EPA Region 5 Records Ctr.
373532

December 30, 2003

Mr. Charles Gebien
On-Scene Coordinator
Emergency Response Branch
U.S Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: **Letter Report**
Former Electro Finishers Site
Chicago, Cook County, Illinois
Technical Direction Document No. S05-0206-017
Tetra Tech Contract No. 68-W-00-129

Dear Mr. Gebien:

T N & Associates, Inc. (TN&A), a subcontractor for the Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START), was tasked by the U.S. Environmental Protection Agency (U.S. EPA) to conduct oversight of potentially responsible party (PRP) removal activities at the Former Electro Finishers (FEF) site in Chicago, Illinois, under Technical Direction Document (TDD) No. S05-0206-017. The PRP removal activities were required by Unilateral Administrative Order (UAO) Docket No. V-W-'02-C-667 issued by U.S. EPA and dated November 26, 2001.

This letter report provides a brief description of the site, summarizes the site assessment conducted by the PRP, and summarizes the PRP removal activities.

Site Description

The FEF site is located at 1662-1668 West Fullerton Avenue in Chicago, Illinois. The geographic coordinates of the site are 41° 55' 33.6" north latitude and 87° 40' 16.3" west longitude (see Figure 1 in Enclosure 1). Historical records provided by the City of Chicago Department of the Environment (CDOE) indicate that the FEF site contained an active chromium plating shop for approximately 40 years and that the shop ceased operations in 1990. Mr. Jim Petrozinni of Lincoln Park Property Management (LPPM) is the PRP and the present owner of the site property. The site formerly contained four brick buildings oriented in an east-west row facing Fullerton Avenue and two small, fenced yards. The site is located in a predominantly residential and commercial area and is bounded by Fullerton Avenue to the south, a residence to the west, an alley to the north, and a business to the east.

Site Background

A complaint by a neighboring resident of the site concerning green and yellow crystalline material that had been forming in his basement and sump, resulted in an investigation of the site and the residence by CDOE and the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). At the request of CDOE and the Illinois Environmental Protection Agency (IEPA), the U.S. EPA conducted a site assessment of the residence in January 2001 and concluded that chromium and hexavalent chromium contamination was prevalent in sump water and on the basement walls.

PRP Site Assessment

On November 26, 2001, U.S. EPA issued an UAO to Mr. Petrozzini requiring him to conduct a removal action to address on-site and off-site contamination. On June 20, 2002, Seneca Environmental Services (SES), a contractor to the PRP, completed a subsurface assessment at the site. U.S. EPA On-Scene Coordinators (OSC) Charles Gebien and Brad Benning and a member of TN&A START conducted oversight of the work performed by SES. SES collected soil samples and groundwater samples from a total of ten locations. TN&A START collected four soil samples, including two split soil samples obtained from SES. Split soil samples B-6 and B-7 were collected from borings advanced on the north side of building A, and soil samples A-1 and A-2 were collected along the fence in the alley to the north of the site. In addition to collecting soil samples, TN&A START collected two groundwater samples. Groundwater samples M-4 and S-1 were collected from monitoring well M-4 on the southwestern side of building A and from the sewer northwest of the site, respectively. TN&A START collected samples for total metals and hexavalent chromium analysis by Test America Inc, in Nashville, Tennessee. Analytical results for the soil and groundwater samples collected by TN&A START included total hexavalent chromium results ranging from nondetect to 3.63 milligrams per kilogram (mg/kg) and chromium ranging from 0.568 to 290 milligrams per liter (mg/L), respectively. Enclosure 2 contains the validated analytical data package for the samples.

The analytical results for soil samples collected by SES were compared to maximum concentrations of contaminants pursuant to Title 40 of the *Code of Federal Regulations* (CFR), Section 261.24, Table 1, "Maximum Concentration of Contaminants for the Toxicity Characteristic." Concentrations of chromium in SES soil samples exceeded the maximum concentration in 40 CFR, Section 261.24, Table 1. In addition, soil samples contained toxicity characteristic leaching procedure (TCLP) chromium concentrations ranging from <0.02 to 66 mg/L. The samples were collected beneath buildings A and B (see Figure 2 in Enclosure 1). TN&A START reviewed SES's site assessment report and provided written review comments to U.S. EPA on December 17, 2002.

PRP Removal Activities

Rafson Engineering, a PRP contractor, prepared a removal work plan as required by the UAO. The objectives of the work plan were to abate subsurface contamination, building structure contamination, and asbestos- containing material (ACM) contamination and to remove underground storage tanks (UST) at the site. TN&A START reviewed the removal work plan

and provided written review comments to U.S. EPA on February 6, 2003.

Beginning on March 10, 2003, Alliance Environmental Control, a subcontractor to Rafson Engineering, removed ACM from the site boiler and associated piping from buildings A and B. A total of 40 5-gallon bags of ACM were transported to Environmental Landfill in Morris, Illinois, for disposal. ACS Demolition, Inc. (ACS), another subcontractor to Rafson Engineering, demolished all four buildings at the site to facilitate removal of USTs and contaminated soil. R.W. Collins Company (R.W. Collins), another subcontractor to Rafson Engineering, excavated concrete from the floor of former buildings A, B, and from above the UST located in former building D. Soil around the chromium plating tank vault underneath former building A was removed to 8 feet below ground surface (bgs) and the excavated area was backfilled with stone from 0 to 6 feet bgs and with clay from 6 to 8 feet bgs. Building material and soil that exhibited yellow discoloration indicating hexavalent chromium contamination was separated, stockpiled, and sampled for waste characterization and subsequent disposal. Effluent Technologies, Inc. (ETI), collected four hazardous waste characterization samples and seven cleanup verification samples. TN&A START collected five split samples, including one split sample (DPCOMP-1) of the building material that exhibited yellow discoloration (see Figure 3 in Enclosure 1). The analytical results for split sample DPCOMP-1 indicated a TCLP chromium concentration of 7.5 mg/L. Uncontaminated building material was separated and placed on pallets to be recycled by ACS.

Two fuel oil USTs with capacities of 1,000 and 2,000-gallon, were present in the northeastern corner of building B and the southern portion of building D, respectively. R.W. Collins removed the two fuel oil USTs and excavated 10 cubic yards (yd^3) of contaminated soil surrounding them. ETI, another subcontractor to SES, provided excavation oversight. Mr. Martin Garcia of CDOE and Mr. Kenneth Harris of the Chicago Fire Department (CFD) oversaw UST removal. Mr. Martin Garcia inspected the soil and determined that no release had occurred from the UST and that no reporting will be required to the Illinois Emergency Management Agency. R.W. Collins backfilled the excavation with the soil that was removed. ETI collected soil samples from each of the four walls and from the floor of the excavation in buildings B and D and analyzed the samples for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAH).

R.W. Collins also excavated soil from the yard area behind building A and from the hotspot beneath former building B. At the request of OSC Gebien, the excavation along the western wall of building A was backfilled with clay to prevent migration of any residual chromium contamination to the adjacent residential property. ETI collected three cleanup verification soil samples after this excavation and analyzed the samples for BTEX and PAHs. TN&A START collected three split samples from the PRP for total and TCLP lead and chromium analysis. Split sample analytical results were compared to maximum concentrations of contaminants pursuant to 40 CFR, Section 261.24, Table 1 and to the site cleanup objective for TCLP chromium of 5 mg/L. The chromium result for split sample SS-2 exceeded the site cleanup objective and the maximum concentration in 40 CFR, Section 261.24, Table 1. The split sample analytical results for TCLP chromium and lead ranged from <0.0100 to 12.8 mg/L and from <0.00500 to 0.0682 mg/L, respectively. The area of building B, where split sample SS-2 was collected was re-excavated to the water table (approximately 8 feet bgs), and a cleanup verification sample was

collected by ETI. At the request of OSC Gebien, a small area (approximately 10 by 20 feet) of yellow stained concrete floor was excavated from the southwest corner of building A. The excavated soil was shipped to EQ Company in Belleville, Michigan, for disposal.

R.W. Collins also excavated the northwestern corner of the site and removed debris and surficial soils to a depth of approximately 3 to 4 feet bgs. Soil in the excavated area was sampled for chromium and lead analysis by Rafson Engineering. TN&A START collected a split soil sample (SS-1) from this area. The TCLP chromium and lead analytical results for split sample SS-1 were 0.266 and 0.0243 mg/L, respectively.

The excavated soil and contaminated building material were characterized as Resource Conservation and Recovery Act (RCRA) hazardous waste (D007). A total of 1,013 tons of hexavalent chromium contaminated soil and building material was transported to the Envirite facility in Harvey, Illinois, and to EQ Company in Belleville, Michigan, for treatment and disposal.

TN&A START collected a total of seven split soil samples (V-1, PVW-1 through PVW-3, and SS-1 through SS-3) from the excavated areas of buildings A and B during the PRP removal action and shipped the samples to Great Lakes Analytical (GLA) in Buffallo Grove, Illinois. Tetra Tech START reviewed the sample analytical results and supporting quality assurance/quality control (QA/QC) data provided by GLA. Based on Tetra Tech 's START data validation, the data are acceptable for use as qualified. All PRP removal activities were completed on August 6, 2003. Enclosure 2 contains the validated analytical data package for the samples collected by TN&A START.

During the PRP removal activities, START conducted removal oversight, conducted split sampling, cleanup verification sampling, documented on-site conditions with written logbook notes and a still camera, performed analytical data validation, and assisted U.S. EPA with pollution reports. If you have any questions or comments regarding this letter report, please contact me at (312) 220-7000.

Sincerely,

Scott Splittgerber
TN&A START Project Manager

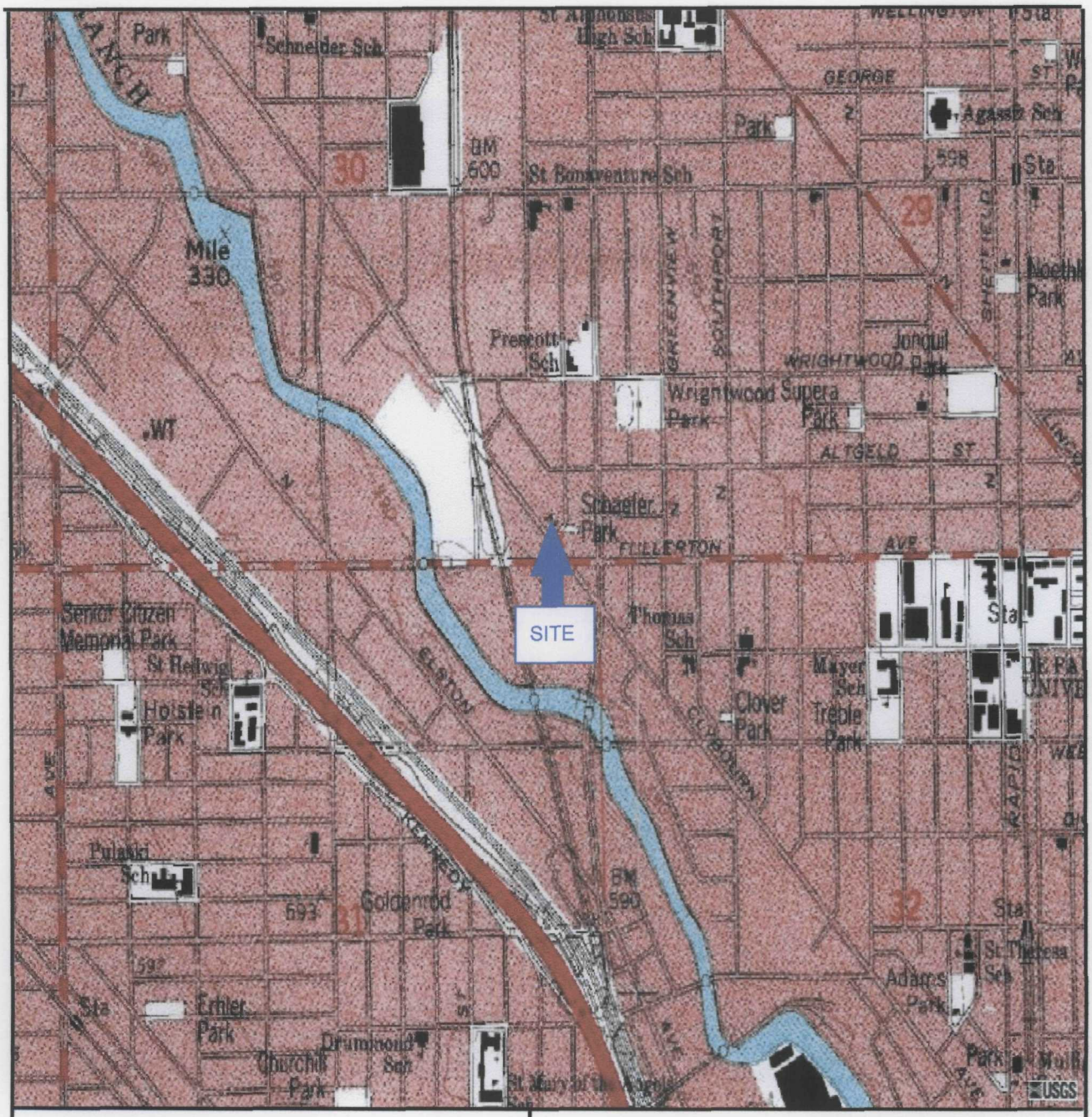
Enclosures (2)

cc: Lorraine Kosik, START Project Officer
Thomas Kouris, START Program Manager
Raghu Nagam, TN&A START Program Manager

ENCLOSURE 1

FIGURES

(Three sheets)



0 .25Mi

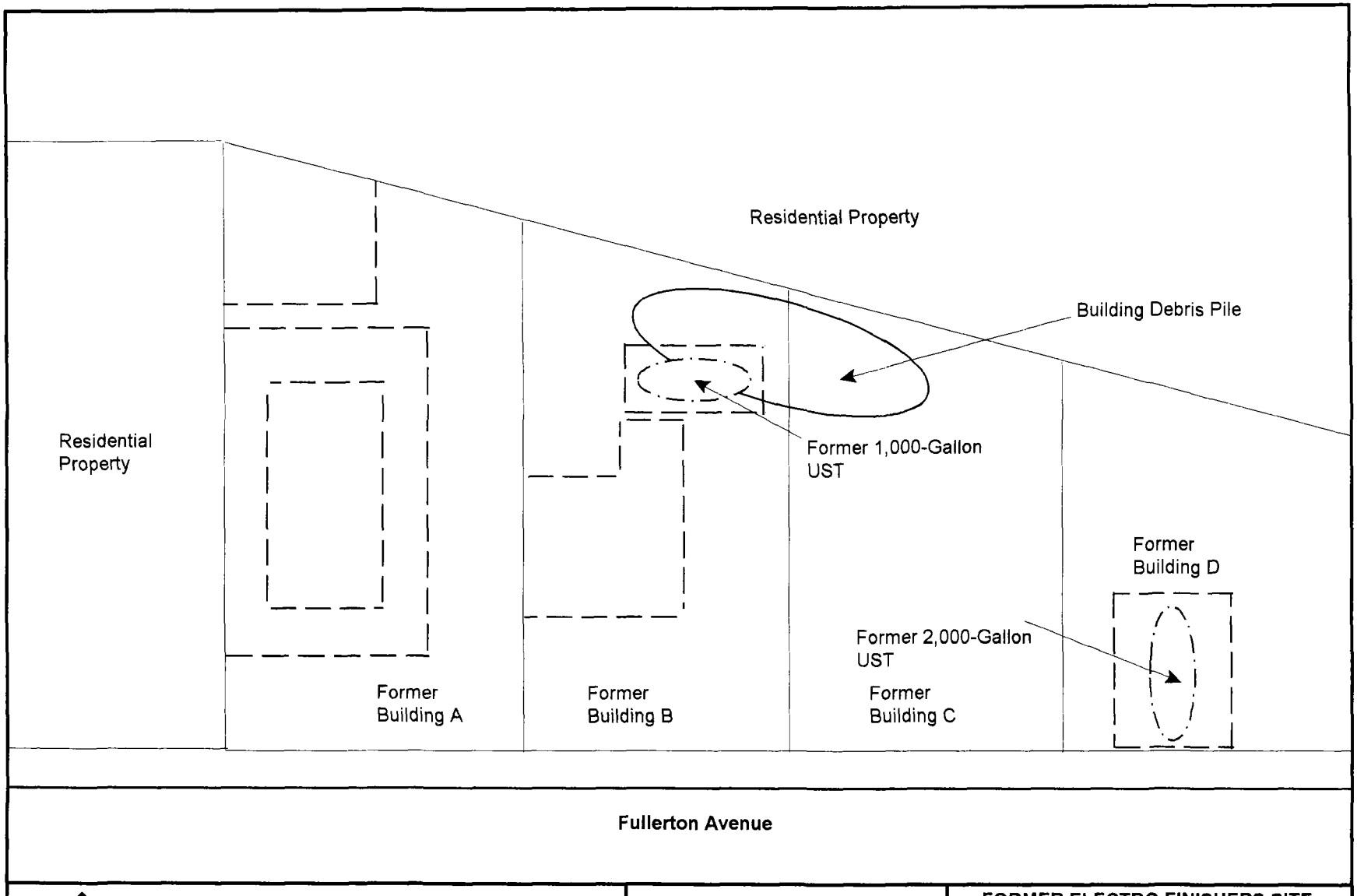
NORTH

FORMER ELECTRO FINISHERS SITE
CHICAGO, ILLINOIS
TDD No. S05-0206-017

FIGURE 1
SITE LOCATION MAP

T N & Associates, Inc.
Engineering and Science

Source: Modified from TerraServer, 1997 USGS Topographic Map of Chicago, Illinois,



NORTH

= Excavation Area

= Former UST

Map not drawn to scale

FIGURE 2

SITE FEATURE MAP

FORMER ELECTRO FINISHERS SITE
CHICAGO, ILINOIS

TDD No. S05-0206-017

T N & Associates, Inc.
Engineering and Science

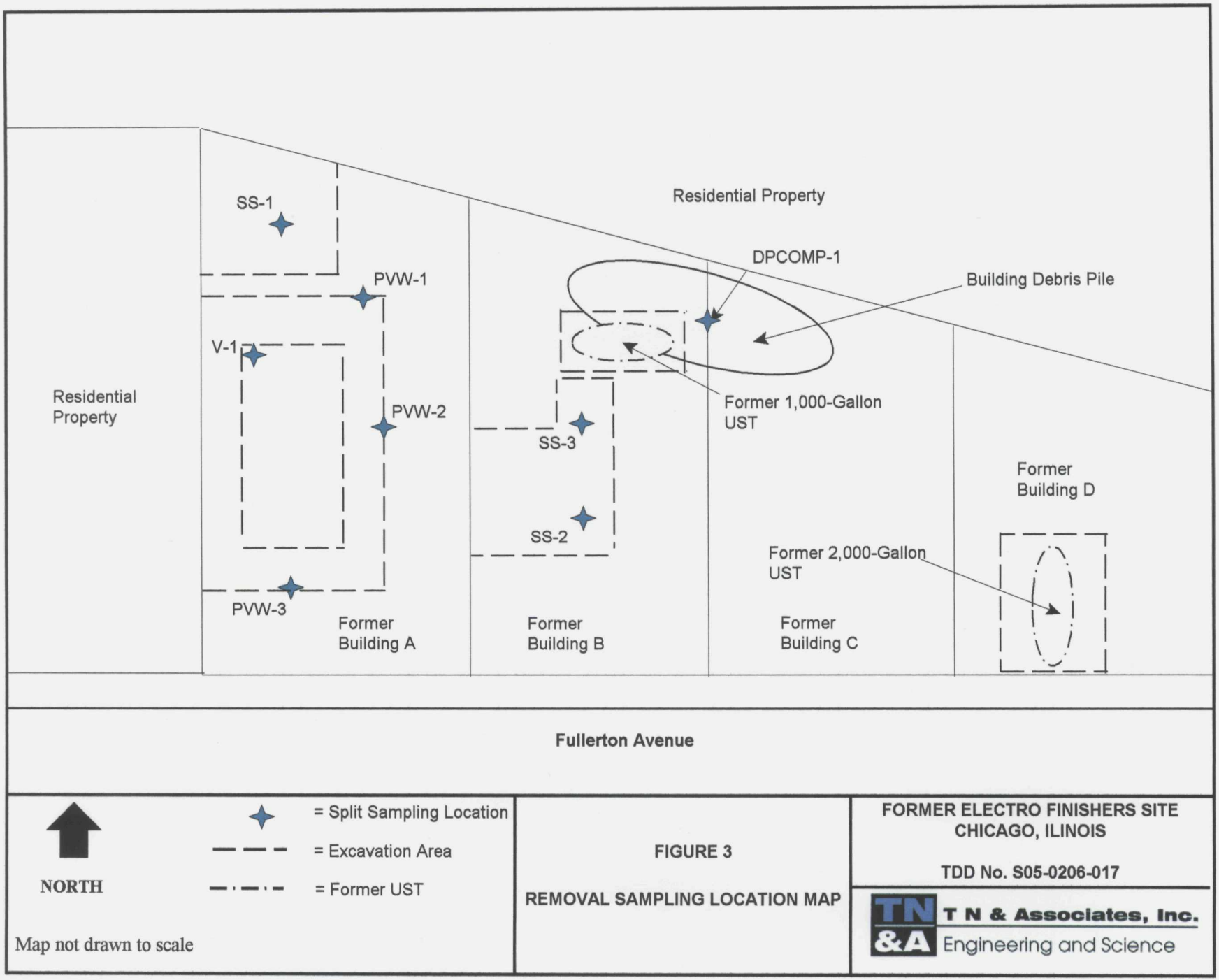


FIGURE 3

REMOVAL SAMPLING LOCATION MAP

FORMER ELECTRO FINISHERS SITE
CHICAGO, ILINOIS

TDD No. S05-0206-017

T N & Associates, Inc.
Engineering and Science

ENCLOSURE 2

VALIDATED ANALYTICAL DATA PACKAGE

(23 sheets)

Tetra Tech EM Inc.

200 E. Randolph Drive, Suite 4700 ◆ Chicago, IL 60601 ◆ (312) 856-8700 ◆ FAX (312) 938-0118

MEMORANDUM

Date: September 15, 2003

To: Raghu Nagam, Project Manager, TN & Associates, Inc.
Superfund Technical Assessment and Response Team (START) for Region 5

From: Harry Ellis, Chemist, Tetra Tech START for Region 5

Subject: Data Validation for
Former Electro Finishers Site
Chicago, Illinois
Analytical Technical Direction Document (TDD) No. S05-0304-015
Project TDD No. S05-0206-017

Laboratory: Great Lakes Analytical (Great Lakes), Buffalo Grove, Illinois
Work Orders No. B305126, B305185, and B305247
Total Metals Analyses and Toxicity Characteristic Leaching Procedure (TCLP) Metals Analyses of Eight Soil Samples

1.0 INTRODUCTION

The Tetra Tech START for Region 5 validated total metals (chromium and lead) analytical data and TCLP metals (chromium and lead) analytical data for eight soil samples collected during oversight of a removal action conducted by the responsible party on May 6, 8, and 12, 2003, at the Former Electro Finishers site in Chicago, Illinois. The samples were analyzed under the above-referenced work orders by Great Lakes using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Method 6010B for total metals analyses and U.S. EPA SW-846 Methods 1311, 6010B, and 7421 for TCLP metals analyses.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated July 2002. Inorganic data validation consisted of a review of the following QC parameters: holding times, initial and continuing calibrations, blank results, inductively coupled plasma (ICP) interference check sample results, laboratory control sample

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(LCS) results, duplicate sample results, matrix spike/matrix spike duplicate (MS/MSD) results, and sample result quantitation.

Section 2.0 discusses the results of the inorganic data validation, and Section 3.0 presents an overall assessment of the data. The attachment to this memorandum contains Great Lake's summary of analytical results.

2.0 INORGANIC DATA VALIDATION RESULTS

The results of START's inorganic data validation are summarized below in terms of the QC parameters reviewed.

2.1 HOLDING TIMES

The samples were analyzed within the holding time limits of 6 months for metals.

2.2 INITIAL AND CONTINUING CALIBRATIONS

Inspection of the raw data showed that all initial calibration results were above the QC limit minimum of a 0.995 correlation coefficient and that all initial calibration verifications and continuing calibration results were within the QC limits of 90 to 110 percent recovery.

2.3 BLANK RESULTS

Appropriate blanks, such as initial calibration blanks, continuing calibration blanks, and preparation (TCLP extraction fluid) blanks, were run with each analytical batch. No metals were detected at measurable concentrations in the blanks.

2.4 ICP INTERFERENCE CHECK SAMPLE RESULTS

ICP interference check sample analyses were performed as required. Inspection of the raw data showed that all recoveries were within the QC limits of 80 to 120 percent recovery.

2.5 LCS RESULTS

An LCS was analyzed with each group of samples. The LCS results were within the various laboratory-established QC limits.

2.6 DUPLICATE SAMPLE RESULTS

No method duplicate samples were analyzed, but the precision results for the MS/MSD analyses were within the various laboratory-established QC limits. No qualifications are warranted for this data gap.

2.7 MS/MSD RESULTS

An MS and an MSD sample were analyzed for total metals, and another MS/MSD pair was analyzed for TCLP metals in each work order. Most sets of MS/MSD samples were from another site. All results were within the various laboratory-established QC limits.

2.8 SAMPLE RESULT QUANTITATION

The sample result quantitations were checked for total and TCLP lead in sample V-1. Results were calculated correctly. The laboratory analyzed many samples for chromium at an 11-fold dilution to keep analytical results within the calibration range and the linear range of the instrument. The chromium result for sample PVW-1, which was analyzed at a 11-fold dilution, was checked and found to be calculated correctly. The dilution factor was figured into the result calculations.

3.0 OVERALL ASSESSMENT OF DATA

Overall, the sample analytical data generated by Great Lakes are acceptable for use as reported.

ATTACHMENT

GREAT LAKES SUMMARY OF SAMPLE ANALYTICAL RESULTS

(Six Sheets)

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: Former Electro Finishers	
200 E. Randolph Suite 4700	Project Number: S05-0206-017	Reported:
Chicago IL, 60601	Project Manager: Lisa Graczyk	09/02/03 09:41

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DPCOMP-1 (B305126-01) Soil Sampled: 05/06/03 11:30 Received: 05/07/03 15:15									
Chromium	**2120**	6.27	mg/kg dry	11	3050268	05/14/03	05/14/03	EPA 6010B	
Lead	**397**	1.14	"	1	"	"	"	"	
V-1 (B305126-02) Soil Sampled: 05/06/03 15:15 Received: 05/07/03 15:15									
Chromium	**2590**	6.73	mg/kg dry	11	3050268	05/14/03	05/14/03	EPA 6010B	
Lead	**358**	1.22	"	1	"	"	"	"	

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jim Knapp For Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: Former Electro Finishers	
200 E. Randolph Suite 4700	Project Number: S05-0206-017	Reported:
Chicago IL, 60601	Project Manager: Lisa Graczyk	09/02/03 09:41

TCLP Metals by EPA 1311/6000/7000 Series Methods

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DPCOMP-1 (B305126-01) Soil Sampled: 05/06/03 11:30 Received: 05/07/03 15:15									
Chromium	**7.50**	0.0100	mg/l	1	3050277	05/14/03	05/14/03	EPA 6010B	
Lead	**0.0146**	0.00500	"	"	3050238	05/13/03	05/13/03	EPA 7421	
V-1 (B305126-02) Soil Sampled: 05/06/03 15:15 Received: 05/07/03 15:15									
Chromium	**0.466**	0.0100	mg/l	1	3050277	05/14/03	05/14/03	EPA 6010B	
Lead	**0.0152**	0.00500	"	"	3050238	05/13/03	05/13/03	EPA 7421	

Great Lakes Analytical--Buffalo Grove

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Jim Knapp For Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: Former Electro Finishers	
200 E. Randolph Suite 4700	Project Number: N/A	Reported:
Chicago IL, 60601	Project Manager: Lisa Graczyk	09/02/03 09:41

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
PVW-1 (B305185-01) Soil Sampled: 05/08/03 10:45 Received: 05/09/03 14:50									
Chromium	1660	7.30	mg/kg dry	11	3050345	05/16/03	05/16/03	EPA 6010B	
Lead	1340	14.6	"	"	"	"	"	"	
PVW-2 (B305185-02) Soil Sampled: 05/08/03 13:45 Received: 05/09/03 14:50									
Chromium	222	0.607	mg/kg dry	1	3050345	05/16/03	05/16/03	EPA 6010B	
Lead	246	1.21	"	"	"	"	"	"	
PVW-3 (B305185-03) Soil Sampled: 05/08/03 11:55 Received: 05/09/03 14:50									
Chromium	1300	6.44	mg/kg dry	11	3050345	05/16/03	05/16/03	EPA 6010B	
Lead	343	1.17	"	1	"	"	"	"	

Great Lakes Analytical--Buffalo Grove

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Jim Knapp For Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

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(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL	Project: Former Electro Finishers	
200 E. Randolph Suite 4700	Project Number: N/A	Reported:
Chicago IL, 60601	Project Manager: Lisa Graczyk	09/02/03 09:41

TCLP Metals by EPA 1311/6000/7000 Series Methods

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
PVW-1 (B305185-01) Soil Sampled: 05/08/03 10:45 Received: 05/09/03 14:50									
Chromium	**1.26**	0.0100	mg/l	1	3050320	05/15/03	05/19/03	EPA 6010B	
Lead	**0.0456**	0.00500	"	"	"	"	05/16/03	EPA 7421	
PVW-2 (B305185-02) Soil Sampled: 05/08/03 13:45 Received: 05/09/03 14:50									
Chromium	ND	0.0100	mg/l	1	3050320	05/15/03	05/19/03	EPA 6010B	
Lead	ND	0.00500	"	"	"	"	05/16/03	EPA 7421	
PVW-3 (B305185-03) Soil Sampled: 05/08/03 11:55 Received: 05/09/03 14:50									
Chromium	**3.90**	0.0100	mg/l	1	3050320	05/15/03	05/19/03	EPA 6010B	
Lead	**0.0682**	0.00500	"	"	"	"	05/16/03	EPA 7421	

Great Lakes Analytical--Buffalo Grove

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Jim Knapp For Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

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Tetra Tech EMI - IL	Project: Former Electro Finishers	
200 E Randolph Suite 4700	Project Number: S05-0206-017	Reported:
Chicago IL, 60601	Project Manager: Lisa Graczyk	09/02/03 09:41

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (B305247-01) Soil Sampled: 05/12/03 09:20 Received: 05/13/03 12:00									
Chromium	**95.6**	0.593	mg/kg dry	1	3050388	05/20/03	05/20/03	EPA 6010B	
Lead	**55.0**	1.19	"	"	"	"	"	"	
SS-2 (B305247-02) Soil Sampled: 05/12/03 13:25 Received: 05/13/03 12:00									
Chromium	**6820**	7.12	mg/kg dry	11	3050388	05/20/03	05/20/03	EPA 6010B	
Lead	**3580**	14.2	"	"	"	"	"	"	
SS-3 (B305247-03) Soil Sampled: 05/12/03 13:45 Received: 05/13/03 12:00									
Chromium	**7300**	7.74	mg/kg dry	11	3050388	05/20/03	05/20/03	EPA 6010B	
Lead	**57.6**	1.41	"	1	"	"	"	"	

Great Lakes Analytical--Buffalo Grove

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Jim Krapp For Andy Johnson, Project Manager

GREAT LAKES ANALYTICAL

1380 Busch Parkway
Buffalo Grove, Illinois 60089

Email: info@glalabs.com
(847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL 200 E Randolph Suite 4700 Chicago IL, 60601	Project: Former Electro Finishers Project Number: S05-0206-017 Project Manager: Lisa Graczyk	Reported: 09/02/03 09:41

TCLP Metals by EPA 1311/6000/7000 Series Methods

Great Lakes Analytical--Buffalo Grove

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SS-1 (B305247-01) Soil Sampled: 05/12/03 09:20 Received: 05/13/03 12:00									
Chromium	**0.266**	0.0100	mg/l	1	3050405	05/20/03	05/20/03	EPA 6010B	
Lead	**0.0243**	0.00500	"	"	"	"	05/20/03	EPA 7421	
SS-2 (B305247-02) Soil Sampled: 05/12/03 13:25 Received: 05/13/03 12:00									
Chromium	**12.8**	0.0100	mg/l	1	3050405	05/20/03	05/20/03	EPA 6010B	
Lead	**0.00845**	0.00500	"	"	"	"	05/20/03	EPA 7421	
SS-3 (B305247-03) Soil Sampled: 05/12/03 13:45 Received: 05/13/03 12:00									
Chromium	**3.97**	0.0100	mg/l	1	3050405	05/20/03	05/20/03	EPA 6010B	
Lead	ND	0.00500	"	"	"	"	05/20/03	EPA 7421	

Great Lakes Analytical--Buffalo Grove

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jim Knapp For Andy Johnson, Project Manager

Tetra Tech EM Inc.

26600 Telegraph Road, Suite 400 ◆ Southfield, MI 48034 ◆ (248) 350-9694 ◆ Fax (248) 223-9911

MEMORANDUM

Date: September 26, 2002

To: Raghu Nagam, Project Manager, TN and Associates
Superfund Technical Assessment and Response Team (START) for Region 5

From: Anne Troup, Chemist, Tetra Tech START for Region 5

Subject: Data Validation for
Former Electro Finishers Site
Chicago, Illinois
Analytical Technical Direction Document (TDD) No. S05-0206-020
Project TDD No. S05-0206-017

Laboratory: Test America Inc. (TAI), Nashville, Tennessee
Work Order No. 289923
Resource Conservation and Recovery Act (RCRA) Metals and Hexavalent Chromium Analyses of Four Soil and Three Groundwater samples

1.0 INTRODUCTION

The Tetra Tech START for Region 5 validated RCRA metals and hexavalent chromium analytical data for four soil and three groundwater samples collected on June 20, 2002, during a potentially responsible party (PRP) removal action at the Former Electro Finishers site in Chicago, Illinois. The samples were analyzed under the above-referenced work order by TAI using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Method 7471A and 7470 for mercury analysis, Method 7196A for hexavalent chromium analysis, and Method 6010B for analysis for all other metals. All samples were analyzed for RCRA metals; only the soil samples were analyzed for hexavalent chromium.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated February 1994. Inorganic data validation

contains recycled fiber and is recyclable

consisted of a review of the following QC parameters: holding times, initial and continuing calibrations, blank results, inductively coupled plasma (ICP) interference check sample results, laboratory control sample (LCS) results, duplicate sample results, matrix spike/matrix spike duplicate (MS/MSD) results, and sample result quantitation.

Section 2.0 discusses the results of the inorganic data validation, and Section 3.0 presents an overall assessment of the data. The attachment to this memorandum contains TAI's summary of analytical results as well as START's handwritten data qualifications where warranted.

2.0 INORGANIC DATA VALIDATION RESULTS

The results of START's inorganic data validation are summarized below in terms of the QC parameters reviewed. The data qualifiers below were applied to the sample analytical results where warranted (see the attachment):

- J - The analyte was detected. The reported numerical value is considered estimated for QC reasons.
- U - The analyte was not detected. The reported numerical value is the sample quantitation limit.

2.1 HOLDING TIMES

The samples were analyzed within the holding time limits of 28 days for mercury, 1 month to extraction and 4 days from extraction to analysis for hexavalent chromium, and 6 months for all other metals.

2.2 INITIAL AND CONTINUING CALIBRATIONS

During the initial and continuing calibrations, recoveries were within the QC limits of 80 to 120 percent for mercury and 90 to 110 percent for all other metals (including hexavalent chromium).

2.3 BLANK RESULTS

Method blanks and continuing calibration blanks were run with the analytical batch. Low levels of chromium and silver were detected in the method blanks. The samples contained much more chromium than the blanks, but samples B-6 and A-1 contained silver at concentrations similar to the silver concentrations in the method blank. Silver results for these two samples are therefore, flagged "U" to indicate that they may be laboratory artifacts.

2.4 ICP INTERFERENCE CHECK SAMPLE RESULTS

ICP interference check sample analyses were performed as required. All results were within the QC limits of 80 to 120 percent recovery.

2.5 LCS RESULTS

An LCS was analyzed with the analytical batch. All LCS results were within the QC limits specified by the laboratory.

2.6 DUPLICATE SAMPLE RESULTS

A duplicate sample was analyzed with each analytical batch. The duplicate sample aqueous analysis was from a different site; therefore, the results were not applicable to the Former Electro Finishers site. No qualifications were applied for this data gap. The soil sample duplicate analysis was performed on sample A-1, and all results were acceptable.

2.7 MS/MSD RESULTS

MS and MSD results for the metals analyses were within QC limits established by the laboratory for the aqueous samples. For the soil samples, the MS/MSD recoveries for chromium were below the QC limit

(69 percent versus the QC limit of 75 to 125 percent). The recoveries for lead in the soil analysis were not reported because of the high lead concentration in the parent sample, which exceeded the spiking solution level by much more than four times therefore, no qualifications are warranted. All positive results for chromium were therefore flagged "J" as estimated in soil samples.

2.8 SAMPLE RESULT QUANTITATION

Analytical results were randomly spot-checked against raw data and extraction logs for the inorganic analyses. The results checked were calculated correctly.

3.0 OVERALL ASSESSMENT OF DATA

The overall quality of the data generated by TAI is acceptable, and the data and can be used for any purpose as qualified.

ATTACHMENT

SUMMARY OF TAI'S ANALYTICAL RESULTS

(Seven Sheets)

TestAmerica
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Sample Identification

MW-4

Matrix: Water
pH:
Units: ug/l
Dilution Factor: 100.
Analysis Method: 6010B
Delivery Group: 289923
Instrument:
Mercury DilFact: 1.
Mercury Method: 7470A

Lab Sample ID: 02-A101928
Date Sampled:: 6/20/02
Date Received: 6/21/02
Analysis Date: 7/ 1/02
Analysis Time: 10:30
Sample QC Group: 4524

Mercury Date: 7/ 2/02
Mercury Time: 13:20
Mercury QC Group: 4528

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7440-38-2	Arsenic	500.	U
7440-39-3	Barium	1000	U
7440-43-9	Cadmium	100.	U
7440-47-3	Chromium	472000	
7439-92-1	Lead	600.	
7439-97-6	Mercury	2.28	
7782-49-2	Selenium	500.	U
7440-22-4	Silver	500.	U

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Sample Identification

MW-4

Matrix: Water
pH:
Units: ug/l
Dilution Factor: 100.
Analysis Method: 6010B
Delivery Group: 289923
Instrument:
Mercury DilFact: 1.
Mercury Method: SW7470

Lab Sample ID: 02-A101929
Date Sampled:: 6/20/02
Date Received: 6/21/02
Analysis Date: 7/ 1/02
Analysis Time: 8:34
Sample QC Group: 1288

Mercury Date: 7/ 2/02
Mercury Time: 13:20
Mercury QC Group: 4528

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7440-38-2	Arsenic, Dissolved	500.	U
7440-39-3	Barium, Dissolved	1000	U
7440-43-9	Cadmium, Dissolved	500.	U
7440-47-3	Chromium, Dissolved	450000	
7439-92-1	Lead, Dissolved	300.	U
7439-97-6	Mercury, Dissolved	0.200	U
7782-49-2	Selenium, Dissolved	500.	U
7440-22-4	Silver, Dissolved	1000	U

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Sample Identification

S-1

Matrix: Water
pH:
Units: ug/l
Dilution Factor: 1.
Analysis Method: 6010B
Delivery Group: 289923
Instrument:
Mercury DilFact: 1.
Mercury Method: 7470A

Lab Sample ID: 02-A101930
Date Sampled:: 6/20/02
Date Received: 6/21/02
Analysis Date: 7/ 1/02
Analysis Time: 10:30
Sample QC Group: 4524

Mercury Date: 7/ 2/02
Mercury Time: 13:20
Mercury QC Group: 4528

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7440-38-2	Arsenic	130.	....
7440-39-3	Barium	3500	....
7440-43-9	Cadmium	31.0	....
7440-47-3	Chromium	798.	....
7439-92-1	Lead	5700	....
7439-97-6	Mercury	2.24	....
7782-49-2	Selenium	22.0	....
7440-22-4	Silver	11.0	....

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Sample Identification

B-6

Matrix: Soil
% Dry Weight: 91.7
Units: mg/kg dry weight
Dilution Factor: 1.
Analysis Method: SW6010B
Delivery Group: 289923
Instrument:
Mercury DilFact: 1.
Mercury Method: SW7471
Mercury Instrument:

Lab Sample ID: 02-A101931
Date Sampled: 6/20/02
Date Received: 6/21/02
Analysis Date: 7/ 1/02
Analysis Time: 12:46
Sample QC Group: 342

Mercury Date: 7/ 1/02
Mercury Time: 14:00
Mercury QC Group: 347

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7440-38-2	Arsenic	3.4	
7440-39-3	Barium	26.6	
7440-43-9	Cadmium	1.06	U
7440-47-3	Chromium	84.4 J	
7439-92-1	Lead	19.7	
7439-97-6	Mercury	0.109	U
7782-49-2	Selenium	1.91	
7440-22-4	Silver	1.7 U	
7440-47-3	Chromium, hexavalent	3.63	

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Sample Identification

B-7

Matrix: Soil
% Dry Weight: 83.3
Units: mg/kg dry weight
Dilution Factor: 1.
Analysis Method: SW6010B
Delivery Group: 289923
Instrument:
Mercury DilFact: 1.
Mercury Method: SW7471
Mercury Instrument:

Lab Sample ID: 02-A101932
Date Sampled: 6/20/02
Date Received: 6/21/02
Analysis Date: 7/ 1/02
Analysis Time: 12:46
Sample QC Group: 342

Mercury Date: 7/ 1/02
Mercury Time: 14:00
Mercury QC Group: 347

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION		FLAG
7440-38-2	Arsenic	8.1		
7440-39-3	Barium	43.6		
7440-43-9	Cadmium	1.19		U
7440-47-3	Chromium	21.5	J	
7439-92-1	Lead	127		
7439-97-6	Mercury	0.12		U
7782-49-2	Selenium	3.1		
7440-22-4	Silver	1.19		U
7440-47-3	Chromium, hexavalent	2.4		U

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INCORPORATED

Sample Identification

A-1

Matrix: Soil
% Dry Weight: 85.8
Units: mg/kg dry weight
Dilution Factor: 1.
Analysis Method: SW6010B
Delivery Group: 289923
Instrument:
Mercury DilFact: 1.
Mercury Method: SW7471
Mercury Instrument:

Lab Sample ID: 02-A101933
Date Sampled: 6/20/02
Date Received: 6/21/02
Analysis Date: 7/ 1/02
Analysis Time: 12:46
Sample QC Group: 342

Mercury Date: 7/ 1/02
Mercury Time: 14:00
Mercury QC Group: 347

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7440-38-2	Arsenic	9.3	
7440-39-3	Barium	383	
7440-43-9	Cadmium	2.33	
7440-47-3	Chromium	124 J	
7439-92-1	Lead	1360	
7439-97-6	Mercury	0.361	
7782-49-2	Selenium	3.02	
7440-22-4	Silver	1.4 U	
7440-47-3	Chromium, hexavalent	2.33	U

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TestAmerica
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Sample Identification

A-2

Matrix: Soil
% Dry Weight: 78.5
Units: mg/kg dry weight
Dilution Factor: 1.
Analysis Method: SW6010B
Delivery Group: 289923
Instrument:
Mercury DilFact: 1.
Mercury Method: SW7471
Mercury Instrument:

Lab Sample ID: 02-A101934
Date Sampled: 6/20/02
Date Received: 6/21/02
Analysis Date: 7/ 1/02
Analysis Time: 12:46
Sample QC Group: 342

Mercury Date: 7/ 1/02
Mercury Time: 14:00
Mercury QC Group: 347

FORM I

CAS NUMBER	ANALYTE	CONCENTRATION	FLAG
7440-38-2	Arsenic	9.36	
7440-39-3	Barium	251	
7440-43-9	Cadmium	1.24	U
7440-47-3	Chromium	117 J	
7439-92-1	Lead	364	
7439-97-6	Mercury	0.178	
7782-49-2	Selenium	3.2	
7440-22-4	Silver	8.87	
7440-47-3	Chromium, hexavalent	2.55	U

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