



March 15, 2002

IT Corporation

312 Directors Drive
Knoxville, TN 37923-4799
Tel. 865.690.3211
Fax. 865.690.3626

A Member of The IT Group

U.S. Army of Engineer District, Nashville
ATTN: CELRN-EC-R-M (Mrs. Linda Ingram)
110 Ninth Avenue South, Room 682
U.S. Court House Annex
Nashville, Tennessee 37203

**Submittal of the 2001 Groundwater Remedial Investigation,
Former Plum Brook Ordnance Works, Sandusky, Ohio: Contract No.
DACA62-00-D-0002; Delivery Order 0010; IT/PN 825635**

Dear Ingram:

In accordance with the requirements of Delivery Order Number 0010 of Contract Number DACA62-00-D-0002, IT Corporation is pleased to submit the 2001 Groundwater Remedial Investigation Report of the TNT and Red Water Ponds Areas at the former Plum Brook Ordnance Works in Sandusky, Ohio. A presentation will be made at the RAB meeting on 27 March 2002.

Enclosed are six (6) copies of the 2001 Groundwater Remedial Investigation; note that responses to internal IT review comments on the report are included in the document. As requested, copies of the report have also been forwarded to the recipients shown on the distribution list, quantities as indicated. Should you have any questions or require additional information regarding this submittal, please do not hesitate to call the undersigned at (865) 690-3211.

Request that you review the document and provide either comments or a response with no comments by 22 April 2001. This document will not be revised but all comments will be addressed in the Annual Report. Please send your response to Ms. Linda Ingram, Technical Coordinator, Nashville District Corps of Engineers, ATTN: CELRN-EL-R-M, P.O. Box 1070, Nashville, Tennessee 37203-1070.

Sincerely,

A handwritten signature in black ink that reads 'Steve Downey'.

Steve Downey
Project Manager

Enclosure

Mrs. Linda Ingram
CELRN-EC-R-M

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Distribution List for 2001 Groundwater Remedial Investigation Report

U.S. Army of Engineer District, Nashville 6 copies
ATTN: CELRN-EC-R-M (Mrs. Linda Ingram)
110 Ninth Avenue South, Room 682
U.S. Court House Annex
Nashville, Tennessee 37203

U.S. Army Engineer District, Huntington 3 copies
ATTN: CELRH-ED-AE (Mr. Rick Meadows)
502 Eighth Street
Huntington, West Virginia 25701-2070

Mr. Ron Nabors 2 copies
Site Coordinator
Division of Emergency and Remedial Response (DERR)
Ohio Environmental Protection Agency
347 North Dunbridge Road
Bowling Green, Ohio 43402-0466

Mrs. Laurie Moore Eggert 1 copy
Risk Assessment Coordinator
Ohio EPA – Southwest District Office
Office of Federal Facilities Oversight (OFFO)
401 E. Fifth Street
Dayton, Ohio 45402

Mr. Robert Lallier 2 copies
Environmental Coordinator
NASA – Plum Brook Station
6100 Columbus Avenue
Sandusky, Ohio 44870

Mrs. Linda Ingram
CELRN-EC-R-M

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Distribution List for 2001 Groundwater Remedial Investigation Report (Continued)

U.S. Army Corps of Engineers
HTRW Center of Expertise
ATTN: Document Distribution
12565 West Center Road
Omaha, NE 68144-3869

1 copy

Mr. Mark Bohne
PBOW RAB Co-chairman
311 East Mason Road
Milan, Ohio 44846

1 copy



DISCIPLINE SIGN-OFF REVIEW

Client Name: U.S. Army Engineer District, Nashville; CELRN-EC-R-M

Project Description: Groundwater RI, TNT and RWP Areas, Former Plum Brook Ordnance Works, Sandusky, OH

Contract Number: D A C A 6 2 - 0 0 - D - 0 0 0 2

Delivery Order Number: 0 0 1 0

Project Number: 8 2 5 6 3 5

Task / Phase Number: 1 0 0 0 0 0 0 0

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<input type="checkbox"/> Technical / Cost Proposal	_____	<input checked="" type="checkbox"/> Originator Developed
<input type="checkbox"/> RFP	_____	<input type="checkbox"/> Edited Standard
<input type="checkbox"/> Contract / Subcontract	_____	<input type="checkbox"/> Client Furnished
<input type="checkbox"/> SAP, SSAP, CDAP, or QAPP	_____	
<input type="checkbox"/> SHP or SSHP	_____	<u>Document Status</u>
<input checked="" type="checkbox"/> GW RI Report	<u>Volumes I and II, Groundwater Investigation, Rev. 0, March 2002</u>	<input type="checkbox"/> Preliminary
<input type="checkbox"/> Risk Assessment / Evaluation	_____	<input type="checkbox"/> Internal Draft
<input type="checkbox"/> Specifications & Plans	_____	<input type="checkbox"/> Draft
<input type="checkbox"/> Design Calculations	_____	<input type="checkbox"/> Draft Final
<input type="checkbox"/> Tables	_____	<input type="checkbox"/> Final
<input type="checkbox"/> Drawings / Figures	_____	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Other: _____	_____	

	<u>Name, Grade</u>	<u>Discipline</u>	<u>Signature</u>	<u>Date</u>
Originator	<u>David Kessler</u>	<u>Geologist</u>	<u>David Kessler</u>	<u>3/14/02</u>
Checker	<u>Catherine Williams</u>	<u>Envir. Scientist</u>	<u>Catherine Williams</u>	<u>3/14/02</u>
Peer Review (QC)	<u>William Hedberg</u>	<u>Geologist</u>	<u>William Hedberg</u>	<u>3/14/02</u>
Project Review	<u>Mike Gunderson</u>	<u>Geologist</u>	_____	_____
Project Review	<u>Steve Downey</u>	<u>Civil Engineer</u>	<u>Steve Downey</u>	<u>3/14/02</u>
Quality Assurance Manager	<u>Patrick Gray</u>	<u>Quality Assurance Mgr</u>	<u>Patrick Gray</u>	<u>3/14/02</u>
Project Manager	<u>Steve Downey</u>	<u>Civil Engineer</u>	<u>Steve Downey</u>	<u>3/14/02</u>

NOTICE: By signature above, parties certify that the subject document has been prepared by and/or reviewed by them (as appropriate), that all review comments have been resolved, and that the document is ready for submittal.

**2001 Groundwater Remedial Investigation
Former Plum Brook Ordnance Works
Sandusky, Ohio
Response to Internal IT Review Comments
(Report dated March 2002)**

General Comment from all reviewers:

Each technical reviewer provided comments that suggested grammatical changes and word revisions. Simple grammatical changes and rewording of sentences will not be presented but will be incorporated into the document as appropriate.

Comments Received from Steve Downey:

Comment 1. Volume 1, Section 2.3, page 2-4: Morrison Knudsen Group (MK) should be identified as Morrison Knudsen Corporation.

Response: The text will be changed from Morrison Knudsen Group to Morrison Knudsen Corporation.

Comment 2. Volume 1, Section 3.1.2.1 (page 3-10) and Section 3.1.2.2 (page 3-11): Include maximum nitroaromatic concentrations of both soil and groundwater samples that were detected at the West and Pentolite Road Red Water Pond areas by IT Corporation during the 1998 direct-push investigation.

Response: Agreed. Soil and groundwater maximum nitroaromatic concentrations detected above PRG limits during the direct-push investigation will be included in the appropriate sections.

Comments Received from Catherine Williams:

Comment 1. Tables 6-5 through 6-17 titled “Blank Corrected Constituents in ...” present analytical results that are not truly blank corrected. Tables should be renamed to properly present the analytical results.

Response: Agreed. The tables will be renamed “Detected Constituents in ...” and the data in the Appendices will be reviewed.

Comment 2. Several acronyms in the text are not identified in the list of acronyms (ppb, QA/QC, GSA, LERC...).

Response: Agreed. Editing will recheck the text and additions will be made to the list of acronyms.

Comment 3. General Comment: Consistency should be kept throughout the document with reference to inorganics or metals, nitroaromatics or explosives, and TNT Manufacturing Areas A, B, and C or TNTA, B, and C.

Response: Agreed. The document will be globally checked and consist use of the terms will be made. The terms *inorganics, nitroaromatics, TNTA, TNTB, and TNTC* will be used consistently throughout the text.

Comment 4. General Comment: Always spell out "Building," don't abbreviate "Bldg."

Response: Agreed.

Comment 5. Volume 1, Section 4.10: Mention the contractor's name who removed the IDW and the landfill where the IDW was taken for disposal.

Response: Agreed. The subcontractor (US Liquids of Detroit, Inc.) and the associated disposal facility for both soil and groundwater will be mentioned in the text.

Comment 6. Volume 1, Section 6.0: When discussing analytical results, clarify that constituents were "detected" in the sample rather than a constituent being observed or found in a certain well.

Response: Agreed.

Comments Received from Bill Hedberg:

Comment 1. Figure 2-9, Overburden Thickness Contour Map: The legend states that when the greater than symbol (>) is given, the overburden is at a depth greater than the indicated number. The greater than symbol is not indicating depth but implies an overburden thickness.

Response: Agreed. The legend will be changed to denote that the greater than symbol indicates an overburden thickness greater than the indicated number.

Comment 2. Volume 1, Executive Summary: One petroleum aromatic hydrocarbon is mentioned to have been detected in the overburden groundwater at TNTB, monitoring well MK-MW17. This was not a petroleum aromatic hydrocarbon but a polynuclear (polycyclic) aromatic hydrocarbon.

Response: Agreed. The text containing petroleum aromatic hydrocarbon will be changed to polynuclear aromatic hydrocarbon.

Comment 3. Volume 1, Section 3.1.1.2, page 3-6: Monitoring well MK-MW16 is noted as being a downgradient well. From review of the figures, MK-MW16 is shown as an upgradient well.

Response: Agreed. The text will be changed to note that monitoring well MK-MW16 is an upgradient well.

Comment 4. Volume 1, Section 4.6, page 4-6 and Table 4-2: As a note; most of the final field measurements of bedrock monitoring well groundwater samples were

recorded with very high pH values. The high recording of pH is usually indicative of grout contamination.

Response: True, high pH measurements were recorded. Readings greater than 9.0 were found in the groundwater in a total of 16 bedrock wells but in only 4 of the newly installed wells. The reason for the high pH readings in only the bedrock wells have not been determined.

Comment 5. Volume 1, Section 6.0: This section needs to be carefully reviewed to ensure that the figure call-outs are consistent with the appropriate figure.

Response: Agreed. The figure call-outs in the text will be reviewed and adjusted to match the appropriate figures.