

**ISSI Unexploded Ordnance, Inc.  
ORDNANCE & EXPLOSIVE REMEDIATION  
Huntsville, Alabama**

**PROJECT REPORT SECOND PHASE  
EMERGENCY ORDNANCE  
EXPLOSIVE SERVICES**

**LAKE ONTARIO ORDNANCE WORKS  
TNT PIPELINE REMOVAL PROJECT,  
LEWISTON, NEW YORK**

<b>CONTRACT NUMBER:</b>	<b>DACAW49-00-D-002</b>
<b>DELIVERY ORDER NUMBER:</b>	<b>0002</b>
<b>SEVENSON PROJECT NUMBER:</b>	<b>G-139</b>
<b>CLIENT NAME:</b>	<b>U.S. Army Corps of Engineers, Buffalo District</b>
<b>PRIME CONTRACTOR:</b>	<b>Sevenson Environmental Services, Inc.</b>
<b>PROJECT TITLE:</b>	<b>Emergency OE Services</b>
<b>PROJECT LOCATION:</b>	<b>Lewiston, New York</b>
<b>DATE:</b>	<b>September 13, 2000</b>



## 1.0 REFERENCES:

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

1. Attachment H, Explosive Safety Work Plan, TNT Pipeline and Chemical Waste Sewer Removal Actions at Former Lake Ontario Ordnance Works, Niagara County, New York.
2. Project Report Phase One, Lake Ontario Ordnance Works TNT Pipeline Removal Project, Lewiston, New York, ISSI Unexploded Ordnance, Inc., dtd. 8 August 2000.
3. Incident Reports, (a) 24 July, (b) 8 August and (c) 14 August, 2000; Concerning Discovery of Crystalline TNT on the Surface. ; Severson Environmental Services, Inc.
4. Procedure; Severson Environmental Services, Inc.; Titled: Inspection of Surface Debris for The Presence of Crystalline TNT; 2 pages.
5. Site Characterization Reports; (a) 20' X 60' Area, Stations 13+00 and 13+50; (b) 20' x 40' Area, Stations 18+50 and 19+00; and (c) 100' X 100' Area, Stations 24+00 and 27+50; Severson Environmental Service, Inc.
6. Addendum to Ordnance & Explosive Support Services, Lake Ontario Ordnance Works TNT Pipeline Removal Project, Lewiston, New York, Work Plan; ISSI Unexploded Ordnance, Inc.; dtd. 25 July, 2000.
7. TNT Burn 1 Summary Report; Severson Environmental Services, Inc.; dtd 6 August 2000.
8. Results of TNT ( Crystalline) Disposal Operation's ( Dated 8/4/00, 8/18/00-8/19/00.); Severson Environmental Service, Inc.; dtd. 23 August 2000.
9. USACE, Buffalo District: Lake Ontario Ordnance Works (LOOW), Interim Removal Action - TNT Waste Pipeline, Explosive Safety Operations Planning Considerations, 23 May 2000.

## 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, U.S. Army Corps of Engineers. ISSI UXO provided a Senior UXO Supervisor/ Explosives Analyst to support Severson's removal of the concrete encased TNT pipeline. In addition, ISSI UXO provided on-site technical guidance for the Severson team during the presampling phase of the project in accordance with the procedures in reference one above. The results of this phase of the operation are reported in reference 2 above. This report will summarize the actions during the Second Phase Emergency Ordnance Explosive Services which was necessitated by the discovery of crystalline TNT on the surface on 24 July 2000, ( reference 3 (a) above.).

### 3.0 SUMMARY OF EVENTS:

Toward the conclusion of Phase One, the Sampling Phase, on 24 July 2000, crystalline TNT was discovered on the surface in a 20' X 60' area at Stations 13+00 and 13+50 ( reference 3 (a) above.). As a result of this discovery several actions were undertaken, first, a characterization of the area was preformed ( reference 5. (a ) above.); secondly, a procedure was developed to systematically inspect all previous TNT pipeline areas to determine if any additional crystalline TNT was present. ( reference 4. Above); lastly, an inspection was undertaken of the entire TNT pipeline area where previous work had been preformed. An additional ISSI UXO Senior UXO Supervisor was dispatched to assist the on site ISSI UXO Senior UXO Supervisor/ Explosives Analyst with the inspection process and any subsequent inspection.

The results of these inspections were that surface crystalline TNT contamination was located at two additional sites. ( references 3 (b), and (c) above.). Options for disposal were explored and it was determined that open burning of the crystalline TNT was the most effective and safe disposal method under the circumstances. ISSI UXO was tasked to develop a procedure for this operation. ( reference 6 above.).

On 4 August 2000 approximately ½ lbs. Net Explosive Weight ( NEW) of crystalline TNT was gathered at the first site (Stations 13+00 to 13+50) according to the developed procedure and was destroyed safely by open burning. ( reference 7 above.).

On 18 and 19 August 2000 crystalline TNT was gathered at the two additional sites ( Stations 18+50 to 20+00) and ( stations 24+00 to 27+50) according to the developed procedure and was destroyed safely by open burning. ( reference 8 above.). The NEW of the crystalline TNT gathered at the former site was 1 ½ lbs. and 4 lbs at the later site. A total of ten (10 ) burns were conducted safely with complete destruction of the gathered crystalline TNT ( reference 8 above.).

It must be noted at this time that the Characterizations preformed at all three sites were **Limited ONLY to Observable Surface Crystalline TNT Contamination**. No subsurface investigations or examinations were undertaken or preformed. ISSI UXO recommends that the three sites be



fenced and appropriate warning signs be posted until final disposition and remediation of these areas is determined.

#### 4.0 CONCLUSIONS:

Based on the visual indications and the Field Test Kit results it is ISSI Unexploded Ordnance, Inc. professional opinion that there is considerable amounts of crystalline TNT in the pipeline. As it is impossible to determine the exact amount of Crystalline TNT contamination at any specific point based on the sample, it **must Be Assumed for Safety Reasons**, that the entire remaining pipeline is contaminated and treated as such. It must be assumed that the crystalline TNT encountered on the surface is the result of the previous years pipeline removal operations. This assumption can safely be made based on the location that the crystalline nodules found, the description of the previous years operations outlined in reference 9 and the scenes depicted in the video tape of the last years operations entitled "TNT # 4" that the Senior UXO Supervisor/ Explosives Analyst viewed at the request of the on-site ASIC representatives during the week of 21 August 2000.

A possible reason for the lack of results in last years operations to obtain positive TNT test results could be attributed to the fact that operations were started from the furthest point of potential contamination rather than near the former TNT process plant operations. In addition, the lab, as they did this year, may have performed the incorrect tests to identify the crystals, instead of testing the crystals for TNT they should be checked for the daughter of TNT.

#### 5.0 RECOMMENDATIONS:

ISSI-UXO proposes that with the confirmation of crystalline TNT contamination the entire pipeline be treated as potentially detonable and handled and disposed of as such. Due to the quantity of suspected crystalline TNT deposits located during the test pit sampling series, ISSI UXO recommends a UXO Team be on the site during the removal phase of the TNT pipeline by Severson.

Detailed recovery and disposal recommendations were provided in the Phase One Report ( See reference 2 above.) and will not be repeated in this report.

#### 6. PHOTOGRAPHS:

ISSI UXO took numerous photographs and the following representative examples are attached. Additional photographs are available upon request.

Number	Title
One	Stations 13+00 to 13+50 initial site of TNT surface contamination.
Two	Stations 18+50 to 20+00 second site of TNT surface contamination.



- Three            Stations 24+00 to 27+50 third site of TNT surface contamination.
- Four            Example of crystalline TNT found on the surface.
- Five            Burn site with prepared burn and TNT nodules in box.





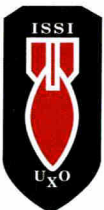
Photograph One  
Stations 13+00 to 13+50 initial site of TNT surface contamination.







Photograph Two  
Stations 18+50 to 20+00 second site of TNT surface contamination.







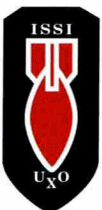
Photograph Three  
Stations 24+00 to 27+50 third site of TNT surface contamination.







Photograph Four  
Example of crystalline TNT found on the surface.







Photograph Five  
Burn site with prepared burn and TNT nodules in box.

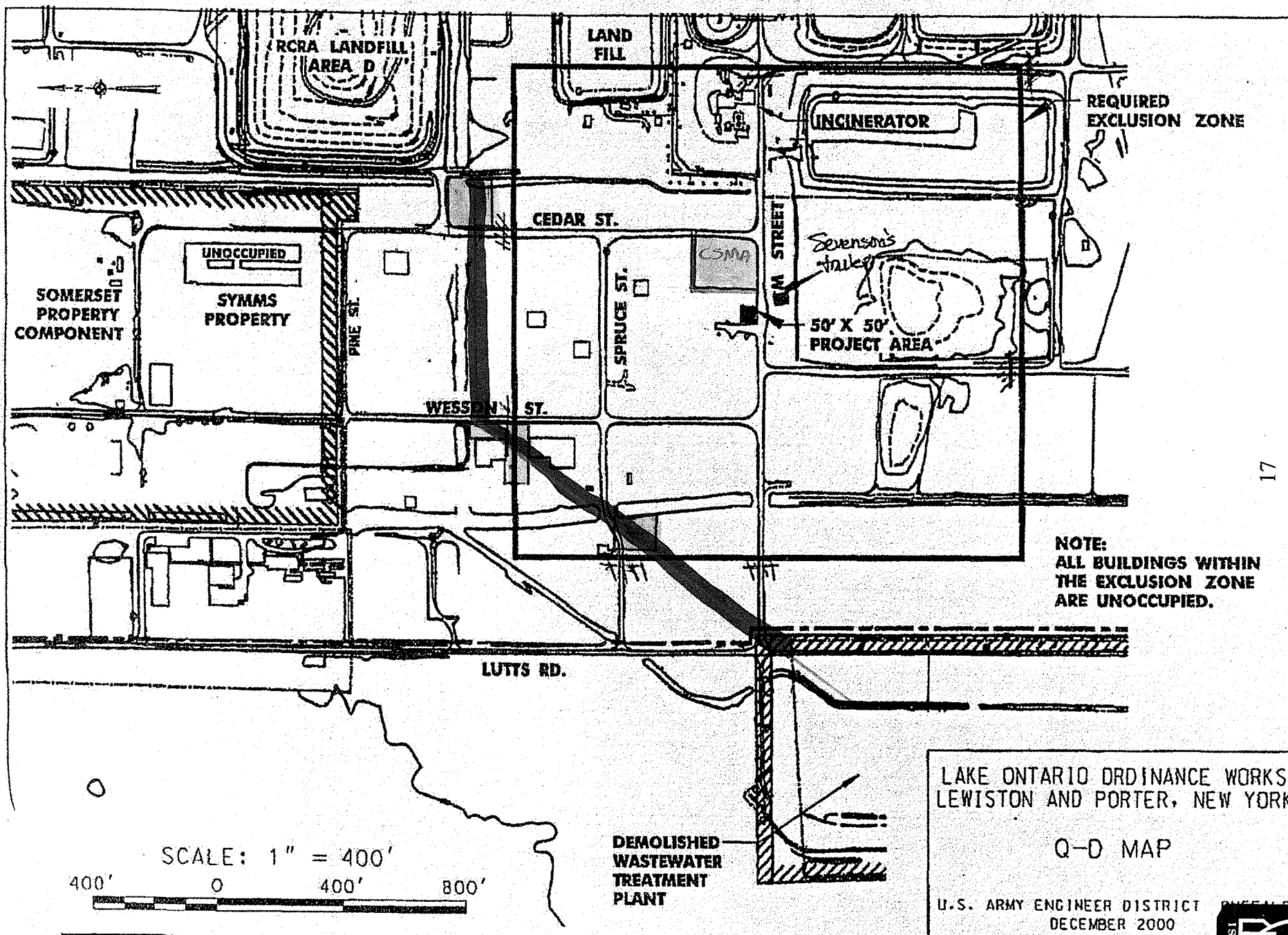


### Areas to revisit and scan surface for TNT

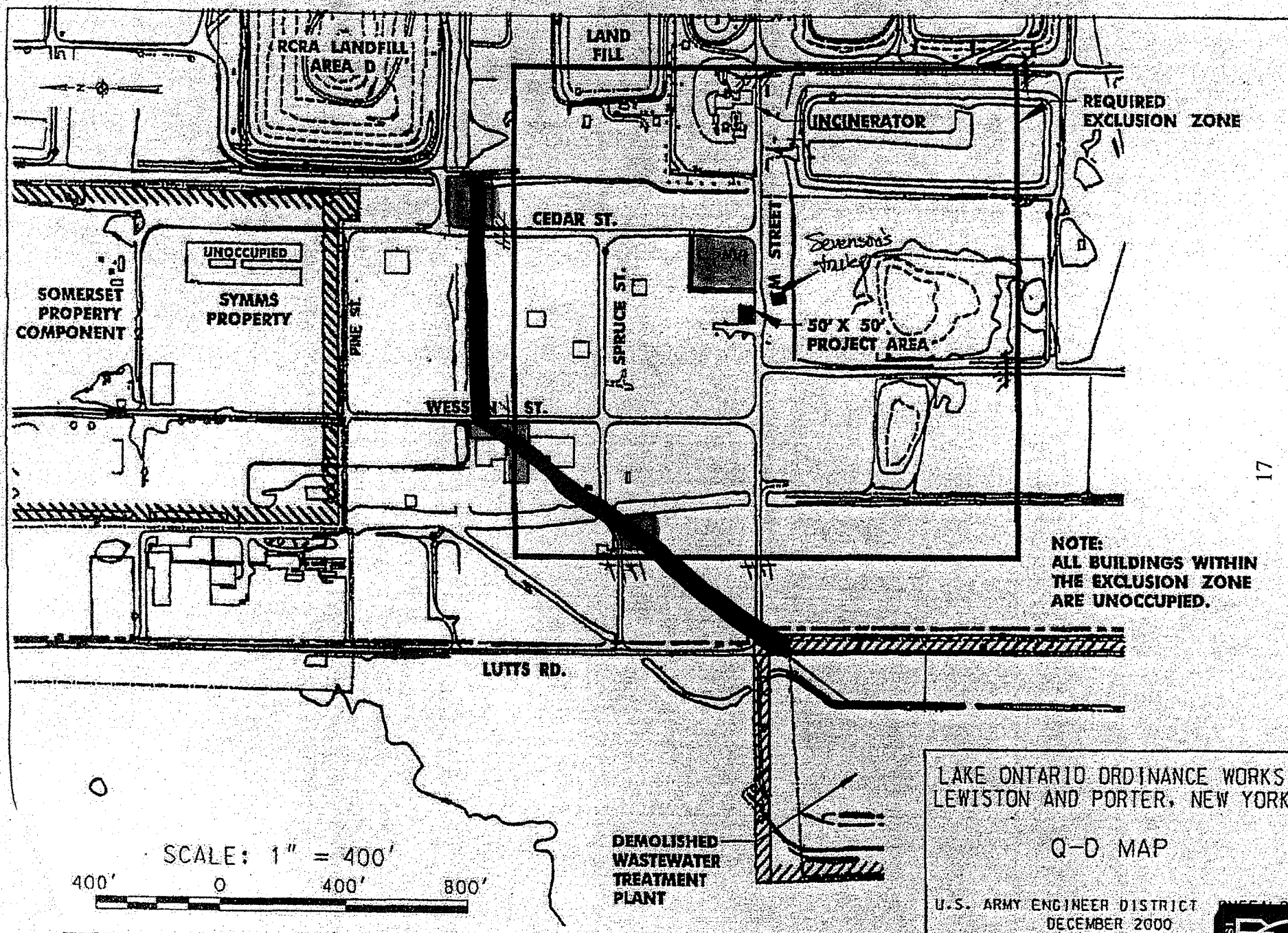
- 1) Sta. 13+00 to Sta. 13+50 (20'X60' area)
- 2) Sta. 18+50 to Sta. 19+00 (20'X40' area)
- 3) Sta. 24+00 to Sta. 27+50 ( 100' X100' area)
- 4) CMSA pad (200' X200' area)

Refer to transmittal #51 and attached photos and rough map  
10/30/01





17



17



**TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIALS SAMPLES, OR  
MANUFACTURER'S CERTIFICATES OF COMPLIANCE**  
(Read instructions on the reverse side prior to initiating this form)

Date  
September 22, 2000

Transmittal No.  
51

**SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS** (This section will be initiated by the contractor)

TO: Brian Moore  
Buffalo District Corps of Engineers  
1776 Niagara St.  
Buffalo, NY 14207-3199

FROM: Severson Environmental Services, Inc.  
2749 Lockport Road  
Niagara Falls, NY 14305

Contract No.  
DACW49-00-0002  
D.O. No.0002

Check One:  
☒ New Transmittal  
☐ Resubmittal of  
Transmittal \_\_\_\_\_

Specification SLC. No. (Cover only one section with each transmittal)

Project Title and Location: Lake Ontario Ordnance Works Lewiston and Porter, NY

Item No.  a.	Description of Item Submitted (Type, size, model number, etc.)  b.	Mfg. Or Contr. Cat., Curve Drawing or Brochure No. (See instruction No. B)  c.	No. Of Copies  d.	Contract Reference Document		For Contractor Use Code  g.	Variation (See instruction no. 6)  h.	For CE Use Code  i.
				Spec. Para. No. e.	Drawing Sheet No. f.			
	Final Report on Phase Two of the TNT Pipeline Project.		6			F		F

Remarks:  
This is one original and 5 copies of the Final Report on Phase Two of the TNT Pipeline Project  
submitted to Severson from ISSI UXO Inc.

I certify that the above submitted items have been reviewed in detail and  
are correct and in strict conformance with the contract drawings and  
specifications except as otherwise stated.

Severson Environmental Services, Inc.

*Terry Costigliano*  
Name and Signature of Contractor

**SECTION II - APPROVAL ACTION**

Enclosures Returned (List by Item No.)

1

Name, Title and Signature of Approving Authority Date

*Be L. Son COR*

9/28/00



**ROUTING OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES  
OF COMPLIANCE FOR APPROVAL**

(Used to route ENG Form 4025 with items attached. Not to become a part of the Contractor's Record.)

<b>1</b>	TO: PE-DG/Howell	FROM: CO-AN/Moore	DATE: 25-Sep-00
The attached items listed on ENG Form 4025 are forwarded for approval action.			
CONTRACT NUMBER DACW49-00-C-0002 D.O. 2		CONTRACTOR Sevenson Environmental	
TRANSMITTAL NUMBERS 51		PROJECT TITLE AND LOCATION Lake Ontario Ordinance Works	
COMMENTS (Attach additional sheet, if necessary.)  For review and comment			
NO. OF INCL. <input checked="" type="checkbox"/>		TYPED NAME AND TITLE Brian Moore, Area Engineer	SIGNATURE <i>Brian Moore</i>
<b>2</b>	TO:	FROM:	DATE
COMMENTS (Attach additional sheet, if necessary.)			
NO. OF INCL.		TYPED NAME AND TITLE	SIGNATURE
<b>3</b>	TO:	FROM:	DATE
COMMENTS (Attach additional sheet, if necessary.)			
NO. OF INCL.		TYPED NAME AND TITLE	SIGNATURE
<b>4</b>	TO:	FROM:	DATE
The following action codes are given to items listed on ENG Form 4025:			
<b>ACTION CODES</b>  <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>A - APPROVED AS SUBMITTED.</p> <p>B - APPROVED, EXCEPT AS NOTED ON DRAWINGS. RESUBMISSION NOT REQUIRED.</p> <p>C - APPROVED, EXCEPT AS NOTED ON DRAWINGS. REFER TO ATTACHED SHEET, RESUBMISSION REQUIRED.</p> </div> <div style="width: 48%;"> <p>D - WILL BE RETURNED BY SEPARATE CORRESPONDENCE.</p> <p>E - DISAPPROVED (SEE ATTACHED)</p> <p>F - RECEIPT ACKNOWLEDGE</p> <p>G - OTHER (specify).</p> </div> </div>			
<b>ACTION CODES TO BE INSERTED IN COLUMN G, SECTION I, ENG FORM 4025</b> (Attach sheets, when required.)			
ITEM NO. (Taken from ENG Form 4025)			
CODE GIVEN			
REMARKS			
NO. OF INCL.		TYPED NAME AND TITLE	SIGNATURE