatment. Temperature decreasing over time to below 50°C is viewed as an indicator that a windrow is nearing the end of its operation [Weston, 1993].

During full-scale operations, windrow temperature was monitored twice daily, before and after windrow turning. Temperature readings were taken using a hand-held temperature probe at six monitoring locations at each of the cross sections (3, 5, 7, 9, and 11) as described in Section 4.0 of the *FS-QAPP* [MK, 1998b]. Ambient air temperature and humidity inside the buildings were monitored daily using gauges mounted inside each building.

4.4.2 Oxygen

Oxygen levels approaching ambient atmospheric conditions, or about 20%, are preferred in a compost windrow, and 5% is considered the minimum for rapid compost degradation. Oxygen levels below 1% indicate anaerobic conditions. If sufficient oxygen levels are not maintained, proper microbial degradation may not occur, thermophilic temperatures may not be maintained, and putrefaction of organic matter may occur. During pilot scale operations, it was found that anaerobic conditions commonly exist in a compost windrow throughout most of each day depending on the density of the compost and the moisture content. As the compost degrades, the porosity is reduced which reduces the available oxygen. The windrows were turned daily to help increase the oxygen levels in the compost.

Like temperature, oxygen levels were also monitored twice daily both before and after windrow turning was performed. A hand-held probe was used to measure oxygen at the same locations used for the temperature measurements.

4.4.3 Moisture

As discussed in the *FS-OP* [MK, 1998a], the operating goal for composting moisture content was 40 to 60% maximum water holding capacity (WHC). Moisture level monitoring was performed three times per

week after windrow turning to determine if moisture addition was required to maintain the operating goals. Moisture levels were not monitored in 192 and 197 due to the rock content. Visual inspections were performed and moisture was added when appropriate.

One composite sample per cross-section, composed of three discrete samples, was collected for moisture level determination. These samples were analyzed to determine the maximum water holding capacity (WHC). The WHC is the ratio of the mass of water retained in the sample compared to the mass of water retained in the sample at saturation.

Based on the results of the moisture monitoring, water was added during the windrow mixing stage, as necessary, to maintain moisture conditions in the operating goals. Moisture was added to the windrows by using a spray grrom attached to a portable water tank. At no time during operations was leachate observed from any of the windrows.

4.4.4 pH

During the initial composting operation at MFA as documented in the IMR [MK, 2000] pH monitoring was performed until sufficient data had been obtained to accurately predict the resultant pH. As a result, weekly monitoring of the pH was discontinued and was not required during this subsequent composting activity at MFA.

4.4.5 Explosives

Field screening was performed at least weekly to monitor the RDX levels of each windrow being processed. Each sample represented a composite of the three sampling locations from each cross-section.

4.5 EXPLOSIVE CONTAMINANT LABORATORY SAMPLES

Explosives were the only contaminants that exceeded the industrial cleanup goals in the ICS, therefore, explosive compounds were the only parameters that required laboratory analysis during windrow treatment. Samples were collected for laboratory analysis following treatment (Day Last). Day Last samples were collected to confirm that the cleanup goals had been achieved when field screening for explosives indicated RDX readings were below detectable levels.

For each windrow, samples were collected from three locations in each of five cross-section areas across the windrow for a total of 15 locations. Samples were collected in glass jars, placed in a cooler or refrigerator and shipped to an off-site laboratory for analysis of explosives for confirmation purposes. Southwest Laboratories of Oklahoma performed analysis by Method 8330 according to SOP provided in Appendix C of the *FS-QAPP* [MK, 1998b]. Shipping and handling procedures are detailed in Section 4.3.4 of the *FS-QAPP*.

Analytical results of all explosives analyzed on Day Last are included, by windrow, in Appendix I. Average results for cycloteremethylenetetranitramine (HMX), RDX and TNT are summarized on Table 4-3, by windrow as well as the cleanup levels for these compounds. Residential cleanup levels for explosive compounds were achieved for all windrows and can be found in Table 4-3.

TABLE 4-3
AVERAGE RESULTS FROM EXPLOSIVE CONTAMINANT MONITORING
BIOREMEDIATED SOIL FROM MFA- NSWC CRANE

MFA - New Windrows

	Windrow 192		Windrow 194		Windrow 195	
	Day 0	Day 14	Day 0	Day 19	Day 0	Day 22
HMX		0.34		0.45		0.46
RDX		0.95		0.6		0.43
TNT		0.47		0.56		0.48

	Windrow 197		Windrow 198	
	Day 0	Day 20	Day 0	Day 21
HMX		0.26		0.54
RDX		0.24		1.08
TNT		0.48		0.43

MFA - Re-Sampled Windrows

	Windrow 92			Windrow 93		
	Day 0	Day 6	Day 454	Day 0	Day 6	Day 454
HMX	6.8	2.4	0.55	3.9	3.3	0.46
RDX	16.8	4.4	0.64	15.8	5.5	0.41
TNT	1.3	0.3	0.47	0.4	0.5	0.48

	Windrow 98			Windrow 101		
	Day 0	Day 7	Day 443	Day 0	Day 9	Day 432
HMX	7.2	2.2	0.42	8.9	2.4	0.63
RDX	30.1	5.3	0.6	48.8	6.5	1.06
TNT	33.6	0.2	0.48	2.6	1.1	0.48

	Windrow 102		
	Day 0	Day 14	Day 433
HMX	26.6	2.9	0.74
RDX	258.1	16.3	1.92
TNT	19.7	0.9	0.40

Cleanup Goals for Selected Explosive Compounds

	Residential Clean up Goal	Industrial Clean up Goal
	(mg/kg)	(mg/kg)
HMX	3,300	34,000
RDX	4.0	17
TNT	15	64

5.0
DISPOSITION OF TREATED COMPOST SOIL AND DECONTAMINATED ROCKS

5.1 TREATED COMPOST SOIL

Once laboratory analytical data verified that treatment goals were met for a windrow of treated compost soil, a loader transferred the treated material directly from the Biofacility building to semi-tractor live-bottom trailers. The trailers were free of contaminated soil prior to loading the treated material. Following loading, each truck was covered with a tarp and decontaminated before exiting the Biofacility. The treated soil was transported back to MFA and placed in the permanent storage area and in grids located on the backside of Building 154. Table 4-1 identifies the location(s) where each windrow of material was transported following treatment. Drawings showing the grid locations where windrows were backfilled are included in Appendix J. Final survey drawings of the work areas after completion of backfilling are included in Appendix F.

After backfilling, very little erosion occurred because a crust formed on the surface of the compost. If seeding did not take place shortly after placement of the windrow, a top dressing of fresh compost was spread prior to seeding.

5.2 DECONTAMINATED ROCKS

Following decontamination, rocks that were screened out of the excavated soil were returned to the bottom of an open excavation within the same SWMU where they were excavated. Rocks were covered with no less than two feet of finished compost. Backfill drawings in Appendix J show where the rocks were placed.

6.0
QUALITY CONTROL

6.1 QUALITY CONTROL FIELD INSPECTIONS

QC inspections included excavation site operations, composting operations, sampling activities, field test kit analyses, and facility maintenance. QC checks were performed at required intervals using the field inspection checklists provided in Appendix F of the *FS-OP* [MK, 1998a]. Copies of all inspection records are maintained at the Biofacility office.

Occasional minor deficiencies were noted during inspections and subsequently corrected. Typical findings included items such as retention pond levels with less than two feet of freeboard remaining immediately after a major rain event.

6.2 DATA QUALITY CONTROL

Various data QC methods were utilized to verify the usability of samples collected and submitted for laboratory analysis (PES and windrow contaminant monitoring samples (Day Last)). All samples for windrow monitoring were analyzed by Southwest Laboratory of Oklahoma, Inc. and most of the PES were analyzed by Severn-Trent, Inc. of California. All data submitted for laboratory analysis were verified by reviewing chain-of-custody records, sample extraction records, analytical holding times, requested turnaround times, sample data in comparison to QC data and reporting requirements. Additionally, 10% of the data were validated by TolTest, Inc. The data were compared with field and laboratory QC sample data to assess its usability. Sections 6.2.1 and 6.2.2 below summarize the field and laboratory QC methods employed, respectively. Sections 6.2.3 through 6.2.5 summarize the findings of the field and laboratory QC for the various types of project laboratory data.

6.2.1 Field Quality Control

Field QC included field duplicates, trip blanks, field blanks and equipment rinseates. Analytical results for these samples were evaluated to identify potential sources of error introduced during sampling, transportation and storage.

Field duplicates were collected at a frequency greater than the one in twenty samples specified in Section 3.1.2 in the *FS-QAPP* [MK, 1998b]. Field duplicates are samples collected at the same time and in the same location as the corresponding field sample, in order to qualitatively assess field precision. There are no quantitative precision criteria specified in the *FS-QAPP*.

Trip blanks were submitted with coolers containing samples to be analyzed for volatile organic compounds in order to evaluate the potential for cross-contamination during shipment to the laboratory. The trip blanks were received from the laboratory in a sealed container containing organic-free water, held intact at the site, and shipped back to the laboratory with the samples.

Field blank sample results were evaluated to identify any sources of contamination in the de-ionized rinse water and/or general atmospheric conditions in the field. Field blanks for water analysis were collected by pouring de-ionized water (from the same source used for sampling equipment decontamination) into appropriate sample containers with sample preservative, as required.

Equipment rinse blanks were collected by rinsing decontaminated sampling equipment with de-ionized water, collecting the rinse water in appropriate sample containers with any sample preservative required by the analytical method, and then submitting the rinse water for analysis. Results are used to evaluate the effectiveness of decontamination procedures in preventing sample cross-contamination.

6.2.2 Laboratory Quality Control

The laboratory performed method blank, replicate, surrogate, laboratory control sample (LCS), laboratory control sample duplicate (LCSD), sample matrix spike (MS), and sample matrix spike duplicate (MSD) analyses to evaluate laboratory accuracy and precision according to the established EPA procedures.

Laboratory method blanks were prepared and analyzed with the samples in order to evaluate potential target compounds or interferences from laboratory glassware, reagents and/or solvents used in the preparation and analysis of samples.

Laboratory replicate samples are a second sample aliquot which the laboratory prepares and analyzes concurrently with the sample to evaluate analysis precision.

Surrogate spikes are known amounts of non-target organic compounds, which are spiked into all samples prior to sample preparation, in order to evaluate the efficiency of the organic sample preparation and analysis.

LCS and LCSD are samples prepared in the laboratory, consisting of clean soil or water spiked with known amounts of target analytes which are processed through the same preparation as field samples. Evaluation of the spike recoveries, and the variability between the LCS and LCSD, gives an indication of analysis accuracy and precision in a clean matrix.

MS and MSD are field samples that have been spiked with a known amount of target analytes and processed through the preparation and analysis with the field samples. Evaluation of the spike recoveries, and the variability between the MS and MSD, gives an indication of analysis accuracy and precision in the sample matrix. MS/MSD accuracy and precision can be affected by concentrations of both target and non-target compounds present in the original field sample, as well as the matrix of the sample itself.

6.2.3 Initial Characterization Samples (ICS)

All results of the ICS were collected, reported, and validated in the *IMR for MFA* [MK, 2000]. QC summaries of both field and laboratory samples collected with ICS were reported in the IMR Report.

6.2.4 Post-Excavation Samples (PES)

PES were collected by TolTest following excavation and collection of in-process excavation samples to determine the levels of constituents of concern remaining in the soil at each grid section.

A total of 75 PES and associated QC samples were collected by TolTest for laboratory analysis and analyzed by Southwest Laboratory of Oklahoma, Inc. and Severn-Trent, Inc. of Sacramento, Calibornia. All samples were received by the laboratory in acceptable condition, with custody seals, correctly preserved, and with containers intact.

Field QC

Field QC samples collected with the TolTest PES included duplicates, trip blanks, field blanks and equipment rinse blanks.

In analysis of duplicates, precision for volatile, metal, and explosive analyses varied from 0-75%. In all cases, duplicate pairs showed analytes to either be both above or both below cleanup standards.

Trip blanks were submitted with all coolers containing samples to be analyzed for volatile organic compounds (VOCs) in order to evaluate the potential for cross-contamination during shipment to the laboratory. Acetone, a common laboratory contaminant, was detected in the trip blanks at concentrations ranging from 16 ug/L to 180 ug/L. Sample concentrations of acetone ranged from non-detect to 130 ug/kg. These levels are significantly less than the cleanup targets for acetone at 8,800,000 ug/kg. This the contamination has not adversely affected the interpretation of the data based upon sample concentrations relative to the industrial treatment standards. It also should be noted that acetone was detected in some of the method blanks analyzed by the laboratory indicating that the source of the contamination may be within the laboratory. Method blank values for acetone were also well below treatment levels. Other volatile compounds for these trip blanks were not detected above the reporting limit. The laboratory reported headspace, or bubbles , in one of the trip blank samples associated with the receipt of samples MFAPES 332 - 353. Since the laboratory prepares the trip blank and ships it to field personnel, the laboratory has been notified of corrective measures to assure no headspace in trip blank samples.

One rinsate blank was collected for these samples. All target compounds were found to be non-detect in this sample.

Laboratory QC

The laboratory performed method blank, laboratory duplicate, surrogate, LCS/LCSD and MS/MSD analyses to evaluate laboratory accuracy and precision according to the established EPA procedures.

Laboratory method blanks showed the presence of acetone, methylene chloride, xylene, aluminum, barium, chromium, and lead. For all of these analytes, the corresponding samples had levels significantly less than the targeted cleanup levels. Based on these findings, it is considered that the method blank contamination did not adversely affect the interpretation of the data based upon field sample concentrations relative to the industrial cleanup goals.

Laboratory duplicates and serial dilutions of the original sample were evaluated for metals analysis to access analysis precision. The laboratory reported the aluminum results for samples MFAPES 354 - 365 with an "E" qualifier flag. The serial dilution was outside the control limits of 10% and per the Contract Laboratory Protocol (CLP) all associated samples were flagged with an "E" qualifier. Corrective action was not required and the sample results are considered a true value. Sample concentration levels were significantly less than the clean-up goals and do not impact remediation work.

Surrogate recoveries were acceptable for all explosive analyses. Surrogate recoveries for volatile compounds were acceptable. One sample, MFAPES 307, had a slightly high recovery for 1,2-Dichloroethane-d4. The other surrogate recoveries for this sample were acceptable. The LCS/LCSD surrogate recoveries were within limits, and the concentration of target analytes were magnitueds lower than the cleanup levels, therefore analy results outside laboraotry QC limits do not adversely affect the interpretation of the data.

The four sets of LCS/LCSD data for explosives, metals, and volatile compounds with solid matrix were acceptable. The LCS/LCSD data for explosives, metals, and volatile compounds with a water matrix were generally acceptable. One set of data for the LCS water matrix showed that xylene was outside the laboratory QC limits. The corresponding sample did not show evidence of the xylene analyte. The bias in the recovery of this analyte for the LCS result outside laboratory QC limits would not significantly affect the interpretation of the data since the detection levels of the analyte is significantly lower than the cleanup objective. All other volatile compounds in the LCS were acceptable.

MS/MSD data for explosives, metals, and volatile compounds were generally acceptable. For MFAPES

332-353, the HMX and RDX analytes were outside QC limits in the MS and MSD, and for samples MFAPES 354 - 365, the aluminum recoveries were outside QC limits in the MS and MSD. However, the corresponding LCS/LCSD results did meet QC limits for both groups of samples. In all instances where the MS or MSD results did not meet laboratory QC limits, the corresponding LCS/LCSD results did meet QC limits, thus indicating a matrix effect and not a problem with instrumentation or analytical technique. Therefore, any MS/MSD results outside laboratory QC limits do not adversely affect the interpretation of the sample data.

Conclusion

All QC data relating to PES samples collected by TolTest, except those noted above, are within laboratory control limits. The QC data satisfy the project objectives. The data are found usable for the confirmation of accuracy for the stated analyses.

6.2.5 Windrow Explosive Monitoring Samples

Windrow explosive monitoring sampling was performed by TolTest. As indicated in Section 4.5, explosives were the only constituents of concern that exceeded the industrial cleanup goals in the ICS, therefore, they were the only parameters analyzed during windrow treatment. Windrow samples collected and submitted for laboratory analysis included only Day Last samples, collected after completion of treatment. Day Last samples were collected to confirm that the cleanup goals had been achieved. Day Last samples were collected after results from field screening test kits for explosives (RDX analysis) were below industrial cleanup goals.

As stated in Section 4.5, samples were collected from 15 locations in each windrow. TolTest collected Day Last samples for all windrows treated in this addendum.

A total of 125 Day Last samples were analyzed by Southwest Laboratory of Oklahoma, Inc. The compost samples collected for analysis were from windrows N-192, M-194, S-195, N-197 and M-198. Additional samples were collected from windrows M-092, N-093, M-098, S-101, and N-102 which was from already placed compost that previously met only industrial clean-up objectives. All samples were received by the laboratory in acceptable condition, with custody seals and with containers intact.

Forty-seven percent of the Day Last samples were received at temperatures of 4 degrees Centigrade (°C) ± 2°C. Fifty-three percent of the Day Last samples were received at 0.1°C to 2°C. Since none of these samples were frozen, the results were not affected by the 1°C below the desired temperature range.

Field Quality Control

Field duplicates were collected and analyzed as a method of field data QC. Precision for explosive analyses varied from 0-200%. This is not unexpected when considering the variable nature of the compost matrix. Often various analytes were below reporting levels in a sample and above reporting levels in the corresponding duplicate sample.

No rinse blanks of sampling equipment were obtained since all compost samples were collected by hand while wearing nitrile gloves and without the use of field equipment.

Laboratory Quality Control

Method blanks, surrogates, LCS/LCSD and MS/MSD samples were used for laboratory quality control for the windrow monitoring samples.

Laboratory method blanks showed no evidence of contamination above the analyte reporting limit.

The surrogate recoveries were acceptable for all samples analyzed for explosive compounds.

There was one set of LCS/LCSD data where QC results for 12 analytes were outside of laboratory control limits. In this case, the LCS recovery results were outside limits but the corresponding LCSD sample was within control limits for 11 of the 12 analytes, therefore, the impact on the sample data for those 11 analytes is minimal. The twelfth analyte, 4-NT, was outside of the laboratory control limits for both LCS and LCSD. The corresponding samples showed no evidence of the 4-NT analyte and the QC data was determined to be useable.

For the MS and MSD associated with samples BIO-N-197 Day 20, the 2-ADNT recoveries were outside QC limits. 2-ADNT were not detected in the samples, and the corresponding LCS/LCSD recoveries for 2-ADNT were within QC limits indicating a matrix effect.

The RDX recoveries were outside QC limits for the MS and MSD associated with samples BIO-S-101 Day 400. The corresponding LCS/LCSD recoveries were within QC limits for RDX suggesting a matrix effect. Also, the average RDX value for these samples was well below the treatment standards, thus the impact on the corresponding sample results was minimal.

Approximately 25% of the MS/MSD sets exhibited analytes slightly outside the limits in either the MS or MSD. In all of these cases where the MS or MSD results did not meet laboratory QC limits, the corresponding LCS/LCSD results did meet QC limits, thus indicating a matrix effect and not a problem with instrumentation or analytical technique. Therefore, any MS/MSD results outside QC limits do not adversely affect the interpretation of the sample data.

Conclusion

All QC data relating to Day Last samples collected by TolTest, except those noted above, are within the laboratory control limits. The QC data satisfy the project objectives and the data are found usable for the confirmation of accuracy for the stated analyses.

7.0
SAFETY AND INDUSTRIAL HYGIENE

7.1 GENERAL SAFETY

Safety inspections continued to be performed in a regular manner during this additional work. No significant findings of an imminent or serious nature were found. Immediate actions were taken to correct any minor findings observed. Daily informal walk around safety inspections reinforced and improved the worker safety performance.

7.2 INDUSTRIAL HYGIENE SAMPLING

During work activities associated with this additional work, no additional monitoring was performed. Samples analyzed and reported previously in the *IMR for MFA* [MK, 2000] for airborne bacteria/fungi (molds and yeast), ammonia, total dust, and airborne explosive compounds monitored similar conditions that were present at the side during this additional work activity. No additional monitoring was necessary.

8.0
CONCLUSIONS AND RECOMMENDATIONS

IM work at MFA including, identification, excavation, treatment, and backfilling/staging of explosives-contaminated soil around Buildings 152, 153/154, 157, and 158/159 has been completed in accordance with all relevant plans and plan modifications.

Work performed during the initial IMR work included excavation of impacted soil to the extent possible in all areas identified by initial characterization sampling. The initial IMR work left 17 grid sections (23, 24, 26, 29, 33, 34, 35, 36, 38, 40, 131, 132, 133, 135, 171, 172, and 173) near Buildings 153/154 which were not initially excavated pending the completion of supplemental toxicity testing of previously treated compost, as agreed to with the USEPA. All 17 of the above mentioned grids have been excavated, treated and backfilled in accordance with all relevant plans and plan modifications.

In some of the grid sections that were excavated during the initial IMR work, explosive impacted soil above the cleanup goals remains in areas where roads, railways, buildings, utilities or other permanent physical structures prevented complete removal of the material. All excavated soil was successfully treated at the Biofacility, by composting, to reduce the levels of contaminants of concern in the material to below either the industrial or residential cleanup goals. Treated soil was returned to the site and used for backfill. Compost which had been previously staged for future use has been re-sampled and meets residential cleanup goals. This material has been left in place at the staging area. No future IM work is recommended for the subject areas at MFA.

As reported in the initial IMR [MK, 2000] results of ICS collected at MFA revealed levels of arsenic above cleanup goals. Arsenic was not a contaminant of concern at the MFA site so it is assumed that the detected levels represent a high background for this compound at the NSWC Crane facility. A comparison of arsenic in soil at MFA to the Basewide Background Soil investigation Report for NSWC Crane will be accomplished during the future MFA RCRA Facility Investigation.

9.0
REFERENCES AND BIBLIOGRAPHY

REFERENCES

[Kristoff et al, 1987] *Testing to Determine Relationship Between Explosive Contaminated Sludge Components and Reactivity.* U.S. Army Toxic and Hazardous Materials Agency, Aberdeen, MD. Kristoff, F.T., Ewing, T.W., and Johnson, D.E., January 1987.

[Halliburton, 1992] *Final RCRA Facililty Investigation Phase 1, Environmental Monitoring Reports; Solid Waste Management Units # 19/00, #08/17, #12/14, #13/14, Naval Surface Warfare Center, Crane Division, Crane, Indiana.* Halliburton NUS Environmental Corporation. August 1992.

[Weston, 1993] *Windrow Composting for Explosives-Contaminated Soils at the Umatilla Depot Activity, Hermiston, Oregon.* Prepared by Roy F. Weston, Inc., West Chester, Pennsylvania, 1993.

[MK, 1997] *Work Plan for the Soils Bioremediation Facility at NSWC Crane, Crane, Indiana,* Delivery Order No. 0009, Contract N62467-93-D-1106. Prepared by Morrison Knudsen Corporation, June 30, 1997.

[NSWC Crane, 1997] Naval Surface Warfare Center, Storm-water Permit for Industrial Activities General Permit #INR00C083, 11/9/94, amended 1997.

[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. 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. Revision 2, March 12, 1998.

[MK, 1998c] *Construction As-Built Report for the Soils Bioremediation Facility at NSWC Crane, Crane, Indiana,* Delivery Order No. 0009, Contract No. N62467-93-D-1106. Prepared by Morrison Knudsen Corporation. February 1998.

[MK, 1998d] *Pilot-Scale Treatability Test Report for Soils Bioremediation Facility, NSWC Crane, Crane, Indiana,* Delivery Order No. 0009, Contract N62467-93-D-1106. Revision 1, September 02, 1998.

[MK, 1998e] 30% Soil Loading Batch Report, Full-Scale Bioremediation, NSWC Crane. Prepared by Morrison Knudsen Corporation. August 1998.

[MK, 1998f] Draft Toxicity Report, Full-Scale Bioremediation, NSWC Crane. Prepared by Morrison Knudsen Corporation. August 1998.

[Toltest, 2001] Supplemental Toxicity Report, Full-Scale Bioremediation, NSWC Crane. Prepared by Toltest, Inc. June 2001.

[Tetra Tec NUS, 2000] Basewide Background Soil Investigation Report, Naval Surface Warfare Center, Crane, Indiana, Tetra Tech NUS, March 2000.

BIBLIOGRAPHY

Quarterly Interim Progress Report, April - June 1998, Full-Scale Operations, Bioremediation of Explosives Contaminated Soil, NSWC Crane, Crane, Indiana. Prepared by Morrison Knudsen Corporation. July 1998.

Quarterly Interim Progress Report, July - September 1998, Full-Scale Operations, Bioremediation of Explosives Contaminated Soil, NSWC Crane, Crane, Indiana. Prepared by Morrison Knudsen Corporation. December 1998.

Quarterly Interim Progress Report, October - December 1998, Full-Scale Operations, Bioremediation of Explosives Contaminated Soil, NSWC Crane, Crane, Indiana. Prepared by Morrison Knudsen Corporation. April 1999.

Quarterly Interim Progress Report, January - March 1999, Full-Scale Operations, Bioremediation of Explosives Contaminated Soil, NSWC Crane, Crane, Indiana. Prepared by Morrison Knudsen Corporation. June 1999.

Quarterly Interim Progress Report, March 27 - August 31, 1999, Full-Scale Operations, Bioremediation of Explosives Contaminated Soil, NSWC Crane, Crane, Indiana. Prepared by TolTest. December 1999.

U.S. Environmental Protection Agency, *Seminar on Technologies for Remediation Sites Contaminated with Explosive and Radioactive Wastes*, EPA/625/K-93/001. June 1993.

U.S. Environmental Protection Agency, *Approaches for the Remediation of Federal Facility Sites Contaminated with Explosive or Radioactive Wastes,* EPA/625/R-93/013. September 1993.

APPENDIX A

FIELD CLARIFICATION REQUESTS

(2 pages)

Crane Naval Surface Warfare Center TolTest, Inc.	EJOC Contract N622467-96-D-0052

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.:	Subcontract No.:	FCR No.:
FC03	N/A	FCO3-FCR-FS029 **Rev. 1**
Disposition of Staged Compost		Page 1 of 1

Reference Documents:
Full-Scale Operational Plan for Soils Bioremediation Facility, March 1998 Rev. 2
Quality Assurance Project Plan for Full-Scale Operations Soils Bioremediation Facility, July 1999 Rev. 3

Problem / Change Description:
There are currently 5 windrows staged at the Mine Fill A temporary staging area and 6 windrows staged at the Mine Fill B temporary staging area. The average Day Final explosives results for these windrows were above residential cleanup goals but below industrial cleanup goals. Handling and disposal requirements for compost meeting industrial cleanup goals are more restrictive than for compost meeting residential cleanup goals: this compost must either be buried and covered with a minimum of two feet of compost meeting residential cleanup goals or be staged on and under plastic until a burial place becomes available. Excavation of contaminated soil is nearly complete at both Mine Fills and there are not enough excavations deep enough to contain all of the staged compost.

Initiated by	Signature:	Organization: TolTest, Inc.	Date: 9/29/2000

Resolution:
At the discretion of TolTest Inc, each compost windrow at the staging areas may be sampled to determine if explosives degradation has occurred such that residential cleanup goals have now been achieved. To gain access to the interior of the windrow for sampling purposes, a backhoe with a decontaminated bucket will be utilized to dig into the compost at 5 locations to a minimum depth of 5 feet. Three grab samples will be obtained at each of the 5 locations at an approximate depth of 1 foot, 3 feet, and 5 feet. The samples will be obtained from the face of the cut opened by the backhoe. The depths specified are perpendicular to the surface of the pile. Using this procedure, 15 samples will be obtained which is the same number of samples required by the approved Quality Assurance Project Plan for Full-Scale Operations Soils Bioremediation Facility (QAPP) when sampling a windrow at the Biofacility. All analytical requirements, quality control samples (duplicates, MS/MSD), sample handling, and custody procedures will be followed as outlined in the QAPP. Should analytical results show that residential cleanup goals have been achieved and the windrows are moved from the staging areas, the location of their final disposition will be tracked and logged.

Approval by TolTest, PM	Signature: Lance Parsons	Date: 10/19/00	Approval by ROICC/NTR or RPM	Signature: Brent Robertson	Date 10/27/00
Approval by TolTest QC/SHSO	Signature: Debbie Leighty for	Date: 10/14/00	Approval by EPD ECOTR:	Signature Christine Freeman	Date 10/19/00

Regulator Approval/Notification Recommended:
Yes ☐ No ☐

Crane Naval Surface Warfare Center TolTest, Inc.	EJOC Contract N622467-96-D-0052

FIELD CLARIFICATION REQUEST (FCR)

Delivery Order No.: FC03	Subcontract No.: N/A	FCR No.: FCO3-FCR-FS029 Rev. 1
Disposition of Staged Compost		Page 1 of 1

Reference Documents:

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Quality Assurance Project Plan for Full-Scale Operations Soils Bioremediation Facility, July 1999 Rev. 3

Problem / Change Description:

There are currently 5 windrows staged at the Mine Fill A temporary staging area and 6 windrows staged at the Mine Fill B temporary staging area. The average Day Final explosives results for these windrows were above residential cleanup goals but below industrial cleanup goals. Handling and disposal requirements for compost meeting industrial cleanup goals are more restrictive than for compost meeting residential cleanup goals: this compost must either be buried and covered with a minimum of two feet of compost meeting residential cleanup goals or be staged on and under plastic until a burial place becomes available. Excavation of contaminated soil is nearly complete at both Mine Fills and there are not enough excavations deep enough to contain all of the staged compost.

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Approval by TolTest QC/SHSO	Signature: Debbie Leighty	Date:	Approval by EPD ECOTR:	Signature Christine Freeman	Date

Regulator Approval/Notification Recommended:

Yes No [redacted]

10/4/2000

APPENDIX B

WASTE DISPOSAL DOCUMENTATION

No additional waste disposal was performed exclusively during operations performed with this additional work. Documentation has been provided in the initial IMR for MFA, or will subsequently be included in the IMR for MFB.

APPENDIX C

INITIAL CHARACTERIZATION SAMPLING GRID LOCATION DRAWINGS

No additional characterization sampling was performed during this additional work. All chacterization samples pertaining to Building 153/154 were provided in the initial IMR for MFA.

APPENDIX D

GRID EXCAVATION SAMPLING SUMMARY

(25 pages)

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
1	MPSICS01			X	MPSPES05			X	MFAPES153		X	
	MPSICS02			X	MPSPES06	X	X		MFAPES154	X	X	
	MFAICS293	X	X									
	MFAICS294	X	X									
	MFAICS295	X	X									
	MFAICS296	X	X									
	MFAICS297	X	X									
2	MPSICS03			X	MPSPES07			X	MFAPES155			X
	MPSICS04			X	MPSPES08	X	X		MFAPES156	X	X	
	MFAICS298		X									
	MFAICS299	X	X									
	MFAICS300	X	X									
	MFAICS301	X	X									
3	MPSICS05			X	MFAPES111			X				
	MPSICS06			X	MFAPES112	X	X					
4	MPSICS07			X	MFAPES113			X				
	MPSICS08			X	MFAPES114	X	X					
					MFAPES115			X				
					MFAPES116	X	X					
5	MPSICS09			X	MFAPES121			X				
	MPSICS10			X	MFAPES122	X	X					
	MPSICS11			X								
6	MPSICS12			X	MFAPES077		X					
	MPSICS13			X	MFAPES078	X	X					
7	MPSICS14			X	MFAPES075	X	X					
	MPSICS15		X		MFAPES076	X	X					
8	MPSICS16	X	X		MFAPES071		X					
	MPSICS17			X	MFAPES072	X	X					

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9	MPSICS18		X		MFAPES079	X	X					
	MPSICS19		X		MFAPES080	X	X					
	MPSICS20		X									
10	MPSICS21			X	MFAPES175			X				
	MPSICS22			X	MFAPES176	X	X					
11	MPSICS23			X	MFAPES177			X				
	MPSICS24			X	MFAPES178	X	X					
12	MPSICS25			X	MFAPES181			X				
	MPSICS26			X	MFAPES182	X	X					
13	MFAICS113			X	MFAPES099	X	X					
	MFAICS114	X	X		MFAPES100	X	X					
	MFAICS115			X								
14	MFAICS116			X	MFAPES101		X					
	MFAICS117	X	X		MFAPES102	X	X					
	MFAICS118			X								
15	MFAICS50			X	MFAPES149		X					
	MFAICS51	X	X		MFAPES150	X	X					
	MFAICS52		X									
16	MFAICS27			X	MFAPES081		X					
	MFAICS28	X	X		MFAPES082	X	X					
	MFAICS29	X	X									
17	MFAICS30			X	MFAPES069			X				
	MFAICS31	X	X		MFAPES070	X	X					
	MFAICS32			X								
	MFAICS33	X	X									
18	MFAICS34			X	MFAPES067		X					
	MFAICS35	X	X		MFAPES068	X	X					
	MFAICS36			X								

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19	MFAICS37		X									
	MFAICS38	X	X									
	MFAICS39	X	X									
	MFAICS40		X									
20	MFAICS41			X	MFAPES027		X					
	MFAICS42	X	X		MFAPES028	X	X					
21	MFAICS43	X	X									
	MFAICS44	X	X									
	MFAICS45	X	X									
22	MFAICS46			X	MFAPES029	X	X					
	MFAICS47	X	X		MFAPES030	X	X					
	MFAICS48	X	X									
	MFAICS49			X								
23	MFAICS53			**X**	***MFAPES314***	X*	X*					
	MFAICS54	X	X		***MFAPES315***	X	X					
	MFAICS55		X									
24	MFAICS56			**X**	***MFAPES312***	X*	X*					
	MFAICS57	X	X		***MFAPES313***	X	X					
	MFAICS58		X									
	MFAICS59		X									
25	MFAICS60		X		***MFAPES310***	X*	X*					
	MFAICS61	X	X		***MFAPES311***	X	X					
	MFAICS62	X	X									
	MFAICS63		X									
26	MFAICS64			**X**	***MFAPES308***	X*	X*					
	MFAICS65	X	X		***MFAPES309***	X	X					
	MFAICS66			**X**								
27	MFAICS67			X	***MFAPES284***			**X**				

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	MFAICS68	X	X		***MFAPES285***	X	X					
	MFAICS69			X								
28	MFAICS70			X	***MFAPES282***			**X**				
	MFAICS71	X	X		***MFAPES283***	X	X					
	MFAICS72			X								
29	MFAICS73			**X**	***MFAPES332***	X*	X*					
	MFAICS74	X	X		***MFAPES333***	X	X					
	MFAICS75			**X**								
30	MFAICS76			X	***MFAPES290***	X	X					
	MFAICS77	X	X		***MFAPES291***	X	X					
	MFAICS78		X									
31	MFAICS79			X	***MFAPES286***		X					
	MFAICS80			X	***MFAPES287***	X	X					
	MFAICS81	X	X									
	MFAICS82	X	X									
32	MFAICS83	X	X		***MFAPES288***	X	X					
	MFAICS84	X	X		***MFAPES289***	X	X					
	MFAICS85	X	X									
33	MFAICS86			**X**	***MFAPES340***	X*	X*					
	MFAICS87	X	X		***MFAPES341***	X	X					
	MFAICS88	X	X									
	MFAICS89			**X**								
	MFAICS90	X	X									
34	MFAICS91			**X**	***MFAPES336***	X*	X*					
	MFAICS92	X	X		***MFAPES337***	X	X					
	MFAICS93		X									
35	MFAICS94			**X**	***MFAPES338***	X*	X*					
	MFAICS95	X	X		***MFAPES338FD***	X*	X*					

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	MFAICS96			X	***MFAPES339***	X	X					
36	MFAICS97	X	X	X	***MFAPES342***	X*	X*					
	MFAICS98				***MFAPES343***	X	X					
	MFAICS99			X								
37	MFAICS100	X	X	X	***MFAPES298***	X	X	X	***MFAPES344***	X*	X*	
	MFAICS101				***MFAPES299***				***MFAPES345***	X	X	
	MFAICS102			X								
	MFAICS103			X								
38	MFAICS104	X	X	X	***MFAPES346***	X*	X*					
	MFAICS105				***MFAPES347***	X	X					
	MFAICS106		X									
39	MFAICS107	X	X	X	***MFAPES294***	X	X					
	MFAICS108				***MFAPES295***		X					
	MFAICS109		X									
40	MFAICS110	X	X	X	***MFAPES348***	X*	X*					
	MFAICS111				***MFAPES349***	X	X					
	MFAICS112			X								
41	MFAICS126	X	X	X	MFAPES017	X	X					
	MFAICS127				MFAPES018		X					
	MFAICS128			X								
42	MFAICS181	X	X	X	MFAPES019	X	X					
	MFAICS182				MFAPES020		X					
	MFAICS183		X									
	MFAICS184		X									
43	MFAICS132	X	X	X	MFAPES143	X	X					
	MFAICS133				MFAPES144		X					
	MFAICS134		X									
44	MFAICS157	X	X									

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	MFAICS158	X	X									
	MFAICS159	X	X									
45	MFAICS154			X	MFAPES129	X	X					
	MFAICS155	X	X		MFAPES130	X	X					
	MFAICS156		X									
46	MFAICS191	X	X									
	MFAICS192	X	X									
	MFAICS193	X	X									
47	MFAICS194	X	X									
	MFAICS195	X	X									
	MFAICS196	X	X									
48	MFAICS151			X	MFAPES131	X	X					
	MFAICS152	X	X		MFAPES132	X	X					
	MFAICS153		X									
49	MFAICS197			X	MFAPES141		X					
	MFAICS198	X	X		MFAPES142	X	X					
	MFAICS199	X	X									
50	MFAICS148			X	MFAPES133	X	X					
	MFAICS149	X	X		MFAPES134	X	X					
	MFAICS150	X	X									
51	MFAICS200			X	MFAPES161	X	X					
	MFAICS201	X	X		MFAPES162	X	X					
	MFAICS202	X	X									
52	MFAICS145			X	MFAPES135	X	X					
	MFAICS146	X	X		MFAPES136	X	X					
	MFAICS147		X									
53	MFAICS203			X	MFAPES165		X					
	MFAICS204	X	X		MFAPES166	X	X					

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	MFAICS205	X	X									
	MFAICS206	X	X									
54	MFAICS141			X	MFAPES137		X					
	MFAICS142			X	MFAPES138	X	X					
	MFAICS143	X	X									
	MFAICS144		X									
55	MFAICS207			X	MFAPES167	X	X					
	MFAICS208	X	X		MFAPES168	X	X					
	MFAICS209	X	X									
56	MFAICS138			X	MFAPES139			**X**				
	MFAICS139	X	X		MFAPES140	X	X					
	MFAICS140			X								
57	MFAICS210			X	MFAPES169		X					
	MFAICS211	X	X		MFAPES170	X	X					
	MFAICS212			X								
58	MFAICS135			X	MFAPES197			**X**				
	MFAICS136	X	X		MFAPES198	X	X					
	MFAICS137		X									
59	MFAICS213			X	MFAPES199			**X**				
	MFAICS214	X	X		MFAPES200	X	X					
	MFAICS215											
60	MFAICS185			X	***MFAPES296***	X	X					
	MFAICS186	X	X		***MFAPES297***	X	X					
	MFAICS187		X									
61	MFAICS188	X	X									
	MFAICS189	X	X									
	MFAICS190	X	X									
62	MFAICS129			X	MFAPES179			**X**				

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	MFAICS130	X	X		MFAPES180	X	X					
	MFAICS131			X								
63	MFAICS164			X	MFAPES183			X				
	MFAICS165	X	X		MFAPES184	X	X					
	MFAICS166			X								
64	MFAICS119			X	MFAPES173			X				
	MFAICS120	X	X		MFAPES174	X	X					
	MFAICS121			X								
	MFAICS122			X								
65	MFAICS123			X	MFAPES171			X				
	MFAICS124	X	X		MFAPES172	X	X					
	MFAICS125			X								
66	MFAICS178			X	MFAPES157	X	X					
	MFAICS179	X	X		MFAPES158	X	X					
	MFAICS180		X									
67	MFAICS173			X	MFAPES163		X					
	MFAICS174	X	X		MFAPES164	X	X					
	MFAICS175	X	X									
	MFAICS176	X	X									
	MFAICS177	X	X									
68	MFAICS170		X									
	MFAICS171	X	X									
	MFAICS172	X	X									
69	MFAICS167	X	X									
	MFAICS168	X	X									
	MFAICS169	X	X									
70	MFAICS160			X	MFAPES195	X	X					
	MFAICS161	X	X		MFAPES196	X	X					

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	MFAICS162			X								
	MFAICS163			X								
71	MFAICS380			X	MFAPES215		X					
	MFAICS381	X	X		MFAPES216	X	X					
	MFAICS382			X								
72	MFAICS383			X	MFAPES213			X				
	MFAICS384	X	X		MFAPES214	X	X					
	MFAICS385			X								
73	MFAICS386			X	MFAPES211	X	X					
	MFAICS387	X	X		MFAPES212	X	X					
	MFAICS388		X									
74	MFAICS389			X	MFAPES209	X	X					
	MFAICS390	X	X		MFAPES210	X	X					
	MFAICS391			X								
75	MFAICS392			X	MFAPES201	X	X					
	MFAICS393			X	MFAPES202	X	X					
	MFAICS394	X	X									
	MFAICS395			X								
76	MFAICS396			X	MFAPES203	X	X					
	MFAICS397	X	X		MFAPES204	X	X					
	MFAICS398			X								
77	MFAICS399			X	MFAPES205		X					
	MFAICS400	X	X		MFAPES206	X	X					
	MFAICS401		X									
78	MFAICS411			X	***MFAPES269***		X					
	MFAICS412	X	X		***MFAPES270***	X	X					
	MFAICS413			X	***MFAPES271***	X	X					
					MFAPES272		X					

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					MFAPES273	X	X					
79	MFAICS414	X	X									
	MFAICS415	X	X									
	MFAICS416	X	X									
	MFAICS417	X	X									
80	MFAICS418		X									
	MFAICS419	X	X									
	MFAICS420	X	X									
81	MFAICS421		X									
	MFAICS422	X	X									
	MFAICS423	X	X									
82	MFAICS437			X	***MFAPES274***	X	X					
	MFAICS438	X	X		***MFAPES275***	X	X					
	MFAICS439		X									
83	MFAICS440	X	X		***MFAPES276***		X					
	MFAICS441	X	X		***MFAPES277***	X	X					
	MFAICS442			X								
84	MFAICS443			X	***MFAPES278***	X	X					
	MFAICS444	X	X		***MFAPES279***	X	X					
	MFAICS445		X									
85	MFAICS351	X	X									
	MFAICS352	X	X									
	MFAICS353	X	X									
	MFAICS354	X	X									
86	MFAICS355	X	X									
	MFAICS356	X	X									
	MFAICS357	X	X									
87	MFAICS358	X	X									

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	MFAICS359	X	X									
	MFAICS360	X	X									
88	MFAICS402			X	MFAPES207	X	X					
	MFAICS403	X	X		MFAPES208	X	X					
	MFAICS404		X									
89	MFAICS433		X									
	MFAICS434	X	X									
	MFAICS435	X	X									
	MFAICS436	X	X									
90	MFAICS430			X	***MFAPES265***	X	X					
	MFAICS431	X	X		***MFAPES266***	X	X					
	MFAICS432			X	***MFAPES267***	X	X					
					MFAPES268	X	X					
91	MFAICS427	X	X									
	MFAICS428	X	X									
	MFAICS429	X	X									
92	MFAICS424			X	***MFAPES280***		X					
	MFAICS425	X	X		***MFAPES281***	X	X					
	MFAICS426		X									
93	MFAICS377	X	X									
	MFAICS378	X	X									
	MFAICS379	X	X									
94	MFAICS408	X	X									
	MFAICS409	X	X									
	MFAICS410	X	X									
95	MFAICS405		X									
	MFAICS406	X	X									
	MFAICS407	X	X									

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
96	MFAICS229			X	***MFAPES260***			X	***MFAPES262***	X	X	
	MFAICS230	X	X		***MFAPES261***	X	X		***MFAPES263***	X	X	
	MFAICS231			X					***MFAPES264***		X	
97	MFAICS232			X	***MFAPES258***	X*	X*					
	MFAICS233	X	X		***MFAPES259***	X	X					
	MFAICS234			X								
98	MFAICS235			X	***MFAPES256***	X*	X*					
	MFAICS236	X	X		***MFAPES257***	X	X					
	MFAICS237			X								
99	MFAICS238			X	***MFAPES254***		X*					
	MFAICS239	X	X		***MFAPES254FD***		X*					
	MFAICS240			X	***MFAPES255***	X	X					
100	MFAICS497			X	***MFAPES253***	X	X					
	MFAICS498	X	X		***MFAPES237***	X	X					
	MFAICS499			X								
	MFAICS500			X								
101	MFAICS507			X	***MFAPES239***		X					
	MFAICS508	X	X		***MFAPES240***	X	X					
	MFAICS509		X									
102	MFAICS510			X	***MFAPES247***		X					
	MFAICS511	X	X		***MFAPES248***	X	X					
	MFAICS512											
103	MFAICS526			X	***MFAPES235***			X				
	MFAICS527	X	X		***MFAPES236***	X	X					
	MFAICS528			X								
104	MFAICS523			X	***MFAPES233***		X*					
	MFAICS524	X	X		***MFAPES234***	X	X					
	MFAICS525	X	X									

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
105	MFAICS519		X		***MFAPES231***	X*	X*					
	MFAICS520			X	***MFAPES232***	X	X					
	MFAICS521	X	X									
	MFAICS522			X								
106	MFAICS222			X	***MFAPES223***			**X**				
	MFAICS223	X	X		***MFAPES224***	X	X					
	MFAICS224			X								
107	MFAICS487			X	***MFAPES225***	X*	X*					
	MFAICS488	X	X		***MFAPES226***	X	X					
	MFAICS489			X								
	MFAICS490	X	X									
108	MFAICS244			X	***MFAPES227***	X*	X*					
	MFAICS245	X	X		***MFAPES228***	X	X					
	MFAICS246	X	X									
	MFAICS247	X	X									
109	MFAICS241		X		***MFAPES229***		X*					
	MFAICS242	X	X		***MFAPES229FD***		X*					
	MFAICS243		X		***MFAPES230***	X	X					
110	MFAICS491	X	X									
	MFAICS492	X	X									
	MFAICS493	X	X									
111	MFAICS248	X	X									
	MFAICS249	X	X									
	MFAICS250	X	X									
112	MFAICS501			X	***MFAPES241***	X	X					
	MFAICS502	X	X		***MFAPES242***	X	X					
	MFAICS503		X		***MFAPES243***		X					
					MFAPES244	X	X					

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
					MFAPES245	X	X					
					MFAPES246	X	X					
113	MFAICS504	X	X									
	MFAICS505	X	X									
	MFAICS506	X	X									
114	MFAICS513			X	***MFAPES249***		X					
	MFAICS514	X	X		***MFAPES250***	X	X					
	MFAICS515		X									
115	MFAICS516	X	X									
	MFAICS517	X	X									
	MFAICS518	X	X									
116	MFAICS225		X									
	MFAICS226		X									
	MFAICS227	X	X									
	MFAICS228	X	X									
117	MFAICS219			X	***MFAPES217***	X*	X*					
	MFAICS220	X	X		***MFAPES218***	X	X					
	MFAICS221		X		***MFAPES219***	X*	X*					
					MFAPES220	X	X					
					MFAPES221	X*	X*					
					MFAPES222	X	X					
118	MFAICS216	X	X									
	MFAICS217	X	X									
	MFAICS218	X	X									
119	MFAICS494	X	X									
	MFAICS495	X	X									
	MFAICS496	X	X									
120	MFAICS481	X	X									

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
	MFAICS482	X	X									
	MFAICS483	X	X									
121	MFAICS484	X	X									
	MFAICS485	X	X									
	MFAICS486	X	X									
122					MFAPES093		X					
					MFAPES094	X	X					
123					MFAPES103		X					
					MFAPES104	X	X					
124					MFAPES105		X					
					MFAPES106	X	X					
125					MFAPES107	X	X					
					MFAPES108	X	X					
126					MFAPES109			**X**				
					MFAPES110	X	X					
127	MFAICS251			X	MFAPES095			**X**				
	MFAICS252	X	X		MFAPES096	X	X					
	MFAICS253	X	X									
128	MFAICS254			X	MFAPES097			**X**				
	MFAICS255	X	X		MFAPES098	X	X					
	MFAICS256		X									
129	MFAICS257		X									
	MFAICS258	X	X									
	MFAICS259		X									
130					***MFAPES292***	X	X					
					MFAPES293	X	X					
131	MFAICS260			**X**	***MFAPES318***	X*	X*					

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
	MFAICS261	X	X		***MFAPES318FD***	X*	X*					
	MFAICS262			**X**	***MFAPES319***	X	X					
132	MFAICS263			**X**	***MFAPES334***	X*	X*					
	MFAICS264	X	X		***MFAPES335***	X	X					
	MFAICS265		X									
133	MFAICS266			**X**	***MFAPES306***	X*	X*					
	MFAICS267			**X**	***MFAPES307***	X	X					
	MFAICS268	X	X									
	MFAICS269			**X**								
134	MFAICS274			X	MFAPES117			**X**				
	MFAICS275	X	X		MFAPES118	X	X					
	MFAICS276			X	MFAPES119			**X**				
					MFAPES120			**X**				
135	MFAICS270			**X**	***MFAPES316***	X*	X*					
	MFAICS271	X	X		***MFAPES317***	X	X					
	MFAICS272		X									
	MFAICS273	X	X									
136	MFAICS302			X	MFAPES025	X	X					
	MFAICS303	X	X		MFAPES026	X	X					
	MFAICS304	X	X									
137	MFAICS277			X	MFAPES085		X					
	MFAICS278	X	X		MFAPES086	X	X					
	MFAICS279		X									
138	MFAICS280			X	MFAPES083		X					
	MFAICS281	X	X		MFAPES084	X	X					
	MFAICS282			X								
139	MFAICS283			X	MFAPES073		X					
	MFAICS284	X	X		MFAPES074	X	X					

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
	MFAICS285			X								
140	MFAICS286			X	MFAPES031		X					
	MFAICS287	X	X		MFAPES032	X	X					
	MFAICS288	X	X		MFAPES033	X	X					
	MFAICS289			X	MFAPES034	X	X					
141	MFAICS305	X	X									
	MFAICS306	X	X									
	MFAICS307	X	X									
142	MFAICS290			X	MFAPES151		X					
	MFAICS291	X	X		MFAPES152	X	X					
	MFAICS292			X								
143	MFAICS324			X	MFAPES147		X					
	MFAICS325	X	X		MFAPES148	X	X					
	MFAICS326			X								
144	MFAICS327			X	MFAPES021		X					
	MFAICS328	X	X		MFAPES022	X	X					
	MFAICS329			X								
145	MFAICS321			X	MFAPES015		X					
	MFAICS322	X	X		MFAPES016	X	X					
	MFAICS323			X								
146	MFAICS318			X	MFAPES013		X					
	MFAICS319	X	X		MFAPES014	X	X					
	MFAICS320			X								
147	MFAICS311			X	MFAPES011		X					
	MFAICS312	X	X		MFAPES012	X	X					
	MFAICS313			X								
148	MFAICS308			X	MFAPES009	X	X					
	MFAICS309	X	X		MFAPES010	X	X					

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
	MFAICS310		X									
149	MFAICS334			X	MFAPES185			X				
	MFAICS335	X	X		MFAPES186	X	X					
	MFAICS336			X								
150	MFAICS337			X	MFAPES189			X				
	MFAICS338	X	X		MFAPES190	X	X					
	MFAICS339	X	X									
151	MFAICS330			X	MFAPES193		X					
	MFAICS331			X	MFAPES194	X	X					
	MFAICS332	X	X									
	MFAICS333		X									
152	MFAICS340	X	X									
	MFAICS341	X	X									
	MFAICS342	X	X									
153	MFAICS343			X	MFAPES187		X					
	MFAICS344	X	X		MFAPES188	X	X					
	MFAICS345	X	X									
154	MFAICS314	X	X									
	MFAICS315	X	X									
	MFAICS316	X	X									
	MFAICS317	X	X									
155	MFAICS346	X	X									
	MFAICS347	X	X									
156	MFAICS348	X	X									
	MFAICS349	X	X									
	MFAICS350	X	X									
157	MFAICS361	X	X									
	MFAICS362	X	X									

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
	MFAICS363	X	X									
158	MFAICS364	X	X									
	MFAICS365	X	X									
	MFAICS366	X	X									
159	MFAICS367	X	X									
	MFAICS368	X	X									
	MFAICS369	X	X									
160	MFAICS370	X	X									
	MFAICS371	X	X									
	MFAICS372	X	X									
161	MFAICS373	X	X									
162	MFAICS374	X	X									
	MFAICS375	X	X									
	MFAICS376	X	X									
163	MFAICS446			X	MFAPES035		X					
	MFAICS447	X	X		MFAPES036	X	X					
	MFAICS448		X		MFAPES037	X	X					
					MFAPES038	X	X					
164	MFAICS449			X	MFAPES039		X					
	MFAICS450	X	X		MFAPES040	X	X					
	MFAICS451		X		MFAPES041	X	X					
					MFAPES042	X	X					
165	MFAICS452			X	MFAPES043		X					
	MFAICS453	X	X		MFAPES044	X	X					
	MFAICS454		X		MFAPES045	X	X					
					MFAPES046	X	X					
166	MFAICS465			X	MFAPES055		X		MFAPES145	X	X	
	MFAICS466	X	X		MFAPES056	X	X		MFAPES146	X	X	

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
	MFAICS467		X		MFAPES057			X				
					MFAPES058	X	X					
					MFAPES059		X					
					MFAPES060	X	X					
167	MFAICS463			X	MFAPES061		X					
	MFAICS464	X	X		MFAPES062	X	X					
					MFAPES063		X					
					MFAPES064	X	X					
					MFAPES065		X					
					MFAPES066	X	X					
168	MFAICS460	X	X									
	MFAICS461	X	X									
	MFAICS462	X	X									
169	MFAICS456	X	X									
	MFAICS457	X	X									
	MFAICS458	X	X									
	MFAICS459	X	X									
170	MFAICS468	X	X									
	MFAICS469	X	X									
	MFAICS470	X	X									
171	MFAICS471			**X**	***MFAPES304***	X*	X*					
	MFAICS472	X	X		***MFAPES305***	X	X					
	MFAICS473			**X**								
172	MFAICS474			**X**	***MFAPES302***	X*	X*					
	MFAICS475	X	X		***MFAPES303***	X	X					
	MFAICS476		X									
173	MFAICS477			**X**	***MFAPES300***	X*	X*		***MFAPES350***	X*	X*	
	MFAICS478			**X**	***MFAPES301***	X	X		***MFAPES351***	X	X	

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
	MFAICS479	X	X						***MFAPES352***	X*	X*	
	MFAICS480	X	X						***MFAPES353***	X	X	
174	MFAICS535	X	X									
	MFAICS536	X	X									
	MFAICS537	X	X									
	MFAICS538	X	X									
175	MFAICS539		X									
	MFAICS540	X	X									
	MFAICS541		X									
	MFAICS542		X									
176	MFAICS549			X	MFAPES047		X					
	MFAICS551			X	MFAPES048	X	X					
	MFAICS550	X	X		MFAPES049	X	X					
					MFAPES050	X	X					
					MFAPES051	X	X					
					MFAPES052	X	X					
					MFAPES053	X	X					
					MFAPES054	X	X					
177	MFAICS543	X	X									
	MFAICS544	X	X									
	MFAICS545		X									
178	MFAICS555	X	X									
	MFAICS555-FD	X	X									
	MFAICS556	X	X									
	MFAICS557	X	X									
179	MFAICS558	X	X									
	MFAICS559	X	X									
	MFAICS560	X	X									

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
180	MFAICS552	X	X									
	MFAICS554	X	X									
	MFAICS553	X	X									
181	MFAICS529		X									
	MFAICS530	X	X									
	MFAICS531	X	X									
182	MFAICS532		X		MFAPES191	X	X					
	MFAICS533	X	X		MFAPES192	X	X					
	MFAICS534	X	X									
183	MFAICS561			X	MFAPES159	X	X					
	MFAICS562FD			X	MFAPES160	X	X					
	MFAICS563	X	X									
	MFAICS564	X	X									
184	MFAICS565	X	X									
	MFAICS566	X	X									
	MFAICS567	X	X									
185	MFAICS568			X	***MFAPES251***	X	X					
	MFAICS569	X	X		***MFAPES252***	X	X					
	MFAICS570		X									
	MFAICS571	X	X									
	MFAICS572	X	X									
	MFAICS573	X	X									
	MFAICS574FD			X								
186	MFAICS588		X									
	MFAICS589	X	X									
	MFAICS590	X	X									
187	MFAICS591	X	X									
	MFAICS592	X	X									

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
	MFAICS593	X	X									
	MFAICS593FD	X	X									
188	MFAICS594	X	X									
	MFAICS595	X	X									
	MFAICS596	X	X									
189	MFAICS600	X	X									
	MFAICS601	X	X									
	MFAICS602	X	X									
	MFAICS602FD	X	X									
190	MFAICS597	X	X									
	MFAICS598	X	X									
	MFAICS599	X	X									
191	MFAICS585	X	X									
	MFAICS586	X	X									
	MFAICS587	X	X									
192	MFAICS582	X	X									
	MFAICS582FD	X	X									
	MFAICS583	X	X									
	MFAICS584	X	X									
193	MFAICS579	X	X									
	MFAICS580	X	X									
	MFAICS581	X	X									
194	MFAICS576	X	X									
	MFAICS577	X	X									
	MFAICS578	X	X									
195	MFAICS606	X	X									
	MFAICS607	X	X									
	MFAICS608	X	X									

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
196	MFAICS603	X	X									
	MFAICS604	X	X									
	MFAICS605	X	X									
197	MFAICS612	X	X									
	MFAICS612FD	X	X									
	MFAICS613	X	X									
	MFAICS614	X	X									
198	MFAICS609	X	X									
	MFAICS610	X	X									
	MFAICS611	X	X									
199	MFAICS615	X	X									
	MFAICS616	X	X									
	MFAICS617	X	X									
200					MFAPES088			**X**				
					MFAPES089	X	X					
					MFAPES090			**X**				
201					MFAPES091		X					
					MFAPES092	X	X					
202					MFAPES123			**X**				
					MFAPES124	X	X					
203					MFAPES125			**X**				
					MFAPES126	X	X					
					MFAPES127			**X**				
					MFAPES128	X	X					
204					***MFAPES320***	X*	X*					
					MFAPES321	X	X					
					MFAPES330	X*	X*					
					MFAPES331	X	X					

TABLE D-1
MINE FILL A GRID EXCAVATION SAMPLING SUMMARY
NSWC CRANE

INITIAL CHARACTERIZATION					POST - EXCAVATION				POST - EXCAVATION (Add'l Excavation)			
Grid Number	ICS Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	PES Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded	Further Remediation Site Sample ID	Resident. Clean-up Met	Indust. Clean-Up Met	Clean-Up Levels Exceeded
205					***MFAPES322***	X*	X*					
					MFAPES323	X	X					
					MFAPES328	X*	X*					
					MFAPES329	X	X					
206					***MFAPES324***	X*	X*					
					MFAPES325	X	X					
					MFAPES326	X*	X*					
					MFAPES327	X	X					

Note: All samples denoted by ***bold and italicized site ID's*** were collected by TolTest, Inc.
- a bold **"X"** indicates that the sample was from an area that was not excavated to cleanup criteria
ICS - Initial Characterization Sample
PES - Post Excavation Sample
* - Arsenic is not a contaminant of concern for MFA however, sample results exceeded clean-up criteria which may be due to high background levels of the compound at the site.

APPENDIX E

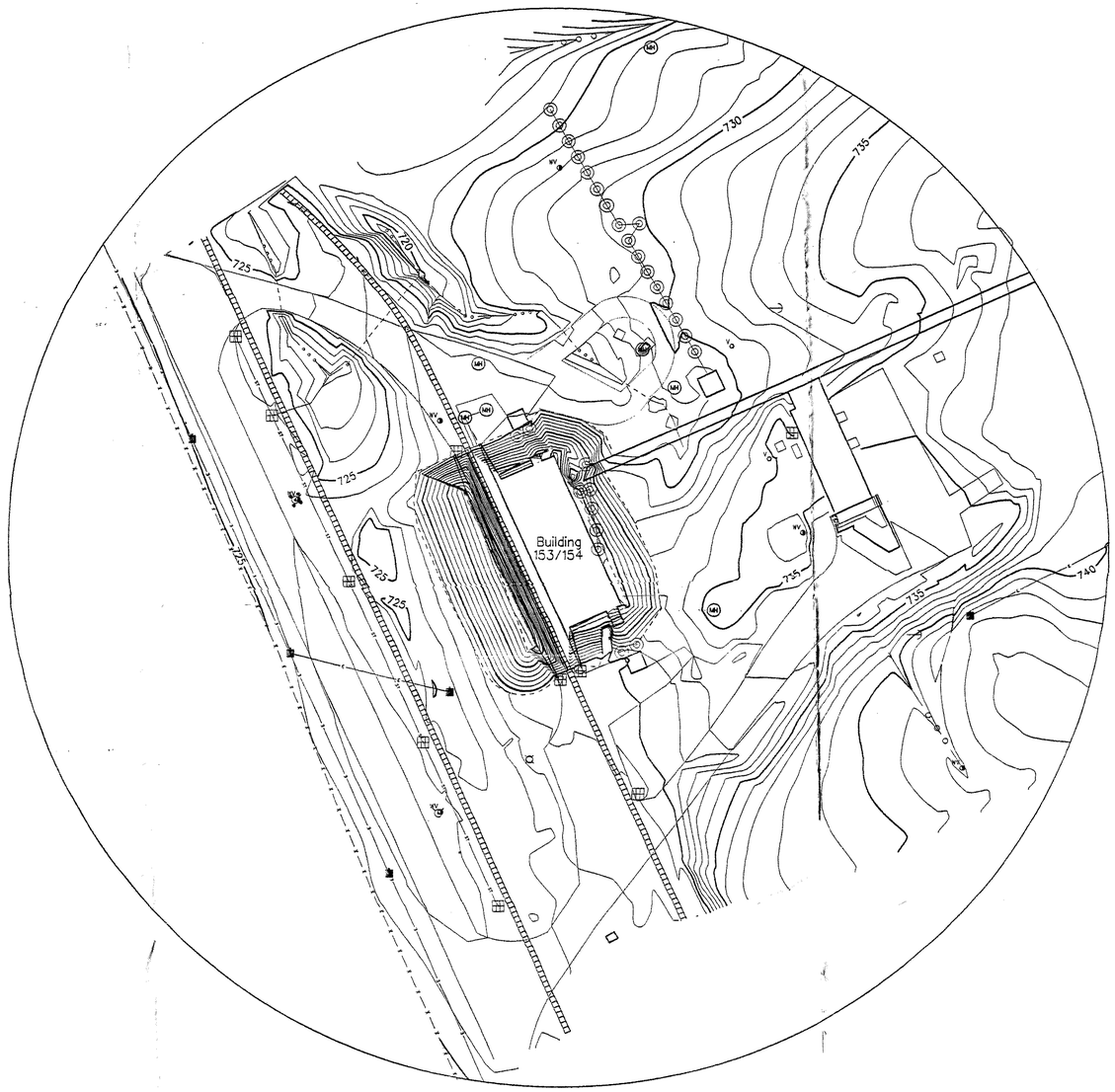
INITIAL CHARACTERIZATION SAMPLE RESULTS

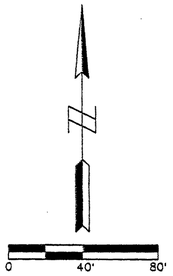
See IMR Appendix E [MK, 2000]

APPENDIX F

SURVEYED DRAWINGS

TITLE	DATE
Mine Fill A - Building 153/154 *(Before Excavation)* Entire Area	June 12, 1995 Revised 3/1/99 and 4/14/99
Mine Fill A - Sample Locations and Excavated Area, Building 153/154 (North East of Building and West of Building)	October 28, 1998
Mine Fill A - Building 153/154, As-Built Locations Done October 21,00 Backfill Locations (North East of Building and West of Building)	October 30, 2000
Mine Fill A - Sample Locations and Excavated Area Building 153/154 (South East of Building)	October 10, 2000
Mine Fill A - Building 153/154, As-Built Locations Backfill Locations (South East of Building)	March 15, 2001
Mine Fill A - Building 153/154, As-Built Locations Backfill Locations (Dirt Pile South East of Building)	March 15, 2001





MINE FILL A

Building 153/154

REVISIONS AND DATES
Revised 3/1/99 GSB
Revised 4/14/99 GSB

DESIGNED BY:

DRAWN BY: MDK

CHECKED BY: RLB

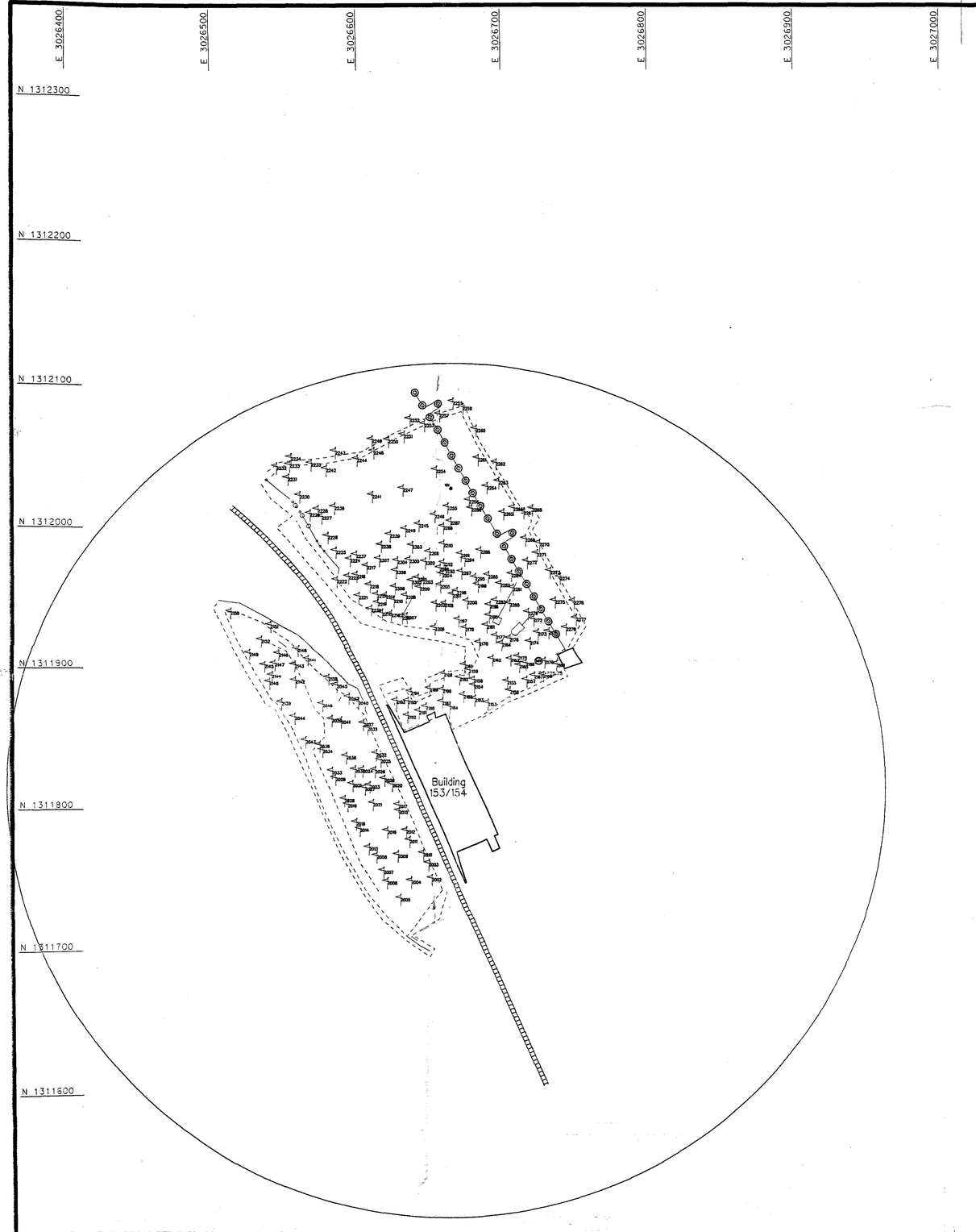
APPROVED BY: RLB

DATE: JUNE 12, 1995

SCALE: 1"=40' JOB No.: 121-2728 SHEET No.: 3 of 7

Mid-States ENGINEERING
350 E. New York St., Suite 300
Indianapolis, IN 46204
(317) 634-6434 Phone
(317) 634-3576 Fax

0007001HB01X



Number	Northing	Easting	Elevation	Description
2002	1311742.37	3026651.56	729.01	GRID 126 MFA PES 109
2003	1311753.10	3026649.34	729.24	GRID 126 MFA PES 109
2004	1311740.67	3026637.15	728.73	GRID 126 MFA PES 109
2005	1311728.29	3026629.81	726.80	GRID 126 MFA PES 109
2006	1311740.01	3026620.66	726.73	GRID 126 MFA PES 109
2007	1311747.47	3026618.05	726.39	GRID 125 MFA PES 107
2008	1311758.32	3026613.62	727.01	GRID 125 MFA PES 107
2009	1311758.82	3026627.99	727.99	GRID 125 MFA PES 107
2010	1311759.98	3026645.48	728.61	GRID 125 MFA PES 107
2011	1311769.14	3026636.02	728.31	GRID 125 MFA PES 107
2012	1311775.88	3026633.54	728.35	GRID 124A MFA PES 105
2013	1311763.94	3026608.22	726.49	GRID 124B MFA PES 105
2014	1311777.09	3026601.87	726.03	GRID 124C MFA PES 105
2015	1311789.81	3026628.68	727.70	GRID 124D MFA PES 105
2016	1311775.59	3026620.61	727.25	GRID 124F MFA PES 105 106
2017	1311793.84	3026628.19	727.55	GRID 123A MFA PES 103
2018	1311781.54	3026599.32	725.97	GRID 123B MFA PES 103
2019	1311794.25	3026593.62	725.77	GRID 123C MFA PES 103
2020	1311808.63	3026623.73	727.14	GRID 123D MFA PES 103
2021	1311795.20	3026610.89	726.68	GRID 123E MFA PES 103 104
2022	1311812.25	3026618.55	726.94	GRID 13A MFA PES 99
2023	1311807.75	3026608.44	726.75	GRID 13B MFA PES 99
2024	1311818.80	3026603.86	726.75	GRID 13C MFA PES 99
2025	1311825.87	3026616.08	727.07	GRID 13D MFA PES 99
2026	1311818.57	3026612.23	726.85	GRID 13E MFA PES 99 100
2027	1311806.13	3026605.20	726.54	GRID 14A MFA PES 101
2028	1311797.92	3026591.29	725.62	GRID 14B MFA PES 101
2029	1311812.96	3026585.16	725.43	GRID 14C MFA PES 101
2030	1311818.89	3026598.43	726.29	GRID 14D MFA PES 101
2031	1311808.64	3026596.71	726.15	GRID 14E MFA PES 101 102
2032	1311830.20	3026613.12	727.02	GRID 122A MFA PES 93
2033	1311817.67	3026582.31	725.17	GRID 122B MFA PES 93
2034	1311832.58	3026576.37	724.72	GRID 122C MFA PES 93
2035	1311848.21	3026607.01	727.86	GRID 122D MFA PES 93
2036	1311828.18	3026592.50	726.29	GRID 122E MFA PES 93 94
2037	1311851.28	3026604.03	727.85	GRID 127A MFA PES 95
2038	1311836.13	3026574.38	724.41	GRID 127B MFA PES 95
2039	1311853.94	3026582.30	725.76	GRID 127C MFA PES 95
2040	1311866.38	3026600.81	727.14	GRID 127D MFA PES 95
2041	1311852.99	3026588.67	726.03	GRID 127E MFA PES 95 96
2042	1311869.52	3026594.20	726.40	GRID 128A MFA PES 97
2043	1311839.15	3026564.84	722.95	GRID 128B MFA PES 97
2044	1311855.66	3026557.51	722.98	GRID 128C MFA PES 97
2045	1311871.10	3026586.06	723.60	GRID 128D MFA PES 97
2046	1311864.65	3026576.33	723.95	GRID 128E MFA PES 97 98
2138	1311883.32	3026580.31	723.35	GRID 142A MFA PES 151
2139	1311865.98	3026549.09	721.48	GRID 142B MFA PES 151
2140	1311880.27	3026540.97	721.09	GRID 142C MFA PES 151
2141	1311897.55	3026566.61	722.21	GRID 142D MFA PES 151
2142	1311881.22	3026558.01	721.48	GRID 142E MFA PES 151 152
~~2143~~	~~1311892.99~~	~~3026557.83~~	~~721.02~~	~~GRID 15A MFA PES 149~~
2144	1311885.29	3026542.86	721.10	GRID 15B MFA PES 149
2145	1311892.82	3026537.81	721.14	GRID 15C MFA PES 149
2146	1311901.70	3026547.38	720.65	GRID 15D MFA PES 149
2147	1311894.05	3026544.80	720.91	GRID 15E MFA PES 149 150
2148	1311904.85	3026559.80	721.49	GRID 136A MFA PES 25
2149	1311901.91	3026527.47	721.28	GRID 136B MFA PES 25
2150	1311931.63	3026514.18	722.62	GRID 136C MFA PES 25
2151	1311922.09	3026541.67	722.57	GRID 136D MFA PES 25
2152	1311911.46	3026535.15	721.04	GRID 136E MFA PES 25 26
2153	1311865.37	3026690.68	727.69	GRID 4A MFA PES 113
2154	1311877.67	3026681.23	726.71	GRID 4B MFA PES 113
2155	1311880.61	3026703.98	726.39	GRID 4C MFA PES 113
2156	1311874.01	3026705.81	727.18	GRID 4D MFA PES 113 114
2157	1311881.68	3026717.29	725.83	GRID 4E MFA PES 113
2158	1311881.84	3026680.87	726.09	GRID 203A MFA PES 125
2159	1311889.12	3026677.71	725.64	GRID 203B MFA PES 125
2161	1311892.72	3026674.59	726.71	GRID 203D MFA PES 127 128
2162	1311897.39	3026693.84	725.29	GRID 203E MFA PES 125 126
2163	1311897.26	3026706.41	725.79	GRID 203F MFA PES 125
2164	1311908.64	3026700.16	725.01	GRID 203G MFA PES 125
2165	1311892.60	3026712.53	725.64	GRID 4A MFA PES 113
2166	1311894.40	3026716.95	725.69	GRID 4B MFA PES 113
2167	1311884.92	3026722.64	725.99	GRID 134B MFA PES 117
2168	1311885.47	3026728.94	726.92	GRID 134A MFA PES 119 120
2169	1311893.61	3026737.99	726.21	GRID 134C MFA PES 117
2170	1311895.78	3026729.94	725.68	GRID 134 MFA PES 117 118
2171	1311917.13	3026732.54	726.50	GRID 134E MFA PES 117
2172	1311925.99	3026722.15	725.97	GRID 202A MFA PES 123
2173	1311916.17	3026725.04	726.18	GRID 202B MFA PES 123
2174	1311909.92	3026719.49	725.88	GRID 202C MFA PES 123 124
2175	1311899.05	3026711.64	725.82	GRID 202D MFA PES 123
2176	1311912.24	3026705.60	725.33	GRID 202E MFA PES 123
2177	1311914.04	3026695.90	725.02	GRID 5A MFA PES 121
2178	1311909.40	3026684.41	724.61	GRID 5B MFA PES 121
2179	1311919.75	3026674.68	724.64	GRID 5C MFA PES 121
2180	1311928.39	3026691.35	724.94	GRID 5D MFA PES 121
2181	1311921.42	3026689.56	724.87	GRID 5E MFA PES 121 122
2182	1311882.90	3026670.95	726.61	GRID 3A MFA PES 111
2183	1311868.57	3026681.62	727.34	GRID 3B MFA PES 111
2184	1311862.75	3026663.99	727.58	GRID 3C MFA PES 111
2185	1311870.72	3026674.06	727.35	GRID 3D MFA PES 111 112
2186	1311885.84	3026659.51	727.01	GRID 2A MFA PES 115
2187	1311866.00	3026658.65	728.35	GRID 2B MFA PES 115
2188	1311862.79	3026647.20	729.24	GRID 2C MFA PES 115
2189	1311875.39	3026649.66	728.59	GRID 2D MFA PES 115
2190	1311874.40	3026638.92	728.05	GRID 2A MFA PES 155 156
2191	1311859.70	3026642.34	730.46	GRID 1A MFA PES 153
2192	1311856.50	3026634.43	730.70	GRID 1B MFA PES 153
2193	1311867.01	3026626.73	729.15	GRID 1C MFA PES 153
2194	1311873.14	3026636.49	729.26	GRID 1D MFA PES 153
2195	1311866.82	3026634.55	729.31	GRID 1E MFA PES 153 154
2196	1311935.77	3026691.33	724.93	GRID 200A MFA PES 88
2197	1311925.74	3026669.98	724.20	GRID 200B MFA PES 88
2198	1311936.36	3026660.40	723.39	GRID 200C MFA PES 88
2199	1311950.35	3026683.59	725.37	GRID 200D MFA PES 88
2200	1311938.31	3026676.30	724.86	GRID 200E MFA PES 88 89
2201	1311943.61	3026665.94	724.58	GRID 6A MFA PES 77
2202	1311936.96	3026633.36	723.25	GRID 6B MFA PES 77

Number	Northing	Easting	Elevation	Description
2203	1311953.31	3026645.10	724.14	GRID 6C MFA PES 77
2204	1311957.75	3026658.88	724.79	GRID 6E MFA PES 77
2205	1311949.91	3026657.17	724.48	GRID 6F MFA PES 77 78
2206	1311920.21	3026652.95	725.36	GRID MFA PES 90
2207	1311928.24	3026633.57	722.56	GRID 7A MFA PES 75
2208	1311942.67	3026632.98	722.85	GRID 7B MFA PES 75
2209	1311948.44	3026642.71	723.51	GRID 7C MFA PES 75
2210	1311939.75	3026624.84	721.70	GRID 17A MFA PES 69
2211	1311927.88	3026630.46	723.29	GRID 17B MFA PES 69
2212	1311930.81	3026616.74	723.37	GRID 17C MFA PES 69
2213	1311929.87	3026622.94	723.58	GRID 17D MFA PES 69 70
2214	1311942.80	3026619.30	721.33	GRID 8A MFA PES 71
2215	1311943.59	3026613.19	720.31	GRID 8B MFA PES 71
2216	1311957.16	3026599.42	719.99	GRID 8C MFA PES 71
2217	1311963.46	3026606.48	720.91	GRID 8D MFA PES 71
2218	1311950.21	3026608.44	720.20	GRID 8E MFA PES 71 72
2219	1311937.86	3026613.77	720.62	GRID 18A MFA PES 67
2220	1311933.50	3026609.25	722.90	GRID 18B MFA PES 67
2221	1311942.51	3026600.74	720.79	GRID 18C MFA PES 67
2222	1311953.54	3026586.03	721.96	GRID 18D MFA PES 67
2223	1311956.14	3026593.47	719.60	GRID 18E MFA PES 67
2224	1311968.29	3026595.22	719.92	GRID 20A MFA PES 27
2225	1311974.18	3026585.51	719.14	GRID 20B MFA PES 27
2226	1311984.72	3026580.19	719.24	GRID 20A MFA PES 28
2227	1311998.57	3026576.22	718.66	GRID 20C MFA PES 27
2228	1312003.60	3026573.55	718.09	GRID 22A MFA PES 29
2229	1312000.64	3026568.29	717.85	GRID 22B MFA PES 29
2230	1312013.40	3026561.27	716.77	GRID 22A MFA PES 30
2231	1312025.64	3026553.54	715.44	GRID 22C MFA PES 29
2232	1312033.70	3026546.07	715.32	GRID 22D MFA PES 29
2233	1312035.03	3026554.75	715.59	GRID 140A MFA PES 31
2234	1312039.97	3026555.55	716.70	GRID 140A MFA PES 33 34
2235	1312035.85	3026569.10	716.14	GRID 140B MFA PES 31
2236	1312005.21	3026584.84	719.14	GRID 140A MFA PES 32
2237	1311971.41	3026599.23	721.57	GRID 140D MFA PES 31
2238	1311978.29	3026616.46	723.40	GRID 140E MFA PES 31
2239	1311985.47	3026622.44	723.55	GRID 163A MFA PES 35
2240	1311989.40	3026633.04	725.04	GRID 163B MFA PES 35
2241	1312013.40	3026610.45	721.62	GRID 163A MFA PES 36
2242	1312032.06	3026579.32	717.54	GRID 163C MFA PES 35
2243	1312043.95	3026585.54	718.53	GRID 163A MFA PES 37 38
2244	1312038.83	3026600.14	718.64	GRID 163D MFA PES 35
2245	1311992.74	3026642.22	725.34	GRID 164A MFA PES 39
2246	1311999.06	3026653.66	725.37	GRID 164B MFA PES 39
2247	1312017.84	3026631.47	723.21	GRID 164A MFA PES 40
2248	1312044.11	3026611.58	719.32	GRID 164C MFA PES 39
2249	1312052.21	3026610.54	720.02	GRID 164A MFA PES 41 42
2250	1312051.71	3026621.80	719.75	GRID 164D MFA PES 39
2251	1312055.27	3026632.42	720.35	GRID 165A MFA PES 43
2252	1312066.60	3026636.87	721.02	GRID 165B MFA PES 45 46
2253	1312062.75	3026646.77	720.90	GRID 145C MFA PES 43
2254	1312030.79	3026654.74	723.64	GRID 165A MFA PES 44
2255	1312004.95	3026662.82	725.31	GRID 165B MFA PES 43
2256	1312009.56	3026678.00	725.46	GRID 165C MFA PES 43
2257	1312069.55	3026657.40	720.76	GRID 176A MFA PES 47
2258	1312078.54	3026667.05	721.48	GRID 176A MFA PES 49 50
2259	1312074.79	3026674.00	721.08	GRID 176B MFA PES 47
2260	1312059.35	3026683.10	723.34	GRID 176A MFA PES 51 52
2261	1312039.05	3026684.30	724.67	GRID 176B MFA PES 48
2262	1312035.96	3026696.87	726.46	GRID 176A MFA PES 53 54
2263	1312022.91	3026698.60	727.34	GRID 176C MFA PES 47
2264	1312019.22	3026690.38	726.60	GRID 176D MFA PES 47
2265	1312000.91	3026702.06	727.71	GRID 166A MFA PES 55
~~2266~~	~~1312004.24~~	~~3026708.88~~	~~727.97~~	~~GRID 166B MFA PES 55~~
2267	1312001.67	3026716.07	728.43	GRID 166A MFA PES 57 58
2268	1312003.64	3026722.03	729.18	GRID 166A MFA PES 145
2269	1311982.58	3026716.39	728.12	GRID 166D MFA PES 55 56
2270	1311979.29	3026726.61	729.05	GRID 166A MFA PES 59 60
2271	1311971.99	3026724.84	727.93	GRID 166E MFA PES 55
2272	1311966.69	3026717.97	727.97	GRID 166F MFA PES 55
2273	1311959.71	3026733.71	728.24	GRID 167A MFA PES 61
2274	1311955.51	3026740.47	729.46	GRID 167A MFA PES 63 64
2275	1311938.93	3026737.04	728.43	GRID 167A MFA PES 62
2276	1311938.60	3026749.95	729.44	GRID 167B MFA PES 65 66
2277	1311926.62	3026751.46	728.31	GRID 167B MFA PES 61
2278	1311919.74	3026744.33	728.09	GRID 167C MFA PES 61
2279	1311930.93	3026718.36	726.01	GRID 201A MFA PES 91
2280	1311937.02	3026705.67	725.52	GRID 201B MFA PES 91 92
2281	1311947.94	3026707.88	725.92	GRID 201C MFA PES 91
2282	1311950.79	3026699.22	725.46	GRID 201D MFA PES 91
2283	1311939.01	3026696.03	725.32	GRID 201E MFA PES 91
2284	1311957.58	3026706.88	726.13	GRID 137A MFA PES 85
2285	1311956.71	3026690.67	725.53	GRID 137B MFA PES 85
2286	1311974.26	3026685.57	725.28	GRID 137B MFA PES 85 86
2287	1311994.66	3026664.75	724.73	GRID 137C MFA PES 85
2288	1312004.00	3026679.71	724.93	GRID 137D MFA PES 85
2289	1311991.05	3026659.41	724.66	GRID 138A MFA PES 83
2290	1311978.81	3026659.57	724.94	GRID 138B MFA PES 83 84
2291	1311971.77	3026672.06	725.18	GRID 138C MFA PES 83
2292	1311965.54	3026659.37	724.87	GRID 138D MFA PES 83
2293	1311960.71	3026661.03	724.99	GRID 16A MFA PES 81
2294	1311968.61	3026674.59	725.23	GRID 16B MFA PES 81
2295	1311955.42	3026681.68	725.36	GRID 16C MFA PES 81
2296	1311945.80	3026668.92	724.92	GRID 16D MFA PES 81
2297	1311959.34	3026672.31	725.15	GRID 16E MFA PES 81 82
2298	1311962.06	3026656.96	724.81	GRID 9A MFA PES 79
2299	1311973.33	3026649.47	724.52	GRID 9B MFA PES 79
2300	1311967.80	3026635.76	723.56	GRID 9C MFA PES 79
2301	1311955.03	3026641.49	723.86	GRID 9D MFA PES 79
2302	1311966.59	3026646.68	724.50	GRID 9E MFA PES 79 80
2303	1311977.90	3026637.71	724.14	GRID 138C MFA PES 83
2304	1311967.12	3026627.43	723.29	GRID 139A MFA PES 73
2305	1311953.11	3026637.21	723.29	GRID 139B MFA PES 73
2306	1311948.67	3026625.59	722.29	GRID 139C MFA PES 73
2307	1311968.57	3026615.04	721.87	GRID 139D MFA PES 73
2308	1311959.99	3026626.30	722.88	GRID 139E MFA PES 73 74

LEGEND

- MANHOLE
- LATH
- X GROUND
- GUARD POST
- SIGN
- SOIL BORING

0 40' 80'

REVISIONS AND DATES

DESIGNED BY:
DRAWN BY: GSB
CHECKED BY: RLB
APPROVED BY: RLB
DATE: October 28, 1998

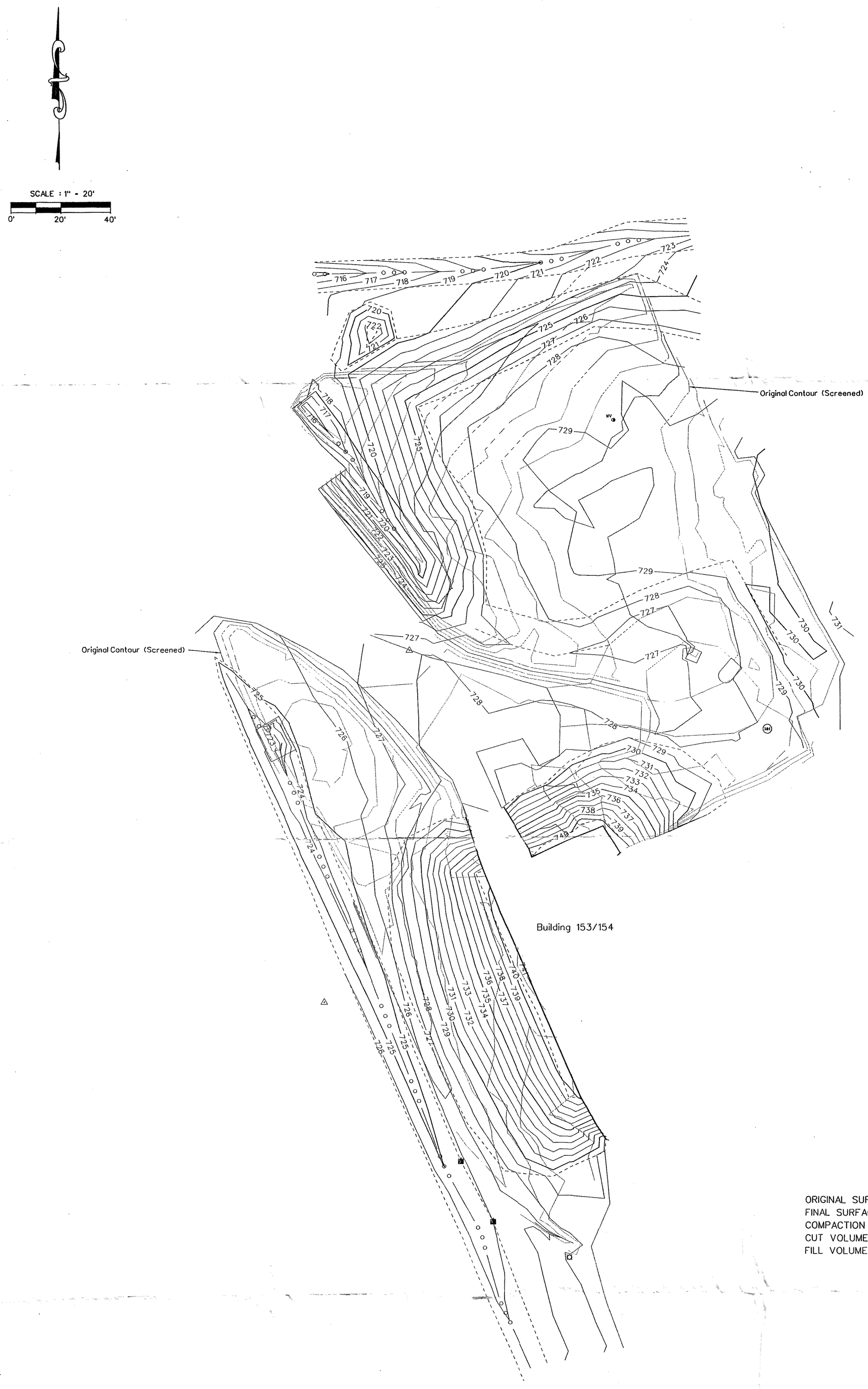
MSE Surveying
MSE CORPORATION
941 NORTH MERIDIAN STREET
INDIANAPOLIS, IN 46204 1061
317 634-1000
317 634-3576 FAX

MINE FILL A

Sample Locations & Excavated Area
Building 153/154

Fieldwork 10/26/98

SCALE: 1"=40' JOB No.: 121-2728 SHEET No.: 1 of 1



ORIGINAL SURFACE: mfa_03
FINAL SURFACE: mfa_15
COMPACTION FACTOR: 0% SHRINK
CUT VOLUME = 10.5 CU YD
FILL VOLUME = 5819.3 CU YD

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REVISIONS AND DATES

DESIGNED BY:
DRAWN BY: GSB
CHECKED BY: RLB
APPROVED BY:

DATE: October 30, 2000

Mine Fill A

Building 153/154

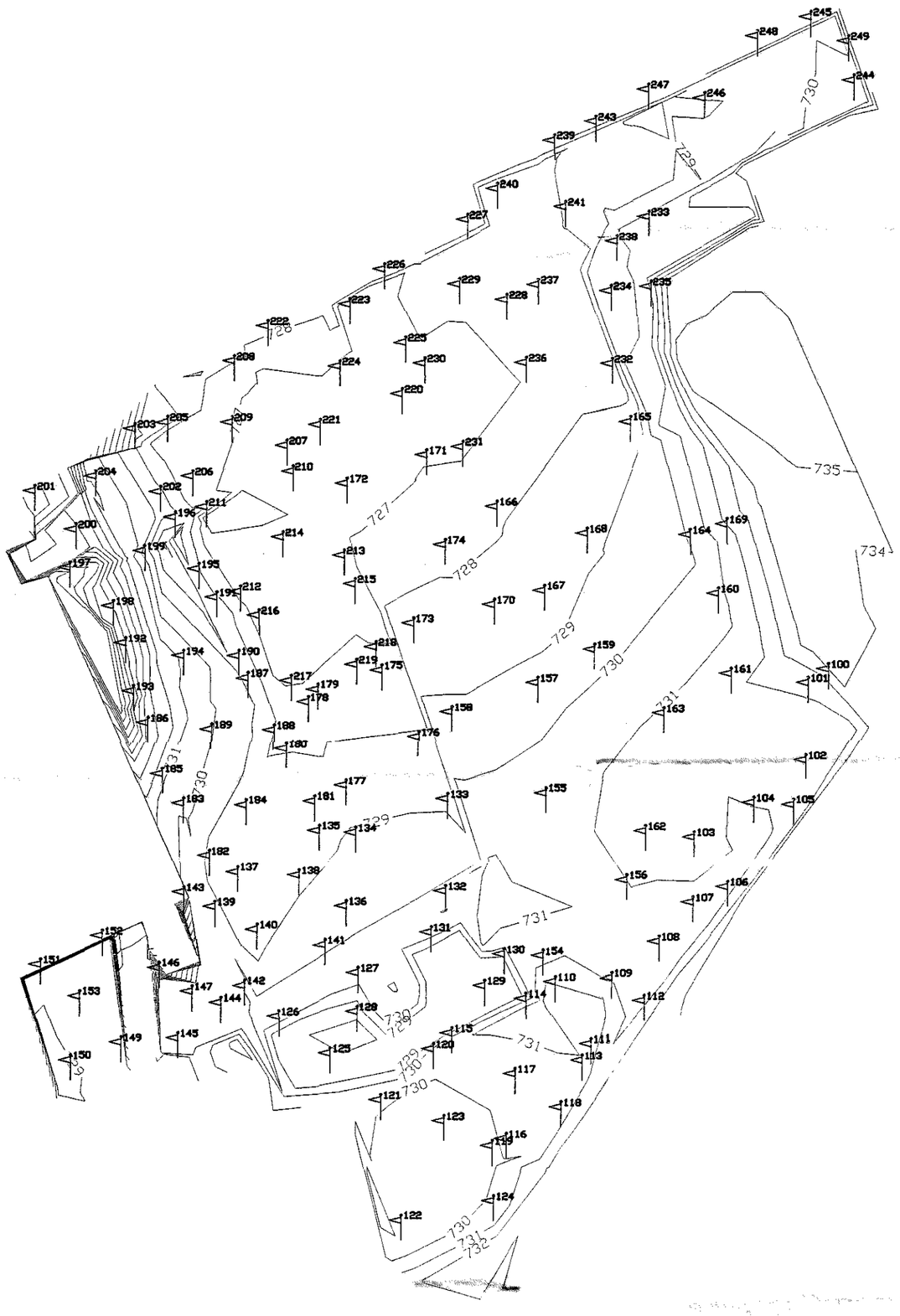
As-Built Locations Done October 21, 2000

SCALE: 1" = 20' JOB No.: 121-4909 SHEET No.: 1 of 1

mfa_15.dgn

SCALE : 1" = 20'

0' 20' 40'



NODE/COORDINATE LIST

Number	Northing	Easting	Elevation	Description
100	1311813.33	3026801.69	732.50	Grid 173A MFA PES 354 355
101	1311811.06	3026798.37	731.96	Grid 173B MFA PES 300
102	1311798.37	3026798.18	731.30	Grid 173C MFA PES 300
103	1311785.60	3026780.02	731.14	Grid 173D MFA PES 300
104	1311791.18	3026789.68	730.88	Grid 173E MFA PES 300 301
105	1311790.92	3026796.14	731.68	Grid 173F MFA PES 352 353
106	1311777.45	3026785.41	731.34	Grid 173G MFA PES 350 351
107	1311774.94	3026779.79	730.76	Grid 173H MFA PES 300
108	1311768.45	3026774.17	730.87	Grid 204A MFA PES 320
109	1311762.55	3026766.43	731.02	Grid 204B MFA PES 320 321
110	1311761.95	3026757.03	730.89	Grid 204C MFA PES 320
111	1311751.97	3026762.91	730.95	Grid 204D MFA PES 320
112	1311758.75	3026771.79	731.60	Grid 204E MFA PES 330 331
113	1311749.27	3026761.46	730.82	Grid 205A MFA PES 322
114	1311759.33	3026752.21	731.23	Grid 205B MFA PES 322
115	1311753.75	3026740.05	730.76	Grid 205C MFA PES 322
116	1311736.50	3026748.93	730.04	Grid 205D MFA PES 322
117	1311747.11	3026750.43	730.44	Grid 205E MFA PES 322 323
118	1311741.62	3026757.89	731.00	Grid 205F MFA PES 328 329
119	1311735.34	3026746.67	729.82	Grid 206A MFA PES 324
120	1311751.16	3026737.10	730.14	Grid 206B MFA PES 324
121	1311742.88	3026728.45	729.91	Grid 206C MFA PES 324
122	1311723.18	3026731.83	729.19	Grid 206D MFA PES 324
123	1311739.44	3026738.75	729.19	Grid 206E MFA PES 324 325
124	1311726.30	3026746.83	730.54	Grid 206F MFA PES 326 327
125	1311750.44	3026720.26	728.54	Grid 38A MFA PES 346
126	1311756.45	3026711.88	728.30	Grid 38B MFA PES 346
127	1311763.49	3026724.83	729.41	Grid 38C MFA PES 346
128	1311757.20	3026724.63	727.40	Grid 38D MFA PES 346 347
129	1311761.35	3026745.47	728.41	Grid 38E MFA PES 346
130	1311766.50	3026748.60	728.50	Grid 35A MFA PES 338
131	1311770.05	3026736.65	728.40	Grid 35B MFA PES 338
132	1311776.71	3026739.04	729.95	Grid 35C MFA PES 338 339
133	1311791.83	3026739.38	729.08	Grid 35D MFA PES 338
134	1311786.26	3026724.48	729.14	Grid 35E MFA PES 338
135	1311786.60	3026718.53	728.86	Grid 36A MFA PES 342
136	1311774.26	3026722.90	729.70	Grid 36B MFA PES 342
137	1311779.84	3026705.05	728.57	Grid 36C MFA PES 342
138	1311779.33	3026715.17	728.99	Grid 36D MFA PES 342 343
139	1311774.17	3026701.28	729.63	Grid 37A MFA PES 344
140	1311770.49	3026708.28	728.93	Grid 37B MFA PES 344 345
141	1311768.00	3026719.40	730.58	Grid 37C MFA PES 344
142	1311761.42	3026706.22	729.86	Grid 37D MFA PES 344
143	1311776.49	3026696.18	729.67	Grid 39A MFA PES 294
144	1311758.70	3026702.32	729.20	Grid 39B MFA PES 294
145	1311752.91	3026695.13	729.54	Grid 39C MFA PES 294
146	1311764.35	3026692.09	729.14	Grid 39D MFA PES 294
147	1311760.49	3026697.52	729.27	Grid 39E MFA PES 294 295
149	1311752.27	3026685.84	729.20	Grid 40A MFA PES 348
150	1311749.40	3026677.59	728.94	Grid 40B MFA PES 348
151	1311764.85	3026672.68	729.07	Grid 40C MFA PES 348
152	1311769.50	3026682.80	729.34	Grid 40D MFA PES 348
153	1311759.77	3026679.11	729.18	Grid 40E MFA PES 348 349
154	1311766.22	3026754.96	731.04	Grid 131A MFA PES 318
155	1311792.78	3026755.44	730.69	Grid 131B MFA PES 318 319
156	1311778.63	3026768.88	730.89	Grid 131C MFA PES 318
157	1311811.07	3026753.97	729.63	Grid 131D MFA PES 318
158	1311806.31	3026739.88	729.37	Grid 131E MFA PES 318
159	1311816.47	3026763.34	729.85	Grid 172A MFA PES 302
160	1311825.59	3026783.77	730.57	Grid 172B MFA PES 302
161	1311812.51	3026785.86	731.87	Grid 172C MFA PES 302
162	1311786.51	3026772.03	731.33	Grid 172D MFA PES 302
163	1311806.07	3026774.81	731.31	Grid 172E MFA PES 302 303
164	1311835.18	3026779.21	729.88	Grid 171A MFA PES 304
165	1311853.52	3026769.40	728.85	Grid 171B MFA PES 304
166	1311839.82	3026747.34	727.94	Grid 171C MFA PES 304
167	1311826.14	3026755.09	728.47	Grid 171D MFA PES 304
168	1311835.44	3026762.18	728.82	Grid 171E MFA PES 304 305
169	1311836.88	3026785.22	731.35	Grid 171F MFA PES 356 357
170	1311823.80	3026746.91	728.31	Grid 132A MFA PES 334
171	1311848.23	3026735.93	727.03	Grid 132B MFA PES 334
172	1311843.59	3026722.88	726.80	Grid 132C MFA PES 334
173	1311820.77	3026733.70	728.44	Grid 132D MFA PES 334
174	1311833.61	3026738.83	727.91	Grid 132F MFA PES 334 335
175	1311813.10	3026728.56	727.39	Grid 34A MFA PES 336
176	1311802.16	3026734.57	728.35	Grid 34B MFA PES 336
177	1311794.03	3026722.83	728.87	Grid 34C MFA PES 336
178	1311807.94	3026716.51	727.36	Grid 34D MFA PES 336
179	1311809.98	3026718.16	727.54	Grid 34E MFA PES 336 337
180	1311800.26	3026713.11	728.32	Grid 33A MFA PES 340
181	1311791.44	3026717.73	728.75	Grid 33B MFA PES 340
182	1311782.47	3026700.32	728.73	Grid 33C MFA PES 340
183	1311791.07	3026696.11	729.78	Grid 33D MFA PES 340
184	1311790.84	3026706.46	728.57	Grid 33E MFA PES 340 341
185	1311796.03	3026692.65	730.82	Grid 32A MFA PES 288
186	1311804.52	3026690.08	733.71	Grid 32B MFA PES 288
187	1311811.79	3026706.63	729.19	Grid 32C MFA PES 288
188	1311803.28	3026710.92	727.87	Grid 32D MFA PES 288
189	1311803.43	3026700.56	729.98	Grid 32E MFA PES 288 289
190	1311815.48	3026705.13	729.07	Grid 32A MFA PES 286
191	1311825.04	3026701.50	728.79	Grid 32B MFA PES 286
192	1311817.54	3026686.45	736.54	Grid 32C MFA PES 286
193	1311809.69	3026687.76	735.93	Grid 32D MFA PES 286
194	1311815.44	3026695.95	730.90	Grid 32E MFA PES 286 287
195	1311829.67	3026698.52	728.54	Grid 28A MFA PES 282
196	1311838.04	3026694.68	729.55	Grid 28B MFA PES 282
197	1311829.93	3026677.36	739.48	Grid 28C MFA PES 282
198	1311823.62	3026684.50	736.94	Grid 28D MFA PES 282
199	1311832.63	3026689.61	730.81	Grid 28E MFA PES 282 283
200	1311836.16	3026678.43	735.57	Grid 27A MFA PES 284
201	1311842.35	3026671.69	739.75	Grid 27B MFA PES 284
202	1311842.28	3026692.23	729.71	Grid 27C MFA PES 284
203	1311852.46	3026688.06	729.11	Grid 27D MFA PES 284
204	1311844.75	3026681.59	732.17	Grid 27E MFA PES 284 285
205	1311853.53	3026693.40	727.27	Grid 26A MFA PES 308
206	1311844.77	3026697.48	727.40	Grid 26B MFA PES 308
207	1311849.80	3026713.13	726.37	Grid 26C MFA PES 308
208	1311863.47	3026704.44	727.65	Grid 26D MFA PES 308
209	1311853.54	3026704.04	727.01	Grid 26E MFA PES 308 309
210	1311845.60	3026714.06	726.13	Grid 29A MFA PES 332
211	1311839.76	3026699.83	726.34	Grid 29B MFA PES 332
212	1311825.99	3026705.43	727.57	Grid 29C MFA PES 332
213	1311831.86	3026722.43	726.46	Grid 29D MFA PES 332
214	1311834.86	3026712.48	726.22	Grid 29E MFA PES 332 333
215	1311827.20	3026724.24	726.59	Grid 30A MFA PES 290
216	1311822.07	3026708.47	726.98	Grid 30A MFA PES 290
217	1311811.38	3026713.77	727.09	Grid 30C MFA PES 290
218	1311816.91	3026727.58	727.25	Grid 30D MFA PES 290
219	1311814.03	3026724.46	727.65	Grid 30E MFA PES 290 291
220	1311858.06	3026731.87	726.78	Grid 25A MFA PES 310
221	1311853.16	3026718.57	726.54	Grid 25B MFA PES 310
222	1311869.14	3026709.96	727.24	Grid 25B MFA PES 310
223	1311872.69	3026723.36	726.83	Grid 25D MFA PES 310
224	1311862.57	3026721.79	726.92	Grid 25E MFA PES 310 311
225	1311866.44	3026732.50	726.45	Grid 24A MFA PES 312
226	1311878.47	3026729.09	726.82	Grid 24B MFA PES 312
227	1311886.65	3026742.53	727.94	Grid 24C MFA PES 312
228	1311873.42	3026749.01	727.14	Grid 24D MFA PES 312
229	1311876.02	3026741.27	727.56	Grid 24E MFA PES 312 313
230	1311863.05	3026735.64	726.64	Grid 133A MFA PES 306
231	1311849.62	3026741.81	727.02	Grid 133B MFA PES 306
232	1311863.04	3026766.43	727.45	Grid 133C MFA PES 306
233	1311887.11	3026772.51	730.45	Grid 133D MFA PES 306
234	1311874.89	3026766.26	729.44	Grid 133E MFA PES 306 307
235	1311875.56	3026772.75	730.67	Grid 133F MFA PES 358 359
236	1311863.19	3026752.15	727.02	Grid 133G MFA PES 306 307
237	1311875.92	3026754.15	727.44	Grid 23A MFA PES 314
238	1311883.07	3026767.16	729.70	Grid 23B MFA PES 314
239	1311899.54	3026756.85	727.98	Grid 23C MFA PES 314
240	1311891.65	3026747.46	727.51	Grid 23D MFA PES 314
241	1311888.67	3026758.63	728.02	Grid 23E MFA PES 314 315
243	1311902.61	3026763.72	728.55	Grid 135A MFA PES 316
244	1311909.42	3026805.90	730.38	Grid 135B MFA PES 316
245	1311919.58	3026798.91	729.92	Grid 135C MFA PES 316
246	1311906.53	3026781.60	729.00	Grid 135D MFA PES 316 317
247	1311907.82	3026772.40	729.39	Grid 135E MFA PES 360 361
248	1311916.50	3026790.24	729.69	Grid 135F MFA PES 362 363
249	1311915.76	3026805.11	730.43	Grid 135G MFA PES 364 365

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DESIGNED BY:

DRAWN BY: GSB

CHECKED BY:

APPROVED BY:

DATE: October 10, 2000

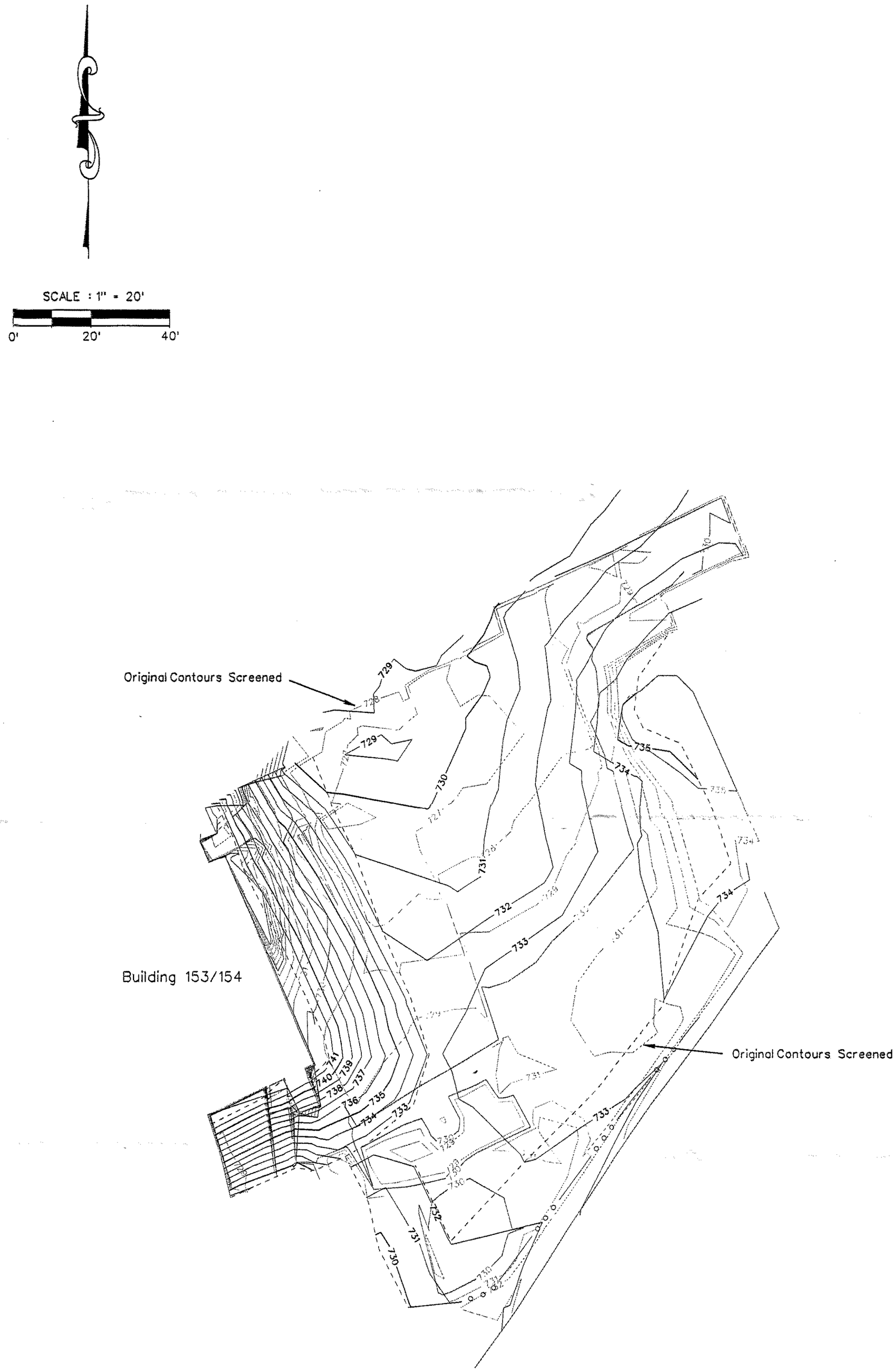
Mine Fill A

Building 153/154

Sample Locations Done September 30, 2000

SCALE: 1" = 20' JOB No.: 121-4359 SHEET No.: 1 of 1

mfa_13.dgn



ORIGINAL SURFACE: mfa13
FINAL SURFACE: mfa_16
COMPACTION FACTOR: 0% SHRINK
CUT VOLUME = 5.9 CU YD
FILL VOLUME = 2109.8 CU YD

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DESIGNED BY:
DRAWN BY: GSB
CHECKED BY: RLB
APPROVED BY:

DATE: March 15, 2001

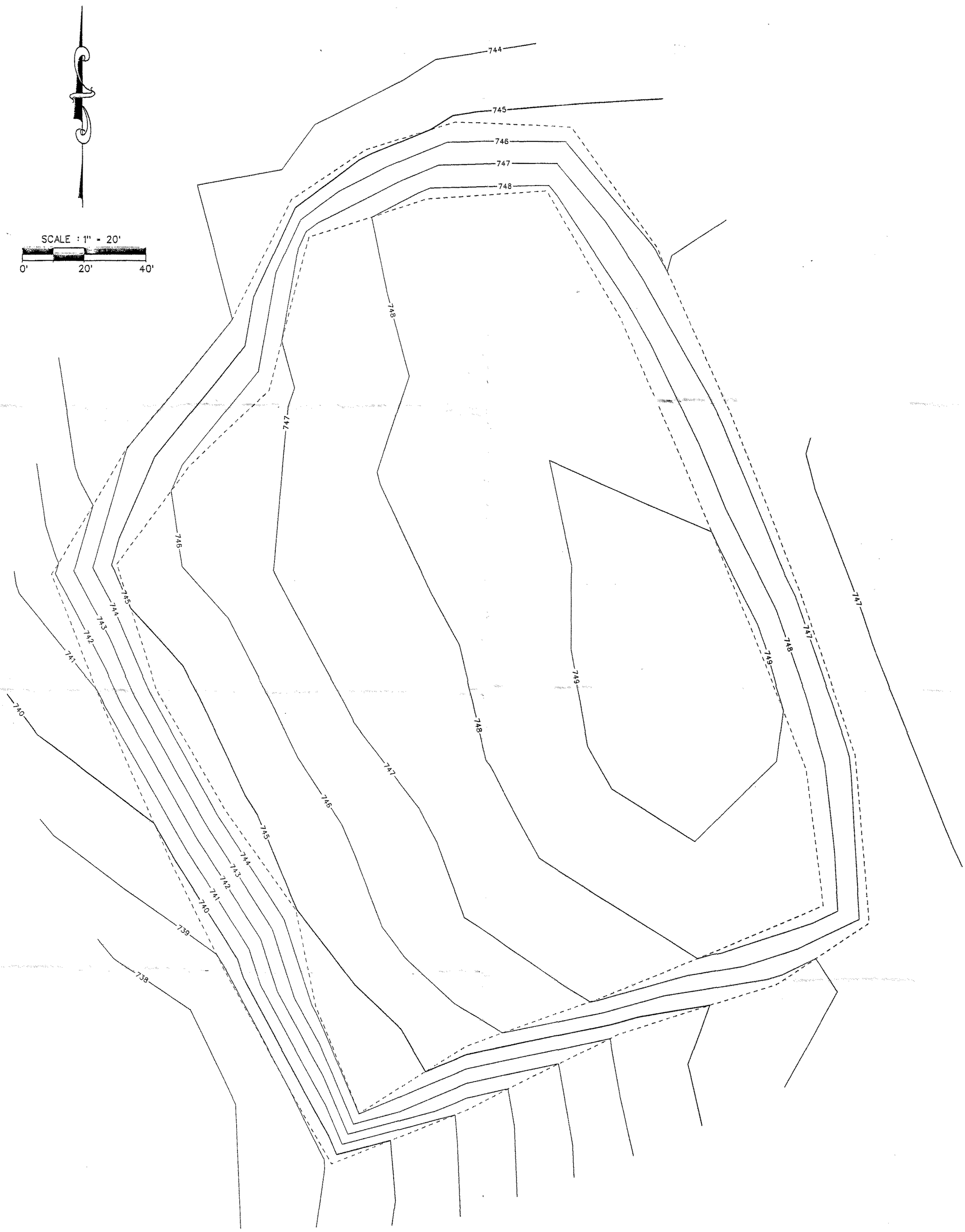
Mine Fill A

Building 153/154

As-Built Locations Done February 12, 2001

SCALE: 1" = 20' JOB No.: 121-4359 SHEET No.: 1 of1

mfa_16.dgn



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REVISIONS AND DATES

DESIGNED BY:

DRAWN BY: GSB

CHECKED BY: RLB

APPROVED BY:

DATE: March 15, 2001

Mine Fill A

Dirt Pile Southeast of Building 153/154

As-Built Locations Done March 15, 2001

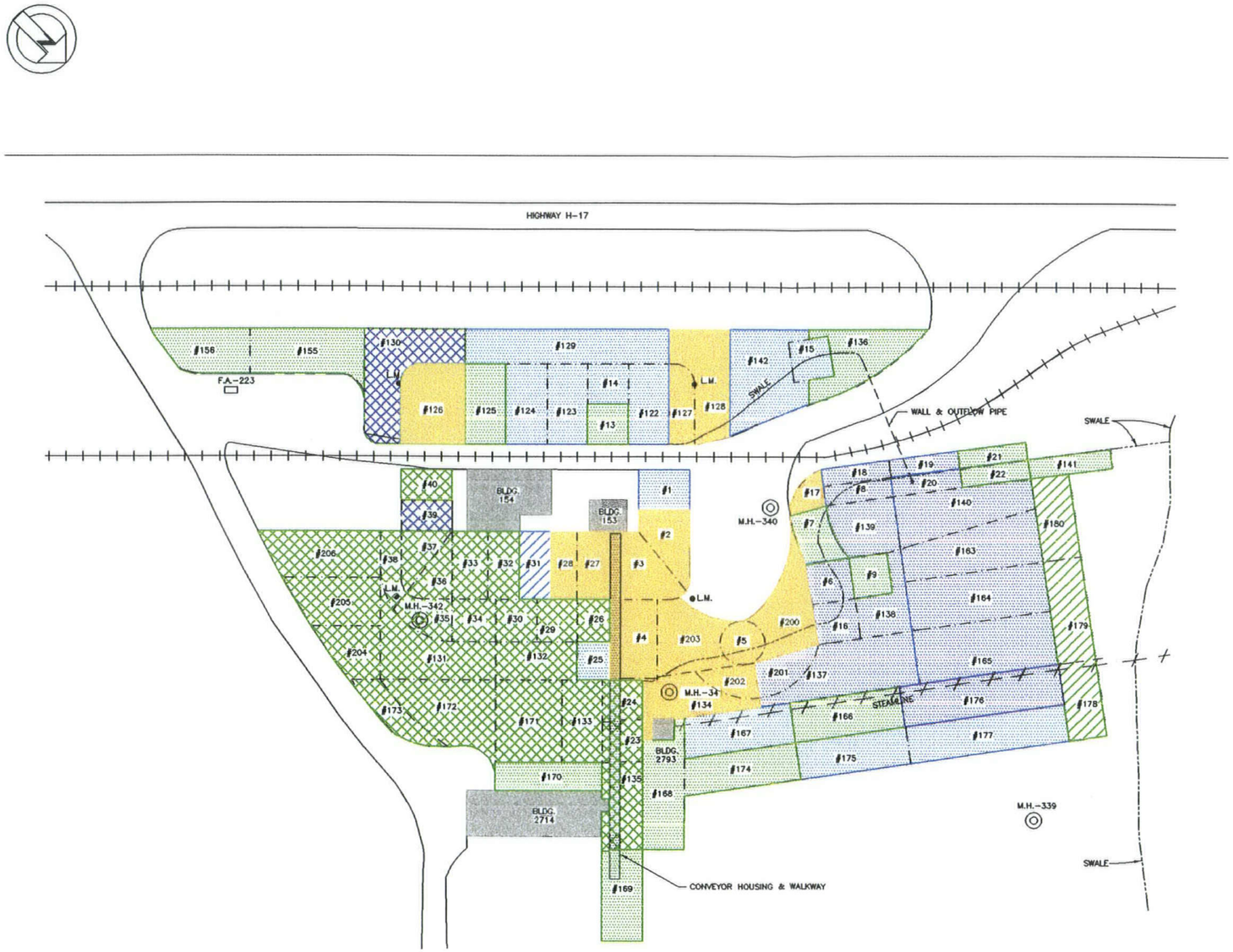
SCALE: 1" = 20' JOB No.: 121-4359 SHEET No.: 1 of1

mfa_17.dgn

APPENDIX G

POST-EXCAVATION GRID SAMPLE LOCATION DRAWINGS

FIGURE	TITLE
G1	PES RESULTS, MINE FILL A, BUILDING 153/154



LEGEND

- BUILDING
- STEAM LINE
- RAILROAD
- GRID BOUNDARY
- SWALE
- MAN HOLE
- #9 GRID NUMBER
- L.M. LIGHTNING MAST
- CONVEYOR HOUSING AND WALKWAY
- DOES NOT ACHIEVE CLEAN-UP OBJECTIVES. TABLE 3-2 IN THE INTERIM MEASURES REPORT PROVIDES EXPLANATION FOR WHY THESE AREAS DID NOT MEET CLEAN-UP OBJECTIVES
- MEETS INDUSTRIAL CLEAN-UP OBJECTIVES
- MEETS RESIDENTIAL CLEAN-UP OBJECTIVES
- ARSENIC VALUES EXCEED CLEAN-UP OBJECTIVES. ALL OTHER COMPOUNDS MEET INDUSTRIAL CLEAN-UP OBJECTIVES.
- ARSENIC VALUE EXCEED CLEAN-UP OBJECTIVES. ALL OTHER COMPOUNDS MEET RESIDENTIAL CLEAN-UP OBJECTIVES.
- ARSENIC VALUE EXCEED CLEAN-UP OBJECTIVES. PETN NOT DETECTED AT REPORTING LIMIT ABOVE CLEAN-UP OBJECTIVES. ALL OTHER COMPOUNDS MEET RESIDENTIAL CLEAN-UP OBJECTIVES.
- ARSENIC VALUE EXCEED CLEAN-UP OBJECTIVES. PETN NOT DETECTED AT REPORTING LIMIT ABOVE CLEAN-UP OBJECTIVES. ALL OTHER COMPOUNDS MEET INDUSTRIAL CLEAN-UP OBJECTIVES.

NOTES:

1. GRID LOCATIONS ARE APPROXIMATE BASED ON FIELD MEASUREMENTS.
2. GRID CHARACTERIZATION IS BASED ON RESULTS OF POST-EXCAVATION SAMPLES IN AREAS WHERE EXCAVATION WAS PERFORMED OR ON INITIAL CHARACTERIZATION SAMPLES IN AREAS NOT EXCAVATED.

FULL-SCALE
BIOREMEDIATION
OPERATIONS
NSWC CRANE
CRANE, IN

FIGURE G1
POST EXCAVATION
SOIL SAMPLING RESULTS
MINE FILL A, BUILDING 153/154

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL SERVICES

DWG DATE: 4/26/00 | FILE NAME: MFAF1-1.DWG

APPENDIX H

POST-EXCAVATION SAMPLE RESULTS

SECTION		PAGES
H-1	Mine Fill A Post-Excavation Sample Results Table	13 pages
H-2	Mine Fill A Post-Excavation MS/MSD data (for explosives compounds only)	34 pages

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				VOLATILES						EXPLOSIVES	
ANALYTE				MEK	MIBK	ACETONE	METHYLENE CHLORIDE	TOLUENE	XYLENES	DNB	HMX
IM Industrial Cleanup Goal (Human Health)				27,000,000	2,800,000	8,800,000	18,000	880,000	320,000	68,000	34,000,000
IM Residential Cleanup Goal (Human Health)				7,100,000	770,000	2,000,000	7,800	790,000	320,000	6,500	3,300,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**4,000,000							
MFAPES300	09/08/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1400
MFAPES301	09/08/2000	173	TOLTEST	12 U	5.8 U	13 J	5.8 U	5.8 U	5.8 U	N/A	N/A
MFAPES302	09/08/2000	172	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1100
MFAPES303	09/08/2000	172	TOLTEST	12 U	5.8 U	12 J	5.8 U	5.8 U	5.8 U	N/A	N/A
MFAPES304	09/08/2000	171	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	650 J
MFAPES305	09/08/2000	171	TOLTEST	12 U	5.8 U	12 J	5.8 U	5.8 U	5.8 U	N/A	N/A
MFAPES306	09/08/2000	133	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	3200
MFAPES307	09/08/2000	133	TOLTEST	12 U	6.2 U	13 J	6.2 U	6.2 U	6.2 U	N/A	N/A
MFAPES308	09/08/2000	26	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	640 J
MFAPES309	09/08/2000	26	TOLTEST	12 U	6.1 U	12 J	6.1 U	6.1 U	6.1 U	N/A	N/A
MFAPES310	09/08/2000	25	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1500
MFAPES311	09/08/2000	25	TOLTEST	12 U	6.1 U	13 J	6.1 U	6.1 U	6.1 U	N/A	N/A
MFAPES312	09/08/2000	24	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1500
MFAPES313	09/08/2000	24	TOLTEST	13 U	6.3 U	23 J	6.3 U	6.3 U	6.3 U	N/A	N/A
MFAPES314	09/08/2000	23	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1200
MFAPES315	09/08/2000	23	TOLTEST	12 U	6.2 U	38	6.2 U	6.2 U	6.2 U	N/A	N/A
MFAPES316	09/08/2000	135	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	590 J
MFAPES317	09/08/2000	135	TOLTEST	14 U	7.9 U	130	7.9 U	7.9 U	7.9 U	N/A	N/A
MFAPES318	09/19/2000	131	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	400 J
MFAPES318FD	09/19/2000	131	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	690 J
MFAPES319	09/19/2000	131	TOLTEST	11 U	5.4 U	7.2 J	5.4 U	5.4 U	5.4 U	N/A	N/A
MFAPES320	09/19/2000	204	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1300
MFAPES321	09/19/2000	204	TOLTEST	9.6 U	4.8 U	6.7 J	4.8 U	4.8 U	4.8 U	N/A	N/A
MFAPES322	09/19/2000	205	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	450 J

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				EXPLOSIVES								
ANALYTE				NITROBENZENE	PETN	RDX	TNB	TETRYL	TNT	2,4-DNT	2,6-DNT	2-Am DNT
IM Industrial Cleanup Goal (Human Health)				94,000	250	17,000	34,000	6,800,000	64,000	1,400,000	680,000	1,400,000
IM Residential Cleanup Goal (Human Health)				18,000	250	4,000	3,300	650,000	15,000	130,000	65,000	130,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**4,000,000								
MFAPES300	09/08/2000	173	TOLTEST	1000 U	2500 U	1900	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES301	09/08/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES302	09/08/2000	172	TOLTEST	1000 U	2500 U	4700	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES303	09/08/2000	172	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES304	09/08/2000	171	TOLTEST	1000 U	2500 U	7500	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES305	09/08/2000	171	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES306	09/08/2000	133	TOLTEST	1000 U	2500 U	11000	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES307	09/08/2000	133	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES308	09/08/2000	26	TOLTEST	1000 U	2500 U	1400	1000 U	1000 U	410 J	1000 U	1000 U	1000 U
MFAPES309	09/08/2000	26	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES310	09/08/2000	25	TOLTEST	1000 U	2500 U	6500	1000 U	1000 U	220 J	1000 U	1000 U	1000 U
MFAPES311	09/08/2000	25	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES312	09/08/2000	24	TOLTEST	1000 U	2500 U	2900	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES313	09/08/2000	24	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES314	09/08/2000	23	TOLTEST	1000 U	2500 U	1700	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES315	09/08/2000	23	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES316	09/08/2000	135	TOLTEST	1000 U	2500 U	710 J	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES317	09/08/2000	135	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES318	09/19/2000	131	TOLTEST	1000 U	2500 U	4600	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES318FD	09/19/2000	131	TOLTEST	1000 U	2500 U	5300	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES319	09/19/2000	131	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES320	09/19/2000	204	TOLTEST	1000 U	2500 U	1600	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES321	09/19/2000	204	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES322	09/19/2000	205	TOLTEST	1000 U	2500 U	3100	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				EXPLOSIVES				METALS			
ANALYTE				4-Am DNT	2-NT	3-NT	4-NT	ALUMINUM	ARSENIC	BARIUM	CADMIUM
IM Industrial Cleanup Goal (Human Health)				680,000	6,800,000	6,800,000	6,800,000	100,000,000	2,400	100,000,000	850,000
IM Residential Cleanup Goal (Human Health)				65,000	650,000	650,000	650,000	77,000,000	320	5,300,000	38,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY							**2,000,000	**20,000
MFAPES300	09/08/2000	173	TOLTEST	1000 U	1000 U	1000 U	1000 U	14,700,000	**11,700 U**	173,000	580 U
MFAPES301	09/08/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES302	09/08/2000	172	TOLTEST	1000 U	1000 U	1000 U	1000 U	11,700,000	**11,500 U**	137,000	580 U
MFAPES303	09/08/2000	172	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES304	09/08/2000	171	TOLTEST	1000 U	1000 U	1000 U	1000 U	10,900,000	**13,900 U**	58,200	580 U
MFAPES305	09/08/2000	171	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES306	09/08/2000	133	TOLTEST	1000 U	1000 U	1000 U	1000 U	11,600,000	**12,400 U**	213,000	620 U
MFAPES307	09/08/2000	133	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES308	09/08/2000	26	TOLTEST	240 J	1000 U	1000 U	1000 U	11,500,000	**6,900 J**	80,600	610 U
MFAPES309	09/08/2000	26	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES310	09/08/2000	25	TOLTEST	1000 U	1000 U	1000 U	1000 U	12,900,000	**12,200 U**	61,800	610 U
MFAPES311	09/08/2000	25	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES312	09/08/2000	24	TOLTEST	1000 U	1000 U	1000 U	1000 U	12,600,000	**11,100 J**	52,600	630 U
MFAPES313	09/08/2000	24	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES314	09/08/2000	23	TOLTEST	1000 U	1000 U	1000 U	1000 U	15,800,000	**6,600 J**	71,900	620 U
MFAPES315	09/08/2000	23	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES316	09/08/2000	135	TOLTEST	1000 U	1000 U	1000 U	1000 U	14,000,000	**9,600 J**	88,100	620 U
MFAPES317	09/08/2000	135	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES318	09/19/2000	131	TOLTEST	1000 U	1000 U	1000 U	1000 U	16,400,000	**10,800 J**	77,800	580 U
MFAPES318FD	09/19/2000	131	TOLTEST	1000 U	1000 U	1000 U	1000 U	18,700,000	**11,100 J**	115,000	590 U
MFAPES319	09/19/2000	131	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES320	09/19/2000	204	TOLTEST	1000 U	1000 U	1000 U	1000 U	19,700,000	**8,400 J**	258,000	590 U
MFAPES321	09/19/2000	204	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES322	09/19/2000	205	TOLTEST	1000 U	1000 U	1000 U	1000 U	18,300,000	**9,200 J**	351,000	570 U

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				METALS				
ANALYTE				CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
IM Industrial Cleanup Goal (Human Health)				450,000	1,000,000	510,000	8,500,000	8,500,000
IM Residential Cleanup Goal (Human Health)				210,000	400,000	23,000	380,000	380,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**100,000	**100,000	**4,000		
MFAPES300	09/08/2000	173	TOLTEST	25,500	13,800	15 J	23,400 U	1,200 U
MFAPES301	09/08/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES302	09/08/2000	172	TOLTEST	21,500	12,300	64 J	23,100 U	1,200 U
MFAPES303	09/08/2000	172	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES304	09/08/2000	171	TOLTEST	60,200	32,000	120 U	23,200 U	1,200 U
MFAPES305	09/08/2000	171	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES306	09/08/2000	133	TOLTEST	15,900	15,800	12 J	24,800 U	1,200 U
MFAPES307	09/08/2000	133	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES308	09/08/2000	26	TOLTEST	17,300	13,600	19 J	24,400 U	1,200 U
MFAPES309	09/08/2000	26	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES310	09/08/2000	25	TOLTEST	17,200	10,900	23 J	24,500 U	1,200 U
MFAPES311	09/08/2000	25	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES312	09/08/2000	24	TOLTEST	23,800	16,200	19 J	25,000 U	1,300 U
MFAPES313	09/08/2000	24	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES314	09/08/2000	23	TOLTEST	23,400	18,000	37 J	24,700 U	1,200 U
MFAPES315	09/08/2000	23	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES316	09/08/2000	135	TOLTEST	21,700	25,700	30 J	24,900 U	1,200 U
MFAPES317	09/08/2000	135	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES318	09/19/2000	131	TOLTEST	32,800	27,300	10 J	23,400 U	1,200 U
MFAPES318FD	09/19/2000	131	TOLTEST	31,100	16,600	16 J	23,600 U	1,200 U
MFAPES319	09/19/2000	131	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES320	09/19/2000	204	TOLTEST	37,900	16,500	49 J	23,800 U	1,200 U
MFAPES321	09/19/2000	204	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES322	09/19/2000	205	TOLTEST	31,300	13,800	16 J	23,000 U	1,100 U

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				VOLATILES						EXPLOSIVES	
ANALYTE				MEK	MIBK	ACETONE	METHYLENE CHLORIDE	TOLUENE	XYLENES	DNB	HMX
IM Industrial Cleanup Goal (Human Health)				27,000,000	2,800,000	8,800,000	18,000	880,000	320,000	68,000	34,000,000
IM Residential Cleanup Goal (Human Health)				7,100,000	770,000	2,000,000	7,800	790,000	320,000	6,500	3,300,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**4,000,000							
MFAPES323	09/19/2000	205	TOLTEST	9.6 U	4.8 U	6.4 J	4.8 U	4.8 U	4.8 U	N/A	N/A
MFAPES324	09/19/2000	206	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	280 J
MFAPES325	09/19/2000	206	TOLTEST	12 U	6.1 U	10 J	6.1 U	6.1 U	6.1 U	N/A	N/A
MFAPES326	09/19/2000	206	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	440 J
MFAPES327	09/19/2000	206	TOLTEST	10 U	5.2 U	18 J	5.2 U	5.2 U	5.2 U	N/A	N/A
MFAPES328	09/19/2000	205	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	2100
MFAPES329	09/19/2000	205	TOLTEST	15 U	7.4 U	29 U	7.4 U	7.4 U	7.4 U	N/A	N/A
MFAPES330	09/19/2000	204	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1000 U
MFAPES331	09/19/2000	204	TOLTEST	11 U	5.3 U	7.5 J	5.3 U	5.3 U	5.3 U	N/A	N/A
MFAPES332	09/20/2000	29	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	5500
MFAPES333	09/20/2000	29	TOLTEST	9.9 U	4.9 U	5.1 J	4.9 U	4.9 U	4.9 U	N/A	N/A
MFAPES334	09/20/2000	132	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1400
MFAPES335	09/20/2000	132	TOLTEST	12 U	5.8 U	6.2 J	5.8 U	5.8 U	5.8 U	N/A	N/A
MFAPES336	09/20/2000	34	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	280 J
MFAPES337	09/20/2000	34	TOLTEST	11 U	5.7 U	5.7 J	5.7 U	5.7 U	5.7 U	N/A	N/A
MFAPES338	09/20/2000	35	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	780 J
MFAPES338FD	09/20/2000	35	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	870 J
MFAPES339	09/20/2000	35	TOLTEST	12 U	5.8 U	14 J	5.8 U	5.8 U	5.8 U	N/A	N/A
MFAPES340	09/20/2000	33	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	500 J
MFAPES341	09/20/2000	33	TOLTEST	11 U	5.5 U	5.9 J	5.5 U	5.5 U	5.5 U	N/A	N/A
MFAPES342	09/20/2000	36	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	830 J
MFAPES343	09/20/2000	36	TOLTEST	10 U	5.0 U	5.9 J	5.0 U	5.0 U	5.0 U	N/A	N/A
MFAPES344	09/20/2000	37	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1400
MFAPES345	09/20/2000	37	TOLTEST	9.4 U	4.7 U	5.9 J	4.7 U	4.7 U	4.7 U	N/A	N/A

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				EXPLOSIVES								
ANALYTE				NITROBENZENE	PETN	RDX	TNB	TETRYL	TNT	2,4-DNT	2,6-DNT	2-Am DNT
IM Industrial Cleanup Goal (Human Health)				94,000	250	17,000	34,000	6,800,000	64,000	1,400,000	680,000	1,400,000
IM Residential Cleanup Goal (Human Health)				18,000	250	4,000	3,300	650,000	15,000	130,000	65,000	130,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**4,000,000								
MFAPES323	09/08/2000	208	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES324	09/19/2000	206	TOLTEST	1000 U	2500 U	710 J	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES325	09/19/2000	206	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES326	09/19/2000	206	TOLTEST	1000 U	2500 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES327	09/19/2000	206	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES328	09/19/2000	205	TOLTEST	1000 U	2500 U	350 J	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES329	09/19/2000	205	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES330	09/19/2000	204	TOLTEST	1000 U	2500 U	280 J	1000 U	1000 U	1700	1000 U	1000 U	1000 U
MFAPES331	09/19/2000	204	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES332	09/20/2000	29	TOLTEST	1000 U	2500 U	4800	1000 U	1000 U	220 J	1000 U	1000 U	1000 U
MFAPES333	09/20/2000	29	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES334	09/20/2000	132	TOLTEST	1000 U	2500 U	7900	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES335	09/20/2000	132	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES336	09/20/2000	34	TOLTEST	1000 U	2500 U	3400	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES337	09/20/2000	34	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES338	09/20/2000	35	TOLTEST	1000 U	2500 U	4600	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES338FD	09/20/2000	35	TOLTEST	1000 U	2500 U	5600	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES339	09/20/2000	35	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES340	09/20/2000	33	TOLTEST	1000 U	2500 U	1900	1000 U	1000 U	130 J	1000 U	1000 U	1000 U
MFAPES341	09/20/2000	33	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES342	09/20/2000	36	TOLTEST	1000 U	2500 U	4500	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES343	09/20/2000	36	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES344	09/20/2000	37	TOLTEST	1000 U	2500 U	3200	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES345	09/20/2000	37	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				EXPLOSIVES				METALS			
ANALYTE				4-Am DNT	2-NT	3-NT	4-NT	ALUMINUM	ARSENIC	BARIUM	CADMIUM
IM Industrial Cleanup Goal (Human Health)				680,000	6,800,000	6,800,000	6,800,000	100,000,000	2,400	100,000,000	850,000
IM Residential Cleanup Goal (Human Health)				65,000	650,000	650,000	650,000	77,000,000	320	5,300,000	38,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY							**2,000,000	**20,000
MFAPES323	**09/08/2000**	**203**	**TOLTEST**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES324	09/19/2000	206	TOLTEST	1000 U	1000 U	1000 U	1000 U	15,900,000	**6,000 J**	180,000	720 U
MFAPES325	09/19/2000	206	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES326	09/19/2000	206	TOLTEST	1000 U	1000 U	1000 U	1000 U	16,800,000	**13,000 J**	14,400	590 U
MFAPES327	09/19/2000	206	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES328	09/19/2000	205	TOLTEST	1000 U	1000 U	1000 U	1000 U	12,600,000	**10,000 J**	55,400	630 U
MFAPES329	09/19/2000	205	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES330	09/19/2000	204	TOLTEST	1000 U	1000 U	1000 U	1000 U	18,500,000	**4,100 J**	64,600	610 U
MFAPES331	09/19/2000	204	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES332	09/20/2000	29	TOLTEST	1000 U	1000 U	1000 U	1000 U	15,200,000	**6,400 J**	70,000	590 U
MFAPES333	09/20/2000	29	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES334	09/20/2000	132	TOLTEST	1000 U	1000 U	1000 U	1000 U	16,700,000	**6,200 J**	213,000	710 U
MFAPES335	09/20/2000	132	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES336	09/20/2000	34	TOLTEST	1000 U	1000 U	1000 U	1000 U	18,900,000	**7,400 J**	105,000	590 U
MFAPES337	09/20/2000	34	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES338	09/20/2000	35	TOLTEST	1000 U	1000 U	1000 U	1000 U	12,100,000	**7,400 J**	135,000	580 U
MFAPES338FD	09/20/2000	35	TOLTEST	1000 U	1000 U	1000 U	1000 U	11,800,000	**11,300 J**	209,000	570 U
MFAPES339	09/20/2000	35	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES340	09/20/2000	33	TOLTEST	160 J	1000 U	1000 U	1000 U	17,800,000	**9,800 J**	257,000	600 U
MFAPES341	09/20/2000	33	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES342	09/20/2000	36	TOLTEST	1000 U	1000 U	1000 U	1000 U	22,100,000	**7,300 J**	306,000	580 U
MFAPES343	09/20/2000	36	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES344	09/20/2000	37	TOLTEST	1000 U	1000 U	1000 U	1000 U	12,200,000	**25,900**	74,600	590 U
MFAPES345	09/20/2000	37	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				METALS				
ANALYTE				CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
IM Industrial Cleanup Goal (Human Health)				450,000	1,000,000	510,000	8,500,000	8,500,000
IM Residential Cleanup Goal (Human Health)				210,000	400,000	23,000	380,000	380,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**100,000	**100,000	**4,000		
MFAPES323	**09/08/2000**	**203**	**TOLTEST**	N/A	N/A	N/A	N/A	N/A
MFAPES324	09/19/2000	206	TOLTEST	28,500	15,400	19 J	29,000 U	1,400 U
MFAPES325	09/19/2000	206	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES326	09/19/2000	206	TOLTEST	31,000	12,900	8 J	23,400 U	1,200 U
MFAPES327	09/19/2000	206	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES328	09/19/2000	205	TOLTEST	29,900	20,200	29 J	25,300 U	1,300 U
MFAPES329	09/19/2000	205	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES330	09/19/2000	204	TOLTEST	23,000	19,900	42 J	24,200 U	1,200 U
MFAPES331	09/19/2000	204	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES332	09/20/2000	29	TOLTEST	23,600	8,300	7.3 J	23, 600 U	1,200 U
MFAPES333	09/20/2000	29	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES334	09/20/2000	132	TOLTEST	25,900	11,900	140 U	28,300 U	1,400 U
MFAPES335	09/20/2000	132	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES336	09/20/2000	34	TOLTEST	39,500	17,600	7.4 J	23,700 U	1,200 U
MFAPES337	09/20/2000	34	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES338	09/20/2000	35	TOLTEST	23,700	16,400	120 U	23,100 U	1,200 U
MFAPES338FD	09/20/2000	35	TOLTEST	29,300	25,400	7.9 J	22,900 U	1,100 U
MFAPES339	09/20/2000	35	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES340	09/20/2000	33	TOLTEST	30,700	20,400	130	23,900 U	1,200 U
MFAPES341	09/20/2000	33	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES342	09/20/2000	36	TOLTEST	43,000	23,900	7.7 J	23,200 U	1,200 U
MFAPES343	09/20/2000	36	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES344	09/20/2000	37	TOLTEST	60,400	30,400	8.6 J	46,900 U	1,200 U
MFAPES345	09/20/2000	37	TOLTEST	N/A	N/A	N/A	N/A	N/A

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				VOLATILES						EXPLOSIVES	
ANALYTE				MEK	MIBK	ACETONE	METHYLENE CHLORIDE	TOLUENE	XYLENES	DNB	HMX
IM Industrial Cleanup Goal (Human Health)				27,000,000	2,800,000	8,800,000	18,000	880,000	320,000	68,000	34,000,000
IM Residential Cleanup Goal (Human Health)				7,100,000	770,000	2,000,000	7,800	790,000	320,000	6,500	3,300,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**4,000,000							
MFAPES346	09/20/2000	38	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1600
MFAPES347	09/20/2000	38	TOLTEST	10 U	5.2 U	6.1 J	5.2 U	5.2 U	5.2 U	N/A	N/A
MFAPES348	09/20/2000	40	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	2300
MFAPES349	09/20/2000	40	TOLTEST	12 U	6.2 U	10 J	6.2 U	6.2 U	6.2 U	N/A	N/A
MFAPES350	09/20/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1000 U
MFAPES351	09/20/2000	173	TOLTEST	9.9 U	5.0 U	12 J	5.0 U	5.0 U	5.0 U	N/A	N/A
MFAPES352	09/20/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	1000 U	1000 U
MFAPES353	09/20/2000	173	TOLTEST	12 J	6.9 U	57 B	6.9 U	6.9 U	6.9 U	N/A	N/A
MFAPES354	09/21/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	500 U	693
MFAPES355	09/21/2000	173	TOLTEST	4 U	4 U	4 U	4 J	1 J	9 B	N/A	N/A
MFAPES356	09/21/2000	171/170	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	500 U	1070
MFAPES357	09/21/2000	171/170	TOLTEST	4 U	4 U	4 U	6	1 J	8 B	N/A	N/A
MFAPES358	09/21/2000	133/170	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	476 U	5240
MFAPES359	09/21/2000	133/170	TOLTEST	5 U	5 U	5 U	5 U	2 J	13 B	N/A	N/A
MFAPES360	09/21/2000	135/168	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	500 U	527
MFAPES361	09/21/2000	135/168	TOLTEST	4 U	4 U	4 U	2 J	1 J	9 B	N/A	N/A
MFAPES362	09/21/2000	135/168	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	500 U	410 J
MFAPES363	09/21/2000	135/168	TOLTEST	5 U	5 U	5 U	5 U	5 U	6 B	N/A	N/A
MFAPES364	09/21/2000	135/169	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	500 U	1120
MFAPES365	09/21/2000	135/169	TOLTEST	4 U	4 U	4 U	3 J	1 J	8 B	N/A	N/A

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				EXPLOSIVES								
ANALYTE				NITROBENZENE	PETN	RDX	TNB	TETRYL	TNT	2,4-DNT	2,6-DNT	2-Am DNT
IM Industrial Cleanup Goal (Human Health)				94,000	250	17,000	34,000	6,800,000	64,000	1,400,000	680,000	1,400,000
IM Residential Cleanup Goal (Human Health)				18,000	250	4,000	3,300	650,000	15,000	130,000	65,000	130,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**4,000,000								
MFAPES346	**09/20/2000**	**38**	**TOLTEST**	1000 U	2500 U	4300	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES347	09/20/2000	38	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES348	09/20/2000	40	TOLTEST	1000 U	2500 U	9000	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES349	09/20/2000	40	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES350	09/20/2000	173	TOLTEST	1000 U	2500 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
MFAPES351	09/20/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES352	09/20/2000	173	TOLTEST	1000 U	2500 U	1000 U	1000 U	1000 U	110 J	1000 U	1000 U	1000 U
MFAPES353	09/20/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES354	09/21/2000	173	TOLTEST	500 U	500 U	221 J	500 U	500 U	500 U	500 U	500 U	500 U
MFAPES355	09/21/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES356	09/21/2000	171/170	TOLTEST	500 U	500 U	5100	500 U	500 U	500 U	500 U	500 U	500 U
MFAPES357	09/21/2000	171/170	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES358	09/21/2000	133/170	TOLTEST	476 U	476 U	7970	476 U	476 U	476 U	476 U	476 U	476 U
MFAPES359	09/21/2000	133/170	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES360	09/21/2000	135/168	TOLTEST	500 U	500 U	1130	500 U	500 U	500 U	500 U	500 U	500 U
MFAPES361	09/21/2000	135/168	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES362	09/21/2000	135/168	TOLTEST	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
MFAPES363	09/21/2000	135/168	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES364	09/21/2000	135/169	TOLTEST	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
MFAPES365	09/21/2000	135/169	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				EXPLOSIVES				METALS			
ANALYTE				4-Am DNT	2-NT	3-NT	4-NT	ALUMINUM	ARSENIC	BARIUM	CADMIUM
IM Industrial Cleanup Goal (Human Health)				680,000	6,800,000	6,800,000	6,800,000	100,000,000	2,400	100,000,000	850,000
IM Residential Cleanup Goal (Human Health)				65,000	650,000	650,000	650,000	77,000,000	320	5,300,000	38,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY							**2,000,000	**20,000
MFAPES346	**09/20/2000**	**173**	**TOLTEST**	1000 U	1000 U	1000 U	1000 U	11,100,000	**5,200 J**	71,800	590 U
MFAPES347	09/20/2000	38	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES348	09/20/2000	40	TOLTEST	1000 U	1000 U	1000 U	1000 U	17,700,000	**10,600 J**	78,900	610 U
MFAPES349	09/20/2000	40	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES350	09/20/2000	173	TOLTEST	1000 U	1000 U	1000 U	1000 U	18,600,000	**5,900 J**	39,900	600 U
MFAPES351	09/20/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES352	09/20/2000	173	TOLTEST	1000 U	1000 U	1000 U	1000 U	35,200,000	**12,200 J**	64,800	880
MFAPES353	09/20/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES354	09/21/2000	173	TOLTEST	500 U	500 U	500 U	500 U	7,260,000	5,100	29,700	60 U
MFAPES355	09/21/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES356	09/21/2000	171/170	TOLTEST	500 U	500 U	500 U	500 U	8,570,000	4,300	30,000	60 U
MFAPES357	09/21/2000	171/170	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES358	09/21/2000	133/170	TOLTEST	476 U	476 U	476 U	476 U	11,100,000	7,600	45,200	60 U
MFAPES359	09/21/2000	133/170	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES360	09/21/2000	135/168	TOLTEST	500 U	500 U	500 U	500 U	10,600,000	5,700	43,200	580 B
MFAPES361	09/21/2000	135/168	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES362	09/21/2000	135/168	TOLTEST	500 U	500 U	500 U	500 U	12,200,000	7,200	104,000	60 U
MFAPES363	09/21/2000	135/168	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MFAPES364	09/21/2000	135/169	TOLTEST	500 U	500 U	500 U	500 U	12,200,000	8,300	86,500	60 U
MFAPES365	09/21/2000	135/169	TOLTEST	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

				METALS				
ANALYTE				CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
IM Industrial Cleanup Goal (Human Health)				450,000	1,000,000	510,000	8,500,000	8,500,000
IM Residential Cleanup Goal (Human Health)				210,000	400,000	23,000	380,000	380,000
Units of Measurement				UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SITE ID	SAMPLE DATE	GRID NUMBER	SAMPLED BY	**100,000	**100,000	**4,000		
MFAPES346	**09/20/2000**	**38**	**TOLTEST**	25,600	15,000	13 J	23,400 U	1,200 U
MFAPES347	09/20/2000	38	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES348	09/20/2000	40	TOLTEST	25,800	16,300	38 J	24,500 U	1,200 U
MFAPES349	09/20/2000	40	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES350	09/20/2000	173	TOLTEST	30,300	17,200	9.3 J	24,000 U	1,200 U
MFAPES351	09/20/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES352	09/20/2000	173	TOLTEST	20,400	40,800	42 J	27,100 U	1,400 U
MFAPES353	09/20/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES354	09/21/2000	173	TOLTEST	12,200	10,400 B	20 U	460 U	320 U
MFAPES355	09/21/2000	173	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES356	09/21/2000	171/170	TOLTEST	13,000	7,800 B	20 U	480 U	330 U
MFAPES357	09/21/2000	171/170	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES358	09/21/2000	133/170	TOLTEST	15,800	11,400 B	30 B	470 U	320 U
MFAPES359	09/21/2000	133/170	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES360	09/21/2000	135/168	TOLTEST	11,100	15,900 B	40 B	520 U	360 U
MFAPES361	09/21/2000	135/168	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES362	09/21/2000	135/168	TOLTEST	17,700	18,600 B	50	480 U	330 U
MFAPES363	09/21/2000	135/168	TOLTEST	N/A	N/A	N/A	N/A	N/A
MFAPES364	09/21/2000	135/169	TOLTEST	14,700	15,100 B	40 B	490 U	340 U
MFAPES365	09/21/2000	135/169	TOLTEST	N/A	N/A	N/A	N/A	N/A

TABLE H-1
MINE FILL A POST-EXCAVATION SAMPLE RESULTS
NSWC CRANE

Notes:

J - Estimated value
MEK - Methyl ethyl ketone
MIBK - Methyl isobutyl ketone
N/A - not analyzed
U - not detected
UG/KG - micrograms per kilogram
Values **BOLD** are OUTLINES exceed Industrial Cleanup Goals
Values **BOLD** are ***ITALICS*** exceed Residential Cleanup Goals

MATRIX SPIKE SAMPLE DATA REPORT

MFA PES300-3177

TOTAL Metals

Client Lot #...: G0I090119 **Matrix.....:** SOLID
Date Sampled...: 09/08/00 **Date Received..:** 09/09/00

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I090119-009 **Prep Batch #...:** 0257161									
Aluminum									
	11500	244	23100	mg/kg			SW846 6010B	09/12-09/13/00	DK4VH10
			Qualifiers: NC,MSB						
	11500	244	25000	mg/kg			SW846 6010B	09/12-09/13/00	DK4VH10
			Qualifiers: NC,MSB						
Arsenic									
	6.9	244	240	mg/kg	95		SW846 6010B	09/12-09/13/00	DK4VH10
	6.9	244	230	mg/kg	91	4.2	SW846 6010B	09/12-09/13/00	DK4VH10
Barium									
	80.6	244	357	mg/kg	113		SW846 6010B	09/12-09/13/00	DK4VH10
	80.6	244	351	mg/kg	111	1.6	SW846 6010B	09/12-09/13/00	DK4VH10
Cadmium									
	ND	6.10	6.19	mg/kg	101		SW846 6010B	09/12-09/13/00	DK4VH10
	ND	6.10	6.63	mg/kg	109	6.9	SW846 6010B	09/12-09/13/00	DK4VH10
Chromium									
	17.3	24.4	53.5 N	mg/kg	148		SW846 6010B	09/12-09/13/00	DK4VH10
	17.3	24.4	55.0 N	mg/kg	155	2.8	SW846 6010B	09/12-09/13/00	DK4VH10
Lead									
	13.6	61.0	71.2	mg/kg	95		SW846 6010B	09/12-09/13/00	DK4VH10
	13.6	61.0	74.9	mg/kg	100	5.0	SW846 6010B	09/12-09/13/00	DK4VH10
Selenium									
	ND	244	231	mg/kg	95		SW846 6010B	09/12-09/13/00	DK4VH10
	ND	244	228	mg/kg	93	1.3	SW846 6010B	09/12-09/13/00	DK4VH10
Silver									
	ND	6.10	5.84	mg/kg	96		SW846 6010B	09/12-09/13/00	DK4VH10
	ND	6.10	6.06	mg/kg	99	3.6	SW846 6010B	09/12-09/13/00	DK4VH10

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: G0I090119
Date Sampled...: 09/08/00 **Date Received..:** 09/09/00 **Matrix.....:** SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I090119-001 **Prep Batch #...:** 0255443									
Aluminum									
	14700	234	34200	mg/kg			SW846 6010B	09/11-09/12/00	DK4V510
			Qualifiers: NC,MSB						
	14700	234	32500	mg/kg			SW846 6010B	09/11-09/12/00	DK4V510
			Qualifiers: NC,MSB						
Arsenic									
	ND	234	223	mg/kg	95		SW846 6010B	09/11-09/12/00	DK4V510
	ND	234	216	mg/kg	92	3.2	SW846 6010B	09/11-09/12/00	DK4V510
Barium									
	173	234	526 N	mg/kg	151		SW846 6010B	09/11-09/12/00	DK4V510
	173	234	491 N	mg/kg	136	6.9	SW846 6010B	09/11-09/12/00	DK4V510
Cadmium									
	ND	5.85	5.96	mg/kg	102		SW846 6010B	09/11-09/12/00	DK4V510
	ND	5.85	6.20	mg/kg	106	3.9	SW846 6010B	09/11-09/12/00	DK4V510
Chromium									
	25.5	23.4	71.3 N	mg/kg	196		SW846 6010B	09/11-09/12/00	DK[illegible]10
	25.5	23.4	70.5 N	mg/kg	192	1.1	SW846 6010B	09/11-09/12/00	DK4V510
Lead									
	13.8	58.5	71.6	mg/kg	99		SW846 6010B	09/11-09/12/00	DK4V510
	13.8	58.5	79.9	mg/kg	113	11	SW846 6010B	09/11-09/12/00	DK4V510
Selenium									
	ND	234	214	mg/kg	92		SW846 6010B	09/11-09/12/00	DK4V510
	ND	234	211	mg/kg	90	1.4	SW846 6010B	09/11-09/12/00	DK4V511
Silver									
	ND	5.85	5.54	mg/kg	95		SW846 6010B	09/11-09/12/00	DK4V510
	ND	5.85	5.44	mg/kg	93	1.9	SW846 6010B	09/11-09/12/00	DK4V510
MS Lot-Sample #: G0I090119-001 **Prep Batch #...:** 0256299									
Mercury									
	0.015	0.292	0.287	mg/kg	93		SW846 7471A	09/11/00	DK4V5111
	0.015	0.292	0.290	mg/kg	94	1.0	SW846 7471A	09/11/00	DK4V5112

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: G0I090119 Matrix.....: SOLID
Date Sampled...: 09/08/00 Date Received..: 09/09/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I090119-009 Prep Batch #...: 0257161							
Aluminum	NC,MSB	(80 - 120)			SW846 6010B	09/12-09/13/00	DK4VH10E
	NC,MSB	(80 - 120)		(0-35)	SW846 6010B	09/12-09/13/00	DK4VH10F
Arsenic	95	(80 - 120)			SW846 6010B	09/12-09/13/00	DK4VH10T
	91	(80 - 120)	4.2	(0-35)	SW846 6010B	09/12-09/13/00	DK4VH10U
Barium	113	(80 - 120)			SW846 6010B	09/12-09/13/00	DK4VH10G
	111	(80 - 120)	1.6	(0-35)	SW846 6010B	09/12-09/13/00	DK4VH10H
Cadmium	101	(80 - 120)			SW846 6010B	09/12-09/13/00	DK4VH10L
	109	(80 - 120)	6.9	(0-35)	SW846 6010B	09/12-09/13/00	DK4VH10M
Chromium	148 N	(80 - 120)			SW846 6010B	09/12-09/13/00	DK4VH10N
	155 N	(80 - 120)	2.8	(0-35)	SW846 6010B	09/12-09/13/00	DK4VH10P
Lead	95	(80 - 120)			SW846 6010B	09/12-09/13/00	DK4VH10J
	100	(80 - 120)	5.0	(0-35)	SW846 6010B	09/12-09/13/00	DK4VH10K
Selenium	95	(80 - 120)			SW846 6010B	09/12-09/13/00	DK4VH10V
	93	(80 - 120)	1.3	(0-35)	SW846 6010B	09/12-09/13/00	DK4VH10W
Silver	96	(80 - 120)			SW846 6010B	09/12-09/13/00	DK4VH10Q
	99	(80 - 120)	3.6	(0-35)	SW846 6010B	09/12-09/13/00	DK4VH10R

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: G0I090119
Date Sampled...: 09/08/00 Date Received..: 09/09/00 Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I090119-001 Prep Batch #...: 0255443							
Aluminum	NC,MSB	(80 - 120)			SW846 6010B	09/11-09/12/00	DK4V510G
	NC,MSB	(80 - 120)		(0-35)	SW846 6010B	09/11-09/12/00	DK4V510H
Arsenic	95	(80 - 120)			SW846 6010B	09/11-09/12/00	DK4V510V
	92	(80 - 120)	3.2	(0-35)	SW846 6010B	09/11-09/12/00	DK4V510W
Barium	151 N	(80 - 120)			SW846 6010B	09/11-09/12/00	DK4V510J
	136 N	(80 - 120)	6.9	(0-35)	SW846 6010B	09/11-09/12/00	DK4V510K
Cadmium	102	(80 - 120)			SW846 6010B	09/11-09/12/00	DK4V510N
	106	(80 - 120)	3.9	(0-35)	SW846 6010B	09/11-09/12/00	DK4V510P
Chromium	196 N	(80 - 120)			SW846 6010B	09/11-09/12/00	DK4V510Q
	192 N	(80 - 120)	1.1	(0-35)	SW846 6010B	09/11-09/12/00	DK4V510R
Lead	99	(80 - 120)			SW846 6010B	09/11-09/12/00	DK4V510L
	113	(80 - 120)	11	(0-35)	SW846 6010B	09/11-09/12/00	DK4V510M
Selenium	92	(80 - 120)			SW846 6010B	09/11-09/12/00	DK4V510X
	90	(80 - 120)	1.4	(0-35)	SW846 6010B	09/11-09/12/00	DK4V5110
Silver	95	(80 - 120)			SW846 6010B	09/11-09/12/00	DK4V510T
	93	(80 - 120)	1.9	(0-35)	SW846 6010B	09/11-09/12/00	DK4V510[illegible]
MS Lot-Sample #: G0I090119-001 Prep Batch #...: 0256299							
Mercury	93	(75 - 125)			SW846 7471A	09/11/00	DK4V5111
	94	(75 - 125)	1.0	(0-20)	SW846 7471A	09/11/00	DK4V5112

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...:	G0I090119	Work Order #...:	DK4V510E-MS	Matrix.....:	SOLID
MS Lot-Sample #:	G0I090119-001		DK4V510F-MSD		
Date Sampled...:	09/08/00	Date Received..:	09/09/00	MS Run #.....:	0255111
Prep Date.....:	09/11/00	Analysis Date..:	09/14/00		
Prep Batch #...:	0255288	Analysis Time..:	00:20		
Dilution Factor:	1	Analyst ID.....:	002327	Instrument ID..:	P18

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
HMX	1.4	1.00	2.25	mg/kg	88		SW846 8330
	1.4	1.00	2.78	mg/kg	141 a	21	SW846 8330
RDX	1.9	1.00	2.39	mg/kg	53 a		SW846 8330
	1.9	1.00	2.73	mg/kg	87	13	SW846 8330
1,3,5-Trinitrobenzene	ND	1.00	0.905	mg/kg	91		SW846 8330
	ND	1.00	0.951	mg/kg	95	4.9	SW846 8330
1,3-Dinitrobenzene	ND	1.00	0.898	mg/kg	90		SW846 8330
	ND	1.00	0.977	mg/kg	98	8.5	SW846 8330
Tetryl	ND	1.00	0.676	mg/kg	68		SW846 8330
	ND	1.00	0.840	mg/kg	84	22	SW846 8330
Nitrobenzene	ND	1.00	0.854	mg/kg	85		SW846 8330
	ND	1.00	0.981	mg/kg	98	14	SW846 8330
2,4,6-Trinitrotoluene	ND	1.00	0.899	mg/kg	90		SW846 8330
	ND	1.00	0.958	mg/kg	96	6.4	SW846 8330
4-Amino-2,6-dinitrotoluene	ND	1.00	0.868	mg/kg	87		SW846 8330
	ND	1.00	0.969	mg/kg	97	11	SW846 8330
2-Amino-4,6-dinitrotoluene	ND	1.00	0.921	mg/kg	92		SW846 8330
	ND	1.00	0.944	mg/kg	94	2.4	SW846 8330
2,6-Dinitrotoluene	ND	1.00	0.877	mg/kg	88		SW846 8330
	ND	1.00	0.870	mg/kg	87	0.88	SW846 8330
2,4-Dinitrotoluene	ND	1.00	0.922	mg/kg	92		SW846 8330
	ND	1.00	0.921	mg/kg	92	0.16	SW846 8330
2-Nitrotoluene	ND	1.00	0.737	mg/kg	74		SW846 8330
	ND	1.00	1.04	mg/kg	104	34	SW846 8330
4-Nitrotoluene	ND	1.00	0.894	mg/kg	89		SW846 8330
	ND	1.00	1.03	mg/kg	103	14	SW846 8330
3-Nitrotoluene	ND	1.00	0.785	mg/kg	78		SW846 8330
	ND	1.00	1.03	mg/kg	103	27	SW846 8330
PETN	ND	5.00	4.85	mg/kg	97		SW846 8330
	ND	5.00	4.86	mg/kg	97	0.13	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	86	(40 - 135)
	89	(40 - 135)

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MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: G0I090119 Work Order #...: DK4V510E-MS Matrix.....: SOLID
MS Lot-Sample #: G0I090119-001 DK4V510F-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...:	G0I090119	Work Order #...:	DK4V510E-MS	Matrix.....:	SOLID
MS Lot-Sample #:	G0I090119-001		DK4V510F-MSD		
Date Sampled...:	09/08/00	Date Received..:	09/09/00	MS Run #.....:	0255111
Prep Date.....:	09/11/00	Analysis Date..:	09/14/00		
Prep Batch #...:	0255288	Analysis Time..:	00:20		
Dilution Factor:	1	Analyst ID.....:	002327	Instrument ID..:	P18

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
HMX	88	(65 - 135)			SW846 8330
	141 a	(65 - 135)	21	(0-35)	SW846 8330
RDX	53 a	(65 - 135)			SW846 8330
	87	(65 - 135)	13	(0-35)	SW846 8330
1,3,5-Trinitrobenzene	91	(65 - 135)			SW846 8330
	95	(65 - 135)	4.9	(0-35)	SW846 8330
1,3-Dinitrobenzene	90	(65 - 135)			SW846 8330
	98	(65 - 135)	8.5	(0-35)	SW846 8330
Tetryl	68	(65 - 135)			SW846 8330
	84	(65 - 135)	22	(0-35)	SW846 8330
Nitrobenzene	85	(65 - 135)			SW846 8330
	98	(65 - 135)	14	(0-35)	SW846 8330
2,4,6-Trinitrotoluene	90	(65 - 135)			SW846 8330
	96	(65 - 135)	6.4	(0-35)	SW846 8330
4-Amino-2,6-dinitrotoluene	87	(65 - 135)			SW846 8330
	97	(65 - 135)	11	(0-35)	SW846 8330
2-Amino-4,6-dinitrotoluene	92	(65 - 135)			SW846 8330
	94	(65 - 135)	2.4	(0-35)	SW846 8330
2,6-Dinitrotoluene	88	(65 - 135)			SW846 8330
	87	(65 - 135)	0.88	(0-35)	SW846 8330
2,4-Dinitrotoluene	92	(65 - 135)			SW846 8330
	92	(65 - 135)	0.16	(0-35)	SW846 8330
2-Nitrotoluene	74	(65 - 135)			SW846 8330
	104	(65 - 135)	34	(0-35)	SW846 8330
4-Nitrotoluene	89	(65 - 135)			SW846 8330
	103	(65 - 135)	14	(0-35)	SW846 8330
3-Nitrotoluene	78	(65 - 135)			SW846 8330
	103	(65 - 135)	27	(0-35)	SW846 8330
PETN	97	(65 - 135)			SW846 8330
	97	(65 - 135)	0.13	(0-35)	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	86	(40 - 135)
	89	(40 - 135)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: G0I090119 Work Order #...: DK4V510E-MS Matrix.....: SOLID
MS Lot-Sample #: G0I090119-001 DK4V510F-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: G0I090119 **Work Order #...:** DK4VM103-MS **Matrix.....:** SOLID
MS Lot-Sample #: G0I090119-012 DK4VM104-MSD
Date Sampled...: 09/08/00 **Date Received..:** 09/09/00
Prep Date.....: 09/11/00 **Analysis Date..:** 09/12/00
Prep Batch #...: 0256552
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Toluene	ND	0.054	0.0524	mg/kg	97		SW846 8260B
	ND	0.053	0.0574	mg/kg	108	11	SW846 8260B
Benzene	ND	0.054	0.0521	mg/kg	96		SW846 8260B
	ND	0.053	0.0588	mg/kg	110	14	SW846 8260B
Chlorobenzene	ND	0.054	0.0507	mg/kg	93		SW846 8260B
	ND	0.053	0.0529	mg/kg	99	6.2	SW846 8260B
1,1-Dichloroethene	ND	0.054	0.0517	mg/kg	95		SW846 8260B
	ND	0.053	0.0575	mg/kg	108	13	SW846 8260B
Trichloroethene	ND	0.054	0.0540	mg/kg	100		SW846 8260B
	ND	0.053	0.0591	mg/kg	111	11	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	103	(70 - 130)
	107	(70 - 130)
1,2-Dichloroethane-d4	108	(70 - 130)
	113	(70 - 130)
Toluene-d8	105	(70 - 130)
	108	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: G0I090119
MS Lot-Sample #: G0I090119-012
Date Sampled...: 09/08/00
Prep Date.....: 09/11/00
Prep Batch #...: 0256552
Dilution Factor: 1

Work Order #...: DK4VM103-MS
DK4VM104-MSD
Date Received..: 09/09/00
Analysis Date..: 09/12/00

Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Toluene	97	(70 - 130)			SW846 8260B
	108	(70 - 130)	11	(0-35)	SW846 8260B
Benzene	96	(70 - 130)			SW846 8260B
	110	(70 - 130)	14	(0-35)	SW846 8260B
Chlorobenzene	93	(70 - 130)			SW846 8260B
	99	(70 - 130)	6.2	(0-35)	SW846 8260B
1,1-Dichloroethene	95	(70 - 130)			SW846 8260B
	108	(70 - 130)	13	(0-35)	SW846 8260B
Trichloroethene	100	(70 - 130)			SW846 8260B
	111	(70 - 130)	11	(0-35)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	103	(70 - 130)
	107	(70 - 130)
1,2-Dichloroethane-d4	108	(70 - 130)
	113	(70 - 130)
Toluene-d8	105	(70 - 130)
	108	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

NFAPES 318-331

TOTAL Metals

Client Lot #...: G0I200169
Date Sampled...: 09/19/00 Date Received..: 09/20/00 Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I200169-001 Prep Batch #...: 0269226									
Mercury									
	0.010	0.292	0.278	mg/kg	92		SW846 7471A	09/23/00	DKNKH10F
	0.010	0.292	0.287	mg/kg	95	3.5	SW846 7471A	09/23/00	DKNKH10G

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: G0I200169
Date Sampled...: 09/19/00 Date Received..: 09/20/00 Matrix.....: WATER

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I200169-017 Prep Batch #...: 0266334									
Mercury									
	ND	0.001	0.00102	mg/L	102		SW846 7470A	09/22/00	DKNMH10C
	ND	0.001	0.00105	mg/L	105	3.1	SW846 7470A	09/22/00	DKNMH10D
MS Lot-Sample #: G0I200169-017 Prep Batch #...: 0266400									
Aluminum									
	ND	2.00	2.01	mg/L	100		SW846 6010B	09/22-09/25/00	DKNMH10E
	ND	2.00	1.99	mg/L	99	1.0	SW846 6010B	09/22-09/25/00	DKNMH10F
Arsenic									
	ND	2.00	1.82	mg/L	91		SW846 6010B	09/22-09/25/00	DKNMH10T
	ND	2.00	1.88	mg/L	94	2.9	SW846 6010B	09/22-09/25/00	DKNMH10U
Barium									
	0.0013	2.00	2.10	mg/L	105		SW846 6010B	09/22-09/25/00	DKNMH10J
	0.0013	2.00	2.07	mg/L	103	1.5	SW846 6010B	09/22-09/25/00	DKNMH10K
Cadmium									
	ND	0.050	0.0481	mg/L	96		SW846 6010B	09/22-09/25/00	DKNMH[illegible]L
	ND	0.050	0.0479	mg/L	96	0.41	SW846 6010B	09/22-09/25/00	DKNMH10M
Chromium									
	ND	0.200	0.206	mg/L	103		SW846 6010B	09/22-09/25/00	DKNMH10N
	ND	0.200	0.208	mg/L	104	0.82	SW846 6010B	09/22-09/25/00	DKNMH10P
Lead									
	ND	0.500	0.477	mg/L	95		SW846 6010B	09/22-09/25/00	DKNMH10V
	ND	0.500	0.463	mg/L	93	2.9	SW846 6010B	09/22-09/25/00	DKNMH10W
Selenium									
	ND	2.00	2.22	mg/L	111		SW846 6010B	09/22-09/25/00	DKNMH10G
	ND	2.00	2.17	mg/L	109	2.1	SW846 6010B	09/22-09/25/00	DKNMH10H
Silver									
	ND	0.050	0.0488	mg/L	98		SW846 6010B	09/22-09/25/00	DKNMH10Q
	ND	0.050	0.0492	mg/L	98	0.81	SW846 6010B	09/22-09/25/00	DKNMH10R

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: G0I200169
Date Sampled...: 09/20/00 Date Received..: 09/21/00 Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I210167-023 Prep Batch #...: 0266299									
Aluminum									
	11800	229	29600	mg/kg			SW846 6010B	09/22-09/25/00	DKR0N10D
			Qualifiers: NC,MSB						
	11800	229	30300	mg/kg			SW846 6010B	09/22-09/25/00	DKR0N10E
			Qualifiers: NC,MSB						
Arsenic									
	11.3	229	223	mg/kg	92		SW846 6010B	09/22-09/25/00	DKR0N10R
	11.3	229	219	mg/kg	91	1.6	SW846 6010B	09/22-09/25/00	DKR0N10T
Barium									
	209	229	360 N	mg/kg	66		SW846 6010B	09/22-09/25/00	DKR0N10F
	209	229	469	mg/kg	113	26	SW846 6010B	09/22-09/25/00	DKR0N10G
Cadmium									
	ND	5.74	5.18	mg/kg	90		SW846 6010B	09/22-09/25/00	DKR0N10K
	ND	5.74	5.04	mg/kg	88	2.7	SW846 6010B	09/22-09/25/00	DKR0N10L
Chromium									
	29.3	22.9	70.1 N	mg/kg	178		SW846 6010B	09/22-09/25/00	DKR0N10M
	29.3	22.9	76.9 N	mg/kg	207	9.2	SW846 6010B	09/22-09/25/00	DKR0N10N
Lead									
	25.4	57.4	66.8 N	mg/kg	72		SW846 6010B	09/22-09/25/00	DKR0N10H
	25.4	57.4	70.7 N	mg/kg	79	5.7	SW846 6010B	09/22-09/25/00	DKR0N10J
Selenium									
	ND	229	218	mg/kg	95		SW846 6010B	09/22-09/25/00	DKR0N10U
	ND	229	207	mg/kg	90	5.1	SW846 6010B	09/22-09/25/00	DKR0N10V
Silver									
	ND	5.74	5.67	mg/kg	99		SW846 6010B	09/22-09/25/00	DKR0N10P
	ND	5.74	5.54	mg/kg	97	2.2	SW846 6010B	09/22-09/25/00	DKR0N10Q

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: G0I200169
Date Sampled...: 09/19/00 Date Received..: 09/20/00 Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I200169-001 Prep Batch #...: 0269226							
Mercury	92	(75 - 125)			SW846 7471A	09/23/00	DKNKH10F
	95	(75 - 125)	3.5	(0-20)	SW846 7471A	09/23/00	DKNKH10G

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: G0I200169
Date Sampled...: 09/19/00 Date Received..: 09/20/00 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I200169-017 Prep Batch #...: 0266334							
Mercury	102	(79 - 119)			SW846 7470A	09/22/00	DKNMH10C
	105	(79 - 119)	3.1	(0-20)	SW846 7470A	09/22/00	DKNMH10D
MS Lot-Sample #: G0I200169-017 Prep Batch #...: 0266400							
Aluminum	100	(81 - 119)			SW846 6010B	09/22-09/25/00	DKNMH10E
	99	(81 - 119)	1.0	(0-20)	SW846 6010B	09/22-09/25/00	DKNMH10F
Arsenic	91	(80 - 118)			SW846 6010B	09/22-09/25/00	DKNMH10T
	94	(80 - 118)	2.9	(0-20)	SW846 6010B	09/22-09/25/00	DKNMH10U
Barium	105	(88 - 108)			SW846 6010B	09/22-09/25/00	DKNMH10J
	103	(88 - 108)	1.5	(0-20)	SW846 6010B	09/22-09/25/00	DKNMH10K
Cadmium	96	(76 - 118)			SW846 6010B	09/22-09/25/00	DKNMH10L
	96	(76 - 118)	0.41	(0-20)	SW846 6010B	09/22-09/25/00	DKNMH10M
Chromium	103	(76 - 126)			SW846 6010B	09/22-09/25/00	DKNMH10N
	104	(76 - 126)	0.82	(0-20)	SW846 6010B	09/22-09/25/00	DKNMH10P
Lead	95	(79 - 115)			SW846 6010B	09/22-09/25/00	DKNMH10V
	93	(79 - 115)	2.9	(0-20)	SW846 6010B	09/22-09/25/00	DKNMH10W
Selenium	111	(82 - 126)			SW846 6010B	09/22-09/25/00	DKNMH10G
	109	(82 - 126)	2.1	(0-20)	SW846 6010B	09/22-09/25/00	DKNMH10H
Silver	98	(73 - 127)			SW846 6010B	09/22-09/25/00	DKNMH10Q
	98	(73 - 127)	0.81	(0-20)	SW846 6010B	09/22-09/25/00	DKNMH10R

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: G0I200169
Date Sampled...: 09/20/00 Date Received..: 09/21/00 Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I210167-023 Prep Batch #...: 0266299							
Aluminum	NC,MSB	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10D
	NC,MSB	(80 - 120)		(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10E
Arsenic	92	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10R
	91	(80 - 120)	1.6	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10T
Barium	66 N	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10F
	113	(80 - 120)	26	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10G
Cadmium	90	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10K
	88	(80 - 120)	2.7	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10L
Chromium	178 N	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10M
	207 N	(80 - 120)	9.2	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10N
Lead	72 N	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10H
	79 N	(80 - 120)	5.7	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10J
Selenium	95	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10U
	90	(80 - 120)	5.1	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10V
Silver	99	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10P
	97	(80 - 120)	2.2	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10Q

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...:	G0I200169	Work Order #...:	DKNKH10D-MS DKNKH10E-MSD	Matrix.....:	SOLID
MS Lot-Sample #:	G0I200169-001				
Date Sampled...:	09/19/00	Date Received..:	09/20/00	MS Run #.....:	0265169
Prep Date.....:	09/21/00	Analysis Date..:	09/22/00		
Prep Batch #...:	0265362	Analysis Time..:	17:49		
Dilution Factor:	1	Analyst ID.....:	002327	Instrument ID..:	P18

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
HMX	98	(65 - 135)			SW846 8330
	92	(65 - 135)	4.8	(0-35)	SW846 8330
RDX	131	(65 - 135)			SW846 8330
	128	(65 - 135)	0.50	(0-35)	SW846 8330
1,3,5-Trinitrobenzene	101	(65 - 135)			SW846 8330
	94	(65 - 135)	7.5	(0-35)	SW846 8330
1,3-Dinitrobenzene	102	(65 - 135)			SW846 8330
	97	(65 - 135)	5.0	(0-35)	SW846 8330
Tetryl	89	(65 - 135)			SW846 8330
	86	(65 - 135)	2.6	(0-35)	SW846 8330
Nitrobenzene	100	(65 - 135)			SW846 8330
	90	(65 - 135)	10	(0-35)	SW846 8330
2,4,6-Trinitrotoluene	99	(65 - 135)			SW846 8330
	94	(65 - 135)	5.8	(0-35)	SW846 8330
4-Amino-2,6-dinitrotoluene	97	(65 - 135)			SW846 8330
	93	(65 - 135)	4.6	(0-35)	SW846 8330
2-Amino-4,6-dinitrotoluene	94	(65 - 135)			SW846 8330
	94	(65 - 135)	0.38	(0-35)	SW846 8330
2,6-Dinitrotoluene	99	(65 - 135)			SW846 8330
	91	(65 - 135)	8.6	(0-35)	SW846 8330
2,4-Dinitrotoluene	104	(65 - 135)			SW846 8330
	94	(65 - 135)	11	(0-35)	SW846 8330
2-Nitrotoluene	98	(65 - 135)			SW846 8330
	97	(65 - 135)	1.3	(0-35)	SW846 8330
4-Nitrotoluene	102	(65 - 135)			SW846 8330
	95	(65 - 135)	6.7	(0-35)	SW846 8330
3-Nitrotoluene	92	(65 - 135)			SW846 8330
	88	(65 - 135)	4.1	(0-35)	SW846 8330
PETN	101	(65 - 135)			SW846 8330
	99	(65 - 135)	1.7	(0-35)	SW846 8330

RROGATE	PERCENT RECOVERY	RECOVERY LIMITS
,4-Dinitrotoluene		(40 - 135)
	89	(40 - 135)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: G0I200169
MS Lot-Sample #: G0I200169-001
Date Sampled...: 09/19/00
Prep Date.....: 09/21/00
Prep Batch #...: 0265362
Dilution Factor: 1

Work Order #...: DKNKH10D-MS
DKNKH10E-MSD
Date Received..: 09/20/00
Analysis Date..: 09/22/00
Analysis Time..: 17:49
Analyst ID.....: 002327

Matrix.....: SOLID
MS Run #.....: 0265169
Instrument ID..: P18

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
HMX	0.40	1.00	1.38	mg/kg	98		SW846 8330
	0.40	1.00	1.32	mg/kg	92	4.8	SW846 8330
RDX	4.6	1.00	5.90	mg/kg	131		SW846 8330
	4.6	1.00	5.87	mg/kg	128	0.50	SW846 8330
1,3,5-Trinitrobenzene	ND	1.00	1.01	mg/kg	101		SW846 8330
	ND	1.00	0.935	mg/kg	94	7.5	SW846 8330
1,3-Dinitrobenzene	ND	1.00	1.02	mg/kg	102		SW846 8330
	ND	1.00	0.970	mg/kg	97	5.0	SW846 8330
Tetryl	ND	1.00	0.886	mg/kg	89		SW846 8330
	ND	1.00	0.863	mg/kg	86	2.6	SW846 8330
Nitrobenzene	ND	1.00	0.998	mg/kg	100		SW846 8330
	ND	1.00	0.899	mg/kg	90	10	SW846 8330
2,4,6-Trinitrotoluene	ND	1.00	0.993	mg/kg	99		SW846 8330
	ND	1.00	0.937	mg/kg	94	5.8	SW846 8330
4-Amino-2,6-dinitrotoluene	ND	1.00	0.974	mg/kg	97		SW846 8330
	ND	1.00	0.930	mg/kg	93	4.6	SW846 8330
2-Amino-4,6-dinitrotoluene	ND	1.00	0.940	mg/kg	94		SW846 8330
	ND	1.00	0.936	mg/kg	94	0.38	SW846 8330
2,6-Dinitrotoluene	ND	1.00	0.987	mg/kg	99		SW846 8330
	ND	1.00	0.906	mg/kg	91	8.6	SW846 8330
2,4-Dinitrotoluene	ND	1.00	1.05	mg/kg	104		SW846 8330
	ND	1.00	0.938	mg/kg	94	11	SW846 8330
2-Nitrotoluene	ND	1.00	0.978	mg/kg	98		SW846 8330
	ND	1.00	0.965	mg/kg	97	1.3	SW846 8330
4-Nitrotoluene	ND	1.00	1.02	mg/kg	102		SW846 8330
	ND	1.00	0.953	mg/kg	95	6.7	SW846 8330
3-Nitrotoluene	ND	1.00	0.916	mg/kg	92		SW846 8330
	ND	1.00	0.879	mg/kg	88	4.1	SW846 8330
PETN	ND	5.00	5.05	mg/kg	101		SW846 8330
	ND	5.00	4.97	mg/kg	99	1.7	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	89	(40 - 135)
		(40 - 135)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: G0I200169
MS Lot-Sample #: G0I200169-012
Date Sampled...: 09/19/00
Prep Date.....: 09/20/00
Prep Batch #...: 0267142
Dilution Factor: 0.99

Work Order #...: DKNM7104-MS
DKNM7105-MSD
Date Received..: 09/20/00
Analysis Date..: 09/20/00

Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Toluene	ND	0.062	0.0574	mg/kg	92		SW846 8260B
	ND	0.075	0.0714	mg/kg	95	3.6	SW846 8260B
Benzene	ND	0.062	0.0568	mg/kg	91		SW846 8260B
	ND	0.075	0.0733	mg/kg	97	7.3	SW846 8260B
Chlorobenzene	ND	0.062	0.0572	mg/kg	91		SW846 8260B
	ND	0.075	0.0727	mg/kg	97	5.6	SW846 8260B
1,1-Dichloroethene	ND	0.062	0.0587	mg/kg	94		SW846 8260B
	ND	0.075	0.0767	mg/kg	102	8.4	SW846 8260B
Trichloroethene	ND	0.062	0.0555	mg/kg	89		SW846 8260B
	ND	0.075	0.0727	mg/kg	97	8.7	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	98	(70 - 130)
	97	(70 - 130)
1,2-Dichloroethane-d4	97	(70 - 130)
	99	(70 - 130)
Toluene-d8	102	(70 - 130)
	98	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: G0I200169
MS Lot-Sample #: G0I200169-012
Date Sampled...: 09/19/00
Prep Date.....: 09/20/00
Prep Batch #...: 0267142
Dilution Factor: 0.99

Work Order #...: DKNM7104-MS
DKNM7105-MSD
Date Received..: 09/20/00
Analysis Date..: 09/20/00

Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Toluene	92	(70 - 130)			SW846 8260B
	95	(70 - 130)	3.6	(0-35)	SW846 8260B
Benzene	91	(70 - 130)			SW846 8260B
	97	(70 - 130)	7.3	(0-35)	SW846 8260B
Chlorobenzene	91	(70 - 130)			SW846 8260B
	97	(70 - 130)	5.6	(0-35)	SW846 8260B
1,1-Dichloroethene	94	(70 - 130)			SW846 8260B
	102	(70 - 130)	8.4	(0-35)	SW846 8260B
Trichloroethene	89	(70 - 130)			SW846 8260B
	97	(70 - 130)	8.7	(0-35)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	98	(70 - 130)
	97	(70 - 130)
1,2-Dichloroethane-d4	97	(70 - 130)
	99	(70 - 130)
Toluene-d8	102	(70 - 130)
	98	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

MFAPES 332-353

HPLC

Client Lot #...: G0I210167 Work Order #...: DKQW010D-MS Matrix.....: SOLID
MS Lot-Sample #: G0I210167-001 DKQW010E-MSD
Date Sampled...: 09/20/00 10:48 Date Received..: 09/21/00 09:35
Prep Date.....: 09/22/00 Analysis Date..: 09/26/00
Prep Batch #...: 0266302 Analysis Time..: 01:07
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
HMX	5.5	1.00	6.13	mg/kg	64 a		SW846 8330
	5.5	1.00	5.00	mg/kg	0.0 a	0.0	SW846 8330
RDX	4.8	1.00	4.59	mg/kg	0.0 a		SW846 8330
	4.8	1.00	3.71	mg/kg	0.0 a	0.0	SW846 8330
1,3,5-Trinitrobenzene	ND	1.00	1.01	mg/kg	101		SW846 8330
	ND	1.00	1.04	mg/kg	104	2.8	SW846 8330
1,3-Dinitrobenzene	ND	1.00	1.04	mg/kg	104		SW846 8330
	ND	1.00	1.07	mg/kg	107	2.5	SW846 8330
Tetryl	ND	1.00	1.00	mg/kg	100		SW846 8330
	ND	1.00	1.04	mg/kg	104	3.5	SW846 8330
Nitrobenzene	ND	1.00	0.936	mg/kg	94		SW846 8330
	ND	1.00	1.08	mg/kg	108	14	SW846 8330
2,4,6-Trinitrotoluene	0.22	1.00	1.09	mg/kg	87		SW846 8330
	0.22	1.00	1.19	mg/kg	97	8.6	SW846 8330
4-Amino-2,6-dinitrotoluene	ND	1.00	0.908	mg/kg	91		SW846 8330
	ND	1.00	1.11	mg/kg	111	20	SW846 8330
2-Amino-4,6-dinitrotoluene	ND	1.00	0.901	mg/kg	90		SW846 8330
	ND	1.00	1.08	mg/kg	108	18	SW846 8330
2,6-Dinitrotoluene	ND	1.00	0.943	mg/kg	94		SW846 8330
	ND	1.00	1.02	mg/kg	102	7.4	SW846 8330
2,4-Dinitrotoluene	ND	1.00	0.995	mg/kg	100		SW846 8330
	ND	1.00	1.08	mg/kg	108	7.7	SW846 8330
2-Nitrotoluene	ND	1.00	0.847	mg/kg	85		SW846 8330
	ND	1.00	1.13	mg/kg	113	28	SW846 8330
4-Nitrotoluene	ND	1.00	1.02	mg/kg	102		SW846 8330
	ND	1.00	1.21	mg/kg	121	17	SW846 8330
3-Nitrotoluene	ND	1.00	0.869	mg/kg	87		SW846 8330
	ND	1.00	1.13	mg/kg	113	26	SW846 8330
PETN	ND	5.00	5.30	mg/kg	106		SW846 8330
	ND	5.00	5.17	mg/kg	103	2.5	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	90	(40 - 135)
	91	(40 - 135)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: G0I210167 Work Order #...: DKQW010D-MS Matrix.....: SOLID
MS Lot-Sample #: G0I210167-001 DKQW010E-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: G0I210167 Work Order #...: DKQW010D-MS Matrix.....: SOLID
MS Lot-Sample #: G0I210167-001 DKQW010E-MSD
Date Sampled...: 09/20/00 10:48 Date Received..: 09/21/00 09:35
Prep Date.....: 09/22/00 Analysis Date..: 09/26/00
Prep Batch #...: 0266302 Analysis Time..: 01:07
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
HMX	64 a	(65 - 135)			SW846 8330
	0.0 a	(65 - 135)	0.0	(0-35)	SW846 8330
RDX	0.0 a	(65 - 135)			SW846 8330
	0.0 a	(65 - 135)	0.0	(0-35)	SW846 8330
1,3,5-Trinitrobenzene	101	(65 - 135)			SW846 8330
	104	(65 - 135)	2.8	(0-35)	SW846 8330
1,3-Dinitrobenzene	104	(65 - 135)			SW846 8330
	107	(65 - 135)	2.5	(0-35)	SW846 8330
Tetryl	100	(65 - 135)			SW846 8330
	104	(65 - 135)	3.5	(0-35)	SW846 8330
Nitrobenzene	94	(65 - 135)			SW846 8330
	108	(65 - 135)	14	(0-35)	SW846 8330
2,4,6-Trinitrotoluene	87	(65 - 135)			SW846 8330
	97	(65 - 135)	8.6	(0-35)	SW846 8330
4-Amino-2,6-dinitrotoluene	91	(65 - 135)			SW846 8330
	111	(65 - 135)	20	(0-35)	SW846 8330
2-Amino-4,6-dinitrotoluene	90	(65 - 135)			SW846 8330
	108	(65 - 135)	18	(0-35)	SW846 8330
2,6-Dinitrotoluene	94	(65 - 135)			SW846 8330
	102	(65 - 135)	7.4	(0-35)	SW846 8330
2,4-Dinitrotoluene	100	(65 - 135)			SW846 8330
	108	(65 - 135)	7.7	(0-35)	SW846 8330
2-Nitrotoluene	85	(65 - 135)			SW846 8330
	113	(65 - 135)	28	(0-35)	SW846 8330
4-Nitrotoluene	102	(65 - 135)			SW846 8330
	121	(65 - 135)	17	(0-35)	SW846 8330
3-Nitrotoluene	87	(65 - 135)			SW846 8330
	113	(65 - 135)	26	(0-35)	SW846 8330
PETN	106	(65 - 135)			SW846 8330
	103	(65 - 135)	2.5	(0-35)	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	90	(40 - 135)
	91	(40 - 135)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: G0I210167 Work Order #...: DKQW010D-MS Matrix.....: SOLID
MS Lot-Sample #: G0I210167-001 DKQW01CE-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: G0I210167 Matrix.....: SOLID
Date Sampled...: 09/19/00 Date Received..: 09/20/00

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I200169-001 Prep Batch #...: 0269226									
Mercury									
	0.010	0.292	0.278	mg/kg	92		SW846 7471A	09/23/00	DKNKH10
	0.010	0.292	0.287	mg/kg	95	3.5	SW846 7471A	09/23/00	DKNKH10

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: G0I210167
Date Sampled...: 09/20/00 **Date Received..:** 09/21/00
Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I210167-023 **Prep Batch #...:** 0266299									
Aluminum									
	11800	229	29600	mg/kg			SW846 6010B	09/22-09/25/00	DKR0N10
			Qualifiers: NC,MSB						
	11800	229	30300	mg/kg			SW846 6010B	09/22-09/25/00	DKR0N10
			Qualifiers: NC,MSB						
Arsenic									
	11.3	229	223	mg/kg	92		SW846 6010B	09/22-09/25/00	DKR0N10
	11.3	229	219	mg/kg	91	1.6	SW846 6010B	09/22-09/25/00	DKR0N10
Barium									
	209	229	360 N	mg/kg	66		SW846 6010B	09/22-09/25/00	DKR0N10
	209	229	469	mg/kg	113	26	SW846 6010B	09/22-09/25/00	DKR0N10
Cadmium									
	ND	5.74	5.18	mg/kg	90		SW846 6010B	09/22-09/25/00	DKR0N10
	ND	5.74	5.04	mg/kg	88	2.7	SW846 6010B	09/22-09/25/00	DKR0N10
Chromium									
	29.3	22.9	70.1 N	mg/kg	178		SW846 6010B	09/22-09/25/00	DK[illegible]10
	29.3	22.9	76.9 N	mg/kg	207	9.2	SW846 6010B	09/22-09/25/00	DKR0N10
Lead									
	25.4	57.4	66.8 N	mg/kg	72		SW846 6010B	09/22-09/25/00	DKR0N10
	25.4	57.4	70.7 N	mg/kg	79	5.7	SW846 6010B	09/22-09/25/00	DKR0N10J
Selenium									
	ND	229	218	mg/kg	95		SW846 6010B	09/22-09/25/00	DKR0N10U
	ND	229	207	mg/kg	90	5.1	SW846 6010B	09/22-09/25/00	DKR0N10V
Silver									
	ND	5.74	5.67	mg/kg	99		SW846 6010B	09/22-09/25/00	DKR0N10P
	ND	5.74	5.54	mg/kg	97	2.2	SW846 6010B	09/22-09/25/00	DKR0N10Q

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: G0I210167 **Matrix.....:** SOLID
Date Sampled...: 09/19/00 **Date Received..:** 09/20/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I200169-001 **Prep Batch #...:** 0269226							
Mercury	92	(75 - 125)			SW846 7471A	09/23/00	DKNKH10F
	95	(75 - 125)	3.5	(0-20)	SW846 7471A	09/23/00	DKNKH10G

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: G0I210167
Date Sampled...: 09/20/00 **Date Received..:** 09/21/00 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: G0I210167-023 **Prep Batch #...:** 0266299							
Aluminum	NC,MSB	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10D
	NC,MSB	(80 - 120)		(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10E
Arsenic	92	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10R
	91	(80 - 120)	1.6	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10T
Barium	66 N	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10F
	113	(80 - 120)	26	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10G
Cadmium	90	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10K
	88	(80 - 120)	2.7	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10L
Chromium	178 N	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10M
	207 N	(80 - 120)	9.2	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10N
Lead	72 N	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10H
	79 N	(80 - 120)	5.7	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10J
Selenium	95	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10U
	90	(80 - 120)	5.1	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10V
Silver	99	(80 - 120)			SW846 6010B	09/22-09/25/00	DKR0N10P
	97	(80 - 120)	2.2	(0-35)	SW846 6010B	09/22-09/25/00	DKR0N10

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: G0I210167 Work Order #...: DKR09104-MS Matrix.....: SOLID
MS Lot-Sample #: G0I210167-018 DKR09105-MSD
Date Sampled...: 09/20/00 Date Received..: 09/21/00
Prep Date.....: 09/21/00 Analysis Date..: 09/21/00
Prep Batch #...: 0269586
Dilution Factor: 0.97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Toluene	ND	0.059	0.0575	mg/kg	96		SW846 8260B
	ND	0.066	0.0652	mg/kg	99	2.5	SW846 8260B
Benzene	ND	0.059	0.0567	mg/kg	95		SW846 8260B
	ND	0.066	0.0664	mg/kg	100	5.7	SW846 8260B
Chlorobenzene	ND	0.059	0.0561	mg/kg	94		SW846 8260B
	ND	0.066	0.0637	mg/kg	96	2.6	SW846 8260B
1,1-Dichloroethene	ND	0.059	0.0590	mg/kg	99		SW846 8260B
	ND	0.066	0.0725	mg/kg	110	11	SW846 8260B
Trichloroethene	ND	0.059	0.0556	mg/kg	93		SW846 8260B
	ND	0.066	0.0644	mg/kg	97	4.7	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(70 - 130)
	96	(70 - 130)
1,2-Dichloroethane-d4	96	(70 - 130)
	100	(70 - 130)
Toluene-d8	99	(70 - 130)
	99	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: G0I210167
MS Lot-Sample #: G0I210167-018
Date Sampled...: 09/20/00
Prep Date.....: 09/21/00
Prep Batch #...: 0269586
Dilution Factor: 0.97

Work Order #...: DKR09104-MS
DKR09105-MSD
Date Received..: 09/21/00
Analysis Date..: 09/21/00

Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Toluene	96	(70 - 130)			SW846 8260B
	99	(70 - 130)	2.5	(0-35)	SW846 8260B
Benzene	95	(70 - 130)			SW846 8260B
	100	(70 - 130)	5.7	(0-35)	SW846 8260B
Chlorobenzene	94	(70 - 130)			SW846 8260B
	96	(70 - 130)	2.6	(0-35)	SW846 8260B
1,1-Dichloroethene	99	(70 - 130)			SW846 8260B
	110	(70 - 130)	11	(0-35)	SW846 8260B
Trichloroethene	93	(70 - 130)			SW846 8260B
	97	(70 - 130)	4.7	(0-35)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(70 - 130)
	96	(70 - 130)
1,2-Dichloroethane-d4	96	(70 - 130)
	100	(70 - 130)
Toluene-d8	99	(70 - 130)
	99	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 44420

Matrix Spike - Client Sample NO.: MFAPES354 * MFAPES354-365

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	8000	693	8360	96	54-128
RDX	8000	221	8580	104	66-109
TNB	8000	0	8430	105	57-130
DNB	8000	0	8540	107	74-122
TETRYL	8000	0	8540	107	32-119
NB	8000	0	8530	107	70-135
TNT	8000	0	8550	107	44-124
4ADNT	8000	0	8500	106	60-140
2ADNT	8000	0	8530	107	60-140
26DNT	8000	0	8490	106	58-125
24DNT	8000	0	8520	106	59-120
2NT	8000	0	8470	106	79-124
4NT	8000	0	8480	106	74-128
3NT	8000	0	8800	110	79-121
PETN	8000	0	8800	110	30-150

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	8000	8220	94	2	30	54-128
RDX	8000	8400	102	2	30	66-109
TNB	8000	8180	102	3	30	57-130
DNB	8000	8390	105	2	30	74-122
TETRYL	8000	8010	100	6	45	32-119
NB	8000	8430	105	1	30	70-135
TNT	8000	8400	105	2	35	44-124
4ADNT	8000	8350	104	2	40	60-140
2ADNT	8000	8390	105	2	40	60-140
26DNT	8000	8350	104	2	35	58-125
24DNT	8000	8380	105	2	35	59-120
2NT	8000	8380	105	1	35	79-124
4NT	8000	8350	104	2	35	74-128
3NT	8000	8630	108	2	35	79-121
PETN	8000	8630	108	2	30	30-150

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 15 outside limits
Spike Recovery: 0 out of 30 outside limits

Comments:

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U.S. EPA - CLP
6
DUPLICATES

CLIENT SAMPLE ID

MFAPES354M

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:TOLTEST___

Lab Code: SWOK__ Case No.: 44420 SAS No.: _____ SDG No.: 44420_

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _84.7 % Solids for Duplicate: __84.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		13500.4095		15233.7595		12.1		P
Arsenic		202.5319		209.7970		3.5		P
Barium		230.0214		245.9710		6.7		P
Cadmium	4.6758	5.2100		5.3827		3.3		P
Chromium		38.3712		42.3222		9.8		P
Lead	29.2237	59.7925		62.5968		4.6		P
Mercury	0.0387	0.1804		0.1831		1.5		AV
Selenium		198.3541		202.7016		2.2		P
Silver	1.1689	4.8400		5.0110		3.5		P

FORM VI - IN

U.S. EPA - CLP
5A
SPIKE SAMPLE RECOVERY

Client SAMPLE ID

MFAPES354M

Lab Name: SOUTHWEST_LAB_OF_OK Contract: TOLTEST

Lab Code: SWOK Case No.: 44420 SAS No.: SDG No.: 44420
Matrix: SOIL Level (low/med): LOW
% Solids for Sample: 84.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		15233.7595		7263.8378		233.79	3409.0		P
Arsenic	75-125	209.7970		5.1005		233.79	87.6		P
Barium	75-125	245.9710		29.6861		233.79	92.5		P
Cadmium	75-125	5.3827		0.0584	U	5.84	92.2		P
Chromium	75-125	42.3222		12.1533		23.38	129.0	N	P
Lead	75-125	62.5968		10.4416	B	58.45	89.2		P
Mercury	75-125	0.1831		0.0194	U	0.19	96.4		AV
Selenium	75-125	202.7016		0.4559	U	233.79	86.7		P
Silver	75-125	5.0110		0.3156	U	5.84	85.8		P

Comments:

U.S. EPA - CLP
5A
SPIKE SAMPLE RECOVERY

Client SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: TOLTEST___ MFAPES354S

Lab Code: SWOK__ Case No.: 44420 SAS No.: _____ SDG No.: 44420_
Matrix: __SOIL_____ Level (low/med): _LOW____
% Solids for Sample: _84.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		13500.4095		7263.8378		233.79	2667.6		P
Arsenic	75-125	202.5319		5.1005		233.79	84.4		P
Barium	75-125	230.0214		29.6861		233.79	85.7		P
Cadmium	75-125	5.2100		0.0584	U	5.84	89.2		P
Chromium	75-125	38.3712		12.1533		23.38	112.1		P
Lead	75-125	59.7925		10.4416	B	58.45	84.4		P
Mercury	75-125	0.1804		0.0194	U	0.19	94.9		AV
Selenium	75-125	198.3541		0.4559	U	233.79	84.8		P
Silver	75-125	4.8400		0.3156	U	5.84	82.9		P

Comments:

APPENDIX I

WINDROW RECIPES, FIELD MONITORING RESULTS, DAY LAST SAMPLE RESULTS SUMMARY, AND MS/MSD DATA (FOR EXPLOSIVES COMPOUNDS ONLY)

TOLTEST, INC.

Record of Recipe Worksheet

Windrow #N-192 Day 0: 10/9/00

	Chicken		Straw		Soil		Total	
Batch #	cy	pounds	cy	pounds	cy	pounds	cy	pounds
1	3	5700	12	2460	5	11000	20	19160
2	3	5750	12	2420	5	11000	20	19170
3	3.25	5790	12	2430	5	11000	20.25	19220
4	3.25	5800	12	2450	5	11000	20.25	19250
5	3	5740	12.25	2490	5	11000	20.25	19230
6	3.25	5780	12.25	2520	5	11000	20.5	19300
7	3	5750	12	2450	5	11000	20	19200
8	3.25	5790	12	2520	5	11000	20.25	19310
9	3.25	5810	12.25	2480	5	11000	20.5	19290
10	3	5760	12.25	2520	5	11000	20.25	19280
11	3.25	5780	12	2410	5	11000	20.25	19190
12	3.5	5890	12	2420	5	11000	20.5	19310
13	3.5	5910	12	2400	5	11000	20.5	19310
14	3.25	5790	12.25	2540	5	11000	20.5	19330
15	3.25	5840	12	2430	5	11000	20.25	19270
16	3	5720	12.75	2680	5	11000	20.75	19400
17	3	5760	12.75	2610	5	11000	20.75	19370
18	3.25	5780	12	2400	5	11000	20.25	19180
19	3.5	5900	13	2860	5	11000	21.5	19760
20	3	5710	12	2430	5	11000	20	19140
Total	63.75	115750	243.75	49920	100.00	220000	407.5	385670

Average Daily Windrow Temperature Summary Report

Windrow Number	Construction Date	Date Monitored	Age (Days)	PRE-Turn (Deg C)	POST-Turn (Deg C)
N192	10/11/2000	10/12/2000	1	50.08	39.00
		10/13/2000	2	53.67	43.17
		10/14/2000	3	62.25	42.75
		10/16/2000	5	53.08	49.25
		10/17/2000	6	56.17	43.67
		10/18/2000	7	58.92	48.50
		10/19/2000	8	60.42	49.67
		10/20/2000	9	65.00	53.42
		10/21/2000	10	63.25	52.50
		10/23/2000	12	67.08	53.58
		10/24/2000	13	63.50	53.92

All average temperatures are in degrees centigrade
February 2, 2001

Average Daily Windrow Oxygen Summary Report

Windrow Number	*Construction Date*	*Date Monitored*	*Age (Days)*	*PRE-Turn (%)*	*POST-Turn (%)*
N192	10/11/2000	10/12/2000	1	12.08	14.42
		10/13/2000	2	13.89	15.17
		10/14/2000	3	13.42	12.75
		10/16/2000	5	16.58	14.58
		10/17/2000	6	14.58	15.08
		10/18/2000	7	13.75	15.08
		10/19/2000	8	9.00	18.17
		10/20/2000	9	8.58	12.58
		10/21/2000	10	14.17	12.50
		10/23/2000	12	9.83	9.25
		10/24/2000	13	7.75	12.25

All average Oxygen values are expressed as a percent

February 2, 2001

Windrow Explosive Concentrations Summary Report

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*
135TNB	10/11/2000	10/25/2000	14	09	1	LT 454
	10/11/2000	10/25/2000			2	LT 500
	10/11/2000	10/25/2000			3	LT 476
				Average Concentration for Cross Section	09	477
135TNB	10/11/2000	10/25/2000	14	11	1	LT 454
	10/11/2000	10/25/2000			2	LT 476
	10/11/2000	10/25/2000			3	LT 476
				Average Concentration for Cross Section	11	469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	14	473
				Standard Deviation		17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		477
13DNB	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			14		473
						Standard Deviation	17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		477
246TNT	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			14		473
						Standard Deviation	17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section		09	477
24DNT	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section		11	469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY		14	473
					Standard Deviation		17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		477
26DNT	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			14		473
						Standard Deviation	17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		477
2A46DT	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	14		473
						Standard Deviation	17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		477
2NT	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			14		473
						Standard Deviation	17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		477
3NT	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	14		473
						Standard Deviation	17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		477
4A26DT	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			14		473
						Standard Deviation	17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4NT	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section		09	477
4NT	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section		11	469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY		14	473
					Standard Deviation		17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 174	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section		09	368
HMX	10/11/2000	10/25/2000	14	11	1	LT 322	
	10/11/2000	10/25/2000			2	LT 458	
	10/11/2000	10/25/2000			3	LT 177	
				Average Concentration for Cross Section		11	319
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				14	344
					Standard Deviation		141

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		477
NB	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			14		473
						Standard Deviation	17

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	10/11/2000	10/25/2000	14	09	1	LT 246	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	09		407
RDX	10/11/2000	10/25/2000	14	11	1	2130	
	10/11/2000	10/25/2000			2	LT 254	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section	11		953
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			14		680
						Standard Deviation	719

Data provided by TolTest, Inc.

Windrow Number N192

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	10/11/2000	10/25/2000	14	09	1	LT 454	
	10/11/2000	10/25/2000			2	LT 500	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section		09	477
TETRYL	10/11/2000	10/25/2000	14	11	1	LT 454	
	10/11/2000	10/25/2000			2	LT 476	
	10/11/2000	10/25/2000			3	LT 476	
				Average Concentration for Cross Section		11	469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY		14	473
						Standard Deviation	17

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 44809

Matrix Spike - Client Sample NO.: BION10243211

BIO-N-192 DAY 14 + BIO-N-093 DAY 453 Resample

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	7270	1190	9310	112	76-119
RDX	7270	1440	9860	116	80-120
TNB	7270	0	8160	112	73-121
DNB	7270	0	8280	114	79-120
TETRYL	7270	0	8030	110	24-139
NB	7270	0	8360	115	79-121
TNT	7270	0	8370	115	74-128
4ADNT	7270	0	8190	113	64-142
2ADNT	7270	0	8340	115	80-122
26DNT	7270	0	8240	113	77-119
24DNT	7270	0	8410	116	79-122
2NT	7270	0	8320	114	79-121
4NT	7270	0	8380	115	80-120
3NT	7270	0	8540	118	79-122

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	7620	10200	118	9	30	76-119
RDX	7620	10200	114	3	30	80-120
TNB	7620	8640	113	6	30	73-121
DNB	7620	8720	114	5	30	79-120
TETRYL	7620	8460	111	5	45	24-139
NB	7620	8810	116	5	30	79-121
TNT	7620	8790	115	5	35	74-128
4ADNT	7620	8620	113	5	40	64-142
2ADNT	7620	8800	116	5	40	80-122
26DNT	7620	8760	115	6	35	77-119
24DNT	7620	8880	116	5	35	79-122
2NT	7620	8700	114	4	35	79-121
4NT	7620	8780	115	5	35	80-120
3NT	7620	8990	118	5	35	79-122

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 0 out of 28 outside limits

Comments:

TOLTEST, INC.

Record of Recipe Worksheet

Windrow # M-194 Day 0: 10/18/00

	Chicken		Straw		Soil		Total	
Batch #	cy	pounds	cy	pounds	cy	pounds	cy	pounds
1	3.1	5750	12	2400	5.275	11605	20.375	19755
2	3.1	5790	12.15	2560	5.275	11605	20.525	19955
3	3.1	5720	12.315	2590	5.275	11605	20.69	19915
4	3.1	5780	12.1	2450	5.275	11605	20.475	19835
5	3	5700	12.1	2470	5.275	11605	20.375	19775
6	3.1	5740	12.25	2680	5.275	11605	20.625	20025
7	3.15	5810	12.1	2460	5.275	11605	20.525	19875
8	3.1	5890	12.15	2570	5.275	11605	20.525	20065
9	3	5700	102.1	2640	5.275	11605	110.375	19945
10	3.1	5770	12.1	2460	5.275	11605	20.475	19835
11	3.15	5810	12.15	2520	5.275	11605	20.575	19935
12	3.1	5780	12.1	2460	5.275	11605	20.475	19845
13	3	5700	12.1	2480	5.275	11605	20.375	19785
14	3.15	5840	12.1	2450	5.275	11605	20.525	19895
15	3.1	5790	12.15	2550	5.275	11605	20.525	19945
16	3.15	5840	12.15	2570	5.275	11605	20.575	20015
17	3.1	5710	12.1	2400	5.275	11605	20.475	19715
18	3.15	5700	12.1	2440	5.275	11605	20.525	19745
19	3.15	5820	12.1	2490	5.275	11605	20.525	19915
20	3.1	5720	12.15	2580	5.275	11605	20.525	19905
21	3.15	5840	12.1	2450	5.275	11605	20.525	19895
22	3.1	5770	12	2400	5.275	11605	20.375	19775
23	3.1	5700	12	2400	5.275	11605	20.375	19705
24	3.15	5800	12	2300	5.275	11605	20.425	19705
25	3.15	5850	12	2350	5.275	11605	20.425	19805
26	3.15	5800	12	2400	5.275	11605	20.425	19805
27	3.1	5750	12	2490	5.275	11605	20.375	19845
28	3.15	5800	12.1	2500	5.275	11605	20.525	19905
29	3.1	5700	12.15	2600	5.275	11605	20.525	19905
30	3	5700	12.25	2650	5.275	11605	20.525	19955
31	3.15	5850	12.75	2400	5.275	11605	21.175	19855
32	3.15	5800	12	2600	5.275	11605	20.425	20005
33	3	5700	12.25	2540	5.275	11605	20.525	19845
34	3	5700	12.2	2700	5.275	11605	20.475	20005
35	3.25	5950	12.4	2950	5.275	11605	20.925	20505
36	3	5690	12.5	2620	5.275	11605	20.775	19915
37	3	5700	12.2	2600	5.275	11605	20.475	19905
38	3	5700	12.2	2690	5.275	11605	20.475	19995
39	3.15	5850	12.1	2450	5.275	11605	20.525	19905
40	3	5700	12	2400	5.275	11605	20.275	19705
41								
Total	123.85	230710	575.765	100710	211.00	464200	910.615	795620

Windrow Explosive Concentrations Summary Report

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
				Average Concentration for Cross Section		03	492
135TNB	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section		05	477
135TNB	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section		07	484
135TNB	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section		09	462
135TNB	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section		11	477
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					19	478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
			Average Concentration for Cross Section			03	492
13DNB	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
			Average Concentration for Cross Section			05	477
13DNB	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
			Average Concentration for Cross Section			07	484
13DNB	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
			Average Concentration for Cross Section			09	462
13DNB	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
			Average Concentration for Cross Section			11	477
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				19	478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	761	
	10/18/2000	11/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		579
246TNT	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	05		477
246TNT	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		484
246TNT	10/18/2000	11/06/2000	19	09	1	1450	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section	09		787
246TNT	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section	11		477
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	19		561
						Standard Deviation	257

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
			Average Concentration for Cross Section			03	492
24DNT	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
			Average Concentration for Cross Section			05	477
24DNT	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
			Average Concentration for Cross Section			07	484
24DNT	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
			Average Concentration for Cross Section			09	462
24DNT	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
			Average Concentration for Cross Section			11	477
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				19	478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
			Average Concentration for Cross Section			03	492
26DNT	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
			Average Concentration for Cross Section			05	477
26DNT	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
			Average Concentration for Cross Section			07	484
26DNT	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
			Average Concentration for Cross Section			09	462
26DNT	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
			Average Concentration for Cross Section			11	477
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					19	478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
				Average Concentration for Cross Section		03	492
2A46DT	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section		05	477
2A46DT	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section		07	484
2A46DT	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section		09	462
2A46DT	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section		11	477
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					19	478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		492
2NT	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	05		477
2NT	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		484
2NT	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section	09		462
2NT	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section	11		477
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			19		478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		492
3NT	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	05		477
3NT	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		484
3NT	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section	09		462
3NT	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section	11		477
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	19		478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
				Average Concentration for Cross Section		03	492
4A26DT	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section		05	477
4A26DT	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section		07	484
4A26DT	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section		09	462
4A26DT	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section		11	477
				AVERAGE CONCENTRATION FOR WINDROW ON DAY		19	478
						Standard Deviation	20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4NT	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
			Average Concentration for Cross Section			03	492
4NT	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
			Average Concentration for Cross Section			05	477
4NT	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
			Average Concentration for Cross Section			07	484
4NT	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
			Average Concentration for Cross Section			09	462
4NT	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
			Average Concentration for Cross Section			11	477
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					19	478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 262	
	10/18/2000	11/06/2000			3	LT 403	
				Average Concentration for Cross Section	03		380
HMX	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	05		477
HMX	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		484
HMX	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section	09		462
HMX	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section	11		477
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	19		456
						Standard Deviation	59

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		492
NB	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	05		477
NB	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		484
NB	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section	09		462
NB	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section	11		477
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	19		478
					Standard Deviation		20

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	2630	
	10/18/2000	11/06/2000			3	LT 487	
				Average Concentration for Cross Section		03	1198
RDX	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section		05	477
RDX	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section		07	484
RDX	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	619	
				Average Concentration for Cross Section		09	524
RDX	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 88.7	
				Average Concentration for Cross Section		11	355
				AVERAGE CONCENTRATION FOR WINDROW ON DAY		19	607
					Standard Deviation		570

Data provided by TolTest, Inc.

Windrow Number M194

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	10/18/2000	11/06/2000	19	03	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		492
TETRYL	10/18/2000	11/06/2000	19	05	1	LT 454	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	05		477
TETRYL	10/18/2000	11/06/2000	19	07	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		484
TETRYL	10/18/2000	11/06/2000	19	09	1	LT 476	
	10/18/2000	11/06/2000			2	LT 476	
	10/18/2000	11/06/2000			3	LT 435	
				Average Concentration for Cross Section	09		462
TETRYL	10/18/2000	11/06/2000	19	11	1	LT 476	
	10/18/2000	11/06/2000			2	LT 500	
	10/18/2000	11/06/2000			3	LT 454	
				Average Concentration for Cross Section	11		477
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			19		478
					Standard Deviation		20

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 44933

Matrix Spike - Client Sample NO.: BIOM194/19031

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	7620	0	7780	102	76-119
RDX	7620	0	8770	115	80-120
TNB	7620	0	7740	102	73-121
DNB	7620	0	7420	97	79-120
TETRYL	7620	0	6090	80	24-139
NB	7620	0	7910	104	79-121
TNT	7620	0	6600	86	74-128
4ADNT	7620	0	10100	132	64-142
2ADNT	7620	0	8100	106	80-122
26DNT	7620	0	6580	86	77-119
24DNT	7620	0	8500	112	79-122
2NT	7620	0	6340	83	79-121
4NT	7620	0	6300	83	80-120
3NT	7620	0	7730	101	79-122

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	7270	7570	104	3	30	76-119
RDX	7270	7890	108	10	30	80-120
TNB	7270	7500	103	3	30	73-121
DNB	7270	7120	98	4	30	79-120
TETRYL	7270	5970	82	2	45	24-139
NB	7270	7420	102	6	30	79-121
TNT	7270	6750	93	2	35	74-128
4ADNT	7270	10500	145 *	4	40	64-142
2ADNT	7270	8790	121	8	40	80-122
26DNT	7270	7000	96	6	35	77-119
24DNT	7270	8530	117	0	35	79-122
2NT	7270	6100	84	4	35	79-121
4NT	7270	6030	83	4	35	80-120
3NT	7270	7390	102	4	35	79-122

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 1 out of 28 outside limits

Comments:

TOLTEST, INC.

Record of Recipe Worksheet

Windrow # S-195 Day 0: 10/19/00

	Chicken		Straw		Soil		Total	
Batch #	cy	pounds	cy	pounds	cy	pounds	cy	pounds
1	3.1	5790	12.1	2450	5.275	11605	20.475	19845
2	3.15	5820	12.15	2570	5.275	11605	20.575	19995
3	3.1	5740	12.1	2490	5.275	11605	20.475	19835
4	3.1	5770	12	2400	5.275	11605	20.375	19775
5	3.15	5760	12.15	2530	5.275	11605	20.575	19895
6	3	5700	12.1	2440	5.275	11605	20.375	19745
7	3.1	5750	12	2400	5.275	11605	20.375	19755
8	3.1	5770	12.15	2510	5.275	11605	20.525	19885
9	3.1	5750	12.15	2540	5.275	11605	20.525	19895
10	3.1	5780	12.1	2490	5.275	11605	20.475	19875
11	3.1	5790	12	2400	5.275	11605	20.375	19795
12	3.1	5760	12	2400	5.275	11605	20.375	19765
13	3.1	5720	12.1	2470	5.275	11605	20.475	19795
14	3	5700	12	2410	5.275	11605	20.275	19715
15	3.1	5820	12.1	2550	5.275	11605	20.475	19975
16	3.1	5800	12	2400	5.275	11605	20.375	19805
17	3.1	5760	12.15	2560	5.275	11605	20.525	19925
18	3.1	5810	12.1	2500	5.275	11605	20.475	19915
19	3.1	5720	12.1	2500	5.275	11605	20.475	19825
20	3.1	5860	12.15	2570	5.275	11605	20.525	20035
21	3.1	5710	12.1	2480	5.275	11605	20.475	19795
22	3	5700	12	2400	5.275	11605	20.275	19705
23	3.75	6000	12	2400	5.275	11605	21.025	20005
24	3.2	5700	12.4	2500	5.275	11605	20.875	19805
25	3.75	6000	12	2400	5.275	11605	21.025	20005
26	3.5	5900	12	2400	5.275	11605	20.775	19905
27	3.2	5800	12.4	2500	5.275	11605	20.875	19905
28	3.8	6200	13	3000	5.275	11605	22.075	20805
29	3.75	6000	12	2400	5.275	11605	21.025	20005
30	3.75	6000	13	3000	5.275	11605	22.025	20605
31	3.5	5900	11.7	2200	5.275	11605	20.475	19705
32	3.5	6000	11.7	2200	5.275	11605	20.475	19805
33	3.75	6000	12	2400	5.275	11605	21.025	20005
34	3.75	6200	11.75	2300	5.275	11605	20.775	20105
35	3.8	6000	13	3000	5.275	11605	22.075	20605
36	3.75	6000	12	2400	5.275	11605	21.025	20005
37	3.5	5900	11.75	2300	5.275	11605	20.525	19805
38	3.8	6200	13	3000	5.275	11605	22.075	20805
39	3.75	6000	11.75	2300	5.275	11605	20.775	19905
40					5.275	11605	5.275	11605
Total	129.8	228580	473.25	97160	211.00	464200	814.05	789940

Windrow Explosive Concentrations Summary Report

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section		03	477
135TNB	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section		05	484
135TNB	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section		07	492
135TNB	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section		09	484
135TNB	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
				Average Concentration for Cross Section		11	469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					22	481
					Standard Deviation		18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section			03	477
13DNB	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section			05	484
13DNB	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section			07	492
13DNB	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section			09	484
13DNB	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
			Average Concentration for Cross Section			11	469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				22	481
					Standard Deviation		18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	03		477
246TNT	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	05		484
246TNT	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	07		492
246TNT	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	09		484
246TNT	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
				Average Concentration for Cross Section	11		469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	22		481
						Standard Deviation	18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section		03		477
24DNT	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section		05		484
24DNT	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section		07		492
24DNT	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section		09		484
24DNT	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
			Average Concentration for Cross Section		11		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				22		481
					Standard Deviation		18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section		03		477
26DNT	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section		05		484
26DNT	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section		07		492
26DNT	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section		09		484
26DNT	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
			Average Concentration for Cross Section		11		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			22		481
					Standard Deviation		18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section			03	477
2A46DT	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section			05	484
2A46DT	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section			07	492
2A46DT	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section			09	484
2A46DT	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
			Average Concentration for Cross Section			11	469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					22	481
						Standard Deviation	18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section		03		477
2NT	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section		05		484
2NT	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section		07		492
2NT	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section		09		484
2NT	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
			Average Concentration for Cross Section		11		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			22		481
					Standard Deviation		18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	03		477
3NT	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	05		484
3NT	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	07		492
3NT	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	09		484
3NT	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
				Average Concentration for Cross Section	11		469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	22		481
						Standard Deviation	18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section			03	477
4A26DT	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section			05	484
4A26DT	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section			07	492
4A26DT	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section			09	484
4A26DT	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
			Average Concentration for Cross Section			11	469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				22	481
					Standard Deviation		18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4NT	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	03		477
4NT	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	05		484
4NT	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	07		492
4NT	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	09		484
4NT	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
				Average Concentration for Cross Section	11		469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	22		481
					Standard Deviation		18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section			03	477
HMX	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 303	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section			05	418
HMX	10/19/2000	11/10/2000	22	07	1	LT 354	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
			Average Concentration for Cross Section			07	451
HMX	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
			Average Concentration for Cross Section			09	484
HMX	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 484	
	10/19/2000	11/10/2000			3	LT 454	
			Average Concentration for Cross Section			11	464
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				22	459
						Standard Deviation	56

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section		03	477
NB	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section		05	484
NB	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section		07	492
NB	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section		09	484
NB	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
				Average Concentration for Cross Section		11	469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					22	481
						Standard Deviation	18

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	03		477
RDX	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 97.8	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	05		350
RDX	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	07		492
RDX	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 81.5	
				Average Concentration for Cross Section	09		353
RDX	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
				Average Concentration for Cross Section	11		469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	22		428
					Standard Deviation		139

Data provided by TolTest, Inc.

Windrow Number S195

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	10/19/2000	11/10/2000	22	03	1	LT 476	
	10/19/2000	11/10/2000			2	LT 454	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	03		477
TETRYL	10/19/2000	11/10/2000	22	05	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	05		484
TETRYL	10/19/2000	11/10/2000	22	07	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 500	
				Average Concentration for Cross Section	07		492
TETRYL	10/19/2000	11/10/2000	22	09	1	LT 476	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 476	
				Average Concentration for Cross Section	09		484
TETRYL	10/19/2000	11/10/2000	22	11	1	LT 454	
	10/19/2000	11/10/2000			2	LT 500	
	10/19/2000	11/10/2000			3	LT 454	
				Average Concentration for Cross Section	11		469
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	22		481
					Standard Deviation		18

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 45012

Matrix Spike - Client Sample NO.: BIOS19522031

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	8000	0	7880	98	76-119
RDX	8000	0	7960	100	80-120
TNB	8000	0	7840	98	73-121
DNB	8000	0	7360	92	79-120
TETRYL	8000	0	3990	50	24-139
NB	8000	0	7540	94	79-121
TNT	8000	0	6620	83	74-128
4ADNT	8000	0	10400	130	64-142
2ADNT	8000	0	7560	94	80-122
26DNT	8000	0	7380	92	77-119
24DNT	8000	0	7880	98	79-122
2NT	8000	0	7030	88	79-121
4NT	8000	0	6600	82	80-120
3NT	8000	0	7850	98	79-122

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	8000	7850	98	0	30	76-119
RDX	8000	8330	104	4	30	80-120
TNB	8000	8290	104	6	30	73-121
DNB	8000	7790	97	6	30	79-120
TETRYL	8000	4680	58	16	45	24-139
NB	8000	8060	101	6	30	79-121
TNT	8000	6920	86	4	35	74-128
4ADNT	8000	10800	134	3	40	64-142
2ADNT	8000	8010	100	6	40	80-122
26DNT	8000	7900	99	7	35	77-119
24DNT	8000	8410	105	6	35	79-122
2NT	8000	7260	91	3	35	79-121
4NT	8000	6800	85	3	35	80-120
3NT	8000	7780	97	1	35	79-122

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 0 out of 28 outside limits

Comments: _____

TOLTEST, INC.

Record of Recipe Worksheet

Windrow #N-197 Day 0: 11/7/00

	Chicken		Straw		Soil		Total	
Batch #	cy	pounds	cy	pounds	cy	pounds	cy	pounds
1	3.1	5790	12.1	2450	5	11000	20.2	19240
2	3.1	5720	12.1	2490	5	11000	20.2	19210
3	3.1	5750	12.15	2510	5	11000	20.25	19260
4	3.1	5740	12	2400	5	11000	20.1	19140
5	3.1	5770	12.1	2480	5	11000	20.2	19250
6	3	5700	12.1	2440	5	11000	20.1	19140
7	3.1	5750	12	2400	5	11000	20.1	19150
8	3.15	5810	12	2400	5	11000	20.15	19210
9	3.1	5720	12.15	2370	5	11000	20.25	19090
10	3.1	5790	12.2	2610	5	11000	20.3	19400
11	3	5700	12.1	2450	5	11000	20.1	19150
12	3.15	5810	12.2	2620	5	11000	20.35	19430
13	3	5700	12.1	2480	5	11000	20.1	19180
14	3.1	5770	12.2	2600	5	11000	20.3	19370
15	3	5700	12.1	2440	5	11000	20.1	19140
16	3.15	5820	12.1	2410	5	11000	20.25	19230
17	3.15	5800	12.1	2450	5	11000	20.25	19250
18	3.15	5870	12.1	2490	5	11000	20.25	19360
19	3.1	5790	12.1	2420	5	11000	20.2	19210
20	3.1	5770	12.1	2450	5	11000	20.2	19220
Total	61.85	115270	242.1	49360	100.00	220000	403.95	384630

Windrow Explosive Concentrations Summary Report

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
135TNB	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		488
					Standard Deviation		13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
13DNB	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		488
						Standard Deviation	13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
246TNT	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		488
						Standard Deviation	13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
24DNT	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		488
						Standard Deviation	13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
26DNT	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			20		488
					Standard Deviation		13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
2A46DT	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			20		488
					Standard Deviation		13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section		09	500
2NT	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section		11	476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				20	488
					Standard Deviation		13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
3NT	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		488
						Standard Deviation	13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
4A26DT	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		488
						Standard Deviation	13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4NT	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
4NT	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			20		488
					Standard Deviation		13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	11/07/2000	11/27/2000	20	09	1	LT 449	
	11/07/2000	11/27/2000			2	LT 318	
	11/07/2000	11/27/2000			3	LT 166	
				Average Concentration for Cross Section	09		311
HMX	11/07/2000	11/27/2000	20	11	1	LT 212	
	11/07/2000	11/27/2000			2	LT 188	
	11/07/2000	11/27/2000			3	LT 256	
				Average Concentration for Cross Section	11		219
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		265
						Standard Deviation	105

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
NB	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		488
						Standard Deviation	13

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	11/07/2000	11/27/2000	20	09	1	LT 183	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		394
RDX	11/07/2000	11/27/2000	20	11	1	LT 99.6	
	11/07/2000	11/27/2000			2	LT 81.7	
	11/07/2000	11/27/2000			3	LT 113	
				Average Concentration for Cross Section	11		98
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	20		246
						Standard Deviation	200

Data provided by TolTest, Inc.

Windrow Number N197

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	11/07/2000	11/27/2000	20	09	1	LT 500	
	11/07/2000	11/27/2000			2	LT 500	
	11/07/2000	11/27/2000			3	LT 500	
				Average Concentration for Cross Section	09		500
TETRYL	11/07/2000	11/27/2000	20	11	1	LT 476	
	11/07/2000	11/27/2000			2	LT 476	
	11/07/2000	11/27/2000			3	LT 476	
				Average Concentration for Cross Section	11		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			20		488
						Standard Deviation	13

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 45180

Matrix Spike - Client Sample NO.: BION19720091

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	7620	449	8080	100	76-119
RDX	7620	183	14300	186*	80-120
TNB	7620	0	7920	104	73-121
DNB	7620	0	7620	100	79-120
TETRYL	7620	0	4460	58	24-139
NB	7620	0	7170	94	79-121
TNT	7620	0	7260	95	74-128
4ADNT	7620	0	7410	97	64-142
2ADNT	7620	0	6000	79*	80-122
26DNT	7620	0	6550	86	77-119
24DNT	7620	0	8410	110	79-122
2NT	7620	0	7760	102	79-121
4NT	7620	0	6770	89	80-120
3NT	7620	0	7610	100	79-122

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	6960	7160	96	12	30	76-119
RDX	6960	7190	101	66 *	30	80-120
TNB	6960	7040	101	12	30	73-121
DNB	6960	6900	99	10	30	79-120
TETRYL	6960	3950	57	12	45	24-139
NB	6960	6100	88	16	30	79-121
TNT	6960	6460	93	12	35	74-128
4ADNT	6960	6600	95	12	40	64-142
2ADNT	6960	5330	76 *	12	40	80-122
26DNT	6960	5850	84	11	35	77-119
24DNT	6960	7580	109	10	35	79-122
2NT	6960	6850	98	12	35	79-121
4NT	6960	5960	86	13	35	80-120
3NT	6960	6960	100	9	35	79-122

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 1 out of 14 outside limits
Spike Recovery: 3 out of 28 outside limits

Comments: _____

FORM III

TOLTEST, INC.

Record of Recipe Worksheet

Windrow # M-198 Day 0: 11/15/00

	Chicken		Straw		Soil		Total	
Batch #	cy	pounds	cy	pounds	cy	pounds	cy	pounds
1	3.1	5850	12.15	2570	5.275	11605	20.525	20025
2	3.2	5890	12.1	2450	5.275	11605	20.575	19945
3	3.1	5720	12.1	2470	5.275	11605	20.475	19795
4	3	5700	12.1	2440	5.275	11605	20.375	19745
5	3.15	5870	12	2450	5.275	11605	20.425	19925
6	3.2	5920	12.1	2480	5.275	11605	20.575	20005
7	3.1	5730	12.1	2430	5.275	11605	20.475	19765
8	3	5700	12.1	2470	5.275	11605	20.375	19775
9	3.15	5840	12.1	2460	5.275	11605	20.525	19905
10	3.1	5790	12	2400	5.275	11605	20.375	19795
11	3.1	5770	12.1	2490	5.275	11605	20.475	19865
12	3.1	5750	12.1	2430	5.275	11605	20.475	19785
13	3.15	5830	12.1	2480	5.275	11605	20.525	19915
14	3.1	5720	12	2400	5.275	11605	20.375	19725
15	3.1	5740	12.1	2440	5.275	11605	20.475	19785
16	3.15	5800	12	2400	5.275	11605	20.425	19805
17	3.1	5750	12.1	2490	5.275	11605	20.475	19845
18	3.05	5740	12.2	2570	5.275	11605	20.525	19915
19	3.15	5800	12.2	2580	5.275	11605	20.625	19985
20	3.1	5720	12.15	2570	5.275	11605	20.525	19895
21	3.15	5790	12.1	2470	5.275	11605	20.525	19865
22	3.2	5810	12.1	2450	5.275	11605	20.575	19865
23	3.1	5760	12.1	2430	5.275	11605	20.475	19795
24	3.15	5860	12.15	2520	5.275	11605	20.575	19985
25	3	5700	12.1	2440	5.275	11605	20.375	19745
26	3.15	5840	12.25	2600	5.275	11605	20.675	20045
27	3.1	5770	12.1	2460	5.275	11605	20.475	19835
28	3.15	5800	12.1	2450	5.275	11605	20.525	19855
29	3.1	5710	12.1	2470	5.275	11605	20.475	19785
30	3.1	5770	12	2400	5.275	11605	20.375	19775
31	3	5700	12.1	2460	5.275	11605	20.375	19765
32	3.15	5790	12.25	2600	5.275	11605	20.675	19995
33	3.2	5880	12.2	2550	5.275	11605	20.675	20035
34	3	5720	12.15	2490	5.275	11605	20.425	19815
35	3	5800	12	2400	5.275	11605	20.275	19805
36	3.2	5800	12.2	2550	5.275	11605	20.675	19955
37	3	5700	12	2420	5.275	11605	20.275	19725
38	3.1	5750	12.2	2540	5.275	11605	20.575	19895
39	3.1	5770	12	2420	5.275	11605	20.375	19795
40	3	5700	12.1	2450	5.275	11605	20.375	19755
41								
Total	124.15	231050	484.2	99040	211.00	464200	819.35	794290

Windrow Explosive Concentrations Summary Report

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		03		484
135TNB	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		05		485
135TNB	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
			Average Concentration for Cross Section		07		476
135TNB	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		09		492
135TNB	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		11		492
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		484
13DNB	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		485
13DNB	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
13DNB	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
13DNB	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 122	
				Average Concentration for Cross Section	03		358
246TNT	11/15/2000	12/06/2000	21	05	1	LT 61.2	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		354
246TNT	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
246TNT	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
246TNT	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		434
						Standard Deviation	140

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		03		484
24DNT	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		05		485
24DNT	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
			Average Concentration for Cross Section		07		476
24DNT	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		09		492
24DNT	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		11		492
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		484
26DNT	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		485
26DNT	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
26DNT	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
26DNT	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		484
2A46DT	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		485
2A46DT	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
2A46DT	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
2A46DT	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		484
2NT	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		485
2NT	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
2NT	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
2NT	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		484
3NT	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		485
3NT	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
3NT	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
3NT	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		486
						Standard Deviation	15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		484
4A26DT	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		485
4A26DT	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
4A26DT	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
4A26DT	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4NT	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		484
4NT	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		485
4NT	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
4NT	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
4NT	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	1100	
	11/15/2000	12/06/2000			3	3530	
				Average Concentration for Cross Section		03	1702
HMX	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 96.5	
	11/15/2000	12/06/2000			3	LT 82.4	
				Average Concentration for Cross Section		05	211
HMX	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 145	
	11/15/2000	12/06/2000			3	LT 173	
				Average Concentration for Cross Section		07	265
HMX	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 185	
	11/15/2000	12/06/2000			3	LT 126	
				Average Concentration for Cross Section		09	262
HMX	11/15/2000	12/06/2000	21	11	1	LT 107	
	11/15/2000	12/06/2000			2	722	
	11/15/2000	12/06/2000			3	LT 24.8	
				Average Concentration for Cross Section		11	285
				AVERAGE CONCENTRATION FOR WINDROW ON DAY		21	545
					Standard Deviation		876

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		03		484
NB	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		05		485
NB	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
			Average Concentration for Cross Section		07		476
NB	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		09		492
NB	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
			Average Concentration for Cross Section		11		492
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	3420	
	11/15/2000	12/06/2000			3	7420	
				Average Concentration for Cross Section	03		3772
RDX	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	697	
	11/15/2000	12/06/2000			3	LT 138	
				Average Concentration for Cross Section	05		430
RDX	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 177	
	11/15/2000	12/06/2000			3	1090	
				Average Concentration for Cross Section	07		581
RDX	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 182	
	11/15/2000	12/06/2000			3	LT 33.1	
				Average Concentration for Cross Section	09		230
RDX	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	661	
	11/15/2000	12/06/2000			3	LT 75.1	
				Average Concentration for Cross Section	11		404
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		1083
						Standard Deviation	1936

Data provided by TolTest, Inc.

Windrow Number M198

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	11/15/2000	12/06/2000	21	03	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	03		484
TETRYL	11/15/2000	12/06/2000	21	05	1	LT 454	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	05		485
TETRYL	11/15/2000	12/06/2000	21	07	1	LT 476	
	11/15/2000	12/06/2000			2	LT 476	
	11/15/2000	12/06/2000			3	LT 476	
				Average Concentration for Cross Section	07		476
TETRYL	11/15/2000	12/06/2000	21	09	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	09		492
TETRYL	11/15/2000	12/06/2000	21	11	1	LT 476	
	11/15/2000	12/06/2000			2	LT 500	
	11/15/2000	12/06/2000			3	LT 500	
				Average Concentration for Cross Section	11		492
				AVERAGE CONCENTRATION FOR WINDROW ON DAY	21		486
					Standard Deviation		15

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 45316

Matrix Spike - Client Sample NO.: BIOM19821031

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	7620	0	6780	89	76-119
RDX	7620	0	7420	97	80-120
TNB	7620	0	7380	97	73-121
DNB	7620	0	7810	102	79-120
TETRYL	7620	0	6180	81	24-139
NB	7620	0	7800	102	79-121
TNT	7620	0	7630	100	74-128
4ADNT	7620	0	7890	104	64-142
2ADNT	7620	0	7510	98	80-122
26DNT	7620	0	8220	108	77-119
24DNT	7620	0	7420	97	79-122
2NT	7620	0	7810	102	79-121
4NT	7620	0	7590	100	80-120
3NT	7620	0	7830	103	79-122

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	7620	6820	89	0	30	76-119
RDX	7620	7470	98	1	30	80-120
TNB	7620	7380	97	0	30	73-121
DNB	7620	7800	102	0	30	79-120
TETRYL	7620	5980	78	3	45	24-139
NB	7620	7800	102	0	30	79-121
TNT	7620	7640	100	0	35	74-128
4ADNT	7620	8010	105	2	40	64-142
2ADNT	7620	7490	98	0	40	80-122
26DNT	7620	8290	109	1	35	77-119
24DNT	7620	7380	97	0	35	79-122
2NT	7620	7800	102	0	35	79-121
4NT	7620	7540	99	1	35	80-120
3NT	7620	8180	107	4	35	79-122

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 0 out of 28 outside limits

Comments:

Windrow Explosive Concentrations Summary Report

Windrow Number M092

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
135TNB	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
135TNB	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
135TNB	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
135TNB	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		475
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
13DNB	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
13DNB	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
13DNB	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
13DNB	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
246TNT	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
246TNT	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
246TNT	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
246TNT	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		475
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
24DNT	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
24DNT	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
24DNT	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
24DNT	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
26DNT	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
			Average Concentration for Cross Section		1		476
26DNT	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
			Average Concentration for Cross Section		2		485
26DNT	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
			Average Concentration for Cross Section		3		484
26DNT	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
			Average Concentration for Cross Section		4		469
26DNT	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
			Average Concentration for Cross Section		5		461
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		475
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
2A46DT	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
2A46DT	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
2A46DT	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
2A46DT	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
2NT	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
2NT	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
2NT	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
2NT	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
3NT	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
3NT	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
3NT	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
3NT	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
4A26DT	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
			Average Concentration for Cross Section		1		476
4A26DT	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
			Average Concentration for Cross Section		2		485
4A26DT	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
			Average Concentration for Cross Section		3		484
4A26DT	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
			Average Concentration for Cross Section		4		469
4A26DT	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
			Average Concentration for Cross Section		5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4NT	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
4NT	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
4NT	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
4NT	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
4NT	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	07/28/1999	10/24/2000	454	1	1	LT 424	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		459
HMX	07/28/1999	10/24/2000	454	2	1	LT 226	
	07/28/1999	10/24/2000			3	844	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		523
HMX	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	1330	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		769
HMX	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
HMX	07/28/1999	10/24/2000	454	5	1	740	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		557
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		555
						Standard Deviation	255

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
NB	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
NB	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
NB	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
NB	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	07/28/1999	10/24/2000	454	1	1	1030	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		661
RDX	07/28/1999	10/24/2000	454	2	1	LT 244	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		415
RDX	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	2820	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		1265
RDX	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
RDX	07/28/1999	10/24/2000	454	5	1	LT 210	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		380
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		638
					Standard Deviation		629

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
TETRYL	07/28/1999	10/24/2000	454	1	1	LT 476	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
TETRYL	07/28/1999	10/24/2000	454	2	1	LT 454	
	07/28/1999	10/24/2000			3	LT 500	
	07/28/1999	10/24/2000			5	LT 500	
				Average Concentration for Cross Section	2		485
TETRYL	07/28/1999	10/24/2000	454	3	1	LT 500	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	3		484
TETRYL	07/28/1999	10/24/2000	454	4	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 476	
				Average Concentration for Cross Section	4		469
TETRYL	07/28/1999	10/24/2000	454	5	1	LT 454	
	07/28/1999	10/24/2000			3	LT 476	
	07/28/1999	10/24/2000			5	LT 454	
				Average Concentration for Cross Section	5		461
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		475
					Standard Deviation		16

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 44793

Matrix Spike - Client Sample NO.: BIOM09245311 Re-Sample

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	7620	424	8540	106	54-128
RDX	7620	1030	9340	109	66-109
TNB	7620	0	8020	105	57-130
DNB	7620	0	8080	106	74-122
TETRYL	7620	0	7990	105	32-119
NB	7620	0	8060	106	70-135
TNT	7620	0	8120	107	44-124
4ADNT	7620	0	7880	103	60-140
2ADNT	7620	0	8090	106	60-140
26DNT	7620	0	7990	105	58-125
24DNT	7620	0	8190	108	59-120
2NT	7620	0	8140	107	79-124
4NT	7620	0	8230	108	74-128
3NT	7620	0	8390	110	79-121

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	8000	9020	107	6	30	54-128
RDX	8000	9790	109	5	30	66-109
TNB	8000	8400	105	5	30	57-130
DNB	8000	8490	106	5	30	74-122
TETRYL	8000	8340	104	4	45	32-119
NB	8000	8480	106	5	30	70-135
TNT	8000	8550	107	5	35	44-124
4ADNT	8000	8270	103	5	40	60-140
2ADNT	8000	8510	106	5	40	60-140
26DNT	8000	8430	105	5	35	58-125
24DNT	8000	8630	108	5	35	59-120
2NT	8000	8520	106	4	35	79-124
4NT	8000	8560	107	4	35	74-128
3NT	8000	8700	109	4	35	79-121

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 0 out of 28 outside limits

Comments:

Windrow Explosive Concentrations Summary Report

Windrow Number N093

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
135TNB	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		480
						Standard Deviation	10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
13DNB	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		480
						Standard Deviation	10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
246TNT	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		480
						Standard Deviation	10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
24DNT	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		480
					Standard Deviation		10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
26DNT	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		480
						Standard Deviation	10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
2A46DT	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		480
					Standard Deviation		10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
2NT	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		480
					Standard Deviation		10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
3NT	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		480
					Standard Deviation		10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
4A26DT	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		480
					Standard Deviation		10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4NT	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
4NT	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		480
						Standard Deviation	10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	897	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		616
HMX	07/29/1999	10/25/2000	454	2	1	LT 317	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 128	
				Average Concentration for Cross Section	2		307
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		462
					Standard Deviation		254

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
NB	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			454		480
					Standard Deviation		10

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
RDX	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 43.7	
				Average Concentration for Cross Section	2		340
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		408
					Standard Deviation		179

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	07/29/1999	10/25/2000	454	1	1	LT 476	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		476
TETRYL	07/29/1999	10/25/2000	454	2	1	LT 500	
	07/29/1999	10/25/2000			3	LT 476	
	07/29/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	2		484
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				454		480
						Standard Deviation	10

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 44809

Matrix Spike - Client Sample NO.: BION10243211

BIO-N-192 DAY 14 + BIO-(N-093) DAY 453 Resample

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	7270	1190	9310	112	76-119
RDX	7270	1440	9860	116	80-120
TNB	7270	0	8160	112	73-121
DNB	7270	0	8280	114	79-120
TETRYL	7270	0	8030	110	24-139
NB	7270	0	8360	115	79-121
TNT	7270	0	8370	115	74-128
4ADNT	7270	0	8190	113	64-142
2ADNT	7270	0	8340	115	80-122
26DNT	7270	0	8240	113	77-119
24DNT	7270	0	8410	116	79-122
2NT	7270	0	8320	114	79-121
4NT	7270	0	8380	115	80-120
3NT	7270	0	8540	118	79-122

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	7620	10200	118	9	30	76-119
RDX	7620	10200	114	3	30	80-120
TNB	7620	8640	113	6	30	73-121
DNB	7620	8720	114	5	30	79-120
TETRYL	7620	8460	111	5	45	24-139
NB	7620	8810	116	5	30	79-121
TNT	7620	8790	115	5	35	74-128
4ADNT	7620	8620	113	5	40	64-142
2ADNT	7620	8800	116	5	40	80-122
26DNT	7620	8760	115	6	35	77-119
24DNT	7620	8880	116	5	35	79-122
2NT	7620	8700	114	4	35	79-121
4NT	7620	8780	115	5	35	80-120
3NT	7620	8990	118	5	35	79-122

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 0 out of 28 outside limits

Comments: _____

Windrow Explosive Concentrations Summary Report

Windrow Number M098

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
135TNB	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		500
135TNB	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
135TNB	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
135TNB	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			443		481
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
13DNB	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
13DNB	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		500
13DNB	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
13DNB	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
13DNB	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
246TNT	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		500
246TNT	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
246TNT	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
246TNT	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
				Average Concentration for Cross Section	1		469
24DNT	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
				Average Concentration for Cross Section	2		500
24DNT	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
				Average Concentration for Cross Section	3		477
24DNT	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
				Average Concentration for Cross Section	4		484
24DNT	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
				Average Concentration for Cross Section	5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
26DNT	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		500
26DNT	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
26DNT	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
26DNT	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
2A46DT	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
2A46DT	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		500
2A46DT	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
2A46DT	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
2A46DT	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
2NT	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		500
2NT	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
2NT	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
2NT	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
3NT	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
3NT	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		500
3NT	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
3NT	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
3NT	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section			1	469
4A26DT	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section			2	500
4A26DT	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
4A26DT	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section			4	484
4A26DT	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				443	481
						Standard Deviation	16

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
4NT	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
4NT	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	837	
			Average Concentration for Cross Section		2		612
4NT	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
4NT	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
4NT	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			443		504
						Standard Deviation	93

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	08/10/1999	10/26/2000	443	1	1	LT 231	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		387
HMX	08/10/1999	10/26/2000	443	2	1	LT 194	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		398
HMX	08/10/1999	10/26/2000	443	3	1	LT 320	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		417
HMX	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
HMX	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 267	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		406
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			443		418
						Standard Deviation	107

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		1		469
NB	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		2		500
NB	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
NB	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section		4		484
NB	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
					Standard Deviation		16

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	08/10/1999	10/26/2000	443	1	1	546	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
			Average Concentration for Cross Section			1	492
RDX	08/10/1999	10/26/2000	443	2	1	LT 227	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
			Average Concentration for Cross Section			2	409
RDX	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	955	
			Average Concentration for Cross Section			3	644
RDX	08/10/1999	10/26/2000	443	4	1	LT 437	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	610	
			Average Concentration for Cross Section			4	508
RDX	08/10/1999	10/26/2000	443	5	1	537	
	08/10/1999	10/26/2000			3	1510	
	08/10/1999	10/26/2000			5	768	
			Average Concentration for Cross Section			5	938
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				443	598
					Standard Deviation		299

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	08/10/1999	10/26/2000	443	1	1	LT 476	
	08/10/1999	10/26/2000			3	LT 454	
	08/10/1999	10/26/2000			5	LT 476	
				Average Concentration for Cross Section	1		469
TETRYL	08/10/1999	10/26/2000	443	2	1	LT 500	
	08/10/1999	10/26/2000			3	LT 500	
	08/10/1999	10/26/2000			5	LT 500	
				Average Concentration for Cross Section	2		500
TETRYL	08/10/1999	10/26/2000	443	3	1	LT 500	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 454	
				Average Concentration for Cross Section	3		477
TETRYL	08/10/1999	10/26/2000	443	4	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 500	
				Average Concentration for Cross Section	4		484
TETRYL	08/10/1999	10/26/2000	443	5	1	LT 476	
	08/10/1999	10/26/2000			3	LT 476	
	08/10/1999	10/26/2000			5	LT 476	
				Average Concentration for Cross Section	5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				443		481
						Standard Deviation	16

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 44826

Matrix Spike - Client Sample NO.: BIOM09844211 Re-sample

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	8000	231	8740	106	76-119
RDX	8000	546	9070	106	80-120
TNB	8000	0	8570	107	73-121
DNB	8000	0	8490	106	79-120
TETRYL	8000	0	7860	98	24-139
NB	8000	0	8450	106	79-121
TNT	8000	0	8470	106	74-128
4ADNT	8000	0	8460	106	64-142
2ADNT	8000	0	8560	107	80-122
26DNT	8000	0	8650	108	77-119
24DNT	8000	0	8590	107	79-122
2NT	8000	0	8610	108	79-121
4NT	8000	0	8680	108	80-120
3NT	8000	0	8740	109	79-122

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	7620	8490	108	3	30	76-119
RDX	7620	8890	110	2	30	80-120
TNB	7620	8380	110	2	30	73-121
DNB	7620	8320	109	2	30	79-120
TETRYL	7620	7710	101	2	45	24-139
NB	7620	8320	109	2	30	79-121
TNT	7620	8300	109	2	35	74-128
4ADNT	7620	8370	110	1	40	64-142
2ADNT	7620	8410	110	2	40	80-122
26DNT	7620	8510	112	2	35	77-119
24DNT	7620	8400	110	2	35	79-122
2NT	7620	8420	110	2	35	79-121
4NT	7620	8450	111	3	35	80-120
3NT	7620	8530	112	2	35	79-122

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 0 out of 28 outside limits

Comments: _____

Windrow Explosive Concentrations Summary Report

Windrow Number S101

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
135TNB	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
135TNB	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
135TNB	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	492
135TNB	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				432	480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
13DNB	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
13DNB	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
13DNB	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	492
13DNB	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					432	480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
246TNT	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
246TNT	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
246TNT	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
246TNT	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	492
246TNT	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					432	480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section		1		461
24DNT	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section		2		492
24DNT	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
24DNT	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section		4		492
24DNT	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				432		480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
				Average Concentration for Cross Section	1		461
26DNT	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
				Average Concentration for Cross Section	2		492
26DNT	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
				Average Concentration for Cross Section	3		477
26DNT	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
				Average Concentration for Cross Section	4		492
26DNT	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
				Average Concentration for Cross Section	5		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			432		480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
2A46DT	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
2A46DT	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
2A46DT	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	492
2A46DT	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					432	480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section		1		461
2NT	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section		2		492
2NT	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section		3		477
2NT	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section		4		492
2NT	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section		5		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			432		480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
3NT	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
3NT	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
3NT	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	492
3NT	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					432	480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
4A26DT	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
4A26DT	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
4A26DT	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	492
4A26DT	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					432	480
						Standard Deviation	17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4NT	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
4NT	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
4NT	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
4NT	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	492
4NT	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					432	480
					Standard Deviation		17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	08/18/1999	10/23/2000	432	1	1	LT 309	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	413
HMX	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
HMX	08/18/1999	10/23/2000	432	3	1	1200	
	08/18/1999	10/23/2000			3	LT 343	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	666
HMX	08/18/1999	10/23/2000	432	4	1	633	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	536
HMX	08/18/1999	10/23/2000	432	5	1	862	
	08/18/1999	10/23/2000			3	1830	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	1056
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				432	633
					Standard Deviation		397

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
NB	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
NB	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	477
NB	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	492
NB	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	476
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					432	480
						Standard Deviation	17

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			1	461
RDX	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
			Average Concentration for Cross Section			2	492
RDX	08/18/1999	10/23/2000	432	3	1	6620	
	08/18/1999	10/23/2000			3	579	
	08/18/1999	10/23/2000			5	LT 454	
			Average Concentration for Cross Section			3	2551
RDX	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 492	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			4	489
RDX	08/18/1999	10/23/2000	432	5	1	1630	
	08/18/1999	10/23/2000			3	1880	
	08/18/1999	10/23/2000			5	LT 476	
			Average Concentration for Cross Section			5	1329
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					432	1064
					Standard Deviation		1601

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	08/18/1999	10/23/2000	432	1	1	LT 454	
	08/18/1999	10/23/2000			3	LT 454	
	08/18/1999	10/23/2000			5	LT 476	
				Average Concentration for Cross Section	1		461
TETRYL	08/18/1999	10/23/2000	432	2	1	LT 476	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 500	
				Average Concentration for Cross Section	2		492
TETRYL	08/18/1999	10/23/2000	432	3	1	LT 500	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 454	
				Average Concentration for Cross Section	3		477
TETRYL	08/18/1999	10/23/2000	432	4	1	LT 500	
	08/18/1999	10/23/2000			3	LT 500	
	08/18/1999	10/23/2000			5	LT 476	
				Average Concentration for Cross Section	4		492
TETRYL	08/18/1999	10/23/2000	432	5	1	LT 476	
	08/18/1999	10/23/2000			3	LT 476	
	08/18/1999	10/23/2000			5	LT 476	
				Average Concentration for Cross Section	5		476
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			432		480
						Standard Deviation	17

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 44781

Matrix Spike - Client Sample NO.: BIOS10140011 Resample

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	8000	309	8660	104	54-128
RDX	8000	0	8850	111*	66-109
TNB	8000	0	8440	105	57-130
DNB	8000	0	8690	109	74-122
TETRYL	8000	0	7810	98	32-119
NB	8000	0	8830	110	70-135
TNT	8000	0	8700	109	44-124
4ADNT	8000	0	8580	107	60-140
2ADNT	8000	0	8610	108	60-140
26DNT	8000	0	8820	110	58-125
24DNT	8000	0	8980	112	59-120
2NT	8000	0	8690	109	79-124
4NT	8000	0	8670	108	74-128
3NT	8000	0	9020	113	79-121

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	7620	8320	105	4	30	54-128
RDX	7620	8650	114 *	2	30	66-109
TNB	7620	8100	106	4	30	57-130
DNB	7620	8320	109	4	30	74-122
TETRYL	7620	7510	99	4	45	32-119
NB	7620	8440	111	5	30	70-135
TNT	7620	8290	109	5	35	44-124
4ADNT	7620	8110	106	6	40	60-140
2ADNT	7620	8180	107	5	40	60-140
26DNT	7620	8350	110	5	35	58-125
24DNT	7620	8530	112	5	35	59-120
2NT	7620	8280	109	5	35	79-124
4NT	7620	8270	108	5	35	74-128
3NT	7620	8740	115	3	35	79-121

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 2 out of 28 outside limits

Comments:

Windrow Explosive Concentrations Summary Report

Windrow Number N102

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
135TNB	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section		1	484
135TNB	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section		2	469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY				433	476
					Standard Deviation		15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
13DNB	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
13DNB	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
						Standard Deviation	15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
246TNT	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 68.4	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		340
246TNT	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			433		404
						Standard Deviation	165

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
24DNT	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
24DNT	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
					Standard Deviation		15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
26DNT	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
26DNT	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
					Standard Deviation		15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2A46DT	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
2A46DT	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
						Standard Deviation	15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
2NT	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
2NT	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
		AVERAGE CONCENTRATION FOR WINDROW ON DAY			433		476
						Standard Deviation	15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
3NT	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
3NT	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
						Standard Deviation	15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
4A26DT	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
			Average Concentration for Cross Section		1		484
4A26DT	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
			Average Concentration for Cross Section		2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
					Standard Deviation		15

Data provided by TolTest, Inc.

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
4NT	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
4NT	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
						Standard Deviation	15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
HMX	08/19/1999	10/25/2000	433	1	1	1190	
	08/19/1999	10/25/2000			3	620	
	08/19/1999	10/25/2000			5	952	
				Average Concentration for Cross Section	1		921
HMX	08/19/1999	10/25/2000	433	2	1	LT 159	
	08/19/1999	10/25/2000			3	1060	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		558
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		739
					Standard Deviation		396

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
NB	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
NB	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
						Standard Deviation	15

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
RDX	08/19/1999	10/25/2000	433	1	1	1440	
	08/19/1999	10/25/2000			3	1720	
	08/19/1999	10/25/2000			5	4400	
				Average Concentration for Cross Section	1		2520
RDX	08/19/1999	10/25/2000	433	2	1	LT 143	
	08/19/1999	10/25/2000			3	3390	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		1329
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		1925
						Standard Deviation	1667

Data provided by TolTest, Inc.

Compound	*Construction Date*	*SampleDate*	*DaysOld*	*CrossSection*	*Location*	*Concentration*	
TETRYL	08/19/1999	10/25/2000	433	1	1	LT 476	
	08/19/1999	10/25/2000			3	LT 500	
	08/19/1999	10/25/2000			5	LT 476	
				Average Concentration for Cross Section	1		484
TETRYL	08/19/1999	10/25/2000	433	2	1	LT 476	
	08/19/1999	10/25/2000			3	LT 476	
	08/19/1999	10/25/2000			5	LT 454	
				Average Concentration for Cross Section	2		469
	AVERAGE CONCENTRATION FOR WINDROW ON DAY				433		476
					Standard Deviation		15

Data provided by TolTest, Inc.

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 44809

Matrix Spike - Client Sample NO.: BION10243211 Resample

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC. LIMITS REC.
HMX	7270	1190	9310	112	76-119
RDX	7270	1440	9860	116	80-120
TNB	7270	0	8160	112	73-121
DNB	7270	0	8280	114	79-120
TETRYL	7270	0	8030	110	24-139
NB	7270	0	8360	115	79-121
TNT	7270	0	8370	115	74-128
4ADNT	7270	0	8190	113	64-142
2ADNT	7270	0	8340	115	80-122
26DNT	7270	0	8240	113	77-119
24DNT	7270	0	8410	116	79-122
2NT	7270	0	8320	114	79-121
4NT	7270	0	8380	115	80-120
3NT	7270	0	8540	118	79-122

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	7620	10200	118	9	30	76-119
RDX	7620	10200	114	3	30	80-120
TNB	7620	8640	113	6	30	73-121
DNB	7620	8720	114	5	30	79-120
TETRYL	7620	8460	111	5	45	24-139
NB	7620	8810	116	5	30	79-121
TNT	7620	8790	115	5	35	74-128
4ADNT	7620	8620	113	5	40	64-142
2ADNT	7620	8800	116	5	40	80-122
26DNT	7620	8760	115	6	35	77-119
24DNT	7620	8880	116	5	35	79-122
2NT	7620	8700	114	4	35	79-121
4NT	7620	8780	115	5	35	80-120
3NT	7620	8990	118	5	35	79-122

Column to be used to flag recovery values

* Values outside of QC limits

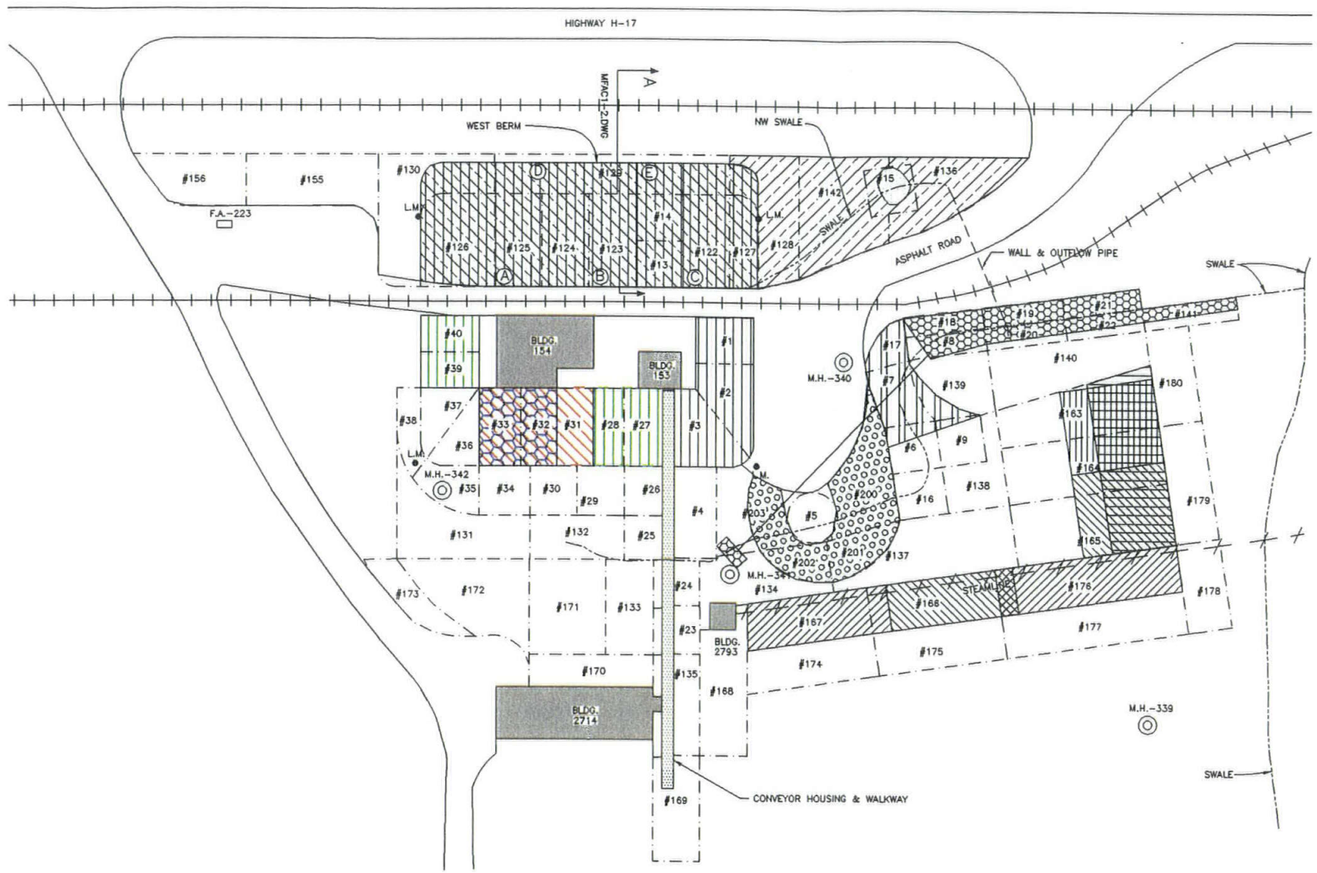
RPD: 0 out of 14 outside limits
Spike Recovery: 0 out of 28 outside limits

Comments: _____

APPENDIX J

BACKFILL GRID LOCATION DRAWINGS

FIGURE		PAGES
J1	Backfill Locations, Mine Fill A Buildings 153/154	2 pages



LEGEND

- BUILDING
- STEAM LINE
- RAILROAD
- GRID BOUNDARY
- SWALE
- MAN HOLE
- #9 GRID NUMBER
- L.M. LIGHTNING MAST
- (A) WINDROW DIMENSION LOCATION
- CONVEYOR HOUSING AND WALKWAY
- UNIFORM GABION (RIPRAP)
- #2 (12") STONE
- WINDROW #36 (BOTTOM LAYER) 1/14/99
  WINDROW #9 (TOP LAYER) 2/17/99
- WINDROW #37 1/24/99 (12" DEEP)
- WINDROW #29 1/15/99
- WINDROW #26 1/19/99 (3' DEEP)
- WINDROW #20 1/20/99 TOP LAYER (2' DEEP)
- WINDROW #25 1/15/99 (3' DEEP)
- WINDROW #17
- WINDROW #15
- WINDROW #32 1/15/99 BOTTOM LAYER (2' DEEP)
- WINDROW #97 (2.0' DEEP) FOR GRIDS #1, 2 & 3. A THIN LAYER WAS SPREAD ON TOP OF WINDROW #37 FOR GRIDS #13 & 14 AND GRIDS 122 THROUGH 127.
- WINDROW #192
- WINDROW #198
- DECONTAMINATED ROCKS

NOTES:

1. GRID LOCATIONS ARE APPROXIMATE BASED ON FIELD MEASUREMENTS.
2. WINDROW #36 FILLED NW SWALE TO LEVEL OF 24" BELOW SURROUNDING TOPOGRAPHY

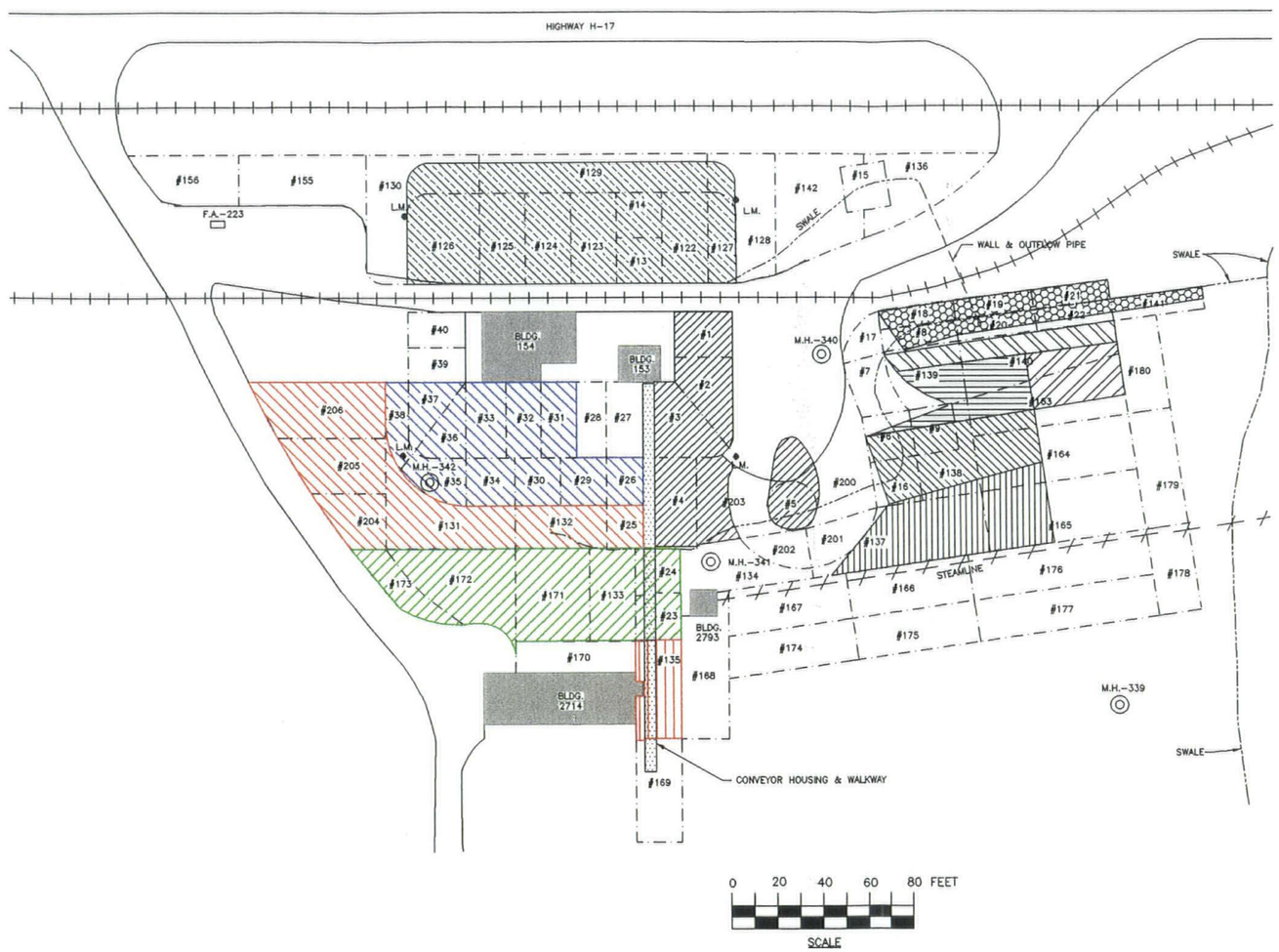
AS OF 12/00

FULL-SCALE BIOREMEDIATION OPERATIONS
NSWC CRANE
CRANE, IN

FIGURE J1
BACKFILL LOCATIONS
MINE FILL A BUILDING 153/154
PAGE 1 OF 4

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL SERVICES

DWG DATE: 10/27/00 | FILE NAME: MFAC1-1.DWG



LEGEND

- BUILDING
- STEAM LINE
- RAILROAD
- GRID BOUNDARY
- SWALE
- MAN HOLE
- #9 GRID NUMBER
- L.M. LIGHTNING MAST
- CONVEYOR HOUSING AND WALKWAY
- UNIFORM GABION (RIPRAP)
- WINDROW #38 1/29/99
- WINDROW #16 1/25/99 (2' DEEP)
- WINDROW #18 1/26/99 (3' DEEP)
- WINDROW #19 1/27/99 (3' DEEP)
- WINDROW #21 1/22/99 (3' DEEP)
- WINDROW #22 1/27/99 (3' DEEP)
- WEST BERM
- WINDROW 194, 195, 197
- WINDROW 93, 98
- WINDROW 92, 101, 102
- WINDROW 101, 102

NOTE: GRID LOCATIONS ARE APPROXIMATE BASED ON FIELD MEASUREMENTS.

FULL-SCALE
BIOREMEDIATION
OPERATIONS
NSWC CRANE
CRANE, IN

FIGURE J1
BACKFILL LOCATIONS
MINE FILL A BUILDING 153/154
PAGE 4 OF 4

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL SERVICES

DWG DATE: 4/26/00 | FILE NAME: MFAC1-3.DWG