

FINAL REPORT
SURFACE REMOVAL OF TNT AT
THE
LAKE ONTERIO ORDNANCE WORKS
(LOOW) SITE 2003

PREPARED FOR
SEVENSON ENVIRONMENTAL, SERVICES, INC.

BY ISSI UNEXPLODED ORDNANCE, INC.

October 1, 2003

1.0 REFERENCES:

This report will reference a number of Severson Environmental Services, Inc., and ISSI Unexploded Ordnance, Inc. (ISSI, UXO) documents and reports which are listed here. The item's reference will supplement and expand the content and purpose of the report.

1. Final Explosive Safety Submission for Surface Removal of TNT of TNT at the Lake Ontario Ordnance Works (LOOW) Site. 2003 Dated: June 25, 2003.
2. Procedures for Preparing Fragile TNT Nodules for Treatment; ISSI, Inc., document dated: January 16, 2001.

2.0 INTRODUCTION:

ISSI Unexploded Ordnance, Inc. (ISSI, UXO) was contracted by Severson Environmental Services, Inc. (Severson) to provide Ordnance and Explosives (OE) Services under their contract with the Buffalo District, US Army Corps of Engineers. ISSI UXO provided one OE team (one Senior UXO Supervisor/Explosives Analyst and UXO technician) to support the removal of surface TNT from four areas previously contaminated with TNT. These areas were Areas Alpha, Bravo and Charlie and the Contaminated Material Storage Area referred to as CMSA Area. This report will summarize the actions taken during the Interim Removal Action (IRA) to remove and dispose of the surface TNT in the four areas. Individual descriptions are as follows:

AREA ALPHA: This area contains TNT deposited on the surface with debris from the Phase 1 IRA. The area is approximately 20' by 60' in size. It is located adjacent to the former TNT Waste pipelines at between Station Number 13+00 and Station Number 13+50. Refer to Map Figure 3. of the ESS

AREA BRAVO: This area contains TNT deposited on the surface with debris from the Phase 1 IRA. The area is approximately 20' by 40' in size. It is located adjacent to the former TNT Waste pipelines at between Station Number 18+50 and Station Number 19+00. Refer to Map Figure 4 of the ESS.

AREA CHARLIE: This area contains TNT deposited on the surface with debris from the Phase 1 IRA. The area is approximately 100' by 100' in size. It is located adjacent to the former TNT Waste pipelines at between Station Number 24+00 and Station Number 27+50. Refer to Figure 5 of the ESS.

CONTAMINATED MATERIAL STORAGE AREA (CMSA) PAD: This area contains TNT deposited inadvertently on the surface of the pad during pipeline removal operations. The area is approximately 200' by 200' in size. It is located at the junction of Cedar and M Streets, south of the former TNT Waste pipelines. Refer to Figure 6 of the ESS.

In addition to the activities conducted at the above four areas, the ISSI UXO OE Team was asked to assist in sampling for TNT at the LOOW former Water Treatment Plant. A letter report on this activity is being submitted as a separate document.

3.0 SUMMARY OF EVENTS:

A perimeter survey was conducted for areas Alpha, Bravo, Charlie, and the Contaminated Materials Storage Area (CMSA). At the time of site mobilization it was noted that the orange construction fencing around Areas Alpha, Bravo, and Charlie were in need of repair. The enclosed CMSA boundary had four concrete barricade blocks moved from their original positions and there was also various construction debris located inside the CMSA. It was also noted that there were signs of heavy equipment wheel marks entering the CMSA area by way of openings in the barricade caused by the moving of the concrete barricade blocks.

In accordance with the ESS, ISSI technicians performed walk over inspections of areas Alpha, Bravo, Charlie, and the CMSA. A one hundred percent sweep of areas Alpha, Bravo, and Charlie was conducted and various amounts of TNT were collected. A quality control inspection was conducted on ten percent of areas Alpha, Bravo, and Charlie. As the TNT was collected to the limits specified it was processed and mixed with clean sand to lower the percentage below 10%. Quality checks with the HACH Model DR/2010 and the SDI EnSys TNT Soil Test Kit were conducted to insure proper TNT Levels.

In the first three days of the CMSA walk over, ninety pounds of TNT was collected in Zone 3 alone. Severson Project Management was informed that the surface of the CMSA was grossly contaminated with crystalline and large nodules of TNT.

At a meeting held on Friday August 22nd ISSI and Severson was informed by the USACE Buffalo that financial resources for the project would only allow Severson and ISSI to collect TNT until Thursday August 28th. At that time ISSI informed Severson and the USACE that ISSI would be unable to collect all surface TNT from the CMSA therefore, ISSI did not meet the outlined walkover and collection requirements of the ESS.

Separate Daily Activity Reports are attached as Appendix B

The following chart shows the amount of TNT recovered at each of the four areas

TNT RECOVERED

AREA	AMOUNT RECOVERED	DATES
ALPHA	40.5 Lbs.	12-15 Aug
BRAVO	< 1 Lbs.	8 & 11 Aug
CHARLIE	2.3 Lbs.	7 Aug
CMSA	270 Lbs.	19 - 28 Aug

Total amount of recovered and processed TNT was **313.8 Lbs.**

4.0PHOTOGRAPHS:

Numerous photographs were taken over the period activities were ongoing. The photographs are provide in thumbnail version in Appendix C All of the photographs are included in the CD version of this report.

5.0CONCLUSIONS:

Due to time and funding constraints the ESS Walk Over of tall areas was not accomplished. Areas Alpha , Bravo and Charlie were completed but only a portion of the CMSA Pad was completed.

Extensive TNT contamination remains on all of the four locations

Area Charlie has contamination basically surface to about 1.5 feet. The extent of contamination on areas Alpha and Charlie can not be estimated as these site involve buried TNT Contamination which may be as deep as 15 feet. The CMSA Pad has the possible highest amount of visible TNT contamination. After working at the site now for four years ISSI UXO's Site Senor UXO Supervisor/.Explosive Analyst Jerry Hinton estimates their maybe up to 4000 Lbs of mixed TNT contamination remaining on that area. Fortunately, this area is on top of a geo-membrain liner and this prevents further migration of this sites contamination.

Due to the observed indications of unauthorized entry into the CMSA Pad and the condition of the other areas temporary fencing ISSI Has address a concern in a separate letter , a copy of which is attached as Appendix D.

6.0 RECOMMENDATIONS:

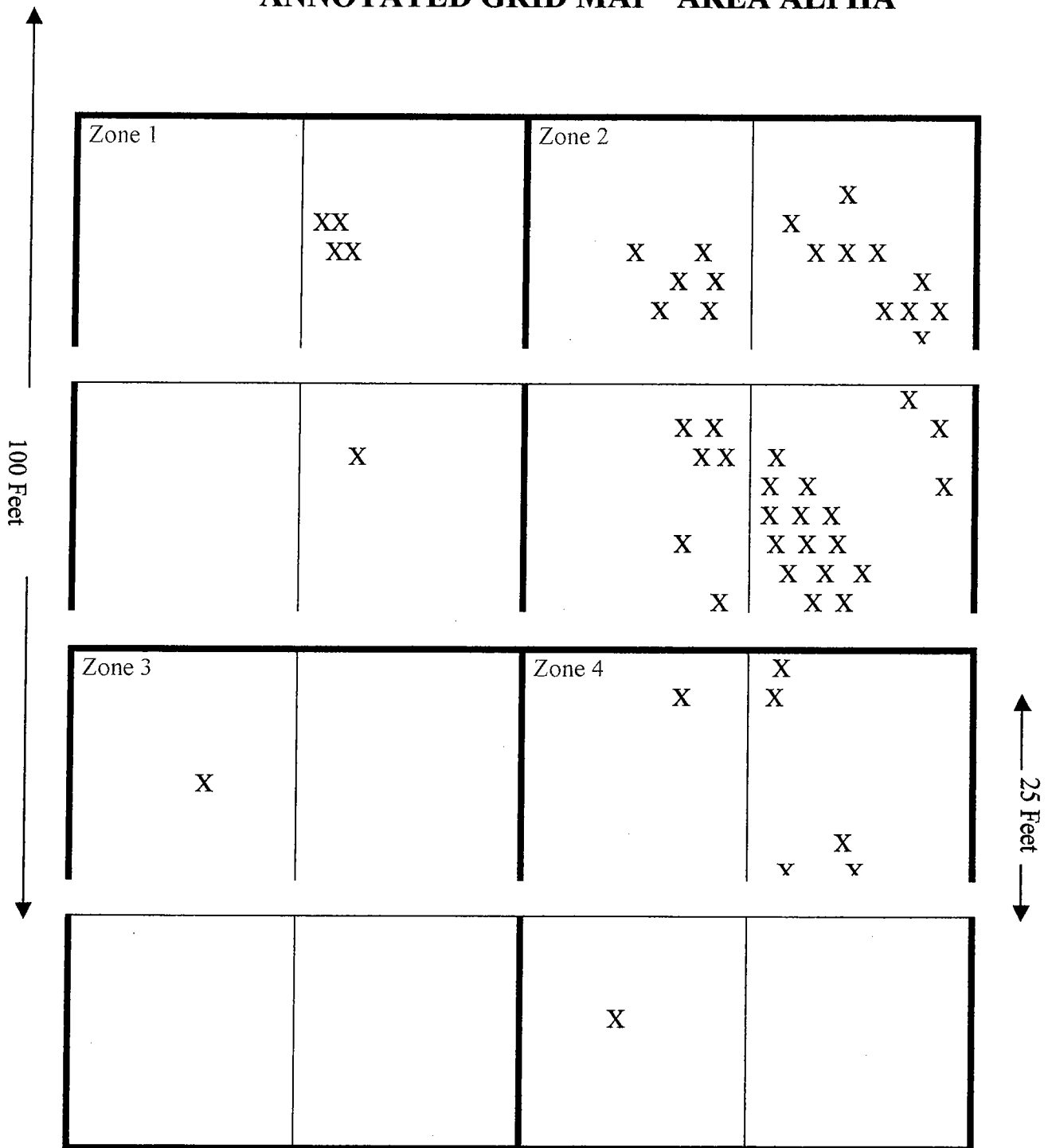
ISSI UXO strongly recommends that the CMSA Pad area be designated as an exclusion area and that a six-foot chain link fence be placed around the perimeter of the CMSA and that additional safe guards be implemented to ensure unauthorized entry is prohibited into the area. It is clearly evident that the concrete barriers do not provide enough security or warning to prohibit unauthorized entry.

ISSI UXO recommends that action be taken to remediate all four of the areas of concern , with priority be given to the CMSA Pad area.

APPENDIX A

**AREA GRID MAPS AND XPRAY TEST
RESULTS**

ANNOTATED GRID MAP AREA ALPHA



Note: ESS defines the area as 20 feet by 40 feet (Station #13+00 and 13+50). Actual walk over area size is approximately 100 feet by 100 feet.

← 25 Feet →

← 100 Feet →

Surveyed by:

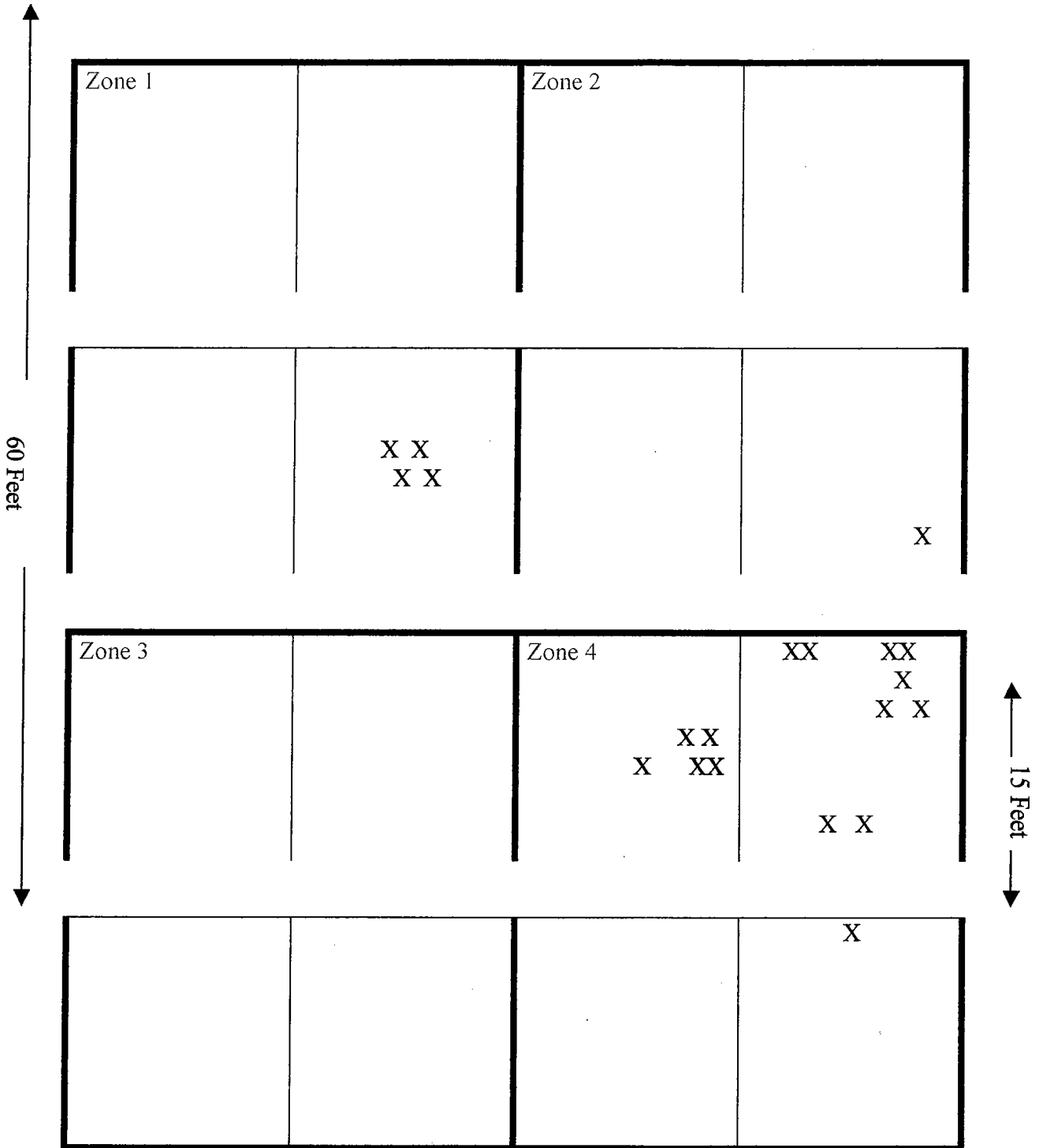
Site: Lake Ontario Ordnance Works, NY

Date: 12—15 Aug 03

EXPRAY Test Kit Results

	Location ALPHA	Polynitro-Aromatics <u>Substance</u>	Results		Remarks
1.	ALPHA Zone 1/4	Trinitrotoluene, 2,4,6	Positive X	Negative	Surface Crystalline
2.	ALPHA Zone 2/3	Trinitrotoluene, 2,4,6	Positive X	Negative	Nodules 3/4 "
3.		Trinitrotoluene, 2,4,6	Positive	Negative	
4.		Trinitrotoluene, 2,4,6	Positive	Negative	
5.		Trinitrotoluene, 2,4,6	Positive	Negative	
6.		Trinitrotoluene, 2,4,6	Positive	Negative	
7.		Trinitrotoluene, 2,4,6	Positive	Negative	
8.		Trinitrotoluene, 2,4,6	Positive	Negative	
9.		Trinitrotoluene, 2,4,6	Positive	Negative	
10.		Trinitrotoluene, 2,4,6	Positive	Negative	
11.		Trinitrotoluene, 2,4,6	Positive	Negative	
12.		Trinitrotoluene, 2,4,6	Positive	Negative	
13.		Trinitrotoluene, 2,4,6	Positive	Negative	
14.		Trinitrotoluene, 2,4,6	Positive	Negative	
15.		Trinitrotoluene, 2,4,6	Positive	Negative	
16.		Trinitrotoluene, 2,4,6	Positive	Negative	
17.		Trinitrotoluene, 2,4,6	Positive	Negative	
18.		Trinitrotoluene, 2,4,6	Positive	Negative	
19.		Trinitrotoluene, 2,4,6	Positive	Negative	
20.		Trinitrotoluene, 2,4,6	Positive	Negative	

ANNOTATED GRID MAP AREA BRAVO



Note: ESS defines the area as 20 feet by 40 feet (Station #18+50 and 19+00). Actual walk over area size is approximately 40 feet by 60 feet.

← 10 Feet →

← 40 Feet →

Surveyed by:

Jeremiah Hinton - Senior UVO Supervisor

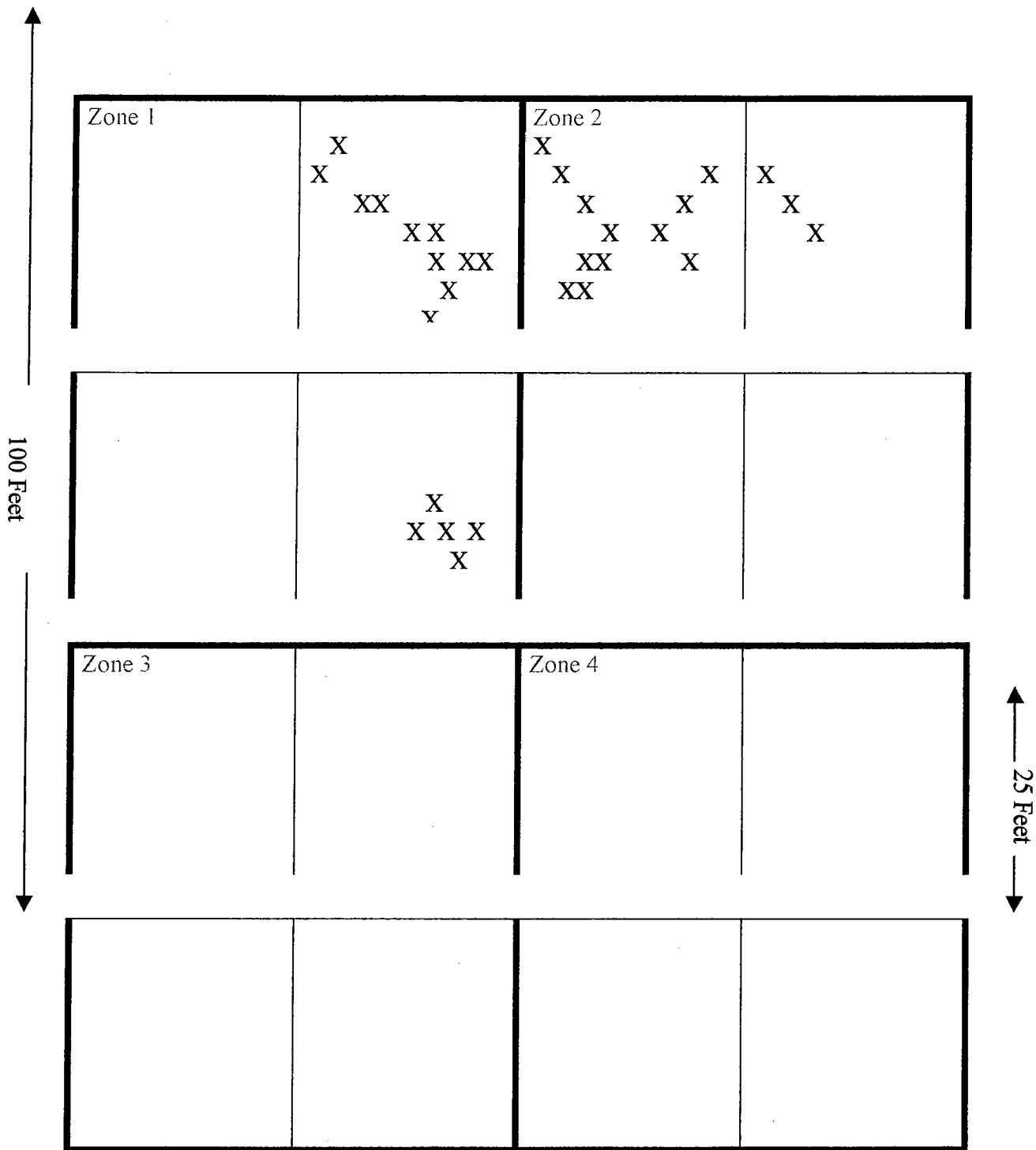
Site: Lake Ontario Ordnance Works, NY

Date: 8&11 Aug 03

EXPRAVY Test Kit Results

	Location BRAVO	Polynitro-Aromatics <u>Substance</u>	Results		Remarks
21.	BRAVO Zone	Trinitrotoluene, 2,4,6	Positive X	Negative	Location Limited to Zone 4
22.		Trinitrotoluene, 2,4,6	Positive	Negative	
23.		Trinitrotoluene, 2,4,6	Positive	Negative	
24.		Trinitrotoluene, 2,4,6	Positive	Negative	
25.		Trinitrotoluene, 2,4,6	Positive	Negative	
26.		Trinitrotoluene, 2,4,6	Positive	Negative	
27.		Trinitrotoluene, 2,4,6	Positive	Negative	
28.		Trinitrotoluene, 2,4,6	Positive	Negative	
29.		Trinitrotoluene, 2,4,6	Positive	Negative	
30.		Trinitrotoluene, 2,4,6	Positive	Negative	
31.		Trinitrotoluene, 2,4,6	Positive	Negative	
32.		Trinitrotoluene, 2,4,6	Positive	Negative	
33.		Trinitrotoluene, 2,4,6	Positive	Negative	
34.		Trinitrotoluene, 2,4,6	Positive	Negative	
35.		Trinitrotoluene, 2,4,6	Positive	Negative	
36.		Trinitrotoluene, 2,4,6	Positive	Negative	
37.		Trinitrotoluene, 2,4,6	Positive	Negative	
38.		Trinitrotoluene, 2,4,6	Positive	Negative	
39.		Trinitrotoluene, 2,4,6	Positive	Negative	
40.		Trinitrotoluene, 2,4,6	Positive	Negative	

ANNOTED GRID MAP AREA CHARLIE



Note: ESS defines the area as 100 feet by 100 feet (Station #24+00 and 27+50). Actual walk over area size is approximately 100 feet by 100 feet.

Surveyed by:

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Site: Lake Ontario Ordnance Works, NY

Date: 7 Aug 03

EXPRAY Test Kit Results

	Location CHARLIE	Polynitro-Aromatics <u>Substance</u>	Results		Remarks
41.	Zone1	Trinitrotoluene, 2,4,6	Positive X	Negative	Surface Crystalline
42.	Zone2	Trinitrotoluene, 2,4,6	Positive X	Negative	Surface Crystalline and Small Nodules
43.		Trinitrotoluene, 2,4,6	Positive	Negative	
44.		Trinitrotoluene, 2,4,6	Positive	Negative	
45.		Trinitrotoluene, 2,4,6	Positive	Negative	
46.		Trinitrotoluene, 2,4,6	Positive	Negative	
47.		Trinitrotoluene, 2,4,6	Positive	Negative	
48.		Trinitrotoluene, 2,4,6	Positive	Negative	
49.		Trinitrotoluene, 2,4,6	Positive	Negative	
50.		Trinitrotoluene, 2,4,6	Positive	Negative	
51.		Trinitrotoluene, 2,4,6	Positive	Negative	
52.		Trinitrotoluene, 2,4,6	Positive	Negative	
53.		Trinitrotoluene, 2,4,6	Positive	Negative	
54.		Trinitrotoluene, 2,4,6	Positive	Negative	
55.		Trinitrotoluene, 2,4,6	Positive	Negative	
56.		Trinitrotoluene, 2,4,6	Positive	Negative	
57.		Trinitrotoluene, 2,4,6	Positive	Negative	
58.		Trinitrotoluene, 2,4,6	Positive	Negative	
59.		Trinitrotoluene, 2,4,6	Positive	Negative	
60.		Trinitrotoluene, 2,4,6	Positive	Negative	

Site: Lake Ontario Ordnance Works, NY

Date: 19-28 Aug 03

EXPRAY Test Kit Results

	Location CMSA	Polynitro-Aromatics <u>Substance</u>	Results		Remarks
61.	Zone1	Trinitrotoluene, 2,4,6	Positive X	Negative	Gross Surface Contamination
62.	Zone2	Trinitrotoluene, 2,4,6	Positive X	Negative	Crystalline TNT, Nodules
63.	Zone 3	Trinitrotoluene, 2,4,6	Positive X	Negative	Gross Surface Contamination
64.	Zone 4	Trinitrotoluene, 2,4,6	Positive X	Negative	Crystalline TNT, Nodules
65.		Trinitrotoluene, 2,4,6	Positive	Negative	
66.		Trinitrotoluene, 2,4,6	Positive	Negative	
67.		Trinitrotoluene, 2,4,6	Positive	Negative	
68.		Trinitrotoluene, 2,4,6	Positive	Negative	
69.		Trinitrotoluene, 2,4,6	Positive	Negative	
70.		Trinitrotoluene, 2,4,6	Positive	Negative	
71.		Trinitrotoluene, 2,4,6	Positive	Negative	
72.		Trinitrotoluene, 2,4,6	Positive	Negative	
73.		Trinitrotoluene, 2,4,6	Positive	Negative	
74.		Trinitrotoluene, 2,4,6	Positive	Negative	
75.		Trinitrotoluene, 2,4,6	Positive	Negative	
76.		Trinitrotoluene, 2,4,6	Positive	Negative	
77.		Trinitrotoluene, 2,4,6	Positive	Negative	
78.		Trinitrotoluene, 2,4,6	Positive	Negative	
79.		Trinitrotoluene, 2,4,6	Positive	Negative	
80.		Trinitrotoluene, 2,4,6	Positive	Negative	

APPENDIX B

DAILY ACTIVITY REPORTS

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 4 Aug 03	LOCATION: Severson LOOW NY	SITE:
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: Visited all areas. Prepared for operation and setting up for mixing areas.		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:	QTY	FUZING	DEPTH	DISPOSITION	

REMARKS:				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 5 Aug 03	LOCATION: Severson LOOW NY	SITE: Area C (Charlie)
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton

DAILY TASKS		
START TIME: 0700	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety Zone, Blending Location & Comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: <ul style="list-style-type: none"> - Walkover of Area Charlie - Prepare Area for blending operations - Mark Safety Zones w/tape - Calibrate DR Z010 Spectro Photometer - Calibrate Acculab Pocket Pro Balance 		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZZING	DEPTH	DISPOSITION

REMARKS: Walkover of area Charlie completed. TNT stained soil was located in the northeast corner of the 100'x100' grid. Approximately 35' long x 12" wide. Several TNT nuggets were located within the area. Team completed the blending area. Poly and sand and fencing located on blending site. Road was marked using caution tape. Received the Hach Model DR2010 Spectrophotometer. Team will start collecting TNT nuggets and surface. (Processing)				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 06 Aug 03	LOCATION: Severson LOOW NY	SITE: Area C (Charlie)
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO Technician: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: <ul style="list-style-type: none"> - Place sand layer on blending pad - Collect surface TNT - Blending collected TNT - Mail RDX Kit back to SDI - Update Jerry Keeler on site - Area Bravo, fencing and inspection 		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: Placed 32 cu. ft. of sand on pad (Blending). Moved to Area Bravo and started the grid process and prepared site for walkover.				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 7 Aug 03	LOCATION: Severson LOOWNY	SITE: Area Charlie
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety zones, blending, location & comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: - Collection of TNT nuggets and C-TNT		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:	QTY	FUZING	DEPTH	DISPOSITION	

REMARKS: Continued Area Charlie and completed the area. Start Area Bravo, marked zones and grided. 2.3 lbs				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 8 Aug 03	LOCATION: Severson LOOW NY	SITE: Area Bravo
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety zones, blending, location & comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: - Collection of TNT nuggets and C-TNT		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: Area Bravo <.5 lb				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 11 Aug 03	LOCATION: Severson LOOW NY	SITE: Area Bravo
SITE MANAGER:	UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III	

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety zones, blending. location & comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: - Mark and grid		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZZING	DEPTH	DISPOSITION

REMARKS: Completed Area Bravo. Total TNT collected during surface scan <1/2 lb nuggets/crystalline TNT				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 12 Aug 03	LOCATION: Severson LOOW NY	SITE: Area Alpha
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety zones, blending, location & comm, Heat Exposure	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: - Scan for crystalline TNT and nuggets - Place in mineral oil		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:	QTY	FUZING	DEPTH	DISPOSITION	

REMARKS: Surface scan of Area Alpha .5 lb				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

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ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 13 Aug 03	LOCATION: Severson LOOW NY	SITE: Area Alpha
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, Heat, TNT Hazards, Safety zones, blending, location & site comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: - Area Alpha, Scan		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: Continue scan of Area Alpha for crystalline and nuggets. Collected 20 lb (New) of crystalline and nuggets. Blended the TNT at Charlie. 20.5 lb.				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

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ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 14 Aug 03	LOCATION: Severson LOOW NY	SITE: Area Alpha
SITE MANAGER:	UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III	

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, Heat, TNT Hazards, Safety zones, blending, location & site comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: - Area Alpha, Scan 10 lb		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: Support site operations at WWI plant. Severson operation uncovered a previous excavation. Took 6 samples. XSprayed (4) Neg. Vault area pos TNT (+ pictures) 30.5 lb				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 15 Aug 03	LOCATION: Severson LOOW NY	SITE: Area Alpha, Waste Water Treatment
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, RAD, TNT Hazards, Safety zones, insects, blending, comm procedures	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED:		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:	QTY	FUZING	DEPTH	DISPOSITION	

<p>REMARKS: Continued to collect at Alpha, (morning returned to WWI Plant uncovered wooden pipe 24", took a sample of the sludge located in the bottom of pipe. No visible TNT observed in pipe or around soil. Samples will dry over weekend and will be tested on Monday 18 Aug 03).</p> <p>Collected another 10 lbs (new) crystalline/nodules and blended TNT with sand. The TNT is high quality crystals, are translucent, brown to yellow. Exspray kit was used to verify. 40.5 lb</p>				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 18 Aug 03	LOCATION: Severson LOOW NY	SITE: Area Alpha, Area Bravo, Area Charlie
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, RAD, TNT Hazards, Safety zones, insects, blending, comm procedures	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED:		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:	QTY	FUZING	DEPTH	DISPOSITION	

NON-ESS Work REMARKS: - 1. Vault - Acid - 2. Analyzed CMSA Grid Team - Roped off lanes (3') for scan. - Tested samples from WWTP				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 19 Aug 03	LOCATION: Severson LOOW NY	SITE: CMSA
SITE MANAGER:	UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III	

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety zones, blending locations & site comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: CMSA		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: Collected 30 lb TNT nuggets/crystalline from grid (Charlie on Zone 3) blended all recovered TNT				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 20 Aug 03	LOCATION: Severson LOOW NY	SITE: CMSA
SITE MANAGER:	UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III	

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety zones, blending locations & site comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: CMSA		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:	QTY	FUZING	DEPTH	DISPOSITION	

REMARKS: Collect large nuggets/crystalline TNT from (Grid Charlie/Zone 3) Soaked nodules approx 2 1/2 lbs. Collected 30 lb of TNT and blended. (CORPS meeting Friday)				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 21 Aug 03	LOCATION: Severson LOOW NY	SITE: CMSA
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety zones, blending locations & site comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: CMSA		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: 30 lbs				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 22 Aug 03	LOCATION: Severson LOOW NY	SITE: CMSA
SITE MANAGER:	UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III	

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: Weather, TNT Hazards, Safety zones, blending locations & site comm	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED: CMSA		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:	QTY	FUZING	DEPTH	DISPOSITION	

REMARKS: 30 lbs				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 25 Aug 03	LOCATION: Severson LOOW NY	SITE: CMSA
SITE MANAGER:	UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III	

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: yes	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED:		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: 40 lbs Total 160 lb				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 26 Aug 03	LOCATION: Severson LOOW NY	SITE: CMSA
SITE MANAGER:	UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III	

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: yes	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED:		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEWS:		UXO:	
NOMENCLATURE:		QTY	FUZZING	DEPTH	DISPOSITION

REMARKS: 30 lbs Need extra mineral oil for large nodules. 25 extra gallons will use most for blending final pile.				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 27 Aug 03	LOCATION: Severson LOOW NY	SITE: CMSA
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME:	STOP TIME:	TOTAL HRS:
SAFETY BRIEF: yes	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED:		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: 40 lbs collected from CMSA				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 28 Aug 03	LOCATION: Severson LOOW NY	SITE: CMSA
SITE MANAGER:		UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III

DAILY TASKS		
START TIME: 0700	STOP TIME: 1830	TOTAL HRS:
SAFETY BRIEF: yes	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED:		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:		QTY	FUZING	DEPTH	DISPOSITION

REMARKS: Collected 30 lb TNT. Removed all markers, flags, lines. QA the complete portions of the CMSA. The area failed because the stuff is everywhere. Blended the 30 lb collected and the backhoe operator was briefed on TNT hazards and he blended the pile. I took a composite sample and tested the soil collected. The results (.10%) TNT this was < the 5%. The blending pile was placed. The two 15,000 lb roll off containers lined with plastic sheeting 6 mil. And covered. The Area Charlie was QA and secured with "DANGER" ribbon.
Note: 2 hours OT was authorized by site manager Paul Jung.

VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$
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USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

ISSI UNEXPLODED ORDNANCE, INC.

DAILY ACTIVITY REPORT



DATE: 29 Aug 03	LOCATION: Severson LOOW NY	SITE: Area Charlie
SITE MANAGER:	UXO SUPERVISOR: Jerry Hinton UXO TECHNICIAN: Jerome Keeler III	

DAILY TASKS		
START TIME: 1100	STOP TIME: 1500	TOTAL HRS: 4 hours OT
SAFETY BRIEF: yes	TAIL GATE BRIEF	CALIBRATE INSTRUMENTS
WORK PLANNED:		

SURFACE AND GEOPHYSICAL SWEEPS					
ANOMALIES:	SCRAP:	OEW:		UXO:	
NOMENCLATURE:	QTY	FUZING	DEPTH	DISPOSITION	

REMARKS: Called in by Paul Jung, Jerry & Jerome proceeded to site (1100) Team covered and secured the containers with traps and secured the area. Team was given 4 hours OT.				
VEHICLE MILEAGE	START:	STOP:	TOTAL:	GAS:\$

USE BACK OR CONTINUATION SHEET FOR ADDITIONAL INFORMATION OR SKETCHES

APPENDIX C

THUMBNAIL PHOTOGRAPHS



Area C, Blending Area 1.jpg



Area C, Pre-Op Image 1.jpg



Area C, Pre-Op Image 2.jpg



Area C, Pre-Op Image 3.jpg



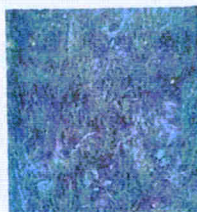
Area C, Pre-Op Image 4.jpg



Area C, TNT Stained Soil 1.jpg



Area C, TNT Stained Soil 2.jpg



Area C, TNT Stained Soil 3.jpg



Area C, TNT Stained Soil 4.jpg



Area C, TNT Stained Soil 5.jpg



Area C, TNT Stained Soil 6.jpg



Clean Sand for Blending.jpg



Looking east into CAMS Area.jpg



Looking North East into CAMS Area.jpg



Looking North West into CAMS Area.jpg



Bravo Site, After Fence 1.jpg



Bravo Site, After Fence 2.jpg



Bravo Site, After Fence 3.jpg



Bravo Site, After Fence 4.jpg



Bravo Site, After Fence 5.jpg



Bravo Site, Pre-Op 1.jpg



Bravo Site, Pre-Op 10.jpg



Bravo Site, Pre-Op 11.jpg



Bravo Site, Pre-Op 12.jpg



Bravo Site, Pre-Op 13.jpg



Bravo Site, Pre-Op 14.jpg



Bravo Site, Pre-Op 15.jpg



Bravo Site, Pre-Op 16.jpg



Bravo Site, Pre-Op 2.jpg



Bravo Site, Pre-Op 3.jpg



Bravo Site, Pre-Op 4.jpg



Bravo Site, Pre-Op 5.jpg



Bravo Site, Pre-Op 6.jpg

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Bravo Site. Pre-On 7.ina



Bravo Site. Pre-On 8.ina



Bravo Site. Pre-On 9.ina



Area C Image 1.jpg



Area C Image 10.jpg



Area C Image 11.jpg



Area C Image 12..jpg



Area C Image 13..jpg



Area C Image 16..jpg



Area C Image 2..jpg



Area C Image 3..jpg



Area C Image 4..jpg



Area C Image 5..jpg



Area C Image 7..jpg



Area C Image 8..jpg



Area C Image 9..jpg



Blending Operation 1.jpg



Blending Operation 2.jpg



Blending Operation 3.jpg



Blending Operation 4.jpg



Bravo Area Pre Op 1.jpg



Bravo Area Pre Op 2.jpg



Bravo Area Pre Op 3.jpg

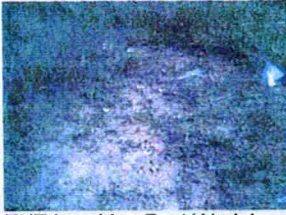


Bravo Area Pre Op 4.jpg

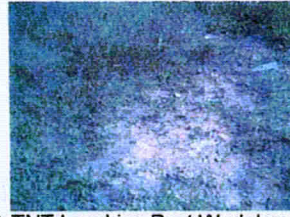


Bravo Area Pre Op 5.jpg

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Area A TNT Leaching Post Work Image 1.jpg



Area A TNT Leaching Post Work Image 2.jpg



CMSA 1.jpg



CMSA 10.jpg



CMSA 11.jpg



CMSA 12.jpg



CMSA 13.jpg



CMSA 14.jpg



CMSA 15.jpg



CMSA 16.jpg



CMSA 17.jpg



CMSA 18.jpg



CMSA 19.jpg



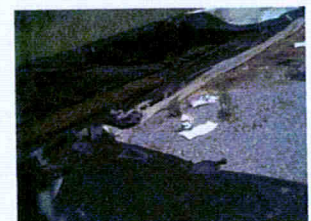
CMSA 2.jpg



CMSA 20.jpg



CMSA 21.jpg



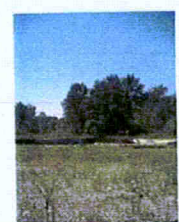
CMSA 22.jpg



CMSA 23.jpg



CMSA 24.jpg



CMSA 3.jpg



CMSA 4.jpg



CMSA 5.jpg



CMSA 6.jpg



CMSA 7.jpg



CMSA 8.jpg



CMSA 9.jpg



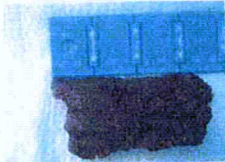
Cooper's TNT Transfer Pipe Entry 1.jpg



Cooper's TNT Transfer Pipe Entry 10.jpg



Cooper's TNT Transfer Pipe Entry 11.jpg



Rubber Impregnated with TNT 1.jpg
8/20/2003



Rubber Impregnated with TNT 2.jpg
8/20/2003



TNT Crystals in CMSA 1.jpg
8/20/2003



TNT Crystals in CMSA 2.jpg
8/20/2003



TNT Crystals in CMSA 3.jpg
8/20/2003



TNT Crystals in CMSA 4.jpg
8/20/2003



TNT Crystals in CMSA 5.jpg
8/20/2003



TNT Nodular with EXSPRAY Test Strip 1.jpg
8/19/2003



TNT Nodular with EXSPRAY Test Strip 2.jpg
8/19/2003



lbs of TNT Crystals from CMSA 1.jpg
8/21/2003



2 lbs of TNT Crystals from CMSA 2.jpg
8/21/2003



TNT Nodules in CMSA.jpg
8/21/2003

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2 lbs TNT from CMSA.jpg



CrossHatch 3 foot lanes on CMSA 1



CrossHatch 3 foot lanes on CMSA 2 inn



Crystallized TNT on Plastic in CMSA



Picture 001.jpg
8/25/2003



Picture 002.jpg
8/25/2003



Picture 003.jpg
8/25/2003



Picture 004.jpg
8/25/2003



Picture 005.jpg
8/25/2003



Picture 006.jpg
8/25/2003



Picture 007.jpg
8/25/2003



Picture 008.jpg
8/25/2003



Picture 009.jpg
8/25/2003



Picture 010.jpg
8/25/2003



Picture 011.jpg
8/25/2003



Picture 012.jpg
8/25/2003



Picture 013.jpg
8/25/2003



Picture 014.jpg
8/25/2003



Picture 015.jpg
8/25/2003



Picture 016.jpg
8/25/2003



Picture 017.jpg
8/25/2003



Picture 018.jpg
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Picture 019.jpg
8/25/2003

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CMSA Pad after rain 1.jpg



CMSA Pad after rain 2.jpg



CMSA Pad after rain 3.jpg



CMSA Pad after rain 4.jpg

APPENDIX D

LETTER OF CONCERN

September 9, 2003

Sevenson Environmental, Inc.
Attn.: Jerry Castiglione
2749 Lockport Road
Niagara Falls, NY 14305

Subject: Concerns about Safety, Security and the need to fence the TNT contaminated areas at LOOW.

Dear Jerry:

ISSI Unexploded Ordnance, Inc. (ISSI UXO) and Sevenson Environmental Services, Inc. (Sevenson) are currently performing work at the LOOW site under USACE Contract DACW49-00-D-0002-0008 and by the Explosive Safety Submission (ESS) for Surface Removal of TNT at the Lake Ontario Ordnance Works Site 2003, approved by Department of Defense Explosive Safety Board, dated June 25, 2003.

A perimeter survey was conducted for areas Alpha, Bravo, Charlie, and the Contaminated Materials Storage Area CMSA). At the time of site mobilization it was noted that the orange construction fencing around Areas Alpha, Bravo, and Charlie were in need of repair. The enclosed CMSA boundary had four concrete barricade blocks moved from their original positions and there was also various construction debris located inside the CMSA. These items consisted of two wooden crane mats, one twenty-foot piece of ten-inch steel pipe, one twenty-foot piece of six-inch HDPE pipe, one fifty-five gallon drum containing CitraClean (a decontamination solution), and one roll of two-inch HDPE piping. It was also noted that there were signs of heavy equipment wheel marks entering the CMSA area by way of openings in the barricade caused by the moving of the concrete barricade blocks. All of the above items indicated that access to this area had been occurring on a fairly constant basis.

As per the ESS, ISSI UXO technicians performed walk over inspections of areas Alpha, Bravo, Charlie, and the CMSA. Areas Alpha, Bravo, and Charlie were walked over 100 percent with various amounts of TNT collected. A quality control inspection was conducted on 10 percent of Areas Alpha, Bravo, and Charlie. As the activity in these three areas was limited to surface removal of visible TNT, these areas remain contaminated and present a safety and health hazard until the ultimate removal or remediation is undertaken.

In the first three days of the CMSA walk over ISSI UXO collected ninety pounds of TNT from Zone 3. Sevenson was informed the surface of the CMSA was grossly contaminated with crystalline and large nodule TNT. At a meeting held on Friday,

August 22nd with ISSI UXO, Severson and the USACE, we were informed that financial resources for the project would only allow Severson and ISSI UXO to collect TNT until Thursday, August 28th. At that time ISSI UXO informed Severson and the USACE that it would be unable to collect all surface TNT from the CMSA. Therefore, the ESS requirements of complete walkover and collection requirements would not be met.

ISSI UXO continued the work with the constraints and was able to complete work on only a portion of the CMSA, basically completing Zone 3. The remaining Zones 1, 2 and 4 were not surface scanned for TNT.

In Summary, ISSI UXO has the following concerns about not being able to completely remove all the hazardous TNT contamination during this phase.

1. Exclusion Controls must be put into place to control unauthorized and untrained personnel from entering any of the contaminated areas.
2. TNT by definition is a member of the nitroaromatic explosive's family, consisting of nitrated organics and inorganic material known for their explosive characteristics. With TNT exposed not only on the surface but also in the subsurface any foot traffic or use of any motorized vehicles may cause a detonation of the material.
3. In addition to the explosive nature of TNT there is the toxicity issue associated with it. TNT has a skin PEL of 10 parts per billion. Residual TNT in the CMSA could contaminate equipment, tires, and material causing the cross contamination of personnel and other areas of the Chemical Waste Management property.
4. The subsurface crystalline TNT contamination in Zones 1 and 3 create serious safety concerns. The estimated amount of TNT in these zones could possibly exceed 4,000 lbs. Surface TNT nodules recovered during the ESS operation ranged from 1/2" to 6" in diameter, weighing up to 1.5 lbs. The TNT below surface in these areas may exceed these sizes and weights. The quality of crystalline TNT and nodules compare with the USACE lab results for purity of 99.54%. This is the same type of materials tested using the EXPRAY SDI Field Test Kit, and spectrophotometer.

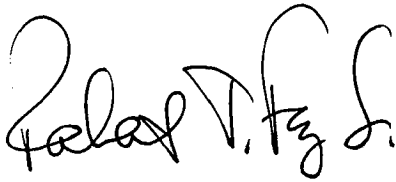
ISSI strongly recommends the following additional safe guards be implemented to ensure unauthorized entry is prohibited into these areas.

1. CMSA. It is evident that the concrete barriers have not provide enough security or warning to prohibit unauthorized entry. ISSI UXO recommends that the CMSA area be contained by six-foot chain link fence around the perimeter, with a access gate, of the CMSA and the area be marked with restricted signs.

2. For each of the other areas (Alpha, Bravo and Charlie) These areas should be fenced with at least four strand barbed wire with metal fence posts, with an access gate..They should also be marked with restricted signs.

In the event you have any questions please contact me at (256) 247-7050 or via e-mail "rtfay@hiwaay.net"

Sincerely;

A handwritten signature in black ink, appearing to read "Robert T. Fay Sr.", with a stylized, cursive script.

Robert T. Fay Sr.

Senior Vice President

Chief Operating Officer

Copies Furnished:

D. Howell Buffalo District , USACOE

W. Shaw, Huntsville Eng, & Supt. Ctr. USACOE