2021 Hazardous Waste Scanning Project

File Form Naming Convention.

(*File_Type*).(*Program*).(*Site_Number*).(*YYYY-MM-DD*).(*File_Name*).pdf

Note 1: Each category is separated by a period "."
Note 2: Each word within category is separated by an underscore "_"

Specific File Naming Convention Label:

Report.HW.932032.1998-04-01.Final_Report.pdf

REAC

FINAL REPORT
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

U.S. EPA Work Assignment No.: 2-194
Weston Work Order No.: 03347-142-001-2194-01
U.S. EPA Contract No.: 68-C4-0022

OFFICE OF EMERGENCY AND REMEDIAL RESPONSE

7P-1159

FINAL REPORT
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

U.S. EPA Work Assignment No.: 2-194
Weston Work Order No.: 03347-142-001-2194-01
U.S. EPA Contract No.: 68-C4-0022

Prepared by:
Roy F. Weston, Inc.

Donald T. Bussey
Task Leader

16 April 1998
Date

Edward F. Gilardi
Program Manager

4/16/98
Date

Prepared for:
U.S. EPA/ERTC

Craig Beasley
Work Assignment Manager

194\del\fr\9804\fr2194

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF PLATES

EXECUTIVE SUMMARY

At the direction of the United States Environmental Protection Agency (U.S. EPA)/Environmental Response Team Center (ERTC) Work Assignment Manager (WAM), members of the Response Engineering Analytical Contract (REAC) traveled to the Guterl Steel Site in Lockport, New York to conduct in-situ surficial, and ex-situ (soil samples collected, dried, sieved, and placed in XRF cups) subsurface soil analyses for target metals, using X-Ray Fluorescence (XRF). The samples were analyzed to evaluate the horizontal and vertical distribution of cadmium and lead (primary indicators), and arsenic, nickel, and zinc (secondary indicators), on-site. Additionally, shallow subsurface soil samples analyzed ex-situ by XRF analysis were submitted for toxicity characteristic leaching procedure (TCLP) metals analysis. Samples collected in oil-stained areas and in the vicinity of an electric transformer area were submitted for polychlorinated biphenyls (PCBs) analysis.

Areas of surficial concentrations of lead and cadmium in excess of stipulated action levels of 400 parts per million (ppm) for lead and 200 ppm for cadmium have been detected by in-situ XRF methodology inside, and in the vicinity of, Building 2. Within Building 2 lead contamination was detected in one large continuous area covering approximately 50 percent of the building's floor, from the northern end to near the southern end of the building. Smaller areas of lead concentrations above the action level were detected in the building's northeast and southeast corners, in an area located between Building 2 and Building 3, as well as two areas near the railroad tracks, outside and east of Building 2. Cadmium concentrations in excess of the stipulated action level were primarily limited to a continuous area extending from between the northern portions of Buildings 2 and 3, to the north of Building 3 (west of the northern portion of Building 2), including much of the inside of the small building located north of Building 3. Additionally, a small area is located near the fence line just north of Building 3, proximal to the larger area. Cadmium concentrations above the action level are also present in three small areas in the northeast, northern, and southern portions of Building 2.

Areas of surficial concentrations of lead and cadmium in excess of stipulated action levels, detected by in-situ XRF methodology, have been identified in the Eastern Portion, Southern Extension, and Open Field areas of the Building 3 Area. In the Eastern Portion of the Building 3 Area surficial lead concentrations above the action level cover approximately 40 percent of the building floor, primarily in the southern half of the Eastern Portion. Additionally, analytical results from four small, discrete areas scattered throughout the Eastern Portion of the Building 3 Area, covering approximately 15 percent of the floor, indicate elevated concentrations of cadmium above the action level. In the Southern Extension of the Building 3 Area approximately 75 percent of that area's floor contains lead concentrations above the action level. Cadmium concentrations above the action level occur in four small areas, and one relatively large area, discreetly scattered throughout the Southern Extension. Within the Open Field outside of Building 3 a continuous area of lead, detected above the action level, covers approximately 30 percent of the Open Field. Within this area of elevated lead concentrations are two small areas of elevated cadmium concentrations.

Lead and cadmium concentrations detected in ex-situ samples collected at the ground surface (0-0.5-inch and 0-2-inch depth intervals) in the Building 2 Area were relatively similar to concentrations detected in-situ, although these surficial ex-situ concentrations were detected at both lower and greater concentrations than in-situ results. With only three exceptions (GS2-A6 and GS2-S1,where the cadmium concentration increased slightly, and at GS2-B5, where the cadmium concentration remained constant), analytical data for the deeper shallow (3-4-inch, 5-6-inch, and 10-12-inch depth intervals) ex-situ samples indicated general decreasing concentrations of lead and cadmium vertically near surface. The only ex-situ samples from these intervals exhibiting analytical concentrations of lead and cadmium above the stipulated site action levels were at GS2-H9 (lead at 4,100 ppm and cadmium at 290J (J qualifies analytical results as below method detection limit and is estimated) ppm), GS2-B5 (cadmium at 610J ppm), GS2-A6 (lead at 580 ppm and cadmium at 740 ppm), GS2-S1 (cadmium at 230J ppm), and GS2H32 (lead at 530 ppm). Analytical data for the deeper subsurface ex-situ samples (collected utilizing direct-push sampling methodology, at depths greater than 12-inches) indicated that lead and cadmium concentrations (below the stipulated site action levels) continue to decrease with depth, except for GS2-H18 where cadmium concentrations remained above the site action limits vertically to soil sampling refusal.

Lead and cadmium concentrations detected in ex-situ samples collected at the ground surface (0-0.5-inch and 0-2-inch depth intervals) in the Building 3 Area were similar to concentrations detected in-situ, although at greater extremes. Analytical data for the deeper shallow (3-4-inch, 4-5-inch, and 5-6-inch depth intervals) ex-situ samples indicated concentrations of lead and cadmium generally decreasing with depth. Analytical data for the deeper subsurface ex-situ samples (collected via

direct-push sampling methodology, greater than 9inches in depth) indicated that lead and cadmium concentrations (below the stipulated site action levels) continued to decrease with depth. Only three deep subsurface samples revealed detectable levels of lead and/or cadmium (GS3-D10 15-21inches, GS3-E6 18-24-inches, and GS3N24 9-15-inches), two of which exceeded site-stipulated action levels for cadmium concentrations: GS3-D10 15-21-inches (240J ppm) and GS3-N24 9-15-inches (460J ppm). However, neither lead nor cadmium were detected in deeper samples from these locations.

Of the 25 samples collected from the Building 2 Area for TCLP metals analysis, only one contained a detectable concentration for one metal above regulatory leachability limits. This sample (GS2-H9 0-0.5-inches, at a concentration of 268 ppm for lead, above the regulatory limit of 5 ppm for lead) was collected inside Building 2 in an area identified as having elevated lead concentrations by in-situ surficial XRF analysis . Of the 33 samples collected from the Building 3 Area for TCLP metals analysis, five samples, GS3-E7 (0-2-inches and 5-6-inches), GS3-D10 (0-2-inches and 5-6-inches), and GS3-C10 (0-2-inches) revealed detectable concentrations of lead (17 ppm, 5.18 ppm, 16.5 ppm, 12.7 ppm, and 8.51 ppm, respectively) above the regulatory leachability limit of 5 ppm. These samples were collected outside and west of Building 3, in the Open Field, in an area identified as a hot spot by in-situ XRF analysis .

PCBs (specifically, Aroclor 1260) were detected in each of the four samples collected near the transformer area (in the Open Field of the Building 3 Area), ranging in concentrations from 1.8 ppm to 64 ppm. PCBs were not detected in any of the seven samples collected inside Building 3.

1.0 INTRODUCTION

At the direction of the U.S. EPA/ERTC WAM, Craig Beasley, REAC personnel traveled to the Guterl Steel Site in Lockport, New York to conduct in-situ surficial, and ex-situ (prepared XRF cup) subsurface soil analyses for target metals using XRF. The samples were analyzed to evaluate the horizontal and vertical distribution of cadmium and lead (primary indicators), and arsenic, nickel, and zinc (secondary indicators), on-site. Additionally, shallow subsurface soil samples analyzed ex-situ by XRF analysis were submitted for TCLP metals analysis. Samples were collected from oil-stained areas and in the vicinity of an electric transformer area for PCB analysis.

Figures 1 and 2 illustrate the distribution of in-situ sampling locations in the Building 1and Building 2 Areas. These sampling location identifiers are also utilized as a basis of identification for all other sampling conducted as part of this investigation. The Building 2 Area includes: Building 2, the area between Building 2 and Building 3, the area within the site fencing east and north of Building 2, and the area within the site fencing inclusive of the small building west of the northern end of Building 2 and north of Building 3. The Building 3 Area includes the Eastern Portion and Southern Extension of Building 3, and the Open Field containing the Transformer Area west of Building 3.

2.0 METHODOLOGY

2.1 In-Situ XRF Sampling

Two trips were made to the site (14-17 October 1997 and 20-24 October 1997) during which in-situ XRF analytical methodology was employed on-site to evaluate the horizontal extent and magnitude of target elements present at surface soil, concrete, and brick sample locations. XRF analyses were conducted in accordance with ERTC/REAC Standard Operating Procedure (SOP) #1713, *Spectrace 9000 Field Portable X-Ray Fluorescence*. XRF was used to analyze 290 in-situ samples plus 9 duplicates. Figures 1 and 2 illustrate the sampling locations for the Building 2 and Building 3 Areas, respectfully. Appendix A includes an expanded discussion of in-situ XRF sampling and analytical methods employed.

2.2 Ex-Situ XRF Sampling

During the 20-24 October 1997 site visit 58 shallow subsurface samples (plus 6 duplicates) were collected for in-field analysis subsequent to sample preparation (sieving and drying). These samples were collected in accordance with ERTC/REAC SOP #2012, *Soil Sampling*. The ex-situ samples were analyzed to evaluate the extent and magnitude of target elements present both vertically and horizontally within the site's shallow subsurface soils. Samples were analyzed according to ERTC/REAC SOP # 1713, *Spectrace 9000 Field Portable X-Ray Fluorescence*.

Deeper subsurface soil samples were collected during a follow-up site visit (12-14 November 1997) utilizing direct-push soil collection methodology for ex-situ analysis at the REAC facility in Edison, New Jersey. Thirty-three deeper samples were collected for off-site ex-situ analysis (plus 3 duplicates). For most sample locations within the site buildings, concrete floors had to be broken through utilizing a pneumatic-driven hammer prior to sample acquisition. Samples were collected in accordance with ERTC/REAC SOP #2012, *Soil Sampling*.

Horizontal locations selected for subsurface sample acquisition and ex-situ analyses were, in general, at locations of elevated lead and/or cadmium in-situ concentrations. Shallow subsurface samples were generally collected from a near-surface interval, and a deeper interval not exceeding six inches in depth. Deeper subsurface samples obtained utilizing direct-push soil collection methodology generally included two intervals: a deep interval at direct-push refusal (assumed to be bedrock), and an intermediate interval approximately midway between the deeper interval and a depth of six inches below ground surface (bgs).

Appendix A includes an expanded discussion of ex-situ (prepared cup) XRF sample preparation and the analytical methods employed.

2.3 Metals Confirmation Sampling

Thirty eight samples (approximately ten percent of the total 381 XRF samples) were selected from the set of subsurface samples (as in-situ samples are not transportable) for confirmation analysis (at the REAC Laboratory in Edison, New Jersey), for the presence and concentration of primary and secondary indicators, using inductively coupled plasma (ICP) methodology.

2.4 TCLP Metals Sampling

A portion of each of the 58 shallow subsurface soil samples analyzed on-site by ex-situ XRF methodology during the 20-24 October 1997 site visit were submitted for TCLP metals analysis to assess the leaching potential for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Horizontal locations selected for TCLP sample acquisition were generally in areas of elevated lead and/or cadmium concentrations as detected by in-situ XRF.

2.5 PCB Sampling

Eleven samples were collected on 21 October 1997 and submitted for PCB analysis. Seven of these samples were collected within the southern portion of Building 3, at locations of obvious oil staining. The remaining four samples were collected near the transformer area west of Building 3.

3.0 RESULTS

3.1 Building 2 Area

3.1.1 In-Situ XRF Analytical Results

In-situ surficial XRF analyses were completed within the Building 2 Area to assess the horizontal distribution of primary and secondary indicators at the surface. In-situ analyses were completed during the 14-17 October 1997 and 20-24 October 1997 site visits.

Appendix A presents a summary of detectable concentrations of primary indicators (lead and cadmium) and secondary indicators (arsenic, nickel, and zinc). All Building 2 Area data identifiers begin with the prefix GS2. Data are reported in ppm. Also presented in Appendix A are results of QA/QC samples analyzed (duplicate samples), as well as a discussion of QA/QC results.

Figures 3 and 4 illustrate the data distribution of the primary indicators within the Building 2 Area. Figures 5 and 6 present concentration contours of the in-situ lead and cadmium data, respectively. Figure 7 combines the concentration contours of both lead and cadmium concentration data. For those data points where duplicate samples were analyzed, the greater of the reported concentrations was utilized in map construction.

Areas of surficial concentrations of lead and cadmium n excess of stipulated action levels (400 ppm for lead and 200 ppm for cadmium) have been detected by in-situ XRF methodology inside Building 2, and outside of the building within the Building 2 Area (Figures 5 through 7).

Within Building 2, lead concentrations above the stipulated action level are distributed in one large continuous area covering approximately 50 percent of the building's floor, from the northern end to near the southern end of the building (Figure 5). Small areas of lead concentrations above the action level are located in the building's northeast and southeast corners, in an area located between Building 2 and Building 3, and in two areas located near the railroad tracks outside and east of Building 2 (Figure 5).

Cadmium concentrations in excess of the stipulated action level were mainly limited to a continuous area extending from between the northern portions of Buildings 2 and 3 to the north of Building 3 (west of the northern portion of Building 2), including much of the inside of the small building located north of Building 3 (Figure 6). Additionally, a small area near this larger area is located near the fence line just north of Building 3. Cadmium concentrations above the action level are also present in three small areas in the northeast, northern, and southern portions of Building 2 (Figure 6).

Action levels for the secondary indicator parameters were not stipulated. In-situ XRF data for these secondary indicator parameters are included in Appendix A.

3.1.2 Ex-Situ XRF Analytical Results

Thirty-six subsurface soil samples were collected for either on- or off-site XRF analysis to evaluate the vertical distribution of primary and secondary elements beneath the Building 2 Area. Horizontal locations for the vertical profiling generally coincide with locations of elevated lead and/or cadmium concentrations detected by the in-situ investigation. Appendix A includes XRF analytical data for primary and secondary indicators for the subsurface ex-situ samples. Plate 1 illustrates the distribution of both in-situ and subsurface ex-situ primary indicators within the Building 2 Area.

Lead and cadmium concentrations detected in ex-situ samples collected at the ground surface (0-0.5-inch and 0-2-inch depth intervals) were similar to concentrations detected in-situ, although at greater extremes than in-situ results. With only three exceptions (GS2-A6 and GS2-S1,where the cadmium concentration increased slightly, and at GS2-B5, where the cadmium concentration remained constant), analytical data for the deeper shallow ex-situ samples (3-4-inch, 5-6-inch, and 10-12-inch depth intervals) indicate that concentrations of lead and cadmium decrease with depth. The only ex-situ samples from the 3-4-inch, 5-6-inch, and 10-12-inch depth intervals exhibiting analytical concentrations of lead and cadmium above the stipulated site action levels were at GS2-H9 (lead at 4,100 ppm and cadmium at 290J ppm), GS2-B5 (cadmium at 610J ppm), GS2-A6 (lead at 580 ppm and cadmium at 740 ppm), GS2-S1 (cadmium at 230J ppm), and GS2H32 (lead at 530 ppm). Analytical data for the deeper subsurface ex-situ samples indicate a continuing decrease in lead and cadmium concentrations (below the stipulated site action levels) with depth; with the exception of GS2-H18 where cadmium concentrations remained greater than the site action limits at all depths.

3.1.3 Metals Confirmation Analytical Results

A discussion of confirmation of XRF data with analytical results by ICP analyses is included in Appendix A.

3.1.4 TCLP Metals Analytical Results

Twenty-five of the 58 subsurface soil samples submitted for TCLP metals analysis were collected from the Building 2 Area. Laboratory reports for these analyses are included in Appendix B. Plate 1 illustrates the horizontal and vertical distribution of TCLP metals data for the primary indicators, related to both in- and ex-situ XRF data in the Building 2 Area.

Of the 25 samples collected from the Building 2 Area for TCLP metals analysis, only one revealed a detectable concentration for one metal above regulatory leachability limits. This sample (GS2-H9 0-0.5-inches, at a concentration of 268 ppm for lead, above the regulatory limit of 5 ppm for lead) was collected inside Building 2, in an area identified by in-situ surficial XRF analysis as having elevated lead concentrations (Plate 1).

3.2 Building 3 Area

3.2.1 In-Situ XRF Analytical Results

In-situ surficial XRF analyses were completed within the Building 3 Area to assess the horizontal distribution of primary and secondary indicators at the surface. In-situ analyses were completed during the 14-17 October 1997 and 20-24 October 1997 site visits.

Appendix A presents a summary of detectable concentrations of primary and secondary indicators. All Building 3 Area data identifiers begin with the prefix GS3. Data are reported in ppm. Also presented in Appendix are results of QA/QC samples analyzed (duplicate samples), as well as a discussion of QA/QC results.

Figures 8 and 9 illustrate the data distribution of the primary indicators within the Building 3 Area. Figures 10 and 11 present concentration contours of the in-situ lead and cadmium data, respectively. Figure 12 combines concentration contours of both the lead and cadmium concentration data. For those data points where a duplicate sample was analyzed, the greater of the reported concentrations was utilized in map construction.

Areas of surficial concentrations of lead and cadmium in excess of stipulated action levels (400 ppm for lead and 200 ppm for cadmium) have been detected by in-situ XRF methodology in the Eastern Portion, Southern Extension, and Open Field areas of the Building 3 Area (Figures 10 through 12).

In the Eastern Portion of the Building 3 Area, surficial lead concentrations above the action level cover approximately 40 percent of the building floor, primarily in the southern half (Figure 10). Additionally, four small, discrete areas scattered throughout the Eastern Portion of the Building 3 Area, covering approximately 15 percent of the floor, contain concentrations of cadmium above the action level (Figure 11).

In the Southern Extension of the Building 3 Area, lead concentrations above the action level cover approximately 75 percent of the floor (Figure 10). Cadmium concentrations above the action level occur in four small areas, and one relatively large area, discreetly scattered throughout the Southern Extension (Figure 11).

Approximately 30 percent of the Open Field outside of Building 3 is covered by a continuous area of lead concentrations above the action level (Figure 10). Within this area of elevated lead concentrations are two small areas of elevated cadmium concentrations (Figure 12).

Action levels for the secondary indicator parameters were not stipulated. In-situ XRF data for these secondary indicator parameters are included in Appendix A.

3.2.2 Ex-Situ XRF Analytical Results

Fifty-five subsurface soil samples were collected for either on- or off-site XRF analysis to evaluate the vertical distribution of primary and secondary elements beneath the Building 3 Area. The horizontal locations for the vertical profiling generally coincide with locations of elevated lead and/or cadmium concentrations detected by the in-situ investigation. Appendix A includes XRF analytical data for primary and secondary indicators for the subsurface ex-situ samples. Plate 2 illustrates the distribution of both in-situ and subsurface ex-situ primary indicators within the Building 3 Area.

Lead and cadmium concentrations detected in ex-situ samples collected at the ground surface (0-0.5-inch and 0-2-inch depth intervals) were similar to concentrations detected in-situ, although at greater extremes than in-situ results. Analytical data for the deeper shallow (3-4-inch, 4-5-inch, and 5-6-inch depth intervals) ex-situ samples indicate general decreasing concentrations of lead and cadmium vertically near surface. Analytical data for the deeper subsurface ex-situ samples (collected employing direct-push sampling methodology, greater than 9-inches in depth) indicate a continuing decrease in lead and cadmium concentrations (below the stipulated site action levels) with depth. Only three deep subsurface samples revealed detectable levels of lead and/or cadmium (GS3-D10 15-21-inches, GS3-E6 18-24-inches, and GS3N24 9-15-inches), with the only exceedences to site stipulated action levels being the cadmium concentrations at GS3-D10 15-21-inches (240J ppm) and GS3-N24 9-15-inches (460J ppm). However, neither lead nor cadmium were detected in deeper samples from these locations.

3.2.3 Metals Confirmation Analytical Results

A discussion of confirmation of XRF data with analytical results by ICP analyses is included in Appendix A.

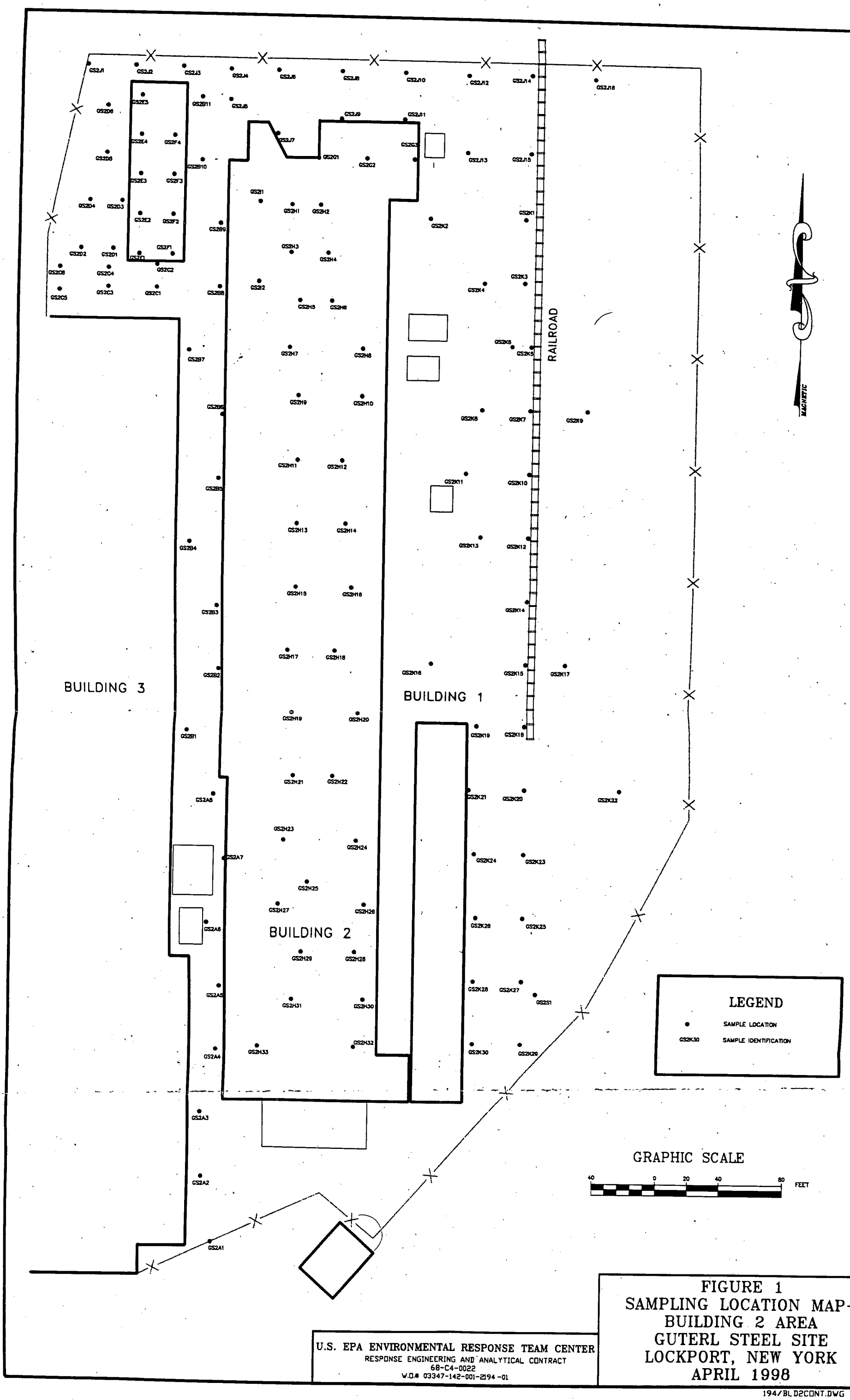
3.2.4 TCLP Metals Analytical Results

Thirty-three of the 58 subsurface soil samples submitted for TCLP metals analysis were collected from the Building 3 Area. Laboratory reports for these analyses are included in Appendix B. Plate 2 illustrates the horizontal and vertical distributions of TCLP metals data for the primary indicators, related to both in- and ex-situ XRF data in the Building 3 Area.

Of the 33 samples collected from the Building 3 Area for TCLP metals analysis, five samples, GS3-E7 (0-2-inches and 5-6-inches), GS3-D10 (0-2-inches and 5-6-inches), and GS3-C10 (0-2-inches) revealed detectable concentrations of lead (17 ppm, 5.18 ppm, 16.5 ppm, 12.7 ppm, and 8.51 ppm, respectively) above the regulatory leachability limit of 5 ppm (Plate 2). These samples were collected outside and west of Building 3, in the Open Field, in an area identified as a *hot spot* by in-situ XRF analysis (Plate 2). No other samples exceeded the regulatory leachability limits for lead, and no other metals were found to exceed their respective limits in the Building 3 Area.

3.2.5 PCB Analytical Results

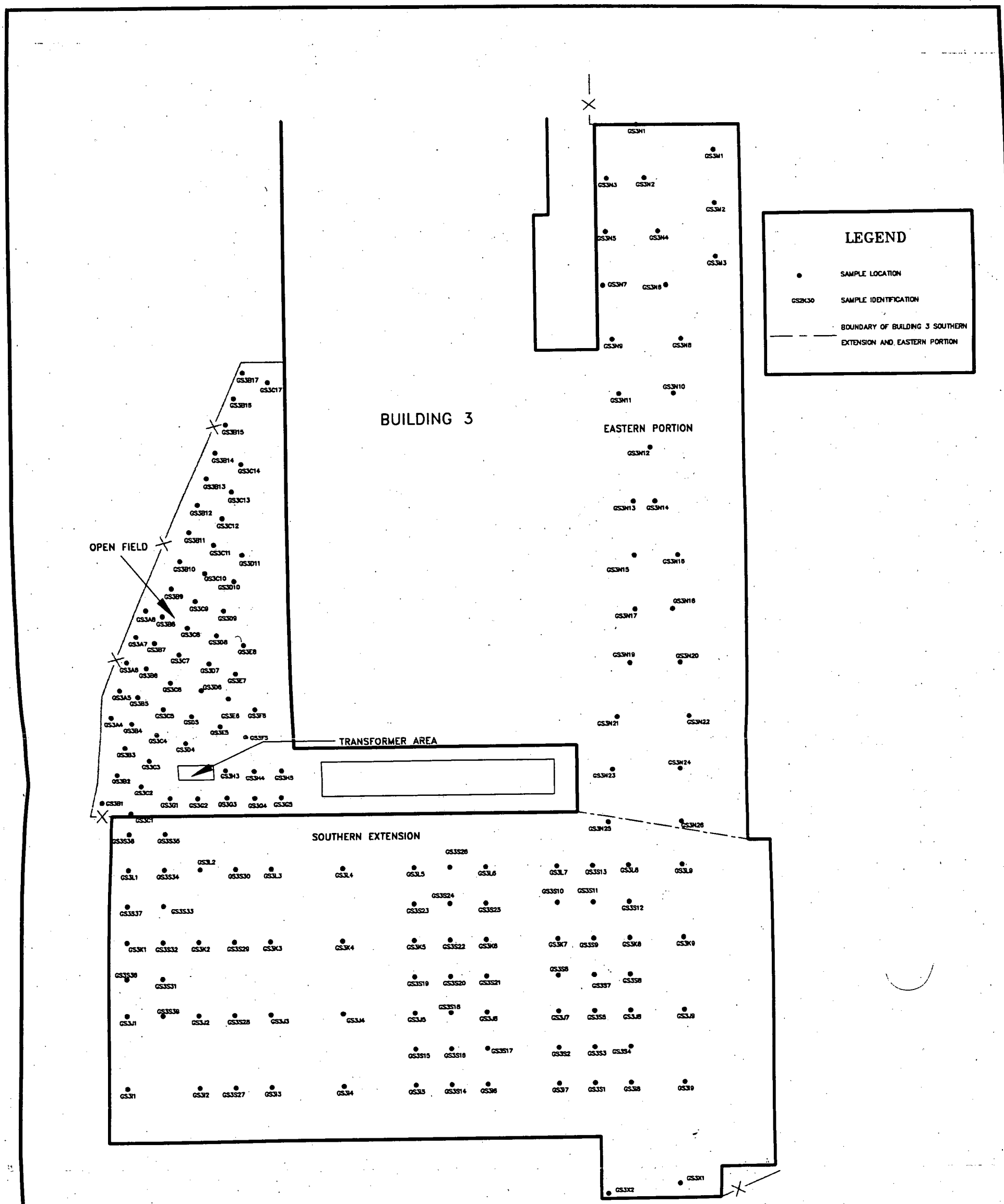
PCBs (specifically, Aroclor 1260) were detected in each of the four samples collected near the transformer area (in the Open Field of the Building 3 Area), ranging in concentrations from 1.8 ppm to 64 ppm (Figure 13). PCBs were not detected in any of the seven samples collected inside Building 3 (Figure 13). The laboratory analytical report for the PCB analyses is included in Appendix B.



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

FIGURE 1
SAMPLING LOCATION MAP– BUILDING 2 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

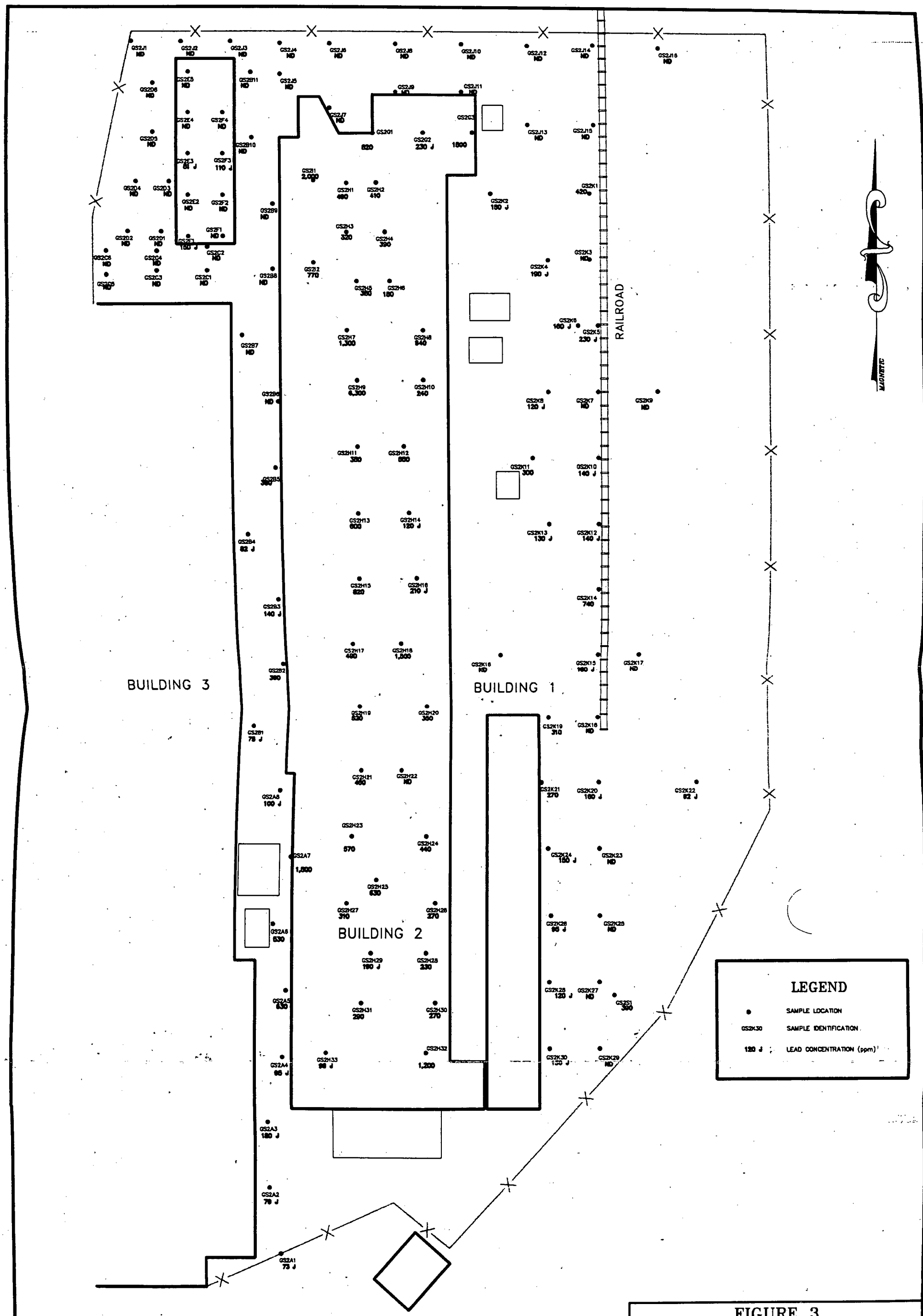
194/BLD2CONT.DWG 4/16/98



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

FIGURE 2
SAMPLING LOCATION MAP-
BUILDING 3 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

194/BLD3CONT.DWG 4/16/98

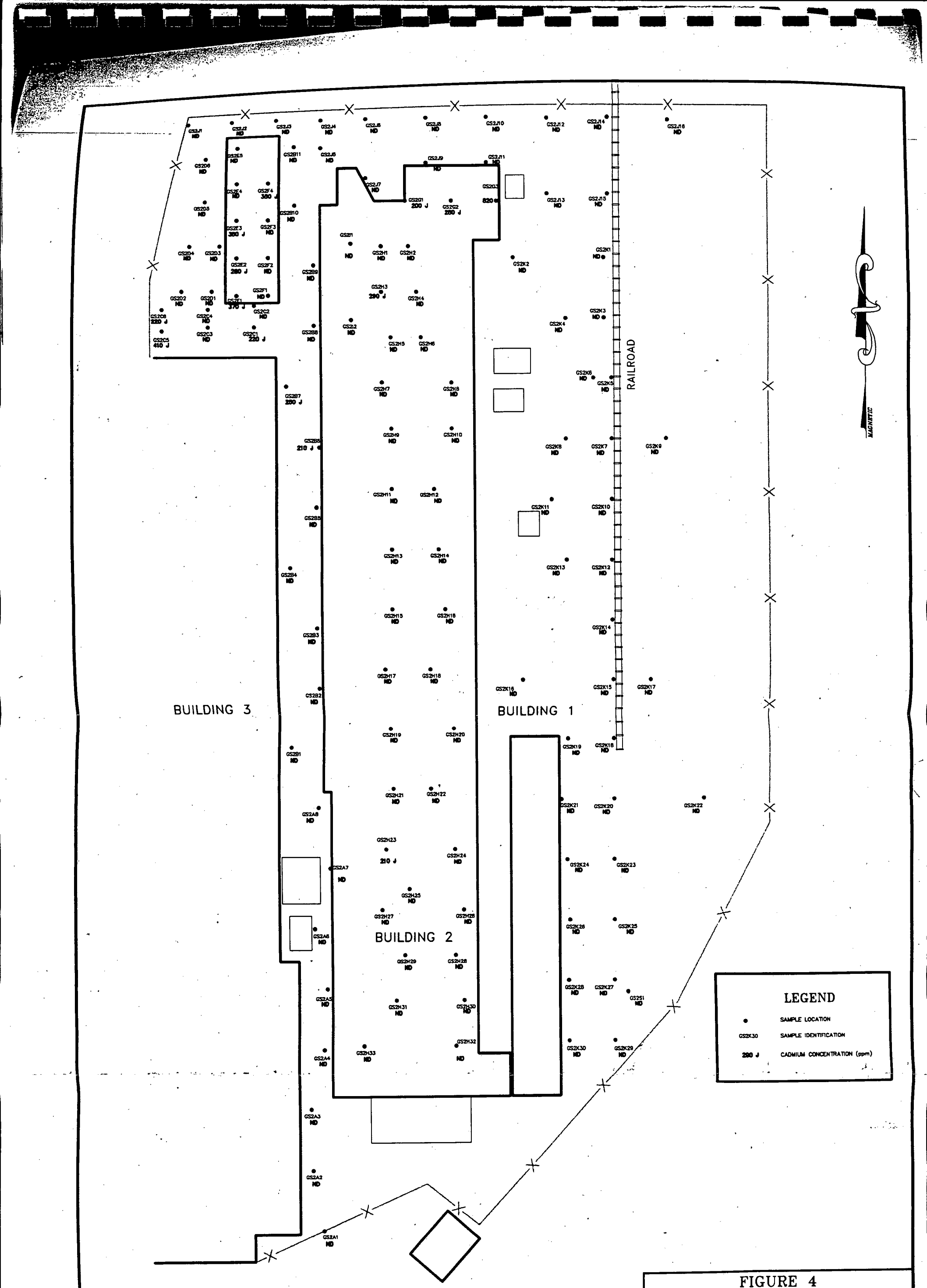


U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
WO# 03347-142-001-2194-01

FIGURE 3

HORIZONTAL DISTRIBUTION OF IN-SITU LEAD XRF ANALYTICAL DATA-BUILDING 2 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

194/BLD2CONT.DWG 01/06/98



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

FIGURE 4

HORIZONTAL DISTRIBUTION OF IN-SITU CADMIUM
XRF ANALYTICAL DATA-BUILDING 2 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

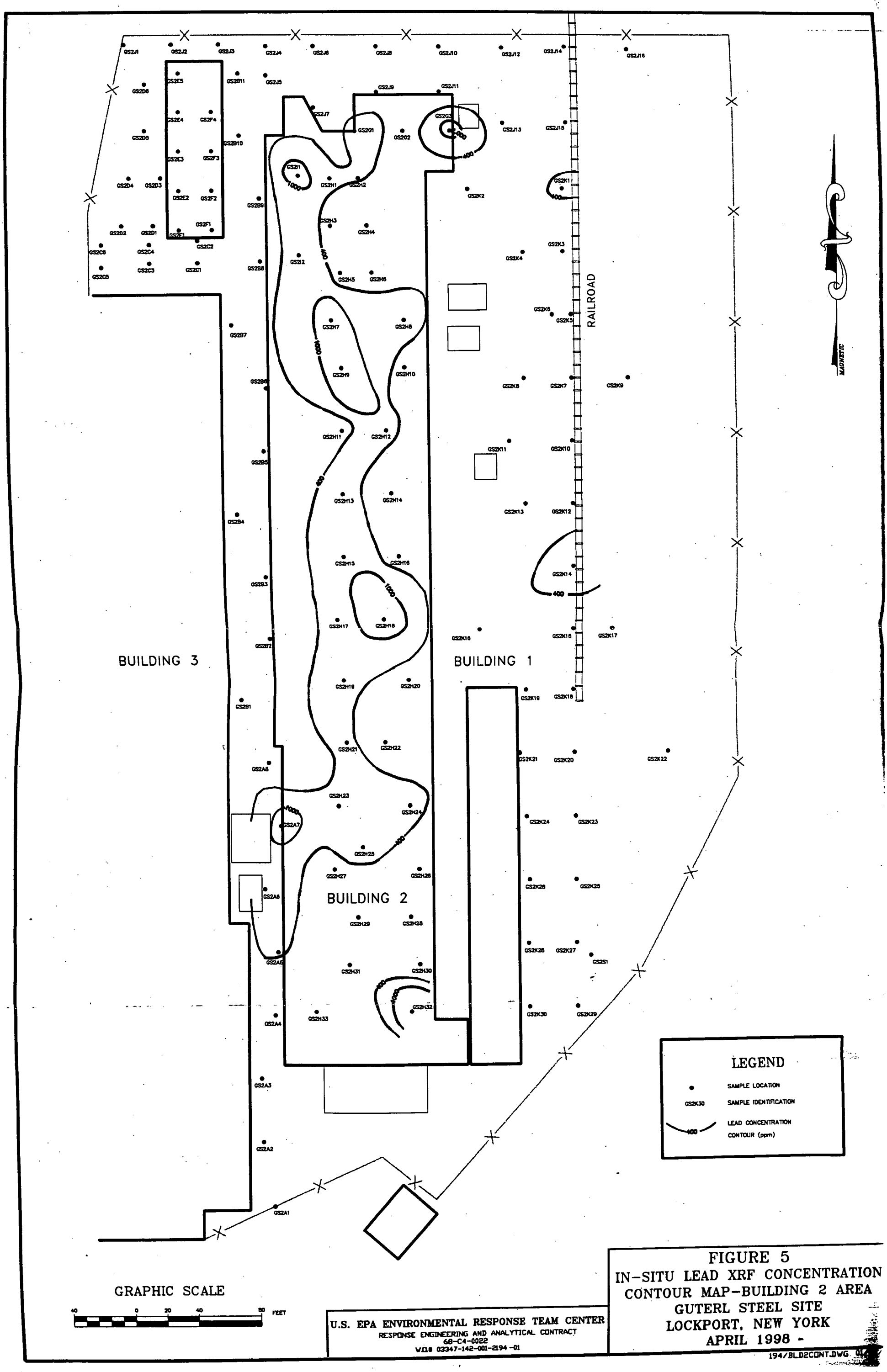
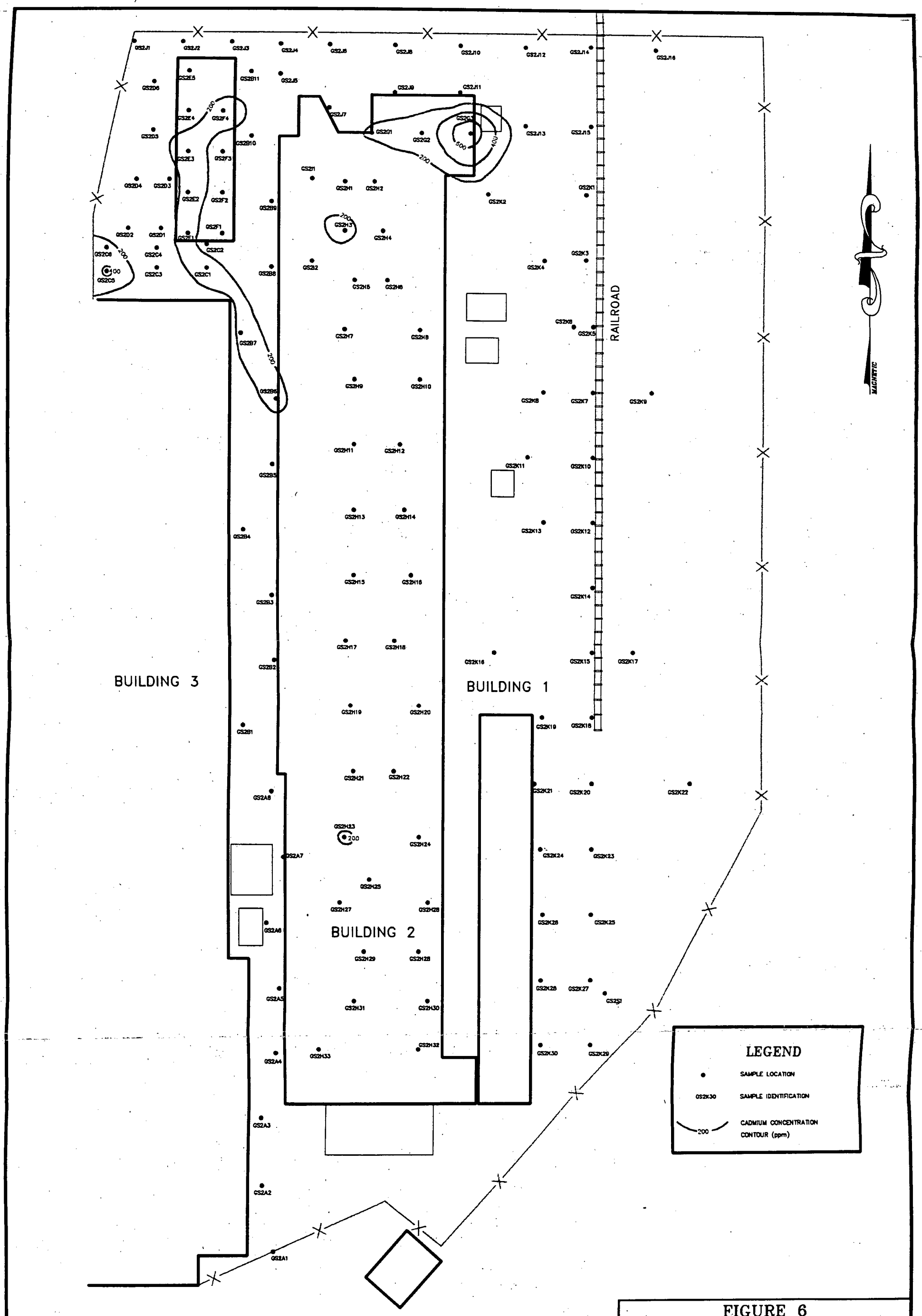


FIGURE 5
IN-SITU LEAD XRF CONCENTRATION CONTOUR MAP-BUILDING 2 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

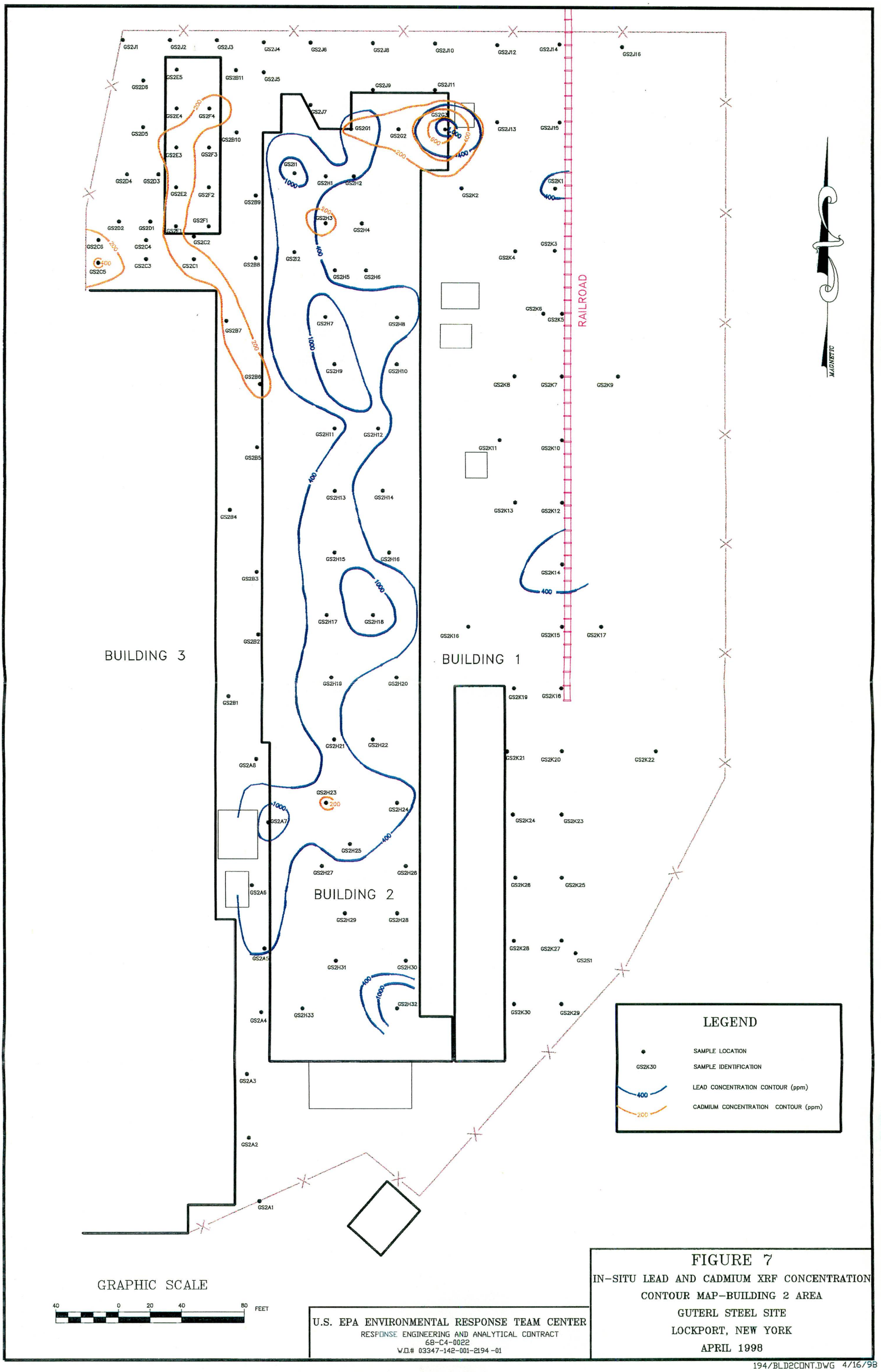
U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. 03347-142-001-2194-01

194/BLD2CONT.DWG



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

FIGURE 6
IN-SITU CADMIUM XRF CONCENTRATION
ISOCONTOUR MAP-BUILDING 2 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

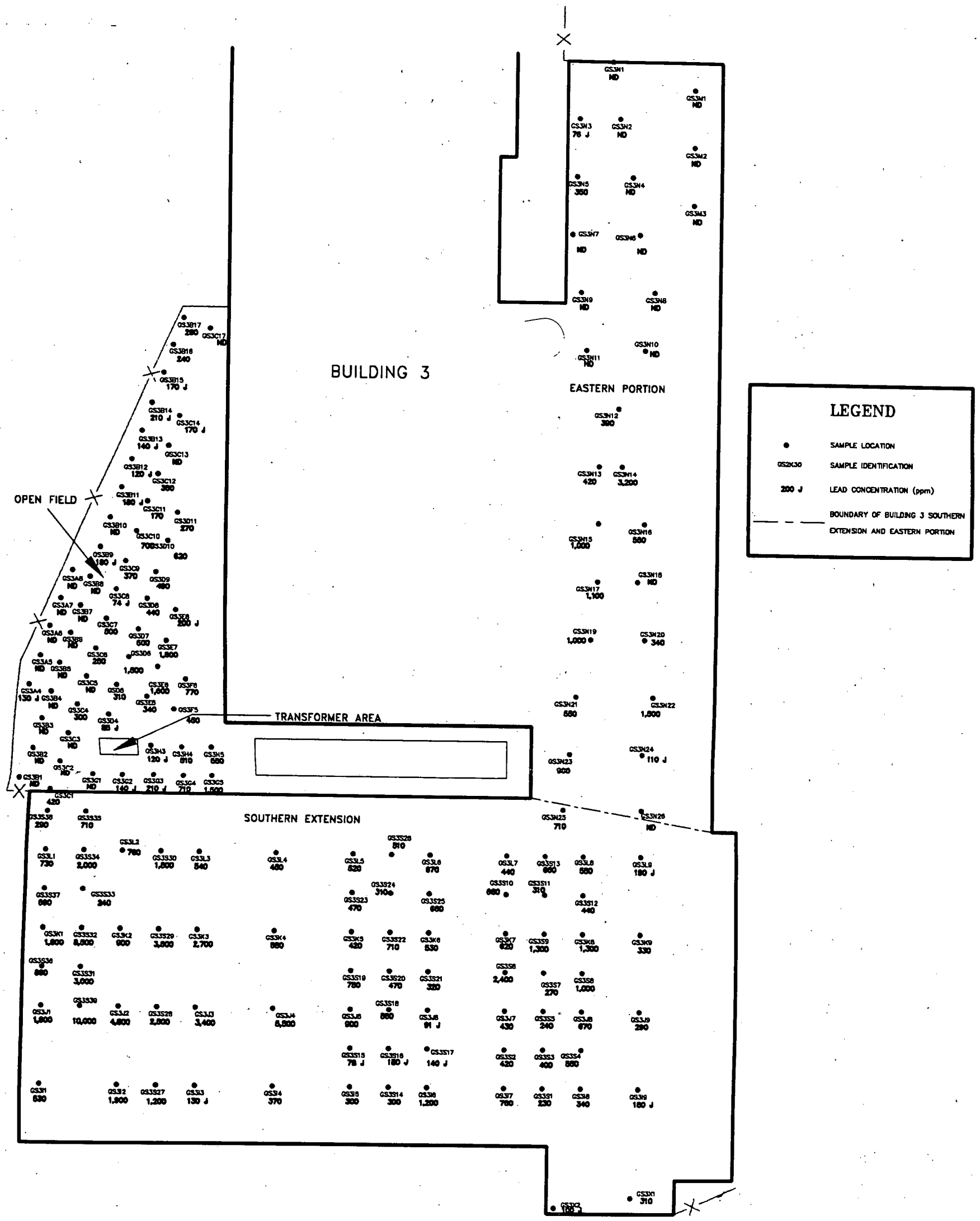


U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

FIGURE 7

IN-SITU LEAD AND CADMIUM XRF CONCENTRATION CONTOUR MAP-BUILDING 2 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

194/BLD2CONT.DWG 4/16/98



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194 -01

FIGURE 8
HORIZONTAL DISTRIBUTION OF IN-SITU LEAD XRF ANALYTICAL DATA- BUILDING 3 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

194/RI D3CONT.DWG. 4/16/98

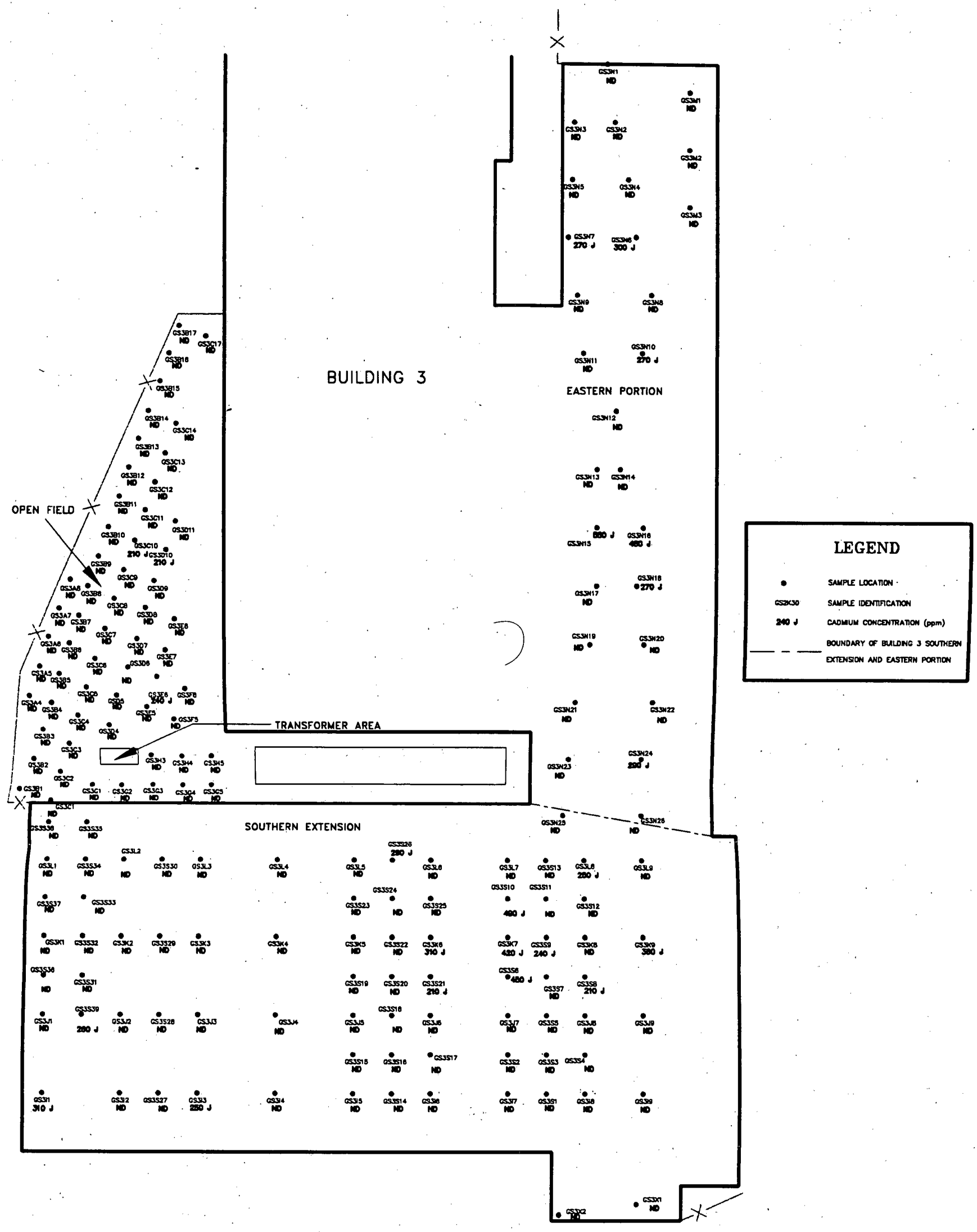
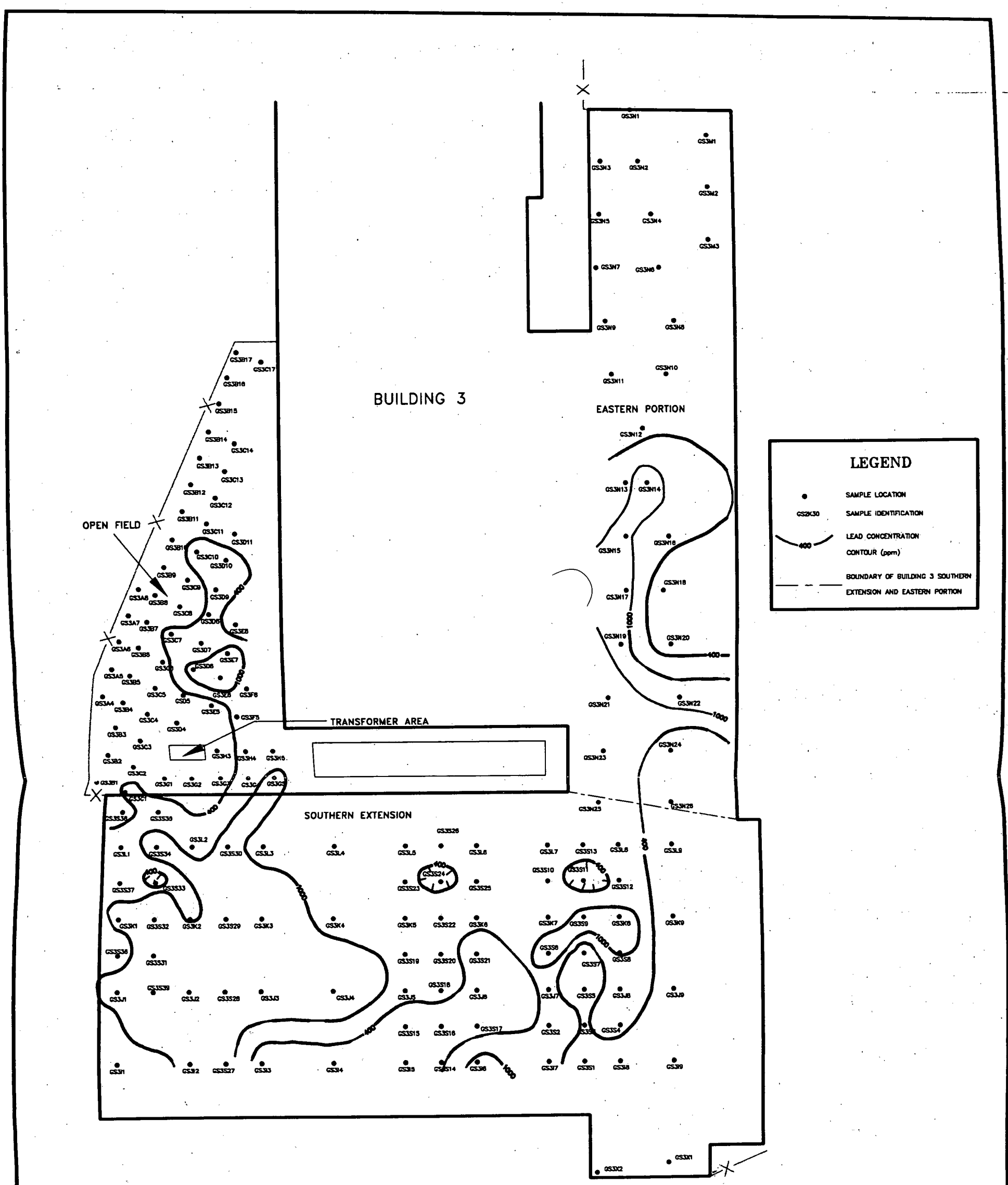


FIGURE 9
HORIZONTAL DISTRIBUTION OF IN-SITU CADMIUM XRF ANALYTICAL DATA- BUILDING 3 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

194/RI D3CONT.DWG. 4/16/98



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

FIGURE 10
IN-SITU LEAD XRF CONCENTRATION CONTOUR MAP BUILDING 3 MAP GUTERL STEEL SITE LOCKPORT, NEW YORK APRIL 1998

194/BLD3CONT.DWG, 4/16/98

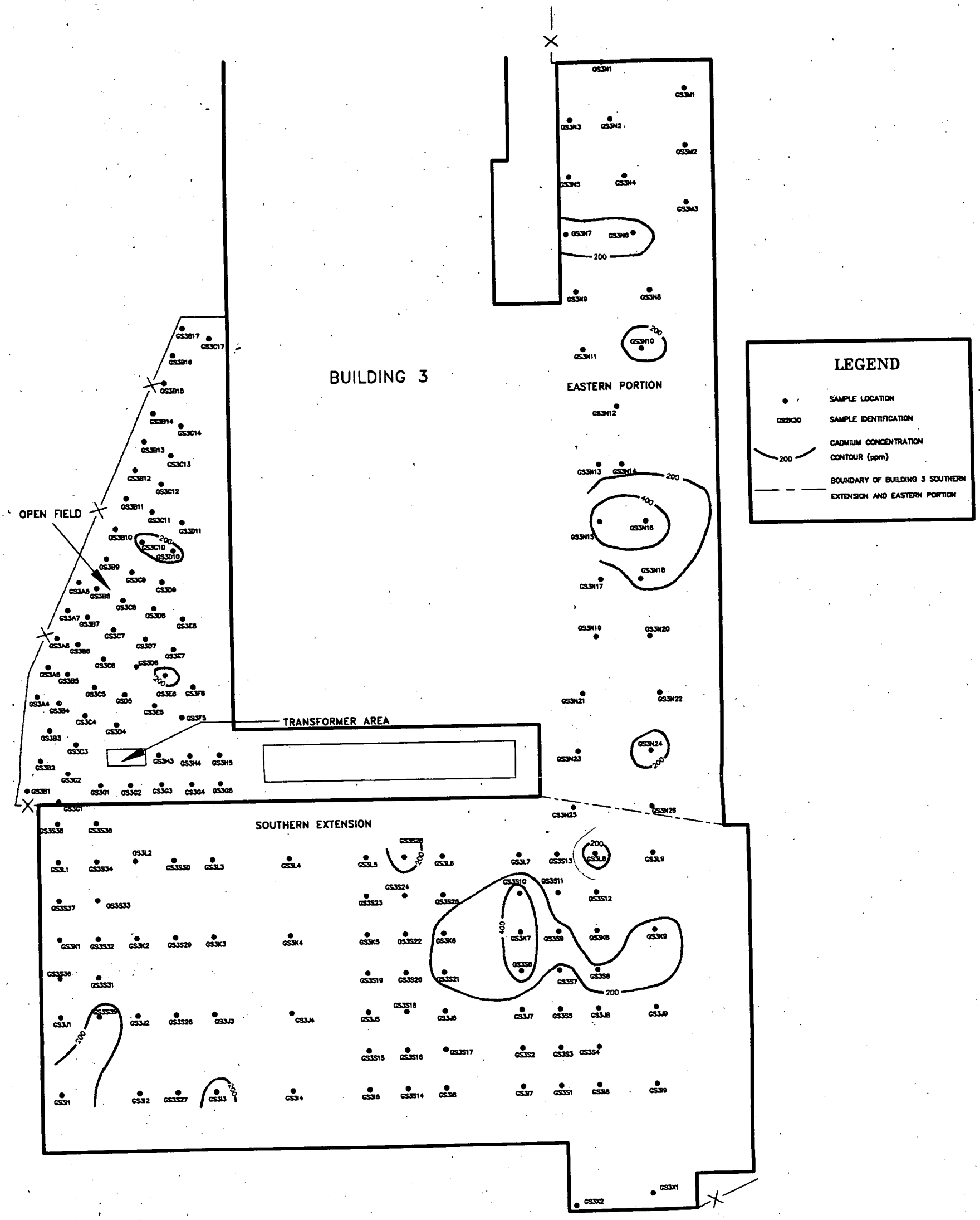
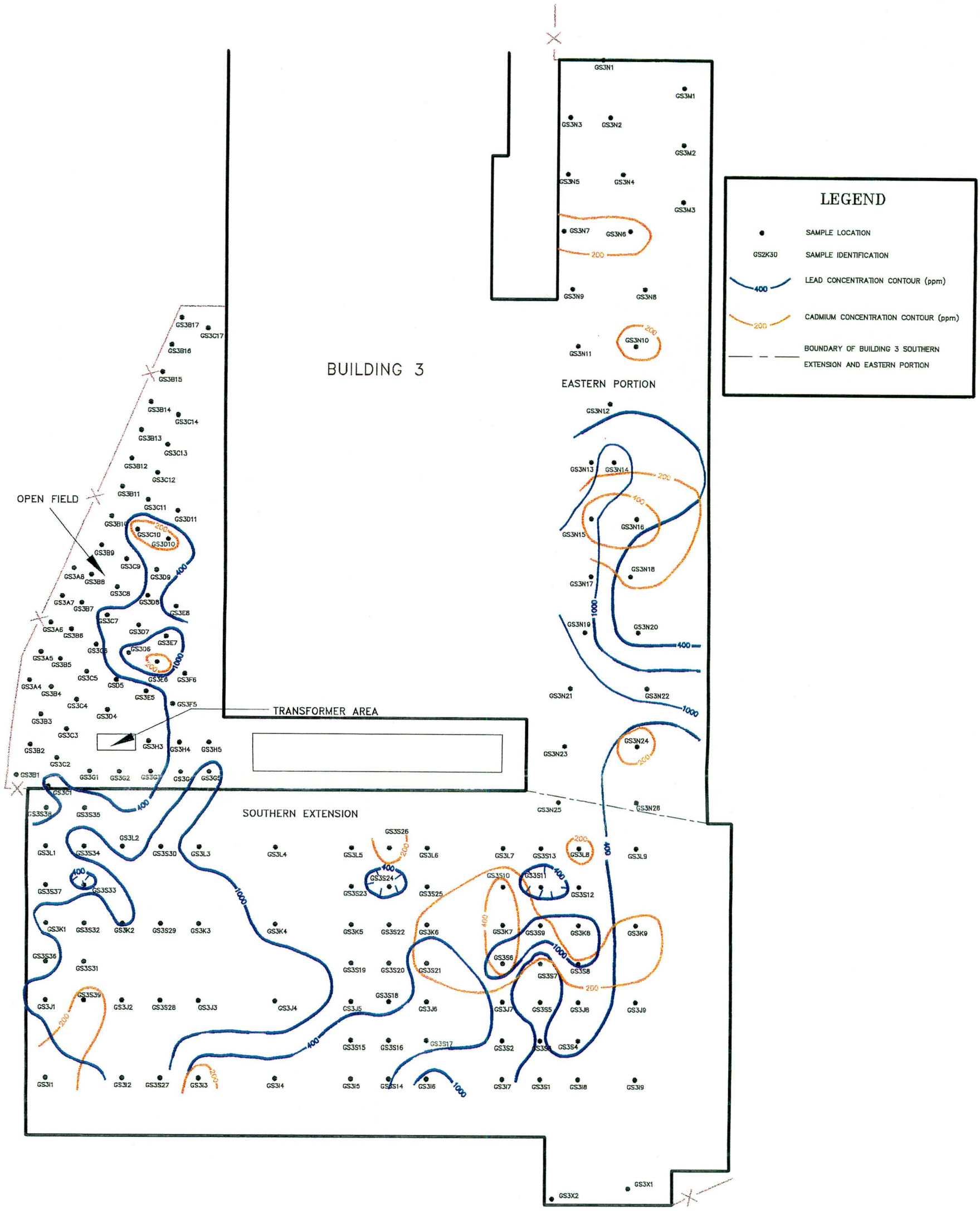


FIGURE 11
IN-SITU CADMIUM XRF
CONCENTRATION CONTOUR MAP-
BUILDING 3 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

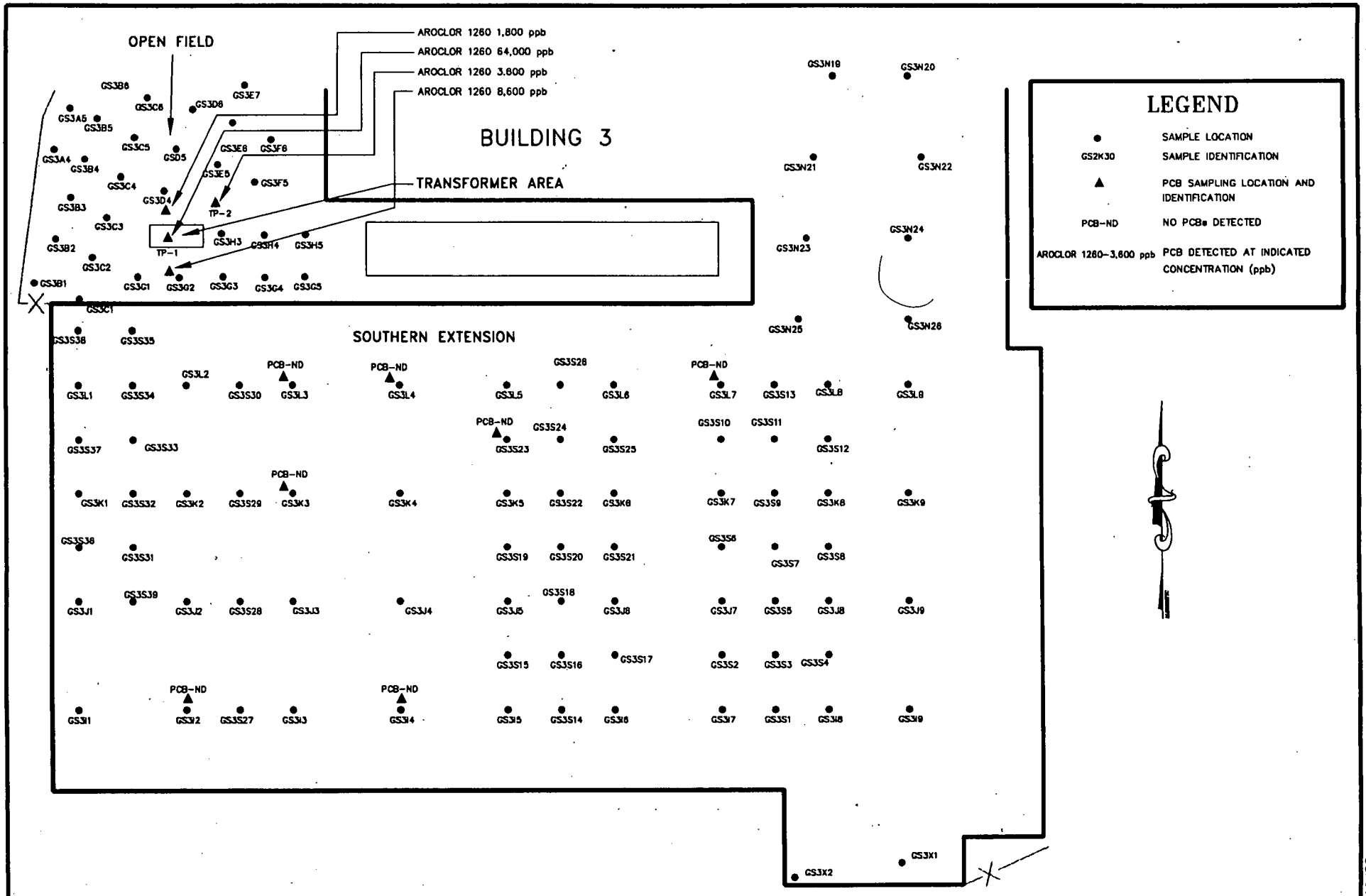
194/BLD3CONT.DWG, 4/16/98



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194 -01

FIGURE 12
IN-SITU LEAD AND CADMIUM XRF CONCENTRATION CONTOUR MAP- BUILDING 3 AREA
GUTERL STEEL SITE
LOCKPORT, NEW YORK
APRIL 1998

194/BLD3CONT.DWG, 4/16/98



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2194-01

FIGURE 13
HORIZONTAL DISTRIBUTION OF PCB ANALYTICAL DATA-BUILDING 3 AREA GUTERL STEEL SITE LOCKPORT, NEW YORK APRIL 1998

194/PCB_SAMP.DWG 4/16/98

WESTON®
MANAGERS DESIGNERS/CONSULTANTS
Roy F. Weston, Inc.
GSA Raritan Depot
Building 209 Annex (Bay F)
2890 Woodbridge Avenue
Edison, New Jersey 08837-3679
908-321-4200 • Fax 908-494-4021

DATE: 12 December 1997

TO: Don Bussey, REAC Task Leader

THROUGH: Vinod Kansal, REAC Analytical Section Leader Vinod Kansal
Jay Patel, REAC Inorganic Group Leader J N Patel

FROM: Dennis Kalnicky, REAC XRF Chemist Dennis Kalnicky

SUBJECT: FPXRF ANALYSES, GUTERL STEEL SITE, LOCKPORT, NEW YORK
WORK ASSIGNMENT #2-194 - FPXRF ACTIVITIES REPORT

BACKGROUND

The Guterl Steel site is located in Lockport, Niagra County, New York. In 1979, a radiological survey was conducted by Oak Ridge National Laboratories at the facility, the location of the former Simonds Saw and Steel Company. The survey was conducted for the U.S. Department of Energy for determination of the condition of sites formally utilized by the Manhattan Engineering District, and the Atomic Energy Commission for work involving the handling of radioactive materials. During the years 1948-1956, the company handled large quantities of uranium metal and smaller quantities of thorium metal in rolling operations. The facility, in operation at the time of the 1979 report, is no longer operating.

Three Spectrace 9000 Field-Portable X-ray Fluorescence (FPXRF) analyzers, maintained and operated by Response Engineering and Analytical Contract (REAC) personnel, were used to support United States Environmental Protection Agency/Environmental Response Team Center (U.S. EPA/ERTC) activities at the Guterl Steel site. REAC personnel analyzed surface soil/concrete/brick locations and subsurface soil samples for target elements. Primary target elements were lead (Pb) and cadmium (Cd); secondary target elements were arsenic (As), nickel (Ni), and zinc (Zn).

OBSERVATIONS AND ACTIVITIES

Spectrace 9000 FPXRF Analyses

Two trips were made to the site from 14 to 17 October 1997, and 20 to 24 October 1997, to determine the extent of target element contamination in site surface soil/concrete/brick sample locations and subsurface soils utilizing three Spectrace 9000 FPXRF analyzers (S/N's Q-003, Q-023, and Q-011). Additional subsurface soils were collected on site (12-14 November 1997) and analyzed at the REAC facility in Edison, NJ, on 18 & 19 November 1997. A total of DB 381 ~~385~~ samples and ~~14~~ 18 DTB repeats/duplicates were analyzed on site and at REAC. The Spectrace 9000 FPXRF measurement times (instrument live-time) were 60 seconds for each source: cadmium-109 (Cd-109), americium-241 (Am-241), and iron-55 (Fe-55).

---

cc: Central File-WA # 2-194
Raj Singhvi, U.S. EPA/ERTC

\194\del\tr\9712\xrf-tr.194

Sample preparation, analysis, and quality assurance/quality control (QA/QC) procedures used in this study conform to those described in the U.S. EPA/ERTC REAC Standard Operating Procedure (SOP) #1713, *Spectrace 9000 Field Portable X-ray Fluorescence Operating Procedure.*

Preliminary results for Pb and Cd were reported on a daily basis during each site visit. All preliminary results for non-soil sampling locations were qualitative (not quantitative, QA1 level data) because the Spectrace 9000 analyzers were calibrated for soil analysis.

In-situ Sample Analysis

Surface debris, organic matter, and sharp objects were removed from the sampling area (approximately 6 inches x 6 inches) at each location. The sampling area soil was mixed and flattened with a stainless steel spoon, as necessary. The Spectrace 9000 measurement probe was placed directly on the sample surface and analysis was initiated with the measurement times noted previously.

Prepared Sample Analysis

Subsurface soil samples were received in labeled plastic bags or glass jars. Each sample was mixed with a stainless steel spoon. Stones and debris were removed prior to placing 10-20 grams of the sample into a labeled aluminum weight boat. The samples were dried in an oven for 1-2 hours, as necessary. Duplicates were prepared for every 10 samples and the suffix "DUP" was added to the sample ID for the duplicate sample. After drying, the sample was passed through a 10-mesh stainless steel sieve to remove rocks and large organic matter. The sample was then placed in a labeled 31 millimeter (mm) polyethylene X-ray sample cup and sealed with 0.2 mil thick polypropylene X-ray window film. Prior to XRF analysis, the sample cup was tapped against the tabletop to pack the sample evenly against the film window. The sample cup was placed directly on the probe aperture window of the Spectrace 9000 FPXRF analyzer, the safety shield was closed, and analysis was initiated with the measurement times previously noted.

FPXRF Analysis Results

XRF analysis results for each measurement were saved in the Spectrace 9000 internal data logger memory. The data was downloaded and archived on computer disks on a daily basis. Selected target element (Pb, Cd) results for each sample and standard analyzed were logged into the Spectrace 9000 field logbooks (REACII-L-00257, REACII-L-00211, and REACII-L-00220). Target element results were qualified using the field method detection and quantitation limits discussed in this report.

QA/QC Procedures

The reliability of each Spectrace 9000 FPXRF unit and application model was evaluated daily during site visits. The energy calibration check and detector resolution check were performed at the beginning of each day to ensure that proper instrument calibration was maintained and that the detector resolution was adequate for producing reliable X-ray intensity measurements. The Spectrace 9000 soil application model was verified at the beginning of each day for the target elements. This was accomplished by analyzing a blank sample and a set of three National Institute of Standards and Technology (NIST) Standard Reference Materials (SRMs) #2709, #2710, and #2711. Energy calibration checks, detector resolution checks, and application verification results were recorded in the Spectrace 9000 field logbooks (REACII-L-00257, REACII-L-00211, and REACII-L-00220).

Method Detection and Quantitation Limits

A low concentration standard, NIST SRM #2709, was analyzed at the beginning of each day and periodically during sample analysis to establish statistically derived method detection and quantitation limits for the target elements. The standard deviation [STD, (n-1) method] for these analyses was used to calculate the Spectrace 9000 method detection limit (MDL) and method quantitation limit (MQL) for each target element. The MDL was calculated as three times the

standard deviation (MDL = 3 x STD) and the MQL was defined as ten times the standard deviation (MQL = 10 x STD) for repeat measurements.

The MDL values used to qualify final FPXRF results represent a conservative combination of the values determined for two Spectrace 9000 analyzers (S/N Q-003 and Q-023). For each target element, the larger of the two MDL values was used to qualify the data. The MDL values for Spectrace 9000, S/N Q-011, were not used because an insufficient number of measurements were made (less than 7) to accurately calculate MDL values based on standard deviation of the analyses.

Spectrace 9000 results were qualified by a "U" for analyses less than the MDL (not detected).

Measurement Precision

Spectrace 9000 FPXRF analysis precision for Pb was determined using a SRM #2711, and precision for Zn was determined using SRM #2710. Analysis precision for Cd, As, and Ni could not be determined because the concentration was too low in the reference standards. The coefficient of variation (COV) values for Pb and Zn were within the specification of 20 percent for all Spectrace 9000 analyzers (U.S. EPA/ERT, 1991).

FPXRF Confirmation Samples

In order to obtain Quality Assurance level 2 (QA2) data, a minimum of 10 percent of the samples must be confirmed by a laboratory method such as Inductively-Coupled Plasma (ICP) emission spectroscopy or Atomic Absorption (AA) analysis. A regression analysis between the Spectrace 9000 data (independent) and the confirmatory data (dependent) must yield a coefficient of determination (r^2) of greater than 0.7 (U.S. EPA/ERT, 1991). The model obtained by the regression may be used to validate or adjust the Spectrace 9000 data.

Approximately 10 percent of the samples (38 samples) that had been analyzed by FPXRF methods were submitted for confirmatory laboratory analysis. To minimize potential sample homogeneity problems, the XRF sample cups were submitted for confirmatory analysis.

Results

Appendix A contains MDL qualified FPXRF results for target elements. Appendix B contains MDL and QA/QC data. Preliminary FPXRF field reports are in Appendix C. Appendix D contains FPXRF and laboratory data for confirmation samples. Photocopies of field logbook pages and disks with field FPXRF data are in the REAC Central File.

FPXRF Confirmation Sample Results

Regression analysis results obtained for Pb, Ni, and Zn are summarized below:

Element	Number of Observations	r^2	Slope	Intercept	Standard Error of Y Estimate
Pb (all data)	38	0.975	1.83	-350	881
w/o high Ni samples	31	0.982	1.85	-598	826
< 10000 & w/o high Ni samples	30	0.905	1.24	-53	439
Ni (all data)	38	0.920	0.981	-2893	12060
< 50000	30	0.646	0.609	337	5025
< 20000	23	0.729	0.691	-9.6	2327
Zn (all data)	38	0.897	0.969	-536	589

Regression analysis results indicated that QA2 data quality objectives were met ($r^2 > 0.70$) for FPXRF analysis of Pb, Ni, and Zn using all confirmation data. Pb results were essentially unchanged when the regression was repeated without samples containing high Ni concentrations (< 50000 mg/kg Ni).

Regression analysis could not be performed for Cd and As because most laboratory results were less than the XRF MDL. FPXRF and laboratory data were compared based on XRF MDLs and MQLs. The results of these comparisons are summarized below:

Element	Total number of Confirmation Samples	FPXRF Results	Laboratory Results	FPXRF Confirmed by Laboratory
Cd	38	11 samples < XRF MDL	< XRF MDL	yes
		23 samples > MDL & < MQL	< XRF MDL	no
		4 samples > XRF MQL	< XRF MDL	no
As	38	21 samples < XRF MDL	< XRF MDL	yes
		11 samples > MDL & < MQL	< XRF MDL	no
		6 samples > XRF MQL	< XRF MDL	no

These comparisons do not support QA2 data objectives and FPXRF analysis of Cd and As should be considered QA1 level (screening) only.

Most confirmation samples had high levels of chromium (Cr), iron (Fe), Ni, and molybdenum (Mo), which are the most common elements found in steels. They are at much higher concentrations than normally found in soils, which may lead to unresolved matrix interferences for some elements when using the Spectrace 9000 soil application to analyze these samples. For example, high Ni concentrations may bias Pb results low (see confirmation sample data in Appendix D). Therefore, FPXRF results for Pb, Cd, As, and Zn for samples with high Ni concentrations (>50000 mg/kg) should be viewed with caution. Additionally, Pb can interfere with the As analysis at Pb: As ratios of 5:1 or greater. Therefore, the presence of As may be masked for samples with Pb concentrations of 500 mg/kg or greater.

REFERENCES

U.S. EPA/ERT. 1991. Quality Assurance Technical Information Bulletin, "Field-Portable X-Ray Fluorescence", Volume 1, Number 4.

APPENDIX A
MDL Qualified FPXRF Analysis Results
FPXRF Activities Report
Guterl Steel Site
December 1997

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
Final FPXRF data; MDL Qualified; 2 Significant Figures
Soil / Concrete / Brick

			MDL	70	180	150	360	230
XRF ID	MATRIX	LOCATION	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
GS2-A1	soil	GS2A1	20-OCT-1997	73	U	U	2900	670
GS2-A2	moist soil	GS2A2	20-OCT-1997	79	U	U	3400	770
GS2-A3	moist soil	GS2A3	20-OCT-1997	180	U	U	1800	850
GS2-A4	moist soil	GS2A4	20-OCT-1997	95	U	U	5300	1100
GS2-A5	moist soil	GS2A5	20-OCT-1997	630	U	U	1700	3000
0-2GS2A5	soil	GS2A5-0-2	23-OCT-1997	1100	U	U	13000	2300
5-6GS2A5	soil	GS2A5-5-6	23-OCT-1997	75	U	U	4800	1400
GS2-A6	moist soil	GS2A6	20-OCT-1997	530	U	370	9900	2000
5-6GS2A6	soil	GS2A6-5-6	23-OCT-1997	580	740	380	43000	1900
GS2-A6_0-2	soil	GS2A6_0-2	23-OCT-1997	1200	U	U	17000	3600
GS2-A7	moist soil/asphalt	GS2A7	20-OCT-1997	1500	U	U	3600	2500
GS2-A8	moist soil	GS2A8	20-OCT-1997	100	U	330	23000	1100
GS2-B1	moist soil	GS2B1	20-OCT-1997	75	U	U	16000	640
GS2-B10	moist soil	GS2B10	20-OCT-1997	U	U	470	55000	580
GS2-B11	moist soil	GS2B11	20-OCT-1997	U	U	360	35000	740
GS2-B2	moist soil	GS2B2	20-OCT-1997	360	U	U	5700	1700
GS2-B3	moist soil	GS2B3	20-OCT-1997	140	U	U	3000	1600
GS2-B4	moist soil	GS2B4	20-OCT-1997	82	U	220	18000	1400
GS2-B5	moist soil	GS2B5	20-OCT-1997	380	U	U	4800	3500
GS2B5_0-2DUP	soil	GS2B5_0-2	23-OCT-1997	U	610	1200	160000	2000
GS2-B5_0-2	soil	GS2B5_0-2	23-OCT-1997	U	400	1600	180000	2200
GS2-B5_5-6	soil	GS2B5_5-6	23-OCT-1997	U	610	1400	170000	1600
GS2-B6	moist soil	GS2B6	20-OCT-1997	U	210	500	64000	2200
897	soil	GS2B6-1-1.5'	18-NOV-1997	150	U	U	4300	1300
898	soil	GS2B6-2.25-2.75'	18-NOV-1997	87	U	U	1000	1300
GS2-B7	moist soil	GS2B7	20-OCT-1997	U	250	400	43000	1600
GS2-B8	moist soil	GS2B8	20-OCT-1997	U	U	220	27000	900
GS2-B9	moist soil	GS2B9	20-OCT-1997	U	U	330	36000	720
GS2-C1	moist soil	GS2C1	20-OCT-1997	U	220	250	32000	490
GS2-C2	moist soil	GS2C2	20-OCT-1997	U	U	250	24000	730
GS2-C3	moist soil	GS2C3	20-OCT-1997	U	U	310	37000	660
GS2-C4	dry soil	GS2C4	20-OCT-1997	U	U	280	50000	1200
GS2-C5	moist soil	GS2C5	20-OCT-1997	U	410	170	41000	700
0-2GS2C5	soil	GS2C5-0-2	23-OCT-1997	U	340	760	88000	1300
895	soil	GS2C5-1-1.5'	18-NOV-1997	140	370	U	21000	600
896	soil	GS2C5-2.5-3.0'	18-NOV-1997	U	U	U	U	530
5-6GS2C5	soil	GS2C5-5-6	23-OCT-1997	U	U	320	99000	1000
GS2-C6	moist soil	GS2C6	20-OCT-1997	U	220	220	39000	640
GS2-D1	soil/gravel	GS2D1	21-OCT-1997	U	U	200	18000	240
GS2-D2	soil/gravel	GS2D2	21-OCT-1997	U	U	350	56000	530
GS2-D3	wet soil/veg	GS2D3	21-OCT-1997	U	U	U	8000	450
GS2-D4	soil/gravel	GS2D4	21-OCT-1997	U	U	250	24000	460
GS2-D5	moist soil	GS2D5	21-OCT-1997	U	U	310	46000	640
GS2-D6	moist soil	GS2D6	21-OCT-1997	U	U	U	25000	680
GS2-E1	concrete	GS2E1	21-OCT-1997	150	370	U	10000	600
GS2-E2	concrete	GS2E2	21-OCT-1997	U	280	U	5900	400
GS2-E3	concrete	GS2E3	21-OCT-1997	81	360	U	9400	830
GS2-E4	concrete	GS2E4	21-OCT-1997	U	U	U	22000	940
GS2-E5	concrete	GS2E5	21-OCT-1997	U	U	U	7600	590
GS2-F1	concrete	GS2F1	21-OCT-1997	U	U	U	3000	550
GS2-F2	concrete/dust	GS2F2	21-OCT-1997	U	U	220	29000	840
GS2-F3	concrete	GS2F3	21-OCT-1997	110	U	U	4800	510
GS2-F4	concrete	GS2F4	21-OCT-1997	U	350	U	9000	820
GS2-G1	concrete	GS2G1	22-OCT-1997	820	200	U	11000	1100
GS2-G2	concrete/dust	GS2G2	22-OCT-1997	230	280	370	10000	970
GS2-G3	concrete/moist soil	GS2G3	22-OCT-1997	1500	820	U	1600	U
GS2-G3_DUP	concrete/moist soil	GS2G3	22-OCT-1997	1300	790	U	1300	U
GS2H1	concrete	GS2H1	21-OCT-1997	490	U	160	17000	930
GS2-H10	moist soil	GS2H10	21-OCT-1997	240	U	170	4900	1100
GS2H11	moist dust	GS2H11	21-OCT-1997	350	U	U	12000	1400
GS2-H12	mosit soil	GS2H12	21-OCT-1997	650	U	210	14000	680
GS2H13	dust	GS2H13	21-OCT-1997	600	U	370	39000	1200
GS2-H14	soil	GS2H14	21-OCT-1997	120	U	U	33000	1300

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
Final FPXRF data; MDL Qualified; 2 Significant Figures
Soil / Concrete / Brick

			MDL	70	180	160	360	230
XRF ID	MATRIX	LOCATION	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
GS2H15	dust	GS2H15	21-OCT-1997	820	U	U	18000	1400
GS2-H16	soil	GS2H16	21-OCT-1997	210	U	U	9200	1200
GS2H17	dust on concrete	GS2H17	21-OCT-1997	490	U	U	17000	2900
GS2-H18	soil	GS2H18	21-OCT-1997	1200	U	U	11000	1900
GS2-H18_DUP	soil	GS2H18	21-OCT-1997	1500	U	U	10000	1600
917	soil	GS2H18-2.5-3.0'	19-NOV-1997	85	310	180	9200	400
918	soil	GS2H18-3.5-4.0'	19-NOV-1997	130	230	U	5800	340
GS2H18-5-6	soil	GS2H18-5-6	24-OCT-1997	160	200	U	5400	370
GS2H18_0-.5	soil	GS2H18_0-.5	23-OCT-1997	660	290	270	36000	1900
GS2H19	dust/concrete	GS2H19	21-OCT-1997	520	U	U	15000	2400
GS2-H2	concrete/dust	GS2H2	21-OCT-1997	410	U	340	10000	1200
GS2-H20	soil	GS2H20	21-OCT-1997	350	U	U	5100	940
GS2H21	dust/concrete	GS2H21	21-OCT-1997	460	U	U	13000	1900
GS2-H22	oily soil	GS2H22	21-OCT-1997	U	U	330	25000	1100
GS2H23	dust	GS2H23	21-OCT-1997	570	210	U	9200	1700
919	soil	GS2H23-1.5-2.0'	19-NOV-1997	81	U	U	1800	660
920	soil	GS2H23-3.5-4.0'	19-NOV-1997	U	U	U	770	270
GS2H23-5-6	soil	GS2H23-5-6	24-OCT-1997	U	U	U	440	510
GS2H23_0-.5	soil	GS2H23_0-.5	23-OCT-1997	560	360	U	11000	2000
GS2H24	moist soil	GS2H24	21-OCT-1997	440	U	U	6900	1800
GS2H25	dust	GS2H25	21-OCT-1997	630	U	U	16000	2900
GS2H26	dust/concrete	GS2H26	21-OCT-1997	270	U	U	11000	4900
GS2H27	dust/concrete	GS2H27	21-OCT-1997	310	U	U	26000	7800
GS2H28	dark dust	GS2H28	21-OCT-1997	230	U	U	7900	2100
GS2H29	dust/concrete	GS2H29	21-OCT-1997	190	U	U	10000	8800
GS2H3	gravel/dust/concrete	GS2H3	21-OCT-1997	320	290	280	16000	1100
GS2H30	dark dust	GS2H30	21-OCT-1997	270	U	440	35000	1200
GS2H31	dust/concrete	GS2H31	21-OCT-1997	290	U	U	14000	13000
GS2H32DUP	sand/concrete	GS2H32	21-OCT-1997	1200	U	U	12000	9000
GS2H32	sand/concrete	GS2H32	21-OCT-1997	1000	U	U	11000	9900
GS2H32-5-6	soil	GS2H32-5-6	24-OCT-1997	530	U	U	9200	680
GS2H32_0-.5	soil	GS2H32_0-.5	23-OCT-1997	620	190	U	11000	6500
GS2H33	sand/concrete	GS2H33	21-OCT-1997	96	U	U	720	360
GS2-H4	concrete/dust	GS2H4	21-OCT-1997	390	U	160	8000	830
GS2H5	soil/concrete	GS2H5	21-OCT-1997	380	U	190	5600	530
GS2-H6	concrete/dust	GS2H6	21-OCT-1997	180	U	150	6800	780
GS2H7	soil	GS2H7	21-OCT-1997	1300	U	U	12000	1400
GS2-H7_0-.5	soil	GS2H7_0-.5	23-OCT-1997	1100	U	U	24000	2000
GS2-H8	concrete/oily soil	GS2H8	21-OCT-1997	640	U	240	4700	630
GS2H9	soil/concrete	GS2H9	21-OCT-1997	6300	U	U	10000	1500
GS2H9-10-12	soil	GS2H9-10-12	24-OCT-1997	4100	180	U	14000	620
915	soil	GS2H9-2.5-2.75'	19-NOV-1997	93	U	U	3400	720
916	soil	GS2H9-4.1-4.7'	19-NOV-1997	U	180	U	U	600
916DUP	soil	GS2H9-4.1-4.7'	19-NOV-1997	U	U	U	U	610
GS2H9D10-12	soil	GS2H9D10-12	24-OCT-1997	3600	290	U	16000	460
GS2-H9_0-.5	soil	GS2H9_0-.5	23-OCT-1997	18000	320	U	46000	2000
GS2I1	dust/concrete	GS2I1	21-OCT-1997	2000	U	290	20000	530
GS2-I1_0-.5	soil	GS2I1_0-.5	23-OCT-1997	660	300	1500	120000	1100
GS2I1_0-.5D	soil	GS2I1_0-.5D	23-OCT-1997	270	420	1700	130000	880
GS2I2	dust/concrete	GS2I2	21-OCT-1997	770	U	280	45000	3900
GS2-I2_0-.5	soil	GS2I2_0-.5	23-OCT-1997	U	230	900	110000	1600
GS2-J1	soil/veg	GS2J1	21-OCT-1997	U	U	U	7700	430
GS2-J10	soil/gravel	GS2J10	21-OCT-1997	U	U	U	5400	400
GS2-J11	moist soil/gravel	GS2J11	21-OCT-1997	U	U	U	6800	380
GS2-J12	moist soil/gravel	GS2J12	21-OCT-1997	U	U	U	8200	430
GS2-J13	moist soil/gravel	GS2J13	21-OCT-1997	U	U	U	8500	U
GS2-J14	moist soil/gravel	GS2J14	21-OCT-1997	U	U	210	18000	560
GS2-J15	soil/gravel	GS2J15	21-OCT-1997	U	U	U	6000	240
GS2-J16	soil/gravel	GS2J16	21-OCT-1997	U	U	U	12000	580
GS2-J2	soil/gravel	GS2J2	21-OCT-1997	U	U	200	12000	600
GS2-J3	asphalt	GS2J3	21-OCT-1997	U	U	250	25000	650
GS2-J4	soil/gravel	GS2J4	21-OCT-1997	U	U	170	10000	450
GS2-J5	moist soil/gravel	GS2J5	21-OCT-1997	U	U	U	17000	280

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
Final FPXRF data; MDL Qualified; 2 Significant Figures
Soil / Concrete / Brick

			MDL	70	180	150	360	230
XRF ID	MATRIX	LOCATION	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
GS2-J6	moist soil/gravel	GS2J6	21-OCT-1997	U	U	U	11000	330
GS2-J7	moist soil/gravel	GS2J7	21-OCT-1997	U	U	310	30000	550
GS2-J8	asphalt	GS2J8	21-OCT-1997	U	U	U	3300	370
GS2-J9	moist soil/gravel	GS2J9	21-OCT-1997	U	U	U	9600	U
GS2-K1	soil/gravel	GS2K1	21-OCT-1997	420	U	280	16000	540
GS2-K10	moist soil	GS2K10	21-OCT-1997	140	U	U	11000	380
GS2-K11	moist soil	GS2K11	21-OCT-1997	300	U	U	3700	650
GS2K12	gravel/soil	GS2K12	21-OCT-1997	140	U	160	16000	730
GS2K13	soil/veg/gravel	GS2K13	21-OCT-1997	130	U	U	7200	420
GS2K14	dust/gravel	GS2K14	21-OCT-1997	740	U	U	16000	1500
921	soil	GS2K14-1.5-2.0'	19-NOV-1997	U	U	U	U	U
GS2K15	gravel/soil	GS2K15	21-OCT-1997	160	U	U	21000	370
GS2K16	soil/gravel	GS2K16	21-OCT-1997	U	U	380	34000	430
GS2K17	vegetation	GS2K17	21-OCT-1997	U	U	U	U	U
GS2K18	gravel/soil	GS2K18	21-OCT-1997	U	U	250	20000	380
GS2K19	veg/soil	GS2K19	21-OCT-1997	310	U	U	660	560
GS2-K1_0-2	soil	GS2K1_0-2	23-OCT-1997	U	U	U	5400	U
GS2-K1_5-6	soil	GS2K1_5-6	23-OCT-1997	U	U	U	U	U
GS2-K2	soil/veg	GS2K2	21-OCT-1997	150	U	U	9500	290
GS2K20	gravel/soil	GS2K20	21-OCT-1997	160	U	U	9000	U
GS2K21	gravel/soil/veg	GS2K21	21-OCT-1997	270	U	U	9600	470
GS2K22	gravel/soil/veg	GS2K22	21-OCT-1997	92	U	U	2600	U
GS2K23	gravel/soil	GS2K23	21-OCT-1997	U	U	U	9300	280
GS2K24	veg/soil	GS2K24	21-OCT-1997	150	U	U	9600	480
GS2K25	gravel/soil	GS2K25	21-OCT-1997	U	U	U	1400	U
GS2K26	soil/veg/gravel	GS2K26	21-OCT-1997	95	U	U	3800	U
GS2K27	gravel/sand	GS2K27	21-OCT-1997	U	U	U	890	U
GS2K28	soil/veg	GS2K28	21-OCT-1997	120	U	U	3900	U
GS2K29	soil/veg	GS2K29	21-OCT-1997	U	U	U	5700	310
GS2-K3	soil/gravel	GS2K3	21-OCT-1997	U	U	U	25000	U
GS2K30	soil/veg	GS2K30	21-OCT-1997	130	U	U	6700	460
GS2-K4	moist soil	GS2K4	21-OCT-1997	190	U	U	15000	920
GS2-K5	soil/gravel	GS2K5	21-OCT-1997	230	200	180	28000	520
GS2-K5_0-2	soil	GS2K5_0-2	23-OCT-1997	400	230	U	52000	430
GS2-K5_5-6	soil	GS2K5_5-6	23-OCT-1997	160	U	U	1100	U
GS2-K6	moist soil	GS2K6	21-OCT-1997	160	U	U	11000	380
GS2-K7	moist soil	GS2K7	21-OCT-1997	U	U	U	16000	310
GS2-K8	mosit soil/gravel	GS2K8	21-OCT-1997	120	U	U	3300	230
GS2-K9	sand	GS2K9	21-OCT-1997	U	U	U	U	U
GS2-S1	moist soil	GS2S1	21-OCT-1997	390	U	U	1900	U
3-4GS2S1	soil	GS2S1-3-4	23-OCT-1997	120	230	U	1900	U
GS2-S1_0-2	soil	GS2S1_0-2	23-OCT-1997	360	U	U	2700	260
GS3A4	soil/gravel	GS3A4	15-OCT-1997	130	U	U	3100	530
GS3A5	soil/gravel	GS3A5	15-OCT-1997	U	U	U	2900	290
GS3A6	soil/gravel	GS3A6	15-OCT-1997	U	U	U	2600	1000
GS3A7	soil/gravel	GS3A7	15-OCT-1997	U	U	U	3800	680
GS3A8	soil/gravel	GS3A8	15-OCT-1997	U	U	U	3700	1200
GS3B-1	soil	GS3B1	15-OCT-1997	U	U	150	4000	360
GS3B10	soil/gravel	GS3B10	15-OCT-1997	U	U	U	2700	440
GS3B11	soil/gravel	GS3B11	15-OCT-1997	180	U	U	1500	390
GS3B12	soil/gravel	GS3B12	15-OCT-1997	120	U	U	2400	450
GS3B13	soil/gravel	GS3B13	15-OCT-1997	140	U	U	2700	320
GS3B14	soil/gravel	GS3B14	15-OCT-1997	210	U	U	3200	400
GS3B15	soil	GS3B15	15-OCT-1997	170	U	U	3200	420
GS3B16	soil/gravel	GS3B16	15-OCT-1997	240	U	U	6600	U
GS3B17	soil/gravel	GS3B17	15-OCT-1997	280	U	U	16000	350
GS3B2	soil	GS3B2	15-OCT-1997	U	U	U	3700	420
GS3B3	soil/vegetation	GS3B3	15-OCT-1997	U	U	U	3700	410
GS3B4	soil/vegetation	GS3B4	15-OCT-1997	U	U	U	430	U
GS3B5	soil/gravel	GS3B5	15-OCT-1997	U	U	U	860	260
GS3B6	soil/gravel	GS3B6	15-OCT-1997	U	U	U	970	270
GS3B7	soil/gravel	GS3B7	15-OCT-1997	U	U	U	1400	250
GS3B8	soil/gravel	GS3B8	15-OCT-1997	U	U	U	3100	260

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
Final FPXRF data; MDL Qualified; 2 Significant Figures
Soil / Concrete / Brick

			MDL	70	180	150	360	230
XRF ID	MATRIX	LOCATION	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
GS3B9	soil/gravel	GS3B9	15-OCT-1997	180	U	U	5200	300
GS3C1	soil/gravel	GS3C1	15-OCT-1997	420	U	U	8200	2700
922	soil	GS3C1-1.5-2.0'	19-NOV-1997	U	U	U	720	250
923	soil	GS3C1-3.5-4.0'	19-NOV-1997	U	U	U	U	U
GS3C10	soil/gravel	GS3C10	15-OCT-1997	700	210	U	5700	620
0-2GS3C10	soil	GS3C10-0-2	23-OCT-1997	2000	810	240	21000	1800
5-6GS3C10	soil	GS3C10-5-6	23-OCT-1997	870	480	180	20000	1800
GS3C11	soil/gravel	GS3C11	15-OCT-1997	170	U	U	3300	410
GS3C12	soil/gravel	GS3C12	15-OCT-1997	360	U	U	3400	570
GS3C13	soil/gravel	GS3C13	15-OCT-1997	U	U	U	540	240
GS3C14	soil/gravel	GS3C14	15-OCT-1997	170	U	U	1400	350
GS3C17	soil/gravel	GS3C17	15-OCT-1997	U	U	U	1500	540
GS3C2	soil/gravel	GS3C2	15-OCT-1997	U	U	350	46000	U
GS3C3	soil/gravel	GS3C3	15-OCT-1997	U	U	U	2500	350
GS3C4	soil/gravel	GS3C4	15-OCT-1997	300	U	U	2500	410
GS3C5	soil/gravel	GS3C5	15-OCT-1997	U	U	U	1700	U
GS3C6	soil/gravel	GS3C6	15-OCT-1997	250	U	U	4700	560
GS3C7	soil/gravel	GS3C7	15-OCT-1997	500	U	U	5500	380
GS3C8	soil/gravel	GS3C8	15-OCT-1997	74	U	U	1800	U
GS3C9	soil/gravel	GS3C9	15-OCT-1997	370	180	U	3000	370
GS3D10	soil/gravel	GS3D10	15-OCT-1997	620	210	U	4000	710
0-2GS3D10	soil	GS3D10-0-2	23-OCT-1997	1100	400	200	7800	1100
926	soil	GS3D10-1.25-1.75'	19-NOV-1997	95	240	U	U	390
927	soil	GS3D10-2.75-3.25'	19-NOV-1997	U	U	U	U	U
5-6GS3D10	soil	GS3D10-5-6	23-OCT-1997	880	460	340	18000	1400
GS3D11	soil/gravel	GS3D11	15-OCT-1997	270	U	U	1500	660
GS3D4	soil/vegetation	GS3D4	15-OCT-1997	85	U	U	3100	420
GS3D5	soil/gravel	GS3D5	15-OCT-1997	310	U	U	4300	420
GS3D6	soil/gravel	GS3D6	15-OCT-1997	1500	U	180	4500	590
GS3D7	soil/gravel	GS3D7	15-OCT-1997	500	U	U	3400	420
GS3D8	soil/gravel	GS3D8	15-OCT-1997	440	U	U	3300	420
GS3D9	soil/gravel	GS3D9	15-OCT-1997	490	190	180	3800	730
GS3E5	soil/gravel	GS3E5	15-OCT-1997	340	U	U	3900	520
GS3E6	soil/gravel	GS3E6	15-OCT-1997	1600	240	U	4800	750
0-2GS3E6	soil	GS3E6-0-2	23-OCT-1997	1500	240	170	9700	870
924	soil	GS3E6-1.5-2.0'	19-NOV-1997	71	U	U	2000	U
925	soil	GS3E6-3.0-3.5'	19-NOV-1997	U	U	U	U	U
925DUP	soil	GS3E6-3.0-3.5'	19-NOV-1997	U	U	U	U	U
5-6GS3E6	soil	GS3E6-5-6	23-OCT-1997	800	200	U	7700	710
GS3E7R	soil/gravel	GS3E7	15-OCT-1997	1400	U	U	3800	640
GS3E7	soil/gravel	GS3E7	15-OCT-1997	1600	U	U	4200	710
GS3E7	soil/gravel	GS3E7	15-OCT-1997	1000	U	U	2600	470
0-2GS3E7	soil	GS3E7-0-2	23-OCT-1997	3800	370	220	11000	1800
5-6GS3E7	soil	GS3E7-5-6	23-OCT-1997	1700	380	180	17000	1400
GS3E8	soil/gravel	GS3E8	15-OCT-1997	200	U	U	2700	470
GS3F5	soil/vegetation	GS3F5	15-OCT-1997	450	U	U	7100	750
GS3F6	soil/vegetation	GS3F6	15-OCT-1997	770	U	U	6700	770
GS3G1	soil/vegetation	GS3G1	15-OCT-1997	U	U	U	U	U
GS3G2-REP	soil/vegetation	GS3G2	15-OCT-1997	140	U	U	1300	650
GS3G2	soil/vegetation	GS3G2	15-OCT-1997	78	U	U	630	300
GS3G3	soil/vegetation	GS3G3	15-OCT-1997	210	U	U	3100	880
GS3G4	soil/vegetation	GS3G4	15-OCT-1997	710	U	U	2600	1200
GS3G5	soil/vegetation	GS3G5	15-OCT-1997	1500	U	U	770	2400
GS3H3	soil/vegetation	GS3H3	15-OCT-1997	120	U	U	1200	300
GS3H4	soil/vegetation	GS3H4	15-OCT-1997	510	U	U	640	630
GS3H5	soil/vegetation	GS3H5	15-OCT-1997	550	U	U	970	1200
GS3I1	concrete	GS3I1	16-OCT-1997	530	310	U	2100	11000
GS3I2	soil over concrete	GS3I2	16-OCT-1997	1900	U	U	860	3800
GS3I3REP2	soil over concrete	GS3I3	16-OCT-1997	130	250	U	2500	30000
GS3I4	dust over concrete	GS3I4	16-OCT-1997	370	U	U	2600	2500
GS3I5	soil/dust over concrete	GS3I5	16-OCT-1997	300	U	U	3100	4200
GS3I6	soil/dust over concrete	GS3I6	16-OCT-1997	1200	U	U	9900	3400
GS3I7	soil/dust over concrete	GS3I7	16-OCT-1997	760	U	240	5600	4300

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
Final FPXRF data; MDL Qualified; 2 Significant Figures
Soil / Concrete / Brick

			MDL	70	180	150	360	230
XRF ID	MATRIX	LOCATION	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
GS3I8	soil/dust over concrete	GS3I8	16-OCT-1997	340	U	U	7400	2300
GS3I9	soil/dust over concrete	GS3I9	16-OCT-1997	180	U	U	3400	500
GS3J1	soil/dust over concrete	GS3J1	16-OCT-1997	1600	U	U	3400	4800
GS3J2	soil/dust over concrete	GS3J2	16-OCT-1997	4800	U	U	3900	8800
GS3J3	soil/dust over concrete	GS3J3	16-OCT-1997	3400	U	U	8400	8900
GS3J3-5-6	soil	GS3J3-5-6	24-OCT-1997	U	U	U	4000	580
GS3J4	soil/dust over concrete	GS3J4	16-OCT-1997	5500	U	U	4000	5200
0-5GS3J4	soil	GS3J4-0-.5	23-OCT-1997	910	500	310	9400	4700
911	soil	GS3J4-1.0-1.5'	18-NOV-1997	U	U	U	U	U
912	soil	GS3J4-2.5-3.0'	18-NOV-1997	U	U	U	U	240
GS3J4-5-6	soil	GS3J4-5-6	24-OCT-1997	420	U	U	2400	1200
GS3J5	soil/dust over concrete	GS3J5	16-OCT-1997	900	U	U	3900	2400
GS3J6	soil/dust over concrete	GS3J6	16-OCT-1997	91	U	U	2000	540
GS3J7	soil/dust over concrete	GS3J7	16-OCT-1997	430	U	U	8300	2700
GS3J8	soil	GS3J8	17-OCT-1997	670	U	U	5900	3800
GS3J9	soil/dust over concrete	GS3J9	16-OCT-1997	290	U	180	9100	1700
GS3K1	moist soil	GS3K1	16-OCT-1997	1800	U	U	1900	7300
GS3K2	soil over concrete	GS3K2	16-OCT-1997	900	U	U	520	1600
GS3K3	soil/concrete	GS3K3	16-OCT-1997	2700	U	U	3400	6700
GS3K4	veg/concrete	GS3K4	16-OCT-1997	680	200	U	2600	1800
GS3K5	soil/concrete	GS3K5	16-OCT-1997	420	U	U	2800	2400
GS3K6	dust	GS3K6	16-OCT-1997	530	310	200	3400	2000
0-2GS3K6	soil	GS3K6-0-2	23-OCT-1997	390	350	U	6600	2100
5-6GS3K6	soil	GS3K6-5-6	23-OCT-1997	U	U	U	U	U
GS3K7	moist soil	GS3K7	16-OCT-1997	620	420	U	2600	1400
0-2GS3K7	soil	GS3K7-0-2	23-OCT-1997	730	540	220	11000	1800
907	soil	GS3K7-1.75-2.25'	18-NOV-1997	U	U	U	U	U
3-4GS3K7	soil	GS3K7-3-4	23-OCT-1997	900	500	300	8400	960
908	soil	GS3K7-3.5-4.0'	18-NOV-1997	U	U	U	U	740
GS3K8	moist soil	GS3K8	16-OCT-1997	1300	U	U	5000	900
GS3K9	dust	GS3K9	16-OCT-1997	330	360	160	8400	1900
GS3L1	soil/gravel	GS3L1	16-OCT-1997	730	U	U	3000	1500
GS3L2	dust on concrete	GS3L2	16-OCT-1997	760	U	U	770	6200
GS3L3	crust/concrete	GS3L3	17-OCT-1997	540	U	150	4200	5300
GS3L4	soil over concrete	GS3L4	17-OCT-1997	450	U	300	5200	8600
GS3L5	dust	GS3L5	17-OCT-1997	520	U	U	4100	4200
GS3L6	moist soil/brick	GS3L6	17-OCT-1997	670	U	170	7200	4700
GS3L7	moist soil/brick	GS3L7	17-OCT-1997	440	U	260	8000	2300
GS3L8	dust/metal	GS3L8	17-OCT-1997	560	250	U	9800	3700
0-5GS3L8	soil	GS3L8-0-.5	23-OCT-1997	510	620	U	17000	4800
GS3L9	dust	GS3L9	16-OCT-1997	190	U	U	2800	350
GS3M1	dust	GS3M1	20-OCT-1997	U	190	840	76000	2500
GS3M2	dust/concrete	GS3M2	20-OCT-1997	U	U	830	71000	2700
GS3M3	dust/concrete	GS3M3	20-OCT-1997	U	U	1100	99000	2600
GS3N1	gravel	GS3N1	17-OCT-1997	U	U	310	45000	1100
GS3N10	dust	GS3N10	20-OCT-1997	U	270	280	35000	2200
GS3N11	dust	GS3N11	17-OCT-1997	U	U	U	14000	850
GS3N12	moist soil	GS3N12	20-OCT-1997	390	U	210	20000	930
GS3N13	dust	GS3N13	17-OCT-1997	420	U	200	26000	1500
4-5GS3N13	soil	GS3N13-4-5	23-OCT-1997	380	680	460	46000	1100
GS3N14DUP	dust	GS3N14	20-OCT-1997	2600	U	630	24000	4400
GS3N14	dust	GS3N14	20-OCT-1997	3200	U	U	22000	4500
GS3N15	dust/concrete	GS3N15	17-OCT-1997	1000	580	420	41000	3400
0-5GS3N15	soil	GS3N15-0-.5	23-OCT-1997	340	470	620	76000	5100
0-5GS3N15DUP	soil	GS3N15-0-.5	23-OCT-1997	540	630	420	75000	4800
903	soil	GS3N15-1.0-1.5'	18-NOV-1997	U	U	U	U	280
904DUP	soil	GS3N15-2.5-3.0'	18-NOV-1997	U	U	U	470	U
904	soil	GS3N15-2.5-3.0'	18-NOV-1997	U	U	U	830	U
GS3N15-5-6	soil	GS3N15-5-6	24-OCT-1997	U	U	270	23000	670
GS3N16	moist soil	GS3N16	20-OCT-1997	550	480	490	29000	3200
0-5GS3N16	soil	GS3N16-0-.5	23-OCT-1997	U	250	670	64000	2800
901	soil	GS3N16-2.0-2.5'	18-NOV-1997	U	U	U	U	370
902	soil	GS3N16-3.0-3.5'	18-NOV-1997	U	U	U	U	U

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
Final FPXRF data; MDL Qualified; 2 Significant Figures
Soil / Concrete / Brick

			MDL	70	180	150	360	230
XRF ID	MATRIX	LOCATION	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
GS3N17	moist soil	GS3N17	17-OCT-1997	1100	U	290	25000	3200
GS3N18	dust	GS3N18	20-OCT-1997	U	270	640	33000	2800
GS3N19	moist soil	GS3N19	17-OCT-1997	1000	U	180	30000	2500
GS3N2	moist soil	GS3N2	20-OCT-1997	U	U	U	24000	1200
GS3N20	dust	GS3N20	20-OCT-1997	340	U	180	32000	2500
GS3N21	dust	GS3N21	17-OCT-1997	550	U	U	5500	1400
GS3N22DUP	dust	GS3N22	20-OCT-1997	1500	U	U	14000	2600
GS3N22	dust	GS3N22	20-OCT-1997	1400	U	290	13000	2800
GS3N23	dust	GS3N23	17-OCT-1997	900	U	150	14000	3000
GS3N24	dust	GS3N24	20-OCT-1997	110	290	220	16000	4800
905	soil	GS3N24-0.75-1.25'	18-NOV-1997	220	460	U	12000	400
906	soil	GS3N24-1.5-2.0'	18-NOV-1997	U	190	U	1800	U
GS3N25	moist soil	GS3N25	17-OCT-1997	710	U	U	2500	2000
GS3N26	dust	GS3N26	20-OCT-1997	U	U	U	9600	1600
GS3N3	dust/concrete	GS3N3	17-OCT-1997	76	U	340	24000	1800
GS3N4	soil	GS3N4	20-OCT-1997	U	U	270	41000	2700
GS3N5	dust	GS3N5	17-OCT-1997	350	U	U	18000	840
GS3N6	moist soil	GS3N6	20-OCT-1997	U	300	340	43000	1500
899	soil	GS3N6(b)-2.5-3.0'	18-NOV-1997	U	U	U	U	2000
900	soil	GS3N6(b)-5.5-6.0'	18-NOV-1997	U	U	U	U	1400
GS3N7	dust	GS3N7	17-OCT-1997	U	270	U	12000	590
GS3N8	dust	GS3N8	20-OCT-1997	U	U	400	36000	2400
GS3N9	dust	GS3N9	17-OCT-1997	U	190	280	33000	2400
GS3S1	soil/dust over concrete	GS3S1	16-OCT-1997	230	U	U	7400	2000
GS3S10	moist dust	GS3S10	16-OCT-1997	680	490	U	15000	1700
0-2GS3S10	soil	GS3S10-0-2	23-OCT-1997	640	730	220	23000	570
5-6GS3S10	soil	GS3S10-5-6	23-OCT-1997	430	370	270	6300	790
GS3S11	moist dust	GS3S11	16-OCT-1997	310	U	270	6900	480
GS3S12	dust	GS3S12	16-OCT-1997	440	U	180	10000	1700
4-5GS3S12	soil	GS3S12-4-5	23-OCT-1997	410	640	U	6500	490
4-5GS3S12DUP	soil	GS3S12-4-5	23-OCT-1997	610	560	170	7000	690
GS3S13	dust/concrete	GS3S13	17-OCT-1997	660	U	240	5100	2400
GS3S13-5-6	soil	GS3S13-5-6	24-OCT-1997	810	660	180	9300	650
GS3S14	soil/dust over concrete	GS3S14	16-OCT-1997	400	U	170	5200	2100
GS3S15	veg/soil/concrete	GS3S15	17-OCT-1997	78	U	U	1200	520
GS3S16	soil	GS3S16	17-OCT-1997	180	U	280	4500	1100
GS3S17	soil	GS3S17	17-OCT-1997	140	U	200	27000	1400
GS3S18	soil/dust over concrete	GS3S18	16-OCT-1997	880	U	U	4200	2600
913	soil	GS3S18-2-2.5'	18-NOV-1997	U	U	U	U	410
914	soil	GS3S18-4-4.5'	19-NOV-1997	U	U	U	U	550
GS3S19	soil/dust over concrete	GS3S19	16-OCT-1997	780	U	170	3900	2900
GS3S2	soil/dust over concrete	GS3S2	16-OCT-1997	420	U	160	5700	2100
GS3S20	soil/dust over concrete	GS3S20	16-OCT-1997	470	U	180	3000	2100
GS3S21	soil/dust over concrete	GS3S21	16-OCT-1997	320	210	U	1700	1800
GS3S22	dust	GS3S22	16-OCT-1997	710	U	U	2000	1200
GS3S23	dust	GS3S23	16-OCT-1997	470	U	U	4000	3800
GS3S24	moist dust	GS3S24	16-OCT-1997	310	U	U	2400	2100
GS3S25	moist dust	GS3S25	16-OCT-1997	660	U	U	3200	3100
GS3S26	dust on brick	GS3S26	17-OCT-1997	510	290	U	4800	3000
0-5GS3S26	soil	GS3S26-0-.5	23-OCT-1997	800	200	U	7300	3400
GS3S26-5-6	soil	GS3S26-5-6	24-OCT-1997	U	U	U	U	U
GS3S26D5-6	soil	GS3S26D5-6	24-OCT-1997	U	U	U	U	U
GS3S27	dust over concrete	GS3S27	16-OCT-1997	1200	U	U	2700	6400
GS3S28	soil/dust over concrete	GS3S28	16-OCT-1997	2500	U	U	4200	8100
GS3S29	mold/concrete	GS3S29	16-OCT-1997	3500	U	U	1500	5300
GS3S3	soil/dust over concrete	GS3S3	16-OCT-1997	400	U	U	5600	1900
GS3S30	dust/concrete	GS3S30	16-OCT-1997	1800	U	U	2000	7800
GS3S31	soil/dust over concrete	GS3S31	16-OCT-1997	3000	U	U	660	5700
GS3S32	soil over concrete	GS3S32	16-OCT-1997	8500	U	U	2600	11000
GS3S33	dust/concrete	GS3S33	16-OCT-1997	240	U	150	1800	14000
GS3S34	dust/concrete	GS3S34	16-OCT-1997	2000	U	U	830	5900
GS3S35	dust/concrete	GS3S35	16-OCT-1997	710	U	U	870	5700
GS3S36	dust/concrete	GS3S36	16-OCT-1997	860	U	U	1000	1600

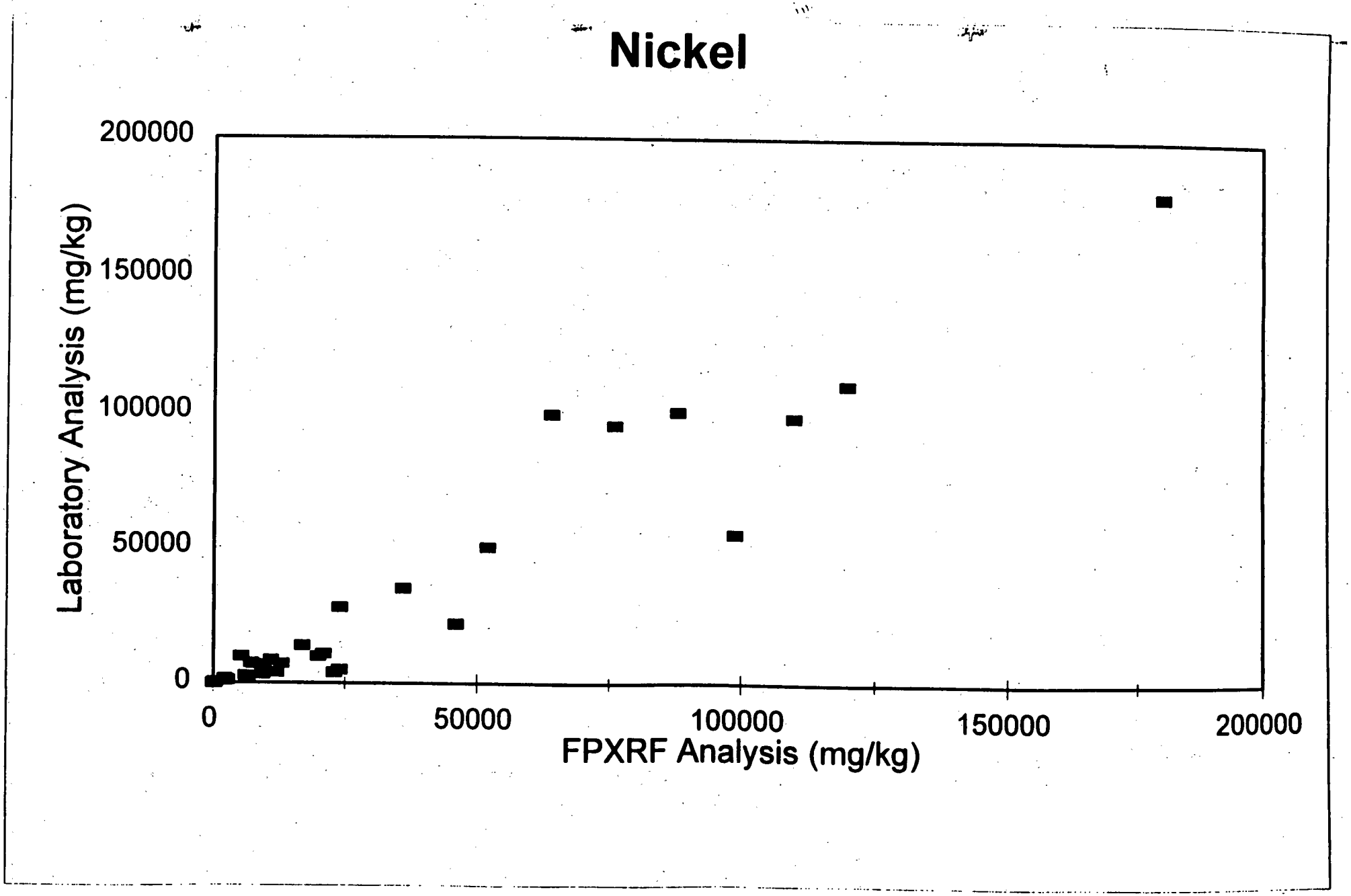
Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
Final FPXRF data; MDL Qualified; 2 Significant Figures
Soil / Concrete / Brick

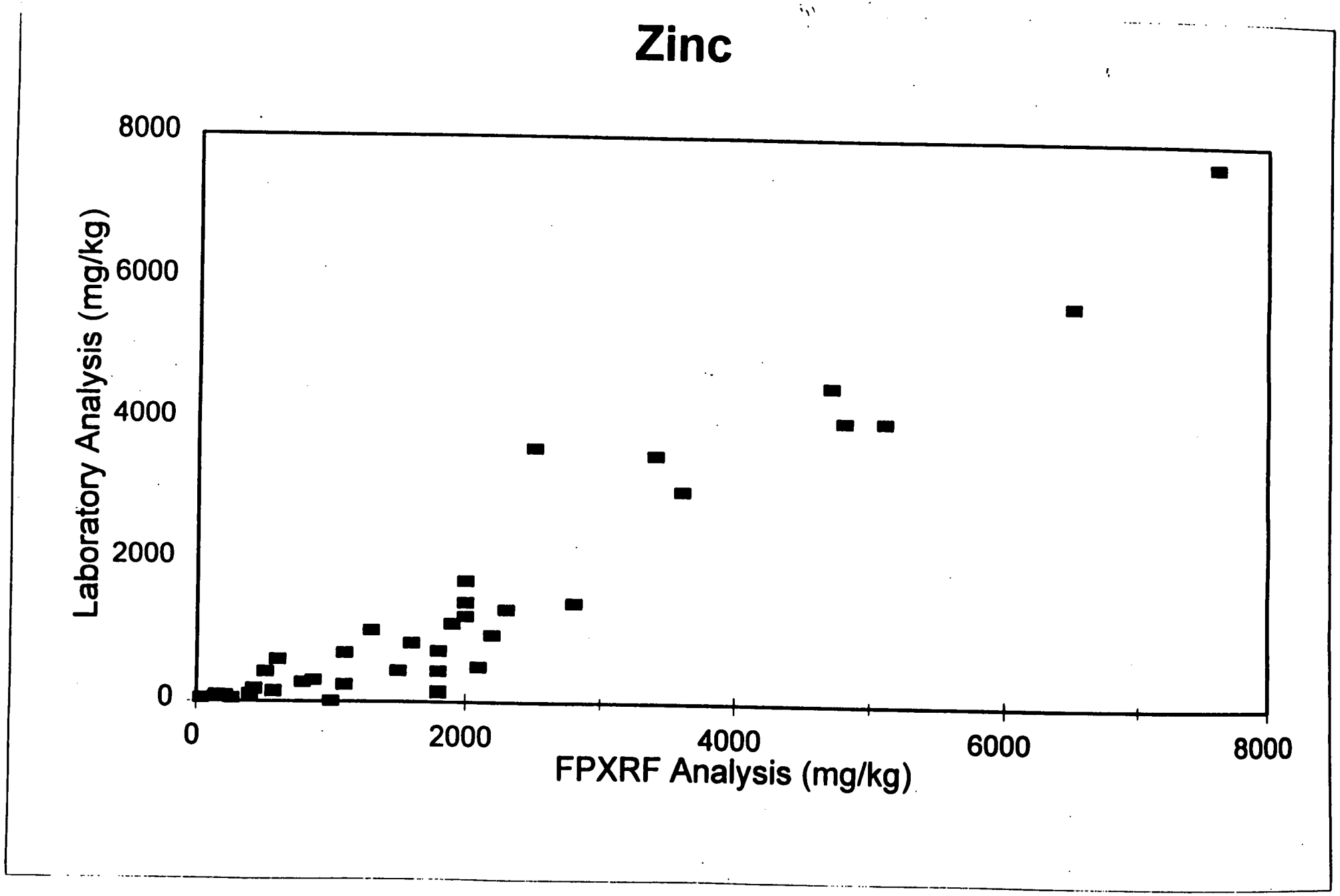
XRF ID	MATRIX	LOCATION	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
MDL				70	180	150	360	230
4-5GS3S36	soil	GS3S36-4-5	23-OCT-1997	410	250	U	2200	1200
GS3S37	soil/gravel	GS3S37	16-OCT-1997	690	U	U	2800	2400
GS3S38	soil/gravel	GS3S38	16-OCT-1997	290	U	U	2000	1500
GS3S39DUP	soil/dust over concrete	GS3S39	16-OCT-1997	10000	U	U	2200	12000
GS3S39	soil/dust over concrete	GS3S39	16-OCT-1997	10000	260	U	2000	11000
0-5GS3S39	soil	GS3S39-0-.5	23-OCT-1997	4700	270	U	2200	7600
GS3S4	soil/dust over concrete	GS3S4	16-OCT-1997	550	U	U	9800	3500
GS3S5	soil/dust over concrete	GS3S5	16-OCT-1997	240	U	340	5100	4600
GS3S6	soil/dust over concrete	GS3S6	16-OCT-1997	2400	450	190	2600	3300
0-5GS3S6	soil	GS3S6-0-.5	23-OCT-1997	1300	U	U	2200	2500
GS3S6-5-6	soil	GS3S6-5-6	24-OCT-1997	1600	330	170	3800	1000
GS3S7	soil/dust over concrete	GS3S7	16-OCT-1997	270	U	200	4900	800
5-6GS3S7	soil	GS3S7-5-6	23-OCT-1997	1200	550	160	9400	760
GS3S8	soil/dust over concrete	GS3S8	16-OCT-1997	1000	210	U	10000	3300
GS3S9	moist soil	GS3S9	16-OCT-1997	1300	240	U	9400	940
0-2GS3S9	soil	GS3S9-0-2	23-OCT-1997	2400	800	U	24000	1500
909	soil	GS3S9-2.0-2.5'	18-NOV-1997	81	U	U	U	U
910	soil	GS3S9-3.25-3.75'	18-NOV-1997	U	U	U	U	600
5-6GS3S9	soil	GS3S9-5-6	23-OCT-1997	260	U	U	1400	500
GS3X1	dust/concrete	GS3X1	17-OCT-1997	310	U	U	1200	1100
GS3X2	dust/concrete	GS3X2	17-OCT-1997	100	U	U	670	990

MDL - method detection Limit; U - Not Detected (less than the MDL)
DUP - duplicate sample; REP - repeat sample measurement

Pb can interfere with the As analysis at Pb:As ratios of 5:1 or greater.
Therefore the presence of As may be masked for samples with Pb concentrations of 500 mg/kg or greater.

High Ni concentrations (>50000) may interfere with Pb, Cd, As, and Zn analyses.


Nickel
200000
150000
100000
50000
0
Laboratory Analysis (mg/kg)
0
50000
100000
150000
200000
FPXRF Analysis (mg/kg)


Zinc
8000
6000
4000
2000
0
Laboratory Analysis (mg/kg)
0
2000
4000
6000
8000
FPXRF Analysis (mg/kg)

REGRESSION ANALYSIS: LAB (DEPENDENT) VS. XRF (INDEPENDENT)

Zinc (Zn):

XRF ID	FPXRF	Lab	Zn: all data Pred	Res	StdRes
5-6GS3K6	39	49	-498	-547	-0.9
GS3S26-5-6	140	63	-401	-464	-0.8
925	150	97	-391	-488	-0.8
GS2-K1_0-2	210	87	-333	-420	-0.7
GS2-S1_0-2	260	52	-284	-336	-0.6
905	400	110	-149	-259	-0.4
GS2-K5_0-2	430	180	-120	-300	-0.5
GS2H23-5-6	510	420	-42	-462	-0.8
0-2GS3S10	570	150	16	-134	-0.2
916	600	590	45	-545	-0.9
5-6GS3S10	790	270	229	-41	-0.1
0-2GS3E6	870	300	306	6	0.0
GS2-I1_0-.5	1100	680	529	-151	-0.3
0-2GS3D10	1100	240	529	289	0.5
0-2GS2C5	1300	1000	723	-277	-0.5
0-2GS3S9	1500	440	917	477	0.8
GS2-I2_0-.5	1600	820	1013	193	0.3
0-2GS3C10	1800	150	1207	1057	1.8
0-2GS3K7	1800	710	1207	497	0.8
0-2GS3E7	1800	430	1207	777	1.3
5-6GS3C10	1800	140	1207	1067	1.8
GS2H18_0-.5	1900	1100	1304	204	0.3
GS2H23_0-.5	2000	1200	1401	201	0.3
GS2-H9_0-.5	2000	1700	1401	-299	-0.5
GS2-H7_0-.5	2000	1400	1401	1	0.0
0-2GS3K6	2100	490	1498	1008	1.7
GS2-B5_0-2	2200	940	1595	655	1.1
0-2GS2A5	2300	1300	1691	391	0.7
0-5GS3S8	2500	3600	1885	-1715	-2.9
0-5GS3N16	2800	1400	2176	776	1.3
0-5GS3S26	3400	3500	2757	-743	-1.3
GS2-A6_0-2	3600	3000	2951	-49	-0.1
0-5GS3J4	4700	4500	4016	-484	-0.8
0-5GS3L8	4800	4000	4113	113	0.2
0-5GS3N15	5100	4000	4403	403	0.7
GS2H32_0-.5	6500	5700	5759	59	0.1
0-5GS3S39	7600	7700	6825	-875	-1.5
5-6GS2C5	1000	17	432	415	0.7

Zn: all data

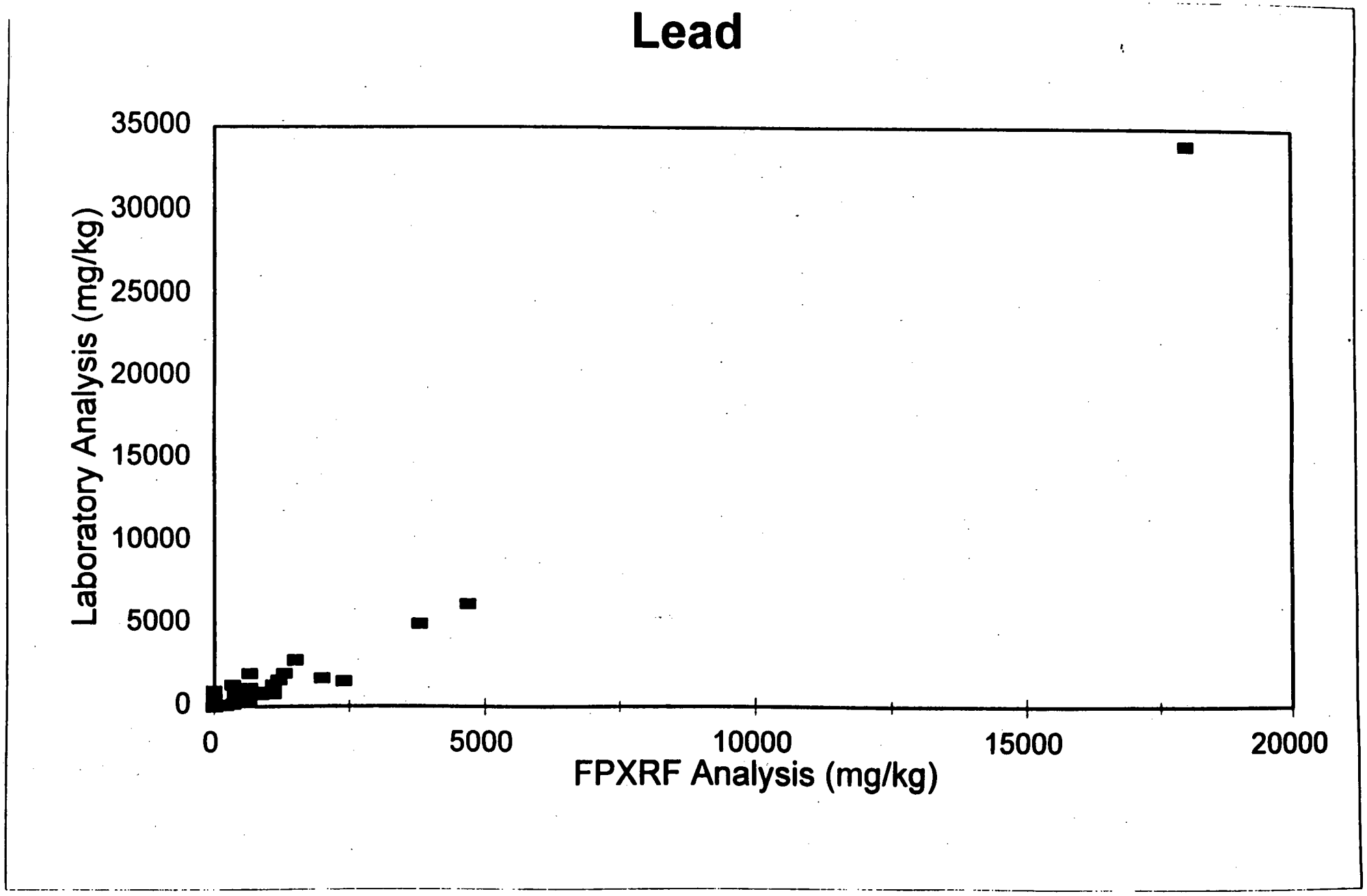
Regression Output:

Constant	-536.19
Std Err of Y Est	589.315
R Squared	0.89736
No. of Observations	38
Degrees of Freedom	36
X Coefficient(s)	0.96853
Std Err of Coef.	0.05459
t-value	17.7409

Zn: w/o 5-6GS2C5

Regression Output:

Constant	-517.69
Std Err of Y Est	593.388
R Squared	0.89721
No. of Observations	37
Degrees of Freedom	35
X Coefficient(s)	0.96491
Std Err of Coef.	0.0552
t-value	17.4787


Lead
35000
30000
25000
20000
15000
10000
5000
0
Laboratory Analysis (mg/kg)
0
5000
10000
15000
20000
FPXRF Analysis (mg/kg)

REGRESSION ANALYSIS: LAB (DEPENDENT) VS. XRF (INDEPENDENT)

Lead (Pb):

XRF ID	FPXRF	Lab		Pb: all data Pred	Res	StdRes
GS3S26-5-6	0	7.3		-350	-357	-0.4
5-6GS3K6	8	5.2		-335	-340	-0.4
925	16	13		-321	-334	-0.4
916	18	14		-317	-331	-0.4
GS2-K1_0-2	28	100		-299	-399	-0.5
GS2H23-5-6	66	110		-229	-339	-0.4
905	220	100		52	-48	-0.1
GS2-S1_0-2	360	170		308	138	0.2
0-2GS3K6	390	1000		363	-637	-0.7
GS2-K5_0-2	400	610		381	-229	-0.3
5-6GS3S10	430	390		436	46	0.1
0-5GS3L8	510	950		582	-368	-0.4
GS2H23_0-.5	560	490		673	183	0.2
GS2H32_0-.5	620	750		783	33	0.0
0-2GS3S10	640	330		820	490	0.6
GS2H18_0-.5	660	1100		856	-244	-0.3
0-2GS3K7	730	810		984	174	0.2
0-5GS3S26	800	860		1112	252	0.3
5-6GS3C10	870	730		1240	510	0.6
0-5GS3J4	910	840		1313	473	0.5
0-2GS2A5	1100	780		1660	880	1.0
0-2GS3D10	1100	1300		1660	360	0.4
GS2-H7_0-.5	1100	1300		1660	360	0.4
GS2-A6_0-2	1200	1600		1843	243	0.3
0-5GS3S6	1300	2000		2026	26	0.0
0-2GS3E6	1500	2800		2391	-409	-0.5
0-2GS3C10	2000	1700		3305	1605	1.8
0-2GS3S9	2400	1500		4036	2536	2.9
0-2GS3E7	3800	5000		6594	1594	1.8
0-5GS3S39	4700	6200		8238	2038	2.3
GS2-H9_0-.5	18000	34000		32541	-1459	-1.7
0-5GS3N16	0	850	**	-350	-1200	-1.4
GS2-B5_0-2	0	320	**	-350	-670	-0.8
0-2GS2C5	0	350	**	-350	-700	-0.8
GS2-I2_0-.5	0	940	**	-350	-1290	-1.5
5-6GS2C5	0	66	**	-350	-416	-0.5
0-5GS3N15	340	1300	**	271	-1029	-1.2
GS2-I1_0-.5	660	2000	**	856	-1144	-1.3

** sample contains high nickel concentration (> 50000 mg/kg)

Pb: all data

Regression Output:

Constant	-349.81
Std Err of Y Est	880.922
R Squared	0.97497
No. of Observations	38
Degrees of Freedom	36
X Coefficient(s)	1.82727
Std Err of Coef.	0.0488
t-value	37.4449

Pb; w/o high Ni samples

Regression Output:

Constant	-598.47
Std Err of Y Est	825.937
R Squared	0.98206
No. of Observations	31
Degrees of Freedom	29
X Coefficient(s)	1.85442
Std Err of Coef.	0.04654
t-value	39.848

Pb: XRF<10000 & w/o high Ni samples

Regression Output:

Constant	-52.578
Std Err of Y Est	438.641
R Squared	0.90494
No. of Observations	30
Degrees of Freedom	28
X Coefficient(s)	1.23565
Std Err of Coef.	0.07569
t-value	16.328

REGRESSION ANALYSIS: LAB (DEPENDENT) VS. XRF (INDEPENDENT)

Nickel(Ni):

XRF ID	FPXRF	Lab	Ni: all data Pred	Res	StdRes
5-6GS3K6	0	13	-2893	-2906	-0.2
925	31	31	-2862	-2893	-0.2
916	73	16	-2821	-2837	-0.2
GS3S26-5-6	280	100	-2618	-2718	-0.2
GS2H23-5-6	440	510	-2461	-2971	-0.2
0-5GS3S39	2200	1100	-734	-1834	-0.2
0-5GS3S6	2200	1700	-734	-2434	-0.2
GS2-S1_0-2	2700	1200	-244	-1444	-0.1
GS2-K1_0-2	5400	9900	2405	-7495	-0.6
5-6GS3S10	6300	2700	3289	589	0.0
0-2GS3K6	6600	1900	3583	1683	0.1
0-5GS3S26	7300	7600	4270	-3330	-0.3
0-2GS3D10	7800	7100	4760	-2340	-0.2
0-5GS3J4	9400	3300	6330	3030	0.3
0-2GS3E6	9700	6800	6624	-176	-0.0
GS2H32_0-.5	11000	8300	7900	-400	-0.0
0-2GS3K7	11000	4100	7900	3800	0.3
GS2H23_0-.5	11000	8600	7900	-700	-0.1
0-2GS3E7	11000	8500	7900	-600	-0.0
905	12000	4100	8881	4781	0.4
0-2GS2A5	13000	7200	9862	2662	0.2
GS2-A6_0-2	17000	14000	13787	-213	-0.0
0-5GS3L8	17000	14000	13787	-213	-0.0
5-6GS3C10	20000	10000	16730	6730	0.6
0-2GS3C10	21000	11000	17711	6711	0.6
0-2GS3S10	23000	4100	19673	15573	1.3
GS2-H7_0-.5	24000	28000	20654	-7346	-0.6
0-2GS3S9	24000	5000	20654	15654	1.3
GS2H18_0-.5	36000	35000	32428	-2572	-0.2
GS2-H9_0-.5	46000	22000	42239	20239	1.7
GS2-K5_0-2	52000	50000	48126	-1874	-0.2
0-5GS3N16	64000	99000	59900	-39100	-3.2
0-5GS3N15	76000	95000	71673	-23327	-1.9
0-2GS2C5	88000	100000	83447	-16553	-1.4
5-6GS2C5	99000	55000	94239	39239	3.3
GS2-I2_0-.5	110000	98000	105031	7031	0.6
GS2-I1_0-.5	120000	110000	114843	4843	0.4
GS2-B5_0-2	180000	180000	173710	-6290	-0.5

Ni: all data

Regression Output:

Constant	-2892.6
Std Err of Y Est	12057.6
R Squared	0.91958
No. of Observations	38
Degrees of Freedom	36
X Coefficient(s)	0.98113
Std Err of Coef.	0.04836
t-value	20.2888

Ni: XRF < 50000

Regression Output:

Constant	337.099
Std Err of Y Est	5025.14
R Squared	0.64604
No. of Observations	30
Degrees of Freedom	28
X Coefficient(s)	0.60924
Std Err of Coef.	0.08522
t-value	7.1488

Ni: XRF < 20000

Regression Output:

Constant	-9.6372
Std Err of Y Est	2326.86
R Squared	0.72907
No. of Observations	23
Degrees of Freedom	21
X Coefficient(s)	0.6914
Std Err of Coef.	0.09197
t-value	7.51738

user entered --> Guterl Special Steel site (WA# 2-194)
user entered --> Spectrace 9000; S/N Q-003 & Q-023
user entered --> Cd109-60; Fe55-60; Am241-60 sec
Confirmation Samples
FPXRF Raw Data; Preliminary Lab Results

XRF ID	LOCATION	DATE	Pb (mg/kg)		Cd(mg/kg)		As (mg/kg)		Ni (mg/kg)		Zn (mg/kg)	
			XRF	Lab	XRF	Lab	XRF	Lab	XRF	Lab	XRF	Lab
0-2GS3C10	GS3C10-0-2	23-OCT-1997	2007	1700	807	U(0.5)	239	U(74)	21017	11000	1840	150
0-2GS3D10	GS3D10-0-2	23-OCT-1997	1063	1300	399	U(4.6)	204	U(69)	7846	7100	1139	240
0-2GS3E6	GS3E6-0-2	23-OCT-1997	1527	2800	243	U(0.5)	168	U(75)	9665	6800	871	300
0-2GS3E7	GS3E7-0-2	23-OCT-1997	3751	5000	371	U(.49)	215	U(74)	11220	8500	1793	430
0-2GS3K6	GS3K6-0-2	23-OCT-1997	393	1000	346	2	89	U(7.2)	6578	1900	2077	490
0-2GS3K7	GS3K7-0-2	23-OCT-1997	730	810	542	2.1	218	13	11281	4100	1822	710
0-2GS3S10	GS3S10-0-2	23-OCT-1997	636	330	726	U(0.46)	216	U(34)	22546	4100	573	150
0-2GS3S9	GS3S9-0-2	23-OCT-1997	2379	1500	803	1.1	15	18	23656	5000	1536	440
0-5GS3J4	GS3J4-0-.5	23-OCT-1997	907	840	504	17	307	U(74)	9445	3300	4681	4500
0-5GS3N15	GS3N15-0-.5	23-OCT-1997	343	1300	465	21	617	U(35)	76229	95000	5052	4000
0-5GS3N16	GS3N16-0-.5	23-OCT-1997	-288	850	252	8.7	673	U(37)	64030	99000	2760	1400
0-5GS3S26	GS3S26-0-.5	23-OCT-1997	795	860	199	9.2	138	17	7330	7600	3376	3500
0-5GS3S39	GS3S39-0-.5	23-OCT-1997	4731	6200	272	16	-727	U(73)	2239	1100	7615	7700
0-5GS3S6	GS3S6-0-.5	23-OCT-1997	1348	2000	-41	9.4	-161	U(7.3)	2228	1700	2485	3600
5-6GS3C10	GS3C10-5-6	23-OCT-1997	875	730	484	U(0.96)	176	U(14)	19851	10000	1778	140
5-6GS3K6	GS3K6-5-6	23-OCT-1997	8	5.2	155	U(0.48)	10	U(7.2)	-77	13	39	49
5-6GS3S10	GS3S10-5-6	23-OCT-1997	431	390	372	U(0.45)	266	U(34)	6287	2700	789	270
0-2GS2A5	GS2A5-0-2	23-OCT-1997	1065	780	-84	1.6	-25	U(6.7)	13074	7200	2302	1300
0-2GS2C5	GS2C5-0-2	23-OCT-1997	-522	350	343	U(2.5)	760	U(37)	87939	100000	1286	1000
0-5GS3L8	GS3L8-0-.5	23-OCT-1997	512	950	617	64	138	17	16818	14000	4842	4000
5-6GS2C5	GS2C5-5-6	23-OCT-1997	-155	66	139	U(4.1)	319	U(6.2)	99356	55000	1041	U(17)
GS2-A6_0-2	GS2A6_0-2	23-OCT-1997	1175	1600	-55	8.3	145	120	16686	14000	3615	3000
GS2-B5_0-2	GS2B5_0-2	23-OCT-1997	-1634	320	395	U(0.45)	1647	U(34)	178205	180000	2153	940
GS2-H7_0-.5	GS2H7_0-.5	23-OCT-1997	1143	1300	171	31	91	U(68)	23693	28000	1952	1400
GS2-H9_0-.5	GS2H9_0-.5	23-OCT-1997	18448	34000	316	3.2	-1404	200	45981	22000	2038	1700
GS2-I1_0-.5	GS2I1_0-.5	23-OCT-1997	664	2000	304	U(2.4)	1539	U(35)	123318	110000	1140	680
GS2-I2_0-.5	GS2I2_0-.5	23-OCT-1997	-365	940	234	U(4.7)	902	U(71)	106096	98000	1611	820
GS2-K1_0-2	GS2K1_0-2	23-OCT-1997	28	100	-30	U(0.47)	121	U(7.1)	5440	9900	211	87
GS2-K5_0-2	GS2K5_0-2	23-OCT-1997	396	610	231	U(2.5)	141	U(7.3)	52399	50000	429	180
GS2-S1_0-2	GS2S1_0-2	23-OCT-1997	365	170	94	U(0.49)	3	U(7.3)	2677	1200	265	52
GS2H18_0-.5	GS2H18_0-.5	23-OCT-1997	660	1100	292	U(4.7)	273	U(71)	36111	35000	1857	1100
GS2H23_0-.5	GS2H23_0-.5	23-OCT-1997	562	490	355	11	55	U(7.0)	11205	8600	2033	1200
GS2H32_0-.5	GS2H32_0-.5	23-OCT-1997	620	750	186	13	-16	U(7.3)	10711	8300	6481	5700
GS2H23-5-6	GS2H23-5-6	24-OCT-1997	66	110	22	1.8	63	U(6.9)	444	510	510	420
GS3S26-5-6	GS3S26-5-6	24-OCT-1997	-13	7.3	102	U(0.5)	79	U(7.4)	281	100	139	63
905	GS3N24-0.75-1.25'	18-NOV-1997	220	100	459	U(0.45)	138	U(34)	12085	4100	404	110
916	GS2H9-4.1-4.7'	19-NOV-1997	18	14	183	0.96	13	U(7.2)	73	16	599	590
925	GS3E6-3.0-3.5'	19-NOV-1997	16	13	165	U(0.45)	55	U(6.7)	31	31	148	97

Guterl Special Steel site (WA# 2-194)
Spectrace 9000; S/N Q-003 & Q-023
Cd109-60; Fe55-60; Am241-60 sec
Confirmation Samples
FPXRF and Laboratory Results; MDL Qualified; 2 Significant Figures

REGRESSION ANALYSIS DATA

ID	LOCATION	DATE	Pb (mg/kg)		Ni (mg/kg)		Zn (mg/kg)	
			XRF	Lab	XRF	Lab	XRF	Lab
0-2GS3C10	GS3C10-0-2	23-OCT-1997	2000	1700	21000	11000	1800	150
0-2GS3D10	GS3D10-0-2	23-OCT-1997	1100	1300	7800	7100	1100	240
0-2GS3E6	GS3E6-0-2	23-OCT-1997	1500	2800	9700	6800	870	300
0-2GS3E7	GS3E7-0-2	23-OCT-1997	3800	5000	11000	8500	1800	430
0-2GS3K6	GS3K6-0-2	23-OCT-1997	390	1000	6600	1900	2100	490
0-2GS3K7	GS3K7-0-2	23-OCT-1997	730	810	11000	4100	1800	710
0-2GS3S10	GS3S10-0-2	23-OCT-1997	640	330	23000	4100	570	150
0-2GS3S9	GS3S9-0-2	23-OCT-1997	2400	1500	24000	5000	1500	440
0-5GS3J4	GS3J4-0-.5	23-OCT-1997	910	840	9400	3300	4700	4500
0-5GS3N15	GS3N15-0-.5	23-OCT-1997	340	1300	76000	95000	5100	4000
0-5GS3N16	GS3N16-0-.5	23-OCT-1997	0	850	64000	99000	2800	1400
0-5GS3S26	GS3S26-0-.5	23-OCT-1997	800	860	7300	7600	3400	3500
0-5GS3S39	GS3S39-0-.5	23-OCT-1997	4700	6200	2200	1100	7600	7700
0-5GS3S6	GS3S6-0-.5	23-OCT-1997	1300	2000	2200	1700	2500	3600
5-6GS3C10	GS3C10-5-6	23-OCT-1997	870	730	20000	10000	1800	140
5-6GS3K6	GS3K6-5-6	23-OCT-1997	8	5.2	0	13	39	49
5-6GS3S10	GS3S10-5-6	23-OCT-1997	430	390	6300	2700	790	270
0-2GS2A5	GS2A5-0-2	23-OCT-1997	1100	780	13000	7200	2300	1300
0-2GS2C5	GS2C5-0-2	23-OCT-1997	0	350	88000	100000	1300	1000
0-5GS3L8	GS3L8-0-.5	23-OCT-1997	510	950	17000	14000	4800	4000
5-6GS2C5	GS2C5-5-6	23-OCT-1997	0	66	99000	55000	1000	17
GS2-A6_0-2	GS2A6_0-2	23-OCT-1997	1200	1600	17000	14000	3600	3000
GS2-B5_0-2	GS2B5_0-2	23-OCT-1997	0	320	180000	180000	2200	940
GS2-H7_0-.5	GS2H7_0-.5	23-OCT-1997	1100	1300	24000	28000	2000	1400
GS2-H9_0-.5	GS2H9_0-.5	23-OCT-1997	18000	34000	46000	22000	2000	1700
GS2-I1_0-.5	GS2I1_0-.5	23-OCT-1997	660	2000	120000	110000	1100	680
GS2-I2_0-.5	GS2I2_0-.5	23-OCT-1997	0	940	110000	98000	1600	820
GS2-K1_0-2	GS2K1_0-2	23-OCT-1997	28	100	5400	9900	210	87
GS2-K5_0-2	GS2K5_0-2	23-OCT-1997	400	610	52000	50000	430	180
GS2-S1_0-2	GS2S1_0-2	23-OCT-1997	360	170	2700	1200	260	52
GS2H18_0-.5	GS2H18_0-.5	23-OCT-1997	660	1100	36000	35000	1900	1100
GS2H23_0-.5	GS2H23_0-.5	23-OCT-1997	560	490	11000	8600	2000	1200
GS2H32_0-.5	GS2H32_0-.5	23-OCT-1997	620	750	11000	8300	6500	5700
GS2H23-5-6	GS2H23-5-6	24-OCT-1997	66	110	440	510	510	420
GS3S26-5-6	GS3S26-5-6	24-OCT-1997	0	7.3	280	100	140	63
905	GS3N24-0.75-1.25'	18-NOV-1997	220	100	12000	4100	400	110
916	GS2H9-4.1-4.7'	19-NOV-1997	18	14	73	16	600	590
925	GS3E6-3.0-3.5'	19-NOV-1997	16	13	31	31	150	97

[redacted] Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: GENERAL STEEL
Project Number: 2-194
RFW Contact: D. BUSSEY Phone: 494-4056

No: 05947

SHEET NO. 1 OF 1

11/17/97 -

Sample Identification

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	* Analyses Requested: Pb, Cd, As, Ni, Zn, Y
905	13216	GSS3N24 05-1.25'	S	11/13/97	1	XRFCUP/NONE	
916	13194	GSS HA 4.1-4.7'		11/12/97	1		
925	13203	GSS-E6 1.5-2.0'			1		

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other	SL -	Sludge	A -	Air

Special Instructions:

* CONFORMATION ANALYSIS BY ICP: Pb, Cd, As, Ni, Zn, Y

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY # 05947 & 05673

QA/QC by C. Sobolewski

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
ALL ANALYSIS	Y. EXUME	11/24/97	C. Sobolewski	11/24/97	10:00						

FORM #4

8/94

Guteri Special Steel site (WA# 2-194)
Spectrace 9000; S/N Q-003 & Q-023
Cd109-60; Fe55-60; Am241-60 sec
Confirmation Samples
FPXRF and Laboratory Results; MDL Qualified; 2 Significant Figures

ID	LOCATION	DATE	Pb (mg/kg)		Cd(mg/kg)		As (mg/kg)		Ni (mg/kg)		Zn (mg/kg)	
			XRF	Lab	XRF	Lab	XRF	Lab	XRF	Lab	XRF	Lab
0-2GS3C10	GS3C10-0-2	23-OCT-1997	2000	1700	810	U(0.5)	240	U(74)	21000	11000	1800	150
0-2GS3D10	GS3D10-0-2	23-OCT-1997	1100	1300	400	U(4.6)	200	U(69)	7800	7100	1100	240
0-2GS3E6	GS3E6-0-2	23-OCT-1997	1500	2800	240	U(0.5)	170	U(75)	9700	6800	870	300
0-2GS3E7	GS3E7-0-2	23-OCT-1997	3800	5000	370	U(.49)	220	U(74)	11000	8500	1800	430
0-2GS3K6	GS3K6-0-2	23-OCT-1997	390	1000	350	2	U	U(7.2)	6600	1900	2100	490
0-2GS3K7	GS3K7-0-2	23-OCT-1997	730	810	540	2.1	220	13	11000	4100	1800	710
0-2GS3S10	GS3S10-0-2	23-OCT-1997	640	330	730	U(0.46)	220	U(34)	23000	4100	570	150
0-2GS3S9	GS3S9-0-2	23-OCT-1997	2400	1500	800	1.1	U	18	24000	5000	1500	440
0-5GS3J4	GS3J4-0-.5	23-OCT-1997	910	840	500	17	310	U(74)	9400	3300	4700	4500
0-5GS3N15	GS3N15-0-.5	23-OCT-1997	340	1300	470	21	620	U(35)	76000	95000	5100	4000
0-5GS3N16	GS3N16-0-.5	23-OCT-1997	U	850	250	8.7	670	U(37)	64000	99000	2800	1400
0-5GS3S26	GS3S26-0-.5	23-OCT-1997	800	860	200	9.2	U	17	7300	7600	3400	3500
0-5GS3S39	GS3S39-0-.5	23-OCT-1997	4700	6200	270	16	U	U(73)	2200	1100	7600	7700
0-5GS3S6	GS3S6-0-.5	23-OCT-1997	1300	2000	U	9.4	U	U(7.3)	2200	1700	2500	3600
5-6GS3C10	GS3C10-5-6	23-OCT-1997	870	730	480	U(0.96)	180	U(14)	20000	10000	1800	140
5-6GS3K6	GS3K6-5-6	23-OCT-1997	U	5.2	U	U(0.48)	U	U(7.2)	U	13	U	49
5-6GS3S10	GS3S10-5-6	23-OCT-1997	430	390	370	U(0.45)	270	U(34)	6300	2700	790	270
0-2GS2A5	GS2A5-0-2	23-OCT-1997	1100	780	U	1.6	U	U(6.7)	13000	7200	2300	1300
0-2GS2C5	GS2C5-0-2	23-OCT-1997	U	350	340	U(2.5)	760	U(37)	88000	100000	1300	1000
0-5GS3L8	GS3L8-0-.5	23-OCT-1997	510	950	620	84	U	17	17000	14000	4800	4000
5-6GS2C5	GS2C5-5-6	23-OCT-1997	U	66	U	U(4.1)	320	U(6.2)	99000	55000	1000	U(17)
GS2-A6_0-2	GS2A6_0-2	23-OCT-1997	1200	1600	U	8.3	U	120	17000	14000	3800	3000
GS2-B5_0-2	GS2B5_0-2	23-OCT-1997	U	320	400	U(0.45)	1600	U(34)	180000	180000	2200	940
GS2-H7_0-.5	GS2H7_0-.5	23-OCT-1997	1100	1300	U	31	U	U(68)	24000	28000	2000	1400
GS2-H9_0-.5	GS2H9_0-.5	23-OCT-1997	18000	34000	320	3.2	U	200	46000	22000	2000	1700
GS2-I1_0-.5	GS2I1_0-.5	23-OCT-1997	660	2000	300	U(2.4)	1500	U(35)	120000	110000	1100	660
GS2-I2_0-.5	GS2I2_0-.5	23-OCT-1997	U	940	230	U(4.7)	900	U(71)	110000	98000	1600	820
GS2-K1_0-2	GS2K1_0-2	23-OCT-1997	U	100	U	U(0.47)	U	U(7.1)	5400	9900	U	87
GS2-K5_0-2	GS2K5_0-2	23-OCT-1997	400	610	230	U(2.5)	U	U(7.3)	52000	50000	430	160
GS2-S1_0-2	GS2S1_0-2	23-OCT-1997	360	170	U	U(0.49)	U	U(7.3)	2700	1200	260	52
GS2H18_0-.5	GS2H18_0-.5	23-OCT-1997	660	1100	290	U(4.7)	270	U(71)	36000	35000	1900	1100
GS2H23_0-.5	GS2H23_0-.5	23-OCT-1997	560	490	360	11	U	U(7.0)	11000	8600	2000	1200
GS2H32_0-.5	GS2H32_0-.5	23-OCT-1997	620	750	190	13	U	U(7.3)	11000	8300	6500	5700
GS2H23-5-6	GS2H23-5-6	24-OCT-1997	U	110	U	1.8	U	U(6.9)	440	510	510	420
GS3S26-5-6	GS3S26-5-6	24-OCT-1997	U	7.3	U	U(0.5)	U	U(7.4)	U	100	U	63
905	GS3N24-0.75-1.25	18-NOV-1997	220	100	460	U(0.45)	U	U(34)	12000	4100	400	110
916	GS2H9-4.1-4.7'	19-NOV-1997	U	14	160	0.96	U	U(7.2)	U	16	600	590
925	GS3E6-3.0-3.5'	19-NOV-1997	U	13	U	U(0.45)	U	U(6.7)	U	31	U	97
		MDL	70	4	160	0.5	160	7.2	360	1	230	2
		MQL	230		600		600		1200		760	

MDL - method detection Limit
MQL - method quantitation limit
U - Not Detected (less than the MDL)
Detection Limits used for lab values les than the MDL

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Guterl Steel
Project Number: 03347 142 001 2194 01
RFW Contact: Dan Bussey Phone: 494-4056

No: 05011

102897

SHEET NO. 1 OF 2

Sample Identification

Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb, Cd*	As, Ni, Zn*
219		GS3-C10 0-2"	S	10/22/97	1	XRF Cup/none	X	X
220		GS3-C10 5-6"						
221		GS3-D10 0-2"						
223		GS3-E6 0-2"						
225		GS3-E7 0-2"						
227		GS3-S39 0-.5"						
228		GS3-S6 0-.5"						
229		GS3-K6 0-2"						
230		GS3-K6 5-6"						
231		GS3-K7 0-2"						
233		GS3-S9 0-2"						
235		GS3-S10 0-2"						
236		GS3-S10 5-6"						
237		GS3-S26 0-.5"						
238		GS3-L8 0-.5"						
199		GS3-M15 0-.5"						
200		GS3-M16 0-.5"						
201		GS3-J4 0-.5"						
206		GS2-C5 0-2"		10/23/97				
207		GS2-C5 5-6"						

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other	SL -	Sludge	A -	Air

Special Instructions:

* by ICP
# Analyzed for Confirmation

QC by D. Kalnicky

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY # 05009 & 05686

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
Analysis		11/21/97									

FORM #4

8/9

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Guterl Steel
Project Number: 03347 142 001 2194 01
RFW Contact: Don Bussey Phone: 494-4056

No: 05012

SHEET NO. 2 OF 2

02897

Sample Identification

Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb, Cd *	As, Ni, Zn *	
208		GS2-H7 0-.5"	S	10/23/97	1	XRF Cup/none	X	X	
209		GS2-H9 0-.5"							
210		GS2-H23 0-.5"							
211		GS2-H32 0-.5"							
212		GS2-I3 0-.5"							
213		GS2-I1 0-.5"							
214		GS2-H18 0-.5"							
215		GS2-K5 0-2"							
217		GS2-S1 0-2"							
239		GS2-A6 0-2"							
241		GS2-B5 0-2"							
243		GS2-A5 0-2"							
245		GS2-K1 0-2"							
249		GS3-S26 5-6"		10/24/97					
255		GS2-H23 5-6"		10/24/97					

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other	SL -	Sludge	A -	Air

Special Instructions:

* by ICP
* for confirmation Analysis

QC by: D Kalinchak

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY # 05686 & 05010

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
Analysis		11/21/97									

FORM

Roy F. Weston, Inc.
GSA Raritan Depot
Building 209 Annex (Bay F)
2890 Woodbridge Avenue
Edison, New Jersey 08837-3679
908-321-4200 • Fax 908-494-4021

DATE: 12/08/97

TO: Mr. Raj Singhvi, ERTC/EPA

FROM: Jay Patel, Inorganic Group Leader JP

SUBJECT: Preliminary Results of Project GUTERL STEEL SITE WA# 2-194

Attached please find the preliminary results of the above referenced project for the following samples.

Chain of Custody No.	# of samples	Matrix	Analyses
05011	20	SOIL (XRF cups)	As, Cd, Pb Ni, Zn metals by ICAP - XRF confirmation -
05012	15		
05816	3		

CC: Central File # 2-194

WAM: C. Beasley ERTC/EPA

Task Leader: D. Bussey .REAC

D. Kalnicky, XRF Chemist

C. Gasser, REAC

Table 1.xx Results of the Metals Analysis in Soil
WAS 2-194 Guteri Steel Site
Based on Dry Weight

Parameter / Analysis Method		Arsenic ICAP		Cadmium ICAP		Lead ICAP		Nickel ICAP		Vanadium ICAP		Zinc ICAP	
Client ID (REAC#)	Location	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg
Method Blank	Lab	U	7.5	U	0.50	U	4.0	U	1.0	U	1.0	2.3	2.0
199	GS3-N15 0-0.5'	U	35	21	4.7	1300	38	95000	9.4	640	9.4	4000	19
200	GS3-N16 0-0.5'	U	37	8.7	2.5	850	40	89000	9.9	580	9.9	1400	20
201	GS3-J4 0-0.5'	U	74	17	4.9	840	39	3300	9.8	520	9.8	4500	20
206	GS2-C5 0-2'	U	37	U	2.5	350	20	100000	4.9	1200	4.9	1000	9.8
207	GS2-C5 5-6'	U	6.2	U	4.1	66	33	55000	8.3	300	8.3	U	17
208	GS2-H7 0-0.5'	U	68	31	0.45	1300	36	28000	9.0	350	0.90	1400	18
209	GS2-H9 0-0.5'	200	74	3.2	0.50	34000	40	22000	9.9	230	9.9	1700	20
210	GS2-H23 0-0.5'	U	7.0	11	0.47	490	3.7	8800	0.93	190	0.93	1200	1.9
211	GS2-H32 0-0.5'	U	7.3	13	0.49	750	39	8300	9.7	45	4.9	5700	19
212	GS2-I2 0-0.5'	U	71	U	4.7	940	38	98000	9.4	930	9.4	820	19
213	GS2-I1 0-0.5'	U	35	U	2.4	2000	38	110000	9.4	620	4.7	660	9.5
214	GS2-H18 0-0.5'	U	71	U	4.7	1100	38	35000	9.4	270	9.4	1100	19
215	GS2-K5 0-2'	U	7.3	U	2.5	610	19	50000	9.7	620	4.9	180	9.7
219	GS3-C10 0-2'	U	74	U	0.50	1700	40	11000	9.9	1000	9.9	150	20
220	GS3-C10 5-6'	U	14	U	0.96	730	7.6	10000	1.9	780	1.9	140	3.8
221	GS3-D10 0-2'	U	69	U	4.6	1300	37	7100	9.2	950	9.2	240	18
223	GS3-E6 0-2'	U	75	U	0.50	2800	40	6800	10	710	10	300	20
225	GS3-E7 0-2'	U	74	U	0.49	5000	39	8500	9.8	1700	9.8	430	20
227	GS3-S39 0-0.5'	U	73	16	4.9	6200	39	1100	9.7	110	9.7	7700	19
228	GS3-S6 0-0.5'	U	7.3	9.4	0.49	2000	3.9	1700	0.97	180	0.97	3600	1.9
Method Blank	Lab	U	7.5	U	0.50	U	4.0	U	1.0	U	1.0	2.0	2.0
217	GS2-S1 0-2'	U	7.3	U	0.49	170	3.9	1200	0.97	24	0.97	52	1.9
229	GS3-K6 0-2'	U	7.2	2	0.48	1000	3.9	1900	0.96	960	0.96	490	1.9
230	GS3-K6 5-6'	U	7.2	U	0.48	5.2	3.9	13	0.96	7.5	0.96	49	1.9
231	GS3-K7 0-2'	13	7.2	2.1	0.48	810	3.9	4100	0.96	250	0.96	710	1.9
233	GS3-S9 0-2'	18	7.1	1.1	0.47	1500	3.8	5000	0.94	190	0.94	440	1.9
235	GS3-S10 0-2'	U	34	U	0.46	330	18	4100	4.6	80	0.92	150	9.2
236	GS3-S10 5-6'	U	34	U	0.45	360	3.6	2700	4.5	58	0.89	270	9.0
237	GS3-S26 0-0.5'	17	7.2	9.2	0.48	860	19	7800	4.8	280	0.96	3500	9.6
238	GS3-L8 0-0.5'	17	6.9	64	0.46	950	19	14000	4.7	430	0.93	4000	9.3
239	GS2-A6 0-2'	120	7.1	8.3	0.48	1600	3.8	14000	0.95	190	0.95	3000	1.9
241	GS2-B5 0-2'	U	34	U	0.45	320	18	180000	9.1	1000	4.6	940	9.1
243	GS2-A5 0-2'	U	6.7	1.6	0.45	780	3.6	7200	0.89	270	0.89	1300	1.8
245	GS2-K1 0-2'	U	7.1	U	0.47	100	3.8	9900	0.94	190	0.94	87	1.9
249	GS2-S26 5-6'	U	7.4	U	0.50	7.3	4.0	100	0.99	9.8	0.99	63	2.0
255	GS2-H23 5-6'	U	6.9	1.8	0.46	110	3.7	510	0.92	37	0.92	420	1.8
13216	GS3 N24 0.75-1.2	U	34	U	0.45	100	3.6	4100	4.6	67	0.91	110	9.1
13194	GS2 H9 4.1-4.7'	U	7.2	0.96	0.48	14	3.9	16	0.96	13	0.96	590	1.9
13203	GS3-E6 3.0-3.5'	U	6.7	U	0.45	13	3.6	31	0.89	20	0.89	97	1.8

MDL denotes Method Detection Limit
U denotes less than the MDL (not detected)

**NO QC EVALUATION HAS BEEN PERFORMED.
DATA VALIDITY IS UNSUBSTANTIATED
AND THE DATA SHOULD BE USED
WITH DISCRETION.**

APPENDIX D
FPXRF Confirmation Sample Data
FPXRF Activities Report
Guterl Steel Site
December 1997

Guterl Special Steel - additional samples
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Zn	Qual
914	19-NOV-1997	550	J
915	19-NOV-1997	720	-
916	19-NOV-1997	600	J
916DUP	19-NOV-1997	610	-
917	19-NOV-1997	400	J
918	19-NOV-1997	340	J
919	19-NOV-1997	660	-
920	19-NOV-1997	270	J
921	19-NOV-1997	ND	-
922	19-NOV-1997	250	J
923	19-NOV-1997	ND	-
924	19-NOV-1997	ND	-
925	19-NOV-1997	ND	-
925DUP	19-NOV-1997	ND	-
926	19-NOV-1997	390	J
927	19-NOV-1997	ND	-
~~# 2711~~	~~19-NOV-1997~~	~~300~~	~~J~~ YC

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Zn
Minimum Detection Limit (MDL)	= 180
Minimum Quantitation Limit (MQL)	= 600

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel - additional samples
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Zn Qual	
895	18-NOV-1997	600	-
896	18-NOV-1997	530	J
897	18-NOV-1997	1300	-
898	18-NOV-1997	1300	-
899	18-NOV-1997	2000	-
900	18-NOV-1997	1400	-
901	18-NOV-1997	370	J
902	18-NOV-1997	ND	-
903	18-NOV-1997	280	J
904	18-NOV-1997	ND	-
904DUP	18-NOV-1997	190	J
905	18-NOV-1997	400	J
906	18-NOV-1997	200	J
907	18-NOV-1997	ND	-
908	18-NOV-1997	740	-
909	18-NOV-1997	ND	-
910	18-NOV-1997	600	J
911	18-NOV-1997	ND	-
912	18-NOV-1997	240	J
913	18-NOV-1997	410	J

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Zn
Minimum Detection Limit (MDL)	= 180
Minimum Quantitation Limit (MQL)	= 600

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel - additional samples
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual	As	As Qual	Ni	Ni Qual
914	19-NOV-1997	ND	-	ND	-	ND	-	ND	
915	19-NOV-1997	93	J	ND	-	ND	-	3400	
916	19-NOV-1997	ND	-	ND	-	ND	-	ND	
916DUP	19-NOV-1997	ND	-	ND	-	ND	-	ND	
917	19-NOV-1997	85	J	310	J	180	J	9200	
918	19-NOV-1997	130	J	230	J	ND	-	5800	
919	19-NOV-1997	81	J	ND	-	ND	-	1800	
920	19-NOV-1997	ND	-	ND	-	ND	-	770	
921	19-NOV-1997	ND	-	ND	-	ND	-	ND	
922	19-NOV-1997	ND	-	ND	-	ND	-	720	
923	19-NOV-1997	ND	-	ND	-	ND	-	ND	
924	19-NOV-1997	71	J	ND	-	ND	-	2000	
925	19-NOV-1997	ND	-	ND	-	ND	-	ND	
925DUP	19-NOV-1997	ND	-	ND	-	ND	-	ND	
926	19-NOV-1997	95	J	240	J	ND	-	ND	
927	19-NOV-1997	ND	-	ND	-	ND	-	ND	
# ~~2711~~	~~19-NOV-1997~~	~~1000~~		~~ND~~		~~ND~~		~~ND~~	

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd	As	Ni
Minimum Detection Limit (MDL) =	70	200	150	390
Minimum Quantitation Limit (MQL)=	230	700	500	1300

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

guterl steel -prep samples
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS2H18-5-6	24-OCT-1997	160	J	ND	-
GS2H32-5-6	24-OCT-1997	530	-	ND	-
GS2H23-5-6	24-OCT-1997	ND	-	ND	-
GS2H9-10-12	24-OCT-1997	4100	-	ND	-
GS2H9D10-12	24-OCT-1997	3600	-	290	J
GS3N15-5-6	24-OCT-1997	ND	-	ND	-
CS3S13-5-6	24-OCT-1997	810	-	660	J
GS3S26-5-6	24-OCT-1997	ND	-	ND	-
GS3S26D5-6	24-OCT-1997	ND	-	ND	-
GS3S6-5-6	24-OCT-1997	1600	-	330	J
GS3J4-5-6	24-OCT-1997	420	-	ND	-
GS3J3-5-6	24-OCT-1997	ND	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel - additional samples
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Qual	Cd	Qual	As	Qual	Ni	Qual
895	18-NOV-1997	140	J	370	J	ND	-	21000	-
896	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
897	18-NOV-1997	150	J	ND	-	ND	-	4300	-
898	18-NOV-1997	87	J	ND	-	ND	-	1000	-
899	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
900	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
901	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
902	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
903	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
904	18-NOV-1997	ND	-	ND	-	ND	-	830	-
904DUP	18-NOV-1997	ND	-	ND	-	ND	-	470	-
905	18-NOV-1997	220	J	460	J	ND	-	12000	-
906	18-NOV-1997	ND	-	ND	-	ND	-	1800	-
907	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
908	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
909	18-NOV-1997	81	J	ND	-	ND	-	ND	-
910	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
911	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
912	18-NOV-1997	ND	-	ND	-	ND	-	ND	-
913	18-NOV-1997	ND	-	ND	-	ND	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd	As	Ni
Minimum Detection Limit (MDL) =	70	200	150	390
Minimum Quantitation Limit (MQL)=	230	700	500	1300

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

guterl steel -prep samples
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb Qual		Cd Qual	
0-5GS3L8	23-OCT-1997	510	-	620	J
5-6 0-2GS2A5	23-OCT-1997	75	J	ND	-
5-6GS3S7	23-OCT-1997	1200	-	550	J
4-5GS3N13	23-OCT-1997	380	-	680	J
3-4GS3S1	23-OCT-1997	120	J	230	J
0-2GS2C5	23-OCT-1997	ND	-	340	J
5-6GS2C5	23-OCT-1997	ND	-	ND	-
4-5GS3S36	23-OCT-1997	410	-	250	J
0-2GS2A5	23-OCT-1997	1100	-	ND	-
5-6GS2A6	23-OCT-1997	580	-	740	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

guterl steel -prep samples
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Qual	Cd	Qual
5-6GS3E6	23-OCT-1997	800	-	ND	-
5-6GS3D10	23-OCT-1997	880	-	460	J
0-2GS3D10	23-OCT-1997	1100	-	400	J
0-2GS3S10	23-OCT-1997	640	-	730	-
5-6GS3K6	23-OCT-1997	ND	-	ND	-
0-2GS3C10	23-OCT-1997	2000	-	810	-
0-2GS3E7	23-OCT-1997	3800	-	370	J
5-6GS3C10	23-OCT-1997	870	-	480	J
5-6GS3E7	23-OCT-1997	1700	-	380	J
0-5GS3J4	23-OCT-1997	910	-	500	J
5-6GS3S10	23-OCT-1997	430	-	370	J
0-2GS3E6	23-OCT-1997	1500	-	240	J
0-2GS3S9	23-OCT-1997	2400	-	800	-
0-5GS3S6	23-OCT-1997	1300	-	ND	-
5-6GS3S9	23-OCT-1997	260	-	ND	-
0-5GS3N15	23-OCT-1997	340	-	470	J
0-5GS3N15DU	23-OCT-1997	540	-	630	J
0-5GS3S39	23-OCT-1997	4700	-	270	J
0-2GS3K6	23-OCT-1997	390	-	350	J
0-2GS3K7	23-OCT-1997	730	-	540	J
3-4GS3K7	23-OCT-1997	900	-	500	J
0-5GS3S26	23-OCT-1997	800	-	ND	-
0-5GS3N16	23-OCT-1997	ND	-	250	J
4-5GS3S12	23-OCT-1997	410	-	640	J
4-5GS3S12DP	23-OCT-1997	610	-	560	J

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS2-G1	22-OCT-1997	820	-	200	J
GS2-G2	22-OCT-1997	230	J	280	J
GS2-G3	22-OCT-1997	1500	-	820	-
GS2-G3_DUP	22-OCT-1997	1300	-	790	-

Application:SOILS with U,Th,Ag Q23 08-02-1995

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

guterl steel -prep samples
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS2B5_0-2DU	23-OCT-1997	ND	-	610	J
GS2-B5_0-2	23-OCT-1997	ND	-	400	J
GS2-B5_5-6	23-OCT-1997	ND	-	610	J
GS2-A6_0-2	23-OCT-1997	1200	-	ND	-
GS2-S1_0-2	23-OCT-1997	360	-	ND	-
GS2-K1_0-2	23-OCT-1997	ND	-	ND	-
GS2-K1_5-6	23-OCT-1997	ND	-	ND	-
GS2-K5_0-2	23-OCT-1997	400	-	230	J
GS2-K5_5-6	23-OCT-1997	160	J	ND	-
GS2-I1_0-.5	23-OCT-1997	660	-	300	J
GS2I1_0-.5D	23-OCT-1997	270	-	420	J
GS2-I2_0-.5	23-OCT-1997	ND	-	230	J
GS2-H7_0-.5	23-OCT-1997	1100	-	ND	-
GS2-H9_0-.5	23-OCT-1997	18000	-	320	J
GS2H18_0-.5	23-OCT-1997	660	-	290	J
GS2H23_0-.5	23-OCT-1997	560	-	360	J
GS2H32_0-.5	23-OCT-1997	620	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Page II

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS2-K8	21-OCT-1997	120	J	ND	-
GS2-K10	21-OCT-1997	140	J	ND	-
GS2-K11	21-OCT-1997	300	-	ND	-
GS2-K9	21-OCT-1997	ND	-	ND	-
GS2-S1	21-OCT-1997	390	-	ND	-

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Qual	Cd	Qual
GS2-K8	21-OCT-1997	120	J	ND	-
GS2-K10	21-OCT-1997	140	J	ND	-
GS2-K11	21-OCT-1997	300	-	ND	-
GS2-K9	21-OCT-1997	ND	-	ND	-
GS2-S1	21-OCT-1997	390	-	ND	-

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS2-H12	21-OCT-1997	650	-	ND	-
GS2-H14	21-OCT-1997	120	J	ND	-
GS2-H16	21-OCT-1997	210	J	ND	-
GS2-H18	21-OCT-1997	1200	-	ND	-
GS2-H18 DUP	21-OCT-1997	1500	-	ND	-
GS2-H20	21-OCT-1997	350	-	ND	-
GS2-H22	21-OCT-1997	ND	-	ND	-
GS2-J1	21-OCT-1997	ND	-	ND	-
GS2-J2	21-OCT-1997	ND	-	ND	-
GS2-J3	21-OCT-1997	ND	-	ND	-
GS2-J4	21-OCT-1997	ND	-	ND	-
GS2-J5	21-OCT-1997	ND	-	ND	-
GS2-J6	21-OCT-1997	ND	-	ND	-
GS2-J7	21-OCT-1997	ND	-	ND	-
GS2-J8	21-OCT-1997	ND	-	ND	-
GS2-J9	21-OCT-1997	ND	-	ND	-
GS2-J10	21-OCT-1997	ND	-	ND	-
GS2-J11	21-OCT-1997	ND	-	ND	-
GS2-J12	21-OCT-1997	ND	-	ND	-
GS2-J13	21-OCT-1997	ND	-	ND	-
GS2-J14	21-OCT-1997	ND	-	ND	-
GS2-J15	21-OCT-1997	ND	-	ND	-
GS2-J16	21-OCT-1997	ND	-	ND	-
GS2-K1	21-OCT-1997	420	-	ND	-
GS2-K2	21-OCT-1997	150	J	ND	-
GS2-K3	21-OCT-1997	ND	-	ND	-
GS2-K4	21-OCT-1997	190	J	ND	-
GS2-K5	21-OCT-1997	230	J	200	J
GS2-K6	21-OCT-1997	160	J	ND	-
GS2-K7	21-OCT-1997	ND	-	ND	-

Application:SOILS with U,Th,Ag Q23 08-02-1995

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS2-K8	21-OCT-1997	120	J	ND	-
GS2-K10 YC	21-OCT-1997	140	J	ND	-
GS2-~~K9~~ K11 YC	21-OCT-1997	300	-	ND	-
GS2-K9	21-OCT-1997	ND	-	ND	-
GS2-S1	21-OCT-1997	390	-	ND	-

~~P~~ YC

SEE PAGE II ABOUT K9 & K11 LABEL CORRECT.

Application:SOILS with U,Th,Ag Q23 08-02-1995

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Qual	Cd	Qual
GS2K29	21-OCT-1997	ND	-	ND	-
GT2K30	21-OCT-1997	130	J	ND	-
GS2K28	21-OCT-1997	120	J	ND	-
GS2K27	21-OCT-1997	ND	-	ND	-
GS2K26	21-OCT-1997	95	J	ND	-
GS2K25	21-OCT-1997	ND	-	ND	-
GS2K23	21-OCT-1997	ND	-	ND	-
GS2K24	21-OCT-1997	150	J	ND	-
GS2K20	21-OCT-1997	160	J	ND	-
GS2K21	21-OCT-1997	270	-	ND	-
GS2K22	21-OCT-1997	92	J	ND	-
GS2K18	21-OCT-1997	ND	-	ND	-
GS2K19	21-OCT-1997	310	-	ND	-
GS2K15	21-OCT-1997	160	J	ND	-
GS2K17	21-OCT-1997	ND	-	ND	-
GS2K16	21-OCT-1997	ND	-	ND	-
GS2K14	21-OCT-1997	740	-	ND	-
GS2K13	21-OCT-1997	130	J	ND	-
GS2K12	21-OCT-1997	140	J	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL) =	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb Qual		Cd Qual	
GS2-D1	21-OCT-1997	ND	-	ND	-
GS2-D2	21-OCT-1997	ND	-	ND	-
GS2-D3	21-OCT-1997	ND	-	ND	-
GS2-D4	21-OCT-1997	ND	-	ND	-
GS2-D5	21-OCT-1997	ND	-	ND	-
GS2-D6	21-OCT-1997	ND	-	ND	-
GS2-E1	21-OCT-1997	150	J	370	J
GS2-E2	21-OCT-1997	ND	-	280	J
GS2-E3	21-OCT-1997	81	J	360	J
GS2-E4	21-OCT-1997	ND	-	ND	-
GS2-E5	21-OCT-1997	ND	-	ND	-
GS2-F1	21-OCT-1997	ND	-	ND	-
GS2-F2	21-OCT-1997	ND	-	ND	-
GS2-F3	21-OCT-1997	110	J	ND	-
GS2-F4	21-OCT-1997	ND	-	350	J
GS2-H2	21-OCT-1997	410	-	ND	-
GS2-H4	21-OCT-1997	390	-	ND	-
GS2-H6	21-OCT-1997	180	J	ND	-
GS2-H8	21-OCT-1997	640	-	ND	-
GS2-H10	21-OCT-1997	240	-	ND	-

Application:SOILS with U,Th,Ag Q23 08-02-1995

NN

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb Qual		Cd Qual	
GS2H1	21-OCT-1997	490	-	ND	-
GS2H3	21-OCT-1997	320	-	290	J
GS2H5	21-OCT-1997	380	-	ND	-
GS2H7	21-OCT-1997	1300	-	ND	-
GS2H9	21-OCT-1997	6300	-	ND	-
GS2H11	21-OCT-1997	350	-	ND	-
GS2H13	21-OCT-1997	600	-	ND	-
GS2H15	21-OCT-1997	820	-	ND	-
GS2H17	21-OCT-1997	490	-	ND	-
GS2H19	21-OCT-1997	520	-	ND	-
GS2H21	21-OCT-1997	460	-	ND	-
GS2H23	21-OCT-1997	570	-	210	J
GS2H25	21-OCT-1997	630	-	ND	-
GT2H27	21-OCT-1997	310	-	ND	-
GS2H29	21-OCT-1997	190	J	ND	-
GS2H31	21-OCT-1997	290	-	ND	-
GS2H33	21-OCT-1997	96	J	ND	-
GS2H32	21-OCT-1997	1000	-	ND	-
GS2H32DUP	21-OCT-1997	1200	-	ND	-
GS2H30	21-OCT-1997	270	-	ND	-
GS2H28	21-OCT-1997	230	-	ND	-
GS2I2	21-OCT-1997	770	-	ND	-
GS2I1	21-OCT-1997	2000	-	ND	-
GS2H26	21-OCT-1997	270	-	ND	-
GS2H24	21-OCT-1997	440	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb Qual		Cd Qual	
GS2K29	21-OCT-1997	ND	-	ND	-
GS2K30	21-OCT-1997	130	J	ND	-
GS2K28	21-OCT-1997	120	J	ND	-
GS2K27	21-OCT-1997	ND	-	ND	-
GS2K26	21-OCT-1997	95	J	ND	-
GS2K25	21-OCT-1997	ND	-	ND	-
GS2K23	21-OCT-1997	ND	-	ND	-
GS2K24	21-OCT-1997	150	J	ND	-
GS2K20	21-OCT-1997	160	J	ND	-
GS2K21	21-OCT-1997	270	-	ND	-
GS2K22	21-OCT-1997	92	J	ND	-
GS2K18	21-OCT-1997	ND	-	ND	-
GS2K19	21-OCT-1997	310	-	ND	-
GS2K15	21-OCT-1997	160	J	ND	-
GS2K17	21-OCT-1997	ND	-	ND	-
GS2K16	21-OCT-1997	ND	-	ND	-
GS2K14	21-OCT-1997	740	-	ND	-
GS2K13	21-OCT-1997	130	J	ND	-
GS2K12	21-OCT-1997	140	J	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS2-A1	20-OCT-1997	73	J	ND	-
GS2-A2	20-OCT-1997	79	J	ND	-
GS2-A3	20-OCT-1997	180	J	ND	-
GS2-A4	20-OCT-1997	95	J	ND	-
GS2-A5	20-OCT-1997	630	-	ND	-
GS2-A6	20-OCT-1997	530	-	ND	-
GS2-A7	20-OCT-1997	1500	-	ND	-
GS2-A8	20-OCT-1997	100	J	ND	-
GS2-B1	20-OCT-1997	75	J	ND	-
GS2-B2	20-OCT-1997	360	-	ND	-
GS2-B3	20-OCT-1997	140	J	ND	-
GS2-B4	20-OCT-1997	82	J	ND	-
GS2-B5	20-OCT-1997	380	-	ND	-
GS2-B6	20-OCT-1997	ND	-	210	J
GS2-B7	20-OCT-1997	ND	-	250	J
GS2-B8	20-OCT-1997	ND	-	ND	-
GS2-B9	20-OCT-1997	ND	-	ND	-
GS2-B10	20-OCT-1997	ND	-	ND	-
GS2-B11	20-OCT-1997	ND	-	ND	-
GS2-C1	20-OCT-1997	ND	-	220	J
GS2-C2	20-OCT-1997	ND	-	ND	-
GS2-C3	20-OCT-1997	ND	-	ND	-
GS2-C4	20-OCT-1997	ND	-	ND	-
GS2-C5	20-OCT-1997	ND	-	410	J
GS2-C6	20-OCT-1997	ND	-	220	J

Application:SOILS with U,Th,Ag Q23 08-02-1995

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Qual	Cd	Qual
GS2H1	21-OCT-1997	490	-	ND	-
GS2H3	21-OCT-1997	320	-	290	J
GS2H5	21-OCT-1997	380	-	ND	-
GS2H7	21-OCT-1997	1300	-	ND	-
GS2H9	21-OCT-1997	6300	-	ND	-
GS2H11	21-OCT-1997	350	-	ND	-
GS2H13	21-OCT-1997	600	-	ND	-
GS2H15	21-OCT-1997	820	-	ND	-
GS2H17	21-OCT-1997	490	-	ND	-
GS2H19	21-OCT-1997	520	-	ND	-
GS2H21	21-OCT-1997	460	-	ND	-
~~GS2H23~~	~~21-OCT-1997~~	~~340~~		~~240~~	~~J~~ YE
GS2H23	21-OCT-1997	570	-	210	J
GS2H25	21-OCT-1997	630	-	ND	-
GS2H27	21-OCT-1997	310	-	ND	-
GS2H29	21-OCT-1997	190	J	ND	-
GS2H31	21-OCT-1997	290	-	ND	-
GS2H33	21-OCT-1997	96	J	ND	-
GS2H32	21-OCT-1997	1000	-	ND	-
GS2H32DUP	21-OCT-1997	1200	-	ND	-
GS2H30	21-OCT-1997	270	-	ND	-
GS2H28	21-OCT-1997	230	-	ND	-
GS2I2	21-OCT-1997	770	-	ND	-
GS2I1	21-OCT-1997	2000	-	ND	-
GS2H26	21-OCT-1997	270	-	ND	-
GS2H24	21-OCT-1997	440	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Qual	Cd	Qual
GS3N26	20-OCT-1997	ND	-	ND	-
GS3N24	20-OCT-1997	110	J	290	J
GS3N22	20-OCT-1997	1400	-	ND	-
GS3N22DUP	20-OCT-1997	1500	-	ND	-
GS3N20	20-OCT-1997	340	-	ND	-
GS3N16	20-OCT-1997	550	-	480	J
GS3N18	20-OCT-1997	ND	-	270	J
GS3N14	20-OCT-1997	3200	-	ND	-
GS3N14DUP	20-OCT-1997	2600	-	ND	-
GS3N10	20-OCT-1997	ND	-	270	J
GS3N12	20-OCT-1997	390	-	ND	-
GS3N8	20-OCT-1997	ND	-	ND	-
GS3N6	20-OCT-1997	ND	-	300	J
GS3N4	20-OCT-1997	ND	-	ND	-
GS3N2	20-OCT-1997	ND	-	ND	-
GS3M1	20-OCT-1997	ND	-	ND	-
GS3M2	20-OCT-1997	ND	-	ND	-
GS3M3	20-OCT-1997	ND	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Qual	Cd	Qual
GS3N26	20-OCT-1997	ND	-	ND	-
GS3N24	20-OCT-1997	110	J	290	J
GS3N22	20-OCT-1997	1400	-	ND	-
GS3N22DUp	20-OCT-1997	1500	-	ND	-
GS3N20	20-OCT-1997	340	-	ND	-
GS3N16	20-OCT-1997	550	-	480	J
GS3N18	20-OCT-1997	ND	-	270	J
GS3N14	20-OCT-1997	3200	-	ND	-
GS3N14DUP	20-OCT-1997	2600	-	ND	-
GS3N10	20-OCT-1997	ND	-	270	J
GS3N12	20-OCT-1997	390	-	ND	-
GS3N8	20-OCT-1997	ND	-	ND	-
GS3N6	20-OCT-1997	ND	-	300	J
GS3N4	20-OCT-1997	ND	-	ND	-
GS3N2	20-OCT-1997	ND	-	ND	-
GS3M1	20-OCT-1997	ND	-	ND	-
GS3M2	20-OCT-1997	ND	-	ND	-
GS3M3	20-OCT-1997	ND	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb Qual		Cd Qual	
GS3S32	16-OCT-1997	8500	-	ND	-
GS3K2	16-OCT-1997	900	-	ND	-
GS3S29	16-OCT-1997	3500	-	ND	-
GS3K3	16-OCT-1997	2700	-	ND	-
GS3K4	16-OCT-1997	680	-	ND	-
GS3K5	16-OCT-1997	420	-	ND	-
GS3S22	16-OCT-1997	710	-	ND	-
GS3K6	16-OCT-1997	530	-	310	J
GS3K7	16-OCT-1997	620	-	420	J
GS3S9	16-OCT-1997	1300	-	240	J
GS3K8	16-OCT-1997	1300	-	ND	-
GS3L9	16-OCT-1997	190	J	ND	-
GS3K9	16-OCT-1997	330	-	360	J
GS3S12	16-OCT-1997	440	-	ND	-
GS3S11	16-OCT-1997	310	-	ND	-
GS3S10	16-OCT-1997	680	-	490	J
GS3S25	16-OCT-1997	660	-	ND	-
GS3S24	16-OCT-1997	310	-	ND	-
GS3S23	16-OCT-1997	470	-	ND	-
GS3S33	16-OCT-1997	240	-	ND	-
GS3S36	16-OCT-1997	860	-	ND	-
GS3K1	16-OCT-1997	1800	-	ND	-
GS3S37	16-OCT-1997	690	-	ND	-
GS3L1	16-OCT-1997	730	-	ND	-
GS3S38	16-OCT-1997	290	-	ND	-
GS3S35	16-OCT-1997	710	-	ND	-
GS3S34	16-OCT-1997	2000	-	ND	-
GS3L2	16-OCT-1997	760	-	ND	-
GS3S30	16-OCT-1997	1800	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS3J8	17-OCT-1997	670	-	ND	-
GS3S17	17-OCT-1997	140	J	ND	-
GS3S16	17-OCT-1997	180	J	ND	-
GS3S15	17-OCT-1997	78	J	ND	-
GS3L3	17-OCT-1997	540	-	ND	-
GS3L4	17-OCT-1997	450	-	ND	-
GS3L5	17-OCT-1997	520	-	ND	-
GS3S26	17-OCT-1997	510	-	290	J
GS3L6	17-OCT-1997	670	-	ND	-
GS3L7	17-OCT-1997	440	-	ND	-
GS3S13	17-OCT-1997	660	-	ND	-
GS3L8	17-OCT-1997	550	-	250	J
GS3X2	17-OCT-1997	100	J	ND	-
GS3X1	17-OCT-1997	310	-	ND	-
GS3N25	17-OCT-1997	710	-	ND	-
GS3N23	17-OCT-1997	900	-	ND	-
GS3N21	17-OCT-1997	550	-	ND	-
GS3N19	17-OCT-1997	1000	-	ND	-
GS3N17	17-OCT-1997	1100	-	ND	-
GS3N15	17-OCT-1997	1000	-	580	J
GS3N13	17-OCT-1997	420	-	ND	-
GS3N11	17-OCT-1997	ND	-	ND	-
GS3N9	17-OCT-1997	ND	-	ND	-
GS3N7	17-OCT-1997	ND	-	270	J
GS3N5	17-OCT-1997	350	-	ND	-
GS3N3	17-OCT-1997	76	J	ND	-
GS3N1	17-OCT-1997	ND	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS3J1	16-OCT-1997	1600	-	ND	-
GS3J2	16-OCT-1997	4800	-	ND	-
GS3S28	16-OCT-1997	2500	-	ND	-
GS3S39	16-OCT-1997	10000	-	260	J
GS3S39DUP	16-OCT-1997	10000	-	ND	-
GS3J3	16-OCT-1997	3400	-	ND	-
GS3J4	16-OCT-1997	5500	-	ND	-
GS3J5	16-OCT-1997	900	-	ND	-
GS3S18	16-OCT-1997	880	-	ND	-
GS3J6	16-OCT-1997	91	J	ND	-
GS3J7	16-OCT-1997	430	-	ND	-
GS3S5	16-OCT-1997	240	-	ND	-
GS3J9	16-OCT-1997	290	-	ND	-
GS3S3	16-OCT-1997	400	-	ND	-
GS3S7	16-OCT-1997	270	-	ND	-
GS3S8	16-OCT-1997	1000	-	210	J
GS3S6	16-OCT-1997	2400	-	450	J
GS3S21	16-OCT-1997	320	-	210	J
GS3S20	16-OCT-1997	470	-	ND	-
GS3S19	16-OCT-1997	780	-	ND	-
GS3S31	16-OCT-1997	3000	-	ND	-
GS3I4	16-OCT-1997	370	-	ND	-
GS3I5	16-OCT-1997	300	-	ND	-
GS3S14	16-OCT-1997	400	-	ND	-
GS3I6	16-OCT-1997	1200	-	ND	-
GS3I7	16-OCT-1997	760	-	ND	-
GS3S1	16-OCT-1997	230	-	ND	-
GS3S2	16-OCT-1997	420	-	ND	-
GS3S4	16-OCT-1997	550	-	ND	-
GS3I8	16-OCT-1997	340	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS3I9	16-OCT-1997	180	J	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
MDL and QA/QC Data: Q003
Soil / Concrete / Brick

ID	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
PRECISION (COV) SAMPLE						
#2711	15-OCT-1997	1184	85	65	-78	289
#2711	15-OCT-1997	1150	123	-117	25	281
#2711	15-OCT-1997	1060	124	60	-129	393
#2711	15-OCT-1997	1089	123	-84	-5	311
#2711	16-OCT-1997	1012	78	29	-16	265
#2711	16-OCT-1997	980	121	120	-55	275
#2711	16-OCT-1997	1041	112	80	-126	256
#2711	16-OCT-1997	1001	38	38	-64	323
#2711	16-OCT-1997	1064	108	-87	-155	295
#2711	17-OCT-1997	1162	163	-124	-37	304
#2711	17-OCT-1997	1007	135	123	5	367
#2711	17-OCT-1997	1157	127	-159	-162	317
#2711	20-OCT-1997	1023	133	35	-113	332
#2711	20-OCT-1997	1093	151	-52	-67	295
#2711	20-OCT-1997	1014	45	109	-62	280
#2711	21-OCT-1997	999	50	43	-90	314
#2711	21-OCT-1997	1105	141	29	-28	362
#2711	21-OCT-1997	1026	121	77	-54	304
#2711	21-OCT-1997	1124	149	-74	48	205
#2711	21-OCT-1997	1144	115	18	-80	266
#2711	23-OCT-1997	1103	110	-92	-195	305
#2711	23-OCT-1997	984	63	146	-66	296
#2711	23-OCT-1997	1132	211	35	-28	289
#2711	23-OCT-1997	973	198	62	-188	390
#2711	23-OCT-1997	1018	50	3	-13	363
#2711	23-OCT-1997	1034	90	50	-117	269
#2711	24-OCT-1997	1039	283	-14	-69	262
#2711	24-OCT-1997	1046	201	-31	-132	346
#2711	18-NOV-1997	1027	183	-28	-120	278
#2711	18-NOV-1997	1067	209	29	18	260
#2711	18-NOV-1997	1050	155	-19	-194	346
#2711	19-NOV-1997	1114	179	7	-85	317
#2711	19-NOV-1997	1045	71	19	1	397
#2711	19-NOV-1997	998	118	-3	-22	302
	AVG	1061	128	9	-72	307
	STDS	59	55	75	65	44
	COV(%)	5.5				14.2
	Number of Obs	34	34	34	34	34
	Certified value	1162	42	105	21	350

AVG - average
STDS - Standard deviation (n-1 method)
COV(%) - Coefficient of Variation in percent

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
MDL and QA/QC Data: Q003
Soil / Concrete / Brick

ID	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
ZERO CHECK SAMPLE: 60 SECONDS PER SOURCE						
#SAND	15-OCT-1997	-6	190	-3	-44	-25
#SAND	16-OCT-1997	-3	64	18	-56	-18
#SAND	16-OCT-1997	-9	182	31	-56	-25
#SAND	17-OCT-1997	-9	29	21	72	-62
#SAND	20-OCT-1997	-2	69	-22	-81	-24
#SAND	21-OCT-1997	-5	112	10	-73	-3
#TEFLON	23-OCT-1997	12	45	-41	69	-6
#TEFLON	24-OCT-1997	-1	47	7	10	-41
#SAND	18-NOV-1997	3	99	-13	-22	28
#SAND	19-NOV-1997	-2	114	-4	-36	-26
	AVG	-2	95	1	-22	-20
	Number of Obs	10	10	10	10	10

AVG - Average

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
MDL and QA/QC Data: Q011
Soil / Concrete / Brick

ID	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
MDL SAMPLE						
#2709	15-OCT-1997	-89	-34	100	113	121
#2709	15-OCT-1997	-25	107	102	-93	108
#2709	15-OCT-1997	-54	44	42	50	40
#2709	16-OCT-1997	-13	41	87	117	85
	AVG	-45	39	83	47	89
	STDS	33	57	28	97	35
	MDL	99	171	84	291	105
	MQL	330	570	280	970	350
	Number of Obs	4	4	4	4	4

AVG = average
STDS - Standard Deviation (n-1 method)
MDL - Method detection Limit
MQL - Method Quantitation Limit

QC SAMPLE						
#2710	15-OCT-1997	4753	27	124	33	6620
#2710	16-OCT-1997	4680	207	-137	-21	6020
#2710	16-OCT-1997	4573	29	498	-72	5815
	AVG	4668	88	162	-20	6151
	STDS	90	104	320	53	418
	COV(%)	1.9				6.8
	Number of Obs	3	3	3	3	3
	Certified value	5532	22	626	14	6952

AVG - average
STDS - Standard deviation (n-1 method)
COV(%) - Coefficient of Variation in percent

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
MDL and QA/QC Data: Q011
Soil / Concrete / Brick

ID	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
PRECISION (COV) SAMPLE						
#2711	15-OCT-1997	953	114	107	114	322
#2711	15-OCT-1997	994	106	-25	284	342
#2711	15-OCT-1997	1149	86	-36	43	248
#2711	16-OCT-1997	1005	63	101	-101	163
	AVG	1025	92	37	85	269
	STDS	86	23	78	160	81
	COV(%)	8.4				30.2
	Number of Obs	4	4	4	4	4
	Certified value	1162	42	105	21	350

AVG - average
STDS - Standard deviation (n-1 method)
COV(%) - Coefficient of Variation in percent

ZERO CHECK SAMPLE: 60 SECONDS PER SOURCE						
#SAND	15-OCT-1997	-22	52	-3	-0	73
#SAND	16-OCT-1997	-20	98	-48	137	29
	AVG	-21	75	-25	68	51
	Number of Obs	2	2	2	2	2

AVG - Average

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
MDL and QA/QC Data: Q023
Soil / Concrete / Brick

ID	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
MDL SAMPLE						
#2709	20-OCT-1997	11	-73	64	43	226
#2709	21-OCT-1997	9	48	73	260	90
#2709	21-OCT-1997	-27	5	9	243	72
#2709	21-OCT-1997	-1	63	77	127	209
#2709	21-OCT-1997	-3	30	50	2	46
#2709	21-OCT-1997	43	-39	-9	-93	82
#2709	21-OCT-1997	-5	-6	76	60	235
#2709	22-OCT-1997	-24	-111	147	31	144
	AVG	0	-10	61	84	138
	STDS	21	60	47	120	76
	MDL	63	180	141	360	228
	MQL	210	600	470	1200	760
	Number of Obs	8	8	8	8	8

AVG = average
STDS - Standard Deviation (n-1 method)
MDL - Method detection Limit
MQL - Method Quantitation Limit

QC SAMPLE						
#2710	20-OCT-1997	5383	-58	-87	26	5785
#2710	21-OCT-1997	5154	5	129	-209	6021
#2710	21-OCT-1997	5154	33	362	-168	6087
#2710	22-OCT-1997	5275	105	-2	-169	6440
	AVG	5241	21	101	-130	6083
	STDS	110	68	196	106	271
	COV(%)	2.1				4.5
	Number of Obs	4	4	4	4	4
	Certified value	5532	22	626	14	6952

AVG - average
STDS - Standard deviation (n-1 method)
COV(%) - Coefficient of Variation in percent

Guterl Steel site (WA# 2194)
Spectrace 9000 FPXRF; S/N Q003, Q011, & Q023
Cd109-60; Fe55-60; Am241-60 seconds
MDL and QA/QC Data: Q023
Soil / Concrete / Brick

ID	DATE ANALYZED	Pb (mg/kg)	Cd (mg/kg)	As (mg/kg)	Ni (mg/kg)	Zn (mg/kg)
PRECISION (COV) SAMPLE						
#2711	20-OCT-1997	1114	72	-25	-108	263
#2711	21-OCT-1997	1172	19	132	5	278
#2711	21-OCT-1997	1259	60	20	-27	328
#2711	21-OCT-1997	922	47	-28	-121	501
#2711	21-OCT-1997	1096	123	71	110	314
#2711	21-OCT-1997	1156	89	-84	48	353
#2711	21-OCT-1997	1011	121	51	-61	396
#2711	22-OCT-1997	964	24	-70	-99	414
	AVG	1087	69	9	-32	356
	STDS	113	40	74	82	79
	COV(%)	10.4				22.1
	Number of Obs	8	8	8	8	8
	Certified value	1162	42	105	21	350

AVG - average
STDS - Standard deviation (n-1 method)
COV(%) - Coefficient of Variation in percent

ZERO CHECK SAMPLE: 60 SECONDS PER SOURCE						
#SAND	20-OCT-1997	47	147	-69	86	-6
#SAND	21-OCT-1997	32	131	-78	-40	22
#SAND	22-OCT-1997	65	90	-40	-63	32
	AVG	48	123	-63	-6	16
	Number of Obs	3	3	3	3	3

AVG - Average

APPENDIX B
MDL and QA/QC Data
FPXRF Activities Report
Guterl Steel Site
December 1997

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS3A4	15-OCT-1997	130	J	ND	-
GS3A5	15-OCT-1997	ND	-	ND	-
GS3A6	15-OCT-1997	ND	-	ND	-
GS3A7	15-OCT-1997	ND	-	ND	-
GS3A8	15-OCT-1997	ND	-	ND	-
GS3C1	15-OCT-1997	420	-	ND	-
GS3C2	15-OCT-1997	ND	-	ND	-
GS3C3	15-OCT-1997	ND	-	ND	-
GS3C4	15-OCT-1997	300	-	ND	-
GS3C5	15-OCT-1997	ND	-	ND	-
GS3C6	15-OCT-1997	250	-	ND	-
GS3C7	15-OCT-1997	500	-	ND	-
GS3C8	15-OCT-1997	74	J	ND	-
GS3C9	15-OCT-1997	370	-	ND	-
GS3C10	15-OCT-1997	700	-	210	J
GS3C11	15-OCT-1997	170	J	ND	-
~~GS3C12~~	~~15-OCT-1997~~	~~ND~~	~~-~~	~~ND~~	~~-~~
~~GSC13~~ GS3C13	15-OCT-1997	ND	-	ND	-
GS3C14	15-OCT-1997	170	J	ND	-
GS3C17	15-OCT-1997	ND	-	ND	-
GS3E5	15-OCT-1997	340	-	ND	-
~~GS3E6~~	~~15-OCT-1997~~	~~ND~~	~~-~~	~~ND~~	~~-~~
GS3E7	15-OCT-1997	1600	-	ND	-
GS3E8	15-OCT-1997	200	J	ND	-
GS3E7R	15-OCT-1997	1400	-	ND	-

DK

DK

Application:SOILS with U,Th,Ag Q011 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Pb Qual	Cd	Cd Qual
GS3I1	16-OCT-1997	530	-	310	J
GS3I2	16-OCT-1997	1900	-	ND	-
GS3S27	16-OCT-1997	1200	-	ND	-
GS3I3REP2	16-OCT-1997	130	J	250	J

Application:SOILS with U,Th,Ag Q011 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

APPENDIX C
Preliminary FPXRF Field Reports
FPXRF Activities Report
Guterl Steel Site
December 1997

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb	Qual	Cd	Qual
GS3B-1	15-OCT-1997	ND	-	ND	-
GS3B2	15-OCT-1997	ND	-	ND	-
GS3B3	15-OCT-1997	ND	-	ND	-
GS3B4	15-OCT-1997	ND	-	ND	-
GS3B5	15-OCT-1997	ND	-	ND	-
GS3B6	15-OCT-1997	ND	-	ND	-
GS3B7	15-OCT-1997	ND	-	ND	-
GS3B8	15-OCT-1997	ND	-	ND	-
GS3B9	15-OCT-1997	180	J	ND	-
GS3B10	15-OCT-1997	ND	-	ND	-
GS3B11	15-OCT-1997	180	J	ND	-
GS3B12	15-OCT-1997	120	J	ND	-
GS3B13	15-OCT-1997	140	J	ND	-
GS3B14	15-OCT-1997	210	J	ND	-
GS3B15	15-OCT-1997	170	J	ND	-
GS3B16	15-OCT-1997	240	-	ND	-
GS3B17	15-OCT-1997	280	-	ND	-
GS3D4	15-OCT-1997	85	J	ND	-
GS3D5	15-OCT-1997	310	-	ND	-
GS3D6	15-OCT-1997	1500	-	ND	-
GS3D7	15-OCT-1997	500	-	ND	-
GS3D8	15-OCT-1997	440	-	ND	-
GS3D9	15-OCT-1997	490	-	ND	-
GS3D10	15-OCT-1997	620	-	210	J
GS3D11	15-OCT-1997	270	-	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Guterl Special Steel
REAC Work Assignment #03347-142-001-2194-01
Spectrace 9000 XRF Soil Screening

Site Name: Guterl Steel, Lockport, NY
Units: ppm

Sample Code	Date Run	Pb Qual		Cd Qual	
GS3C12	15-OCT-1997	360	-	ND	-
GS3E6	15-OCT-1997	1600	-	240	J
GS3E7	15-OCT-1997	1000	-	ND	-
GS3F5	15-OCT-1997	450	-	ND	-
GS3F6	15-OCT-1997	770	-	ND	-
GS3H3	15-OCT-1997	120	J	ND	-
GS3H4	15-OCT-1997	510	-	ND	-
GS3H5	15-OCT-1997	550	-	ND	-
GS3G5	15-OCT-1997	1500	-	ND	-
GS3G4	15-OCT-1997	710	-	ND	-
GS3G3	15-OCT-1997	210	J	ND	-
GS3G2	15-OCT-1997	78	J	ND	-
GS3G1	15-OCT-1997	ND	-	ND	-
GS3G2-REP	15-OCT-1997	140	J	ND	-

Application:SOILS with U,Th,Ag Q003 07-08-1992

	Pb	Cd
Minimum Detection Limit (MDL) =	70	200
Minimum Quantitation Limit (MQL)=	230	700

ND = below MDL
J = above MDL, below MQL
NOTE: Draft results, no QA/QC evaluations performed. All XRF data are subject to change.

Roy F. Weston, Inc.
GSA Raritan Depot
Bldg. 209 Annex (Bay F)
2890 Woodbridge Avenue
Edison, New Jersey 08837-3679
732-321-4200 • Fax 732-494-4021

DATE: 29 January 1998

TO: R. Singhvi, EPA/ERTC Project Officer

FROM: V. Kansal, Analytical Section Leader Vinod Kansal

SUBJECT: DOCUMENT TRANSMITTAL UNDER WORK ASSIGNMENT # 2-194

Attached please find the following document prepared under this work assignment:

Guterl Steel Site - Analytical Report

This report, as agreed upon by the Work Assignment Manager and the Task Leader, presents the data utilizing raw data and QC result sheets with manual data qualifiers added as required.

Central File WA # 2-194 (w/attachment)
C. Beasley Work Assignment Manager (w/attachment)
D. Bussey Task Leader (w/attachment)
M. Barkley Data Validation and Report Writing Group Leader (w/o attachment)

2194\DEL\AR\9801\GUTERLAR

ANALYTICAL REPORT

Prepared by
Roy F. Weston, Inc.

Guterl Steel Site
Buffalo, NY

January 1998

EPA Work Assignment No. 2-194
WESTON Work Order No. 03347-142-001-2194-01
EPA Contract No. 68-C4-0022

Submitted to
C. Beasley
EPA-ERTC

for D. Bussey — 1-29-95
Task Leader — Date

V. Kansal — 1/29/98
Analytical Section Leader — Date

E. Gilardi — 1/29/98
Program Manager — Date

Analysis by:
REAC
American Environmental Network

Prepared by:
M. Bernick

Reviewed by:
M. Barkley

2194\DEL\AR\9801\GUTERLAR

Table of Contents

Appendices will be furnished on request.

Introduction

REAC in response to WA #2-194, provided analytical support for environmental samples collected from the Guterl Steel Site located in Buffalo, NY as described in the following table. The support also included QA/QC, data review, and preparation of an analytical report containing a summary of analytical methods, results, and QA/QC results.

The samples were treated with procedures consistent with those specified in SOP #1008.

Chain of Custody	Number of Samples	Sampling Date	Date Received	Matrix	Analysis	Laboratory
05006	12	10/21/97	10/22/97	Soil	PCB	REAC
05009	15	10/22/97	10/28/97		Pb, Cd, As, Ni, Zn, V	
05686	3	10/22/97				
	11	10/23/97				
05010	4	10/23/97				
	2	10/24/97				
05947	1	11/13/97	11/17/97			
05673	2	11/12/97				
05807	20	10/24/97	10/28/97		TCLP Metals	American Environmental Network
05808	18	10/23/97				
05810	20	10/28/97				

CASE NARRATIVE

The data in this report has been validated to two significant figures. The use of more than two significant figures is entirely the responsibility of the user.

Data Package G582 - PCB Analysis

Samples A12572 and A12580 were identified by the extraction chemist as waste samples. These samples were extracted by the waste dilution method and reported based on an "as received" basis.

Samples A12574, A12576 and A12578 are three seperate aliquots of the same sample provided for MS/MSD analysis. The MS/MSD results are reported as sample A12574.

In the end of sequence calibration check from 11/06/97, the percent difference for DCBP (26%) exceeded acceptable QC limits. No surrogates were quantitated using this daily check, the data are not affected.

In the end of sequence calibration check from 10/31/97, the percent difference for all 5 aroclor 1260 peaks (38 to 61%) exceeded acceptable QC limits. Since this was an end of sequence calibration check, no samples were quantitated, and the data are not affected.

One surrogate recovery exceeded the QC limits for the following waste samples: A12572 and A12580; the data are not affected.

Two surrogate recoveries exceeded the QC limits due to matrix interference or were diluted out for the following soil samples: A12573, A12574, A12575, A12577, A12579, A12581, A12582, A12583, A12584, A12585, A12576MS, and A12578MSD; all results are considered estimated.

Data Package G672 - Metals

The samples are dried soil in XRF cups assumed to be 100 percent solid and results reported based on dry weight.

The method blanks contained 2.3 µg/kg and 2.0 µg/kg of Zn. The Zn results for all associated samples were either not detected or concentrations greater than five times the method blank concentration; the data are not affected.

Data Package G620 - TCLP Metals - Soil

The leachate blanks LB-845 (0.38 mg/L Ba) and LB-846 (0.35 mg/L Ba) contained Ba. The Ba results are considered estimated in samples: 10539, 12637, 12636, 12640, 12641, 10541, 12639, 10540, 12638, 12609, 12615, 12621, 12627, 12622, and 12616.

Leachate blank LB-849 (0.24 mg/L Ba) contained Ba. The Ba results are considered estimated in samples: 12629 and 12612.

Leachate blank LB-850 (0.61 mg/L Ba) contained Ba. The Ba results are considered estimated in samples: 12591, 12586, 12598, 12604, 12599, 12587, 12600, 12588, 12595, 12607, 12589, 12601, 12590, 12602, 12596, and 12608.

Note that the following preparation blanks are used as a baseline drift check which may result in the reporting of negative numbers.

The preparation blank (PBW 13177) contained: -2.8 µg/L As, 0.84 µg/L Ba, 4.5 µg/L Cr, 1.0 µg/L Pb, 1.8 µg/L Ag the reported values are less than the quantitation limit but greater than the instrument detection limit, the data are not affected.

The preparation blank (PBW 13201) contained: 0.68 µg/L Ba, 0.27 µg/L Cd, 7.3 µg/L Cr and 1.5 µg/L Pb; the reported values are less than the quantitation limit but greater than the instrument detection limit, the data are not affected.

The preparation blank (PBW 13203) contained: -1.7 µg/L As, 0.44 Ba, 6.3 µg/L Cr, 1.4 µg/L Pb, and 0.7 µg/L Ag; the reported values are less than the quantitation limit but greater than the instrument detection limit, the data ar not affected.

Sample 12596 Ba MS and MSD percent recoveries exceeded the QC limits; all Ba results for samples 12592 through 12610 are considered estimated.

Summary of Abbreviations

AA	Atomic Absorption
B	The analyte was found in the blank
BFB	Bromofluorobenzene
BPQL	Below the Practical Quantitation Limit
BS	Blank Spike
BSD	Blank Spike Duplicate
C	Centigrade
D	(Surrogate Table) this value is from a diluted sample and was not calculated (Result Table) this result was obtained from a diluted sample
CLP	Contract Laboratory Protocol
COC	Chain of Custody
CONC	Concentration
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
DFTPP	Decafluorotriphenylphosphine
DL	Detection Limit
E	The value is greater than the highest linear standard and is estimated
EMPC	Estimated maximum possible concentration
J	The value is below the method detection limit and is estimated
ICAP	Inductively Coupled Argon Plasma
IDL	Instrument Detection Limit
ISTD	Internal Standard
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MI	Matrix Interference
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MW	Molecular Weight
NA	either Not Applicable or Not Available
NC	Not Calculated
NR	Not Requested
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
PQL	Practical Quantitation Limit
PPBV	Parts per billion by volume
PPPA	Parts per billion in air
QL	Quantitation Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Mode
U	Denotes not detected

m^3	cubic meter	kg	kilogram
L	liter	g	gram
dL	deciliter	cg	centigram
mL	milliliter	mg	milligram
μL	microliter	μg	microgram
		ng	nanogram
		pg	picogram

* denotes a value that exceeds the acceptable QC limit

Abbreviations that are specific to a particular table are explained in footnotes on that table

Revision 10/21/96

Analytical Procedure for PCB in Soil

Extraction Procedure

The soil samples were extracted by the Soxhlet method. A thirty gram aliquot was spiked with a surrogate solution consisting of tetrachloro-m-xylene and decachlorobiphenyl, mixed with 30 g anhydrous sodium sulfate and Soxhlet extracted for 16 hours with 300 mL 1:1 hexane: acetone. The extract was concentrated to 5 to 20 mL.

Gas Chromatographic Analysis

The extract was analyzed for pesticides and PCBs using simultaneous dual column injections. The analysis was done on an HP 5890 GC/ECD system, equipped with an HP 7673A automatic sampler, and controlled with an HP-ChemStation. The following conditions were employed:

First Column	DB-608, 30 meter, 0.32mm fused silica capillary, 0.50 µm film thickness
Injector Temperature	200° C
Detector Temperature	325° C
Second Column	Rtx-CLPesticides, 30 meter, 0.32mm fused silica capillary, 0.50 µm film thickness
Injector Temperature	200° C
Detector Temperature	325° C
Temperature Program-(both columns)	70 ° C for 1 minute 30 °C/min to 150°C, 0.5 min at 150°C 8 °C/min to 275°C, 10 min at 275°C

The gas chromatographs were calibrated using 5 Aroclor standards at 250, 500, 1000, 2000, and 5000 µg/L. The results from each mixture were used to calculate the response factor (RF) of each analyte and the average Response Factor was used to calculate the concentration of PCB in the sample. Quantification was based on the Rtx-CLPesticides column (signal 2) due to matrix interference observed on the DB-608 column (signal 1). A fingerprint chromatogram was produced using each of the seven Aroclor mixtures; calibration curves were run only if a particular Aroclor was found in the sample.

2194\DEL\AR\9801\GUTERLAR

The PCB results, listed in Table 1.1, are calculated by using the following formula:

$$C_x = \frac{DF x A_x x V_t}{RF_{ave} x V_i x W x D}$$

where

C_x = Concentration of analyte (µg/kg)
DF = Dilution Factor
A_x = Area or peak height
V_t = Volume of sample (mL)
RF_{ave} = Average response factor
V_i = Volume of extract injected (µL)
W = Weight of sample (g)
D = Decimal percent solids

Response Factor calculation:

The RF for each specific analyte is quantitated based on the area response from the continuing calibration check as follows:

$$RF = \frac{A_x}{total\ pg\ injected}$$

where

A_x = Area or peak height

and

$$RF_{ave} = \frac{RF_1 + \ldots + RF_n}{n}$$

where

n = number of samples

Revision 7/23/97

Analytical Procedure for PCB in Waste

Extraction Procedure

The waste samples were extracted by the dilution method. A one gram aliquot was diluted in 10 mL of hexane and spiked with a surrogate solution consisting of tetrachloro-m-xylene and decachlorobiphenyl.

Gas Chromatographic Analysis

The extract was analyzed for pesticides and PCBs using simultaneous dual column injections. The analysis was done on an HP 5890 GC/ECD system, equipped with an HP 7673A automatic sampler, and controlled with an HP-ChemStation. The following conditions were employed:

First Column	DB-608, 30 meter, 0.32mm fused silica capillary, 0.50 µm film thickness
Injector Temperature	200° C
Detector Temperature	325° C
Second Column	Rtx-CLPesticides, 30 meter, 0.32mm fused silica capillary, 0.50 µm film thickness
Injector Temperature	200° C
Detector Temperature	325° C
Temperature Program-(both columns)	70 ° C for 1 minute 30 °C/min to 150°C, 0.5 min at 150°C 8 °C/min to 275°C, 10 min at 275°C

The gas chromatographs were calibrated using 5 Aroclor standards at 250, 500, 1000, 2000, and 5000 µg/L. The results from each mixture were used to calculate the response factor (RF) of each analyte and the average Response Factor was used to calculate the concentration of PCB in the sample. Quantification was based on the Rtx-CLPesticides column (signal 2) due to matrix interference observed on the DB-608 column (signal 1). A fingerprint chromatogram was produced using each of the seven Aroclor mixtures; calibration curves were run only if a particular Aroclor was found in the sample.

The PCB results, listed in Table 1.2, are calculated by using the following formula:

$$C_u = \frac{DF \times A_u \times V_t}{RF_{ave} \times V_i \times W}$$

where

C_u = Concentration of analyte (µg/kg) wet weight
DF = Dilution Factor
A_u = Area or peak height
V_t = Volume of sample (mL)
RF_{ave} = Average response factor
V_i = Volume of extract injected (µL)
W = Weight of sample (g)

Response Factor calculation:

The RF for each specific analyte is quantitated based on the area response from the continuing calibration check as follows:

$$RF = \frac{A_u}{total\ pg\ injected}$$

where

A_u = Area or peak height

and

$$RF_{ave} = \frac{RF_1 + \ldots + RF_n}{n}$$

where

n = number of samples

Revision 7/23/97

Analytical Procedure for Metals in Soil

Sample Preparation

A representative 1-2 g (wet weight) sample, weighed to 0.01 g accuracy, was mixed with 10 mL 1:1 nitric acid, placed in a clean beaker and digested in nitric acid and hydrogen peroxide according to SW-846, Method 3050. The final reflux was either nitric acid or hydrochloric acid depending on the metals to be determined. After digestion, the samples were allowed to cool to room temperature and transferred to polyethylene bottles. The samples were analyzed for all metals, except mercury, by USEPA SW-846, Method 7000 (Atomic absorption) or Method 6010 [Inductively Coupled Argon Plasma-(ICAP)] procedures.

A separate sample was used to determine total solids. A reagent blank and a blank spike sample were carried through the sample preparation procedure for each batch of samples processed. One matrix spike (MS) and one matrix spike duplicate (MSD) were analyzed for each batch or for every ten samples.

Analysis and Calculations

The instruments were calibrated and operated according to SW-846, Method 7000/7471/6010 and the manufacturers operating instructions. After calibration, initial calibration verification (ICV), initial calibration blank (ICB) and quality control check standards were run to verify proper calibration. The continuing calibration verification (CCV) and continuing calibration blank (CCB) were run after every ten samples to assure proper operation during sample analysis.

The metal concentrations in solution, in micrograms per liter (µg/L) were taken from the read-out systems of the Atomic Absorption instuments. The results were converted to milligrams per kilogram (mg/kg) by correcting the reading for the sample weight and percent solids. The ICAP results were corrected for sample weight prior to instument read-out; the mg/kg instrument read-out was then corrected for percent solids.

Final concentrations (mg/kg), based on wet weight are given by:

$$\text{mg metal/kg sample} = [(A \times V)/W] \times DF \times CF$$

where: A = Insrument read-out (µg/L, AA; mg/kg,ICAP)
V = final volume of processed sample (mL,AA; 1.00 ICAP)
W = weight of sample (g,AA; 1.00 ICAP)
DF = Dilution Factor (1.00 for no dilution)
CF = conversion factor (0.001, AA; 1.00, ICAP)

For samples that required dilution to be within the instrument calibration range, DF is given by:

$$DF = (C+B)/C$$

where: B = acid blank matrix used for dilution (mL)
C = sample blank aliquot (mL)

Final concentrations (mg/kg), based on dry weight, are given by:

$$\text{mg/kg(dry)} = [\text{mg/kg (wet)} \times 100] / S$$

where: S = percent solids

Results of the metals analyses are listed in Table 1.3.

Analytical Procedure for TCLP Metals in Soil

The TCLP extraction was performed according to Method 1311. The TCLP extracts were analyzed for all metals except Hg according to SW-846 6010A. Mercury (Hg) was analyzed by the cold vapor technique Method 7470. The results are listed in Table 1.4.

Table 1.1 Results of the Analysis for PCB in Soil
WA# 2-194 Guterl Steel Site
Based on Dry Weight

Client ID	SBLK10229701		A 12573		A 12574		A 12575		A 12577	
Location	-		PCB3L4		PCB3L3		PCB3L3 DUP		PCB3K3	
Percent Solid	100		81		97		96		96	
Analyte	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Aroclor 1016	U	42	U	200	U	170	U	170	U	86
Aroclor 1221	U	83	U	410	U	340	U	340	U	170
Aroclor 1232	U	42	U	200	U	170	U	170	U	86
Aroclor 1242	U	42	U	200	U	170	U	170	U	86
Aroclor 1248	U	42	U	200	U	170	U	170	U	86
Aroclor 1254	U	42	U	200	U	170	U	170	U	86
Aroclor 1260	U	42	U	200	U	170	U	170	U	86

Table 1.1 (Cont) Results of the Analysis for PCB in Soil
WA# 2-194 Guterl Steel Site
Based on Dry Weight

Client ID	A 12579		A 12581		A 12582		A 12583		A 12584	
Location	PCB3S23		PCB3I4		PCBTP1		PCB3G2		PCB3D4	
Percent Solid	96		97		84		86		77	
Analyte	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Aroclor 1016	U	86	U	85	U	98	U	49	U	54
Aroclor 1221	U	170	U	170	U	200	U	97	U	110
Aroclor 1232	U	86	U	85	U	98	U	49	U	54
Aroclor 1242	U	86	U	85	U	98	U	49	U	54
Aroclor 1248	U	86	U	85	U	98	U	49	U	54
Aroclor 1254	U	86	U	85	U	98	U	49	U	54
Aroclor 1260	U	86	U	85	64000	98	8600	49	1800	54

Table 1.1 (Cont) Results of the Analysis for PCB in Soil
WA# 2-194 Guterl Steel Site
Based on Dry Weight

Client ID	A 12585	
Location	PCBTP2	
Percent Solid	91	
Analyte	Conc. µg/kg	MDL µg/kg
Aroclor 1016	U	92
Aroclor 1221	U	180
Aroclor 1232	U	92
Aroclor 1242	U	92
Aroclor 1248	U	92
Aroclor 1254	U	92
Aroclor 1260	3600	92

Table 1.2 Results of the Analysis for PCB in Waste
WA# 2-194 Guterl Steel Site
Reported "as Received"

Client ID	DBLK10229701		A 12572		A 12580	
Location	-		PCB3L7		PCB3I2	
Analyte	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg	Conc. µg/kg	MDL µg/kg
Aroclor 1016	U	2500	U	2100	U	2300
Aroclor 1221	U	5000	U	4200	U	4600
Aroclor 1232	U	2500	U	2100	U	2300
Aroclor 1242	U	2500	U	2100	U	2300
Aroclor 1248	U	2500	U	2100	U	2300
Aroclor 1254	U	2500	U	2100	U	2300
Aroclor 1260	U	2500	U	2100	U	2300

Table 1.3 Results of the Analysis for Metals in Soil
WA# 2-194 Guterl Steel Site
Based on Dry Weight

Parameter / Analysis Method		Arsenic ICAP		Cadmium ICAP		Lead ICAP		Nickel ICAP		Vanadium ICAP		Zinc ICAP	
Client ID (REAC#)	Location	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg	Conc mg/kg	MDL mg/kg
Method Blank	-	U	7.5	U	0.50	U	4.0	U	1.0	U	1.0	2.3	2.0
199	GS3-N15 0-0.5"	U	35	21	4.7	1300	38	95000	9.4	640	9.4	4000	19
200	GS3-N16 0-0.5"	U	37	8.7	2.5	850	40	99000	9.9	560	9.9	1400	20
201	GS3-J4 0-0.5"	U	74	17	4.9	840	39	3300	9.8	520	9.8	4500	20
206	GS2-C5 0- 2"	U	37	U	2.5	350	20	100000	5.0	1200	4.9	1000	10
207	GS2-C5 5-6"	U	6.2	U	4.1	66	33	55000	8.3	300	8.3	U	17
208	GS2-H7 0-0.5"	U	68	35	4.5	1300	36	28000	9.0	380	9.0	1400	18
209	GS2-H9 0-0.5"	200	74	3.2	0.50	34000	40	22000	9.9	230	9.9	1700	20
210	GS2-H23 0-0.5"	U	7.0	11	0.47	490	3.7	8600	0.93	190	0.93	1200	1.9
211	GS2-H32 0-0.5"	U	7.3	13	4.9	750	39	8300	9.7	45	4.9	5700	19
212	GS2-I2 0-0.5"	U	71	U	4.7	940	38	98000	9.4	930	9.4	820	19
213	GS2-I1 0-0.5"	U	35	U	2.4	2000	38	110000	9.4	620	4.7	680	9.8
214	GS2-H18 0-0.5"	U	71	U	4.7	1100	38	35000	9.4	270	9.4	1100	19
215	GS2-K5 0- 2"	U	7.3	U	2.5	610	19	50000	9.7	620	4.9	180	9.7
219	GS3-C10 0- 2"	U	74	U	0.50	1700	40	11000	9.9	1000	9.9	150	20
220	GS3-C10 5- 6"	U	14	U	0.96	730	7.6	10000	1.9	790	1.9	140	3.8
221	GS3-D10 0- 2"	U	69	U	4.6	1300	37	7100	9.2	950	9.2	240	18
223	GS3-E6 0- 2"	U	75	U	0.50	2800	40	6800	10	710	10	300	20
225	GS3-E7 0- 2"	U	74	U	0.49	5000	39	8500	9.8	1700	9.8	430	20
227	GS3-S39 0-0.5"	U	73	16	4.9	6200	39	1100	9.7	110	9.7	7700	19
228	GS3-S6 0-0.5"	U	7.3	9.4	0.49	2000	3.9	1700	0.97	180	0.97	3600	1.9
Method Blank	-	U	7.5	U	0.50	U	4.0	U	1.0	U	1.0	2.0	2.0
217	GS2-S1 0- 2"	U	7.3	U	0.49	170	3.9	1200	0.97	24	0.97	52	1.9
229	GS3-K6 0- 2"	U	7.2	2	0.48	1000	3.9	1900	0.96	980	0.96	490	1.9
230	GS3-K6 5- 6"	U	7.2	U	0.48	5.2	3.9	13	0.96	7.5	0.96	49	1.9
231	GS3-K7 0- 2"	13	7.2	2.1	0.48	810	3.9	4100	0.96	250	0.96	710	1.9
233	GS3-S9 0- 2"	18	7.1	1.1	0.47	1500	3.8	5000	0.94	190	0.94	440	1.9
235	GS3-S10 0- 2"	U	34	U	0.46	330	18	4100	4.6	82	4.6	150	9.2
236	GS3-S10 5- 6"	U	34	U	0.45	400	18	2700	4.5	61	4.5	270	9.0
237	GS3-S26 0-0.5"	17	7.2	9.2	0.48	860	19	7600	4.8	260	0.96	3500	9.6
238	GS3-L8 0-0.5"	17	6.9	64	0.46	950	19	14000	4.7	430	0.93	4000	9.3
239	GS2-A6 0- 2"	120	7.1	8.3	0.48	1600	3.8	14000	0.95	190	0.95	3000	1.9
241	GS2-B5 0- 2"	U	34	U	0.45	320	18	180000	9.1	1000	4.6	940	9.1
243	GS2-A5 0- 2"	U	6.7	1.6	0.45	780	3.6	7200	0.89	270	0.89	1300	1.8
245	GS2-K1 0- 2"	U	7.1	U	0.47	100	3.8	9900	0.94	190	0.94	87	1.9
249	GS2-S26 5-6"	U	7.4	U	0.50	7.3	4.0	100	0.99	9.8	0.99	63	2.0
255	GS2-H23 5-6"	U	6.9	1.8	0.46	110	3.7	510	0.92	37	0.92	420	1.8
905	GS3 N24 0.75-1.25'	U	34	U	0.45	110	36	4100	4.6	68	4.6	110	9.1
916	GS2 H9 4.1-4.7'	U	7.2	0.96	0.48	14	3.9	16	0.96	13	0.96	590	1.9
925	GS3-E6 3.0-3.5'	U	6.7	U	0.45	13	3.6	31	0.89	20	0.89	97	1.8

Table 1.4 Results of the Analysis for TCLP Metals in TCLP Leachate
WA# 2-194 Guterl Steel Site

U.S. EPA - CLP

3
BLANKS
PBWW5 13177 ICP
PBWW5 13123 Hg

Lab Name: IEA NJ Contract: _____

Lab Code: IEANJ Case No.: 75112 SAS No.: _____ SDG No.: 12592

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prep-aration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic									✓-2.820	B	P
Barium									✓ 0.840	B	P
Beryllium											NR
Cadmium									✓ .25 ~~0.210~~	U	P
Calcium											NR
Chromium									✓ 4.540	B	P
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium									✓ 1.040	B	P
Manganese											NR
Mercury											NR
Nickel									✓ 0.200	U	CV
Potassium											NR
Selenium											NR
Silver									✓ 2.5 ~~2.390~~	U	P
Sodium									✓ 1.840	B	P
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

CLIENT : Weston REAC

MATRIX: 000018

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	LB-845					Regulatory Limits
Client I.D	LEACH BLANK	Fluid #1	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.387		0.20			100
Cadmium	<0.025	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.700	U	0.10			5.0
Mercury	<0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

000019

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

(TCLP; PART 261

Units: MG/L

Lab I.D.	LB-846					Regulatory Limits
Client I.D	LEACH BLANK	Fluid #2	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	0.358		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ <0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	✓ <0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/94

CLIENT : Weston REAC

000024

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112001					Regulatory Limits
Client I.D	12592	GS3 S10 5-6"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	2.09	2.1	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

000025

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112002					Regulatory Limits
Client I.D	10539	GS3 C10 5-6"	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 1.45	1.5	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ 0.988		0.10			5.0
Mercury	✓ <0.000400	U	0.00040			0.2
Selenium	✓ <0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP PART 261

Units: MG/L

Lab I.D.	75112003					Regulatory Limits
Client I.D	10538	GS3 Co 0-2'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	2.26	2.3	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	8.5		0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP: PART 261

Units: MG/L

Lab I.D.	75112004					Regulatory Limits
Client I.D	12637	GS3 E6 5-6'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	1.23		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	0.659		0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

000028

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112005					Regulatory Limits
Client I.D	12636	GS3 EL 0-2"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	1.38		0.20			100
Cadmium	<0.0200	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	2.06	4	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112006					Regulatory Limits
Client I.D	12640	GS3 S39 0-.5'	QL			
*** METALS ***						5.0
Arsenic	<0.200	U	0.20			100
Barium	0.433		0.20			1.0
Cadmium	0.0548		0.025			5.0
Chromium	<0.380	U	0.10			5.0
Lead	2.4		0.10			0.2
Mercury	<0.000480	U	0.00040			1.0
Selenium	<0.200	U	0.20			5.0
Silver	<0.0250	U	0.025			

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112007					Regulatory Limits
Client I.D	12641	SS3 S6 0-.5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	1.66		0.20			100
Cadmium	0.0610		0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	1.38		0.10			5.0
Mercury	<0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

000031

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP PART 261

Units: MG/L

Lab I.D.	75112008					Regulatory Limits
Client I.D	10541	GS3 D= 5-6'	QL			
*** METALS ***						5.0
Arsenic	<0.200	U	0.20			100
Barium	✓ 0.882		0.20			1.0
Cadmium	<0.0250	U	0.025			5.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ 32.7	J	0.10			5.0
Mercury	✓ <0.000400	U	0.00040			0.2
Selenium	<0.280	U	0.20			1.0
Silver	✓ <0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

000032

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112009					Regulatory Limits
Client I.D	12639	9S3 E7 5-6'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	1.4		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	5.1	5.2	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/2/91

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112010					Regulatory Limits
Client I.D	10540	GSS Duo 0-2'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.858		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	18.5		0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

000034

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112011					Regulatory Limits
Client I.D	12638	GS3 E7 0-2"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	1.24	J	0.20			100
Cadmium	<0.0280	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	17.8		0.10			5.0
Mercury	<0.000400	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112012					Regulatory Limits
Client I.D	12609	GS2 HA 0-5"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.27		0.20			100
Cadmium	0.068		0.025			1.0
Chromium	0.368	.35	0.10			5.0
Lead	1.7		0.10			5.0
Mercury	<0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112013					Regulatory Limits
Client I.D	12615	GS2 A6 0-2'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	1.36	1.4	0.20			100
Cadmium	0.0608		0.025			1.0
Chromium	<0.300	U	0.10			5.0
Lead	0.115	.12	0.10			5.0
Mercury	<0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

000037

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112014					Regulatory Limits
Client I.D	12621	GS2 K10 0-2'	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 1.38	1.4	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ <0.100	U	0.10			5.0
Mercury	✓ <0.000400	U	0.00040			0.2
Selenium	✓ <0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112015					Regulatory Limits
Client I.D	12627	GS3 J4 5-6'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.935	.9/6	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	0.205	.30	0.10			5.0
Mercury	<0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

11/23/99

CLIENT : Weston RREAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112016					Regulatory Limits
Client I.D	12622	GS2 K1 5-6"	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 1.25		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ <0.100	U	0.10			5.0
Mercury	✓ <0.000480	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

0000:0

JOB No.: 75112

MATRIX: LEACHATE

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112017					Regulatory Limits
Client I.D	12628	GS3 N15 5-L°	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	.110 ~~1.11~~		0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	✓ <0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	✓ <0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112018					Regulatory Limits
Client I.D	12616	GS2 AL 5-L*	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.208		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	0.376	.18	0.10			5.0
Lead	0.158		0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/94

CLIENT : Weston REAC

00012

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112019					Regulatory Limits
Client I.D	12610	GSZ I 1 0-5	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	0.135	.14	0.10			5.0
Lead	0.146	.15	0.10			5.0
Mercury	0.000578		0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

U.S. EPA - CLP

3
BLANKS
PBWW613147 Hg
PBWW613201 ICP

Lab Name: IEA_NJ Contract: _____

Lab Code: IEANJ Case No.: 75112 SAS No.: _____ SDG No.: 12592

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prep-aration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic							✓		1.24 ~~2.400~~	U	P
Barium							✓		.68 B ~~0.830~~	U	P
Beryllium											NR
Cadmium							✓		0.270	B	P
Calcium											NR
Chromium							✓		7.290	B	P
Cobalt											NR
Copper											NR
Iron											NR
Lead							✓		1.530	B	P
Magnesium											NR
Manganese											NR
Mercury							✓		0.200	U	CV
Nickel											NR
Potassium											NR
Selenium							✓		2.56 ~~2.390~~	U	P
Silver							✓		.5C ~~1.840~~	U	P
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	LB-848					Regulatory Limits
Client I.D	LEACH BLANK	Fluid #1	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	✓ <0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ <0.100	U	0.10			5.0
Mercury	✓ <0.000400	U	0.00050			0.2
Selenium	<0.200	U	0.20			1.0
Silver	✓ <0.0250	U	0.025			5.0

12/2/91

CLIENT : Weston REAC

000021

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Un:

Lab I.D.	LB-849					Regulatory Limits
Client I.D	LEACH BLANK	Fluid #2	QL			
*** METALS ***			0.20			
Arsenic	<0.200	U	0.20			5.0
Barium	0.238	.24	0.025			100
Cadmium	<0.0250	U	0.10			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.00040			5.0
Mercury	<0.000400	U	0.20			0.2
Selenium	<0.200	U	0.025			1.0
Silver	<0.0250	U				5.0

12/3/97

CLIENT : Weston REAC

000013

JOB No.: 75112

MATRIX: LEACHATE

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112020					Regulatory Limits
Client I.D	12629	GS2 Hg 10-12"	QL			
*** METALS ***						
Arsenic	0.200	U	0.20			5.0
Barium	0.578		0.20			100
Cadmium	<0.0200	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	2.16	1.8	0.10			5.0
Mercury	<0.00200	U	0.00050			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

000014

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112021					Regulatory Limits
Client I.D	12623	GS3 J3 5-6'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112022					Regulatory Limits
Client I.D	12611	GS2 K5 0-2'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	✓ 0.408		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	✓ 0.598		0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	✓ <0.000400	U	0.00050			0.2
Selenium	<0.200	U	0.20			1.0
Silver	✓ <0.0250	U	0.025			5.0

12/5/97

CLIENT : Weston REAC

0000 16

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112023					Regulatory Limits
Client I.D	12617	GS2 B5 0-2"	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 0.286	.34	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	✓ 0.579	.58	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	✓ <0.000200	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/99

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112024					Regulatory Limits
Client I.D	12630	GS2 HB 5-6'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.223		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112025					Regulatory Limits
Client I.D	12624	GS3 SL 5-6"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.956	.96	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

0000 9

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112026					Regulatory Limits
Client I.D	12618	GS2 B5 5-6"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	0.445		0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

000030

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112027					Regulatory Limits
Client I.D	12612	GS2 K5 5-6"	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 0.815	.82	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	✓ <0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	✓ <0.0250	U	0.025			5.0

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112028					Regulatory Limits
Client I.D	12619	GS2A5 0-2"	QL			
*** METALS ***			0.20			
Arsenic	<0.200	U	0.20			5.0
Barium	0.765		0.025			100
Cadmium	<0.0250	U	0.10			1.0
Chromium	0.168		0.10			5.0
Lead	1.18		0.00050			5.0
Mercury	0.000650		0.20			0.2
Selenium	<0.200	U	0.025			1.0
Silver	<0.0250	U				5.0

17/3/97

CLIENT : Weston REAC

000032

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112029					Regulatory Limits
Client I.D	12613	GS2 S1 0-2'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.987		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	0.752		0.10			5.0
Mercury	0.00118		0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/99

CLIENT : Weston REAC

000053

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112030					Regulatory Limits
Client I.D	12631	GS2 Hz3 5-6"	QL			
*** METALS ***						
Arsenic	✓<0.200	U	0.20			5.0
Barium	✓ 0.57		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	✓<0.000400	U	0.00020			0.2
Selenium	✓ <0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

On file 12/3/91

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112031					Regulatory Limits
Client I.D	12625	GS3 S2L 5-6"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.317		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.700	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112032					Regulatory Limits
Client I.D	12626	GS3 S13 5-6'	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 0.988	.99	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ <0.100	U	0.10			5.0
Mercury	✓ <0.000400	U	0.00050			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112033					Regulatory Limits
Client I.D	12620	GS2A5 5-6'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.576	.58	0.20			100
Cadmium	0.0338		0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.700	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

000057

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112034					Regulatory Limits
Client I.D	12632	GS2 #32 5-6'	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 0.528		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	✓ <0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	✓ <0.000400	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	✓ <0.0250	U	0.025			5.0

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112035					Regulatory Limits
Client I.D	12614	GS2 S1 3-4'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.857		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/97

CLIENT : Weston REAC

MATRIX: LEACHATE 000059

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112036					Regulatory Limits
Client I.D	12597	GS3 J4 0-.5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	1.24		0.20			100
Cadmium	0.088		0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

MG 12/3/97

000030

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112037					Regulatory Limits
Client I.D	12603	GS2 C5 5-6'	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 0.595	.60	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	✓ 0.272		0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	✓ <0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/94

CLIENT : Weston REAC

MATRIX: 000031 ~~LEACHATE~~

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112038					Regulatory Limits
Client I.D	12642	GS3 K6 0-2'	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 0.735	.74	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ 0.525		0.10			5.0
Mercury	✓ <0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/3/91

U.S. EPA - CLP

3
BLANKS
PBwwG13148 Hg
PBwwG13203 ICP

Lab Name: IEA_NJ Contract: _____

Lab Code: IEANJ Case No.: 75112 SAS No.: _____ SDG No.: 12592

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium							✓		~~1.6~~ 1.62 ~~2.400~~	B	P
Beryllium							✓		.44B ~~0.830~~	B	P
Cadmium											NR
Calcium							✓		.75 ~~0.210~~	U	P
Chromium											NR
Cobalt							✓		6.340	B	P
Copper											NR
Iron											NR
Lead								✓			NR
Magnesium							✓		1.360	B	P
Manganese											NR
Mercury								✓			NR
Nickel							✓		0.200	U	CV
Potassium											NR
Selenium								✓			NR
Silver							✓		2.55 ~~2.390~~	U	P
Sodium							✓		.70B ~~1.040~~	B	P
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
											NR

U.S. EPA - CLP

3
BLANKS

Pbmw13217 Hg

Lab Name: IEA NJ Contract: _____

Lab Code: IEANJ Case No.: 75112 SAS No.: _____ SDG No.: 12592

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury									✓ 0.200		CV
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

CLIENT : Weston REAC

000022

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	LB-850					Regulatory Limits
Client I.D	LEACH BLANK	Fluid #1	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.618		0.20			100
Cadmium	<0.025	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/99

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	LB-851					Regulatory Limits
Client I.D	LEACH BLANK	Fluid #1	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ <0.200	U	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ <0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

000052

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112039					Regulatory Limits
Client I.D	12591	GS3 S10 0-2'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.906	J	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.700	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/92

CLIENT : Weston REAC

000033

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112040					Regulatory Limits
Client I.D	12586	QS3 KL 5-6'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.511	.57	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

000034

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112041					Regulatory Limits
Client I.D	12598	GS3 S36 4-5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.307	.31	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000200	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/94

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112042					Regulatory Limits
Client I.D	12604	GS2 H7 0-.5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.819	.Kz	0.20			100
Cadmium	0.283		0.025			1.0
Chromium	<0.380	U	0.10			5.0
Lead	0.857	.Kp	0.10			5.0
Mercury	<0.000480	U	0.00050			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112043					Regulatory Limits
Client I.D	12599	GS3 S7 5-6"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.355	.36	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	0.492		0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112044					Regulatory Limits
Client I.D	12605	GS2 Hg 0-.5	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	0.0536		0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	268.	J	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

000068

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112045					Regulatory Limits
Client I.D	12587	GS3 K7 0-2"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	1.88		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	0.142		0.10			5.0
Mercury	<0.000400	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112046					Regulatory Limits
Client I.D	12593	GS3 S2L 0-.5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	0.126	.13	0.025			1.0
Chromium	0.128		0.10			5.0
Lead	0.149	.15	0.10			5.0
Mercury	<0.000490	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

17/4/99

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112047					Regulatory Limits
Client I.D	12594	GS3 LB 0-.5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	0.587	.37	0.025			1.0
Chromium	0.14		0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

000071

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112048					Regulatory Limits
Client I.D	12600	GS3S12 45°	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.427	.43	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	4.28		0.10			5.0
Mercury	<0.000480	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112049					Regulatory Limits
Client I.D	12588	GS3 K7 3-4'	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	✓ 1.68	1.5	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	✓ <0.100	U	0.10			5.0
Lead	✓ 0.517	.52	0.10			5.0
Mercury	✓ <0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112050					Regulatory Limits
Client I.D	12606	GS2 H23 0-.5'	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	<0.200	U	0.20			100
Cadmium	✓ 0.142		0.025			1.0
Chromium	<0.200	U	0.10			5.0
Lead	✓ 0.153		0.10			5.0
Mercury	✓ <0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

17/4/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112051					Regulatory Limits
Client I.D	12595	GS3 N15 0-.5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.536	.57	0.20			100
Cadmium	0.248		0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

000075

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112052					Regulatory Limits
Client I.D	12607	GS2 H32 0-.5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.418		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	2.47	2.5	0.10			5.0
Mercury	<0.000200	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

11/4/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112053					Regulatory Limits
Client I.D	12589	GS2 S9 0-2"	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.288		0.20			100
Cadmium	0.387	.15	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112054					Regulatory Limits
Client I.D	12601	GS2N13 4-5'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.893		0.20			100
Cadmium	<0.0280	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	0.253		0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

11/4/94

000078

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112055					Regulatory Limits
Client I.D	12590	GS3 S9 5-6'	QL			
*** METALS ***						
Arsenic	0.257	U	0.20			5.0
Barium	0.818		0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000400	U	0.00040			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/09

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112056					Regulatory Limits
Client I.D	12602	GS2 C5 0-2'	QL			
*** METALS ***						
Arsenic	<0.200	U	0.20			5.0
Barium	0.756	.74	0.20			100
Cadmium	<0.0250	U	0.025			1.0
Chromium	0.125		0.10			5.0
Lead	<0.100	U	0.10			5.0
Mercury	<0.000200	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/4/91

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
(TCLP) PART 261

Units: MG/L

Lab I.D.	75112057					Regulatory Limits
Client I.D	12596	GS3 N11 0-.5'	QL			
*** METALS ***						
Arsenic	✓ <0.200	U	0.20			5.0
Barium	0.315	.32	0.20			100
Cadmium	✓ 0.0368		0.025			1.0
Chromium	<0.100	U	0.10			5.0
Lead	✓ <0.500	U	0.10			5.0
Mercury	✓ <0.000400	U	0.00020			0.2
Selenium	<0.200	U	0.20			1.0
Silver	<0.0250	U	0.025			5.0

12/14/97

CLIENT : Weston REAC

MATRIX: LEACHATE

JOB No.: 75112

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) PART 261

Units: MG/L

Lab I.D.	75112058					Regulatory Limits
Client I.D	12608	GS2 I2 0-.5'	QL			
*** METALS ***						
Arsenic	<0.200	1	0.20			5.0
Barium	0.208	.24	0.20			100
Cadmium	<0.0250	1	0.025			1.0
Chromium	<0.100	1	0.10			5.0
Lead	0.239	.24	0.10			5.0
Mercury	<0.000400	1	0.00040			0.2
Selenium	<0.200	1	0.20			1.0
Silver	<0.0250	1	0.025			5.0

QA/QC for PCB

Results of the Surrogate Recoveries for PCB in Soil

The reported surrogate percent recoveries, listed in Table 2.1, ranged from 109 to 114. Both reported recoveries are within QC limits. Twenty-four surrogates were not recovered due to dilution.

Results of the Surrogate Recoveries for PCB in Waste

The surrogate percent recoveries, listed in Table 2.2, ranged from 13 to 142. Four out of 6 recoveries are within QC limits.

Results of the MS/MSD Analysis for PCB in Soil

Soil sample A12574 was chosen for the matrix spike/matrix spike duplicate (MS/MSD) analyses. The percent recoveries and relative percent difference (RPD), listed in Table 2.3, were not calculated because aroclor 1260 was not detected due to the high final volume (20 milliliters) of the final extract.

Table 2.1 Results of the Surrogate Recoveries for PCB in Soil
WA#2-194 Guterl Steel

Sample ID	Percent Recovery TCMX	DCBP
SBLK10229701	114	109
A 12573	D	D
A 12574	D	D
A 12575	D	D
A 12576MS	D	D
A 12577	D	D
A 12578MSD	D	D
A 12579	D	D
A 12581	D	D
A 12582	D	D
A 12583	D	D
A 12584	D	D
A 12585	D	D

	ADVISORY QC Limits
Tetrachloro-m-xylene (TCMX)	60-150
Decachlorobiphenyl (DCBP)	60-150

Table 2.2 Results of the Surrogate Recoveries
for PCB in Waste
WA#2-194 Guterl Steel Site

Sample ID	Percent Recovery TCMX	DCBP	
DBLK10229701	117	142	
A 12572	94	13	*
A 12580	95	29	*

	ADVISORY QC Limits
Tetrachloro-m-xylene (TCMX)	60-150
Decachlorobiphenyl (DCBP)	60-150

Table 2.3 Results of the MS/MSD Analysis for PCB in Soil
WA#2-194 Guterl Steel
Based on Dry Weight

Sample ID: A 12574

Compound	Sample Conc (µg/kg)	MS Spike Added (µg/kg)	M S Conc (µg/kg)	MS % Rec	MSD Spike Added (µg/kg)	MSD Conc (µg/kg)	MSD % Rec	RPD
AR 1260	U	215	U	NC	173	U	NC	NC

Results of the QC Standard Analysis for TAL Metals in Soil

The QC standards ERA-431, and QC-21x100 were used to check the accuracy of the calibration curves. The percent recoveries for the metals found in the QC standards listed in Table 2.4, ranged from 103 to 115. There are 95% confidence interval limits available for 10 of the 22 concentration recoveries. All 10 concentration recoveries are within the limits. There are no 95% confidence interval limits available for the remaining 12 recoveries.

Results of the LCS Analysis for TCLP Metals (TCLP Leachate)

The LCS standards were used to check the accuracy of the calibration curves. The percent recoveries for the metals found in the LCS standards listed in Table 2.5, ranged from 97 to 106. There are no QC limits available for this analysis.

Results of the MS/MSD Analysis for Metals in Soil

Samples 209, 220, 249, and 916 were chosen for matrix spike/matrix spike duplicate (MS/MSD) analysis. The reported percent recoveries, listed in Table 2.6, ranged from 47 to 192. The reported relative percent differences (RPDs), also listed in Table 2.6, ranged from 0 to 121. No QC limits are available for this analysis. Twelve percent recoveries and six RPDs were not calculated because the sample concentration of the analyte was greater than four times the spike concentration.

Results of the MS/MSD Analysis for TCLP Metals in TCLP Leachate

Samples 12596, 12640, 12591, and 12599 were chosen for matrix spike/matrix spike duplicate (MS/MSD) analysis. The percent recoveries, listed in Table 2.7, ranged from 52 to 244. Forty-six out of 48 recoveries were within the QC limits.

Results of the Blank Spike Analysis for Metals in Soil

The percent recoveries for the blank spike metals, listed in Table 2.8, ranged from 102 to 115. No QC limits are available for this analysis.

Results of the Duplicate Analysis for TCLP Metals in TCLP Leachate

Samples 12592, 12640, 12591, 12614, and 12599 were chosen for duplicate analysis. The reported relative percent differences (RPDs), listed in Table 2.9, ranged from 3 to 64. Nineteen RPDs were not calculated because the sample concentration of the analyte was not detected. No QC limits are available for this analysis.

Table 2.4 Results of the QC Standard Analysis for Metals (Soil)
WA# 2-194 Guterl Steel Site

Metal	Date Analyzed	Quality Control Standard	Conc. Recovered µg/L	Certified Value µg/L	95 % Confidence Interval	% Recovery
Arsenic	12/01/97	QC-21 x100	1047	1000	NA	105
	12/02/97	QC-21 x100	1031	1000	NA	103
Cadmium	12/01/97	QC-21 x100	1058	1000	NA	106
	12/01/97	ERA-431	85	82	67 - 97	104
	12/02/97	QC-21 x100	1059	1000	NA	106
	12/02/97	ERA-431	85	82	67 - 97	104
Lead	12/01/97	QC-21 x100	1056	1000	NA	106
	12/01/97	ERA-431	382	353	289 - 417	108
	12/02/97	QC-21 x100	1057	1000	NA	106
	12/02/97	ERA-431	379	353	289 - 417	107
Nickel	12/01/97	QC-21 x100	1104	1000	NA	110
	12/01/97	ERA-431	108	94	77 - 111	115
	12/02/97	QC-21 x100	1103	1000	NA	110
	12/02/97	ERA-431	103	94	77 - 111	110
Vanadium	12/01/97	QC-21 x100	1059	1000	NA	106
	12/01/97	ERA-431	361	338	277 - 399	107
	12/02/97	QC-21 x100	1055	1000	NA	106
	12/02/97	ERA-431	356	338	277 - 399	105
Zinc	12/01/97	QC-21 x100	1064	1000	NA	106
	12/01/97	ERA-431	452	424	348 - 500	107
	12/02/97	QC-21 x100	1066	1000	NA	107
	12/02/97	ERA-431	455	424	348 - 500	107

Table 2.5 Results of the LCS Analysis for TCLP Metals (TCLP Leachate)
WA# 2-194 Guterl Steel Site

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

✓LCSWWG13171 Hg

✓LCSWWG13123 ICP

Lab Name: IEA NJ Contract: _____

Lab Code: IEANJ Case No.: 75112 SAS No.: _____ SDG No.: 12592

Solid LCS Source: _____

Aqueous LCS Source: VENTURES

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony		✓	✓						
Arsenic	500.0	✓ 507.65	✓101.5						
Barium	500.0	515.92	103.2						
Beryllium		✓	✓						
Cadmium	500.0	✓ 520.75	✓104.2						
Calcium									
Chromium	500.0	520.53	104.1						
Cobalt									
Copper									
Iron		✓	✓						
Lead	500.0	✓ 508.74	✓101.7						
Magnesium									
Manganese									
Mercury	2.0	✓ 2.00	✓100.0						
Nickel									
Potassium									
Selenium	500.0	496.26	✓99.2						
Silver	50.0	✓ 49.39	✓98.8						
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

U.S. EPA - CLP

7
LABORATORY CONTROL SAMPLE 2

✓Lcswug 13197 Hg
✓Lcswug 13201 ICP

Lab Name: IEA_NJ Contract: _____

Lab Code: IEANJ Case No.: 75112 SAS No.: _____ SDG No.: 12592

Solid LCS Source: _____

Aqueous LCS Source: VENTURES

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic	500.0	495.01	✓99.0						
Barium	500.0	✓509.96	✓102.0						
Beryllium									
Cadmium	500.0	504.20	100.8						
Calcium									
Chromium	500.0	✓508.92	✓101.8						
Cobalt									
Copper									
Iron									
Lead	500.0	501.38	100.3						
Magnesium									
Manganese									
Mercury	2.0	✓ 1.94	✓97.0						
Nickel									
Potassium									
Selenium	500.0	✓487.60	✓97.5						
Silver	50.0	51.82	103.6						
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

U.S. EPA - CLP

7
LABORATORY CONTROL SAMPLE 3
✓ Leeman 13198 Hg
✓ Leeman 13203 Icp

Lab Name: IEA NJ Contract: _____

Lab Code: IEANJ Case No.: 75112 SAS No.: _____ SDG No.: 12592

Solid LCS Source: _____

Aqueous LCS Source: VENTURES

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic	500.0	✓ 509.38	✓ 101.9						
Barium	500.0	523.70	104.7						
Beryllium									
Cadmium	500.0	✓ 518.33	✓ 103.7						
Calcium									
Chromium	500.0	521.56	104.3						
Cobalt									
Copper									
Iron									
Lead	500.0	✓ 514.19	✓ 102.8						
Magnesium									
Manganese									
Mercury	2.0	✓ 1.93	✓ 96.5						
Nickel									
Potassium									
Selenium	500.0	499.98	100.0						
Silver	50.0	✓ 53.21	✓ 106.4						
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

U.S. EPA - CLP

LABORATORY CONTROL SAMPLE 7 4

✓ LCSW09/3217 Hg

Lab Name: IEA NJ Contract: _____

Lab Code: IEANJ Case No.: 75112 SAS No.: _____ SDG No.: 12592

Solid LCS Source: _____

Aqueous LCS Source: VENTURES

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury	2.0	✓ 2.05	✓ 102.5						
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Table 2.6 Results of the MS/MSD Analysis for Metals in Soil
WA# 2-194 Guterl Steel Site
Based on Dry Weight

Metal	Client # (REAC#)	Sample Conc. mg/kg	Original Conc. Spike mg/kg	Original Conc. Dup. mg/kg	Recovered Conc. Spike mg/kg	Recovered Conc. Dup. mg/kg	% Recovery Spike	% Recovery Dup.	RPD
Arsenic	209	163	48.54	50.00	186	259	47	192	121
Arsenic	220	U	49.50	49.02	41.3	41.6	83	85	2
Arsenic	249	3.62	48.08	46.73	47.4	47.7	91	94	4
Arsenic	916	0.06	45.87	45.45	49.3	47.7	107	105	2
Cadmium	209	3.21	48.54	50.00	47.6	49.4	91	92	1
Cadmium	220	U	49.50	49.02	38.3	39.5	77	81	4
Cadmium	249	0.168	48.08	46.73	48.4	46.9	100	100	0
Cadmium	916	0.963	45.87	45.45	46.9	47.3	100	102	2
Lead	209	30500	48.54	50.00	28950	35020	NC	NC	NC
Lead	220	734	49.50	49.02	888	1151	NC	NC	NC
Lead	249	7.3	48.08	46.73	70.5	54	131	100	27
Lead	916	13.6	45.87	45.45	58.4	59.5	98	101	3
Nickel	209	18740	48.54	50.00	18220	18360	NC	NC	NC
Nickel	220	10026	49.50	49.02	9422	9520	NC	NC	NC
Nickel	249	99.5	48.08	46.73	154	183	113	179	45
Nickel	916	16	45.87	45.45	62.3	61	101	99	2
Vanadium	209	204	97.09	100.00	281	297	79	93	16
Vanadium	220	792	99.01	98.04	1115	826	NC	NC	NC
Vanadium	249	9.78	96.15	93.46	106	101	100	98	2
Vanadium	916	12.8	91.74	90.91	103	103	98	99	1
Zinc	209	1468	48.54	50.00	1490	1519	NC	NC	NC
Zinc	220	143	49.50	49.02	197	185	109	86	24
Zinc	249	62.9	48.08	46.73	111	101	100	82	20
Zinc	916	586	45.87	45.45	647	641	133	121	9

Table 2.7 Results of the MS/MSD Analysis for TCLP Metals in TCLP Leachate
WA# 2-194 Guterl Steel Site

Leachate Metal Matrix Spike Percent Recovery

Sample ID Location -
12594 GS3 Sta 5-6'

Lab Name: IEA/NJ

Job Number: 75112

ICP Matrix Spike Sample Number: 75112001 MS

Hg Matrix Spike Sample Number: 75112001 MS

Compound	Sam'l [mg/L]	MS	Percent Recovery
Arsenic	~~.0074~~ J	.509	✓ ~~102~~ 100
Barium	.418	1.64	✓ ~~EX~~ 24 *
Cadmium	~~.0030~~ J	~~.523~~ .523	✓ 105
Chromium	~~.0334~~ J	.528	✓ 98.9
Lead	~~.0005~~ J	.555	✓ ~~93.2~~ 93
Mercury	U	~~.0015~~	✓ 103
Selenium	~~.0041~~ J	.539	✓ ~~108~~ 104
Silver	U	.048	✓ 96.1

QC Limit (%)

50 – 150

Spike Value Concentration

Arsenic	0.500	ppm	mg/L
Barium	0.500	ppm	
Cadmium	0.500	ppm	
Chromium	0.500	ppm	
Lead	0.500	ppm	
Mercury	0.001	ppm	
Selenium	0.500	ppm	
Silver	0.050	ppm	

1/26/99

Leachate Metal Matrix Spike Percent Recovery

Lab Name: IEA/EJ

Job Number: 75112

Sample-ID 12596 Location GS3 S10 5-6'

ICP Matrix Spike Sample Number: 75112001 MSD

Hg Matrix Spike Sample Number: 75112001 MSD

Compound	[mg/L] Sample	MSD	Percent Recovery
Arsenic	.0074 J	.509	✓ ~~102~~ 100
Barium	.418	1.64	✓ ~~EX~~ 244 *
Cadmium	.0030 J	.523	✓ ~~105~~ 104
Chromium	.0334 J	.526	✓ 98.65
Lead	.0827 J	.552	✓ 92.67
Mercury	U	.000993	✓ 99.3
Selenium	.0181 J	.526	✓ ~~105~~ 102
Silver	U	.0477	✓ 95.4

QC limit (1 Rec.)

50 - 150

Spike Value Concentration

Arsenic	0.500	ppm	mg/L
Barium	0.500	ppm	
Cadmium	0.500	ppm	
Chromium	0.500	ppm	
Lead	0.500	ppm	
Mercury	0.001	ppm	
Selenium	0.0098	ppm	
Silver	0.050	ppm	

1/26/98

Leachate Metal Matrix Spike Percent Recovery

Lab Name: IEA/NJ

Job Number: 75112

Sample ID 12640 Location GS3 S39 0-.5'

ICP Matrix Spike Sample Number: 75112006 MS

Hg Matrix Spike Sample Number: 75112006 MS

Compound	Sample [mg/L]	MS	Percent Recovery
Arsenic	U	.486	✓97.2
Barium	.433	.898	✓93.2
Cadmium	.054	.535	✓96.2
Chromium	.018 J	.499	✓~~99.9~~ 96
Lead	2.44	2.70	~~EX~~ NA 52
Mercury	U	.000942	✓94.2
Selenium	.018 J	.520	✓104 100
Silver	U	.0490	✓99.7

QC limit (% rec)

50 — 150

Spike Value Concentration

Arsenic	0.500	ppm	mg/L
Barium	0.500	ppm	
cadmium	0.500	ppm	
Chromium	0.500	ppm	
Lead	0.500	ppm	
Mercury	0.001	ppm	
Selenium	0.500	ppm	
Silver	0.050	ppm	

0099

1/26/98

Leachate Metal Matrix Spike Percent Recovery

Lab Name: ~~IEA/NJ~~

Job Number: 75112

Sample ID 12640 — Location Sample ID GS3 S39 0-.5

ICP Matrix Spike Sample Number: 75112006 MSD

Hg Matrix Spike Sample Number: 75112006 MSD

Compound	Sample [mg/L]	MSD	Percent Recovery
Arsenic	U	.502	✓100
Barium	.433	.919	✓97.2
Cadmium	.054	.542	✓97.7
Chromium	.018J	.505	✓101 97.4
Lead	2.44	2.78	~~EXTRA~~ 68
Mercury	U	.000906	✓90.6
Selenium	.018J	.520	✓104 100
Silver	U	.051	✓102

QC limit (% Rec.)

50 — 150.

Spike value Concentration

Arsenic	0.500	ppm	mg/L
Barium	0.500	ppm	
Cadmium	0.500	ppm	
Chromium	0.500	ppm	
Lead	0.500	ppm	
Mercury	0.001	ppm	
Selenium	0.500	ppm	
Silver	0.0050	ppm	✓

1/26/98

Leachate Metal Matrix Spike Percent Recovery

Lab Name: IEA/NM

Job Number: 75112

Sample ID 12591 Location GS3 S10 0-2'

ICP Matrix Spike Sample Number: 75112039 MS

Hg Matrix Spike Sample Number: 75112043 MS

Sample ID 12599 Location GS3 S7 5-6'

Compound	[mg/L] Sample	MS	Percent Recovery
Arsenic	U	.500	✓100
Barium	.906	1.42	✓~~104~~ 103
Cadmium	U	.509	✓102
Chromium	.0083J	.510	✓~~102~~ 100
Lead	.062J	.568	✓101
Mercury	U	.00104	✓104
Selenium	.015J	.523	✓~~105~~ 102
Silver	U	.0504	✓101

QC limit (% Rec) 50 — 150

Spike value Concentration

Arsenic	0.500	ppm	mg/L
Barium	0.500	ppm	
Cadmium	0.500	ppm	
Chromium	0.500	ppm	
Lead	0.500	ppm	
mercury	0.001	ppm	
Selenium	0.500	ppm	
Silver	0.01050	ppm	

1/26/98

Leachate Metal Matrix Spike Percent Recovery

Lab Name: IEA/NJ

Job Number: 75112

	Sample ID	Location
	12591	GS3 S10 0-2'

ICP Matrix Spike Sample Number: 75112039 MSD

Hg Matrix Spike Sample Number: 75112043 MSD

	Sample ID	Location
	12599	GS3 S7 5-6'

Compound	[mg/L] Sample	MSD	Percent Recovery
Arsenic	U	.516	✓103
Barium	.906	1.42	✓103
Cadmium	U	.515	✓103
Chromium	.0083J	.515	~~✓103~~ 101
Lead	.062J	.571	✓102
Mercury	U	.00101	✓101
Selenium	.015J	.529	~~✓106~~ 103
Silver	U	.052	✓104

QC limit (% Rec)

50 – 150

Spike Value Concentration

Arsenic	0.500	ppm	mg/L
Barium	0.500	ppm	
Cadmium	0.500	ppm	
Chromium	0.500	ppm	
Lead	0.500	ppm	
Mercury	0.001	ppm	
Selenium	0.500	ppm	
Silver	0.0520	ppm	

4/26/98

Table 2.8 Results of the Blank Spike Analysis for Metals in Soil
WA# 2-194 Guterl Steel Site

Metal	Spiked Conc mg/kg	Sand Blk Conc mg/kg	Recovered Conc. mg/kg	% Recovery
Arsenic	49.50	NA	55.1	111
	50.00	NA	52.6	105
Cadmium	49.5	NA	53.7	108
	50.0	NA	51.2	102
Lead	49.5	NA	55.8	113
	50.0	NA	51.4	103
Nickel	49.5	NA	57	115
	50.0	NA	53.6	107
Vanadium	99	NA	109	110
	100	NA	105	105
Zinc	49.5	5.81	60.4	110
	50.0	NA	52.5	105

Table 2.9 Results of the Duplicate Analysis for TCLP Metals in TCLP Leachate
WA# 2-194 Guterl Steel Site

Sample ID: 12592 Units: mg/L

Analyte	Sample Result	Dup Result	RPD
Arsenic	U	U	NC
Barium	2.09	1.07	64
Cadmium	U	U	NC
Chromium	U	U	NC
Lead	U	U	NC
Mercury	U	U	NC
Selenium	U	U	NC
Silver	U	U	NC

Sample ID: 12640
#12614 Units: mg/L

Analyte	Sample Result	Dup Result	RPD
Arsenic	U	U	NC
Barium	0.433	0.400	8
Cadmium	0.054	0.049	10
Chromium	U	U	NC
Lead	2.44	2.23	9
Mercury #	U	U	NC
Selenium	U	U	NC
Silver	U	U	NC

Sample ID: 12591
12599 Units: mg/L

Analyte	Sample Result	Dup Result	RPD
Arsenic	U	U	NC
Barium	0.906	0.880	3
Cadmium	U	U	NC
Chromium	U	U	NC
Lead	U	U	NC
Mercury #	U	U	NC
Selenium	U	U	NC
Silver	U	U	NC

Roy F. Weston, Inc.
GSA Raritan Depot
Bldg. 209 Annex (Bay F)
2890 Woodbridge Avenue
Edison, New Jersey 08837-3679
732-321-4200 • Fax 732-494-4021

American Environmental Network, INC.
628 Route 10
Whippany, NJ 07981

Attn: Brian Wood

28 October 1997

Project # 3347-142-001-2194 Guterl Steel

As per Weston REAC Purchase Order number 86763, please analyze samples according to the following parameters:

Analysis/Method	Matrix	# of samples
TCLP Metals\ SW-846-1311	Soil	62
Data package: see attached Deliverables Requirements		

Samples are expected to arrive at your laboratory on October 28, 1997. **All applicable QA/QC (MS/MSD) analysis as per method, will be performed on our sample matrix.** The complete data package is due 21 business days after receipt of last batch of samples. The complete data package must include all items on the deliverables checklist.

Please submit all reports and technical questions concerning this project to **John Johnson at (908) 321-4248 or fax to (908) 494-4020**. Any contractual question, please call Cynthia Davison at (908) 321-4296.

Sincerely,

Misty Barkley

Misty Barkley
Data Validation and Report Writing Group Leader
Roy F. Weston, Inc. / REAC Project

MB:jj Attachments

cc. R. Singhvi
C. Beasley
2194\non\mem\9710\sub\2194Con
V. Kansal
Subcontracting File
C. Gasser
C. Davison
D. Bussey
M. Barkley

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Gulch Steel
Project Number: 2-194
RFW Contact: Donald Bussey Phone (732) 494-4056

No: 05006

102297

SHEET NO. 1 OF 1

Sample Identification

Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	PCB's EPA 608	N/A	N/A	N/A
087	A12572	PCB3L7	S	10/21/97	1	4oz glass				
088	A12573	PCB3L4								
089	A12574	PCB3L3								
090	A12575	PCB3L3 Dup								
091	A12576	PCB3L3 MS								
092	A12577	PCB3K3								
093	A12578	PCB3L3 MSD								
094	A12579	PCB3S23								
095	A12580	PCB3I2								
096	A12581	PCB3I4								
097	A12582	PCBTP1								
098	A12583	PCB3G2								
099	A12584	PCB3D4								
100	A12585	PCBTP2	↓	↓	↓	↓	↓			

0010

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other	SL -	Sludge	A -	Air

Special Instructions:

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
Shipto Lab		10/21/97	C Hansen	10/22/97	10:15	All Analysis	C Hansen	10/22/97			

FORM #

8/94

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Butler Steel Site
Project Number: 0334714200121940 01
RFW Contact: DONALD BUSSIEY Phone: (732) 321-4056

No: 05686

102897

SHEET NO. 2 OF 3

Sample Identification

Analyses Requested

DM

	REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb, Cd, As, Ni, Zn, V
*	199		GS3-N15 0-.5"	SOIL	10/22/97			
*	200		GS3-N16 0-.5"					
*	201		GS3-J4 0-.5"					
-	202		GS3-S.J6 4-5"					
-	203		GS3-S7 5-6"					
-	204		GS3-S12 4-5"					
-	205		GS3-N13 4-5"	↓	↓			
*	206		GS2-C5 0-2"		10/23/97			
*	207		GS2-C5 5-6"					
*	208		GS2-H7 0-.5"					
*	209		GS2-H9 0-.5"					
*	210		GS2-H23 0-.5"					
*	211		GS2-H32 0-.5"					
*	212		GS2-I2 0-.5"					
*	213		GS2-I1 0-.5"					
*	214		GS2-H18 0-.5"					
*	215		GS2-K5 0-2"					
	216		GS2-K5 5-6"					
*	217		GS2-S1 0-2"					
	218		GS2-S1 3-4"	↓	↓			

0207

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other	SL -	Sludge	A -	Air

Special Instructions:
* - Samples to be Analyzed for Confirmation only for Pb, Cd, As, Ni, Zn, & V. ICP

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time
14/Analysis	C Gasser	10/28/97	C Sobolewski	10/28/97	11:25

Items/Reason	Relinquished By	Date	Received By	Date	Time

FORM #

8/94

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Gutkul Steel Site
Project Number: 03347142001219401
RFW Contact: DONALD BUSSEY Phone: (732) 321-4256

No: 05009

102897

SHEET NO. 1 OF 3

Sample Identification

Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb, Cd, As, Ni, Zn, V
* 219		GS3-C10 0-2"	SOIL	10/22/97			
* 220		GS3-C10 5-6"					
* 221		GS3-D10 0-2"					
222		GS3-D10 5-6"					
* 223		GS3-E6 0-2"					
224		GS3-E6 5-6"					
* 225		GS3-E7 0-2"					
226		GS3-E7 5-6"					
* 227		GS3-S39 0-.5"					
* 228		GS3-S6 0-.5"					
* 229		GS3-K6 0-2"					
* 230		GS3-K6 5-6"					
* 231		GS3-K7 0-2"					
232		GS3-K7 3-4"					
* 233		GS3-S9 0-2"					
234		GS3-S9 5-6"					
* 235		GS3-S10 0-2"					
* 236		GS3-S10 5-6"					
* 237		GS3-S36 0-.5"					
* 238		GS3-A8 0-.5"	↓	↓			

0108

Matrix:

SD -	Sediment	PW -	Potable Water	(S -	Soil)
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other	SL -	Sludge	A -	Air

Special Instructions:

* — Samples to be analyzed for confirmation only for Pb, Cd, As, Ni, Zn, & V. NUG

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
15/Analysis	C Bassen	10/28/97	C Sobolewski	10/28/97	11:25						

FORM 1

8/94

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Gutzel Steel Site
Project Number: 0334714200121940I
RFW Contact: DONALD BUSSEY Phone: (732) 321-4052

No: 05010

10 2897

SHEET NO. 3 OF 3

Sample Identification

Analyses Requested

	REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	Pb, Cd, As, V, Zn
*	239		GS2-A6 0-2"	Soil	10/23/97			
	240		GS2-A6 5-6"					
*	241		GS2-B5 0-2"					
	242		GS2-B5 5-6"					
*	243		GS2-A5 0-2"					
	244		GS2-A5 5-6"					
*	245		GS2-K1 0-2"					
-	246		GS2-K1 5-6"					
-	247		GS3-J3		10/24/97			
-	248		GS3-S6 5-6"					
*	249		GS3-S26 5-6"					
-	250		GS3-S13 5-6"					
-	251		GS3-J4 5-6"					
-	252		GS3-N15 5-6"					
-	253		GS2-H9 10-12"					
-	254		GS2-H18 5-6"					
*	255		GS2-H23 5-6"					
	256		GS2-H32 5-6"					

Matrix:
SD - Sediment
DS - Drum Solids
DL - Drum Liquids
X - Other
PW - Potable Water
GW - Groundwater
SW - Surface Water
SL - Sludge
S - Soil
W - Water
O - Oil
A - Air

Special Instructions:
* - Samples to be Analyzed for confirmation only for Pb, Cd, As, Ni, Zn, & V. HAW

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time
6/Analysis	C Hasser	10/28/97	C Schokenski	10/29/97	11:25

Items/Reason	Relinquished By	Date	Received By	Date	Time

FORM A

8/94

REAC, [redacted] on, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Guteri Steel
Project Number: 2-194
RFW Contact: Bussey Phone: 494-5046 DTS 4056

No: 05947

SHEET NO. 1 OF 1

11/17/97

Sample Identification

Analyses Requested

REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	XRF Metals			
895	13206	GS2-C5 1-1.5'	S	11/13/97	1-4oz Glass	4°C	X			
896	13207	GS2-C5 2.5-3.0'	S	11/13/97	1-4oz Glass	4°C	X			
897	13208	GS2-B6 1-1.5'	S	11/13/97	1-4oz Glass	4°C	X			
898	13209	GS2-B6 2.5-2.75'	S	11/13/97	1-4oz Glass	4°C	X			
899	13210	GS3-M6(b) 2.5-3.0'	S	11/13/97	1-4oz Glass	4°C	X			
900	13211	GS3-M6(b) 5.5-6.0'	S	11/13/97	1-4oz Glass	4°C	X			
901	13212	GS3-M16 2.0-2.5'	S	11/13/97	1-4oz Glass	4°C	X			
902	13213	GS3-M16 3.0-3.5'	S	11/13/97	1-4oz Glass	4°C	X			
903	13214	GS3-M15 1.0-1.5'	S	11/13/97	1-4oz Glass	4°C	X			
904	13215	GS3-M15 2.5-3.0'	S	11/13/97	1-4oz Glass	4°C	X			
* 905	13216	GS3-M24 .75-1.15'	S	11/13/97	1-4oz Glass	4°C	X			
906	13217	GS3-M24 1.5-2.0'	S	11/13/97	1-4oz Glass	4°C	X			
907	13224	GS3-K7 1.75-2.15'	S	11/13/97	1-4oz Glass	4°C	X			
908	13225	GS3-K7 3.5-4.0'	S	11/13/97	1-4oz Glass	4°C	X			
909	13226	GS3-G9 2.0-2.5'	S	11/13/97	1-4oz Glass	4°C	X			
910	13227	GS3-G9 3.25-3.75'	S	11/13/97	1-4oz Glass	4°C	X			

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other	SL -	Sludge	A -	Air

Special Instructions:

* Samples to be analyzed for information only, for Pb, Cd, As, Ni, Zn, & V

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
Analysis	[signature]	11/17/97	Y. Exner	11/17/97	1:30						

FORM.

8/94

★ U.S GPO 1994-383-015

REAC, Edison, NJ
(908) 321-4200
EPA Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Guterl Steel
Project Number: 2-194
RFW Contact: Bussey Phone: 494-4056

No: 05673

SHEET NO. 1 OF 1

11/17/97

Sample Identification

Analyses Requested

	REAC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	XRF metals			
	915	13193	GS2-H9 2.5-2.75'	S	11/12/97	1-4oz Glass	4°C	X			
*	916	13194	GS2-H9 4.1-4.7'	S	11/12/97	1-4oz Glass	4°C	X			
	917	13195	GS2-H18 2.5-3.0'	S	11/12/97	1-4oz Glass	4°C	X			
	918	13196	GS2-H18 3.5-4.0'	S	11/12/97	1-4oz Glass	4°C	X			
	919	13197	GS2-H23 1.5-2.0'	S	11/12/97	1-4oz Glass	4°C	X			
	920	13198	GS2-H23 3.5-4.0'	S	11/12/97	1-4oz Glass	4°C	X			
	921	13199	GS2-K14 1.5-2.0'	S	11/12/97	1-4oz Glass	4°C	X			
	922	13200	GS3-C1 1.5-2.0'	S	11/12/97	1-4oz Glass	4°C	X			
	923	13201	GS3-C1 3.5-4.0'	S	11/12/97	1-4oz Glass	4°C	X			
	924	13202	GS3-E6 1.5-2.0'	S	11/12/97	1-4oz Glass	4°C	X			
*	925	13203	GS3-E6 3.0-3.5'	S	11/12/97	1-4oz Glass	4°C	X			
	926	13204	GS3-D10 1.25-1.75'	S	11/12/97	1-4oz Glass	4°C	X			
	927	13205	GS3-D10 2.75-3.25'	S	11/12/97	1-4oz Glass	4°C	X			

Matrix:

SD -	Sediment	PW -	Potable Water	S -	Soil
DS -	Drum Solids	GW -	Groundwater	W -	Water
DL -	Drum Liquids	SW -	Surface Water	O -	Oil
X -	Other	SL -	Sludge	A -	Air

Special Instructions:
* Confirmation analysis by ICP for Pb, Cd, As, Ni, Zn, & V

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
Analysis		11/18/97		11/17/97	7:30						

FORM #

8/94

, Edison, N.J.
321-4200
Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Gutert Steel
Project Number: 03347-142-001-2194-01
RFW Contact: D. Bussey Phone (732) 321-4056

No: 05807
SHEET NO. 1 OF 3

Sample Identification

Analyses Requested

C #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	TCLP Metals			
	10539	GS3-C1056	Soil	10/24/97	1	4oz/none	+			02
	10538	GS3-C10 0-2"					+			03
	12631	GS3-E6 5-6"					+			04
	12636	GS3-E6 0-2"					+			05
	12640	GS3-S370-5"					+	Limited volume		06
	12641	GS3-S6 0-5'					+			07
	10541	GS3-D10 5-6"					+			08
	12639	GS3-E7 5-6"					+			09
	10540	GS3-D10 0-2"					✓			010
	12638	GS3-E70-2"					✓			011
G2	12602	GS2H-0-5"					✓			012
G20	12615	GS-2A 0-2"					✓			013
	12621	GS-2K 0-2"					✓			014
	12627	GS-3J 5-6"					✓			015
001	12622	GS-2K 5-6"					✓			016
	12628	GS3 5-6"					✓			017
	12616						✓			018
	12610						✓			019
	12629						✓			020
	12623						✓			021

0112

Special Instructions:

Sediment	PW -	Potable Water	S -	Soil	
Drum Solids	GW -	Groundwater	W -	Water	
Drum Liquids	SW -	Surface Water	O -	Oil	
Other	SL -	Sludge	A -	Air	

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
ANALYSIS	C Bassen	10/28/97	[illegible]	10/28/97	10:40		[illegible]	10/29/97	[illegible]	10/30	1800

000605

184

94

C, Edison, NJ
) 321-4200
Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Gutzeit Steel
Project Number: 2194
RFW Contact: D. Bussey Phone:

No: 05808

SHEET NO 3 OF 3

Sample Identification

Analyses Requested

QC #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	TCLP Metals			
	12598		Soil	10/23/97	1	4oz/none				041
	12604									042
	12599									043
	12605									044
	12587									045
	12593									046
	12594									047
	12600									048
	12588									049
	12606									050
G920	12595									051
	12607									052
	12589									053
	12601									054
D012	12590									055
	12602									056
	12596									057
	12608									058

0113

Matrix:

Sediment	PW -	Potable Water	S -	Soil
Drum Solids	GW -	Groundwater	W -	Water
Drum Liquids	SW -	Surface Water	O -	Oil
Other	SL -	Sludge	A -	Air

Special Instructions:

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
ANALYSIS	C Gross	10/28/97	[illegible]	10/28/97	10:40		[illegible]	10/28/97	[illegible]	10/28	1800

000007

184

3/94

, Edison
321-4200
Contract 68-C4-0022

CHAIN OF CUSTODY RECORD

Project Name: Gutterl Steel
Project Number: 2194
RFW Contact: D. Bussey Phone:

No: 05810
SHEET NO. 2 OF 3

Sample Identification

Analyses Requested

C #	Sample No.	Sampling Location	Matrix	Date Collected	# of Bottles	Container/Preservative	TCLP Metals			O
	12611		Soil	10/28/97	1	4oz/none	✓			022
	12617						✓			023
	12630						✓			024
	12624						✓			025
	12618						✓			026
	12612						✓			027
	12619						✓			028
	12613						✓			029
	12631						✓			030
	12625						✓			031
G620	12626						✓			032
	12620						✓			033
0011	12632						✓			034
	12614						✓			035
	12597						✓			036
	12603						✓			037
	12642						✓			038
	12591						✓			039
	12586						✓			040
	12572						✓			001

0114

x:

Special Instructions:

Sediment	PW -	Potable Water	S -	Soil
Drum Solids	GW -	Groundwater	W -	Water
Drum Liquids	SW -	Surface Water	O -	Oil
Other	SL -	Sludge	A -	Air

FOR SUBCONTRACTING USE ONLY

FROM CHAIN OF CUSTODY #

ms/Reason	Relinquished By	Date	Received By	Date	Time	Items/Reason	Relinquished By	Date	Received By	Date	Time
ANALYSIS	C Bassen	10/28/97	ADDaniell	10/28/97	10:40		ADDaniell	10/28/97	[illegible]	10/28	1800

900000

/94

/94

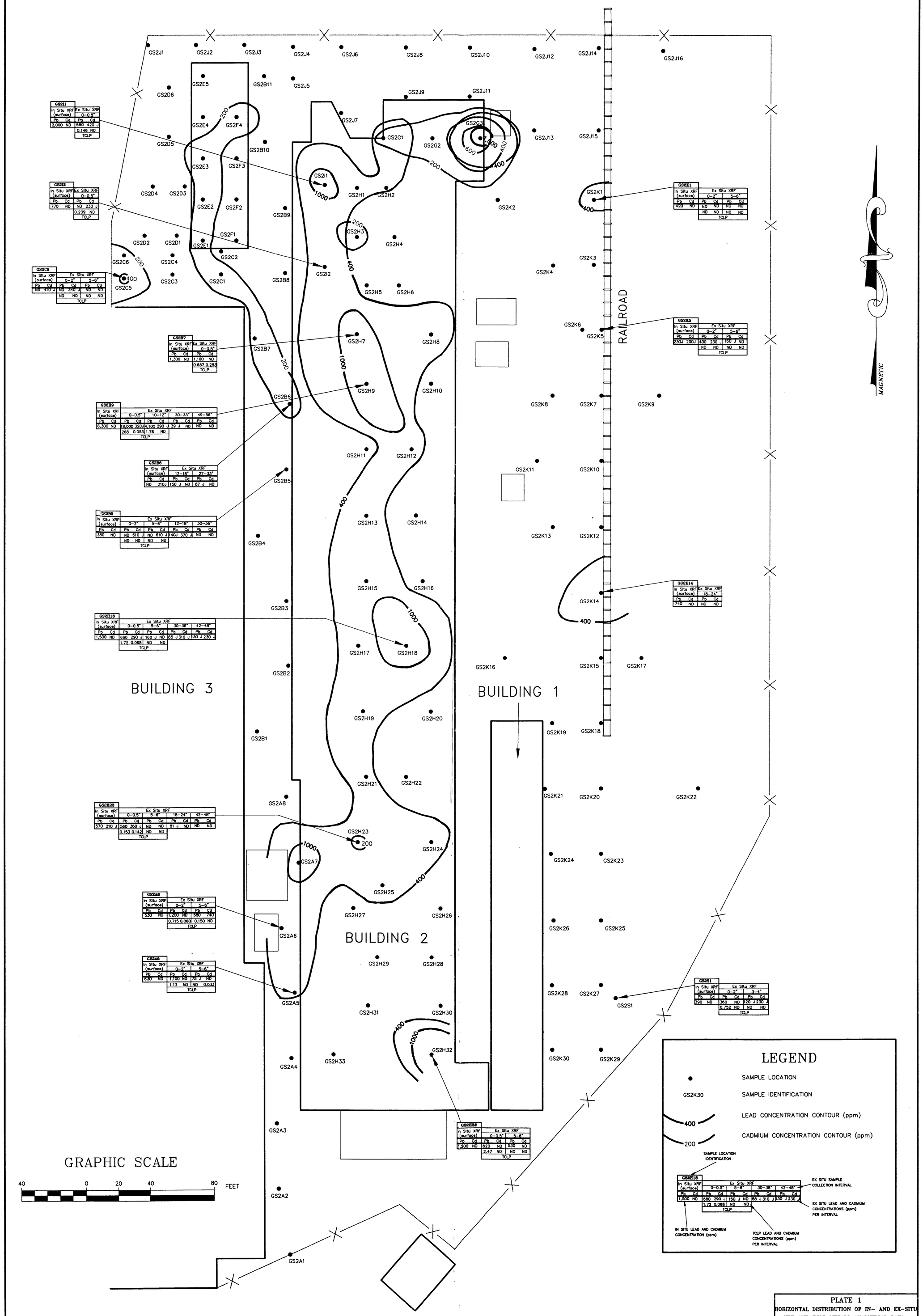


PLATE 1

HORIZONTAL DISTRIBUTION OF IN- AND EX-SITU XRF AND TCLP METALS ANALYTICAL DATA- BUILDING 2 AREA

GUTERL STEEL SITE

LOCKPORT, NEW YORK

APRIL 1998

U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER

RESPONSE ENGINEERING AND ANALYTICAL CONTRACT

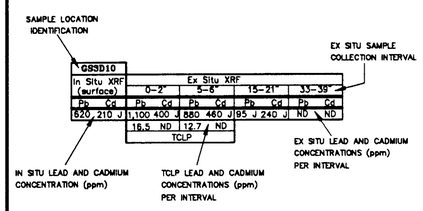
68-C4-0022

W.O.# 03347-140-001-2594 -01

194/BLD2CONT.DWG 4/16/98

LEGEND

- SAMPLE LOCATION
- GS2K30 — SAMPLE IDENTIFICATION
- 400 — LEAD CONCENTRATION CONTOUR (ppm)
- 200 — CADMIUM CONCENTRATION CONTOUR (ppm)
- BOUNDARY OF BUILDING 3 SOUTHERN EXTENSION AND EASTERN PORTION



* EX SITU SAMPLES FOR **GS3N6** WERE COLLECTED AT A POINT MIDWAY BETWEEN **GS3N6 & GS3N7**

BUILDING 3

EASTERN PORTION

SOUTHERN EXTENSION

TRANSFORMER AREA

OPEN FIELD

GS3N1 GS3M1 GS3N3 GS3N2 GS3M2 GS3N5 GS3N4 GS3M3 GS3N7 GS3N6 GS3N9 GS3N8 GS3N10 GS3N11 GS3N12 GS3N13 GS3N14 GS3N15 GS3N16 GS3N18 GS3N17 GS3N19 GS3N20 GS3N21 GS3N22 GS3N23 GS3N24 GS3N25 GS3N26

GS3B17 GS3C17 GS3B16 GS3B15 GS3B14 GS3C14 GS3B13 GS3C13 GS3B12 GS3C12 GS3B11 GS3C11 GS3D11 GS3B10 GS3C10 GS3D10 GS3B9 GS3C9 GS3D9 GS3A8 GS3B8 GS3C8 GS3D8 GS3A7 GS3B7 GS3E8 GS3C7 GS3A6 GS3B6 GS3D7 GS3E7 GS3C6 GS3D6 GS3A5 GS3B5 GS3E6 GS3F6 GS3C5 GS3D5 GS3A4 GS3B4 GS3E5 GS3F5 GS3C4 GS3D4 GS3B3 GS3C3 GS3H3 GS3H4 GS3H5 GS3B2 GS3C2 GS3B1 GS3G1 GS3G2 GS3G3 GS3G4 GS3G5 GS3C1 GS3S38 GS3S35 GS3L2 GS3L1 GS3S34 GS3S30 GS3L3 GS3L4 GS3L5 GS3L6 GS3L7 GS3S13 GS3L8 GS3L9 GS3S37 GS3S33 GS3S23 GS3S24 GS3S25 GS3S10 GS3S11 GS3S12 GS3K1 GS3S32 GS3K2 GS3S29 GS3K3 GS3K4 GS3K5 GS3S22 GS3K6 GS3K7 GS3S9 GS3K8 GS3K9 GS3S36 GS3S31 GS3S19 GS3S20 GS3S21 GS3S6 GS3S7 GS3S8 GS3J1 GS3S39 GS3J2 GS3S28 GS3J3 GS3J4 GS3S18 GS3S17 GS3S2 GS3S1 GS3S4 GS3S15 GS3S16 GS3J5 GS3J6 GS3J7 GS3S5 GS3J8 GS3J9 GS3I1 GS3I2 GS3S27 GS3I3 GS3I4 GS3I5 GS3S14 GS3S6 GS3I7 GS3I8 GS3I9 GS3X1 GS3X2

200 400 1000

GS3N6	Ex Situ XRF *	
In Situ XRF (surface)	30–36"	66–72"
Pb Cd	Pb Cd	Pb Cd
ND 300 J	ND ND	ND ND

GS3N13	Ex Situ XRF
In Situ XRF (surface)	4–5"
Pb Cd	Pb Cd
420 ND	380 680 J
	0.253 ND
	TCLP

GS3C10	Ex Situ XRF	
In Situ XRF (surface)	0–2"	5–6"
Pb Cd	Pb Cd	Pb Cd
700 210 J	2,000 810	870 480 J
	8.51 ND	0.983 ND
	TCLP	

GS3N15	Ex Situ XRF					
In Situ XRF (surface)	0–0.5"	5–6"	12–18"	30–36"		
Pb Cd	Pb Cd	Pb Cd	Pb Cd	Pb Cd	Pb Cd	
1,000 580 J	540 630 J	ND ND	ND ND	ND ND	ND ND	
	ND 0.240	ND ND				
	TCLP					

GS3D10	Ex Situ XRF					
In Situ XRF (surface)	0–2"	5–6"	15–21"	33–39"		
Pb Cd	Pb Cd	Pb Cd	Pb Cd	Pb Cd	Pb Cd	
620 210 J	1,100 400 J	880 460 J	95 J 240 J	ND ND		
	16.5 ND	12.7 ND				
	TCLP					

GS3N16	Ex Situ XRF			
In Situ XRF (surface)	0–0.5"	24–30"	30–36"	
Pb Cd	Pb Cd	Pb Cd	Pb Cd	
550 480 J	ND 250 J	ND ND	ND ND	
	ND 0.036			
	TCLP			

GS3E7	Ex Situ XRF	
In Situ XRF (surface)	0–2"	5–6"
Pb Cd	Pb Cd	Pb Cd
1,600 ND	3,800 370 J	1,700 380 J
	17.0 ND	5.18 ND
	TCLP	

GS3E6	Ex Situ XRF				
In Situ XRF (surface)	0–2"	5–6"	18–24"	36–42"	
Pb Cd	Pb Cd	Pb Cd	Pb Cd	Pb Cd	
1,600 240J	1,500 240 J	800 ND	71 J ND	ND ND	
	4.06 ND	0.639 ND			
	TCLP				

GS3K7	Ex Situ XRF			
In Situ XRF (surface)	0–2"	3–4"	21–27"	42–48"
Pb Cd	Pb Cd	Pb Cd	Pb Cd	Pb Cd
620 420 J	730 540 J	900 500 J	ND ND	ND ND
	0.142 ND	0.517 ND		
	TCLP			

GS3N24	Ex Situ XRF	
In Situ XRF (surface)	9–15"	18–24"
Pb Cd	Pb Cd	Pb Cd
110J 290J	220J 460J	ND ND

GS3S26	Ex Situ XRF	
In Situ XRF (surface)	0–0.5"	5–6"
Pb Cd	Pb Cd	Pb Cd
510 290 J	800 ND	ND ND
	0.149 0.126	ND ND
	TCLP	

GS3K6	Ex Situ XRF	
In Situ XRF (surface)	0–2"	5–6"
Pb Cd	Pb Cd	Pb Cd
530 310 J	390 350 J	ND ND
	0.523 ND	ND ND
	TCLP	

GS3S13	Ex Situ XRF
In Situ XRF (surface)	5–6"
Pb Cd	Pb Cd
660 ND	810 660 J
	ND ND
	TCLP

GS3C1	Ex Situ XRF	
In Situ XRF (surface)	18–24"	42–48"
Pb Cd	Pb Cd	Pb Cd
420 ND	ND ND	ND ND

GS3L8	Ex Situ XRF
In Situ XRF (surface)	0–0.5"
Pb Cd	Pb Cd
550 250 J	510 620 J
	ND 0.567
	TCLP

GS3S12	Ex Situ XRF
In Situ XRF (surface)	4–5"
Pb Cd	Pb Cd
440 ND	610 640 J
	4.20 ND
	TCLP

GS3S36	Ex Situ XRF
In Situ XRF (surface)	4–5"
Pb Cd	Pb Cd
860 ND	410 250 J
	ND ND
	TCLP

GS3S10	Ex Situ XRF	
In Situ XRF (surface)	0–2"	5–6"
Pb Cd	Pb Cd	Pb Cd
880 490 J	640 730	430 370 J
	ND ND	ND ND
	TCLP	

GS3S39	Ex Situ XRF
In Situ XRF (surface)	0–0.5"
Pb Cd	Pb Cd
10,000 260 J	4,700 270 J
	2.44 0.054
	TCLP

GS3S9	Ex Situ XRF				
In Situ XRF (surface)	0–2"	5–6"	24–30"	39–45"	
Pb Cd	Pb Cd	Pb Cd	Pb Cd	Pb Cd	
1,300 240 J	2,400 600	260 ND	81 J ND	ND ND	
	ND 0.147	ND ND			
	TCLP				

GS3J3	Ex Situ XRF
In Situ XRF (surface)	5–6"
Pb Cd	Pb Cd
3,400 ND	ND ND
	ND ND
	TCLP

GS3J4	Ex Situ XRF				
In Situ XRF (surface)	0–0.5"	5–6"	12–18"	30–36"	
Pb Cd	Pb Cd	Pb Cd	Pb Cd	Pb Cd	
5,500 ND	910 500 J	420 ND	ND ND	ND ND	
	ND 0.088	0.295 ND			
	TCLP				

GS3S18	Ex Situ XRF		
In Situ XRF (surface)	24–30"	48–54"	
Pb Cd	Pb Cd	Pb Cd	
880 ND	ND ND	ND ND	

GS3S6	Ex Situ XRF		
In Situ XRF (surface)	0–0.5"	5–6"	
Pb Cd	Pb Cd	Pb Cd	
2,400 450 J	1,300 ND	1,600 330 J	
	1.33 0.061	ND ND	
	TCLP		

GS3S7	Ex Situ XRF
In Situ XRF (surface)	5–6"
Pb Cd	Pb Cd
270 ND	1,200 550 J
	0.492 ND
	TCLP

MAGNETIC

GRAPHIC SCALE

40 0 20 40 80 FEET

PLATE 2
HORIZONTAL DISTRIBUTION OF IN- AND EX-SITU XRF AND TCLP METALS ANALYTICAL DATA
BUILDING 3 AREA
GUTERL STEEL SITE
LOCKPORT, NY
APRIL 1998

U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.A.# 02247-1A2-8R1-0194-4E

194/BLD3CONT.DWG 4/16/98