REMEDIAL ACTION SITE INVESTIGATION:
NIAGARA FALLS BOULEVARD and 70th STREET
NIAGARA FALLS, NY

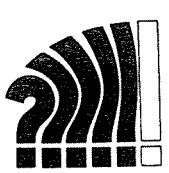
prepared for:

TOPS MARKETS, INC.
60 DINGENS STREET
BUFFALO, NY 14206

submitted to:

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
270 MICHIGAN AVENUE
BUFFALO, NY 14203-2999

JANUARY 17,1992



WASTE
RESOURCE
ASSOCIATES, INC.

Remedial Action Testing Program
Niagara Falls Boulevard and 70th Street
Niagara Falls, NY 14304

submitted to:

New York State Department of
Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

submitted by:

Tops Markets, Inc.
60 Dingens Street
Buffalo, NY 14206

prepared by:

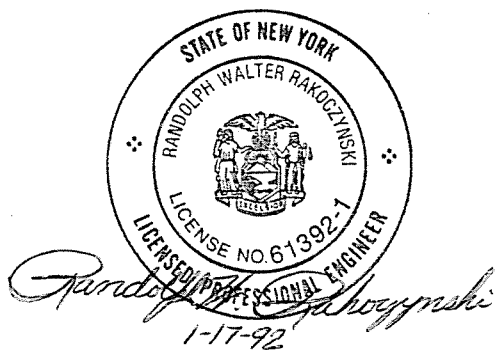
Waste Resource Associates, Inc.
2576 Seneca Avenue
Niagara Falls, NY 14305

January 17, 1992

56-0172

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Randolph W. Rakoczynski

Randolph W. Rakoczynski, P.E.
NYS P.E. License No. 61392

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Exhibits

Introduction

Tops Markets, Inc. (TOPS) is the owner of an approximate twenty (20) acre parcel of land located north of Niagara Falls Boulevard near 70th Street and 72nd Street in the City of Niagara Falls, NY. It is the intent of Tops Markets, Inc. to develop this property by constructing a 101,000 square foot retail super store on the site.

A portion of the TOPS owned property has been included in the 64th Street North Inactive Hazardous Waste Disposal Site (Site No. 93205A) by the New York State Department of Environmental Conservation (NYSDEC). This inclusion has delayed the planned development of the property and has required that extensive on-site sampling and analytical testing be performed to fully characterize the site and the extent of contamination present. The data derived from sampling and testing is being used in support of a delisting petition which would remove the TOPS owned parcel from the 64th Street North Site and permit the planned development of the property to proceed.

A report which summarized the findings of the initial remedial action site investigation performed at the TOPS parcel was submitted to NYSDEC in September, 1991. The results of this investigation identified certain metallic constituents which were detected at elevated concentrations above background levels in "fill" material which covers the property. This finding has prompted NYSDEC to require additional sampling and analytical testing to more thoroughly describe the nature of the metallic contamination.

The current site investigation (the results of which are summarized in this report) was designed to obtain sufficient information regarding the lateral extent of metallic contamination on-site and the nature of the metallic constituents present with respect to their prospective water solubility (i.e. hazardous or

non-hazardous) and their ability to impact groundwater quality. This report is being submitted to NYSDEC as further evidence pursuant to the requested delisting of the TOPS parcel from the 64th Street North Inactive Hazardous Waste Disposal Site.

Sampling Program

The sampling program that was implemented as part of the current site investigation was designed in order to obtain additional analytical testing data from areas of the Tops Markets, Inc. property where elevated levels of metallic constituents had previously been detected. Of primary concern were certain of the eight (8) metallic constituents listed under Extraction Procedure Toxicity (EP Tox) testing that had been previously detected.

The areas to be resampled were designated by comparing existing analytical data with acceptable background levels that were established for the eight (8) EP Tox metals. These levels, based on Total Metals Analysis, are listed as follows;

Constituent	Level (Total)
Arsenic	50 ppm
Barium	3,000 ppm
Cadmium	0.7 ppm
Chromium	1,000 ppm
Lead	200 ppm
Mercury	40 ppm
Selenium	2.0 ppm
Silver	5.0 ppm

The concentration shown for each constituent was developed primarily from a common range of concentration values of trace chemical elements in natural soils as shown on Figure 1 of this report. The level for mercury was established based on comments received from NYSDEC and NYSDOH.

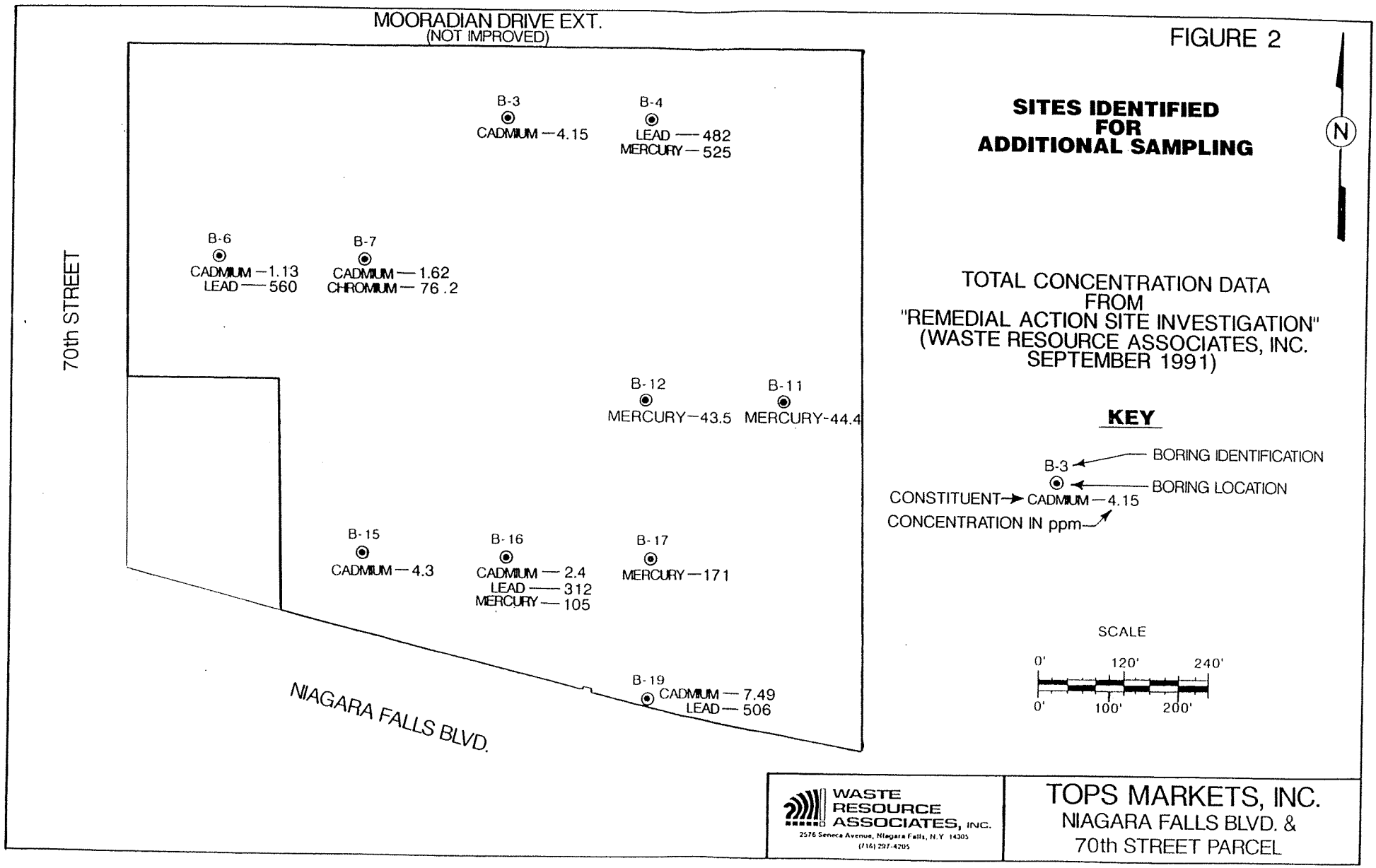
Using these acceptable background levels as guidance, analytical data generated from the previous site investigation was reviewed to identify those areas where EP Tox metals were detected at concentrations above acceptable background. As a result, a total of ten (10) test borings were designated for resampling of "fill" material (see Figure 2). At each testing location, samples were collected from the subsurface interval where "fill" material was encountered during previous on-site sampling. Figure 3 is a

FIGURE 1

TRACE CHEMICAL ELEMENT CONTENT OF NATURAL SOILS

Element	Common Range (ppm)	Average (ppm)	Element	Common Range (ppm)	Average (ppm)
Aluminum	10,000 - 300,000	71,000	Lithium	5 - 200	20
Antimony	2 - 10		Magnesium	600 - 6,000	5,000
Arsenic	1 - 50	5	Manganese	20 - 3,000	600
Barium	100 - 3,000	430	Mercury	0.01 - 0.3	.03
Beryllium	0.1 - 50	6	Molybdenum	0.2 - 5	2
Boron	2 - 100	10	Nickel	3 - 500	40
Bromine	1 - 10	5	Radium	8×10^{-5}	
Cadmium	0.01 - 0.7	.06	Rubidium	50 - 500	10
Cesium	0.3 - 25	6	Selenium	0.1 - 2	.3
Chlorine	20 - 900	100	Silver	0.01 - 5	.05
Chromium	1 - 1,000	100	Strontium	50 - 1,000	200
Cobalt	1 - 40	8	Tin	2 - 200	10
Copper	2 - 100	30	Tungsten		1
Fluorine	10 - 4,000	200	Uranium	0.9 - 9	1
Gallium	0.4 - 300	30	Vanadium	20 - 500	100
Gold		<1	Yttrium	25 - 250	50
Iodine	0.1 - 40	5	Zinc	10 - 300	50
Lanthanum	1 - 5,000	30	Zirconium	60 - 2,000	300
Lead	2 - 200	10			

REF: USEPA Office of Solid Waste and Emergency Response. HAZARDOUS WASTE LAND TREATMENT SW 874 (April 1983) Page 273, Table 6.46


MOORADIAN DRIVE EXT.
(NOT IMPROVED)
70th STREET
NIAGARA FALLS BLVD.
B-3
CADMIUM — 4.15
B-4
LEAD — 482
MERCURY — 525
B-6
CADMIUM — 1.13
LEAD — 560
B-7
CADMIUM — 1.62
CHROMIUM — 76.2
B-12
MERCURY — 43.5
B-11
MERCURY-44.4
B-15
CADMIUM — 4.3
B-16
CADMIUM — 2.4
LEAD — 312
MERCURY — 105
B-17
MERCURY — 171
B-19
CADMIUM — 7.49
LEAD — 506
FIGURE 2
SITES IDENTIFIED FOR ADDITIONAL SAMPLING
N
TOTAL CONCENTRATION DATA FROM "REMEDIAL ACTION SITE INVESTIGATION" (WASTE RESOURCE ASSOCIATES, INC. SEPTEMBER 1991)
KEY
B-3
BORING IDENTIFICATION
BORING LOCATION
CONSTITUENT → CADMIUM — 4.15
CONCENTRATION IN ppm
SCALE
0' 120' 240'
0' 100' 200'
WASTE RESOURCE ASSOCIATES, INC.
2576 Seneca Avenue, Niagara Falls, N.Y. 14305
(716) 297-4205
TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

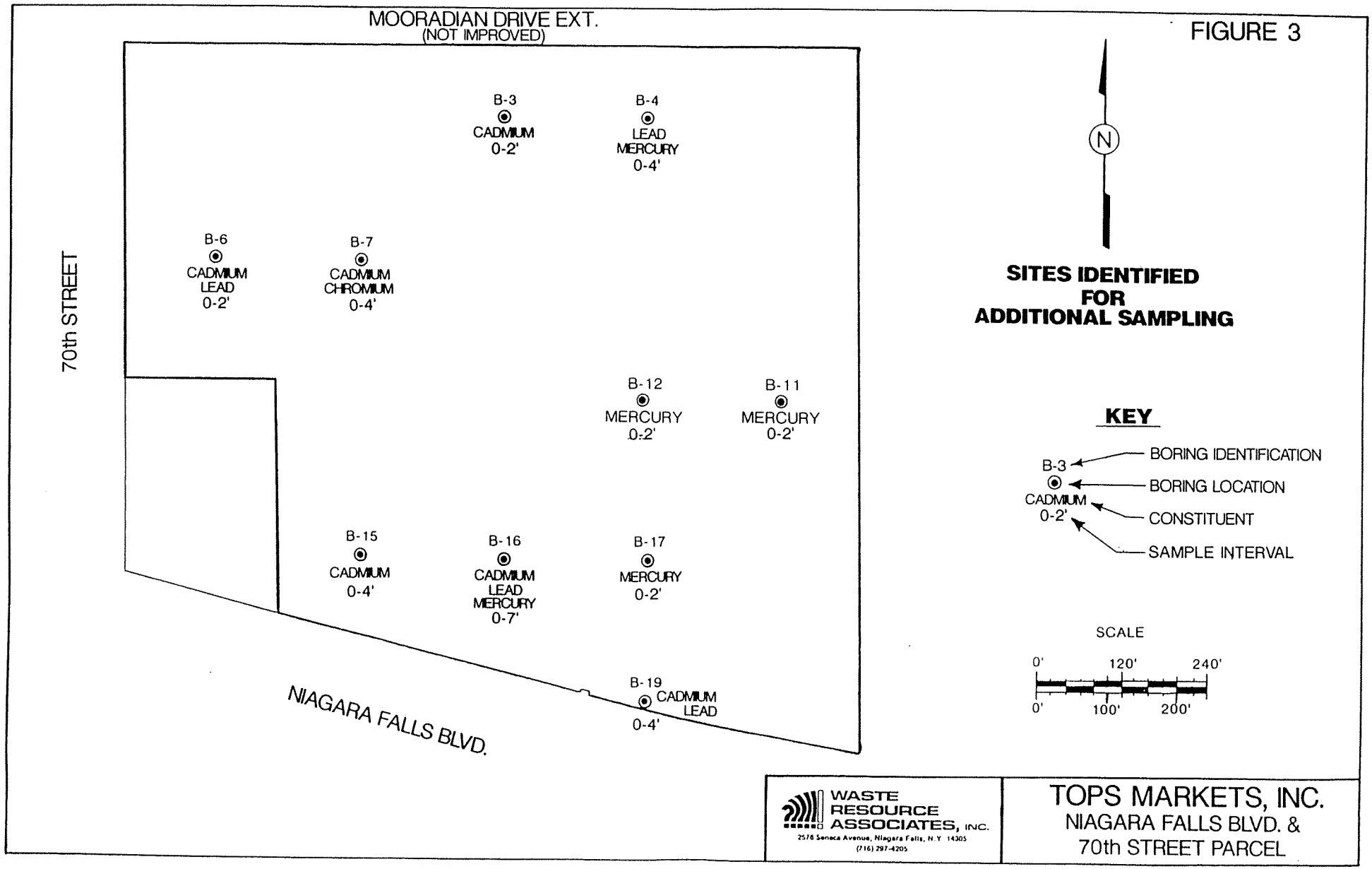

MOORADIAN DRIVE EXT.
(NOT IMPROVED)
70th STREET
NIAGARA FALLS BLVD.
B-3
CADMIUM
0-2'
B-4
LEAD
MERCURY
0-4'
B-6
CADMIUM
LEAD
0-2'
B-7
CADMIUM
CHROMIUM
0-4'
B-12
MERCURY
0-2'
B-11
MERCURY
0-2'
B-15
CADMIUM
0-4'
B-16
CADMIUM
LEAD
MERCURY
0-7'
B-17
MERCURY
0-2'
B-19
CADMIUM
LEAD
0-4'
N
SITES IDENTIFIED
FOR
ADDITIONAL SAMPLING
KEY
B-3
CADMIUM
0-2'
BORING IDENTIFICATION
BORING LOCATION
CONSTITUENT
SAMPLE INTERVAL
SCALE
0'
120'
240'
0'
100'
200'
WASTE
RESOURCE
ASSOCIATES, INC.
2576 Seneca Avenue, Niagara Falls, N.Y. 14305
(716) 297-4205
TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 3

map which shows the test borings where resampling occurred along with the identified elevated metallic constituent(s) and the sample depth interval.

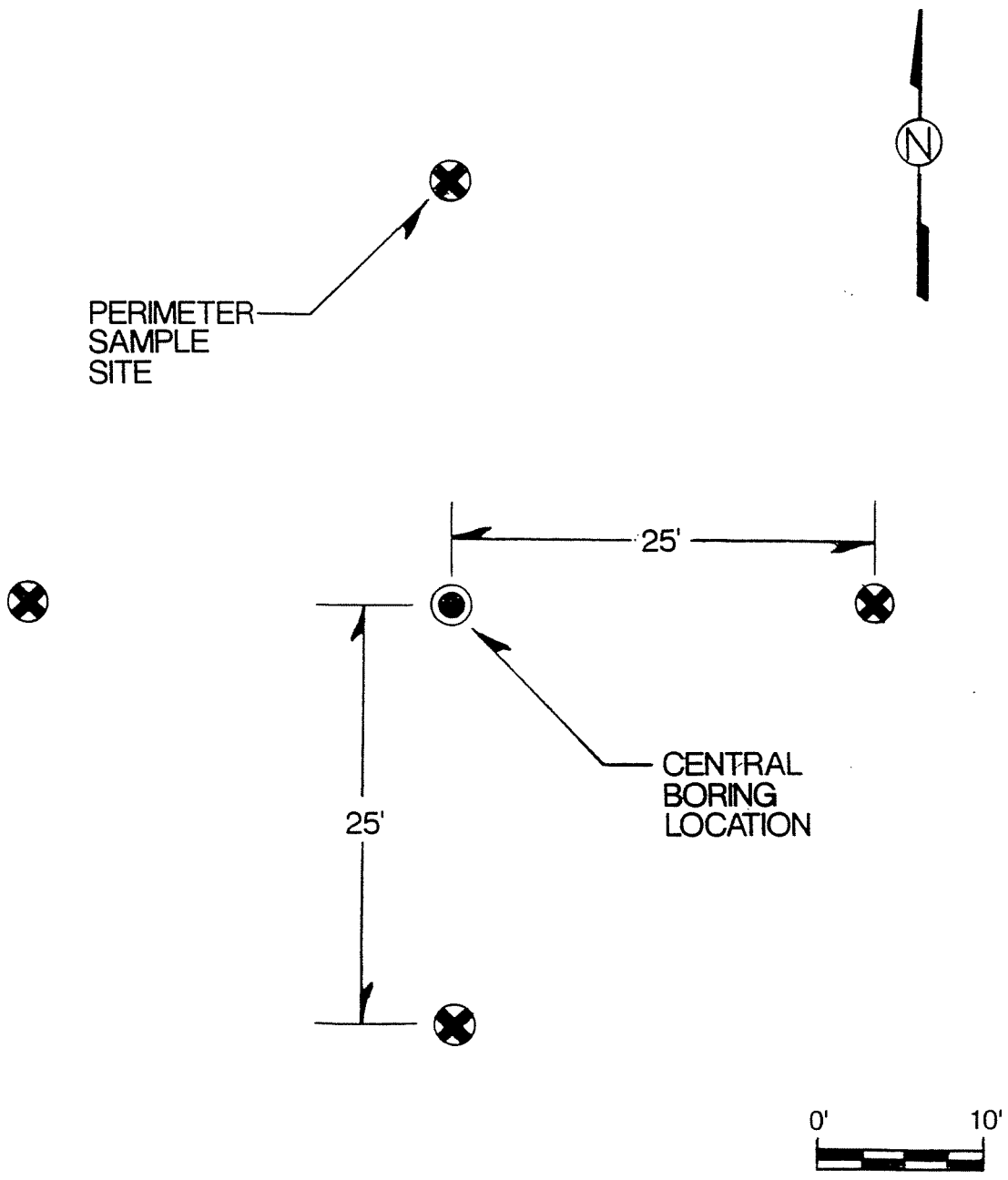
Perimeter sampling was also conducted at sites surrounding each of the original ten (10) test boring locations. Figure 4 shows the position of each of the four (4) perimeter sites relative to the central boring location. The depth of sampling at the perimeter sites was similar to the interval sampled at the central boring location.

Soil samples were collected over a three (3) day period beginning on Friday, November 22, 1991 and ending on Tuesday, November 26, 1991. In areas where the thickness of "fill" material had previously been measured at two (2) feet or less, samples were collected using a hand auger. All other samples were obtained using hollow-stem augers and split-spoon sampling techniques.

Soil samples were packed in chilled coolers and transported to the analytical laboratory at the end of each day. Chain-of-Custody documentation for all samples collected is included as Exhibit I of this report.

FIGURE 4

PERIMETER SAMPLING SITES



WASTE RESOURCE ASSOCIATES, INC.

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NIAGARA FALLS BLVD. &
70th STREET PARCEL

Analytical Testing

The sample analysis that was conducted as part of this site investigation was designed to provide detailed information relating to two (2) specific questions;

1) Do any of the metallic constituents that were previously detected on-site at elevated concentrations exist in a soluble matrix form, and,

2) To what lateral extent are elevated levels of identified metallic constituents present on-site in those areas around selected prior boring locations.

Soil samples from each of the ten (10) original test boring locations designated for additional sampling were subjected to Extraction Procedure Toxicity (EP Tox) analysis for the identified metallic constituent(s) as shown on Figure 3. The results of EP Tox testing are indicative of the nature of the chemical constituent with respect to its water solubility (or leachability to groundwaters).

Surrounding each of the ten (10) central boring locations, four (4) perimeter sites were sampled and tested by SW-846 Method 7000 to determine the total concentration of the identified metallic analyte. These analyses allowed for a comparison with similar data derived from previous testing of central boring location samples and provided additional information as to the concentrations of metals previously identified and the lateral extent of those metallic constituents present on-site.

Extraction Procedure Toxicity testing of certain perimeter site samples was conducted based on the analytical data derived from the EP Tox testing of central boring location samples and Method 7000 testing results of perimeter site samples. Two (2) criteria were established as guidelines in determining which (if

any) perimeter site samples would be subjected to EP Toxicity analysis;

1) The results of EP Tox testing of "fill" material from the central boring location exceeded regulatory limits for the identified metallic constituent(s), or,

2) At central boring locations where EP Tox testing limits were not exceeded, perimeter site samples were subjected to EP Tox testing only if the total metals concentration of the identified metallic constituent(s) (as measured by EPA Method 7000) significantly exceeded the level previously detected at the central boring location.

The preliminary analytical testing results were evaluated in order to identify data which fell within the confines of the screening criteria. On this basis, the following perimeter site samples were designated for EP Toxicity testing:

Sample I.D.	Constituent
B-6-S	Lead
B-7-E	Chromium
B-11-S	Mercury
B-12-W	Mercury
B-16-N	Lead
B-16-W	Mercury
B-17-N	Mercury
B-19-S	Lead

Final Analytical Data

Total Metals Analysis

A total of forty (40) soil samples were analyzed using SW-846, Method 7000 Atomic Absorption Spectroscopy. Samples were obtained from four (4) perimeter locations which surrounded each of the ten (10) original test boring sites identified for additional testing.

The total concentrations that were measured at the perimeter sites are generally reflective of nearly the same levels previously detected at the central boring locations. Analytical testing results are presented in Table 1 and Figures 5 - 14.

Laboratory data sheets and a report narrative which presents the results of this testing are included in this report as Exhibit II.

TABLE 1
Total Metals Testing Results at Perimeter Sites
(all totals in mg/kg)

Boring Number	Perimeter Site	Constituent(s)	
		Cadmium	
B-3	N	1.21	
	E	1.23	
	S	1.18	
	W	1.18	
		Lead	Mercury
B-4	N	518	445
	E	85.6	140
	S	119	2.63
	W	200	4.07
		Cadmium	Lead
B-6	N	1.29	241
	E	1.19	251
	S	1.17	3400
	W	1.21	148
		Cadmium	Chromium
B-7	N	<1.0	104
	E	2.31	359
	S	1.11	50.1
	W	1.18	16.4
		Mercury	
B-11	N	38.3	
	E	64.5	
	S	214	
	W	49.8	
		Mercury	
B-12	N	26.1	
	E	55.9	
	S	75.9	
	W	141	
		Cadmium	
B-15	N	1.11	
	E	2.09	
	S	1.17	
	W	1.18	

TABLE 1

Total Metals Testing Results at Perimeter Sites (cont.)

(all Totals in mg/kg)

Boring Number	Perimeter Site	Constituent(s)		
		Cadmium	Lead	Mercury
B-16	N	2.38	506	17.9
	E	3.56	183	106
	S	1.23	81.5	352
	W	2.60	63.6	486
		Mercury		
B-17	N	296		
	E	6.52		
	S	110		
	W	229		
		Cadmium	Lead	
B-19	N	1.35	97.7	
	E	1.25	305	
	S	1.22	708	
	W	1.20	60.8	

FIGURE 5

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-3-N

CADMIUM-1.21

B-3-W

CADMIUM-1.18

Boring-3

CADMIUM-4.15

B-3-E

CADMIUM-1.23

B-3-S

CADMIUM-1.18

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

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NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 6

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-4-N
LEAD-518
MERCURY-445

B-4-W
LEAD-200
MERCURY-4.07

Boring-4
LEAD-482
MERCURY-525

B-4-E
LEAD-85.6
MERCURY-140

B-4-S
LEAD-119
MERCURY-2.63

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 7

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-6-N
CADMIUM-1.29
LEAD-241

B-6-W
CADMIUM-1.21
LEAD-148

Boring-6
CADMIUM-1.13
LEAD-560

B-6-E
CADMIUM-1.19
LEAD-251

B-6-S
CADMIUM-1.17
LEAD- 3400

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 8

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-7-N

CADMIUM-<1.0
CHROMIUM-104

B-7-W

CADMIUM-1.18
CHROMIUM-16.4

Boring-7

CADMIUM-1.62
CHROMIUM-76.2

B-7-E

CADMIUM-2.31
CHROMIUM-359

B-7-S

CADMIUM-1.11
CHROMIUM-50.1

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 9

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-11-N
MERCURY-38.3

B-11-W
MERCURY- 49.8

Boring-11
MERCURY-44.4

B-11-E
MERCURY-64.5

B-11-S
MERCURY-214

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 10

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-12-N
MERCURY-26.1

B-12-W
MERCURY-141

Boring-12
MERCURY-43.5

B-12-E
MERCURY-55.9

B-12-S
MERCURY-75.9

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

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NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 11

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-15-N
CADMIUM-1.11

B-15-W
CADMIUM-1.18

Boring-15
CADMIUM-4.3

B-15-E
CADMIUM-2.09

B-15-S
CADMIUM-1.17

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 12

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-16-N

CADMIUM-2.38
LEAD-506
MERCURY- 17.9

B-16-W

CADMIUM-2.60
LEAD- 63.6
MERCURY- 486

Boring-16

CADMIUM-2.4
LEAD-312
MERCURY-105

B-16-E

CADMIUM-3.56
LEAD-183
MERCURY-106

B-16-S

CADMIUM-1.23
LEAD-81.5
MERCURY-352

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

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NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 13

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-17-N
MERCURY-296

B-17-W
MERCURY-229

Boring-17
MERCURY-171

B-17-E
MERCURY-6.52

B-17-S
MERCURY-110

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

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NIAGARA FALLS BLVD. &
70th STREET PARCEL

FIGURE 14

TOTAL METALS ANALYSIS FOR PERIMETER SAMPLING SITES

B-19-N
CADMIUM-1.35
LEAD-97.7

B-19-W
CADMIUM-1.20
LEAD-60.8

Boring-19
CADMIUM-7.49
LEAD-506

B-19-E
CADMIUM-1.25
LEAD-305

B-19-S
CADMIUM-1.22
LEAD-708

0' 10'

ALL CONCENTRATIONS SHOWN IN mg/kg

WASTE RESOURCE ASSOCIATES, INC.

TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

Extraction Procedure Toxicity (EP Tox) Analysis

Extraction Procedure Toxicity (EP Tox) testing was initially performed on samples taken at each of the ten (10) boring locations that were identified as having elevated levels of metallic constituents (see Figure 2). Sample analysis was focused on four (4) metallic analytes; Mercury, Cadmium, Lead and Chromium.

Test results showed that regulatory limits for EP Tox analysis were not exceeded for any of the metallic constituents tested for as part of this procedure. A summary of the final analytical data is presented on Table 2 and Figure 15 of this report. A report narrative along with final analytical data sheets is included as Exhibit III of this report.

TABLE 2

Extraction Procedure Toxicity (EPTox) Testing Results

Sample Number	Constituent	Previous "Totals" Results (in ppm)	E.P. Tox Testing Results (in mg/l)
B-3	Cadmium	4.15	*BQL
B-4	Lead	482	BQL
	Mercury	525	0.012 [0.20]
B-6	Cadmium	1.13	BQL
	Lead	560	BQL
B-7	Cadmium	1.62	BQL
	Chromium	76.2	BQL
B-11	Mercury	44.4	BQL
B-12	Mercury	43.5	0.0079 [0.20]
B-15	Cadmium	4.3	BQL
B-16	Cadmium	2.4	BQL
	Lead	312	BQL
	Mercury	105	0.0072 [0.20]
B-17	Mercury	171	0.012 [0.20]
B-19	Cadmium	7.49	BQL
	Lead	506	BQL

*Below Quantifiable Limits

[ ] - Maximum Allowable Threshold Concentration

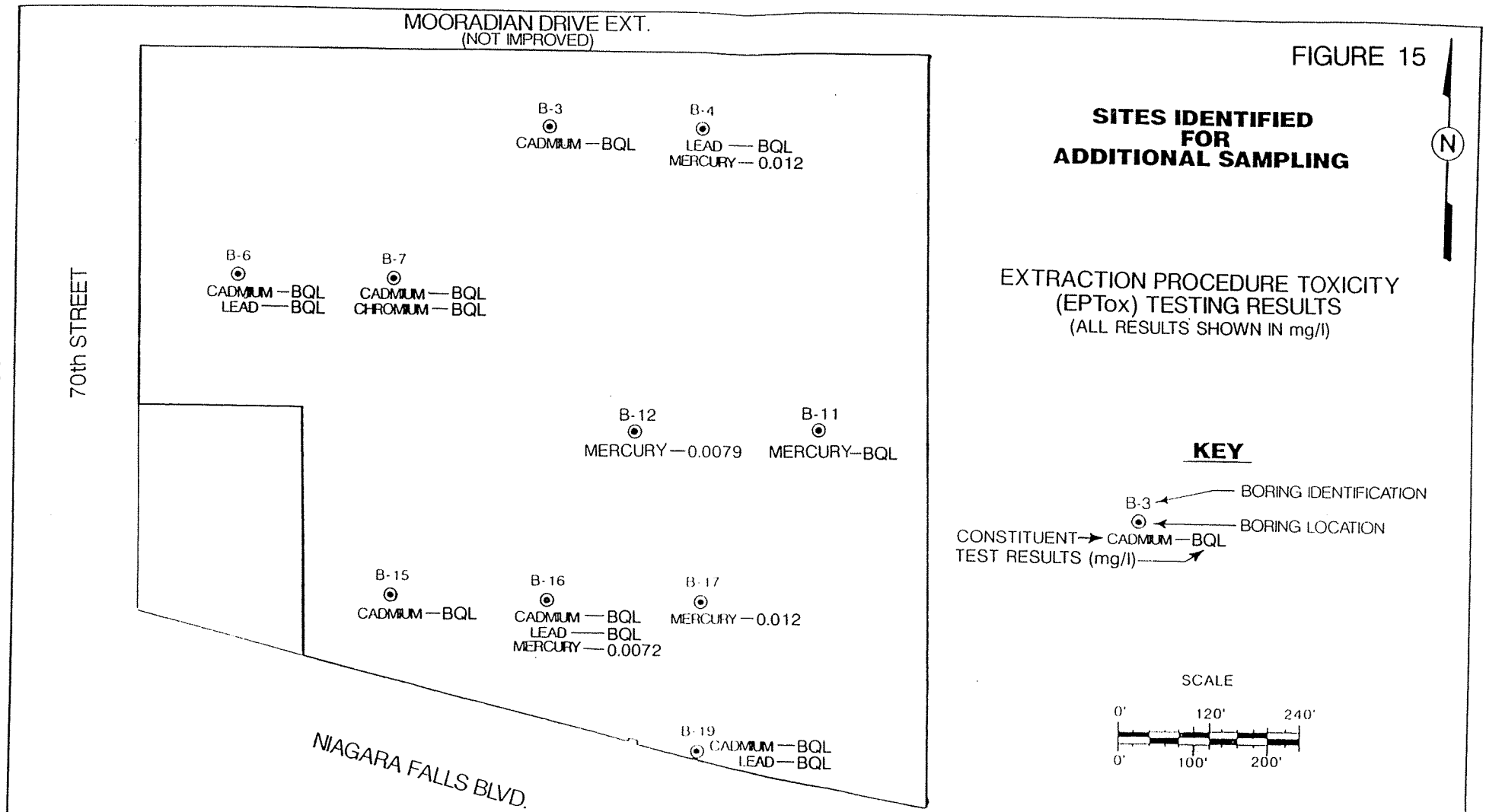

FIGURE 15

SITES IDENTIFIED FOR ADDITIONAL SAMPLING

EXTRACTION PROCEDURE TOXICITY (EPTox) TESTING RESULTS
(ALL RESULTS SHOWN IN mg/l)

BQL = BELOW QUANTIFIABLE LIMITS

WASTE RESOURCE ASSOCIATES, INC.
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(716) 297-4295

TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
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Additional Extraction Procedure Toxicity (EP Tox) Analysis

Extraction Procedure Toxicity (EP Tox) testing of selected perimeter site samples was conducted based on the screening of EP Tox results from central boring site samples and total metals analysis results from perimeter site samples. The guidelines followed for this screening process are detailed in the Analytical Testing Section of this report.

As a result of the data review, a total of eight (8) perimeter site samples were subjected to further EP Tox testing. The eight (8) locations are shown on Figure 16 along with the total concentration of the identified metallic constituent. Extraction Procedure Toxicity (EP Tox) testing results are shown on Table 3 and Figure 17.

Of the eight (8) samples analyzed, seven (7) were measured at levels well below the regulatory limits for EP Tox testing. The sample taken at B-16-W had a concentration of 0.230 mg/l mercury which only slightly exceeds the EP Tox regulatory limit of 0.200 mg/l for this constituent.

A report narrative along with the final analytical data sheets for this testing are included as Exhibit IV of this report.

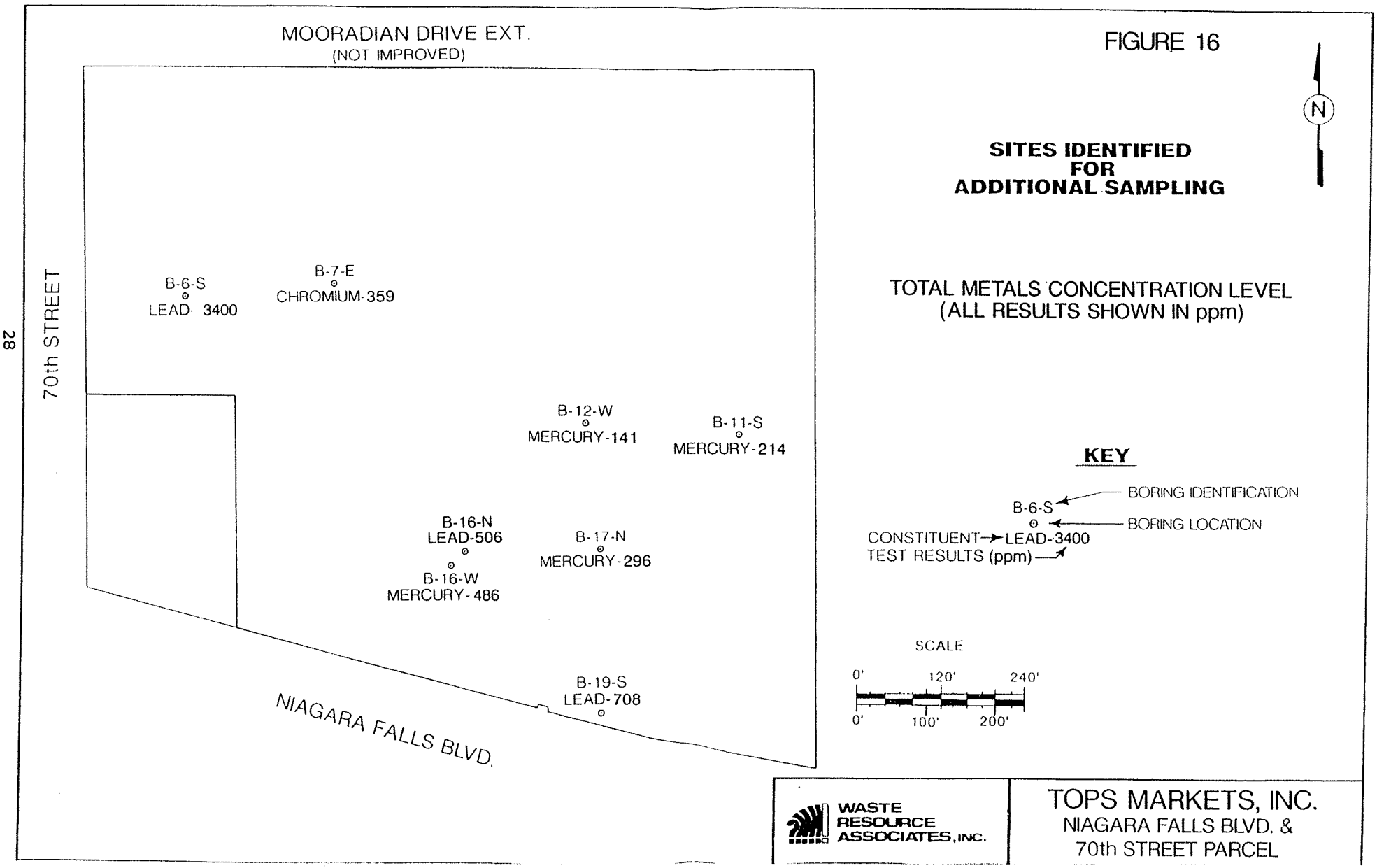

MOORADIAN DRIVE EXT.
(NOT IMPROVED)
70th STREET
NIAGARA FALLS BLVD.
B-6-S
LEAD- 3400
B-7-E
CHROMIUM-359
B-12-W
MERCURY-141
B-11-S
MERCURY-214
B-16-N
LEAD-506
B-16-W
MERCURY-486
B-17-N
MERCURY-296
B-19-S
LEAD-708
FIGURE 16
N
SITES IDENTIFIED
FOR
ADDITIONAL SAMPLING
TOTAL METALS CONCENTRATION LEVEL
(ALL RESULTS SHOWN IN ppm)
KEY
BORING IDENTIFICATION
B-6-S
BORING LOCATION
CONSTITUENT→LEAD-3400
TEST RESULTS (ppm)→
SCALE
0'
120'
240'
0'
100'
200'
WASTE
RESOURCE
ASSOCIATES, INC.
TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

TABLE 3

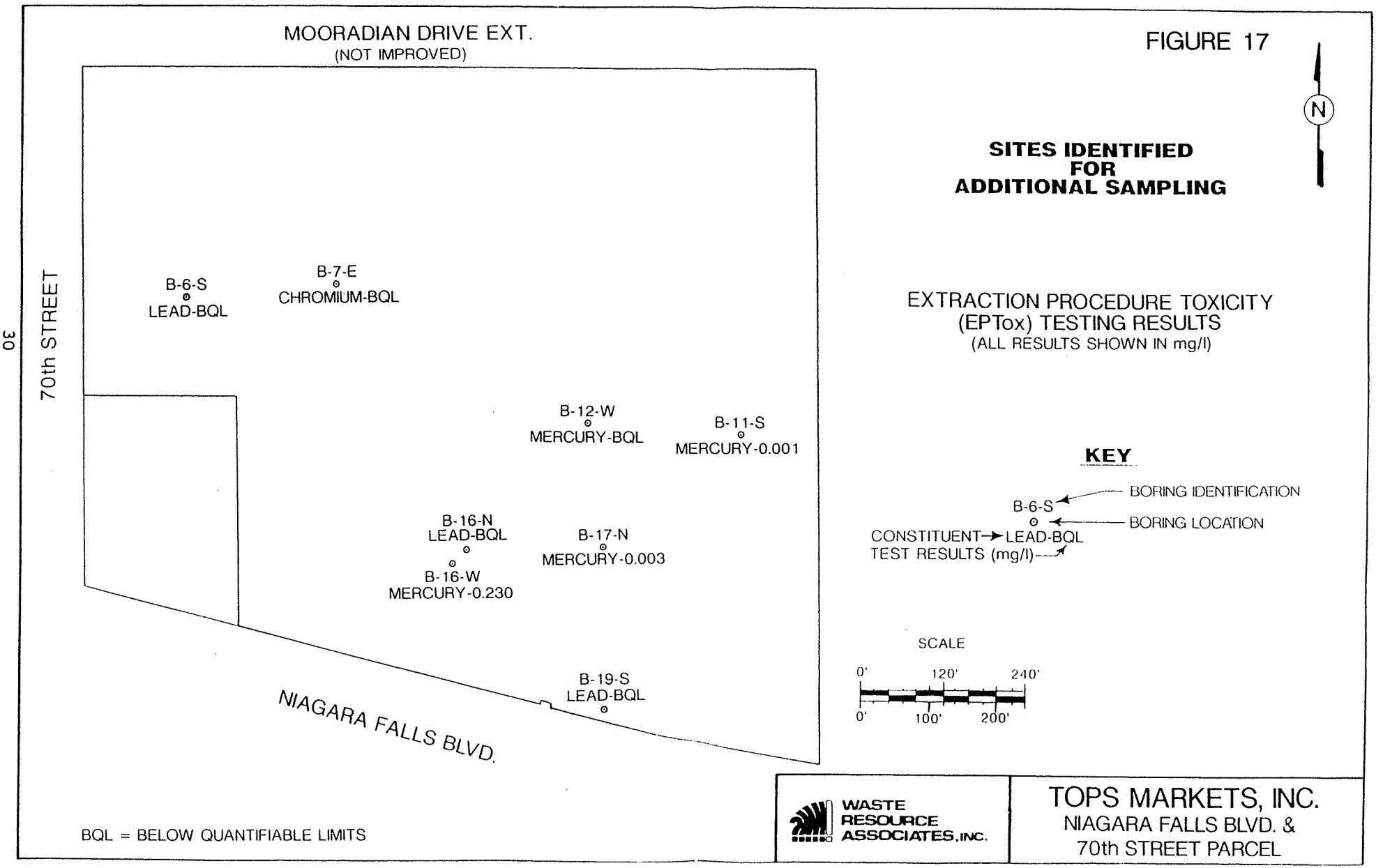
Extraction Procedure Toxicity (EP Tox) Testing Results

Sample Number	Constituent	Previous "Totals" Results (in ppm)	E.P. Tox Testing Results (in mg/l)
B-6-S	Lead	3400	*BQL
B-7-E	Chromium	359	BQL
B-11-S	Mercury	214	0.001 [0.20]
B-12-W	Mercury	141	BQL
B-16-N	Lead	506	BQL
B-16-W	Mercury	486	0.230 [0.20]
B-17-N	Mercury	296	0.003 [0.20]
B-19-S	Lead	708	BQL

*Below Quantifiable Limits

[ ] - Maximum Allowable Threshold Concentration

FIGURE 17


MOORADIAN DRIVE EXT.
(NOT IMPROVED)
70th STREET
NIAGARA FALLS BLVD.
B-6-S
LEAD-BQL
B-7-E
CHROMIUM-BQL
B-12-W
MERCURY-BQL
B-11-S
MERCURY-0.001
B-16-N
LEAD-BQL
B-16-W
MERCURY-0.230
B-17-N
MERCURY-0.003
B-19-S
LEAD-BQL
N
SITES IDENTIFIED
FOR
ADDITIONAL SAMPLING
EXTRACTION PROCEDURE TOXICITY
(EPTox) TESTING RESULTS
(ALL RESULTS SHOWN IN mg/l)
KEY
B-6-S
BORING IDENTIFICATION
BORING LOCATION
CONSTITUENT→LEAD-BQL
TEST RESULTS (mg/l)
SCALE
0'
120'
240'
0'
100'
200'
BQL = BELOW QUANTIFIABLE LIMITS
WASTE
RESOURCE
ASSOCIATES, INC.
TOPS MARKETS, INC.
NIAGARA FALLS BLVD. &
70th STREET PARCEL

Data Reporting and Validation

The final analytical data derived from EPA Method 7000 testing for metallic constituents are reported according to the requirements contained within the NYSDEC Analytical Services Protocol (ASP), Volume 1, Section B.

Independent, third party validation of the accuracy of all analytical data generated as a result of the site investigation has been conducted by Mr. Stephen S. Odojewski, President, Waste Resource Associates, Inc. The qualifications of Mr. Odojewski in serving as data validator are presented as Exhibit V.

Data validation sheets are included as Exhibit VI of this report. Also included in this Exhibit are NYSDEC Sample Preparation and Analysis Summary sheets as well as Extraction Traceability Reports which list the extraction methods used for all EP Tox Analysis.

Conclusions/Summary

The analytical testing data which was generated as a result of the additional investigation conducted on this parcel identified a single location at which the Extraction Procedure Toxicity threshold for mercury (0.20 ppm) was exceeded (B-16-W at 0.23 ppm). It is the intention of the property owner to excavate the contaminated overburden around that area, Boring No. 16 - West Sample. The decontamination threshold which will be utilized to distinguish between contaminated overburden which will be excavated and removed from the site for disposal and overburden which will be left in place is a total mercury concentration of 400 ppm. This level was chosen based on a comparison of total mercury concentrations with corresponding EP Toxicity analysis where individual samples were tested for both parameters. This comparison showed that EP Toxicity levels remained significantly below the regulatory limit for all samples which contained a total mercury concentration of 400 ppm or below. Please refer to Table 4 for a listing of total mercury concentrations and corresponding Extraction Procedure Toxicity levels and Figure 18 which were used to develop the decontamination threshold.

Field determination of total mercury concentrations will be performed using a portable HNu Model SEFA-P, x-ray fluorescence analyzer. Confirmatory testing will be performed around the perimeter of the excavated area to ensure that all contamination exceeding 400 ppm total mercury has been removed.

Excavated overburden will be stockpiled on-site on polyethylene sheeting and a composite soil sample will be obtained for laboratory analysis and subsequent approval for off-site disposal. The composite sample will be tested for Extraction Procedure Toxicity metals and will also be tested for the full range of Toxicity Characteristic Leaching Potential (TCLP) parameters. Data generated from analytical testing of the composite sample will be used to determine appropriate disposal options as per NYSDEC regulations.

TABLE 4

Total Mercury vs. EP Toxicity Levels

Boring Location	Total Mercury (mg/kg)	EP Toxicity Mercury (mg/liter)
B-16-W	486	0.230
B-17-N	296	0.003
B-11-S	214	0.001
B-12-W	141	BQL
B-11	44.4	BQL

FIGURE 18

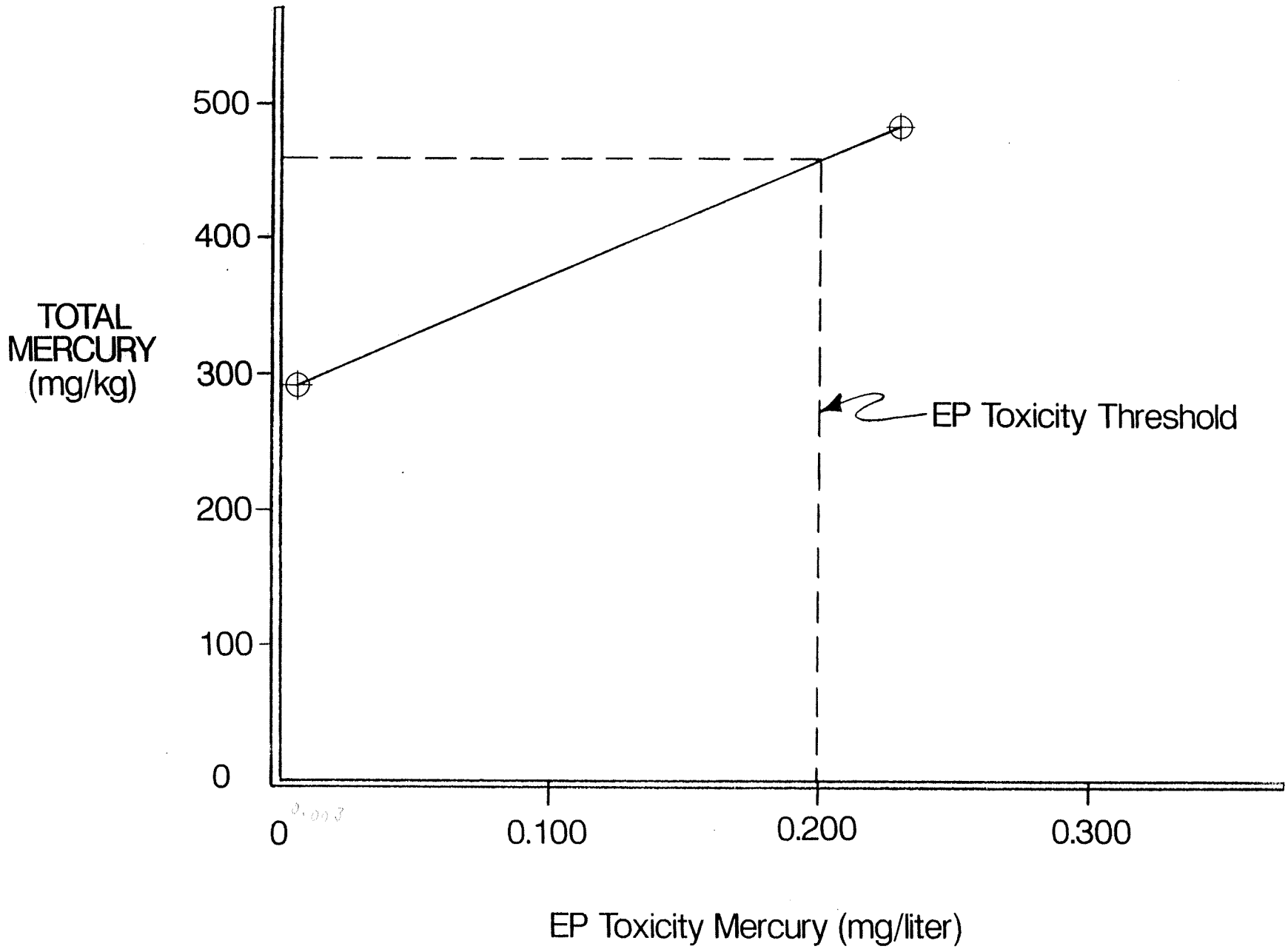

500
400
300
200
100
0
TOTAL MERCURY (mg/kg)
EP Toxicity Threshold
0
0.100
0.200
0.300
EP Toxicity Mercury (mg/liter)

Exhibit I - Chain-of-Custody Records

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA - TOPS N.F. BLVD

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO_3	H_2SO_4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/26/91		B-11	✓		SOIL	✓								EPTOX - MERCURY
		B-11-N	✓		"	✓								METHOD 7000 - TOTAL MERCURY
		B-11-S	✓		"	✓								"
		B-11-E	✓		"	✓								"
		B-11-W	✓		"	✓								"
		B-12	✓		"	✓								EPTOX - MERCURY
		B-12-N	✓		"	✓								METHOD 7000 - TOTAL MERCURY
		B-12-S	✓		"	✓								"
		B-12-E	✓		"	✓								"
		B-12-W	✓		"	✓								"
		B-16	✓		"	✓								EPTOX - MERCURY, CADMIUM, LEAD
		B-16-N	✓		"	✓								METHOD 7000 - MERCURY, CADMIUM, LEAD
		B-16-S	✓		"	✓								"
		B-16-E	✓		"	✓								"
		B-16-W	✓		"	✓								"
						TOTAL NUMBER OF CONTAINERS								

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark T. Schwippert	11-26-91	11:30	[signature]
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA / TODS / BARRETTS

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/25/91		B-19	✓		SOIL	✓							1	EPTOX - CADMIUM, LEAD
		B-19-N	✓		"	✓							1	METHOD 7000 - TOTAL CADMIUM, LEAD
		B-19-S	✓		"	✓							1	"
		B-19-E	✓		"	✓							1	"
		B-19-W	✓		"	✓							1	"
		B-15	✓		"	✓							1	EPTOX - CADMIUM
		B-15-N	✓		"	✓							1	METHOD 7000 - TOTAL CADMIUM
		B-15-S	✓		"	✓							1	"
		B-15-E	✓		"	✓							1	"
		B-15-W	✓		"	✓							1	"
		B-7	✓		"	✓							1	EPTOX - CADMIUM, ~~LEAD~~ CHROMIUM
		B-7-N	✓		"	✓							1	METHOD 7000 - CADMIUM, ~~LEAD~~ CHROMIUM
		B-7-S	✓		"	✓							1	"
		B-7-E	✓		"	✓							1	"
		B-7-W	✓		"	✓							1	"

TOTAL NUMBER OF CONTAINERS: 15

Rec'd cal'd 11.25.91

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark Schwippert	11/25/91	4:23 P	Colleen A Wilson
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: LWRA/TORS MARKERS

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO_3	H_2SO_4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/22/91	10^00 AM - 1^30 PM	B-3-N	✓		SOIL	✓								SW846 TOTAL CADMIUM METHOD 7000
		B-3-S	✓		"	✓								"
		B-3-W	✓		"	✓								"
		B-3-E	✓		"	✓								"
		B-17	✓		"	✓								EP TOX - MERCURY
		B-17-N	✓		"	✓								SW846 METHOD 7000 - TOTAL MERCURY
		B-17-S	✓		"	✓								"
		B-17-W	✓		"	✓								"
		B-17-E	✓		"	✓								"
		B-6	✓		"	✓								EP TOX - CADMIUM, LEAD
		B-6-N	✓		"	✓								SW846 METHOD 7000 - TOTAL LEAD + CADMIUM
		B-6-S	✓		"	✓								"
		B-6-W	✓		"	✓								"
		B-6-E	✓		"	✓								"

TOTAL NUMBER OF CONTAINERS: 14

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark Schwippert	11/22/91	1^45 PM	Patricia Schuster
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA - TOPS MARKETS

SAMPLER'S SIGNATURE: Mark Schweppert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO_3	H_2SO_4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/25/91		B-4	✓		SOIL	✓							1	EPTOX - LEAD, MERCURY
		B-4-N	✓		"	✓							1	METHOD 7000 TOTAL LEAD, MERCURY
		B-4-S	✓		"	✓							1	"
		B-4-E	✓		"	✓							1	"
		B-4-W	✓		"	✓							1	"

TOTAL NUMBER OF CONTAINERS: 5

Rec'd 11-25-91

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark Schweppert	11/25/91	4:23 P	Colleen A Sullivan
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

Exhibit II - Total Metals Analysis

ADVANCED
ENVIRONMENTAL SERVICES INC.
2186 Liberty Drive
P.O. Box 165
Niagara Falls, NY 14304

DELISTING PETITION FOR PROPERTY PARCEL LOCATED AT NIAGARA FALLS BOULEVARD AND 70th STREET, NIAGARA FALLS, NEW YORK (ADDITIONAL ANALYSES - TOTAL METALS)

Report Prepared For

WASTE RESOURCE ASSOCIATES, INC.

December 31, 1991
AES Report FIL

COMMITMENT
TO
HONESTY - QUALITY - SERVICE

QA/QC Verification

The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.

Paul T. McMahon
Quality Control Officer

REPORT NARRATIVE

CLIENT: WASTE RESOURCE ASSOCIATES, INC.
PROJECT: TOPS DELISTING PETITION
NIAGARA FALLS, NEW YORK
AES PROJECT CODE: FIL
CLIENT SAMPLE ID: B-3(N,S,E,W), B-4(N,S,E,W), B-6(N,S,E,W), B-7(N,S,E,W), B-11(N,S,E,W), B-12(N,S,E,W), B-15(N,S,E,W), B-16(N,S,E,W), B-17(N,S,E,W) B-19(N,S,E,W)
AES SAMPLE NUMBERS: 9849 - 9888
REPORT DATE: DECEMBER 31, 1991

Additional sampling and testing was conducted at the Niagara Falls Boulevard and 70th Street location in Niagara Falls, New York. Forty soil core samples were collected from the above locations, and transported to Advanced Environmental Services by Waste Resource Associates for selected total metals analysis. The borings were collected on three days, November 22, 25, and 26, 1991. Samples were transported in coolers packed with "blue ice", and chains of custody were completed and signed on all three days. The chains of custody are located in the report appendix.

The metals which were analyzed were cadmium, chromium, lead, and mercury. The particular metals analyzed for each site were determined based on the results from the initial sampling and testing of this site, in the summer of 1991.

Cadmium was analyzed using a flame atomic absorption spectrophotometer. Lead and chromium were analyzed by graphite furnace atomic absorption. Mercury was analyzed using the cold vapor method. All samples requiring mercury were digested and analyzed in triplicate, per SW-846 method 7471. The three results for each site were averaged, and reported on the ASP analysis data sheet. The result for each of the three analyses performed per site can be found in the mercury chart summaries, included in the raw data package.

The matrix spikes for sites B-16-N and B-16-W were outside the control limits for lead and mercury. This was due to the high concentrations of the analytes in the sample. An analytical spike was performed for each, which resulted in unsatisfactory results for the two mercury sites. Standard additions were performed on these

sites, with the result used to calculate the total mercury in the samples.

Some other analytical notes:

1. All coefficients of variation for the duplicate analysis of the samples analyzed by graphite furnace were less than 20.

2. All analytical spikes performed to evaluate interferences in the graphite furnace analysis of the samples are reported on the post-digestion spike forms.

3. Lead was analyzed on three different dates. Mercury was analyzed on two different dates. Chromium and cadmium were analyzed on only one date.

4. The NYSDEC Run Log was incompatible with our analyses of this project. The NYSDEC Sample Preparation and Analyses Summary forms were completed as a substitute for this form.

US EPA - CLP

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

SOW No.:

EPA Sample No.	Lab Sample ID
B-3-N	9849
B-3-S	9850
B-3-W	9851
B-3-E	9852
B-4-N	9853
B-4-S	9854
B-4-E	9855
B-4-W	9856
B-6-N	9857
B-6-S	9858
B-6-W	9859
B-6-E	9860
B-7-N	9861
B-7-S	9862
B-7-E	9863
B-7-W	9864
B-11-N	9865
B-11-S	9866
B-11-E	9867

Were ICP interelement corrections applied? Yes/No No

Were ICP background corrections applied? Yes/No No

If yes, were raw data generated before application of background corrections? Yes/No No

Comments: No samples were analyzed by ICP.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in the hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee.

Signature: _____ Name: _____

Date: _____ Title: _____

US EPA - CLP

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

SOW No.:

EPA Sample No.	8ab Sample ID
B-11-W	9868
B-12-N	9869
B-12-S	9870
B-12-E	9871
B-12-W	9872
B-15-N	9873
B-15-S	9874
B-15-E	9875
B-15-W	9876
B-16-N	9877
B-16-S	9878
B-16-E	9879
B-16-W	9880
B-17-N	9881
B-17-S	9882
B-17-W	9883
B-17-E	9884
B-19-N	9885
B-19-S	9886
B-19-E	9887
B-19-W	9888

Were ICP interelement corrections applied? Yes/No No

Were ICP background corrections applied? Yes/No No

If yes, were raw data generated before application of background corrections? Yes/No No

Comments: No samples were analyzed by ICP.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in the hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee.

Signature: _____ Name: _____

Date: _____ Title: _____

US EPA - CLP

EPA SAMPLE NO.

1

B-3-N

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 82.4 Lab Sample ID: 9849 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.21			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments: Sample contained roots and grass.

US EPA - CLP

1

EPA SAMPLE NO.

B-3-S

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 84.7 Lab Sample ID: 9850 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.18			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: Texture: Clay

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 81.2 Lab Sample ID: 9852 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.23			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments: Sample was moist.

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 84.8 Lab Sample ID: 9851 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.18			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments: Sample contained grass.

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 79.2 Lab Sample ID: 9853 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	518			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	445			AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Gray and Brown Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

EPA SAMPLE NO.

1

B-4-S

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 83.0 Lab Sample ID: 9854 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-89-6	Lead	119			F
7439-95-4	Magnesium				
7439-95-5	Manganese				
7439-97-6	Mercury	2.63			AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown and Grey Clarity Before: Texture: Soil with Clay

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

EPA SAMPLE NO.

1

B-4-E

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 83.5 Lab Sample ID: 9855 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	85.6			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	140			AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown/Gray Orange Clarity Before: Texture: Soil/Clay/Rock

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

EPA SAMPLE NO.

1

B-4-W

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 84.9 Lab Sample ID: 9856 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	200			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	4.07			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Black Clarity Before: Rocky, sandy soil Texture:

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

EPA SAMPLE NO.

1

B-6-N

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 77.8 Lab Sample ID: 9857 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.29			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	241			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 85.2 Lab Sample ID: 9858 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.17			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3400			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown/Light Brown Clarity Before: Texture: Soil/Clay

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

EPA SAMPLE NO.

1

B-6-E

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 83.8 Lab Sample ID: 9860 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.19			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	251			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown/Dark Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 82.7 Lab Sample ID: 9859 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.21			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	148			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown/Dark Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

EPA SAMPLE NO.

1

B-7-N

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 85.2 Lab Sample ID: 9861 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.00	U		A
7440-70-2	Calcium				
7440-47-3	Chromium	104			F
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown/Gray Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 89.8 Lab Sample ID: 9862 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.11			A
7440-70-2	Calcium				
7440-47-3	Chromium	50.1			F
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: Texture: Soil with Clay

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 86.4 Lab Sample ID: 9863 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.31			A
7440-70-2	Calcium				
7440-47-3	Chromium	359			F
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Yellow/Gray/Brown Clarity Before: Texture: Clay

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 84.4 Lab Sample ID: 9864 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.18			A
7440-70-2	Calcium				
7440-47-3	Chromium	16.4			F
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown/Dark Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 81.5 Lab Sample ID: 9865 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	38.3			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown Clarity Before: Texture: Sandy Soil/Clay

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

1

EPA SAMPLE NO.

B-11-S

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 81.0 Lab Sample ID: 9866 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	214			AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

EPA SAMPLE NO.

1

B-11-E

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 81.8 Lab Sample ID: 9867 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	64.5			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Black/Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 77.3 Lab Sample ID: 9868 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	49.8			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light/Dark Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 68.3 Lab Sample ID: 9869 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	26.1			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 83.6 Lab Sample ID: 9870 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	75.9			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 84.9 Lab Sample ID: 9871 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	55.9			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: Texture: Soil/Clay

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 81.7 Lab Sample ID: 9872 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	141			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 90.4 Lab Sample ID: 9873 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.11			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Orange/Dark Brown Clarity Before: Texture: Clay/Soil

Color After: Clarity After: Artifacts:

Comments: Sample contained rocks and glass.

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 85.8 Lab Sample ID: 9874 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Berylium				
7440-43-9	Cadmium	1.17			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Sandy Soil/Rock Chip

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 95.7 Lab Sample ID: 9875 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.09			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Gray/Black/ Brown Clarity Before: Texture: Clay

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 85.8 Lab Sample ID: 9876 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.18			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Soil/Clay

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 83.9 Lab Sample ID: 9877 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.38			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	560			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	17.9		MSA	Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown Clarity Before: Texture: Sandy Clay/Soil

Color After: Clarity After: Artifacts:

Comments:

EPA SAMPLE NO.

B-16-S

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 81.0 Lab Sample ID: 9878 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.23			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	81.5			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	352			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown/Black/ Orange Clarity Before: Texture: Soil/Rock

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 84.3 Lab Sample ID: 9879 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	3.56			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	183			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	106			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Black Clarity Before: Texture: Soil/Filter Pads

Color After: Clarity After: Artifacts:

Comments: Sample has a slightly oily smell

US EPA - CLP

EPA SAMPLE NO.

1

B-16-W

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 77.0 Lab Sample ID: 9880 Date Received: 11/26/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.60			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	63.6			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	~~.406~~		+	Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Black Clarity Before: Texture: Sandy Soil

Color After: Clarity After: Artifacts:

Comments: Sample has a oily and wet wood odor

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 85.3 Lab Sample ID: 9881 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	296			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown/Orange Clarity Before: Texture: Soil/Chips

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 81.8 Lab Sample ID: 9882 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	110			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Dark Brown/Orange Clarity Before: Texture: Soil/Clay/Rocks

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 80.5 Lab Sample ID: 9884 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	6.52			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Light Brown/Red Clarity Before: Texture: Clay

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

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EPA SAMPLE NO.

B-17-W

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 83.1 Lab Sample ID: 9883 Date Received: 11/22/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	229			Av
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown/Orange Clarity Before: Texture: Soil/Rocks

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med. % Solids: 74.2 Lab Sample ID: 9885 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.35			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	97.7			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Black/Gray/ White Clarity Before: Texture: Soil/Rocks

Color After: Clarity After: Artifacts:

Comments:

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 81.9 Lab Sample ID: 9886 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.22			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	708			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown/Gray/ Black Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

1

EPA SAMPLE NO.

B-19-E

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 80.3 Lab Sample ID: 9887 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight):Mg/Kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.25			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	305			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Orange/Black Clarity Before: Texture: Soil

Color After: Clarity After: Artifacts:

Comments:

US EPA - CLP

EPA SAMPLE NO.

1

B-19-W

INORGANICS ANALYSIS DATA SHEET

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix: (soil/water) Soil Level: (low/med) Med % Solids: 83.6 Lab Sample ID: 9888 Date Received: 11/25/91

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.20			A
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	60.8			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Orange/Black Clarity Before: Texture: Rock/Soil

Color After: Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Initial Calibration Source: EPA/NBS STD

Continuing Calibration Source: EPA/NBS STD

Concentration Units (ug/L or mg/kg dry weight): ug/L

Analyte	Initial Calibration			Continued Calibration					M
	True	Found	%R (1)	True	Found	%R (1)	Found	%R (1)	
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium	1010	1040	103	1010	1040	103	1050	104	A
Calcium									
Chromium	67	62	93	67	68	101			F
Cobalt									
Copper									
Iron									
Lead	51	54	106	51	56	110	49	96	F
Magnesium									
Manganese									
Mercury	2.88	2.76	96	2.88	2.76	96	2.58	90	Av
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B

CRDL STANDARD FOR AA AND ICP

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

AA CRDL Standard Source: Fisher Scientific

ICP CRDL Standard Source:

Concentration Units (ug/L or mg/kg dry weight): ug/L

Analyte	CRDL Standard for AA		
	True	Found	%R (1)
Aluminum			
Antimony			
Arsenic			
Barium			
Beryllium			
Cadmium	10	10	100
Calcium			
Chromium	10	10	100
Cobalt			
Copper			
Iron			
Lead	5	5	100
Magnesium			
Manganese			
Mercury			
Nickel			
Potassium			
Selenium			
Silver			
Sodium			
Thallium			
Vanadium			
Zinc			
Cyanide			

CRDL Standard for ICP				
	Initial		Final	
True	Found	%R (1)	Found	%R (1)

U.S. EPA - CLP

3

BLANKS

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

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	Preparation Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium	10	u	10	u	10	u	10	u	10	u	A
Calcium											
Chromium	2	u	2	u					2	u	F
Cobalt											
Copper											
Iron											
Lead	2	u	2	u	2	u	2	u	2	u	F
Magnesium											
Manganese											
Mercury	.2	u	.2	u	.2	u	.2	u	.2	u	AV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

U.S. EPA - CLP

5A

EPA SAMPLE NO.

B-7-S

SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med % Solids For Sample: 89.8

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium	75-125	80.2		50.1		27.8	108		F
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

5A

B-16-N

SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med % Solids For Sample: 83.9

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium	75-125	123		2.38		119	101		A
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	75-125	560		560		5.95	0		F
Magnesium									
Manganese									
Mercury	75-125	66.7		47.7		2.98	638		AV
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Comments: Analytical spike performed on sample B-16-N for lead and mercury.

U.S. EPA - CLP

5A

EPA SAMPLE NO.

B-16-W

SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med % Solids For Sample: 77.0

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium	75-125	134		2.60		130	101		A
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	75-125	76.6		63.6		6.49	200		F
Magnesium									
Manganese									
Mercury	75-125	4680		552		3.25	127,000		AV
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Comments: Analytical spike performed on sample B-16-W for lead and mercury.

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-4-N

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	138		88		50	100		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-4-S

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	104		50		50	108		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-4-E

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	116		72		50	88		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-4-W

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	80		34		50	92		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-6-N

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	82		38		50	88		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-6-S

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	110		58		50	104		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-6-E

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	72		21		50	102		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-6-W

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	70		24		50	92		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-7-N

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium	85-115	88		36		50	104		F
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-7-E

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium	85-115	112		62		50	100		F
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-7-W

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium	85-115	92		35		50	114		F
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-16-N

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	94		49		50	90		F
Magnesium									
Manganese									
Mercury	85-115	17.9		5.8		10.0	121		AV
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

Comments: Standard additions performed on sample B-16-N for mercury.

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-16-S

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	80		33		50	94		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

Comments:

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-16-E

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	134		77		50	114		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-16-W

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	98		49		50	98		F
Magnesium									
Manganese									
Mercury	85-115	7.74		1.73		10	60		Av
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

Comments: Standard additions performed on sample B-16-W for mercury.

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-19-N

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	116		72		50	88		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-19-S

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	106		58		50	96		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

5B

B-19-E

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	82		25		50	114		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

Comments:

U.S. EPA - CLP

5B

EPA SAMPLE NO.

B-19-W

POST DIGEST SPIKE SAMPLE RECOVERY

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	85-115	106		63		50	86		F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									

Comments:

DUPLICATE

EPA SAMPLE NO

B-7-S

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med % Solids For Sample: 90.1 % Solids For Duplicate: 89.5

Concentration Units : mg/kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium		50.1		60.1		18		F
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

Comments:

EPA SAMPLE NO

DUPLICATE

B-16-N

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med % Solids For Sample: 84.5 % Solids For Duplicate: 83.2

Concentration Units : mg/kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium	1.0	2.38		2.38		0		A
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead		560		613		9.0		F
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

Comments:

DUPLICATE

EPA SAMPLE NO

B-16-W

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Matrix (soil/water): Soil Level (low/med): Med % Solids For Sample: 77.0 % Solids For Duplicate: 76.2

Concentration Units : mg/kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium	1.0	2.60		2.60		0		A
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead		63.6		65.6		3.1		F
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

Comments:

LABORATORY CONTROL SAMPLE

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Solid LCS Source: ERA PPS-46

Aqueous LCS Source:

Analyte	Aqueous (ug/L)			Solid					
	True	Found	%R (1)	True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium				116	103		80	120	89
Calcium									
Chromium				87	100		80	120	115
Cobalt									
Copper									
Iron									
Lead				138	152		80	120	110
Magnesium									
Manganese									
Mercury				9.50	9.86		80	120	104
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

U.S. EPA - CLP

8

STANDARD ADDITION RESULTS*

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD		2 ADD		3 ADD		Final Conc.	r	Q
			CON	ADD	CON	ABS	CON	ABS			
B-16-N	Hg	2.5	50.0	5.5	100	10.5	200	17.5	30.0	.997	
B-16-W	Hg	2.5	~~1250~~	~~4.5~~	~~2500~~	~~11~~	~~5000~~	~~16.5~~	~~749~~	~~.982~~	+

* Mercury standard additions were measured in peak height, using a strip chart recorder.

13
PREPARATION LOG

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Method: Flame AA (EPA Method 3050)

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B-3-N	12/3/91	1.01	100
B-3-S	12/3/91	0.99	100
B-3-W	12/3/91	1.00	100
B-3-E	12/3/91	1.01	100
B-6-N	12/3/91	1.00	100
B-6-S	12/3/91	1.00	100
B-6-W	12/3/91	1.00	100
B-6-E	12/3/91	1.00	100
B-7-N	12/3/91	1.00	100
B-7-S	12/3/91	1.00	100
B-7-E	12/3/91	0.99	100
B-7-W	12/3/91	1.01	100
B-15-N	12/3/91	1.01	100
B-15-S	12/3/91	1.01	100
B-15-E	12/3/91	1.01	100
B-15-W	12/3/91	1.01	100
B-16-N	12/3/91	1.01	100
B-16-S	12/3/91	1.01	100
B-16-E	12/3/91	0.99	100
B-16-W	12/3/91	0.99	100
B-19-N	12/3/91	1.01	100
B-19-S	12/3/91	1.01	100
B-19-E	12/3/91	1.01	100
B-19-W	12/3/91	1.01	100

13
PREPARATION LOG

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Method: Furnace AA (EPA Method 3050)

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B-4-N	12/3/91	1.00	100
B-4-S	12/3/91	1.01	100
B-4-E	12/3/91	1.00	100
B-4-W	12/3/91	0.99	100
B-6-N	12/3/91	1.00	100
B-6-S	12/3/91	1.01	100
B-6-W	12/3/91	1.01	100
B-6-E	12/3/91	1.00	100
B-7-N	12/3/91	0.99	100
B-7-S	12/3/91	1.01	100
B-7-E	12/3/91	1.01	100
B-7-W	12/3/91	1.01	100
B-16-N	12/3/91	1.01	100
B-16-S	12/3/91	1.00	100
B-16-E	12/3/91	1.01	100
B-16-W	12/3/91	1.01	100
B-19-N	12/3/91	0.99	100
B-19-S	12/3/91	1.01	100
B-19-E	12/3/91	0.99	100
B-19-W	12/3/91	0.99	100

13
PREPARATION LOG*

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Method: Mercury - Cold Vapor (EPA Method 7471)

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B-4-N	12/4/91	0.2	100
B-4-S	12/9/91	0.2	100
B-4-E	12/4/91	0.2	100
B-4-W	12/4/91	0.2	100
B-11-N	12/4/91	0.2	100
B-11-S	12/4/91	0.2	100
B-11-E	12/4/91	0.2	100
B-11-W	12/4/91	0.2	100
B-12-N	12/4/91	0.2	100
B-12-S	12/4/91	0.2	100
B-12-E	12/4/91	0.2	100
B-12-W	12/4/91	0.2	100
B-16-N	12/9/91	0.2	100
B-16-S	12/9/91	0.2	100
B-16-E	12/4/91	0.2	100
B-16-W	12/9/91	0.2	100
B-17-N	12/4/91	0.2	100
B-17-S	12/9/91	0.2	100
B-17-W	12/9/91	0.2	100
B-17-E	12/9/91	0.2	100

* All mercury samples digested in triplicate, per method 7471.

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements*					
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER
B-3-N	9849					X	
B-3-S	9850					X	
B-3-W	9851					X	
B-3-E	9852					X	
B-4-N	9853					X	
B-4-S	9854					X	
B-4-E	9855					X	
B-4-W	9856					X	
B-6-N	9857					X	
B-6-S	9858					X	
B-6-W	9859					X	
B-6-E	9860					X	
B-7-N	9861					X	
B-7-S	9862					X	
B-7-E	9863					X	
B-7-W	9864					X	
B-11-N	9865					X	
B-11-S	9866					X	
B-11-E	9867					X	
B-11-W	9868					X	
B-12-N	9869					X	
B-12-S	9870					X	
B-12-E	9871					X	

* Check Appropriate Boxes

* CLP, Non-CLP (please indicate year of protocol)
* HSL, Priority Pollutant

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements*					
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER
B-12-W	9872					X	
B-15-N	9873					X	
B-15-S	9874					X	
B-15-E	9875					X	
B-15-W	9876					X	
B-16-N	9877					X	
B-16-S	9878					X	
B-16-E	9879					X	
B-16-W	9880					X	
B-17-N	9881					X	
B-17-S	9882					X	
B-17-W	9883					X	
B-17-E	9884					X	
B-19-N	9885					X	
B-19-S	9886					X	
B-19-E	9887					X	
B-19-W	9888					X	

* Check Appropriate Boxes

* CLP, Non-CLP (please indicate year of protocol)
* HSL, Priority Pollutant

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Sample ID	Matrix	Metals Requested	Date Rec'd	Date Analyzed
B-3-N	Soil	Cadmium	11/22/91	12/8/91
B-3-S	Soil	Cadmium	11/22/91	12/8/91
B-3-W	Soil	Cadmium	11/22/91	12/8/91
B-3-E	Soil	Cadmium	11/22/91	12/8/91
B-4-N	Soil	Mercury, Lead	11/25/91	12/5/91 12/8/91
B-4-S	Soil	Mercury, Lead	11/25/91	12/5/91 12/8/91
B-4-E	Soil	Mercury, Lead	11/25/91	12/5/91 12/8/91
B-4-W	Soil	Mercury, Lead	11/25/91	12/5/91 12/8/91
B-6-N	Soil	Cadmium, Lead	11/22/91	12/8/91 12/8/91
B-6-S	Soil	Cadmium, Lead	11/22/91	12/8/91 12/16/91
B-6-W	Soil	Cadmium, Lead	11/22/91	12/8/91 12/9/91
B-6-E	Soil	Cadmium, Lead	11/22/91	12/8/91 12/9/91
B-7-N	Soil	Cadmium, Chromium	11/25/91	12/8/91 12/8/91
B-7-S	Soil	Cadmium, Chromium	11/25/91	12/8/91 12/8/91
B-7-E	Soil	Cadmium, Chromium	11/25/91	12/8/91 12/8/91
B-7-W	Soil	Cadmium, Chromium	11/25/91	12/8/91 12/8/91
B-11-N	Soil	Mercury	11/26/91	12/5/91
B-11-S	Soil	Mercury	11/26/91	12/5/91
B-11-E	Soil	Mercury	11/26/91	12/5/91
B-11-W	Soil	Mercury	11/26/91	12/5/91
B-12-N	Soil	Mercury	11/26/91	12/5/91
B-12-S	Soil	Mercury	11/26/91	12/5/91
B-12-E	Soil	Mercury	11/26/91	12/5/91
B-12-W	Soil	Mercury	11/26/91	12/5/91
B-15-N	Soil	Cadmium	11/25/91	12/8/91
B-15-S	Soil	Cadmium	11/25/91	12/8/91
B-15-E	Soil	Cadmium	11/25/91	12/8/91
B-15-W	Soil	Cadmium	11/25/91	12/8/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Sample ID	Matrix	Metals Requested	Date Rec'd	Date Analyzed
B-16-N	Soil	Cadmium, Lead, Mercury	11/26/91	12/8/91 12/16/91 12/10/91
B-16-S	Soil	Cadmium, Lead, Mercury	11/26/91	12/8/91 12/9/91 12/10/91
B-16-E	Soil	Cadmium, Lead, Mercury	11/26/91	12/8/91 12/5/91 12/9/91
B-16-W	Soil	Cadmium, Lead, Mercury	11/26/91	12/8/91 12/16/91 12/10/91
B-17-N	Soil	Mercury	11/22/91	12/5/91
B-17-S	Soil	Mercury	11/22/91	12/10/91
B-17-W	Soil	Mercury	11/22/91	12/10/91
B-17-E	Soil	Mercury	11/22/91	12/10/91
B-19-N	Soil	Cadmium, Lead	11/25/91	12/8/91 12/9/91
B-19-S	Soil	Cadmium, Lead	11/25/91	12/8/91 12/9/91
B-19-E	Soil	Cadmium, Lead	11/25/91	12/8/91 12/9/91
B-19-W	Soil	Cadmium, Lead	11/25/91	12/8/91 12/9/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9849	Soil	7130	3050	---	None
9850	Soil	7130	3050	---	None
9851	Soil	7130	3050	---	None
9852	Soil	7130	3050	---	None
9857	Soil	7130	3050	---	None
9858	Soil	7130	3050	---	None
9859	Soil	7130	3050	---	None
9860	Soil	7130	3050	---	None
9861	Soil	7130	3050	---	None
9862	Soil	7130	3050	---	None
9863	Soil	7130	3050	---	None
9864	Soil	7130	3050	---	None
9873	Soil	7130	7130	---	None
9874	Soil	7130	3050	---	None
9875	Soil	7130	3050	---	None
9876	Soil	7130	3050	---	None
9877	Soil	7130	3050	---	None
9878	Soil	7130	3050	---	None
9879	Soil	7130	3050	---	None
9880	Soil	7130	3050	---	None
9885	Soil	7130	3050	---	None
9886	Soil	7130	3050	---	None
9887	Soil	7130	3050	---	None
9888	Soil	7130	3050	---	None

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9853	Soil	7421	3050	$La(NO_3)_2$	1:50
9854	Soil	7421	3050	$La(NO_3)_2$	1:20
9855	Soil	7421	3050	$La(NO_3)_2$	1:10
9856	Soil	7421	3050	$La(NO_3)_2$	1:50
9857	Soil	7421	3050	$La(NO_3)_2$	1:50
9858	Soil	7421	3050	$La(NO_3)_2$	1:500
9859	Soil	7421	3050	$La(NO_3)_2$	1:50
9860	Soil	7421	3050	$La(NO_3)_2$	1:100
9877	Soil	7421	3050	$La(NO_3)_2$	1:100
9878	Soil	7421	3050	$La(NO_3)_2$	1:20
9879	Soil	7421	3050	$La(NO_3)_2$	1:20
9880	Soil	7421	3050	$La(NO_3)_2$	1:10
9885	Soil	7421	3050	$La(NO_3)_2$	1:10
9886	Soil	7421	3050	$La(NO_3)_2$	1:100
9887	Soil	7421	3050	$La(NO_3)_2$	1:100
9888	Soil	7421	3050	$La(NO_3)_2$	1:8

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9861	Soil	7191	3050	$Mg(NO_3)_2$	1:25
9862	Soil	7191	3050	$Mg(NO_3)_2$	1:10
9863	Soil	7191	3050	$Mg(NO_3)_2$	1:50
9864	Soil	7191	3050	$Mg(NO_3)_2$	1:4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9853 #1	Soil	7471	7471	---	1:100
9853 #2	Soil	7471	7471	---	1:100
9853 #3	Soil	7471	7471	---	1:100
9854 #1	Soil	7471	7471	---	None
9854 #2	Soil	7471	7471	---	None
9854 #3	Soil	7471	7471	---	None
9855 #1	Soil	7471	7471	---	1:100
9855 #2	Soil	7471	7471	---	1:100
9855 #3	Soil	7471	7471	---	1:100
9856 #1	Soil	7471	7471	---	None
9856 #2	Soil	7471	7471	---	None
9856 #3	Soil	7471	7471	---	None
9865 #1	Soil	7471	7471	---	1:25
9865 #2	Soil	7471	7471	---	1:4
9865 #3	Soil	7471	7471	---	1:8
9866 #1	Soil	7471	7471	---	1:100
9866 #2	Soil	7471	7471	---	1:100
9866 #3	Soil	7471	7471	---	1:100
9867 #1	Soil	7471	7471	---	1:100
9867 #2	Soil	7471	7471	---	1:8
9867 #3	Soil	7471	7471	---	1:8
9868 #1	Soil	7471	7471	---	1:10
9868 #2	Soil	7471	7471	---	1:10
9868 #3	Soil	7471	7471	---	1:10
9869 #1	Soil	7471	7471	---	1:10
9869 #2	Soil	7471	7471	---	1:10
9869 #3	Soil	7471	7471	---	1:10
9870 #1	Soil	7471	7471	---	1:25
9870 #2	Soil	7471	7471	---	1:25
9870 #3	Soil	7471	7471	---	1:25

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9871 #1	Soil	7471	7471	—	1:25
9871 #2	Soil	7471	7471	—	1:25
9871 #3	Soil	7471	7471	—	1:25
9872 #1	Soil	7471	7471	—	1:25
9872 #2	Soil	7471	7471	—	1:25
9872 #3	Soil	7471	7471	—	1:25
9877 #1	Soil	7471	7471	—	1:20
9877 #2	Soil	7471	7471	—	1:40
9877 #3	Soil	7471	7471	—	1:20
9878 #1	Soil	7471	7471	—	1:40
9878 #2	Soil	7471	7471	—	1:100
9878 #3	Soil	7471	7471	—	1:100
9879 #1	Soil	7471	7471	—	1:25
9879 #2	Soil	7471	7471	—	1:25
9879 #3	Soil	7471	7471	—	1:25
9880 #1	Soil	7471	7471	—	1:500
9880 #2	Soil	7471	7471	—	1:500
9880 #3	Soil	7471	7471	—	1:500
9881 #1	Soil	7471	7471	—	1:50
9881 #2	Soil	7471	7471	—	1:100
9881 #3	Soil	7471	7471	—	1:200
9882 #1	Soil	7471	7471	—	1:50
9882 #2	Soil	7471	7471	—	1:25
9882 #3	Soil	7471	7471	—	1:50
9883 #1	Soil	7471	7471	—	1:100
9883 #2	Soil	7471	7471	—	1:100
9883 #3	Soil	7471	7471	—	1:100
9884 #1	Soil	7471	7471	—	1:4
9884 #2	Soil	7471	7471	—	1:10
9884 #3	Soil	7471	7471	—	1:3

APPENDIX A

CHAINS OF CUSTODY

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: LURN/TORS HARRIES

SAMPLER'S SIGNATURE: Mark Schweppe

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO_3	H_2SO_4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/22/91	10^00 AM - 1^30 PM	B-3-N	✓		SOIL	✓								SW846 TOTAL CADMIUM METHOD 7000
		B-3-S	✓		"	✓								"
		B-3-W	✓		"	✓								"
		B-3-E	✓		"	✓								"
		B-17	✓		"	✓								EP TOX - MERCURY
		B-17-N	✓		"	✓								SW846 METHOD 7000 - TOTAL MERCURY
		B-17-S	✓		"	✓								"
		B-17-W	✓		"	✓								"
		B-17-E	✓		"	✓								"
		B-6	✓		"	✓								EP TOX - CADMIUM, LEAD
		B-6-N	✓		"	✓								SW846 METHOD 7000 - TOTAL LEAD + CADMIUM
		B-6-S	✓		"	✓								"
		B-6-W	✓		"	✓								"
		B-6-E	✓		"	✓								"

TOTAL NUMBER OF CONTAINERS: 17

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

1. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
Mark Schweppe	11/22/91	1^45 PM	
2. RELINQUISHED BY:	**DATE**	**TIME**	**RECEIVED BY:**
3. RELINQUISHED BY:	**DATE**	**TIME**	**RECEIVED BY:**

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA / TODS HARBOR

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: EIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO_3	H_2SO_4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/25/91		B-19	✓		SOIL	✓							1	*EPTOX - CADMIUM, LEAD
		B-19-N	✓		"	✓							1	METHOD 7000 - TOTAL CADMIUM, LEAD
		B-19-S	✓		"	✓							1	"
		B-19-E	✓		"	✓							1	"
		B-19-W	✓		"	✓							1	"
		B-15	✓		"	✓							1	*EPTOX - CADMIUM
		B-15-N	✓		"	✓							1	METHOD 7000 - TOTAL CADMIUM
		B-15-S	✓		"	✓							1	"
		B-15-E	✓		"	✓							1	"
		B-15-W	✓		"	✓							1	"
		B-7	✓		"	✓							1	*EPTOX - CADMIUM, ~~LEAD~~ CR
		B-7-N	✓		"	✓							1	METHOD 7000 - CADMIUM, ~~LEAD~~ CR
	S	B-7-S	✓		"	✓							1	" "
		B-7-E	✓		"	✓							1	" "
		B-7-W	✓		"	✓							1	" "

TOTAL NUMBER OF CONTAINERS: 15

Rec'd cold 11-25-91

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark Schwippert	11/25/91	4:25 P	Colleen J Wilson
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA - TOPS MARKETS

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO_3	H_2SO_4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/25/91		B-4	✓		SOIL	✓							1	*EPTOX - LEAD, MERCURY
		B-4-N	✓		"	✓								METHOD 7000 TOTAL LEAD, MERCURY
		B-4-S	✓		"	✓								"
		B-4-E	✓		"	✓								"
		B-4-W	✓		"	✓								"

TOTAL NUMBER OF CONTAINERS (5)

Rec'd cold 11-25-91

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark Schwippert	11/25/91	4:23 P	Colleen A Sullivan
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA - TOPS N.F BLVD

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO_3	H_2SO_4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/26/91		B-11	✓		SOIL	✓								*EP TOX - MERCURY
		B-11-N	✓		"	✓								METHOD 7000 - TOTAL MERCURY
		B-11-S	✓		"	✓								"
		B-11-E	✓		"	✓								"
		B-11-W	✓		"	✓								"
		B-12	✓		"	✓								*EP TOX - MERCURY
		B-12-N	✓		"	✓								METHOD 7000 - TOTAL MERCURY
		B-12-S	✓		"	✓								"
		B-12-E	✓		"	✓								"
		B-12-W	✓		"	✓								"
		B-16	✓		"	✓								*EP TOX - MERCURY, CADMIUM, LEAD
	3	B-16-N	✓		"	✓								METHOD 7000 - MERCURY, CADMIUM, LEAD
		B-16-S	✓		"	✓								"
		B-16-E	✓		"	✓								"
	3	B-16-W	✓		"	✓								"
						TOTAL NUMBER OF CONTAINERS							15	

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark T. Schwippert	11-26-'91	11:30	
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

APPENDIX B

RAW DATA

PROJECT FIL % SOLIDS Notebook No. _____ 13

Continued From Page _____

Job	Sample	wt of tin	wt of tin+sample	wt of dry sample (only)	% solids	
FIL	9849	1.593	25.873	21.328	82.4	
	9850	1.602	25.644	21.209	84.7	
	9851	1.589	25.144	21.341	84.8	
	9852	1.596	25.415	20.647	81.2	
	9853	1.568	25.503	20.195	79.2	
	9854	1.575	25.319	21.022	83.0	
	9855	1.572	25.409	21.204	83.5	
	9856	1.577	25.131	21.340	84.9	
	9857	1.584	25.050	19.487	77.8	
	9858	1.581	25.774	21.964	85.2	
	9859	1.573	25.016	20.690	82.7	
	9860	1.585	25.733	21.552	83.8	
	9861	1.577	25.658	21.858	85.2	
	9862 #1	1.583	25.191	22.696	90.1	→ 89.5
	9862 #2	1.572	25.563	22.823	89.5	
	9863	1.581	25.013	21.614	86.4	
	9864	1.577	25.616	21.609	84.4	
	9873	1.568	25.149	22.723	90.4	
	9874	1.575	25.084	21.515	85.8	
	9875	1.579	25.331	24.238	95.7	
	9876	1.582	25.490	21.509	84.4	
	9877 #1	1.570	25.106	21.210	84.5	→ 83.2
	9877 #2	1.580	25.652	21.347	83.2	
	9878	1.580	25.360	20.553	81.0	
	9879	1.574	25.413	21.432	84.3	
	9880 #1	1.571	25.720	20.015	77.8	→ 77.1
	9880 #2	1.563	25.010	19.060	76.2	
	9885	1.561	25.312	18.777	74.2	
	9886	1.572	25.329	20.754	81.9	
	9887	1.580	25.474	20.446	80.3	
	9888	1.580	25.449	21.270	83.6	

Continued on Page

Read and Understood By

Signed _____ Date 12-3-91 Signed _____ Date _____

PROJECT FIL % SOLIDS

Notebook No. _____

Continued From Page _____

JOB	SAMPLE	WT OF FIN	WT of sample	wt of dry sample only	%SOLID
FIL	9865	1.583	25.222	20.564	81.5
	9866	1.582	25.046	20.284	81.0
	9867	1.589	25.523	20.871	81.8
	9868	1.581	25.301	19.548	77.3
	9869	1.582	25.045	17.095	68.3
	9870	1.583	25.089	20.964	83.6
	9871	1.573	25.256	21.436	84.9
	9872	1.575	25.513	20.856	81.7
	9881	1.574	25.024	21.354	85.3
	9882	1.583	25.371	20.755	81.8
	9883	1.588	25.027	20.792	83.1
	9884	1.577	25.588	20.605	80.5

Continued on Page

Read and Understood By

DWJ — Signed

12-3-91 — Date

_____ — Signed

_____ — Date

ADVANCED ENVIRONMENTAL SERVICES
RUN REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

Analyst : MELISSA
Date : 12-08-1991
Time : 08:55:57
Range (mg/l): .04-2.00
Lamp setting: 5 W

EPA Method : 213.1
Element : CADMIUM
Wavelength : 228.8
Energy : 73
Slit setting : .7 H

OBSERVED	TYPE	JOB CODE	SAMPLE CD	QUALITY CNTRL
-0.000	CALIBRATING			
0.000AZ	CALIBRATING			
0.012	CALIBRATING			
0.05S1	CALIBRATING			
SENSITIVITY = 0.00				
0.448	CALIBRATING			
2.00S2	CALIBRATING			
1.05	CHK	STD		
Expected = 1.00			PERCENT RECOVERY ON REF STANDARD = 105.00	
0.52	CHK	STD		
Expected = 0.50			PERCENT RECOVERY ON REF STANDARD = 104.00	
0.01	CHK	CRDL		
Expected = 0.01			PERCENT RECOVERY ON REF STANDARD = 100.00	
1.04	EPA	1085		
EPA X BAR = 1.01	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %102.97			
0.00	BLK	LAB		
0.00	ORIGINAL	BLK	3010	
0.000	ORIGINAL	FIL	9839	.999
0.054	ORIGINAL	FIL	9839	
0.110	ORIGINAL	FIL	9839	BQL
0.217	ORIGINAL	FIL	9839	
0.001	ORIGINAL	FIL	9841	.999
0.055	ORIGINAL	FIL	9841	
0.111	ORIGINAL	FIL	9841	BQL
0.214	ORIGINAL	FIL	9841	
0.001	ORIGINAL	FIL	9842	
0.054	ORIGINAL	FIL	9842	.999
0.107	ORIGINAL	FIL	9842	
0.214	ORIGINAL	FIL	9842	BQL
0.01	ORIGINAL	FIL	9842	
0.01	DUPLICATE	FIL	9842	
				REL % DIFF = 0.00
0.96 Digestion	SPIKE	FIL	9842	
SPIKE ADDED = 1			% RECOVERY = 95.00	
0.00	ORIGINAL	BLK	3010	
0.000	ORIGINAL	FIL	9845	.999
0.057	ORIGINAL	FIL	9845	
0.109	ORIGINAL	FIL	9845	BQL
0.209	ORIGINAL	FIL	9845	
0.000	ORIGINAL	FIL	9846	.999
0.053	ORIGINAL	FIL	9846	
0.105	ORIGINAL	FIL	9846	BQL
0.207	ORIGINAL	FIL	9846	
0.01	ORIGINAL	FIL	9846	
0.94 Digestion	SPIKE	FIL	9846	
SPIKE ADDED = 1			% RECOVERY = 93.00	

0.00	ORIGINAL	BLK	3010	
.000	ORIGINAL	FIL	9845	.999
0.057	ORIGINAL	FIL	9845	
0.109	ORIGINAL	FIL	9845	BQL
0.209	ORIGINAL	FIL	9845	
0.000	ORIGINAL	FIL	9846	.999
0.053	ORIGINAL	FIL	9846	
0.105	ORIGINAL	FIL	9846	BQL
0.207	ORIGINAL	FIL	9846	
0.01	ORIGINAL	FIL	9846	
0.94 Digestion	SPIKE	FIL	9846	
SPIKE ADDED = 1			% RECOVERY = 93.00	
0.000	ORIGINAL	FIL	9848	
0.052	ORIGINAL	FIL	9848	.999
0.102	ORIGINAL	FIL	9848	BQL
0.206	ORIGINAL	FIL	9848	
0.00	ORIGINAL	BLK	3050	
1.03	CLP	REF		
0.01	ORIGINAL	FIL	9849	
0.01	ORIGINAL	FIL	9850	
0.01	ORIGINAL	FIL	9851	
0.01	ORIGINAL	FIL	9852	
0.00	BLK	LAB		
1.04	EPA	1085		
EPA X BAR = 1.01	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %102.97			
0.01	ORIGINAL	FIL	9857	
0.01	ORIGINAL	FIL	9858	
0.01	ORIGINAL	FIL	9859	
0.01	ORIGINAL	FIL	5860	
0.00	ORIGINAL	FIL	9861	
0.01	ORIGINAL	FIL	9862	
0.02	ORIGINAL	FIL	9863	
0.01	ORIGINAL	FIL	9864	
0.01	ORIGINAL	FIL	9873	
0.01	ORIGINAL	FIL	9874	
0.01	DUPLICATE	FIL	9874	
			REL % DIFF =	0.00
1.02	SPIKE	FIL	9874	
SPIKE ADDED = 2			% RECOVERY = 101.50	
0.00	BLK	LAB		
1.06	EPA	1085		
EPA X BAR = 1.01	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %104.95			
0.02	ORIGINAL	FIL	9875	
0.01	ORIGINAL	FIL	9876	
0.02	ORIGINAL	FIL	9877	
0.02	DUPLICATE	FIL	9877	
			REL % DIFF =	0.00
1.03 Digestion	SPIKE	FIL	9877	
SPIKE ADDED = 1			% RECOVERY = 101.00	
0.01	ORIGINAL	FIL	9878	
0.03	ORIGINAL	FIL	9879	
0.02	ORIGINAL	FIL	9880	
0.02	DUPLICATE	FIL	9880	
			REL % DIFF =	0.00
1.03 Digestion	SPIKE	FIL	9880	
SPIKE ADDED = 1			% RECOVERY = 101.00	
0.01	ORIGINAL	FIL	9885	
0.01	ORIGINAL	FIL	9886	
0.01	ORIGINAL	FIL	9887	
0.01	ORIGINAL	FIL	9888	
0.00	BLK	LAB		
1.05	EPA	1085		
EPA X BAR = 1.01	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %103.96			

RUN REPORT

ATOMIC SPECTROSCOPY DEPARTMENT

Perkin-Elmer 5100 - Zeeman Background

Analyst : CAROL
Date : 12-06-1991
Time : 11:19:16
Range (mg/l): 0.100
Lamp setting: 25 MA

EPA Method : 218.2
Element : CR
Wavelength : 357.9
Energy : 67
Slit setting : 0.7 L

OBSERVED	TYPE	JOB CODE	SAMPLE ID	QUALITY CNTRL
-0.000	CALIBRATING			
0.000AZ	CALIBRATING			
0.432	CALIBRATING			
0.100S1	CALIBRATING			
SENSITIVITY = 0.00				
0.016	CALIBRATING			
0.002S2	CALIBRATING			
~~0.026~~	~~CALIBRATING~~	omit 12-8-91 cd		
0.062	EPA	378		
EPA X BAR = 0.057		PERCENT RECOVERY ON EPA STANDARD OBSERVED = 92.54		
-0.001	BLK	LAB		
1.048	CHK	STD		
Expected = 1.050			PERCENT RECOVERY ON REF STANDARD = 99.80	
~~1.026~~	~~CALIBRATING~~	omit 12-8-91 cd		
~~0.010~~	~~CCDL~~ CCDL 12-7-91 cd	STD		
0.050	CHK	LCS		
Expected = 0.044			PERCENT RECOVERY ON REF STANDARD = 113.64	
0.025	CHK	STD		
Expected = 0.025			PERCENT RECOVERY ON REF STANDARD = 100.00	
-0.001	ORIGINAL	BLK	3050	
0.398C	ORIGINAL	FIL	7061	
0.035	ORIGINAL	FIL	9861	
SAMPLE DILUTED 1:25				
ACTUAL CONCENTRATION		= .875	Avg= 0.888	
0.036	ORIGINAL	FIL-D	9861	%RD=2.8
SAMPLE DILUTED 1:25				
ACTUAL CONCENTRATION		= .9		
0.044	ORIGINAL	FIL-S	9861	%Rec=106
0.371C	ORIGINAL	FIL 12-8-91 cd	9862	
0.045	ORIGINAL	FIL	9862	
SAMPLE DILUTED 1:10				
ACTUAL CONCENTRATION		= .45	Avg= 0.495	
0.054	ORIGINAL	FIL-D*	9862	%RD=18
SAMPLE DILUTED 1:10				
ACTUAL CONCENTRATION		= .54		
0.072	ORIGINAL	FIL-S*	9862	%Rec=108
0.430C	ORIGINAL	FIL	9863	
0.060	ORIGINAL	FIL	9863	
SAMPLE DILUTED 1:50				
ACTUAL CONCENTRATION		= 3		
0.064	ORIGINAL	FIL-D	Avg= 3.1	%RD=6.4
SAMPLE DILUTED 1:50				
ACTUAL CONCENTRATION		= 3.2		

*indicates a digested spike or duplicate

0.050 CHK LCS PERCENT RECOVERY ON REF STANDARD = 113.
nected = 0.04 STD
0.025 CHK PERCENT RECOVERY ON REF STANDARD = 100.00
pected = 0.025 305
0.001 ORIGINAL BLK

*indicates a digested, spike or duplicate

0.298C ORIGINAL FIL 70
0.035 ORIGINAL FIL 12
SAMPLE DILUTED 1:25
ACTUAL CONCENTRATION
0.036 ORIGINAL = .875 Avg= 0.888 98
SAMPLE DILUTED 1:25 FIL-D %RD=2.8
ACTUAL CONCENTRATION = .9
0.044 ORIGINAL FIL-S 78 %Rec=106

12-8-91 cd
0.271C ORIGINAL FIL 98
0.045 ORIGINAL FIL 98
SAMPLE DILUTED 1:10
ACTUAL CONCENTRATION = .45 Avg= 0.495
0.054 ORIGINAL FIL-D %RD=18
SAMPLE DILUTED 1:10
ACTUAL CONCENTRATION = .54
0.072 ORIGINAL FIL-S* 95 %Rec=108

0.420C ORIGINAL FIL 9
0.060 ORIGINAL FIL 9
SAMPLE DILUTED 1:5
ACTUAL CONCENTRATION = 3
0.064 ORIGINAL FIL-D Avg= 3.1 %RD=6.4
SAMPLE DILUTED 1:5
ACTUAL CONCENTRATION = 3.2
0.056 ORIGINAL FIL-S %Rec=104

0.140C ORIGINAL FIL-D
0.034 ORIGINAL FIL
SAMPLE DILUTED 1:4
ACTUAL CONCENTRATION = .136 Avg= 0.138
0.035 ORIGINAL FIL-D %RD=2.9
SAMPLE DILUTED 1:4
ACTUAL CONCENTRATION = .14
0.046 ORIGINAL FIL-S %Rec=115

0.068 EPA 37
EPA X BAR = 0.067 PERCENT RECOVERY ON STANDARD OBSERVED = %101.49
-0.000 SLP LAB

ATOMIC SPECTROSCOPY DEPARTMENT Perkin Elmer 5100 Zeeman Background

Analyst : CAROL
Date : 12-08-1991
Time : 08:21:41
Range (mg/l): 5-100
Lamp setting: 10 W

Wavelength : 239.2
Element : LEAD
Wavelength : 283.3
Slit : 44
Fuel setting : 0.7 L

OBSERVED	TYPE	JOB CODE	SAMPLE ID	QUALITY CNTRL
-0.001	CALIBRATING			
0.000 AZ	CALIBRATING			
0.180	CALIBRATING			
0.10081	CALIBRATING			
SENSITIVITY = 0.00				
0.308	CALIBRATING			
0.30282	CALIBRATING			
0.054	EPA	1085		
EPA X BAR = 0.051	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %105.88			
-0.001	BLK	LAB		
0.048	CHK	STD		
Expected = 0.050			PERCENT RECOVERY ON REF STANDARD = 96.00	
0.024	CHK	STD		
Expected = 0.025			PERCENT RECOVERY ON REF STANDARD = 96.00	
0.005	~~MDL~~ CAROL 12-12-91	STD		
0.076	CHK	LCS		
Expected = 0.069			PERCENT RECOVERY ON REF STANDARD = 110.14	
0.054	EPA	378		
EPA X BAR = 0.063	PERCENT RECOVERY ON EPA STANDARD OBSERVED = 85.71			
-0.001	ORIGINAL	BLK	3050	
0.440C	ORIGINAL	~~FIL~~ FIL	9853	
0.081	ORIGINAL	~~FIL~~ FIL	9853	
SAMPLE DILUTED 1:50				
ACTUAL CONCENTRATION		= 4.05		
0.083	ORIGINAL 12-8-91 cd	~~FIL~~ FIL-D	9853	% RD=2.4
SAMPLE DILUTED 1:50		Avg= 4.1		
ACTUAL CONCENTRATION		= 4.15		
0.093	ORIGINAL	~~FIL~~ FIL-S	9853	% Rec=105
0.386 C	ORIGINAL	~~FIL~~ FIL	9854	
0.049	ORIGINAL	~~FIL~~ FIL	9854	
SAMPLE DILUTED 1:20				
ACTUAL CONCENTRATION		= .98		
0.050	ORIGINAL	~~FIL~~ FIL-D	9854	% RD=2.0
SAMPLE DILUTED 1:20		Avg= Avg=0.99		
ACTUAL CONCENTRATION		= 1		
0.073	ORIGINAL	~~FIL~~ FIL-S	9854	% Rec= ~~96.5~~ 97 12-8-91 cd
0.276C	ORIGINAL	FIL	9855	
0.070	ORIGINAL	FIL	9855	
SAMPLE DILUTED 1:10				
ACTUAL CONCENTRATION		= .7		
0.073	ORIGINAL	FIL-D	9855	
SAMPLE DILUTED 1:10		Avg= 0.715		% RD=4.2
ACTUAL CONCENTRATION		= .73		
0.089	ORIGINAL	FIL-S	9855	% Rec= 108
0.414C	ORIGINAL	FIL	9856	

.001	ORIGINAL	BLK	3050	
.440C	ORIGINAL	~~FIL~~	9853	
.091	ORIGINAL	~~FIL~~	9853	
SAMPLE DILUTED 1:50				
ACTUAL CONCENTRATION		= 4.05	9853	
.083	ORIGINAL 12-8-91 cl	~~FIL-D~~ Avg = 4.1		% RD = 2.4
SAMPLE DILUTED 1:50		= 4.15	9853	
ACTUAL CONCENTRATION		~~FIL-S~~		% Rec = 105
0.093	ORIGINAL	~~FIL~~	9854	
0.386 C	ORIGINAL	~~FIL~~	9854	
0.049	ORIGINAL			
SAMPLE DILUTED 1:20				
ACTUAL CONCENTRATION		= .98	9854	
0.050	ORIGINAL	~~FIL-D~~ Avg = Avg = 0.99		% RD = 2.0
SAMPLE DILUTED 1:20		= 1		12-8-91 cl
ACTUAL CONCENTRATION			9854	% Rec = ~~96.5~~ 97
0.073	ORIGINAL	~~FIL-S~~ FIL-S		
0.276C	ORIGINAL	FIL	9855	
0.070	ORIGINAL	FIL	9855	
SAMPLE DILUTED 1:10				
ACTUAL CONCENTRATION		= .7	9855	
0.073	ORIGINAL	FIL-D Avg = 0.715		% RD = 4.2
SAMPLE DILUTED 1:10		= .73		
ACTUAL CONCENTRATION			9855	% Rec = 108
0.089	ORIGINAL	FIL-S		
0.414C	ORIGINAL	FIL	9856	
0.032	ORIGINAL	FIL	9856	
SAMPLE DILUTED 1:50				
ACTUAL CONCENTRATION		= 1.6	9856	
0.036	ORIGINAL	FIL-D Avg = 1.7		% RD = 11.8
SAMPLE DILUTED 1:50		= 1.8		
ACTUAL CONCENTRATION			9856	% Rec = 114
0.073	ORIGINAL	FIL-S		
0.412C	ORIGINAL	FIL	9857	
0.038	ORIGINAL	FIL	9857	
SAMPLE DILUTED 1:50				
ACTUAL CONCENTRATION		= 1.7	9857	
0.037	ORIGINAL	FIL-D Avg = 1.88		% RD = 2.6
SAMPLE DILUTED 1:50		= 1.95		
ACTUAL CONCENTRATION			9857	% Rec = 88
0.041	ORIGINAL	FIL-S		
0.069	ORIGINAL	FIL-S * spikes re done w/ 0.050 mid-range std	9857	% Rec = 114
0.052	ORIGINAL	FIL-S	9857	% Rec = 110
0.058	ORIGINAL	FIL-S	9857	% Rec = 92
0.040	ORIGINAL	FIL-S	9857	% Rec = 96
0.053	SPK	1085		
IPA % BAR [illegible]		[illegible] RETRIEVED ON FDY [illegible] REPORT (RECOVERY) = %103.4		
0.001	BLK	85		

ADVANCED ENVIRONMENTAL SERVICES
RUN REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

Perkin Elmer 5,000
Zeeman Background

Analyst : CAROL
Date : 12-09-1991
Time : 15:19:35
Range (mg/l): 5-100
Lamp setting: 10 W

EPA Method : 239.2
Element : LEAD
Wavelength : 283.3
Energy : 50
Slit setting : 0.7 L

OBSERVED	TYPE	JOB CODE	SAMPLE ID	QUALITY CNTRL
0.000	CALIBRATING			
0.000AZ	CALIBRATING			
0.173	CALIBRATING			
0.100S1	CALIBRATING			
SENSITIVITY = 0.00				
0.005	CALIBRATING			
0.002S2	CALIBRATING			
0.051	EPA	1085		
EPA X BAR = 0.051		PERCENT RECOVERY ON EPA STANDARD OBSERVED = %100.00		
0.001	BLK	LAB		
0.050	CHK	STD		
Expected = 0.050				PERCENT RECOVERY ON REF STANDARD = 100.0
0.024	CHK	STD		
Expected = 0.025				PERCENT RECOVERY ON REF STANDARD = 96.0
0.005	~~MBL~~ CRDL	STD		
0.071	CHK CO 12-17-91	LCS		
Expected = 0.069				PERCENT RECOVERY ON REF STANDARD = 102.9
0.001	ORIGINAL	BLK	3050	
0.821C	ORIGINAL	FIL	9858	
0.077	ORIGINAL 12-9-91	FIL	9858	
SAMPLE DILUTED	~~1:800~~ CO	30.8 12-9-91 CO		
ACTUAL CONCENTRATION	1:400	= ~~30.8~~ } Avg		
0.072	ORIGINAL	FIL-D } 29.8	9858 % RD = 6.7	
SAMPLE DILUTED	1:400			
ACTUAL CONCENTRATION		= 28.8 }		
0.067	ORIGINAL	FIL-S	9858 % Rec = 114	
0.434C	ORIGINAL	FIL	9859	
0.023	ORIGINAL	FIL	9859	
SAMPLE DILUTED	1:50			
ACTUAL CONCENTRATION		= 1.15 } Avg = 1.22		
0.026	ORIGINAL	FIL-D }	9859 % RD = 12	
SAMPLE DILUTED	1:50			
ACTUAL CONCENTRATION		= 1.3 }		
0.035	ORIGINAL	FIL-S	9859 % Rec = 91	
0.633C	ORIGINAL	FIL-S	9860	
0.022	ORIGINAL	FIL-S	9860	
SAMPLE DILUTED	1:100			
ACTUAL CONCENTRATION		= 2.2 } Avg = 2.1		
0.020	ORIGINAL	FIL-D }	9860 % RD = 9.5	
SAMPLE DILUTED	1:100			
ACTUAL CONCENTRATION		= 2 }		
0.036	ORIGINAL	FIL-S	9860 % Rec = 100	

0.035	ORIGINAL	FIL-S	9859	% Rec = 91
0.633C	ORIGINAL	FIL-S	9860	
0.022	ORIGINAL	FIL-S	9860	
SAMPLE DILUTED 1:100				
ACTUAL CONCENTRATION		= 2.2		
0.020	ORIGINAL	FIL-D } Avg= 2.1	9860	% RD = 9.5
SAMPLE DILUTED 1:100				
ACTUAL CONCENTRATION		= 2		
0.036	ORIGINAL	FIL-S	9860	% Rec = 100
0.720C	ORIGINAL	FIL-S 12-9-91 CD	9877	
0.017	ORIGINAL	FIL-S	9877	
SAMPLE DILUTED 1:250				
ACTUAL CONCENTRATION		= 4.25		
0.018	ORIGINAL	FIL-D* } Avg= 4.38	9877	% RD = 5.7
SAMPLE DILUTED 1:250				
ACTUAL CONCENTRATION		= 4.5		
0.008	ORIGINAL	FIL-S*	9877 — unacceptable digestion spike	
0.035	ORIGINAL	FIL-S	9877	% Rec = 106
0.494 C	ORIGINAL	FIL	9878	
0.033	ORIGINAL	FIL	9878	
SAMPLE DILUTED 1:20				
ACTUAL CONCENTRATION		= .66		
0.033	ORIGINAL	FIL-D } Avg= 0.66	9878	% RD = 0
SAMPLE DILUTED 1:20				
ACTUAL CONCENTRATION		= .66		
0.040	ORIGINAL	FIL-S	9878	% Rec = 94
0.556C	ORIGINAL	FIL-S	9879	
0.078	ORIGINAL	FIL	9879	
SAMPLE DILUTED 1:20				
ACTUAL CONCENTRATION		= 1.56 } Avg= 1.54		
0.076	ORIGINAL 1:20	FIL-D ~~1.58~~ 1.52 12-9-91 CD	9879	% RD = 2.6
0.067	ORIGINAL	FIL-S	9879	% Rec = 112
0.308C	ORIGINAL	FIL-S	9880	
0.050	ORIGINAL	FIL	9880	
SAMPLE DILUTED 1:10				
ACTUAL CONCENTRATION				
0.053	ORIGINAL	FIL-D* } Avg= 0.515	9880	% RD = 5.8
SAMPLE DILUTED 1:10				
ACTUAL CONCENTRATION		= .53		
0.089	ORIGINAL	FIL-S*	9880	% Rec = 78
12-8-91 cd				
0.428C	~~ORIGINAL~~	~~FIL~~	9885	
0.072	ORIGINAL	FIL	9885	
SAMPLE DILUTED 1:10				
ACTUAL CONCENTRATION		= .72		
0.073	ORIGINAL	FIL-D } Avg= 0.725	9885	% RD = 1.4
SAMPLE DILUTED 1:10				
ACTUAL CONCENTRATION		= .73		
0.058	ORIGINAL	FIL-S	9885	% Rec = 88
0.668C	ORIGINAL	FIL	9886	
0.057	ORIGINAL	FIL	9886	
SAMPLE DILUTED 1:100				
ACTUAL CONCENTRATION		= 5.7		
0.059	ORIGINAL	FIL-D } Avg= 5.8	9886	% RD = 3.4
SAMPLE DILUTED 1:100				

SAMPLE DILUTED 1:20
ACTUAL CONCENTRATION = 1.56 } Avg= 1.54 9879 %RD= 2.6
0.076 ORIGINAL 1:20 FIL-D ~~1.58~~ 1.52 9879 % Rec= 112
0.067 ORIGINAL FIL-S 12-9-91 cd

0.308C ORIGINAL FIL-S 9880
0.050 ORIGINAL FIL 9880
SAMPLE DILUTED 1:10
ACTUAL CONCENTRATION
0.055 ORIGINAL FIL-D* } Avg= 0.515 9880 % RD = 5.8
SAMPLE DILUTED 1:10
ACTUAL CONCENTRATION = .53 }
0.089 ORIGINAL FIL-S* 9880 % Rec = 78

12-8-91 cd
0.428C ~~ORIG EXTRACT FAIL~~ FIL 9885
0.072 ORIGINAL FIL 9885
SAMPLE DILUTED 1:10
ACTUAL CONCENTRATION = .72 } Avg= 0.725
0.073 ORIGINAL FIL-D 9885 % RD = 1.4
SAMPLE DILUTED 1:10
ACTUAL CONCENTRATION = .73 }
0.058 ORIGINAL FIL-S 9885 % Rec = 88

0.668C ORIGINAL FIL 9886
0.057 ORIGINAL FIL 9886
SAMPLE DILUTED 1:100
ACTUAL CONCENTRATION = 5.7 } Avg= 5.8
0.059 ORIGINAL FIL-D 9886 % RD = 3.4
SAMPLE DILUTED 1:100
ACTUAL CONCENTRATION = 5.9 }
0.053 ORIGINAL FIL-S 9886 % Rec = 98

12-9-91 cd
0.689C ORIGINAL FIL ~~D~~ 9887
0.026 ORIGINAL FIL 9887
SAMPLE DILUTED 1:100
ACTUAL CONCENTRATION = 2.6 } Avg= 2.45
0.023 ORIGINAL FIL-D 9887 %RD = 12.2
SAMPLE DILUTED 1:100
ACTUAL CONCENTRATION = 2.3 }
0.041 ORIGINAL FIL-S 9887 % Rec = 112

* indicates a digested spike or duplicate

0.056 EPA 1085
EPA X BAR = 0.051 PERCENT RECOVERY ON EPA STANDARD OBSERVED = %109.8
-0.001 BLK LAB

0.334C ORIGINAL FIL 9888
0.063 ORIGINAL FIL 9888
SAMPLE DILUTED 1:8
ACTUAL CONCENTRATION = .504 } Avg= 0.508
0.064 ORIGINAL FIL-D 9888 % RD = 1.6
SAMPLE DILUTED 1:8
ACTUAL CONCENTRATION = .512 }
0.053 ORIGINAL FIL-S 9888 % Rec = 86

0.049 EPA 1085
EPA X BAR = 0.051 PERCENT RECOVERY ON EPA STANDARD OBSERVED = 96.08
0.001 BLK LAB

Perfin [illegible]
[illegible]

ADVANCED ENVIRONMENTAL SERVICES
RUN REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

Analyst : CAROL
Date : 12-16-1991
Time : 16:23:44
Range (mg/l): 5-100
Lamp setting: 10 W

EPA Method : 239.2
Element : LEAD
Wavelength : 283.3
Energy : 50
Slit setting : 0.7 L

OBSERVED	TYPE	JOB CODE	SAMPLE CD	QUALITY CNTRL
-0.000	CALIBRATING			
0.000 AZ	CALIBRATING			
0.282	CALIBRATING			
0.100S1	CALIBRATING			
SENSITIVITY = 0.00				
^.004	CALIBRATING			
.002S2	CALIBRATING			
0.051	EPA	1085		
EPA X BAR = 0.051		PERCENT RECOVERY ON EPA STANDARD OBSERVED = %100.00		
-0.000	BLK	LAB		
0.050	CHK	STD		
Expected = 0.050			PERCENT RECOVERY ON REF STANDARD = 100.00	
0.024	CHK	STD		
Expected = 0.025			PERCENT RECOVERY ON REF STANDARD = 96.00	
0.005	CRDL	STD		
0.060	CHK	LCS		
Expected = 0.069			PERCENT RECOVERY ON REF STANDARD = 86.96	
0.000	ORIGINAL	BLK	3050	
0.058	ORIGINAL	FIL	9858	
SAMPLE DILUTED 1:500				
ACTUAL CONCENTRATION		= 29		
0.058	ORIGINAL	FIL-D	9858 % RD=0	
SAMPLE DILUTED 1:500		Avg: 29		
ACTUAL CONCENTRATION		= 29		
0.055	ORIGINAL	FIL-S	9858 % Rec= 104	
0.049	ORIGINAL	FIL	9880	
SAMPLE DILUTED 1:100				
ACTUAL CONCENTRATION		= ~~4.9~~ 0.49		
050	ORIGINAL	FIL-D*	9880 % RD=2.0	
SAMPLE DILUTED 1:100		Avg= ~~4.95~~ 0.495		
ACTUAL CONCENTRATION		= ~~5~~ 0.50		
0.059	ORIGINAL	FIL-S*	9880 % Rec = 20	
0.049	ORIGINAL	FIL-S	9880 % Rec = 98	

* indicates a digested spike or dup

-0.000 CALIBRATING
0.000 AZ CALIBRATING
0.282 CALIBRATING
0.10051 CALIBRATING
SENSITIVITY = 0.00
0.004 CALIBRATING
0.00252 CALIBRATING
0.051 EPA
EPA X BAR = 0.051
-0.000 BLK
0.050 CHK
Expected = 0.050
0.024 CHK
Expected = 0.025
0.005 CRDL
0.060 CHK
Expected = 0.069

1085
PERCENT RECOVERY ON EPA STANDARD OBSERVED = %100.00

LAB
STD
PERCENT RECOVERY ON REF STANDARD = 100.00
STD
PERCENT RECOVERY ON REF STANDARD = 96.00
STD
LCS
PERCENT RECOVERY ON REF STANDARD = 86.96

0.000 ORIGINAL

BLK 3050

0.058 ORIGINAL
SAMPLE DILUTED 1:500
ACTUAL CONCENTRATION
0.058 ORIGINAL
SAMPLE DILUTED 1:500
ACTUAL CONCENTRATION
0.055 ORIGINAL

FIL 9858
= 29
FIL-D } Avg = 29
= 29
FIL-S

9858 % RD = 0
9858 % Rec = 104

0.049 ORIGINAL
SAMPLE DILUTED 1:10Ø
ACTUAL CONCENTRATION
0.050 ORIGINAL
SAMPLE DILUTED 1:10Ø
ACTUAL CONCENTRATION
0.059 ORIGINAL
0.049 ORIGINAL

FIL 9880
0.49
= 4.9
FIL-D* } Avg = 4.95 / 0.495
0.50
= 5
FIL-S*
FIL-S

9880 % RD = 2.0
9880 % Rec = 20
9880 % Rec = 98

* indicates a dilute spike or dup

0.047 ORIGINAL
SAMPLE DILUTED 1:100
ACTUAL CONCENTRATION
0.051 ORIGINAL
SAMPLE DILUTED 1:100
ACTUAL CONCENTRATION
0.047 ORIGINAL
0.047 ORIGINAL

FIL 9877
= 4.7
FIL-D* } Avg = 4.9
= 5.1
FIL-S*
FIL-S

9877 % RD = 8.2
9877 % Rec = 0
9877 % Rec = 94

0.000 BLK
0.055 EPA
EPA X BAR = 0.051

LAB
1085
PERCENT RECOVERY ON EPA STANDARD OBSERVED = %107.84

JOB	SAMPLE	PKT HGT	MERCURY PPB	MERCURY PPM	DIL	MERCURY mG/L	MERCURY mG/KG	QC
STD	0.010	25						
	0.005	13						
	0.003	7	.999					
	0.001	2						
	0.000	0						
NBS	#1	7	2.85	0.00285 x100 ÷ .2 = 1.44				99%
CCS	#	58	out of cal					
LCS	#1	15			1-1			
	#2	12	reanalized		1-1			
	#3	12			1-1			
	#1	19.5	778 ÷ 9.5		1-1			82%
	#2	19.5	778 ÷ 9.5		1-1			82%
	#3	95	reanalized		1-1			
	#3	21.5	8.57 ÷ 9.5		1-1			90%
FIL	9854#1	7.5	3.05	0.0031	—	0.0031	1.87	
	#2	13.5	5.42	0.0054	—	0.0054	3.25	
	#3	11.5	4.63	0.0046	—	0.0046	2.77	
FIL	9877#1	20.5	omit		1-20			
	#2	30	due to	over cal.	1-20			
	#3	14.5	5.42	0.0054 and screening	1-20	0.108	64.4	
	#3 Dig spk	13.5			1-20			
	#2	111			1-40			
	#3 A spk	225			1-20			
	#1	19	7.58	0.0076	1-20	0.152	90.6	
	#2	14	5.61	0.0056	1-40	0.224	133	
	#3	10	4.04	0.0040	1-20	0.080	47.7	
	Dig spk	14	5.61 ÷ [illegible]	0.0056	1-20	0.112	66.7	72%
	#3 A spk	23.5	9.36 x 2 = 18.72	0.0404	1-20			147%
FIL	9878#1	39	omit		1-20			
	#2	E02	due to		1-20			
	#3	79	over cal.		1-20			

Continued on Page 36

Read and Understood By

Signed _____ Date 12-10-91 Signed _____ Date _____

PROJECT 7471 Soil

Notebook No. _____

Continued From Page _____

JOB	SAMPLE	PKT HGT	MERCURY PPB	MERCURY PPM	DIL	MERCURY mg/L	MERCURY mg/kg	QC
FIL	9878 #1	18	7.19	0.0072	1-40	0.288	178	
	#2	23	9.16	0.0092	1-100	~~0.023~~ 0.92	~~568~~ 568	
	#3	12.5	5.02	0.0050	1-100	~~0.050~~ 0.50	309	
FIL	9880 #1	E02	omit due to over calibration.		1-100			
	#2	E02			1-100			
	#3	0			1-100			
	Dig Spk	E02			1-100			
NBS	#1	8	3.25		—			113%
FIL	9880 #1	7.5	3.05	0.0031	1-500	1.55	1006	
	#2	7	2.85	0.0029	1-500	1.45	942	
	#3	76	omit over cal		1-50			
	Dig Spk	18	7.19	0.0072	1-1000	7.2	4675	
	#3	4	1.67	0.0017	1-500	0.85	552	
	#3A. spk	9.5	3.84		1-500			
FIL	9882 #1	36.5	omit due to over cal		1-25			
	#2	9.5			1-25			
	#3	31			1-25			
	#1	135	5.42	0.0054	1-50	0.27	165	
	#2	7	2.85	0.0029	1-25	0.073	44.6	
	#3	10	4.04	0.0040	1-50	0.20	122	
FIL	9883 #1	30	omit due to over calibration		1-50			
	#2	35			1-50			
	#3	33			1-50			
	#1	9	3.64	0.0036	1-100	0.36	217	
	#2	9	3.64	0.0036	1-100	0.36	217	
	#3	10.5	4.23	0.0042	1-100	0.42	253	
FIL	9884 #1	70.5	omit due to over calibration		—			
	#2	E02			—			
	#3	50			—			
	#1	5	2.07	0.0020	1-4	0.008	5.22	
	#2	35	1.48	0.0015	1-10	0.015	9.32	
	#3	6.5	2.66	0.0027	1-3	0.0081	5.03	

Continued on Page

Read and Understood By

Signed _____ Date 12-10 Signed _____ Date _____

JOB	SAMPLE	PKT # GT	MERCURY PPB	MERCURY PPM	DIL	MERCURY mg/L	MERCURY mg/KG	QC
NBS	#1	7.5	3.05					106%
	#2	7	2.85					99%
	#3	7.5	3.05					106%
~~FIL~~	~~9884 w/10~~ DIG							
FIL	9877 w/10	17.5			1-20			
	w/5	10.5			1-20			
	w2.5	5.5			1-20			
	w/0	4	(cont next)		1-20			
FIL	9880 w/10	16.5			1-500			
	w/5	11	cont		1-500			
	w/2.5	4			1-500			
	w/0	2.5			1-500			
	9877 w/0	4	(cont next)					
	9877 w/0	2.5						
	9880 w/2.5	4.5	last curve & blank					
NBS	#1	3.5	3.05					106%

STD ADD RESULTS

9877	w/10	17.5	
	w/5	10.5	
	w2.5	5.5	
	w/0	2.5	
9880	w/10	16.5	
	w/5	11	
	w/2.5	4.5	
	w/0	2.5	

Continued on Page

Read and Understood By

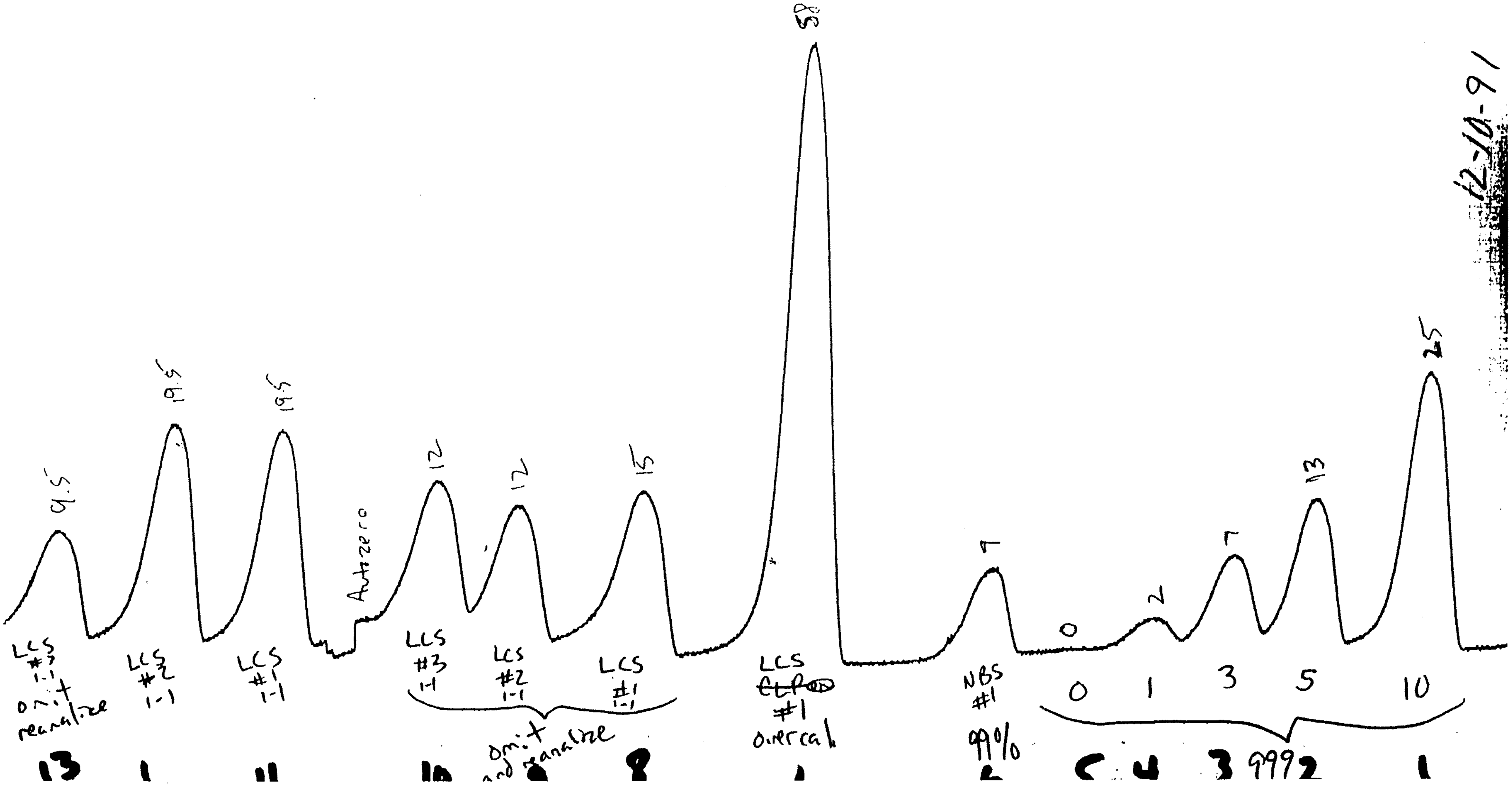
Signed _____ Date 12-10 Signed _____ Date _____

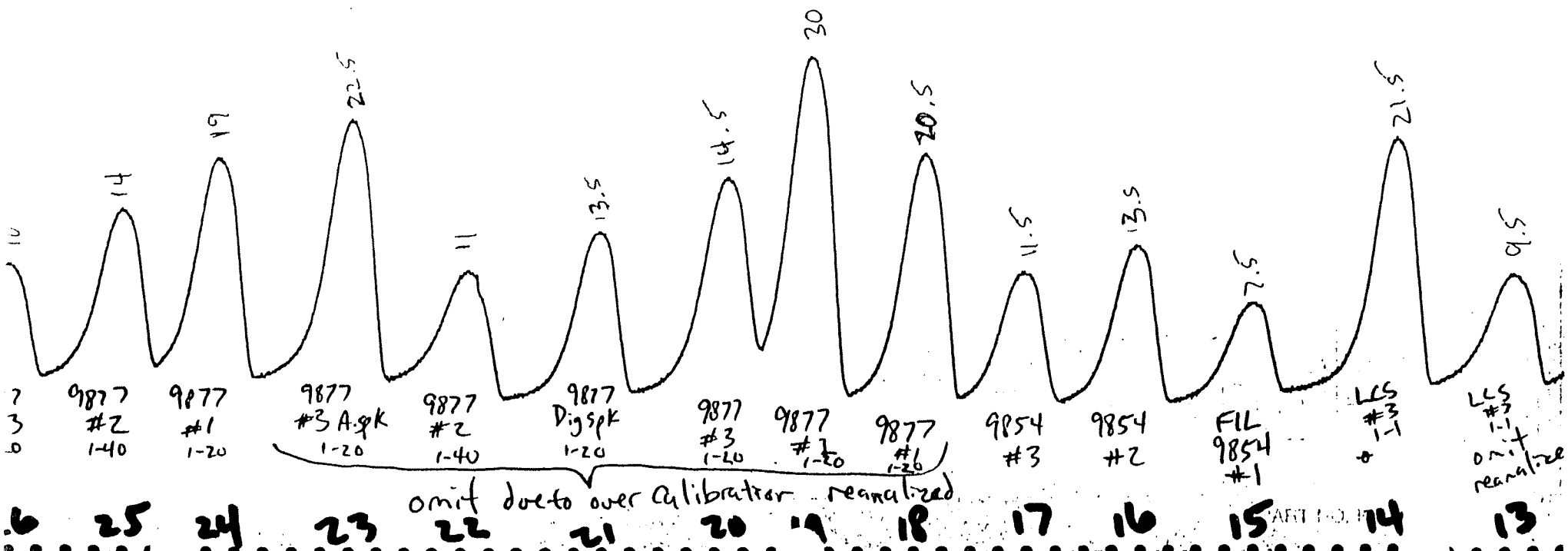
Chart summary 12-10-71

Chart#	Sample#	Dil factor	PPB	MG/L	MG/L DIL CORRECTED	MG/KG
1	10	.999				
2	5					
3	3					
4	1					
5	0					
6	NBS #1	—	2.85	0.00285 × 100 ÷ .2 ÷ 1.44		99%
11	~~ELR~~ LCS #1	1-1	7.78	÷ 9.5		82%
12	LCS #2	1-1	7.78	÷ 9.5		82%
14	LCS #3	1-1	8.57	÷ 9.5		90%
15	FIL 9854 #1	—	3.05	0.0031	0.0031	
16	9854 #2	—	5.42	0.0054	0.0054	
17	9854 #3	—	4.63	0.0046	0.0046	
24	9877 #1	1-20	7.58	0.0076	0.152	90.6
25	9877 #2	1-40	5.61	0.0056	0.224	133
26	9877 #3	1-20	4.04	0.0040	0.080	47.7
27	9877 Dig spk	1-20	5.61	0.0056	0.112	72%
28	9877 #3 A. spk	1-20	9.36 × 2 = 18.72	− 4.04 =		147%
32	9878 #1	1-40	7.19	0.0072	0.288	178
33	9878 #2	1-100	9.16	0.0092	0.92	568
34	9878 #3	1-100	5.02	0.0050	0.50	309
39	NBS #1	—	3.25			113%
40	9880 #1	1-500	3.05	0.0031	1.55	1006
41	9880 #2	1-500	2.85	0.0029	1.45	942
43	Dig spk	1-100	7.19	0.0072	7.2	
44	9880 #3	1-500	1.67	0.0017	0.85	552
45	#3 A. spk	1-500	3.84 × 2 = 7.68	− 1.67 =		60%
49	9882 #1	1-50	5.42	0.0054	0.27	165
50	9882 #2	1-25	2.85	0.0029	0.073	44.6
51	9882 #3	1-50	4.04	0.0040	0.20	122

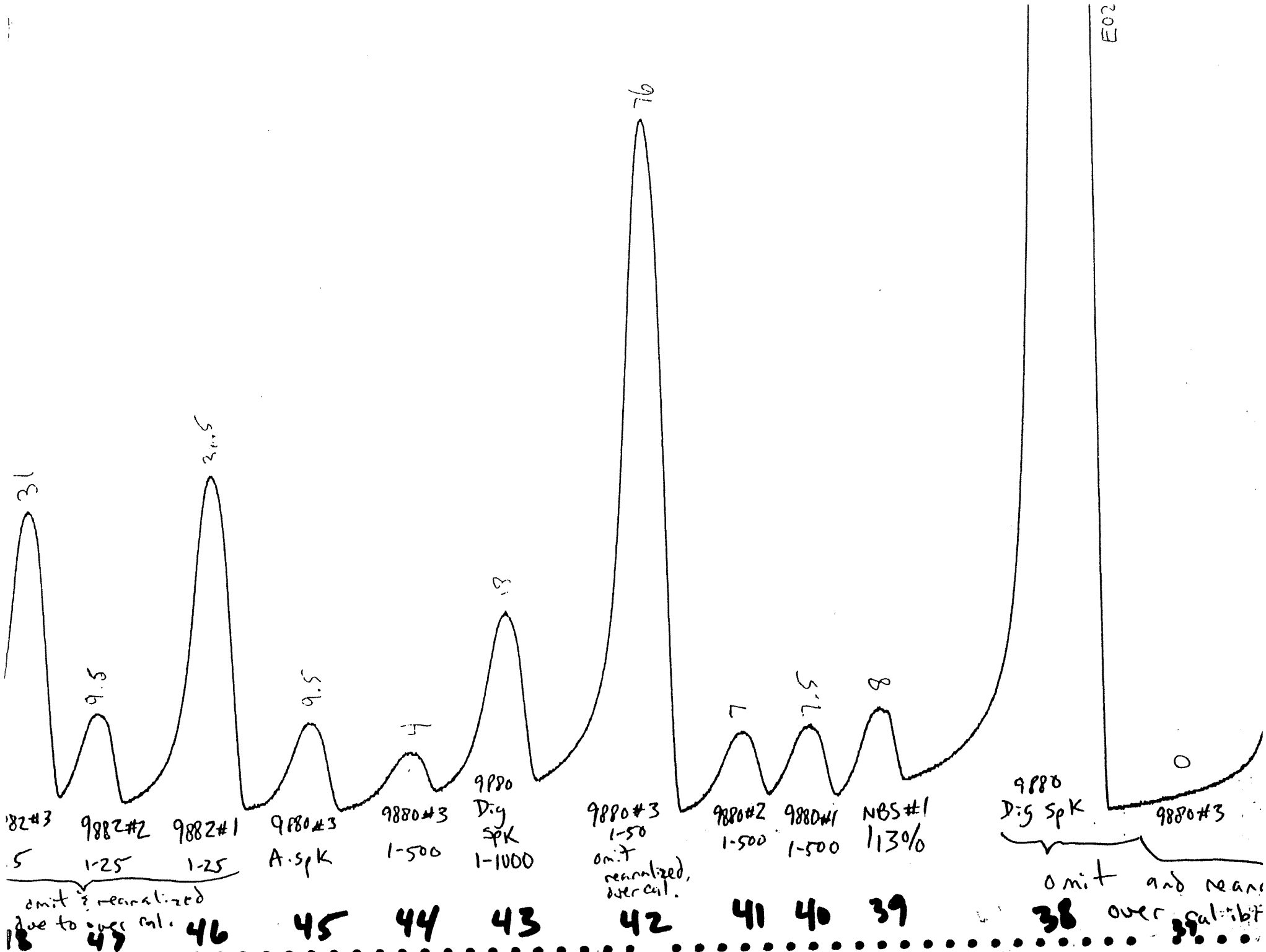
Chart#	Sample#	Dilution Factor	PPB	mg/L	mg/L D.F. Corrected	mg/KG
55	9883#1	1-100	3.64	0.0036	0.36	217
56	9883#2	1-100	3.64	0.0036	0.36	217
57	9883#3	1-100	4.23	0.0042	0.42	253
61	9884#1	1-4	2.07	~~0.0024~~ 0.0021	0.0084	5.22
62	9884#2	1-10	1.48	0.0015	0.015	9.3
63	9884#3	1-3	2.66	~~0.0081~~ 0.0027	0.0081	5.03
64	NBS#1	~~1~~	3.65			106%
65	NBS#2	—	2.85			99%
66	NBS#3	—	3.05			106%
67	9877 w/10	.997				
68	9877 w/5			0.0015	0.03	
69	9877 w/2.5					
76	9877 w/0					
71	9880 w/10	.982				
72	9880 w/5					
77	9880 w/2.5			0.0015	0.75	
74	9880 w/0					
78	NBS#1	3.05				106%

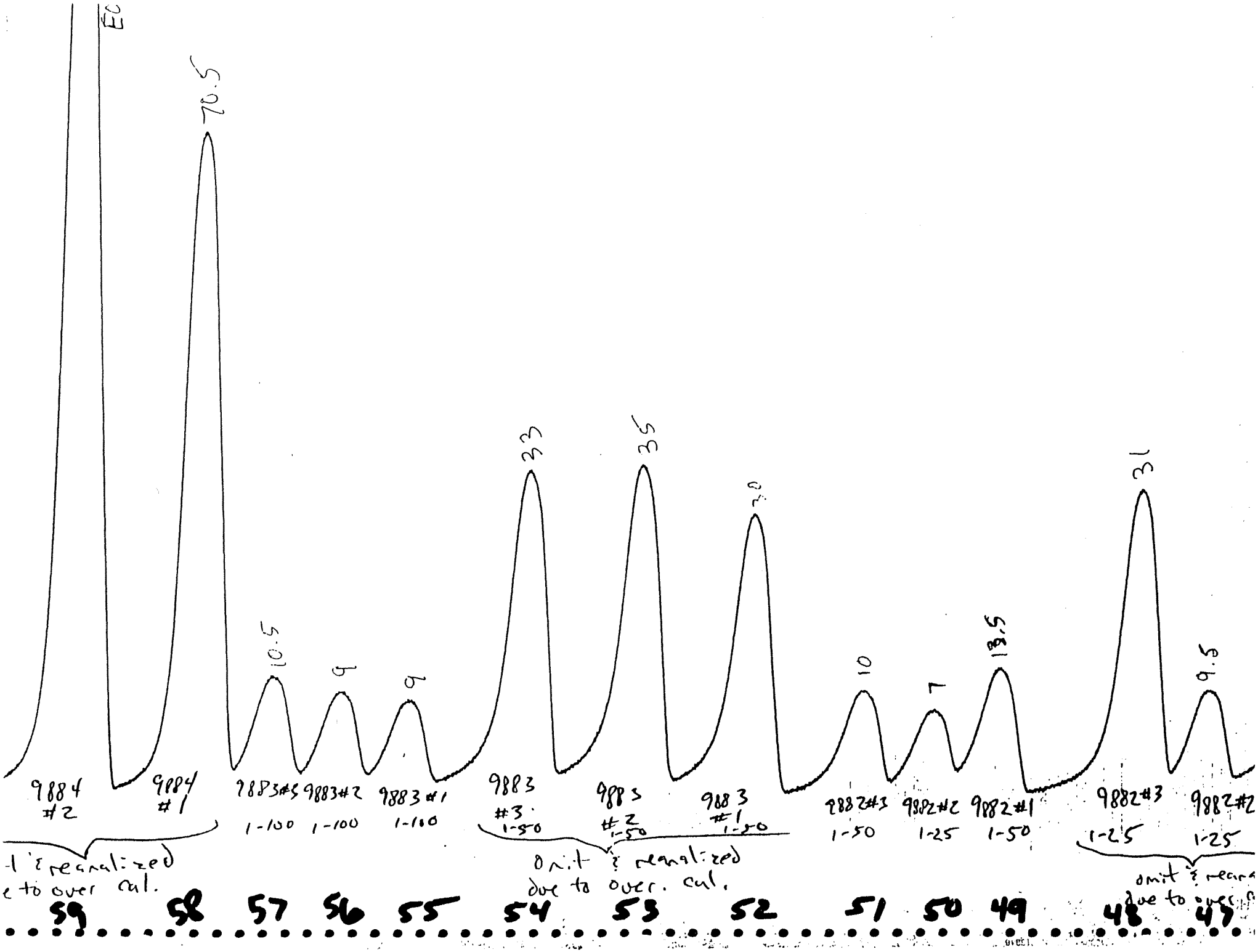
Hg #6 P) 35-37
FIL 9854, 987[illegible]
9878, 9880
9882, 98[illegible]
9884

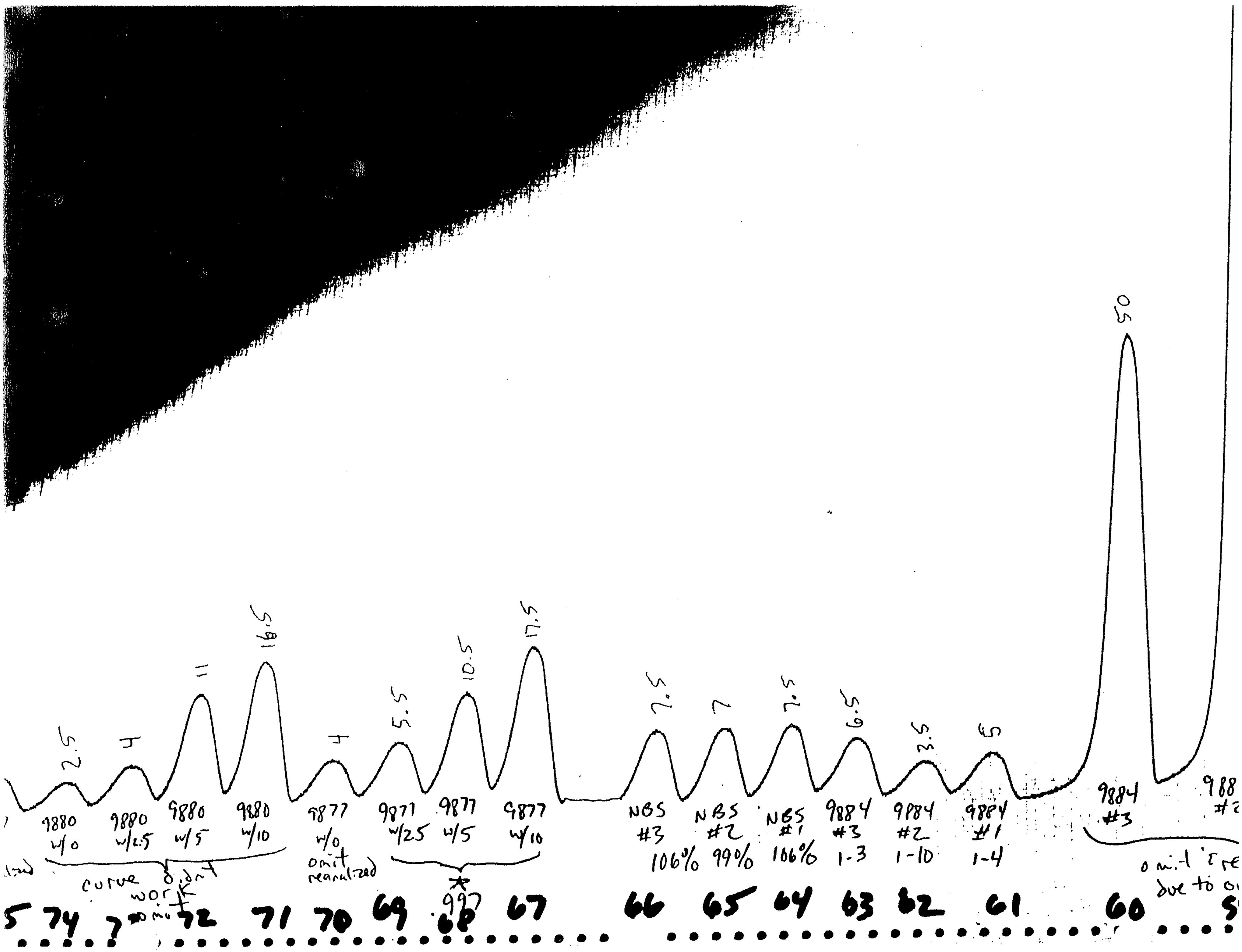



10
14
19
22.5
11
13.5
14.5
30
20.5
11.5
13.5
7.5
21.5
9.5
?
3
6
9877 #2 1-40
9877 #1 1-20
9877 #3 A.spk 1-20
9877 #2 1-40
9877 Dig spk 1-20
9877 #3 1-20
9877 #1 1-20
9877 #1 1-20
9854 #3
9854 #2
FIL 9854 #1
LCS #3 1-1
0
LCS #3 1-1 omit reanalyze
omit due to over calibration - reanalyzed
26
25
24
23
22
21
20
19
18
17
16
15
14
13

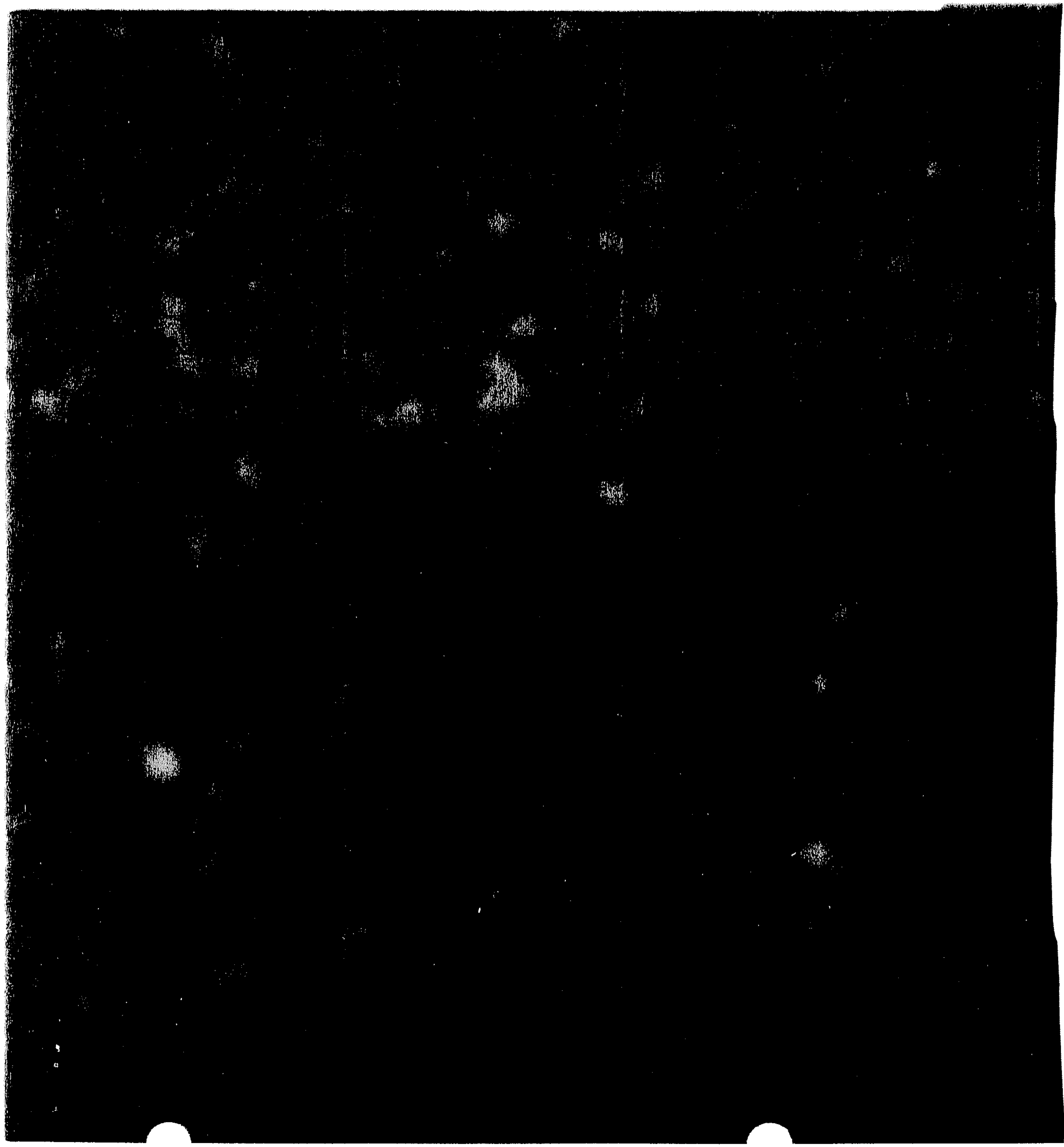
9880 #2
9880 #1
9878#3
1-100
12.5
9878#2
1-100
18
23
9878#1
1-40
79
9878#3
1-20
9878#2
1-20
39
9878#1
1-20
23.5
9877#3
4.5pk
1-20
14
9877
D.5pk
1-20
10
9877
#3
1-20
14
9877
#2
1-40

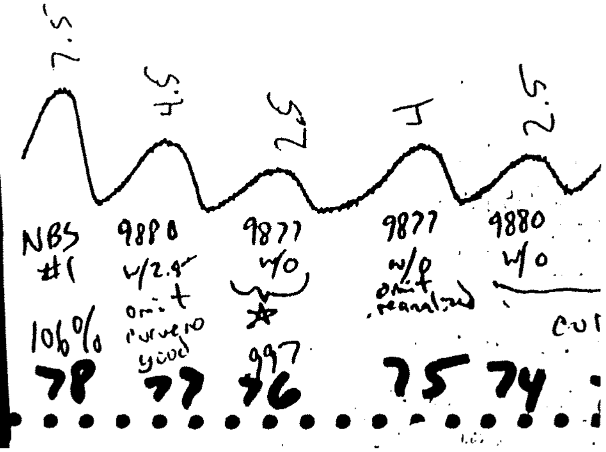

E02
31
9.5
21.5
9.5
4
9
76
7
7.5
8
0
9882#3
5
9882#2
1-25
9882#1
1-25
omit & reanalized due to over cal.
9880#3
A.spK
9880#3
1-500
9880
Dig
spK
1-1000
9880#3
1-50
omit
reanalized,
over cal.
9880#2
1-500
9880#1
1-500
NBS#1
130%
9880
Dig spK
9880#3
omit and reanalized
over cal.
46
45
44
43
42
41
40
39
38


EC
70.5
10.5
9
9
33
35
20
10
7
18.5
31
9.5
9884 #2
9884 #1
9883#3 1-100
9883#2 1-100
9883#1 1-100
9883 #3 1-50
9883 #2 1-50
9883 #1 1-50
9882#3 1-50
9882#2 1-25
9882#1 1-50
9882#3 1-25
9882#2 1-25
-1 ; reanalized e to over cal.
omit ; reanalized due to over. cal.
omit ; reana due to over
59 58 57 56 55 54 53 52 51 50 49 48 47



2.5
4
11
16.5
4
5.5
10.5
17.5
7.5
7
7.5
6.5
3.5
5
50
9880 w/0
9880 w/2.5
9880 w/5
9880 w/10
9877 w/0 omit reanalized
9871 w/2.5
9871 w/5
9877 w/10
NBS #3 106%
NBS #2 99%
NBS #1 106%
9884 #3 1-3
9884 #2 1-10
9884 #1 1-4
9884 #3
curve didn't work
omit
997
5 74 72 71 70 69 68 67 66 65 64 63 62 61 60




7.5
4.5
2.5
J
2.5
NBS #1
9880
9877
9877
9880
w/o
w/o
106%
997
cut
78
77
76
75
74

JOB	SAMPLE	PKT	MERCURY		DIL	MERCURY	QC
		HGT	PPB	PPM		MG/L / MG/KG	
STD	0.010	28					
	0005	14.5					
	0.003	9					
	0.001	3					
	0.000	6					
NBS	#1	8	2.76	0.00276 x 100 = .276		÷ 2 = 1.38 ÷ 1.44	96%
CLP	#1	27	9.56	÷ 9.5	1-1		101%
	#2	28.5	10.10	÷ 9.5	1-1		106%
	#3	28	9.92	÷ 9.5	1-1		104%
FIL	9853	EOZ			—		
NBS	#1 ✓	8.5	2.94		—		102%
FIL	9853	19	6.70	0.007	1-100	~~0.67~~ 0.70 / ~~123~~ 129	
	#2	28	9.92	0.010	1-100	~~1.00~~ 0.99 / ~~626~~ 0.77	
	#3	13	4.55	0.005	1-100	~~0.50~~ 0.46 / ~~2.86~~ 6.46	
FIL	9854	2.5	0.79	0.0008	1-1	0.002	
	9854	7	2.40	0.002	—	0.002	
	#2	6.5	2.22	0.002	—	0.002	
	#3	~~65~~	23.17	0.023	—	0.023	
	#3	15.5	5.46	0.006	1-4	0.024	
FIL	9855	10	3.48	0.004	1-100	0.35 / 210	
	#2	4	1.33	0.001	1-100	0.13 / 77.8	
	#3	6.5	2.22	0.002	1-100	0.22 / 132	
FIL	9856	14.5	5.09	0.005	—	0.005 / 3.00	
	#2	18	6.34	0.006	—	0.006 / 3.71	
	#3	26.5	9.39	0.009	—	0.0094 / 5.54	
FIL	9865	EOZ					
	9865	4	1.33	0.001	1-50	0.05	
	9865	13	4.55	0.005	1-25	~~0.13~~ / 70.6	
	#2	2	0.61	0.0006	1-25	0.015	
	#3	3.5	1.15	0.001	1-25	0.025	
	#2	21.5	7.60	0.008	1-4	0.032 / 18.4	
	#3	15	5.27	0.005	1-8	0.042 / 25.8	
NBS	#1 ✓	8	2.76		—		96%

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JOB	SAMPLE	PKT HGT	MERCURY PPB	MERCURY PPM	DIL	MERCURY MG/L / MG/KG
FIL	9866	E02				
	9866	5	1.69	0.0027	1-100	~~0.17~~ ~~0.20~~ 105
	#2	11	3.84	0.0038	1-100	~~0.38~~ ~~0.40~~ 234
	#3	14	4.91	0.0059	1-100	~~0.49~~ ~~0.50~~ 302
FIL	9867	7	2.40	0.0024	1-100	0.28 / 142
	#2	2	0.61	0.0006	1-100	0.060
	#2	2	0.61	0.0006	1-50	0.030
	#2 acq	E02			—	
	#2	30	10.64	0.0101	1-4	0.04
	#2	15	5.27	0.0053	1-8	0.042 / 25.7
	#3	2	0.61	0.0006	1-50	0.036
	#3	12	4.19	0.0042	1-8	0.034 / 208
NBS	#1	9.5	3.30		—	
CLP	#1	29	10.28	÷9.5	1-1	
FIL	9868	9	3.12		1-25	
	#2	13	never there		1-25	
	#3	5	1.69		1-25	
	9869	3	0.97		1-25	
	#2	5	1.64		1-25	
	#3	4.5	1.51		1-25	
	#1	7	2.40		1-25	
	9870	43	over cal		1-10	
	9870	15	5.27	0.0053	1-25	~~0.132~~ 0.132 / 79.9
	#2	14.5	5.09	0.0051	1-25	0.127 / 75.9
	#3	14	4.91	0.0049	1-25	0.122 / 73.0
NBS	#1	9	3.12		—	
BLK	—	0	—		—	
FIL	9868	23	8.13	0.0081	1-10	0.081 / 52.4
	#2	20.5	7.23	0.0072	1-10	0.072 / 46.6
	#3	22	7.77	0.0078	1-10	0.078 / 50.5
	9869	9	3.12	0.0031	1-10	0.031 / 22.7
	#2	11	3.84	0.0038	1-10	0.038 / 27.8
	#3	11	3.84	0.0038	1-10	0.038 / 27.8

(Handwritten across PPM column for 9868–9869 rows: "rerun due to dilution" [partly illegible])

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PROJECT 7471 Soil

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JOB	SAMPLE	PKT HGT	MERCURY PPB	PPM	DIL	MERCURY MG/L / MG/KG	QC
FIL	9871	11	3.84	0.0038	1-25	0.095 / 55.9	
	#2	11	3.84	0.0038	1-25	0.095 / 55.9	
	#3	11	3.84	0.0038	1-25	0.095 / 55.9	
BS	#1	8	2.76		—		96%
FIL	9872	26	9.21	0.0092	1-25	0.230 / 141	
	#2	25.5	9.03	0.0090	1-25	0.225 / 138	
	#3	26.5	9.39	0.0094	1-25	0.235 / 144	
FIL	9877	omitted and ran	later due to sample	matrix problems	1-25		
	#2				1-25		
	#3				1-25		
NBS	#1	8.5	2.94		—		102%
FIL	9877	4.5	1.51	omit due to matrix dilution problems	1-25		
	#2	22	7.77		1-25		
	#3	17	5.98		1-25		
	Dig Spk	7	2.40		1-25		
	Ank Spk	24	8.49		1-25		
	9878	30	10.64		1-25		
	#2	11	3.84		1-25		
	#3	9	3.12		1-25		
	#1	9	3.12		1-50		
	9879	28	9.92	0.0099	1-25	.248 / 147	
	#2	16.5	5.81	0.0058	1-25	.145 / 86.0	
	#3	16.5	5.81	0.0058	1-25	.145 / 86.0	
	9880	EC2	omit due to [illegible]		1-25		
	#1	56			1-100		
	#1	11			1-300		
	#2	E02			1-50		
	#2	75.5			1-200		
	#2	31			1-500		
	#2	14.5			1-1000		
	#3	31.5			1-200		
	#3	12			1-400		
	#3 Dup	12			1-400		

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JOB	SAMPLE	MERCURY PPB	MERCURY PPM	DIL	MERCURY MG/L / MG/KG	PK HGT	QC
FIL	9880 spk	omit due to overcal.		1-400		29	
FIL	9877 #3 dup	5.27		1-25		15	
	#3 dup	7.24		1-25		20.5	
NBS	#1	~~9.5~~ 3.30		—		9.5	115
FIL	9881	26.73	0.0267	1-25		47	
	#1	5.28	0.0053	1-50	0.265 / 155	15	
	#2	21.02	0.0210	1-50		59	
	#3	28.54	0.0285	1-50		80	
	#2	6.72	0.0067	1-100	0.67 / 393	19	
	#3	2.94	0.0029	1-200	0.58 / 340	8.5	
	#3 Dup	2.58	0.0026	1-200		7.5	
	9282	9.56	0.0096	1-25		27	
	#2	5.05	0.0051	1-25		14.5	
	#3	28.54	0.0285	1-25		80	
	#3	1.33	0.0013	1-200		4	
	#3	5.09	0.0051	1-100		14.5	
NBS	#1	2.58	0.0026	—		7.5	90
FIL	9883	—		1-25		EOR	
	#1	4.01	0.004	1-100		11.5	
	#2	22.81	0.0228	1-100		64	
	#3	2.05	0.0021	1-100		6	
	#2	12.43	0.0124	1-200		35	
	#2	2.94	0.0029	1-400		8.5	
	9884	0.26	0.0003	1-25		1	
	#2	0.26	0.0003	1-25		1	
	#1	3.48	0.0035	1-1		10	
	#2	5.63	0.0056	1-1		16	
	#3	12.43	0.0124	1-1		3.5	
	#3	8.13	0.0081	—		23	
NBS	#1	2.58	0.0026	—		7.5	90
CTH	9700	0.61	BQL	—		2	
	#2	0.79	BQL	—		2.5	
	#3	0.97	0.001	—			

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ROJECT 7471 Soil

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JOB	SAMPLE	PK HGT	MERCURY PPB	MERCURY PPM	DIL	MERCURY MG/L	QC
TH	9700 #3 Dig SpK	19.5	6.88 x 2		—		138%
	#3 dup	3	0.97	0.001	—		~~120~~
	#3 A SpK	17	5.98 x 2		—		120%
EIS	9779	0	BQL		1-1		
	#1	1	0.25	BQL	—		
	#2	2	0.61	BQL	—		
	#3	0.5	0.08	BQL	—		
BS	#2	9	3.12		—		109%
	#3	9	3.12		—		109%
FIL	9880	12	4.19	omit results; not enough to results	1-400		
	#2	35.5	12.46		1-400		
	#3	10	3.48		1-400		
	#3 Dup	10	3.48		1-400		
	#3 Dig SpK	11.5	4.01		1-400		
NBS	#1	8	2.76		—		96%
VSTD	10	31	11.0	÷10	—		110%
VSTD	5	13	4.55	÷5	—		91%
FIL	9880 #3 A SpK	22	7.77	omit [illegible]	1-400		~~155%~~
NBS	#1	7.5	2.58		—		90%

5%

%

(9)

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	2-5		

Run Summary 12-5-91

Chan #	Sample #	Dil factor	PPB	mg/L	mg/L corrected	% Recovery
1	10 ppb					
2	5 ppb	.999				
3	3 ppb					
4	1 ppb					
5	0 ppb					
7	NBS #1	—	2.58	0.00258	x100 ÷ 2 ÷ 1.44 =	90%
10	LCS ref #1	1-1	9.56	÷ 9.5		101%
11	LCS ref #2	1-1	10.16	÷ 9.5		106%
12	LCS ref #3	1-1	9.92	÷ 9.5		104%
15	NBS #1	—	2.94	0.00294 x100 ÷ 2 ÷ 1.44 =		102%
16	9853 #1	1-100	6.70	0.0067	0.67	423
17	9853 #2	1-100	9.92	0.0099	0.99	626
18	9853 #3	1-100	4.55	0.0046	0.46	28
27	9855 #1	1-100	3.48	0.0035	0.35	220
28	9855 #2	1-100	1.33	0.0013	0.13	82
29	9855 #3	1-100	2.22	0.0022	0.22	138
30	9856 #1	—	5.09	0.0051	0.0051	3.0
31	9856 #2	—	6.34	0.0063	0.0063	3.9
32	9856 #3	—	9.39	0.0094	0.0094	5.5
36	9865 #1	1-25	4.55	0.0046	0.115	70.6
39	9865 #2	1-4	7.60	0.0076	0.038	18.2
41	9865 #3	1-8	5.28	0.0053	0.042	25.8
42	NBS #1	—	2.76	0.00276 x100 ÷ 2 ÷ 1.44 =		96%
48	9866 #1	1-100	1.68	0.0017	0.17	105
49	9866 #2	1-100	3.84	0.0038	0.38	234
50	9866 #3	1-100	4.91	0.0049	0.49	302
51	9867 #1	1-100	2.40	0.0024	0.24	147
56	9867 #2	1-8	5.28	0.0053	0.042	25.8
58	9867 #3	1-8	4.19	0.004	0.034	20.7

Chart #	Sample #	D:I factor	PPB	mg/L	mg/L dil. corrected	mg/kg
59	NBS #1	—	3.30	0.0033 x100 ÷.2 ÷1.44		115%
62	LCS #1	1-1	10.28 ÷	9.5 =		108%
72	9870 #1	1-25	5.27	0.0053	0.132	78.9
73	9870 #2	1-25	5.09	0.0051	0.127	75.9
74	9870 #3	1-25	4.91	0.0049	0.122	73.0
75	~~NBS #1~~	~~3.12~~	~~3.12~~	~~0.00312 x100 ÷0.2 ÷1.44~~		~~109%~~
77	9868 #1	1-10	8.13	0.0081	0.081	52.4
78	9868 #2	1-10	7.23	0.0072	0.072	46.6
79	9868 #3	1-10	7.77	0.0078	0.078	50.5
80	9869 #1	1-10	3.12	0.0031	0.031	22.7
81	9869 #2	1-10	3.84	0.0038	0.038	27.8
82	9869 #3	1-10	3.84	0.0038	0.038	27.8
83	9871 #1	1-25	3.84	0.0038	0.095	55.9
84	9871 #2	1-25	3.84	0.0038	0.095	55.9
85	9871 #3	1-25	3.84	0.0038	0.095	55.9
86	~~NBS #1~~	—	~~2.90~~	~~0.00276 x100 ÷.2 ÷1.44~~		~~96%~~
87	9872 #1	1-25	9.21	0.0092	0.23	141
88	9872 #2	1-25	9.03	0.0090	0.225	138
89	9872 #3	1-25	9.39	0.0094	0.235	144
92	NBS #1	—	2.94	0.00294 x100 ÷.2 ÷1.44		102%
102	9879 #1	1-25	9.92	0.0099	.248	147
103	9879 #2	1-25	5.81	0.0058	.145	86.0
104	9879 #3	1-25	5.81	0.0058	.145	86.0
118	NBS #1	—	3.29	0.00329 x100 ÷.2 ÷1.44		115%
120	9881 #1	1-50	5.28	0.0053	0.265	155
123	9881 #2	1-100	6.70	0.0067	0.67	393
124	9881 #3	1-200	2.94	0.0029	0.58	340
144	NBS #1	—	2.58	0.00258 x100 ÷.2 ÷1.44		90%
155	NBS #2	—	3.12	0.00312 x100 ÷.2 ÷1.44		109%
156	NBS #3	—	3.12	0.00312 x100 ÷.2 ÷1.44		109%

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Notebook Hg #6
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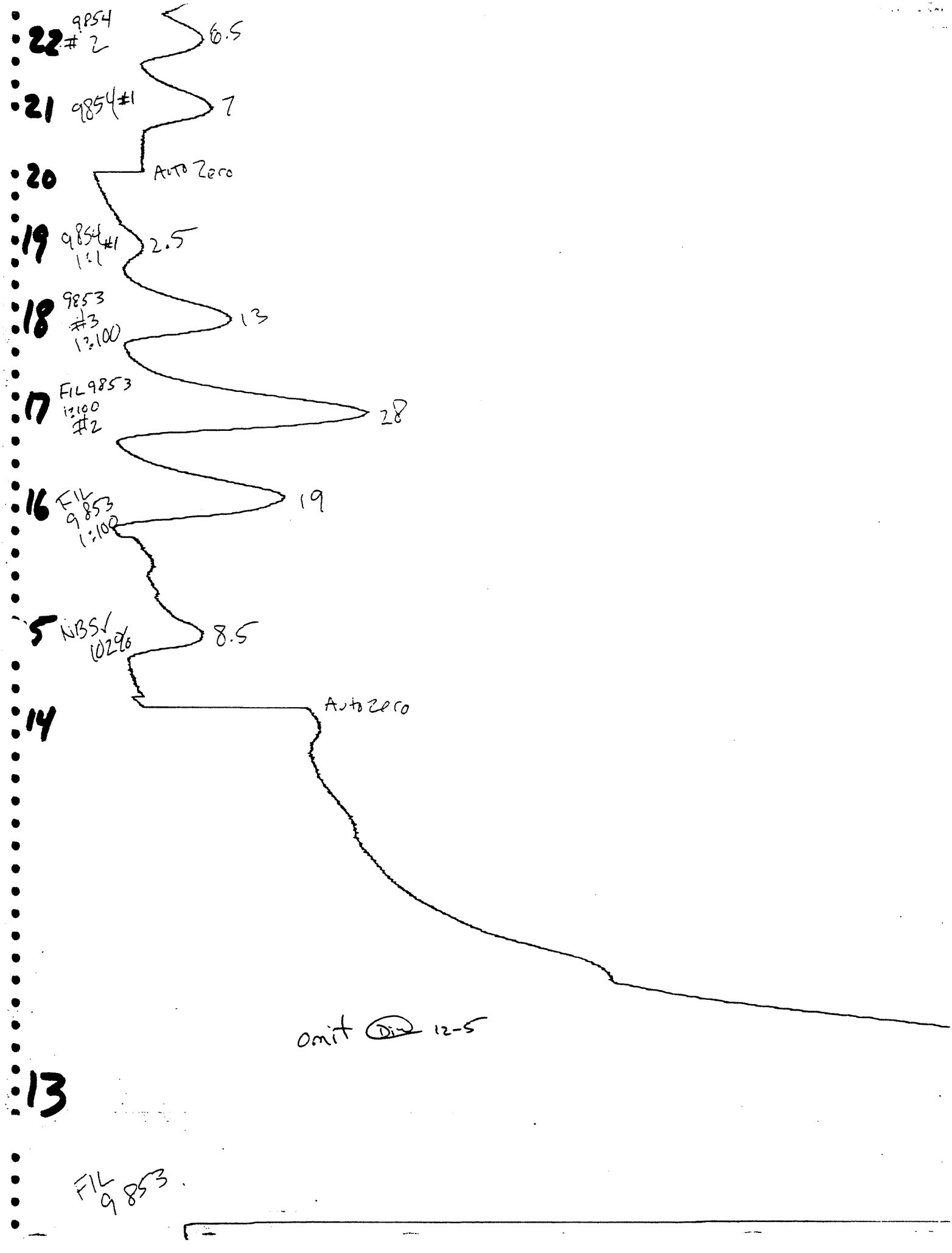
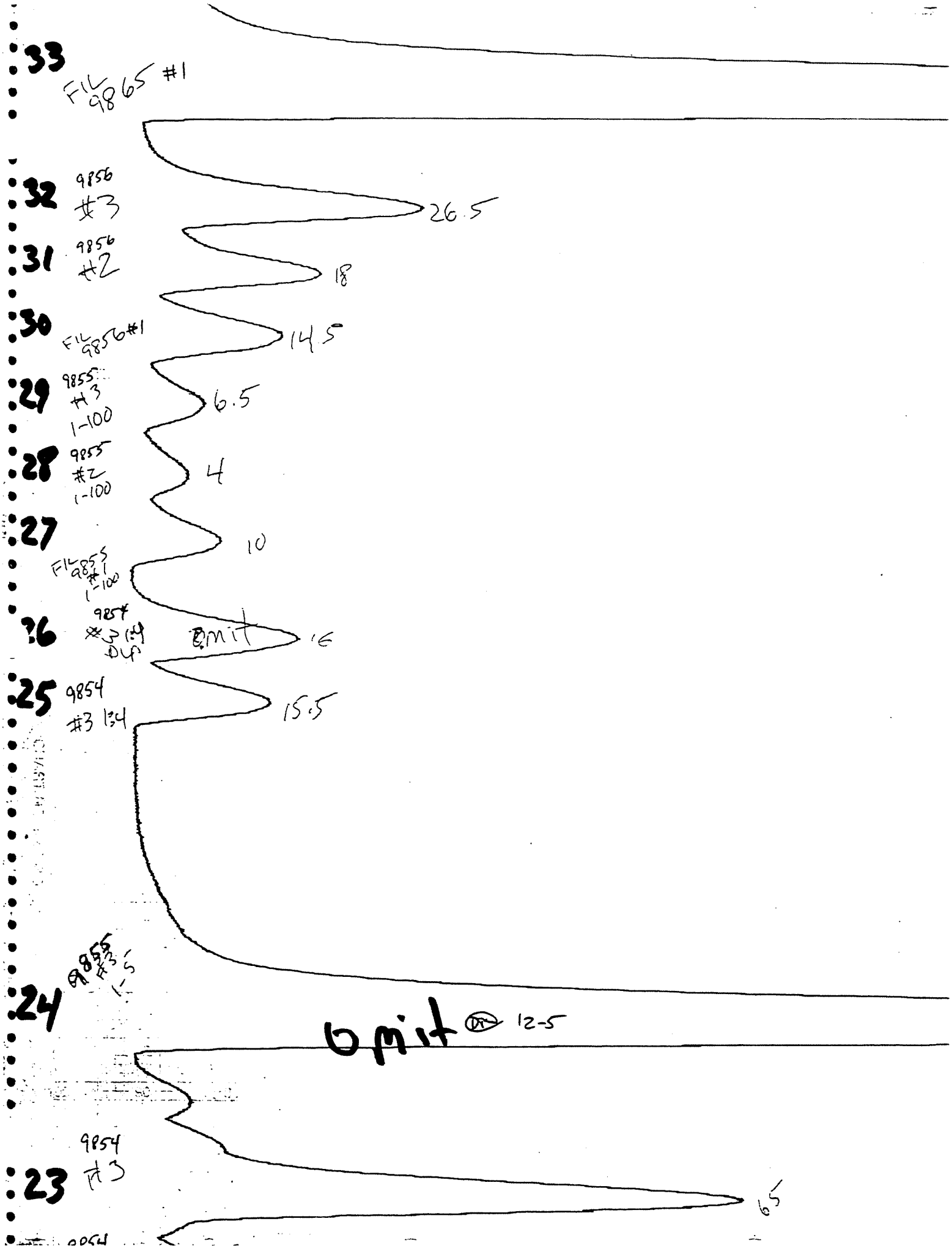
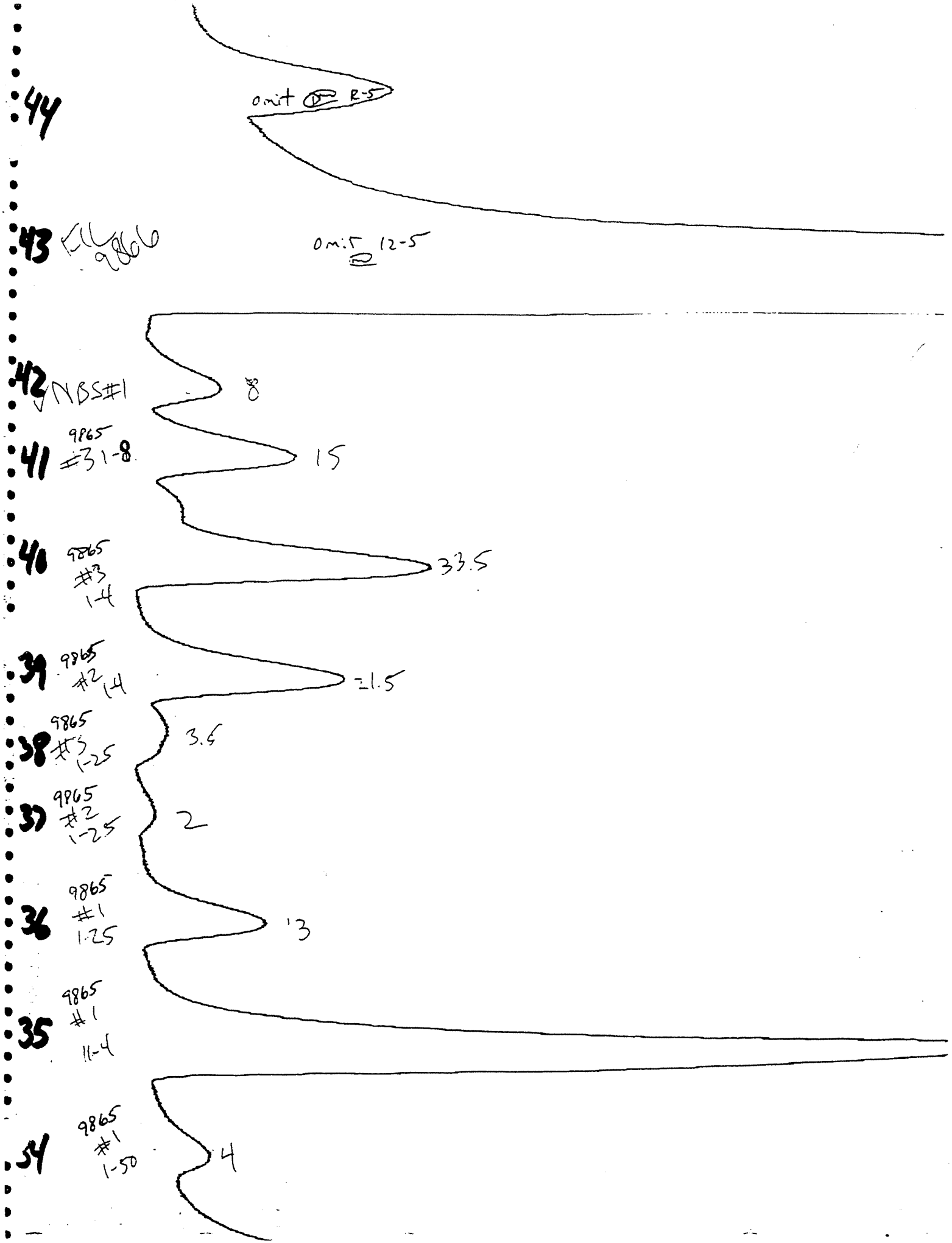
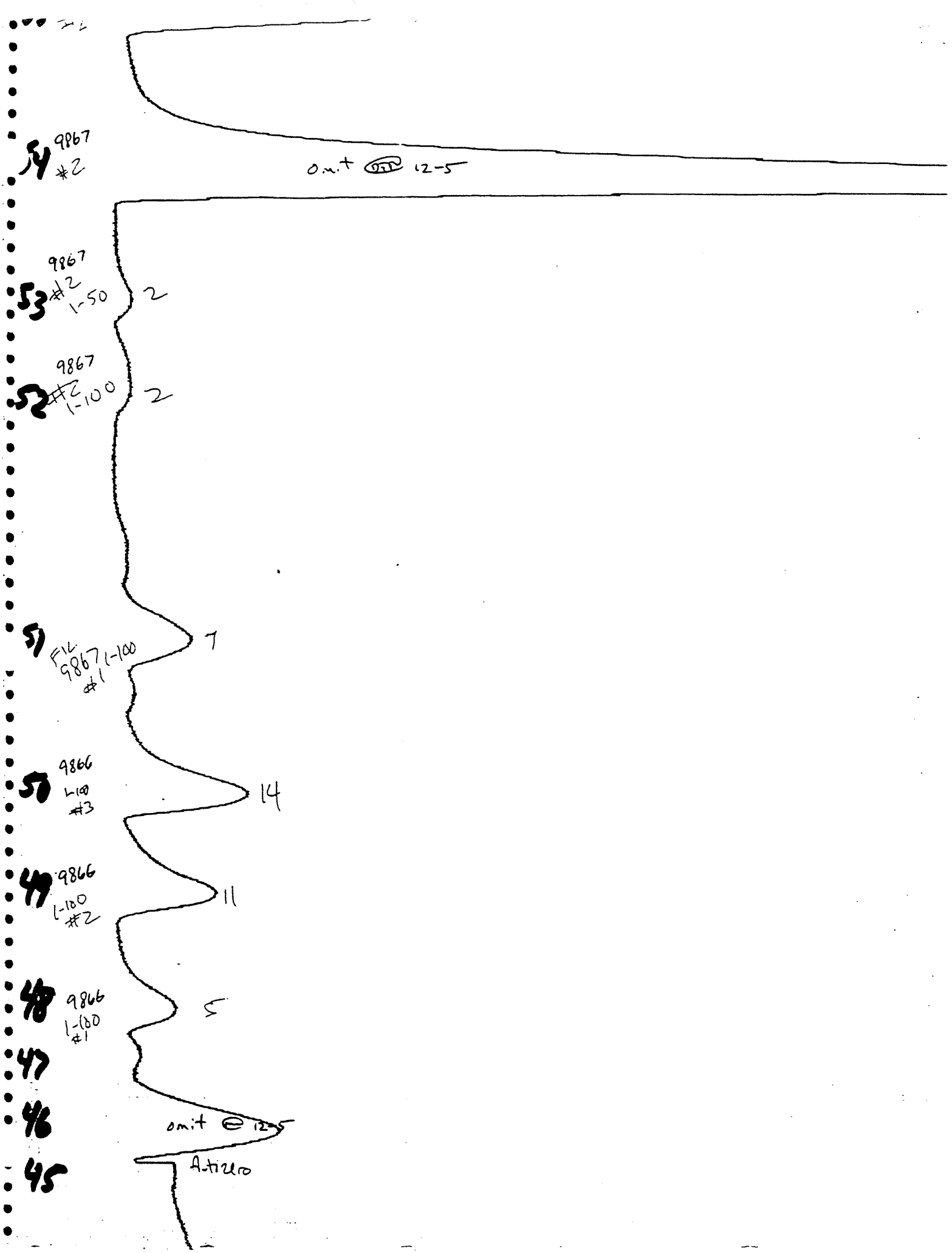
HL 9853, 9855, 9856
9865, 9866, 5861
9868, 9869, 5870
9871, 9872, 9879
9881

HTH 9100
EIS 9779


22
9854 #2
6.5
21
9854 #1
7
20
Auto Zero
19
9854 #1 1:1
2.5
18
9853 #3 1:100
13
17
FIL 9853 1:100 #2
28
16
FIL 9853 1:100
19
5
NBS 102%
8.5
14
Auto Zero
omit Div 12-5
13
FIL 9853


33
FIL 9865 #1
32
9856 #3
26.5
31
9856 #2
18
30
FIL 9856 #1
14.5
29
9855 #3 1-100
6.5
28
9855 #2 1-100
4
27
10
FIL 9855 #1 1-100
26
9854 #3 1:4 Dup
Omit
16
25
9854 #3 1:4
15.5
24
9855 #3 1-5
Omit @ 12-5
23
9854 #3
6.5


44
omit R-5
43
ELL 9866
omit 12-5
42
NBS#1
8
41
9865 #3 1-8
15
40
9865 #3 1-4
33.5
39
9865 #2 1-4
21.5
38
9865 #3 1-25
3.5
37
9865 #2 1-25
2
36
9865 #1 1-25
13
35
9865 #1 11-4
34
9865 #1 1-50
4


54
9867
#2
omit 12-5
53
9867
#2
1-50
2
52
9867
#2
1-100
2
51
FIL
9867
#1
1-100
7
50
9866
1-100
#3
14
49
9866
1-100
#2
11
48
9866
1-100
#1
5
47
46
omit @ 12-5
45
A-tizuro

65
64
63
62
61
60
59
58
57
56
55
OMIT
OMIT
29
34
9.5
12
2
15
30

All return at lesser Dillution

80
81
82
83
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85
86
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88
89
90
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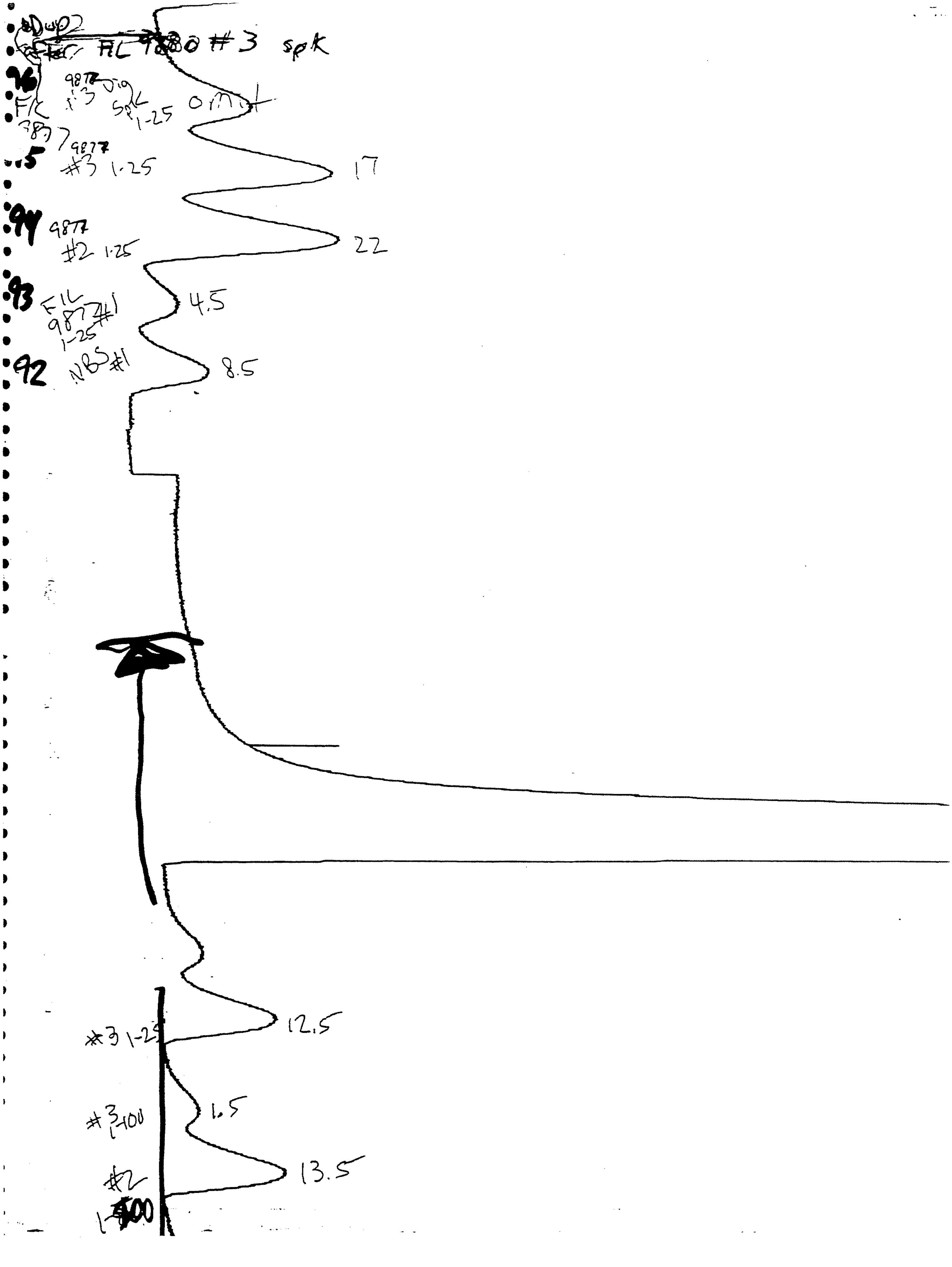
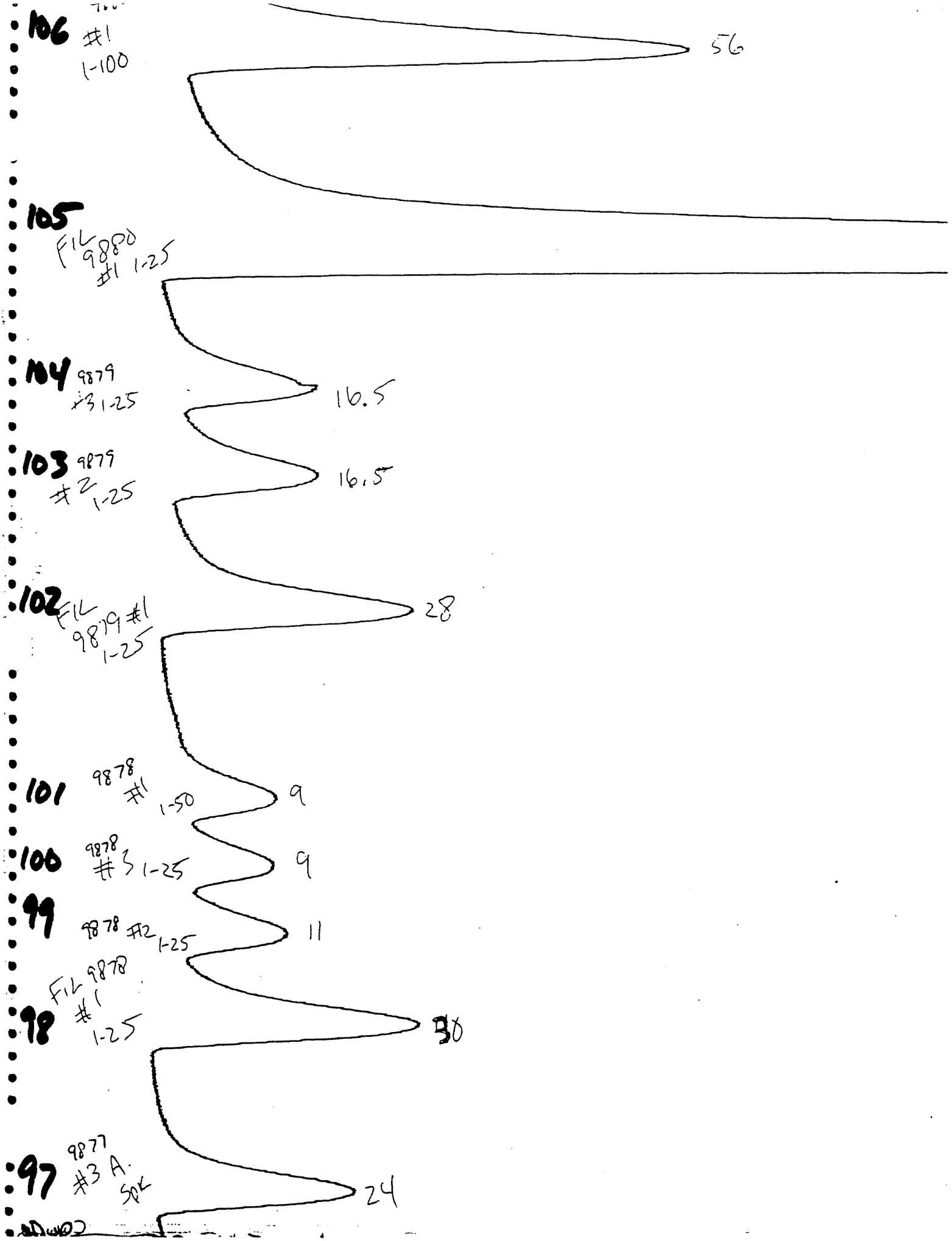
97
98
99
100


FL #3 spk
FL
omit
17
#3 1.25
22
#2 1.25
4.5
FIL
8.5
NBS #1
12.5
#3 1-25
1.5
13.5
#2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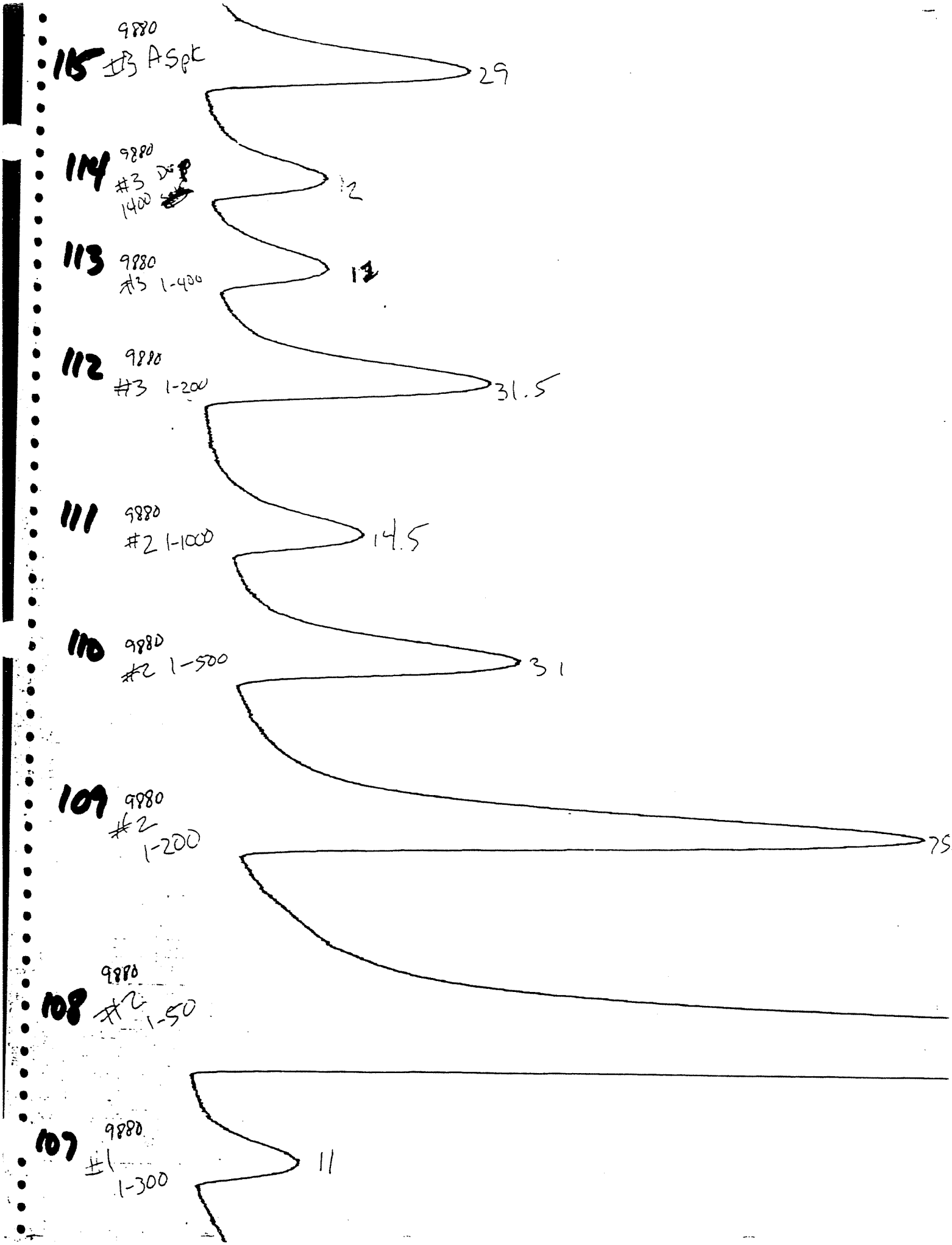
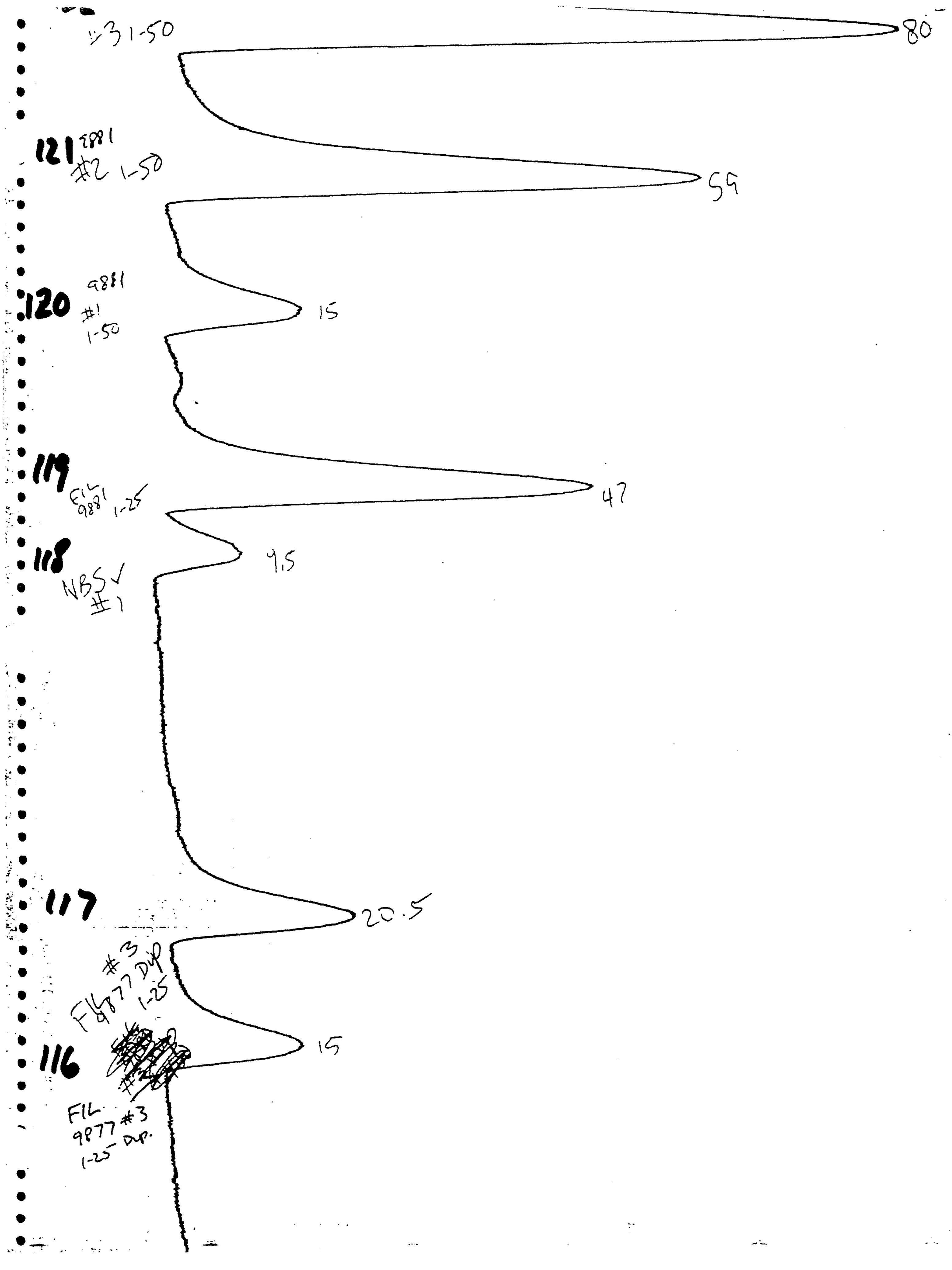
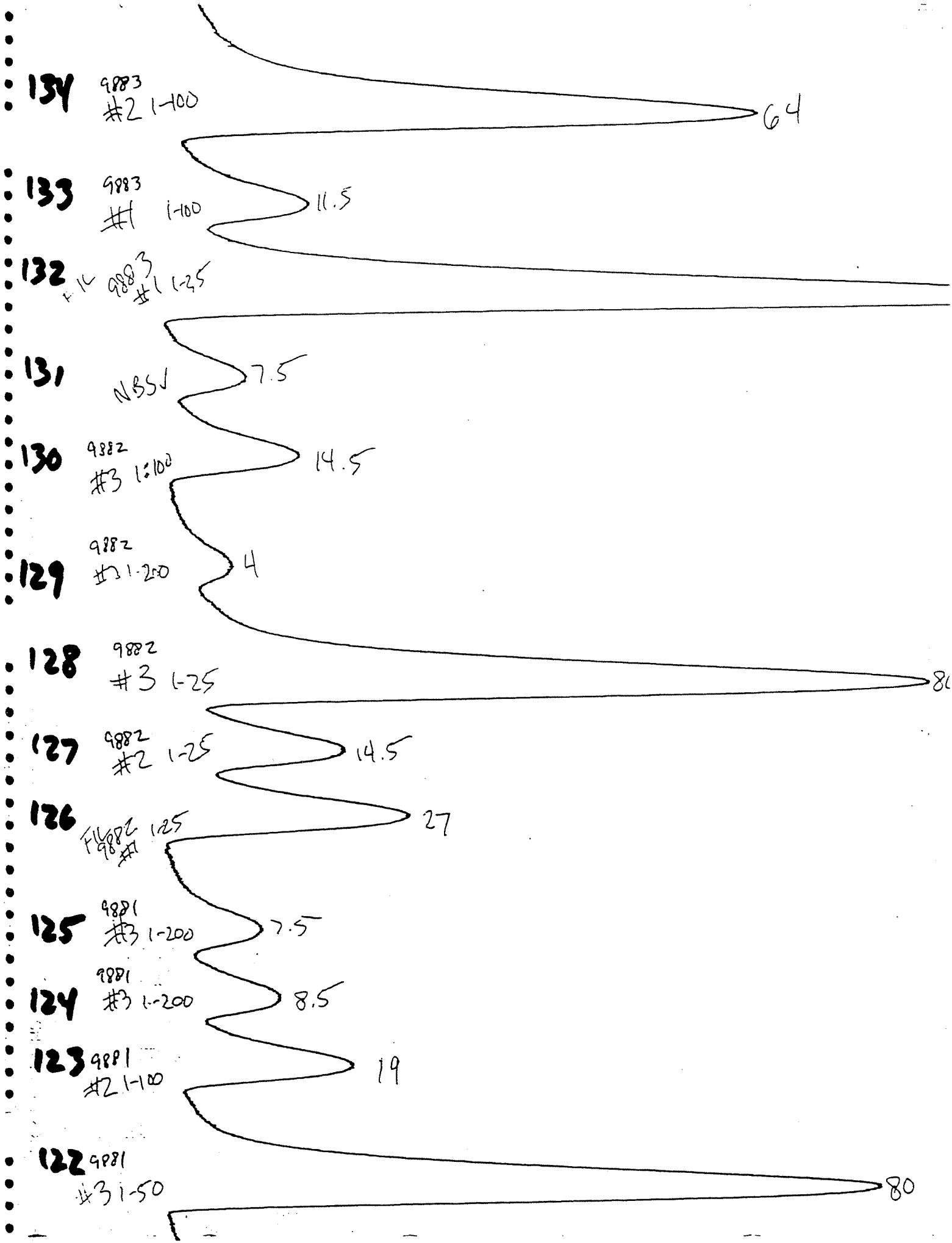
56
105 FIL 9880 #1 1-25
104 9879 #3 1-25
16.5
103 9879 #2 1-25
16.5
102 FIL 9879 #1 1-25
28
101 9878 #1 1-50
9
100 9878 #3 1-25
9
99 9878 #2 1-25
11
FIL 9878 #1
98 1-25
30
97 9877 #3 A. SPL
24


115
9880
#3 ASpt
29
114
9880
#3 Dsp
1400
12
113
9880
#3 1-400
12
112
9880
#3 1-200
31.5
111
9880
#2 1-1000
14.5
110
9880
#2 1-500
31
109
9880
#2
1-200
75
108
9880
#2 1-50
107
9880
#1
1-300
11



116
FIL 9877 #3 1-25 Dup.
15
FIL 9877 Dup #3 1-25
117
20.5
118
NBS✓ #1
9.5
119
FIL 9881 1-25
47
120
9881 #1 1-50
15
121
9881 #2 1-50
59
#3 1-50
80


134
9883
#2 1-100
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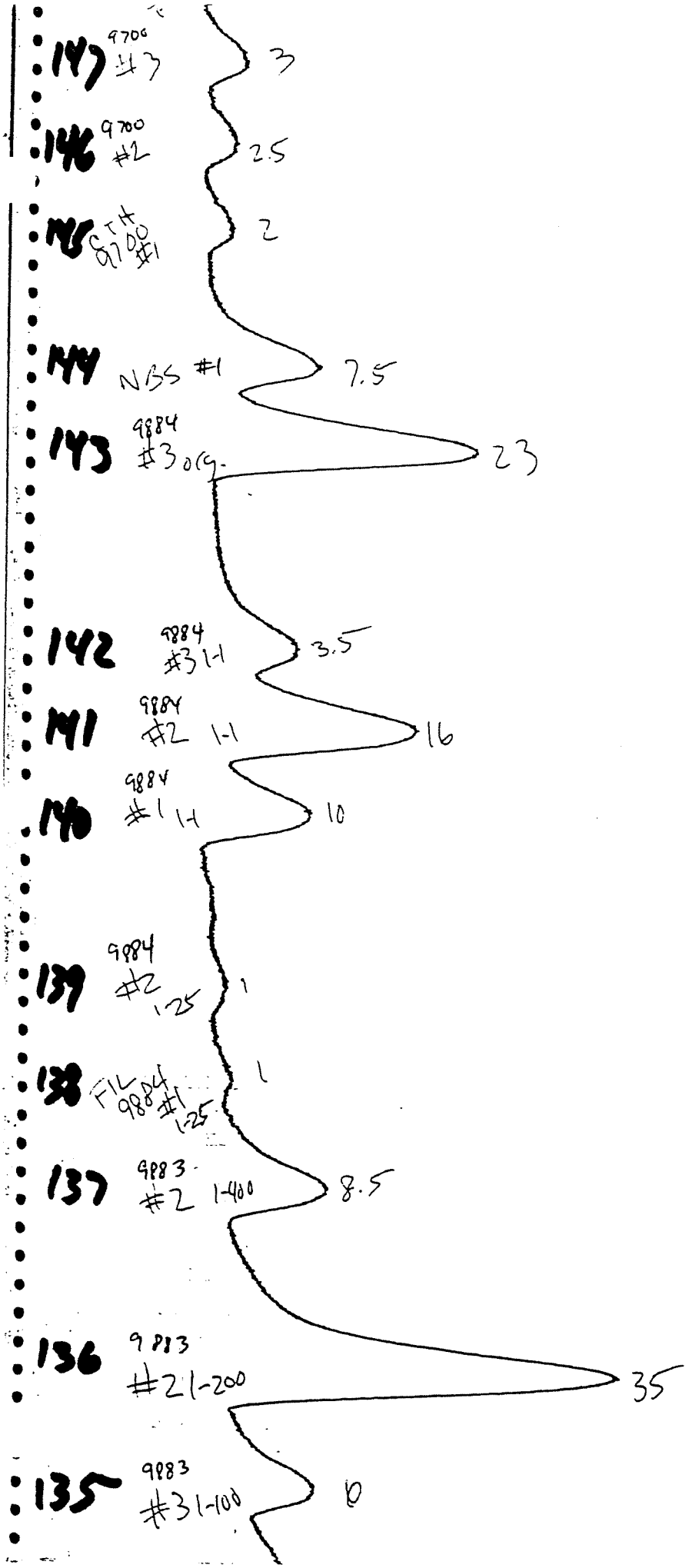
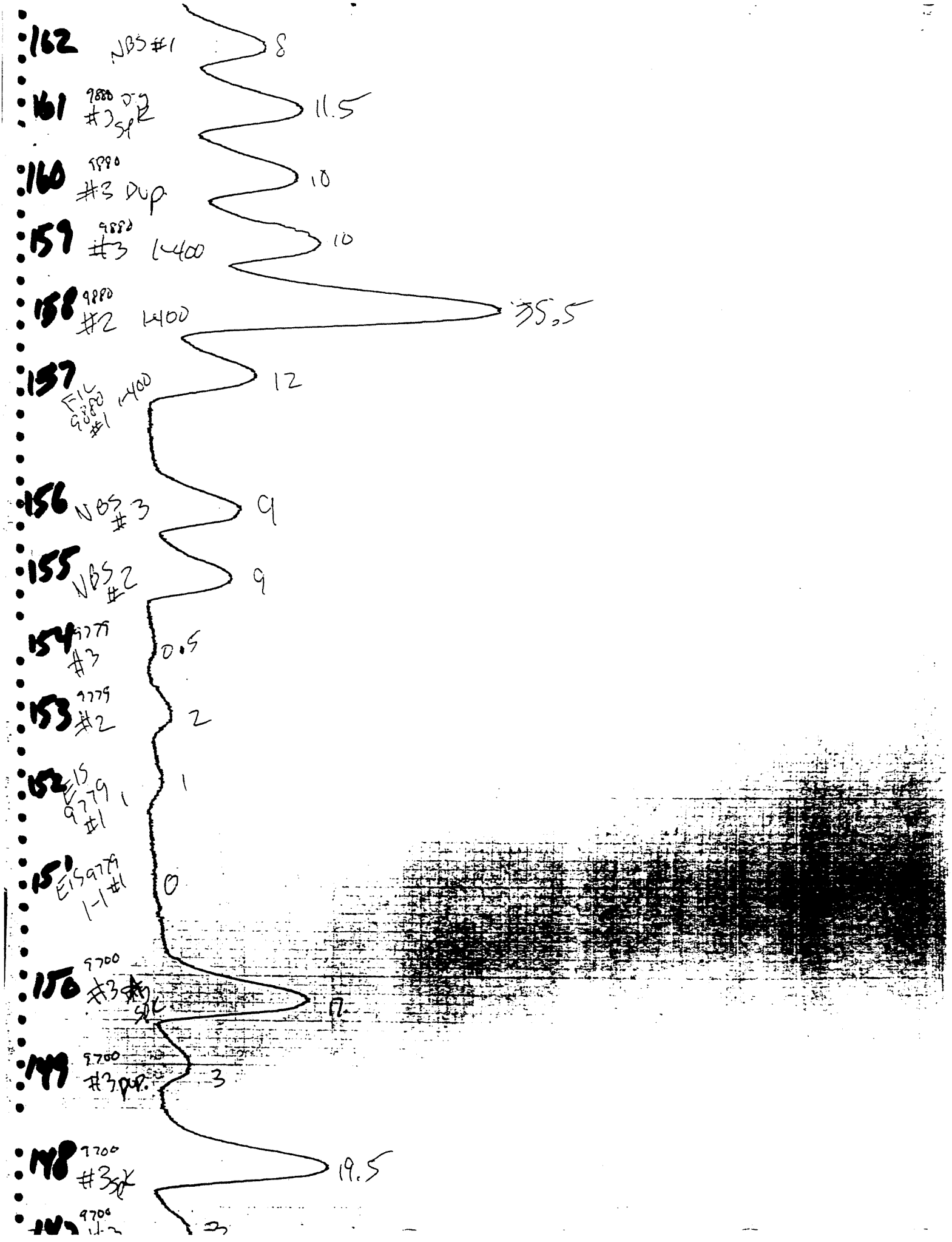
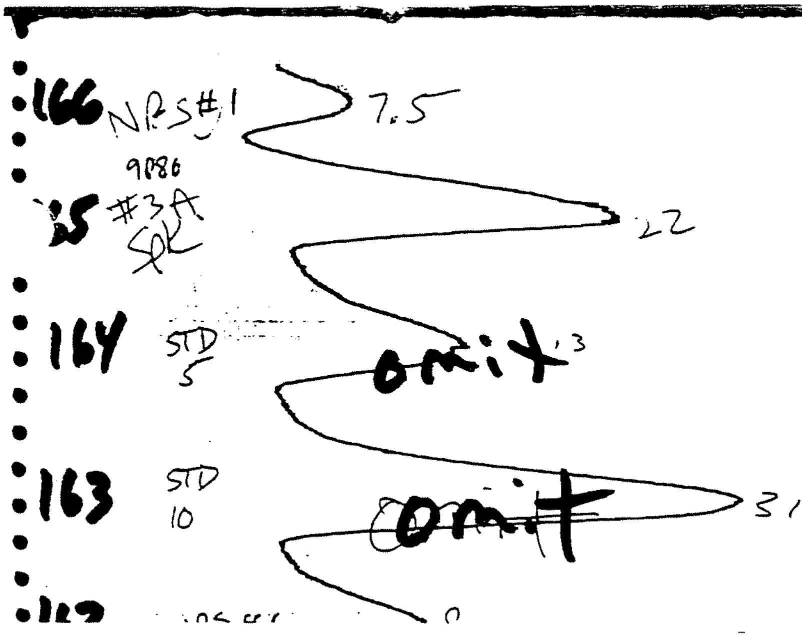
133
9883
#1 1-100
11.5
132
9883
#1 1-25
131
NBSV
7.5
130
9882
#3 1:100
14.5
129
9882
#3 1-200
4
128
9882
#3 1-25
127
9882
#2 1-25
14.5
126
9882
#1 1-25
27
125
9881
#3 1-200
7.5
124
9881
#3 1-200
8.5
123
9881
#2 1-100
19
122
9881
#3 1-50
80


147
9700 #3
3
146
9700 #2
2.5
145
STH 9700 #1
2
144
NBS #1
7.5
143
9884 #3 OIG.
23
142
9884 #3 1-1
3.5
141
9884 #2 1-1
16
140
9884 #1 1-1
10
139
9884 #2 1-25
1
138
FIL 9884 #1 1-25
1
137
9883 #2 1-400
8.5
136
9883 #2 1-200
35
135
9883 #3 1-100
10


162 NBS #1
8
161 9880 #3 SK
11.5
160 9880 #3 Dup
10
159 9880 #3 1400
10
158 9880 #2 1400
35.5
157 E/L 9880 #1 1400
12
156 NBS #3
9
155 NBS #2
9
154 9775 #3
0.5
153 9779 #2
2
152 E/S 9779 #1
1
151 E/S 9779 I-1 #1
0
150 9700 #3 SK
7.
149 9700 #3 Dup.
3
148 9700 #3 SK
19.5
147 9700 I-2
3


166 NBS#1
7.5
9086
165 #3A
SPK
22
164 STD
5
omit
.13
163 STD
10
omit
31
0

PROJECT FIL 3050s Flame

Notebook No. ________

Continued From Page ________

JOB	SAMPLE	INT WT	FINAL VOL	* SOIL MATRIX	ODOR
FIL	9849	1.01 g	100 ml	DB soil w/ roots & grass	ND
	9850	0.99		wet brown clay	ND
	9851	1.00		DB soil w/ grass	ND
	9852	1.01		moist DB soil	ND
	9857	1.00		~~gray~~ dark brown soil	ND
	9858	1.00		DB soil w/ LB clay	ND
	9860	1.00		LB clay w/ DB soil	ND
	9861	1.00		gray soil w/ DB soil	ND
	9862	1.00		Brown soil w/ Brown clay	ND
	9863	0.99		Yellow/gray/brown clay	ND
	9864	1.01		LB clay w/ DB soil	ND
	9873	1.01		orange clay w/ DB soil w/ rocks & glass	ND
	9874	1.01		concrete rock chips DB soil (sandy)	ND
	9875	1.01		clay w/ gray, black & brown colors	ND
	9876	1.01		DB soil & clay	ND
	9877	1.01		sandy DB soil w/ clay	ND
	Dup	1.01		LB soil w/ BLK & orange rocks	ND
	spk	1.01		" "	"
	9878	1.01		" "	"
	9879	0.99		BLK soil w/ blk "Filter pads"	slightly oily & wet
	9880	0.99		sandy BLK soil ~~&~~	
	Dup	0.99		" "	"
	spk	0.99		" "	"
	9885	1.01		gray white & BLK soil w/ rocks	ND
	9886	1.01		BN Gray & BLK soil	ND
	9887	1.01		orange & BLK soil	ND
	9888	1.01		orange rocks w/ BLK soil	ND
	9859	1.00	100 ml	LB clay w/ DB soil	ND
CLP	Reference	1.00	100 ml	sandy light color soil	ND
BLK	—	—	100 ml	—	—

BLK = Black

* DB = Dark Brown

LB = Light Brown

Continued on Page

Read and Understood By

[signature] 12-3-91

Signed | Date | Signed | Date

PROJECT FIL 3050s Furnace Notebook No. _____ Continued From Page _____

JOB	SAMPLE	INT WT	FINAL VOL	*SOIL MATRIX*	ODOR
FIL	9853	1.00 g	100 ml	gray BN soil	ND
	9854	1.01		LtBN soil w/ gray clay	ND
	9855	1.00		BLK soil w/ gray clay & orange rocks	ND
	9856	0.99		rocky, sandy BLK soil	ND
	9857	1.00		DB soil	ND
	9858	1.01		DB soil w/ LB clay	ND
	9859	1.01		LB clay w/ DB soil	ND
	9860	1.00		LB clay w/ DB soil	ND
	9861	0.99		gray soil w/ DB soil	ND
	9862	1.01		BN soil w/ clay	ND
	~~9863~~ Dup	1.01		" "	"
	~~9864~~ SpK	0.99		" "	"
	9863	1.01		yellow/gray/brown clay	ND
	9864	1.01		LB clay w DB soil	ND
	9877	1.01		sandy clay DB soil	ND
	Dup	1.00		" "	"
	SpK	1.00		" "	"
	9878	1.00		LB soil BLK rock orange	ND
	9879	1.01		BLK soil w/ BLK "Fiberads"	slightly oily
	9880	1.01		Sandy BLK soil	oily
	Dup	1.00		" "	"
	SpK	1.01		" "	"
	9885	0.99		BLK gray white soil w/ rocks	ND
	9886	1.01		BN gray, BLK soil	ND
	9887	0.99		orange & BLK soil	ND
	9888	0.99		orange rocks w/ BLK soil	ND
CLP	Reference	1.01	100 ml	sandy light color soil	ND
BLK	—	—	100 ml	—	—

* DB = Dark Brown LB = Lite Brown BLK = Black Continued on Page

Read and Understood By

Signed _____ Date 12-3-91 Signed _____ Date _____

PROJECT Dyctions

Notebook No. _____

Continued From Page _____

JOB	SAMPLE	INTVOL	FINALVOL	
BLK	—	100 ml	100 ml	
DJB	9953			
BLK	—			
EAE	9920			
FLM	9917 + spk			
BLK	—			
FKX	9626	10 ml		
	9628			
	9630			
	9632			
	9634			
	9636			
BLK	—	100 ml		
FL	9839			
	9840			
	9841			
	9842 + spk			
BLK	—	1 g	10 ml	
FKK	9625			
	9627			
	9629			
	9631			
	9633			
	9635			
BLK	—	0.2 g	100 ml	
FIL	9853-56			
	9865-72			
	9877 + spk	x3		
	9878-79			
	9880 + spk			
	9881-84			
CLP	Reference B(1)			
CTH	9700 + spk			
EIS	9979			

Continued on Pa

Read and Understood By

Signed _____ Date 12-4 Signed _____

PROJECT Digestions

Notebook No. _____

Continued From Page _____

JOB	SAMPLE	INT VOL	FINAL VOL	METH
STD	10	10 ml	100 ml	Soil Hg
	5	5 ml		
	3	3 ml		
	1	1 ml		
	0	0 ml		
NBS	River Sed	0.2g		
LCS	NIST D			
FIL	9854			
	9877 + 5pK			
	9878			
	9880 + 5pK			
	9882			
	9883			
	9884			

13

Soil Hg appearance

9853	Dark BN soil BN clay	no odor
9854	Gray clay w/ BN soil	no odor
9855	BN clay/soil w/ orange chips	no odor
9856	rocky/sandy BN soil w/ orange rocks	no odor
9865	Lite BN sandy soil, BN clay	no odor
9866	Drk BN soil	no odor
9867	BLK & BN clay/soil	no odor
9868	Lite BN & Dark BN clay soil	no odor
9869	Dark BN clay/soil	no odor
9870	Lite BN clay/soil	no odor
9871	BN soil/clay	no odor
9872	Lt BN clay/soil	no odor
9877	BLK soil	moth ball odor
9878	BN soil clumps w/ rocks	no odor
9879	Dark BN/BLK soil	moth ball smell
9880	Dark BLK soil w/ rocks	mild/faint smell
9881	Dark Brn soil w/ orange chips	no odor
9882	Dark BN soil/clay w/ orange rocks	
9883	BN soil w/ orange rocks	no
9884	Lite Brown/red clay	no

Continued on Page

Read and Understood By

Signed _____ Date 12-9

Signed _____ Date _____

Exhibit III - Extraction Procedure Toxicity Data

ADVANCED
ENVIRONMENTAL SERVICES INC.
2186 Liberty Drive
P.O. Box 165
Niagara Falls, NY 14304

DELISTING PETITION FOR PROPERTY PARCEL LOCATED AT NIAGARA FALLS BOULEVARD AND 70th STREET, NIAGARA FALLS, NEW YORK (ADDITIONAL ANALYSES - E.P. TOXICITY METALS)

Report Prepared For

WASTE RESOURCE ASSOCIATES, INC.

December 31, 1991
AES Report FIL

COMMITMENT
TO
HONESTY - QUALITY - SERVICE

QA/QC Verification

The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.

Paul T. McMahon
Quality Control Officer

REPORT NARRATIVE

CLIENT: WASTE RESOURCE ASSOCIATES
PROJECT: TOPS DELISTING PETITION
NIAGARA FALLS, NEW YORK
AES PROJECT CODE: FIL
CLIENT SAMPLE ID: B-3, B-4, B-6, B-7, B-11,
B-12, B-15, B-16, B-17, B-19
AES SAMPLE NUMBERS: 9839 - 9848
REPORT DATE: DECEMBER 31, 1991

Additional sampling and testing was conducted at the Niagara Falls Boulevard and 70th Street location in Niagara Falls, New York. Nine soil core samples were collected from the above locations, and transported to Advanced Environmental Services, Inc. by Waste Resource Associates. The borings were collected on three separate days, November 22, 25, and 26, 1991. Samples were transported in coolers packed with "blue ice", and chains of custody were completed and signed on all three days. The chains of custody are located in the report appendix. One soil sample, site B-3, was previously sampled on June 19, 1991. It had been stored in the coldroom in AES' sample control area since that time. All ten sites were subjected to Extraction Procedure Toxicity leaching, followed by the testing of selected metals on the leachate.

The metals analyzed were cadmium, chromium, lead, and mercury. The particular metals analyzed were determined from the total metals concentration of each site, from the initial sampling and testing of this project in the summer of 1991.

Cadmium, chromium, and lead were analyzed by flame atomic absorption. Mercury was analyzed using an automated cold vapor system. All metals analyses were performed using the method of standard additions (MSA), as specified in EPA SW-846. All relevant results and extraction/analysis dates can be found in the report.

ADVANCED
ENVIRONMENTAL SERVICES INC.

EXTRACTION PROCEDURE TOXICITY (EPTOX)
LABORATORY REPORT
(All results are in mg/l)

				AES Lab No.	9839	9840	9841	9842
				Sample ID	B-3	B-4	B-6	B-7
				Collection Method	Grab	Grab	Grab	Grab
				Collection Date	6/19/91	11/25/91	11/22/91	11/25/91
Analysis	Method No.	Allowable Conc. (mg/l)	Quantifiable Limits	Analysis Date				
Lead	7420	5.0	1.00	12/8/91	NR*	BQL**	BQL	NR
Cadmium	7130	1.0	0.05	12/8/91	BQL	NR	BQL	BQL
Chromium	7190	5.0	0.50	12/8/91	NR	NR	NR	BQL
Mercury	7470	0.2	0.0010	12/10/91	NR	0.012	NR	NR

* Not Requested

** Below Quantifiable Limits

ADVANCED
ENVIRONMENTAL SERVICES INC.

EXTRACTION PROCEDURE TOXICITY (EPTOX)
LABORATORY REPORT
(All results are in mg/l)

				AES Lab No.	9843	9844	9845	9846
				Sample ID	B-11	B-12	B-15	B-16
				Collection Method	Grab	Grab	Grab	Grab
				Collection Date	11/26/91	11/26/91	11/25/91	11/26/91
Analysis	Method No.	Allowable Conc. (mg/l)	Quantifiable Limits	Analysis Date				
Lead	7420	5.0	1.00	12/8/91	NR*	NR	NR	BQL**
Cadmium	7130	1.0	0.05	12/8/91	NR	NR	BQL	BQL
Mercury	7470	0.2	0.0010	12/10/91	BQL	0.0079	NR	0.0072

* Not Requested

** Below Quantifiable Limits

ADVANCED ENVIRONMENTAL SERVICES INC.

EXTRACTION PROCEDURE TOXICITY (EPTOX)
LABORATORY REPORT
(All results are in mg/l)

				AES Lab No.	9847	9848
				Sample ID	B-17	B-19
				Collection Method	Grab	Grab
				Collection Date	11/22/91	11/25/91
Analysis	Method No.	Allowable Conc. (mg/l)	Quantifiable Limits	Analysis Date		
Lead	7420	5.0	1.00	12/8/91	NR*	BQL**
Cadmium	7130	1.0	0.05	12/8/91	NR	BQL
Mercury	7470	0.2	0.0010	12/3/91	0.012	NR

* Not requested

** Below Quantifiable Limits

STANDARD ADDITIONS RESULTS*

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD		2 ADD		3 ADD		Final Conc.	r	Q
			CON	ABS	CON	ABS	CON	ABS			
B-3	Cd	0.000	500	0.054	1000	0.110	2000	0.217	BQL*	.999	
B-6	Cd	0.001	500	0.055	1000	0.111	2000	0.214	BQL	.999	
B-7	Cd	0.001	500	0.054	1000	0.107	2000	0.214	BQL	.999	
B-15	Cd	0.000	500	0.057	1000	0.109	2000	0.209	BQL	.999	
B-16	Cd	0.000	500	0.057	1000	0.105	2000	0.207	BQL	.999	
B-19	Cd	0.000	500	0.052	1000	0.102	2000	0.206	BQL	.999	
B-4	Pb	0.001	5000	0.025	10,000	0.050	20,000	0.097	BQL	.999	
B-6	Pb	0.000	5000	0.025	10,000	0.051	20,000	0.099	BQL	.999	
B-16	Pb	0.001	5000	0.026	10,000	0.052	20,000	0.099	BQL	.999	
B-19	Pb	0.000	5000	0.024	10,000	0.051	20,000	0.099	BQL	.999	
B-7	Cr	0.010	2500	0.056	5000	0.119	10,000	0.222	BQL	.999	
* B-4	Hg	7.5	2.50	8.5	5.00	10.5	10.00	13.5	12.0	.996	
* B-11	Hg	0.5	2.50	3.0	5.00	6.5	10.00	12.0	BQL	.999	
* B-12	Hg	8.5	2.50	11.5	5.00	14.0	10.00	19.5	7.90	.999	
* B-16	Hg	7.5	2.50	9.5	5.00	13.0	10.00	17.5	7.20	.996	
* B-17	Hg	4.0	10.0	7.5	20.00	11.0	40.00	17.5	12.0	.999	

* Mercury was analyzed in peak heights using a strip chart recorder.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Sample ID	Matrix	Metals Requested	Date Rec'd	Date Analyzed
B-3	Soil	E. P. TOX Cadmium	6/19/91	12/8/91
B-4	Soil	E. P. TOX Lead and Mercury	11/25/91	12/8/91 12/10/91
B-6	Soil	E. P. TOX Cadmium and Lead	11/22/91	12/8/91
B-7	Soil	E. P. TOX Cadmium and Chromium	11/25/91	12/8/91
B-11	Soil	E. P. TOX Mercury	11/26/91	12/10/91
B-12	Soil	E. P. TOX Mercury	11/26/91	12/10/91
B-15	Soil	E. P. TOX Cadmium	11/25/91	12/8/91
B-16	Soil	E. P. TOX Cadmium, Lead and Mercury	11/26/91	12/8/91 12/10/91
B-17	Soil	E. P. TOX Mercury	11/22/91	12/13/91
B-19	Soil	E. P. TOX Cadmium and Lead	11/25/91	12/8/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9839	Leachate	7130	3010	—	None
9841	Leachate	7130	3010	—	None
9842	Leachate	7130	3010	—	None
9845	Leachate	7130	3010	—	None
9846	Leachate	7130	3010	—	None
9848	Leachate	7130	3010	—	None
9842	Leachate	7190	3010	—	None
9840	Leachate	7420	3010	—	None
9841	Leachate	7420	3010	—	None
9846	Leachate	7420	3010	—	None
9848	Leachate	7420	3010	—	None
9840	Leachate	7470	7470	—	None
9844	Leachate	7470	7470	—	None
9846	Leachate	7470	7470	—	None
9847	Leachate	7470	7470	—	1:4
9843	Leachate	7470	7470	—	None

ADVANCED ENVIRONMENTAL SERVICES, INC.

EXTRACTION TRACEABILITY REPORT

INORGANICS REPORT

A.E.S. JOB CODE: FIL A.E.S. JOB NUMBER: 913867

Technician	Analytical Method	Sample Code(s)	Date of Extraction
Dave Raby	1310	9839	12/3-4/91
Dave Raby	1310	9840	12/3-4/91
Dave Raby	1310	9841	12/3-4/91
Dave Raby	1310	9842	12/3-4/91
Dave Raby	1310	9843	12/3-4/91
Dave Raby	1310	9844	12/4-5/91
Dave Raby	1310	9845	12/4-5/91
Dave Raby	1310	9846	12/4-5/91
Dave Raby	1310	9847	12/4-5/91
Dave Raby	1310	9848	12/4-5/91

APPENDIX A

CHAINS OF CUSTODY

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WASTE RESOURCE ASSOCIATES

SAMPLER'S SIGNATURE: Joseph Paul McJoynn

5533
JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO₃	H₂SO₄	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
6-19-91	8:30	B-2-1		✓	SOIL	✓								
6-19-91	8:30	B-2-2	✓		SOIL	✓								
6-19-91	9:30	B-3-1		✓	SOIL	✓								
6-19-91	9:30	B-3-2	✓		SOIL	✓								
6-19-91	10:00	B-1-1		✓	SOIL	✓								
6-19-91	10:00	B-1-2	✓		SOIL	✓								
6-19-91	~~10:00~~ 11:00	B-6-1		✓	SOIL	✓								
6-19-91	~~10:00~~ 11:00	B-6-2	✓		SOIL	✓								
	JAN:													

TOTAL NUMBER OF CONTAINERS: 8 + 6 Trip Blanks
14 Total

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	
1. RELINQUISHED BY: Joseph Paul McJoynn	6-19-91	11:40	RECEIVED BY: Marcia Lewis
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: LWRP/TORS MARKERS

SAMPLER'S SIGNATURE: Mark Schweppe

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/22/91	10^00 AM - 1^30 PM	B-3-N	✓		SOIL	✓								SW846 TOTAL CADMIUM METHOD 7000
		B-3-S	✓		"	✓								"
		B-3-W	✓		"	✓								"
		B-3-E	✓		"	✓								"
		B-17	✓		"	✓								EP TOX - MERCURY
		B-17-N	✓		"	✓								SW846 METHOD 7000 - TOTAL MERCURY
		B-17-S	✓		"	✓								"
		B-17-W	✓		"	✓								"
		B-17-E	✓		"	✓								"
		B-6	✓		"	✓								EP TOX - CADMIUM, LEAD
		B-6-N	✓		"	✓								SW846 METHOD 7000 - TOTAL LEAD + CADMIUM
		B-6-S	✓		"	✓								"
		B-6-W	✓		"	✓								"
↓	↓	B-6-E	✓		"	✓								"

TOTAL NUMBER OF CONTAINERS: 13

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark Schweppe	11/22/91	1^25 PM	
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: LWRP / [illegible] HARBOR

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: [illegible]

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/25/91		B-19	✓		SOIL	✓							1	EPTOX - CADMIUM, LEAD
		B-19-N	✓		"	✓							1	METHOD 7000 - TOTAL CADMIUM, LEAD
		B-19-S	✓		"	✓							1	"
		B-19-E	✓		"	✓							1	"
		B-19-W	✓		"	✓							1	"
		B-15	✓		"	✓							1	EPTOX - CADMIUM
		B-15-N	✓		"	✓							1	METHOD 7000 - TOTAL CADMIUM
		B-15-S	✓		"	✓							1	"
		B-15-E	✓		"	✓							1	"
		B-15-W	✓		"	✓							1	"
		B-7	✓		"	✓							1	EPTOX - CADMIUM, ~~LEAD~~ ?
		B-7-N	✓		"	✓							1	METHOD 7000 - CADMIUM, ~~LEAD~~ ?
		B-7-S	✓		"	✓							1	"
		B-7-E	✓		"	✓							1	"
		B-7-W	✓		"	✓							1	"

TOTAL NUMBER OF CONTAINERS: 15

Rec'd called 11-25-91

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	
1. RELINQUISHED BY: Mark Schwippert	11/25/91	4:23 P	RECEIVED BY: [signature]
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA - TOPS MARKETS

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/25/91		B-4	✓		SOIL	✓							1	EPTOX - LEAD, MERCURY
		B-4-N	✓		"	✓								METHOD 7000 TOTAL LEAD, MERCURY
		B-4-S	✓		"	✓								"
		B-4-E	✓		"	✓								"
		B-4-W	✓		"	✓								"

TOTAL NUMBER OF CONTAINERS (5)

Rec'd cold 11-25-91

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	
1. RELINQUISHED BY: Mark Schwippert	11/25/91	4:23 P	RECEIVED BY: Colleen A Shulaw
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

CHAIN OF CUSTODY RECORD

PROJECT NAME: WRA - TOPS N.F. BLVD

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO₃	H₂SO₄	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/26/91		B-11	✓		SOIL	✓								*EP TOX - MERCURY
		B-11-N	✓		"	✓								METHOD 7000 - TOTAL MERCURY
		B-11-S	✓		"	✓								"
		B-11-E	✓		"	✓								"
		B-11-W	✓		"	✓								"
		B-12	✓		"	✓								*EP TOX - MERCURY
		B-12-N	✓		"	✓								METHOD 7000 - TOTAL MERCURY
		B-12-S	✓		"	✓								"
		B-12-E	✓		"	✓								"
		B-12-W	✓		"	✓								"
		B-16	✓		"	✓								*EP TOX - MERCURY, CADMIUM, LEAD
		B-16-N	✓		"	✓								METHOD 7000 - MERCURY, CADMIUM, LEAD
		B-16-S	✓		"	✓								"
		B-16-E	✓		"	✓								"
		B-16-W	✓		"	✓								"
													1	

TOTAL NUMBER OF CONTAINERS

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

1. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
Mark T. Schwippert	11/26/91		
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

APPENDIX B

RAW DATA

ADVANCED ENVIRONMENTAL SERVICES
RUN REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

Analyst : MELISSA
Date : 12-08-1991
Time : 08:55:57
Range (mg/l): .04-2.00
Lamp setting: 5 W

EPA Method : 213.1
Element : CADMIUM
Wavelength : 228.8
Energy : 73
Slit setting : .7 H

OBSERVED	TYPE	JOB CODE	SAMPLE CD	QUALITY CNTRL
-0.000	CALIBRATING			
0.000AZ	CALIBRATING			
0.012	CALIBRATING			
0.0591	CALIBRATING			
SENSITIVITY = 0.00				
0.448	CALIBRATING			
2.0092	CALIBRATING			
1.05	CHK	STD		
Expected = 1.00			PERCENT RECOVERY ON REF STANDARD = 105.00	
0.52	CHK	STD		
Expected = 0.50			PERCENT RECOVERY ON REF STANDARD = 104.00	
0.01	CHK	CRDL		
Expected = 0.01			PERCENT RECOVERY ON REF STANDARD = 100.00	
1.04	EPA	1085		
EPA X BAR = 1.01	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %102.97			
0.00	BLK	LAB		
0.00	ORIGINAL	BLK	3010	
0.000	ORIGINAL	FIL	9839	.999
0.054	ORIGINAL	FIL	9839	
0.110	ORIGINAL	FIL	9839	BQL
0.217	ORIGINAL	FIL	9839	
0.001	ORIGINAL	FIL	9841	.999
0.055	ORIGINAL	FIL	9841	
0.111	ORIGINAL	FIL	9841	BQL
0.214	ORIGINAL	FIL	9841	
0.001	ORIGINAL	FIL	9842	
0.054	ORIGINAL	FIL	9842	.999
0.107	ORIGINAL	FIL	9842	
0.214	ORIGINAL	FIL	9842	BQL
0.01	ORIGINAL	FIL	9842	
0.01	DUPLICATE	FIL	9842	
				REL % DIFF = 0.00
0.96 Digestion	SPIKE	FIL	9842	
SPIKE ADDED = 1			% RECOVERY = 95.00	
0.00	ORIGINAL	BLK	3010	
0.000	ORIGINAL	FIL	9845	.999
0.057	ORIGINAL	FIL	9845	
0.109	ORIGINAL	FIL	9845	BQL
0.209	ORIGINAL	FIL	9845	
0.000	ORIGINAL	FIL	9846	.999
0.053	ORIGINAL	FIL	9846	
0.105	ORIGINAL	FIL	9846	BQL
0.207	ORIGINAL	FIL	9846	
0.01	ORIGINAL	FIL	9846	
0.94 Digestion	SPIKE	FIL	9846	
SPIKE ADDED = 1			% RECOVERY = 93.00	

0.00	ORIGINAL	BLK	3010
.000	ORIGINAL	FIL	9845 .999
0.057	ORIGINAL	FIL	9845
0.109	ORIGINAL	FIL	9845 BQL
0.209	ORIGINAL	FIL	9845
0.000	ORIGINAL	FIL	9846 .999
0.053	ORIGINAL	FIL	9846
0.105	ORIGINAL	FIL	9846 BQL
0.207	ORIGINAL	FIL	9846
0.01	ORIGINAL	FIL	9846
0.94 Digestion	SPIKE	FIL	9846
SPIKE ADDED = 1			% RECOVERY = 93.00
0.000	ORIGINAL	FIL	9848
0.052	ORIGINAL	FIL	9848 .999
0.102	ORIGINAL	FIL	9848 BQL
0.206	ORIGINAL	FIL	9848
0.00	ORIGINAL	BLK	3050
1.03	CLP	REF	
0.01	ORIGINAL	FIL	9849
0.01	ORIGINAL	FIL	9850
0.01	ORIGINAL	FIL	9851
0.01	ORIGINAL	FIL	9852
0.00	BLK	LAB	
1.04	EPA	1085	
EPA X BAR = 1.01	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %102.97		
0.01	ORIGINAL	FIL	9857
0.01	ORIGINAL	FIL	9858
0.01	ORIGINAL	FIL	9859
0.01	ORIGINAL	FIL	5860
0.00	ORIGINAL	FIL	9861
0.01	ORIGINAL	FIL	9862
0.02	ORIGINAL	FIL	9863
0.01	ORIGINAL	FIL	9864
0.01	ORIGINAL	FIL	9873
0.01	ORIGINAL	FIL	9874
0.01	DUPLICATE	FIL	9874
			REL % DIFF = 0.00
1.02	SPIKE	FIL	9874
SPIKE ADDED = 2			% RECOVERY = 101.50
0.00	BLK	LAB	
1.06	EPA	1085	
EPA X BAR = 1.01	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %104.95		
0.02	ORIGINAL	FIL	9875
0.01	ORIGINAL	FIL	9876
0.02	ORIGINAL	FIL	9877
0.02	DUPLICATE	FIL	9877
			REL % DIFF = 0.00
1.03 Digestion	SPIKE	FIL	9877
SPIKE ADDED = 1			% RECOVERY = 101.00
0.01	ORIGINAL	FIL	9878
0.03	ORIGINAL	FIL	9879
0.02	ORIGINAL	FIL	9880
0.02	DUPLICATE	FIL	9880
			REL % DIFF = 0.00
1.03 Digestion	SPIKE	FIL	9880
SPIKE ADDED = 1			% RECOVERY = 101.00
0.01	ORIGINAL	FIL	9885
0.01	ORIGINAL	FIL	9886
0.01	ORIGINAL	FIL	9887
0.01	ORIGINAL	FIL	9888
0.00	BLK	LAB	
1.05	EPA	1085	
EPA X BAR = 1.01	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %103.96		

ADVANCED ENVIRONMENTAL SERVICES
RUN REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

Perkin Elmer 4/1000

Analyst : MELISSA
Date : 12-08-1991
Time : 12:35:43
Range (mg/l): 10.00
Lamp setting: 25 MA

EPA Method : 218.1
Element : CHROMIUM
Wavelength : 357.9
Energy : 73
Slit setting : .7 H

OBSERVED	TYPE	JOB CODE	SAMPLE CD	QUALITY CNTRL
-0.001	CALIBRATING			
0.000AZ	CALIBRATING			
0.027	CALIBRATING			
0.50S1	CALIBRATING			
SENSITIVITY = 0.08				
0.436	CALIBRATING			
10.00S2	CALIBRATING			
2.53	CHK	STD		
Expected = 2.50			PERCENT RECOVERY ON REF STANDARD = 101.20	
4.85	CHK	STD		
Expected = 5.00			PERCENT RECOVERY ON REF STANDARD = 97.00	
5.34	EPA	1085		
EPA X BAR = 5.06	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %105.53			
0.04	BLK	LAB		
0.09	ORIGINAL	BLK	3010	
0.010	ORIGINAL	FIL	9842	
0.056	ORIGINAL	FIL	9842	
0.119	ORIGINAL	FIL	9842	
0.222	ORIGINAL	FIL	9842	
0.13	ORIGINAL	FIL	9842	
0.06	ORIGINAL	FIL-D	9842	
4.79	ORIGINAL	FIL-S(Digestion)	9842 Spiked = 5.00	
0.03	BLK	LAB	% Recovery = 96	mm 12-8-91
5.19	EPA	1085		
EPA X BAR = 5.06	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %102.57			

ADVANCED ENVIRONMENTAL SERVICES
RUN REPORT
ATOMIC SPECTROSCOPY DEPARTMENT Perkin Elmer 4,000

Analyst : MELISSA
Date : 12-08-1991
Time : 11:49:01
Range (mg/l): 1-20
Lamp setting: 10 W

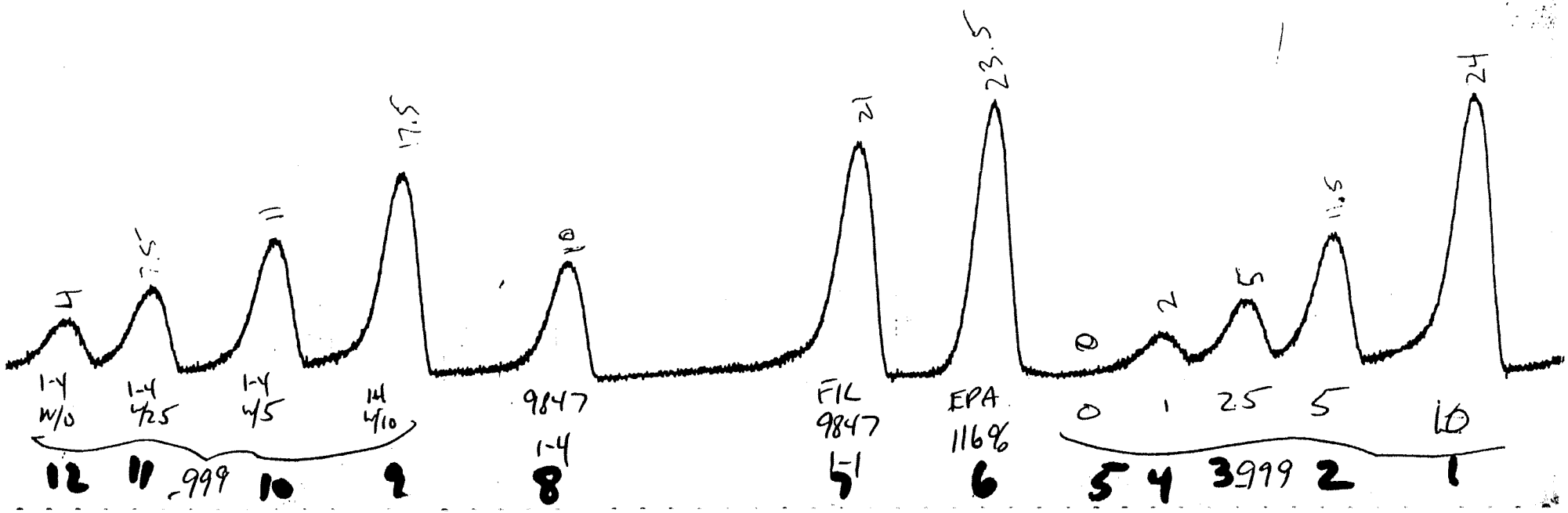
EPA Method : 239.1
Element : LEAD
Wavelength : 283.3
Energy : 69
Slit setting : .7 H

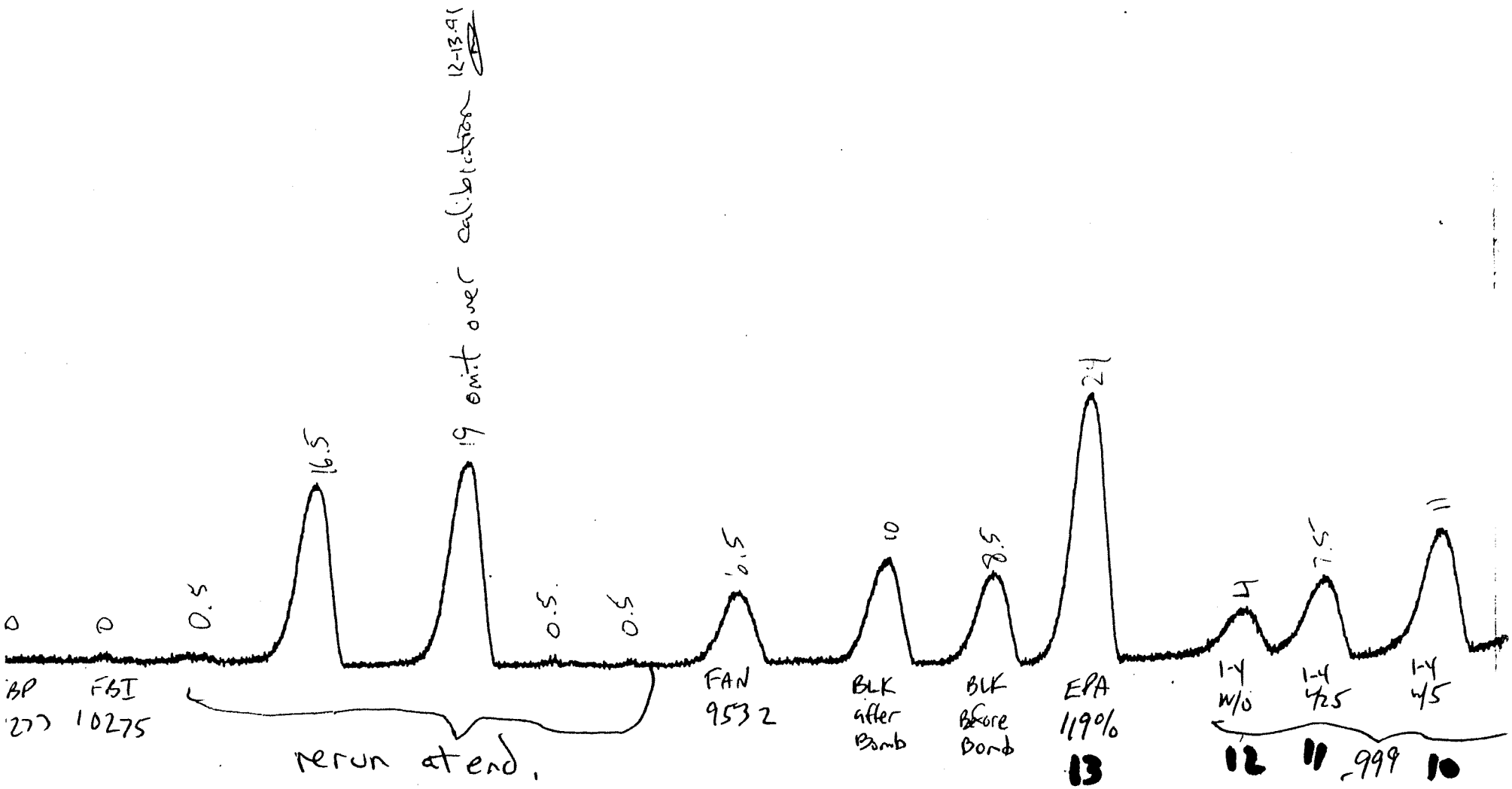
OBSERVED	TYPE	JOB CODE	SAMPLE CD	QUALITY CNTRL
-0.000	CALIBRATING			
0.000AZ	CALIBRATING			
0.010	CALIBRATING			
1.00S1	CALIBRATING			
SENSITIVITY = 0.44				
0.187	CALIBRATING			
20.00S2	CALIBRATING			
4.99	CHK	STD		
Expected = 5.00			PERCENT RECOVERY ON REF STANDARD =	99.80
10.24	CHK	STD		
Expected = 10.0			PERCENT RECOVERY ON REF STANDARD =	102.40
5.35	EPA	1085		
EPA X BAR = 5.12	PERCENT RECOVERY ON EPA STANDARD OBSERVED =	%104.49		
0.02	BLK	LAB		
0.07	ORIGINAL	BLK	3010	
0.001	ORIGINAL	FIL	9840	.999
0.025	ORIGINAL	FIL	9840	
0.050	ORIGINAL	FIL	9840	BQL
0.097	ORIGINAL	FIL	9840	
-0.000	ORIGINAL	FIL	9841	.999
0.025	ORIGINAL	FIL	9841	
0.051	ORIGINAL	FIL	9841	BQL
0.099	ORIGINAL	FIL	9841	
0.05	ORIGINAL	BLK	3010	
0.001	ORIGINAL	FIL	9846	.999
0.026	ORIGINAL	FIL	9846	
0.052	ORIGINAL	FIL	9846	BQL
0.099	ORIGINAL	FIL	9846	
0.07	ORIGINAL	FIL	9846	
0.04	ORIGINAL	FIL-D	9846	
10.41	ORIGINAL	FIL-S(Digestion)	9846	Spike added = 10.0
0.000	ORIGINAL	FIL	9848	.999
0.024	ORIGINAL	FIL	9848	
0.051	ORIGINAL	FIL	9848	BQL
0.099	ORIGINAL	FIL	9848	
0.03	BLK	LAB		
4.96	EPA	1085		
EPA X BAR = 5.12	PERCENT RECOVERY ON EPA STANDARD OBSERVED =	96.88		

% Recovery = 104
mo
12-8-91

12-13-91
Hg #6 ps 3P-39
FIL 9847

FIL
FAN
FHU 10
FBI 10
FBP 10
DQR 10
AIE 10423
BJS 10349
10356-
10360

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0
0.5
16.5
19 omit over calibration 12-13-91
0.5
5.0
FAN 9532
5.0
10
BLK after Bomb
9.5
BLK Before Bomb
21
EPA 119%
13
4
1-4 w/o
5.5
1-4 4/25
11
1-4 4/5
BP 277
FSI 10275
rerun at end.
12
11
.999
10

BLANK — INT VOL 1600ml DI H_2O — MAX ACID 400ml

Time	Int ph	Adj. ph	Acid added	Total Acid
600 pm	5.90	3.64	30ml	30ml
615	3.50	—	—	30ml
645	3.62	—	—	30ml
745	3.53	—	—	30ml
845	3.61	—	—	30ml
945	3.72	—	—	30ml
1045	3.81	—	—	30ml
1200	3.70	—	—	30ml

FINAL PH 3.59
Vol H_2O Added ~~300~~ 0ml

FIL 9839 — Int wt 100g — INT VOL 1600ml DI H_2O — MAX ACID 400ml
(orange clay w/ black soil and roots no odor)

Time	Int ph	Adj. ph	Acid added	Total acid
600 pm	9.56	~~5.0~~ 5.04	40ml	40ml
615	7.03	5.05	120ml	160ml
645	6.31	5.06	140ml	300ml
745	6.13	5.40	100ml	400ml
845	5.79	—	—	400ml
945	6.00	—	—	400ml
1045	6.10	—	—	400ml
1200	6.18	—	—	400ml

Final ph 6.39
Vol H_2O Added 0ml

Continued on Page

Read and Understood By

Signed — Date — Signed — Date

12-3-91

FIL 9840 Int wt 100g Int Vol 1600ml DI H_2O MAX ACID 400ml
(Orange clay w/ blk soil, no odor)

Time	Int pH	Adj pH	Acid added	Total Acid
600 pm	9.46	5.03	40ml	40ml
615	7.01	5.12	250ml	290ml
645	6.11	5.43	110ml	400ml
745	6.01	—	—	400ml
845	6.10	—	—	400ml
945	6.18	—	—	400ml
1045	6.23	—	—	400ml
1200	6.23	—	—	400ml

Final Ph 6.39
Vol H_2O added 0ml

FIL

FIL 9841 Int wt 100g Int Vol 1600ml DI H_2O MAX ACID 400ml
(Lt brown soil w/ roots no odor)

Time	Int pH	Adj PH	Acid Added	Total Acid
600 pm	9.52	5.11	60ml	60ml
615	6.55	5.01	100ml	160ml
645	6.25	5.10	100ml	260ml
745	6.12	5.10	140ml	400ml.
845	5.72	—	—	400ml
945	5.95	—	—	400ml
1045	6.02	—	—	400ml
1200	6.11	—	—	400ml

Final Ph 6.31
Vol H_2O added 0ml

Continued on Page

Read and Understood By

Signed _____ Date 12-3-91 Signed _____ Date _____

PROJECT _____ Continued From Page _____

FIL 9842 Int wt 100g Int vol 1600 ml DI H_2O MAX ACID 400 ml

(brown clay & soil, no added)

Time	Int ph	Adj Ph	Acid Added	Total Acid
600 pm	9.80	5.02	70 ml	70 ml
645	6.97	4.80	150 ml	220 ml
645	6.23	5.02	130 ml	350 ml
745	6.09	5.69	50 ml	400 ml
845	6.00	—	—	400 ml
945	6.18	—	—	400 ml
1045	6.23	—	—	400 ml
1200	6.30	—	—	400 ml

Final ph 6.52

Vol H_2O added 0

FIL 9843 Int wt 100g Int vol 1600 ml DI H_2O MAX ACID 400 ml

(Dark brown soil w/ orange brick chips, no added)

Time	Int ph	Adj. Ph	Acid Added	Total Acid
600 pm	9.33	4.71	60 ml	60 ml
615	6.83	4.71	120 ml	180 ml
645	6.29	5.10	120 ml	300 ml
745	6.00	5.20	100 ml	400 ml
845	5.55	—	—	400 ml
945	5.73	—	—	400 ml
1045	5.80	—	—	400 ml
1200	5.98	—	—	400 ml

Final ph 6.15

Vol H_2O added 0

Continued on Page

Read and Understood By

Signed _____ Date 12-3-91 Signed _____ Date _____

Notebook No. _____

PROJECT _____ Continued From Page _____

To FIL 9844 Int Wt 100g Int Vol 1600ml DI H_2O MAX ACID 400ml

(Lt Brown pinhole)

Time	Int ph	Adj Ph	Acid Added	Total Acid
600 p.m	9.19	4.81	100ml	100ml
615	6.79	5.55	300ml	400ml
645	6.13	—	—	400ml
745	6.25	—	—	400ml
845	6.31	—	—	400ml
945	6.34	—	—	400ml
1045	6.30	—	—	400ml
1200	6.43	—	—	400ml

Final Ph 5.15

Vol H_2O added 0ml

FIL 9845

Time	Int ph	Adj PH	Acid Added	Total Acid
600pm	9.56	4.60	100ml	100ml
615	6.29	4.93	100ml	200ml
645	5.82	4.95	100ml	300ml
745	5.19	—	—	300ml
845	5.49	4.90	100ml	400ml
945	5.07	—	—	400ml
1045	5.12	—	—	400ml
1209	5.26	—	—	400ml

FINAL PH 4.58

Vol H_2O added 0ml

Continued on Page

Read and Understood By

12-4-91

Signed Date Signed Date

FIL 9846

Time	Ext pH	Adj. Ph	Acid Added	Total Acid
600 pm	9.46	4.88	100 ml	100 ml
615	6.44	5.12	100 ml	200 ml
645	5.84	4.97	100 ml	300 ml
745	5.40	4.87	100 ml	400 ml
845	4.98	—	—	400 ml
945	5.27	—	—	400 ml
1045	5.32	—	—	400 ml
1200	5.47	—	—	400 ml

Final Ph 4.91
Vol H_2O added 0 ml

FIL 9847

Time	Ext ph	Adj. Ph	Acid Added	Total Acid
600 pm	9.61	4.40	100 ml	100 ml
615 pm	6.66	5.08	250 ml	350 ml
645	5.39	5.18	50 ml	400 ml
745	5.30	—	—	400 ml
845	5.43	—	—	400 ml
945	5.77	—	—	400 ml
1045	5.73	—	—	400 ml
1200	6.01	—	—	400 ml

Final Ph 4.86
Vol H_2O added 0 ml

Continued on Page

Read and Understood By

Signed _____ Date 12-4-91 Signed _____ Date _____

PROJECT _____ Continued From Page _____

FIL 9848

Time	Init pH	Adj. pH	Acid Added	Total Acid
600 pm	9.49	4.03	100ml	100ml
615	5.29	4.71	50ml	150ml
645	4.88	—	—	150ml
745	5.41	4.88	50ml	200ml
845	4.98	—	—	200ml
945	~~4~~5.19	—	—	200ml
1045	5.35	~~4.90~~	50ml	250ml
1200	5.33	4.86	75ml	325ml

Final pH 5.11
Vol H_2O added 75ml

Continued on Page

Read and Understood By

Signed _____ Date 12-4-91 Signed _____ Date _____

JOB	SAMPLE	INTVOL	FINALVOL	METHOD
BLK	—	100ml	100ml	413.1 Hg
DUP	9953			1
BLK	—			413
EAE	9920			1
FLM	9917 +spk			
BLK	—			Hg tubes
FKX	9626	10ml		
	9628			
	9630			
	9632			
	9634			
	9636			
BLK	—	100ml		3010
FL	9839			
	9840			
	9841			
	9842 +spk			
BLK	—	1g	10ml	Hg filters
FKX	9625			
	9627			
	9629			
	9631			
	9633			
	9635			
BLK	—	0.2g	100ml	Sol'n Hg
FL	9853-56			
	9865-72			
	9877 +spk			
	9878-79			
	9880 +spk			
	9881-84			
CLP	Reference SD			
CTH	9700 +spk			
EIS	9999			

x3

Continued on Page

Read and Understood By

Signed _____ Date 12-4

Signed _____ Date _____

PROJECT Digestions

Notebook No. _____

Continued From Page _____

Job	Sample	Int vol	Final vol	Method
Blank	—	100ml	100mL	4.1.3 M/H
DOE	9972			
DOE	9975			
Blank	—			4.1.3
AZW	9961			
AZW	9961 dup			
AZW	9961 spk 1			
AZW	10005			
Blank				3010
FIL	9845			
FIL	9846			
FIL	9846 spk 1			
FIL	9848			

Continued on Page

Read and Understood By

Signed: Dana J McDougall — Date: 12-5-91

Signed _____ — Date _____

PROJECT 245.2 Liquid

Notebook No. _____ 33

Continued From Page 32

JOB	SAMPLE	PKT HGT	MERCURY PPB	MERCURY PPM	DIL	MERCURY MG/L	QC
FKX	9903	0	BQL		1-1	BQL	
	9905	0	BQL		1-1	BQL	
	9907	0	BQL		1-1	BQL	
	9909	0	BQL		1-1	BQL	
	9911	2	1.03	0.001	1-1	0.002	
	9913	0	BQL		1-1	BQL	
	9915	1	0.61	0.0006	1-1	0.0012	
EPA	1085	12	5.27	~8.5			62%
EPA	1085	13.5	5.90	~8.5			69%
EPA	1085	15	6.54	~8.5			77%
STD	0.0100	21					
	0.0050	10.5					
	0.0025	5					
	0.0010	2					
	0.000	0					
			limit curve .9999				
FIL	9840 w/10	13.5					
	w/5	10.5					
	w/2.5	8.5	.996			0.0118	
	w/0	7.5	$\bar{x}$ = 0.0118				
	org	17	8.14	0.008			
FIL	9843	2	1.03	0.0010			
	w/10	12					
	w/5	6.5	.999				
	w/2.5	3	$\bar{x}$ = 0.0003		BQL	BQL	
	w/0	0.5					
FIL	9844	18	limit				
	w/10	22	curve				
	w/5	13.5	doesn't work				
	w/2.5	11.5					
	w/0	8.5					

Continued on Page 34

Read and Understood By

Signed _____ Date 12-10 Signed _____ Date _____

PROJECT 245.2 Liquid

Notebook No. _____

Continued From Page 33

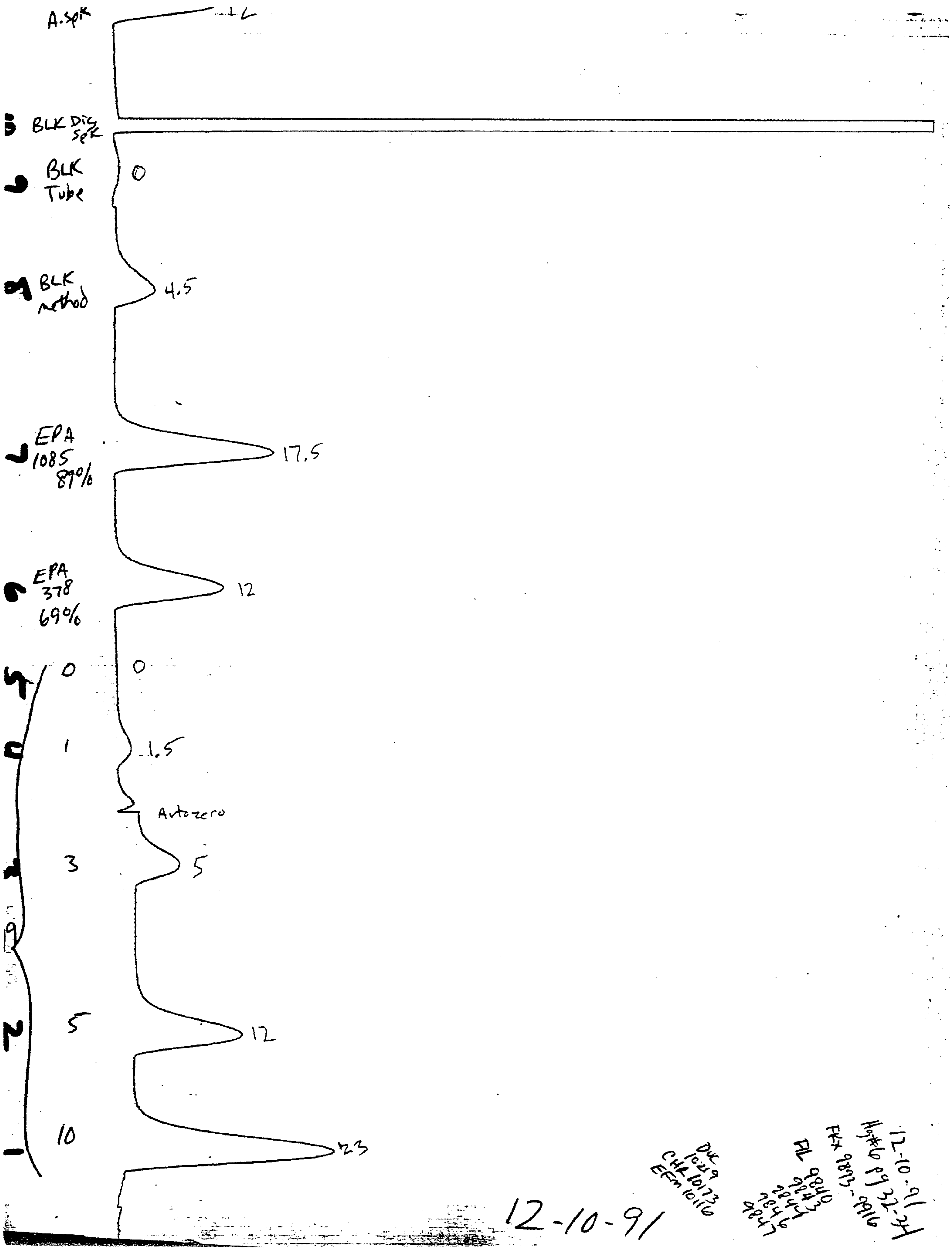
JOB	SAMPLE	PKT HGT	MERCURY PPB	MERCURY PPM	DIL	MERCURY MG/L	QC
FIL	9846	16.5	7.37	0.0078			
	w/10	17.5					
	w/5	13	.996	0.0072		0.0072	
	w/2.5	9.5					
	w/0	7.5					
FIL	9847	62	omit				
	w/10	39.5	due to				
	w/5	36	over				
	w/2.5	31.5	calibration				
	w/0	28.5	of sample				
FIL	9844	18.5	8.81	0.0088			
	w/10	19.5					
	w/5	14	.994			0.0079	
	w/2.5	13		0.0079			
	w/0	8.5					
	w/2.5	11.5					
FIL	9847	4.5	2.21	0.0022	1-4	0.0088	
	w/10	13.5	dilution		1-4		
	w/5	6.5			1-4		
	w/2.5	4.5	.999	0.0021	1-4	0.0084	
	w/0	2		x4	1-4		
	w/10	11.5		0.0084	1-4		
EPA	1085 x2.5	14.5	6.93 x 8.5				82%
DUC	10219	0	BQL			BQL	
CHR	10173	0.5	0.32	BQL		BQL	
EFM	10116	0.5	0.32	BQL		BQL	
FIL	9846	17	8.11	0.0081			
	DUP	15.5	7.40	0.0074			95
	spk/10	18.5	8.81 x 2 = 17.62 =	0.0762	- 0.0081		~~73~~ %
EPA	1085	13	6.22 x 8.5				73%

Continued on Page

Read and Understood By

Signed _____ Date 12-10

Signed _____ Date _____

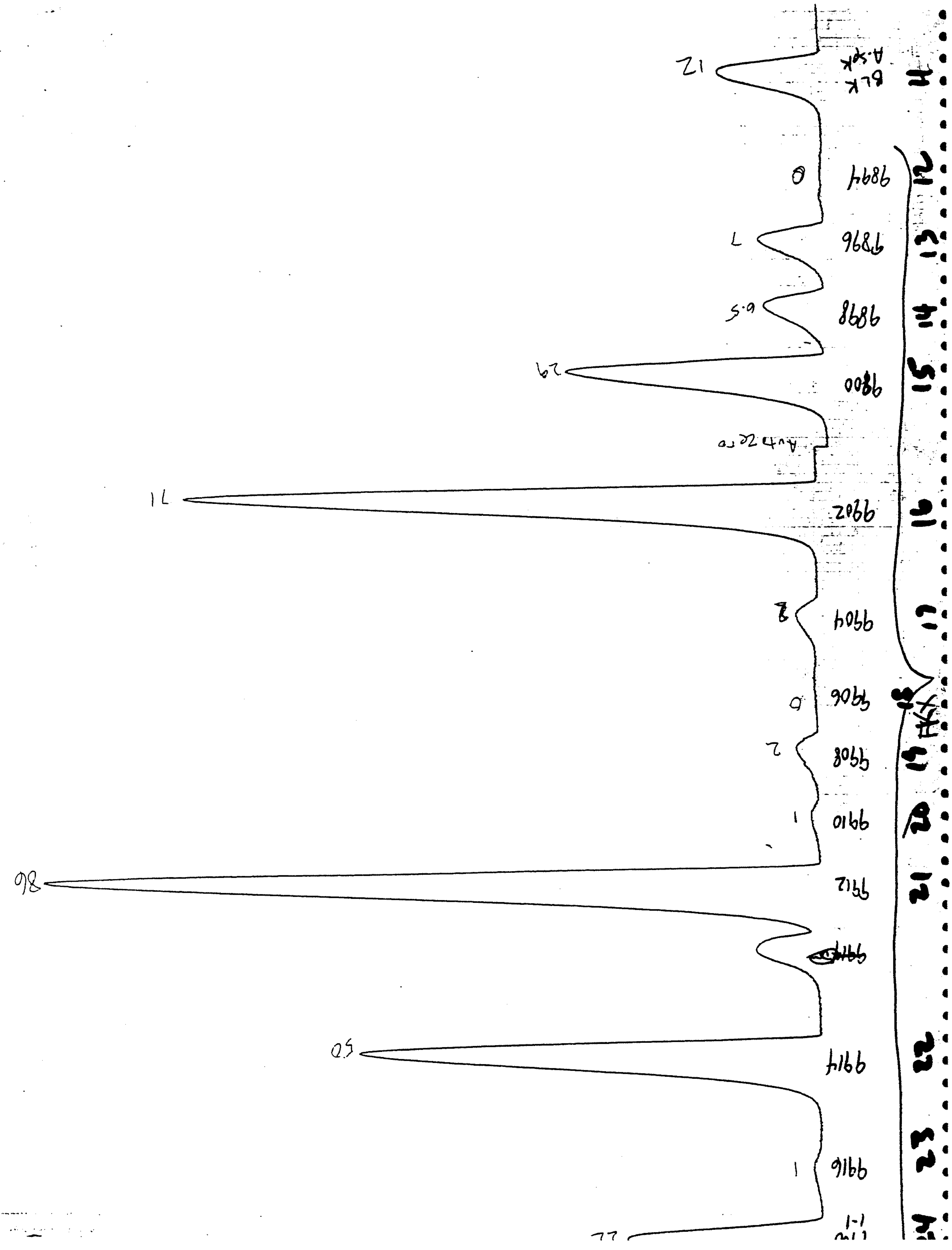


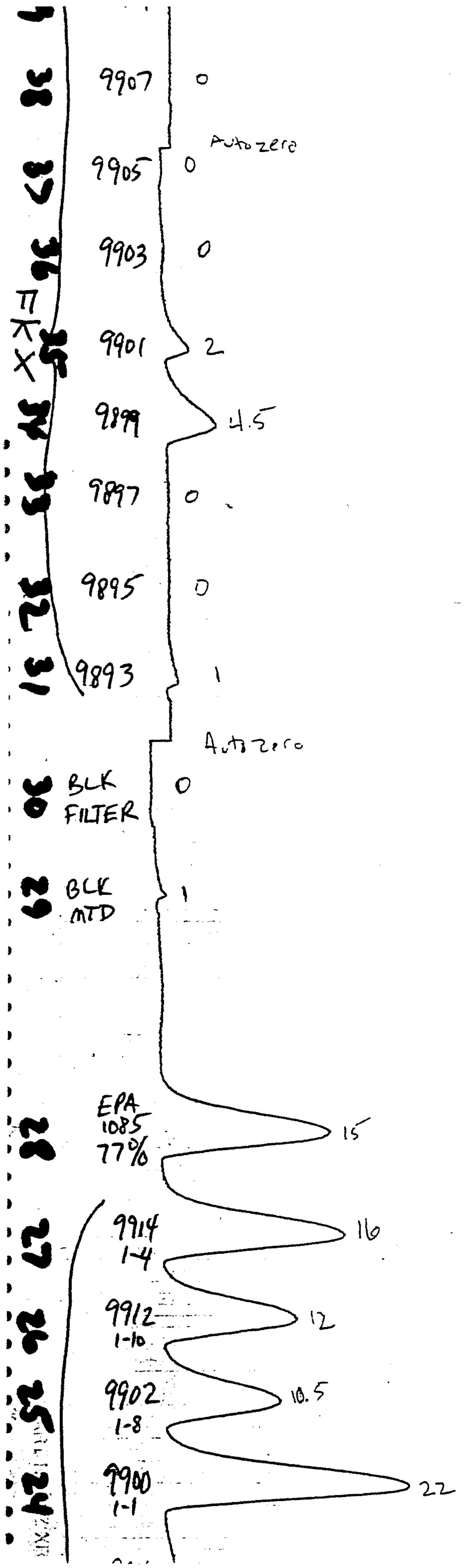
12-10-91

Dup 10:29
CHK 10173
EFM 10116

FIL 9840
9843
9844
9846
9847

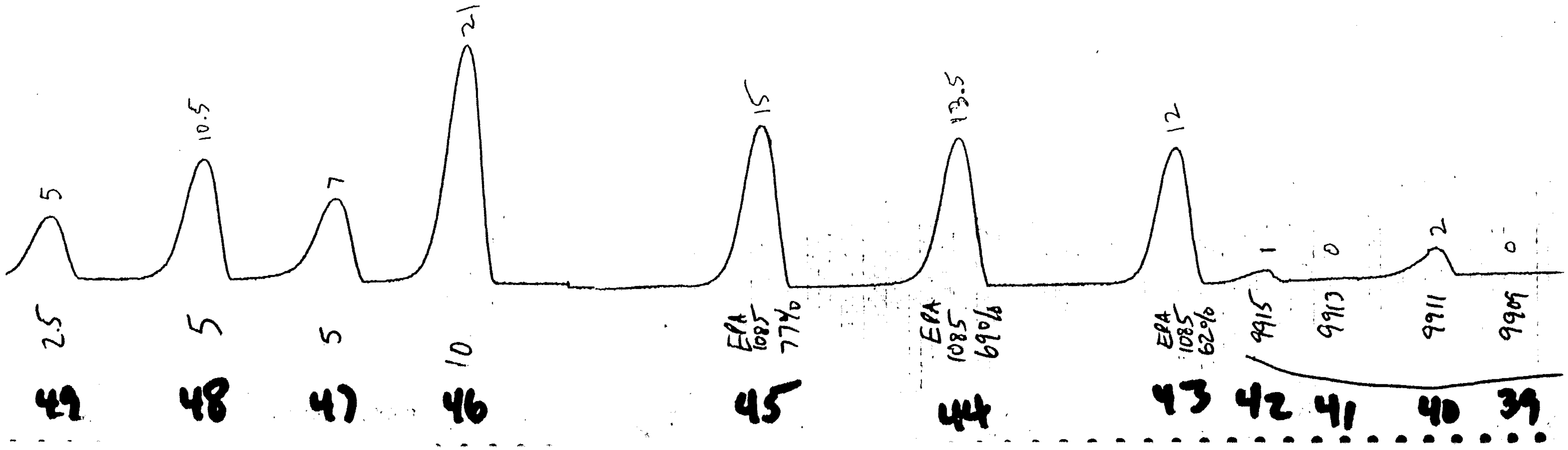
12-10-91
Hg#6 pg 32-34
FKX 9893-9916

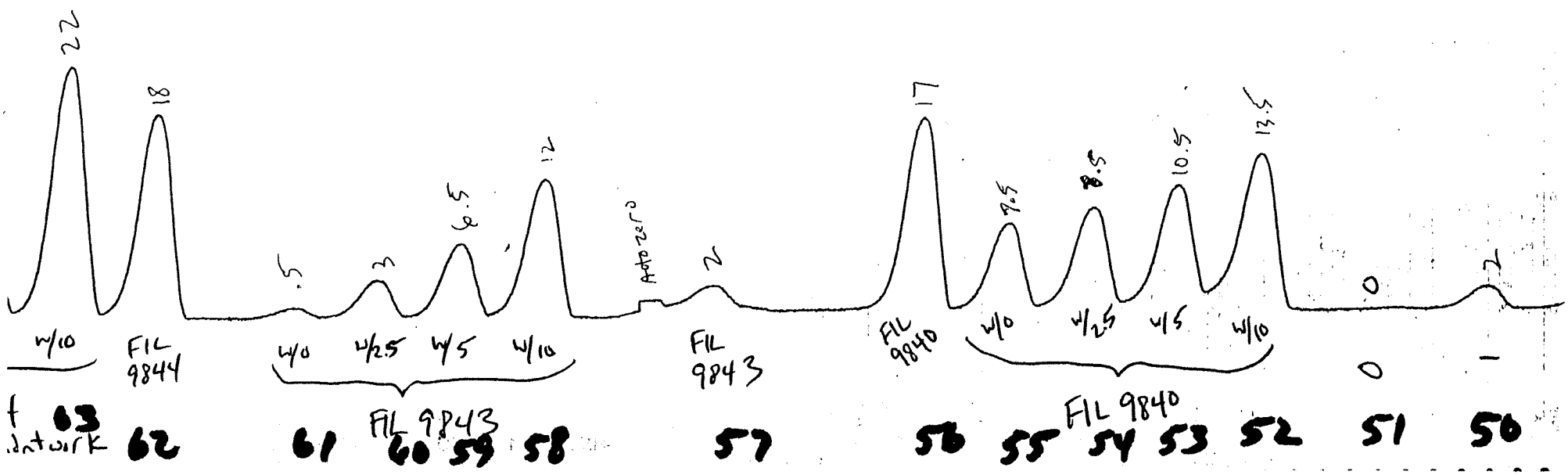

BLK
A.SPK
12
9894
0
9896
7
9898
0.5
9900
29
Auto Zero
9902
71
9904
9906
0
9908
2
9910
1
9912
86
9914
50
9916
1
1-1


9907 0
Autozero
9905 0
9903 0
9901 2
9899 4.5
9897 0
9895 0
9893 1
Autozero
BLK FILTER 0
BLK MTD 1
EPA 1085 77% 15
9914 1-4 16
9912 1-10 12
9902 1-8 10.5
9900 1-1 22

12-10-91
Hg #6 pg 32-34

FIL
9840
9843
9844
9846
~~9847~~




22
18
.5
3
6.5
12
Autozero
2
17
7.5
8.5
10.5
13.5
0
2
W/10
FIL 9844
W/0
W/2.5
W/5
W/10
FIL 9843
FIL 9843
FIL 9840
W/0
W/2.5
W/5
W/10
FIL 9840
0
–
f
network
63
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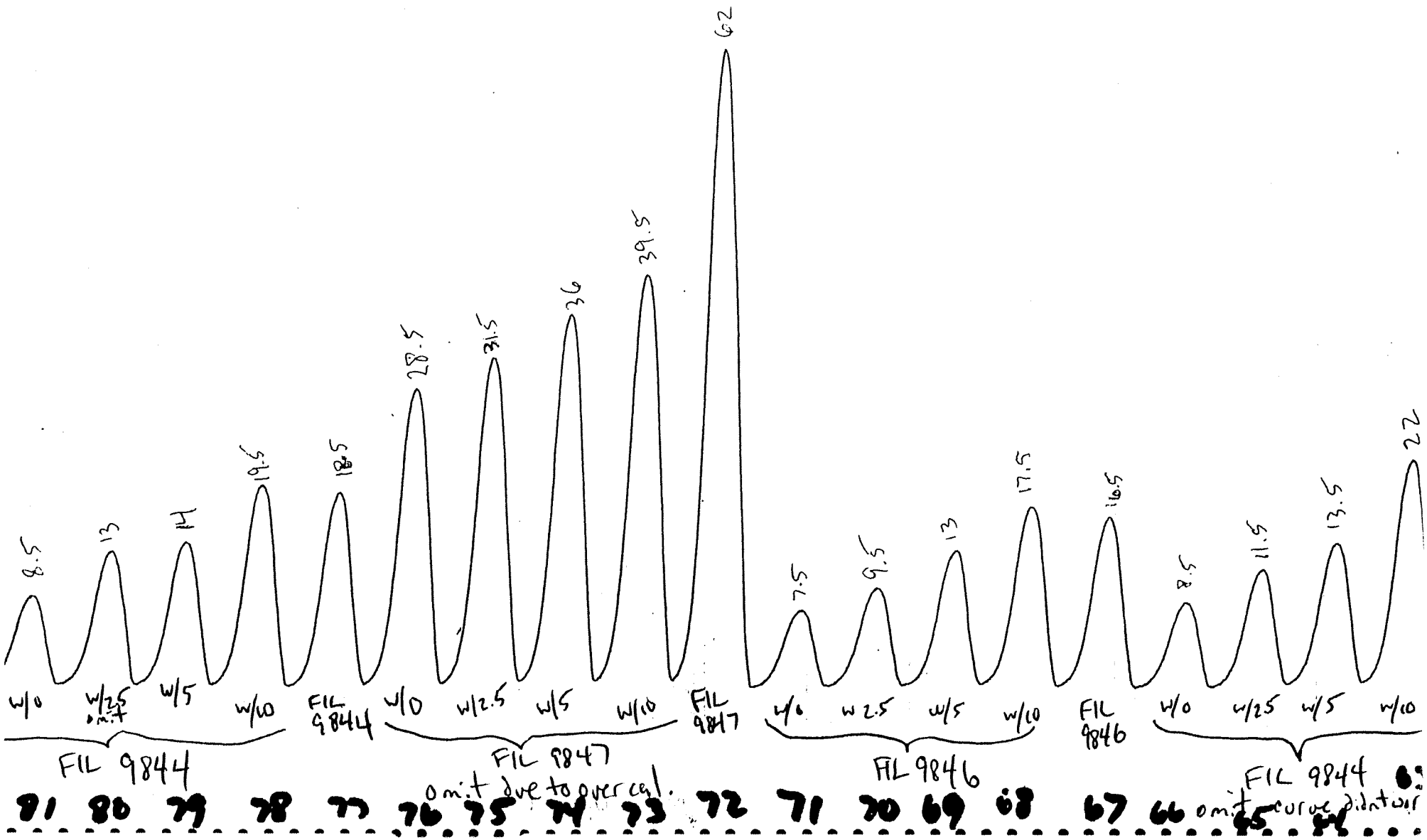
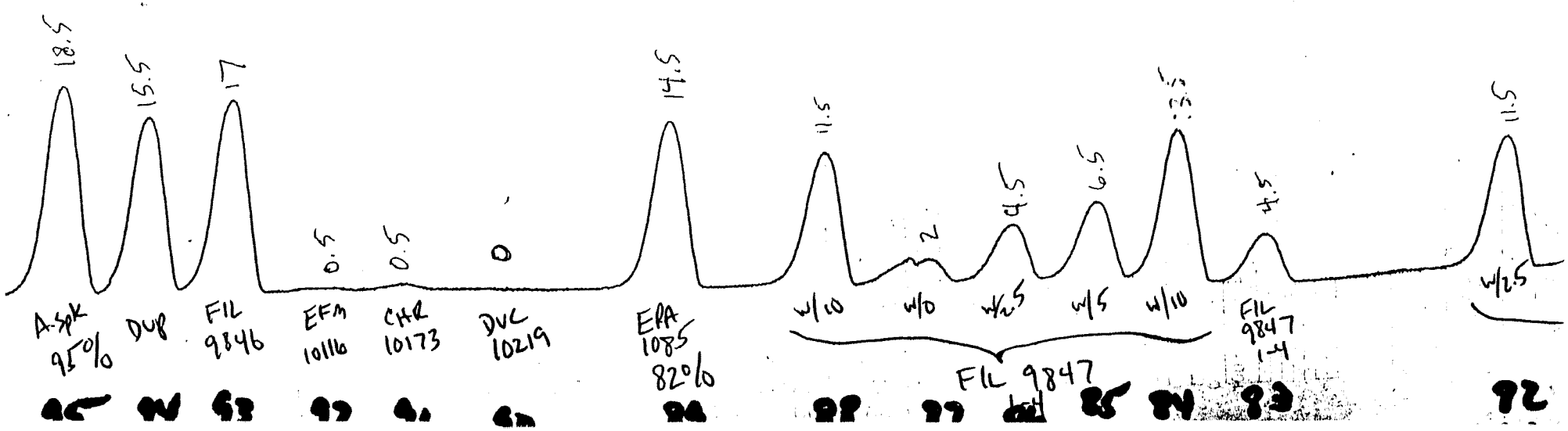
61
60
59
58
57
56
55
54
53
52
51
50


5.8
13
14
19.5
18.5
28.5
31.5
36
39.5
62
7.5
9.5
13
17.5
16.5
8.5
11.5
13.5
22
w/0
w/2.5
w/5
w/10
FIL 9844
w/0
w/2.5
w/5
w/10
FIL 9847
w/0
w 2.5
w/5
w/10
FIL 9846
w/0
w/2.5
w/5
w/10
FIL 9844
FIL 9844
FIL 9847
omit due to over cal.
FIL 9846
FIL 9844
omit curve didn't run
91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64


18.5
15.5
17
0.5
0.5
0
14.5
11.5
2
4.5
6.5
13.5
4.5
11.5
A-Spk
95%
Dup
FIL
9846
EFM
10116
CHR
10173
DVC
10219
EPA
1085
82%
w/10
w/0
w/2.5
w/5
w/10
FIL
9847
1-4
w/2.5
FIL 9847

13
EPA
1085
7300

Exhibit IV - Additional Extraction Procedure Toxicity Data

WASTE RESOURCE ASSOCIATES

DELISTING PETITION FOR PROPERTY PARCEL LOCATED AT NIAGARA FALLS BOULEVARD AND 70th STREET, NIAGARA FALLS, NEW YORK (ADDITIONAL ANALYSES - E.P. TOXICITY METALS)

January 10, 1992

Prepared By:

ADVANCED ENVIRONMENTAL SERVICES INC.

"A Company Dedicated to Honesty, Quality and Service"

REF. # 914059

QA/QC Verification

The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.

Paul T. McMahon
Quality Control Officer

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested

REPORT NARRATIVE

CLIENT: WASTE RESOURCE ASSOCIATES
PROJECT: TOPS DELISTING PETITION
NIAGARA FALLS, NEW YORK
AES PROJECT CODE: FIL
CLIENT SAMPLE ID: B-6-S, B-7-E, B-11-S, B-12-W,
B-16-N, B-16-W, B-17-N, B-19-S
AES SAMPLE NUMBERS: 9839-9848
REPORT DATE: JANUARY 10, 1992

Additional testing was conducted on soil samples taken from the Niagara Falls Boulevard and 70th Street location in Niagara Falls, New York. Eight soil core samples were collected at that location, and transported to Advanced Environmental Services, Inc. by Waste Resource Associates. The borings were collected on three separate days, November 22, 25, and 26, 1991. Samples were transported in coolers packed with "blue ice", and chains of custody were completed and signed on all three days. The chains of custody are located in the report appendix. All eight soil samples were subjected to Extraction Procedure Toxicity leaching, followed by the testing of selected metals on the leachate.

The metals analyzed were chromium, lead, and mercury. The particular metal analyzed for each soil sample was based on the total metal concentration of the site, which had been determined in previous testing by AES and submitted in the December 31, 1991 report to WRA.

Chromium and lead were analyzed by flame atomic absorption spectroscopy. Mercury was analyzed using an automated cold vapor system. All metals analyses on the E.P. Tox leachates were performed using the method of standard additions (MSA), as specified in EPA SW-846. All relevant results and extraction/analysis dates can be found in the report.

ADVANCED ENVIRONMENTAL SERVICES INC.

EXTRACTION PROCEDURE TOXICITY (EPTOX)
LABORATORY REPORT
(All results are in mg/l)

				AES Lab No.	9858	9863	9866	9872
				Sample ID	B-6-S	B-7-E	B-11-S	B-12-W
				Collection Method	Grab	Grab	Grab	Grab
				Collection Date	11/22/91	11/25/91	11/26/91	11/26/91
Analysis	Method No.	Allowable Conc. (mg/l)	Quantifiable Limits	Analysis Date				
Mercury	7470	0.2	0.001	12/23/91	NR	NR	0.001	BQL
Lead	7420	5.0	1.00	12/30/91	BQL	NR	NR	NR
Chromium	7190	5.0	0.50	12/30/91	NR	BQL	NR	NR

ADVANCED ENVIRONMENTAL SERVICES INC.

EXTRACTION PROCEDURE TOXICITY (EPTOX)
LABORATORY REPORT
(All results are in mg/l)

				AES Lab No.	9877	9880	9881	9886
				Sample ID	B-16-N	B-16-W	B-17-N	B-19-S
				Collection Method	Grab	Grab	Grab	Grab
				Collection Date	11/26/91	11/26/91	11/22/91	11/25/91
Analysis	Method No.	Allowable Conc. (mg/l)	Quantifiable Limits	Analysis Date				
Mercury	7470	0.2	0.001	12/23/91	NR	0.230	0.003	NR
Lead	7420	5.0	1.00	12/30/91	BQL	NR	NR	BQL

ADVANCED ENVIRONMENTAL SERVICES INC.

EXTRACTION PROCEDURE TOXICITY (EPTOX)
LABORATORY REPORT
(All results are in mg/l)

				AES Lab No.	
				Sample ID	Method Blank
				Collection Method	
				Collection Date	
Analysis	Method No.	Allowable Conc. (mg/l)	Quantifiable Limits	Analysis Date	
Mercury	7470	0.2	0.001	12/23/91	BQL
Lead	7420	5.0	1.00	12/30/91	BQL
Chromium	7190	5.0	0.50	12/30/91	BQL

U.S. EPA - CLP

8

STANDARD ADDITIONS RESULTS

Name: Advanced Environmental Services, Inc. Contract:

Lab Code: FIL Case No.: SAS No.: SDG No.:

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD		2 ADD		3 ADD		Final Conc.	r	Q
			CON	ADD	CON	ABS	CON	ABS			
B-11-S*	Hg	1.5	2.50	3.0	5.00	6.0	10.00	11.0	1.0	.996	
B-12-W*	Hg	0.5	2.50	2.0	5.00	4.5	10.00	9.5	BQL	.996	
B-16-W*	Hg	11.0	62.5	14.0	125.0	18.0	250.0	23.0	230	.995	
B-17-N*	Hg	3.0	2.50	5.0	5.00	7.0	10.00	11.5	3.0	.999	
B-7-E	Cr	0.003	2500	0.042	5000	0.079	10000	0.154	BQL	.999	
B-6-S	Pb	0.001	5000	0.027	10000	0.052	20000	0.104	BQL	.999	
B-16-N	Pb	0.001	5000	0.026	10000	0.050	20000	0.103	BQL	.999	
B-19-S	Pb	0.000	5.000	0.025	10000	0.050	20000	0.101	BQL	.999	

* Mercury was measured in Peak Heights using a strip chart recorder.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Sample ID	Matrix	Metals Requested	Date Rec'd	Date Analyzed
B-6-S	Soil	EP TOX Lead	11/22/91	12/30/91
B-7-E	Soil	EP TOX Chromium	11/25/91	12/30/91
B-11-S	Soil	EP TOX Mercury	11/26/91	12/23/91
B-12-W	Soil	EP TOX Mercury	11/26/91	12/23/91
B-16-N	Soil	EP TOX Lead	11/26/91	12/30/91
B-16-W	Soil	EP TOX Mercury	11/26/91	12/23/91
B-17-N	Soil	EP TOX Mercury	11/22/91	12/23/91
B-19-S	Soil	EP TOX Lead	11/25/91	12/30/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9858	Leachate	7420	3010	—	None
9877	Leachate	7420	3010	—	None
9886	Leachate	7420	3010	—	None
9863	Leachate	7190	3010	—	None
9866	Leachate	7470	7470	—	None
9872	Leachate	7470	7470	—	None
9880	Leachate	7470	7470	—	1:25
9881	Leachate	7470	7470	—	None

ADVANCED ENVIRONMENTAL SERVICES, INC.

EXTRACTION TRACEABILITY REPORT

INORGANICS REPORT

A.E.S. JOB CODE: FIL A.E.S. JOB NUMBER: 914059

Technician	Analytical Method	Sample Code(s)	Date of Extraction
David Raby	1310	9858	12-18-91/12-19-91
David Raby	1310	9863	12-18-91/12-19-91
David Raby	1310	9866	12-18-91/12-19-91
David Raby	1310	9872	12-18-91/12-19-91
Melissa Wilson	1310	9877	12-19-91/12-20-91
David Raby	1310	9880	12-18-91/12-19-91
David Raby	1310	9881	12-18-91/12-19-91
Melissa Wilson	1310	9886	12-19-91/12-20-91

APPENDIX A

CHAINS OF CUSTODY

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: LURN/TORS MARKET

SAMPLER'S SIGNATURE: Mark Schweppe

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/22/91	10^00 AM - 1^30 PM	B-3-N	✓		SOIL	✓								SW846 TOTAL CADMIUM METHOD 7000
		B-3-S	✓		"	✓								"
		B-3-W	✓		"	✓								"
		B-3-E	✓		"	✓								"
		B-17	✓		"	✓								EP TOX - MERCURY
		B-17-N	✓		"	✓								SW846 METHOD 7000 - TOTAL MERCURY
		B-17-S	✓		"	✓								"
		B-17-W	✓		"	✓								"
		B-17-E	✓		"	✓								"
		B-6	✓		"	✓								EP TOX - CADMIUM, LEAD
		B-6-N	✓		"	✓								SW846 METHOD 7000 - TOTAL LEAD + CADMIUM
		B-6-S	✓		"	✓								"
		B-6-W	✓		"	✓								"
↓	↓	B-6-E	✓		"	✓								"

TOTAL NUMBER OF CONTAINERS: 14

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mark Schweppe	11/22/91	1^45 PM	
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA / [illegible]

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: [illegible]

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/25/91		B-19	✓		SOIL	✓							1	EPTOX - CADMIUM, LEAD
		B-19-N	✓		"	✓							1	METHOD 7000 - TOTAL CADMIUM, LEAD
		B-19-S	✓		"	✓							1	"
		B-19-E	✓		"	✓							1	"
		B-19-W	✓		"	✓							1	"
		B-15	✓		"	✓							1	EPTOX - CADMIUM
		B-15-N	✓		"	✓							1	METHOD 7000 - TOTAL CADMIUM
		B-15-S	✓		"	✓							1	"
		B-15-E	✓		"	✓							1	"
		B-15-W	✓		"	✓							1	"
		B-7	✓		"	✓							1	EPTOX - CADMIUM, LEAD ?
		B-7-N	✓		"	✓							1	METHOD 7000 - CADMIUM, LEAD ?
	S	B-7-S	✓		"	✓							1	"
		B-7-E	✓		"	✓							1	"
		B-7-W	✓		"	✓							1	"

TOTAL NUMBER OF CONTAINERS: 15

Read call 11-25-91

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	
1. RELINQUISHED BY: Mark Schwippert	11/25/91	4:25 P	RECEIVED BY: [signature]
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

ADVANCED
ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

PROJECT NAME: WRA - TOPS MARKETS

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: _____

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/25/91		B-4	✓		SOIL	✓							1	*EPTOX - LEAD, MERCURY
		B-4-N	✓		"	✓								METHOD 7000 TOTAL LEAD, MERCURY
		B-4-S	✓		"	✓								"
		B-4-E	✓		"	✓								"
↓		B-4-W	✓		"	✓								"

TOTAL NUMBER OF CONTAINERS (5)

Rec'd called 11-25-91

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	
1. RELINQUISHED BY: Mark Schwippert	11/25/91	4:23 P	RECEIVED BY: Colleen A Sullivan
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

ADVANCED

ENVIRONMENTAL SERVICES, INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304 • (716) 283-3120

CHAIN OF CUSTODY RECORD

PROJECT NAME: WRA - TOPS N.F. BLVD

SAMPLER'S SIGNATURE: Mark Schwippert

JOB CODE: FIL

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: ______

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	UNPRESERVED	HNO_3	H_2SO_4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
11/26/91		B-11	✓		SOIL	✓								*EPTOX - MERCURY
		B-11-N	✓		"	✓								METHOD 7000 - TOTAL MERCURY
		B-11-S	✓		"	✓								"
		B-11-E	✓		"	✓								"
		B-11-W	✓		"	✓								"
		B-12	✓		"	✓								*EPTOX - MERCURY
		B-12-N	✓		"	✓								METHOD 7000 - TOTAL MERCURY
		B-12-S	✓		"	✓								"
		B-12-E	✓		"	✓								"
		B-12-W	✓		"	✓								"
		B-16	✓		"	✓								*EPTOX - MERCURY, CADMIUM, LEAD
	5	B-16-N	✓		"	✓								METHOD 7000 - MERCURY, CADMIUM, LEAD
		B-16-S	✓		"	✓								"
		B-16-E	✓		"	✓								"
	5	B-16-W	✓		"	✓								"

TOTAL NUMBER OF CONTAINERS [illegible]

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

RELINQUISHED BY	DATE	TIME	RECEIVED BY
1. RELINQUISHED BY: Mark T. Schwippert	11-26-91	11:30	RECEIVED BY: [illegible]
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

APPENDIX B

RAW DATA

ADVANCED ENVIRONMENTAL SERVICES
RUN REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

Perkin Elmer 5,000

Analyst : MELISSA
Date : 12-30-1991
Time : 10:09:25
Range (mg/l): 0.50-10.00
Lamp setting: 25 MA

EPA Method : 218.1
Element : CHROMIUM
Wavelength : 357.9
Energy : 73
Slit setting : .7 H

OBSERVED	TYPE	JOB CODE	SAMPLE CD	QUALITY CNTRL
0.002	CALIBRATING			
0.000AZ	CALIBRATING			
0.016	CALIBRATING			
0.50S1	CALIBRATING			
SENSITIVITY = 0.14				
0.270	CALIBRATING			
10.00S2	CALIBRATING			
2.52	CHK	STD		
Expected = 2.50			PERCENT RECOVERY ON REF STANDARD = 100.80	
5.02	CHK	STD		
Expected = 5.00			PERCENT RECOVERY ON REF STANDARD = 100.40	
5.13	EPA	1085		
EPA X BAR = 5.06	PERCENT RECOVERY ON EPA STANDARD OBSERVED = %101.38			
0.03	BLK	LAB		
0.06	ORIGINAL	BLK	3010	
0.14	ORIGINAL	FIL	9863	
0.10	ORIGINAL	FIL-D	9863	
5.46	ORIGINAL	FIL-S	9863	% Recovery = 109
0.003	ORIGINAL	FIL	9863	.999
0.042	ORIGINAL	FIL	9863	
0.079	ORIGINAL	FIL	9863	BQL
0.154	ORIGINAL	FIL	9863	
0.04	BLK	LAB		
4.94	EPA	1085		
EPA X BAR = 5.06	PERCENT RECOVERY ON EPA STANDARD OBSERVED = 97.63			

mm 12-30-91

ADVANCED ENVIRONMENTAL SERVICES Perkin Elmer 5,000
RUN REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

Analyst : MELISSA
Date : 12-30-1991
Time : 15:43:23
Range (mg/l): 1-20
Lamp setting: 10 W

EPA Method : 239.1
Element : LEAD
Wavelength : 283.3
Energy : 66
Slit setting : .7 H

OBSERVED	TYPE	JOB CODE	SAMPLE CD	QUALITY CNTRL
0.000	CALIBRATING			
0.000AZ	CALIBRATING			
0.012	CALIBRATING			
1.00S1	CALIBRATING			
SENSITIVITY = 0.37				
0.205	CALIBRATING			
20.00 S	CALIBRATING			
5.16	CHK	STD		
Expected = 5.00			PERCENT RECOVERY ON REF STANDARD = 103.20	
9.86	CHK	STD		
Expected = 10.0			PERCENT RECOVERY ON REF STANDARD = 98.60	
4.91	EPA	1085		
EPA X BAR = 5.12	PERCENT RECOVERY ON EPA STANDARD OBSERVED = 95.90			
0.04	BLK	LAB		
0.06	ORIGINAL	BLK	3010	
0.25	ORIGINAL	FIL	9858	
0.32	ORIGINAL	FIL-D	9858	
10.60	ORIGINAL	FIL-S	9858	% Recovery = 106
0.001	ORIGINAL	FIL	9858	.999
0.027	ORIGINAL	FIL	9858	
0.052	ORIGINAL	FIL	9858	BQL
0.104	ORIGINAL	FIL	9858	
0.04	ORIGINAL	BLK	3010	
0.001	ORIGINAL	FIL	9877	.999
0.026	ORIGINAL	FIL	9877	
0.050	ORIGINAL	FIL	9877	BQL
0.103	ORIGINAL	FIL	9877	
-0.000	ORIGINAL	FIL	9886	.999
0.025	ORIGINAL	FIL	9886	
0.050	ORIGINAL	FIL	9886	BQL
0.101	ORIGINAL	FIL	9886	
0.05	BLK	LAB		
4.85	EPA	1085		
EPA X BAR = 5.12	PERCENT RECOVERY ON EPA STANDARD OBSERVED = 94.73			

MM 12-30-91

PROJECT 2452 Liquid

Continued From Page _____

JOB	SAMPLE	PKT HGT	MERCURY PPB	MERCURY PPM	DIL	MERCURY MG/L	QC
STD	10	32	.999				
	5	14.5					
	2.5	8					
	1	25					
	0	0					
EPA	378 x 7.64	20.5	6.54	7.64			86%
FIL	9880 w/10	23	.995	x 0.009	1-25	0.225	
	w/5	18			1-25		
	w/2.5	14			1-25		
	w/0	11			1-25		
FIL	9880	225	7.17	0.0717	1-25	0.179	
BLK	EPTOX	0	BQL				
FIL	9866 w/10	11	.996	x 0.001		0.001	
	w/5	6					
	w/2.5	3					
	w/0	1.5					
FIL	9866	3	1.07	0.001		0.001	
FIL	9872 w/10	9.5	.996	x 0.001 BQL		BQL	
	w/5	4.5					
	w/2.5	2					
	w/0	0.5					
FIL	9872	2	0.76	0.0008		BQL	
FIL	9881 w/10	11.5	.999	x = 0.003		0.003	
	w/5	7					
	w/2.5	5					
	w/0	3					
FIL	9881	7	2.32	0.002		0.002	
EPA	378	20	6.39	7.64			84%

Continued on Page

Read and Understood By

Signed _____ Date 12-23-91

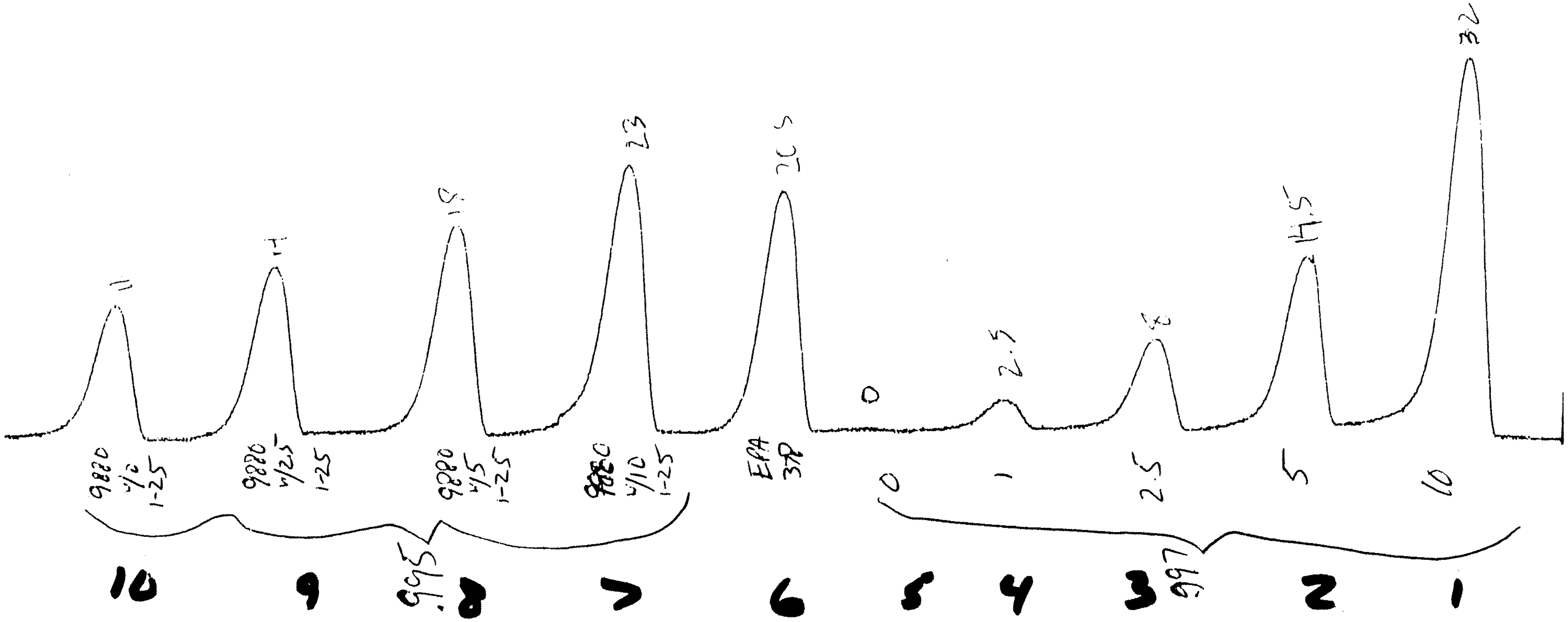
Signed _____ Date _____

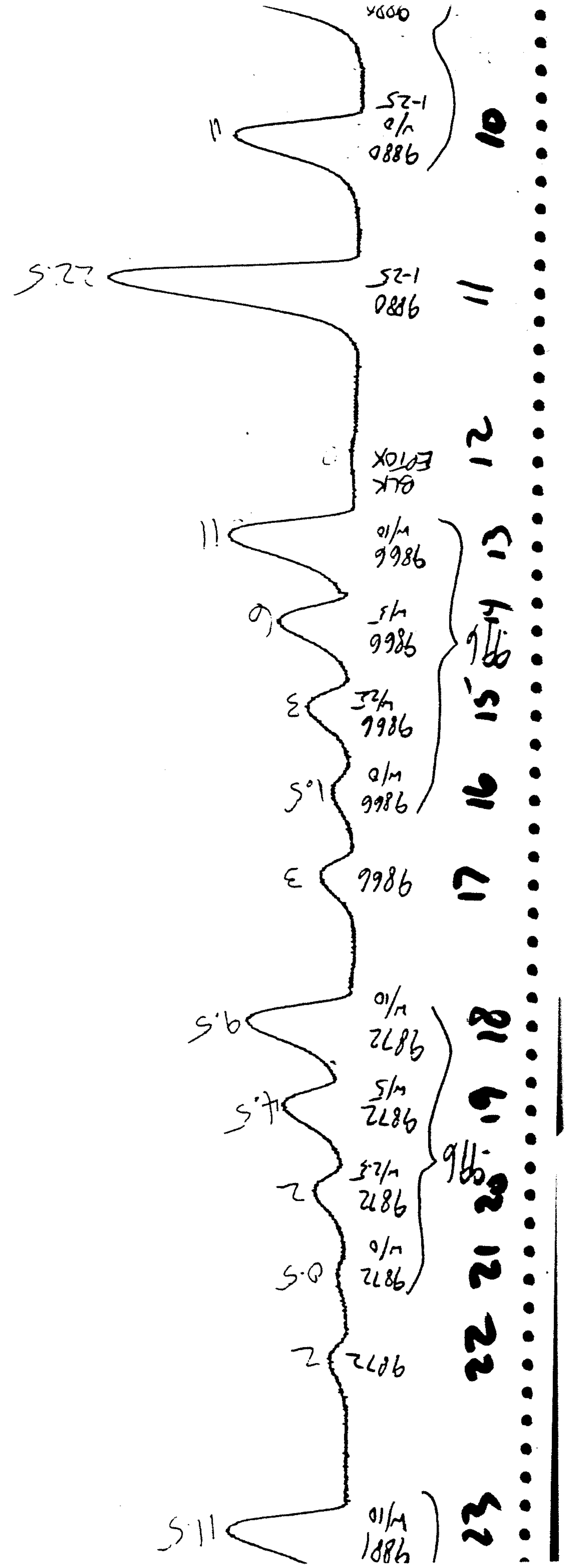
Run Summary 12-23-91

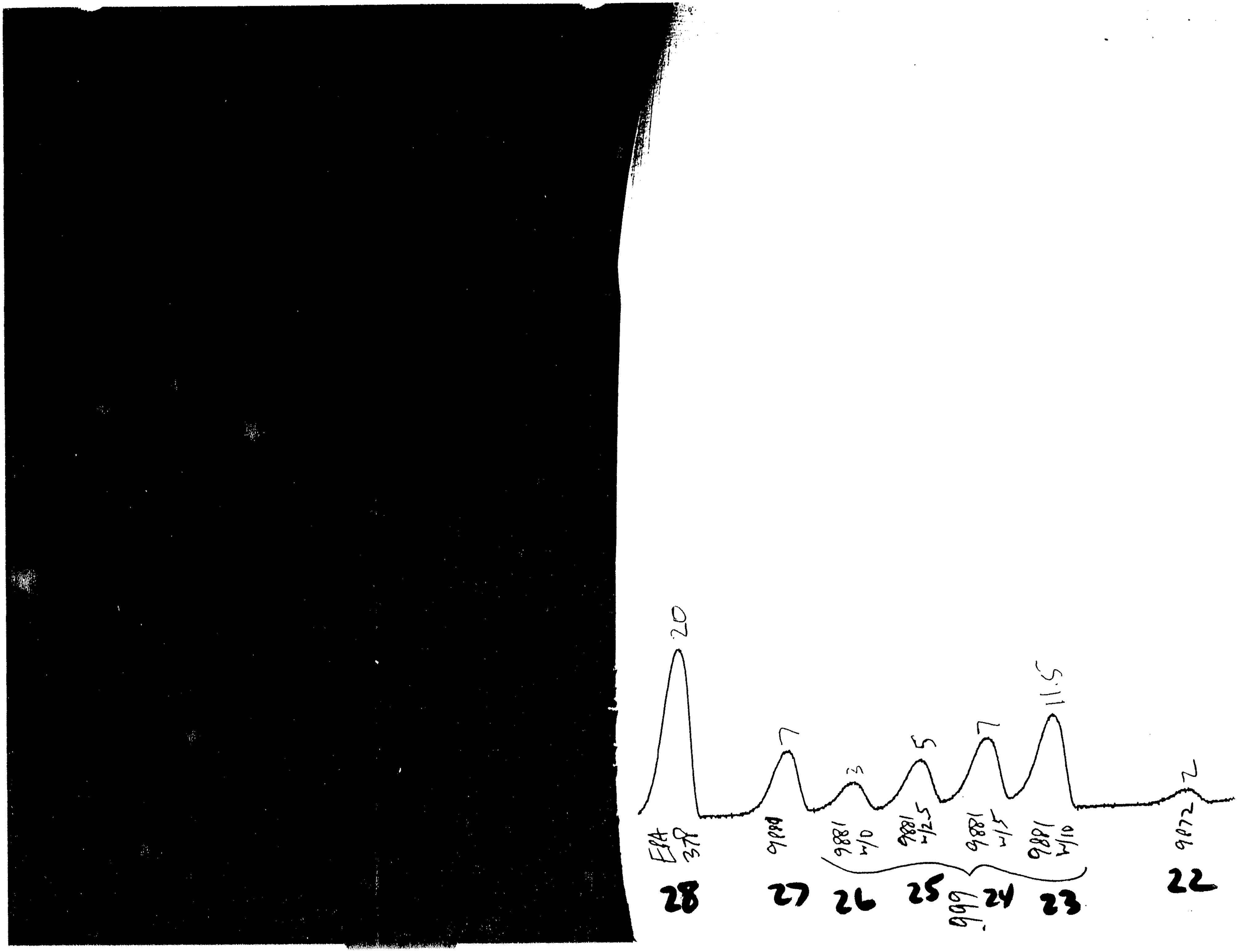
Chart #	Sample #	D:I factor	PPB	mg/L	mg/L D:I Corrected
1	10 ppb	.999			
2	5 ppb				
3	2.5 ppb				
4	1 ppb				
5	0 ppb				
6	EPA 378	—	6.54	÷7.64	86%
7	FIL 9880 w/10	1-25			
8	w/5	1-25	.995	0.009	0.225
9	w/2.5	1-25			
10	w/0	1-25			
11	FIL 9880	1-25	7.17	0.007	0.179
12	BLK EPTOX	—	0	BQL	
13	FIL 9866 w/10	—			
14	w/5	—			
15	w/2.5	—	.996	0.001	
16	w/0	—			
17	FIL 9866	—	1.07	0.001	
18	FIL 9872 w/10	—			
19	w/5	—			
20	w/2.5	—	.996	BQL	
21	w/0	—			
22	FIL 9872	—	0.76	BQL	
23	FIL 9881 w/10	—			
24	w/5	—	.999	0.003	
25	w/2.5	—			
26	w/0	—			
27	FIL 9881	—	2.32	0.002	
28	EPA 378	—	6.39	÷7.64	84%
		—			

12-23-91
Hg #6 pg# 43

FIL
9864
9872
9880
9881




10
9880 w/o 1-25
11
22.5
9880 1-25
11
12
BLK EPTOX
13
9866 w/10
11
14
9866 w/5
6
15
9866 w/2.5
3
16
9866 w/0
1.5
17
9866
3
9.5
18
9872 w/10
19
9872 w/5
4.5
20
9872 w/2.5
2
21
9872 w/0
0.5
22
9872
2
23
9881 w/10
11.5



20
7
3
5
7
11.5
2
EPA 37P
9884
9881 w/0
9881 w/2.5
9881 w/5
9881 w/10
9872
28
27
26
25
999
24
23
22

BLK Int vol 1600ml DIH_2O MAX ACID 400ml

Time	Int ph	Acid added	Adj. Ph	Total Acid
9 00 am	4.58	—	—	0ml
9 15	4.58	—	—	0ml
9 45	4.61	—	—	0ml
10 45	4.46	—	—	0ml
11 45	4.58	—	—	0ml
12 45	4.55	—	—	0ml
1 45	4.58	—	—	0ml
3 00	4.60	—	—	0ml

Final Ph 3.88
Vol DIH_2O added 400ml

FIL 985 Int wt 100g Int vol 1600ml DIH_2O MAX ACID 400ml
Brown soil no odor

Time	Int ph	Acid added	Adj. Ph	Total Acid
9 00 am	~~7.65~~ 9.66	100ml	~~3.54~~ 3.49	100ml
9 15	4.07	—	—	100ml
9 45	4.29	—	—	100ml
10 45	4.50	—	—	100ml
11 45	4.70	—	—	100ml
12 45	4.77	—	—	100ml
1 45	4.77	—	—	100ml
3 00	4.77	—	—	100ml

Final Ph 4.46
Vol DIH_2O added ~~300ml~~ 300ml

Continued on Page

Read and Understood By

Signed _____ Date 12-18-91 Signed _____ Date _____

Notebook No. _____

PROJECT _____ Continued From Page _____

FIL 9863 Int wt 100g Int vol 1600 ml DIH_2O MAX ACID 1600 ml

Rock BLK & Brown Soil no odor

Time	Int ph	Acid added	Adj ph	Total Acid
900 am	9.08	100 ml	3.30	100 ml
915	4.26	—	—	100 ml
945	4.45	—	—	100 ml
1045	4.69	—	—	100 ml
1145	4.84	—	—	100 ml
1245	4.97	—	—	100 ml
145	5.03	—	—	100 ml
300	5.09	—	—	100 ml

Final ph 4.88

DIH_2O added 300 ml

FIL 9866 Int wt 100g Int vol 1600 ml DIH_2O MAX ACID 1600 ml

Brown Soil no odor

Time	Int ph	Acid added	Adj. ph	Total Acid
900 am	9.23	100 ml	3.39	100 ml
915	4.28	—	—	100 ml
945	4.41	—	—	100 ml
1045	4.67	—	—	100 ml
1145	4.71	—	—	100 ml
1245	4.80	—	—	100 ml
145	4.84	—	—	100 ml
300	4.88	—	—	100 ml

Final ph 4.53

DIH_2O added 300 ml

Continued on Page

Read and Understood By

Signed _____ Date 12-18-91

Signed _____ Date _____

PROJECT _____ Continued From Page _____

FIL 9872 Int wt 100g ~~Final Vol~~ Int Vol 1600ml MAX ACID 400ml

Brown clay/soil no odor

Time	Int ph	Acid added	Adj ph	Total Acid
900 am	9.40	100ml	3.53	100ml
915	4.45	—	—	100ml
945	4.57	—	—	100ml
1045	4.74	—	—	100ml
1145	4.80	—	—	100ml
1245	4.85	—	—	100ml
145	4.89	—	—	100ml
300	4.89	—	—	100ml

Final ph 4.47

DI H_2O added 300ml

FIL 9880 Int wt 100g Int Vol 1600ml MAX ACID 400ml

BLK soil/clay moth ball odor

Time	Int ph	Acid added	Adj ph	Total Acid
900 am	9.11	100ml	3.41	100ml
915	4.38	—	—	100ml
945	4.54	—	—	100ml
1045	4.78	—	—	100ml
1145	4.91	—	—	100ml
1245	4.95	—	—	100ml
145	4.98	—	—	100ml
300	5.01	—	—	100ml

Final ph 4.58

Vol DI H_2O added 300ml

Continued on Page

Read and Understood By

Signed _____ Date 12-R-91 Signed _____ Date _____

Notebook No.

PROJECT

Continued From Page

FIL 9881 Int wt 100g Int vol 1600ml DI H_2O MAX ACID 400

Brown silt/orange chips no odor

Time	Int ph	Acid Added	Adj ph	Total Acid
900 am	9.56	100ml	3.40	100ml
9 15	4.12	—	—	100ml
9 45	4.32	—	—	100ml
10 45	4.46	—	—	100ml
11 45	4.50	—	—	100ml
12 45	4.57	—	—	100ml
1 45	4.60	—	—	100ml
3 00	4.64	—	—	100ml

Final ph 4.18
DI H_2O added 300ml

Continued on Page

Read and Understood By

[signature] Signed 12-18-91 Date

Signed Date

PROJECT

Continued From Page

Blank Int Vol. 1600ml DI H_2O max acid 400ml

Time	Int pH	Acid Added	Adj pH	Total Acid
10:10 am	3.39	—	—	0 ml.
10.45 am	3.53	—	—	0 ml.
11:15 am	3.55	—	—	0 ml.
12:15 pm	3.53	—	—	0 ml.
1:15 pm	3.57	—	—	0 ml.
2:15 pm	3.55	—	—	0 ml.
3:15 pm	3.53	—	—	0 ml.
4:15 pm	3.56	—	—	0 ml.

Final pH 3.60
DI H_2O Added 400 ml

FIL 9877 Int wt 100g Int Vol 1600ml DI H_2O max acid 400ml.
Soil dark brown - smells like motor oil

Time	Int pH	Acid added	Adj pH	Total Acid
10:30 am	8.35	100 ml.	4.85	100 ml.
10:45 am	5.44	50 ml.	4.84	150 ml.
11:15 am	5.17	—	—	150 ml.
12:15	5.41	50 ml.	4.84	200 ml.
1:15	5.09	—	—	200 ml.
2:15	5.22	50 ml.	4.90	250 ml.
3:15	4.91	—	—	250 ml.
4:15	5.01	—	—	250 ml.

Final pH 5.54 Added 50 ml 0.5% acetic
~~DI H_2O Added 150 ml~~ wrong reading
adj pH 5.01. ~~Re-agitated~~ for 4 more hrs Time off 1445
Final pH Agitated for 5.16
DI H_2O Added 100 ml

Continued on Page

Read and Understood By

[illegible signature]	12-19-91		
Signed	Date	Signed	Date

Notebook No. _____

PROJECT _____

Continued From Page _____

FIL 9556 Init wt 100g. Init Vol 1,000ml. DI H2O max Acid 400ml

Brown soil no unusual odor

Time	Init pH	Acid added	Adj pH	Total Acid
10:30am	8.22	100ml.	4.32	100ml
10:45	4.55	—	—	100ml.
11:15	4.70	—	—	100ml.
12:15	4.87	—	—	100ml.
1:15	5.01	—	—	100ml.
2:15	5.18	—	—	100ml.
3:15	5.37	50ml.	4.67	150ml.
4:15	4.75	—	—	150ml.

Final pH 5.27 Added 25mls 0.5% acetic

acid pH 4.95 ~~Final~~ Added 250ml. mv 12->10-91

~~Retested~~ Sat 4 more hours. Time Off 14:45

Agitated mv Final pH 5.07

Did Added 225mls

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
[signature]	12-19-91		

PROJECT Digestions

Continued From Page _____

Job	Sample	Init. Vol	Final Vol	method
FIL	9858+Dup+SPK	100ml	100ml	3010
FIL	9863+Dup+SPK			
Blank				
FBX	10654			411.3
Blank				
BJS	10646			411 3mL HCl
BJS	10645			
BJS	10641			
BJS	10642			
Blank				

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
[signature]	12-19-91		

PROJECT Digestions

Continued From Page _____

JOB	Sample	Int Vol.	Final Vol.	Method
CTC	10619 T/S	100ml	100ml	4.1 B
	10620 T/S			
	10621 T/S			
	10620 T/S + Dup + SpK			
	10623 T/S			
	10625			
	10667 T/S			
	10668 T/S			
	10669 T/S			
Blank				
OSF	10655 + SpK			4.1 B nc HCl
CCW	10747 + Spk + Dup Spk			
Blank				
BJS	10444 + Dup + SpK / 50ml	100ml	50ml	
CTC	10772		100ml	
FIL	9877			B C I C eptox
FIL	9886			
Blank				
DOD	10551			3 C I O
FBP	10589 + Dup + SpK			3 C I C / 7060 - 7740
Blank				

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
[signature]	12-20-91		

Exhibit V - Data Validator Qualifications

Qualifications
of
Stephen S. Odojewski
as
Data Validator

Education: BS and MS degrees in Organic/Analytical Chemistry - Canisius College, Buffalo, NY.

Experience: 1972-1974 Research Chemist
Chem-Trol Pollution Services, Inc.
Model City, NY

Among other duties, Mr. Odojewski performed research on the applicability of various analytical methods to the analysis of waste samples. In this role, he developed clean-up techniques necessary to allow the use of instrumental procedures.

1974-1976 Laboratory Supervisor
Chem-Trol Pollution Services, Inc.
Model City, NY

Directed the analytical efforts of 5 chemists and 6 technicians. Assigned work, reviewed results and specified procedures to be employed. Established Quality Control/Quality Assurance Program for Operations Laboratory.

1976-1979 Laboratory Manager
Chem-Trol Pollution Services, Inc.
Model City, NY

Responsible for the technical efforts of 16 chemists and technicians. Directed research program, operations laboratory and special analytical laboratory. Was responsible for regulation interpretation and liaison with regulatory agencies including; EPA Region II, NY State DEC Region 9 and the Niagara County Health Department. In this role, he designed and supervised the assembly of one of the nation's first mobile laboratories for use at abandoned hazardous waste sites.

1979-1983 Vice President - Technical Services
Waste Resource Associates, Inc.
Niagara Falls, NY

Provided technical control of all analytical work secured by the firm. In this role, he specified analytical procedures to be employed and reviewed the analytical results. This effort has included the design of groundwater monitoring programs for active hazardous and solid waste landfills as well as the design of the analytical program for remedial action investigations of abandoned in uncontrolled hazardous waste sites.

1983-1991 President
Waste Resource Associates, Inc.
Niagara Falls, NY

As President of the firm, Mr. Odojewski has assumed the administrative control for the corporation in addition to providing analytical review for projects the firm undertakes.

Exhibit VI - Data Validation Documentation

	YES	NO	N/A
A.1.1 Contract Compliance Screening Report (CCS) - Present?	___	___	N/A
A.1.2 Record of Communication (from RSCC) - Present?	[___]	___	N/A
ACTION: If no, request from RSCC.			
A.1.3 Sample Traffic Report - Present or on file?	[___]	___	N/A
Legible?	[___]	___	N/A
ACTION: If no, request from Regional Sample Control Center (RSCC).			
A.1.4 Cover Page - Present?	[X]	___	___
ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	[___]	___	N/A
Do sample numbers on cover page agree with sample numbers on: (a) Traffic Report Sheets?	[___]	___	N/A
(b) Form I's?	[X]	___	___
(c) Surveilliance and Monitoring Branch Review?	[___]	___	N/A
ACTION: If no for any of the above, contact RSCC for clarification.			
A.1.5 Form I (Final Data) - Are all form I's present and complete?	[X]	___	___
ACTION: If no, prepare telephone record log and contact laboratory for submittal.			
Are correct units (ug/l for waters and mg/kg for soils) indicated in Form I's?	[X]	___	___
Are sample results for each parameter corrected for percent solids on soils?	[X]	___	___

	YES	NO	N/A
Do any computation/transcription errors exceed 10% of reported values?	___	[X]	___
Are all "less than" values properly coded with "U"?	[X]	___	___

ACTION: If no for any of above, prepare telephone Record Log, and contract laboratory for corrected data.

Was a brief physical description of samples given in comments section?	[X]	___	___
Were footnotes indicated on cover page used correctly with final data?	[X]	___	___
Were any samples diluted beyond requirements of contract?	___	[X]	___
If yes, were dilutions noted on Form Is?	[___]	___	___

ACTION: If no for any of above, note under contract problem/non compliance of data assessment narrative.

A.1.6 Holding Times - (aqueous samples only) (examine sample traffic reports and Form X)

Mercury (28 days). . . . . exceeded?	___	[X]	___
Cyanide (14 days). . . . . exceeded?	___	[___]	N/A
Other Metals (6 months). . . . . exceeded?	___	[X]	___

Which parameters?_____

CONTRACTOR ACTION: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of analysis (from raw data). Attach to checklist.

EMB ACTION: If yes, reject (red-line) values less than Instrument Detection Limit (IDL) flag as estimated (J) those values above IDL.

		YES	NO	N/A
A.1.7 Raw Data				
A.1.7.1 Digestion Log* for flameAA/ICP present?		[X]	___	___
Digestion Log for furnace AA present?		[X]	___	___
Digestion Log for mercury present?		[X]	___	___
Digestion Log for cyanides present?		[___]	___	N/A
*Weights, dilutions and volumes used to obtain values.				
Percent solids calculation present for soil (sediments)?		[X]	___	___
Are preparation dates present on Digestion Log?		[X]	___	___
A.1.7.2 Measurement read out record present?	ICP	[___]	___	N/A
	Flame AA	[X]	___	___
	Furnace AA	[X]	___	___
	Mercury	[X]	___	___
	Cyanides	[___]	___	N/A
A.1.7.3 Are all raw data to support all sample analyses and QC operation's present?		[X]	___	___
Legible?		[X]	___	___
Properly Labeled?		[X]	___	___
MMB ACTION: If no for any of above, write Telephone Record Log and contact laboratory.				
A.1.7.4 Is record of at least 2 point calibration present for ICP?		[___]	___	N/A
Is record of 4 point calibration present for:	Flame AA?	[X]	___	___
	Furnace AA?	[X]	___	___
NOTE: If less than 4, other standards must be run immediately after calibration and be ± 5% of true value.				

	YES	NO	N/A
MMB ACTION: Flag associated data if standards are not within ±5% of true values.			
Is record of 4 point calibration present for: Mercury?	[X]	___	___
Cyanide?	[___]	___	N/A
MMB ACTION: If no for any of above, prepare Telephone Record Log and contact laboratory.			
A.1.8 Data Validation and Verification			
A.1.8.1 Form II (Initial and Continuing Calibration Verification) -			
A.1.8.1.1 Present and complete for every metal and cyanide?	[X]	___	___
Present and complete for AA and ICP when both are used for same analyte?	[___]	___	N/A
MMB ACTION: If no for any of above, prepare Telephone Record Log and contact laboratory.			
A.1.8.1.2 Circle all values on data summary sheet that are outside of contract windows. Are all calibration standards (initial and continuing) within control limits? Metals 90-110%	[X]	___	___
Hg and Sn 80-120%	[X]	___	___
Cyanides 85-115%	[___]	___	N/A
Are all calibration standards (initial and continuing) within 50-150%?	[X]	___	___
MMB ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard of 50-89% (50-79% for Hg and Sn) or 111-150% (121-150% for Hg and Sn) recovery and nearest adjacent calibration standards. Flag as estimated (J) all positive cyanide data if calibration standards are between 50-84% or 116-150%. Reject (red-line) as unacceptable data if recovery of calibration standard is below 50% or above 150% for nearest adjacent standards.			

	YES	NO	N/A
Was continuing calibration performed every 10 samples or every 2 hours?	[X]	___	___
MMB ACTION: If no, flag the excess samples (eleventh and up) data as estimated (J).			
A.1.8.2 Form III (Initial and Continuing Calibration Blanks)			
A.1.8.2.1 Present and complete?	[X]	___	___
For both AA and ICP when both are used for same analyte?	[___]	___	N/A
MMB ACTION: If no, prepare Telephone Record Log and contact laboratory.			
A.1.8.2.2 Circle all calibration blank values on Data Summary Sheet that are above IDL. Are all calibration blanks less than contract Required Detection Limits (CRDL)?	[X]	___	___
Are all calibration blanks less than Instrument Detection Limit (if IDL>CRDL) when sample concentrations are greater than 2xIDL?	[X]	___	___
MMB ACTION: If no for any of above flag as estimated (J) on form I'S all data between calibration blank with value over CRDL or IDL and nearest adjacent calibration blank.			
A.1.8.2.3 Was an initial calibration blank analyzed?	[X]	___	___
Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (whichever is more frequent)?	[X]	___	___
MMB ACTION: If no, flag as estimated (J) all values not analyzed within 5 samples of calibration blank.			
A.1.8.3 FORM III (Preparation Blank)			
A.1.8.3.1 Was one prep. blank analyzed for: each 20 samples?	[X]	___	___
each batch?	[X]	___	___
each matrix type?	[X]	___	___

		YES	NO	N/A
	For both AA and ICP when both are used for same analyte?	[ ]		N/A
	MMB ACTION: If no for any of above, flag as estimated (J) all associated data for which prep. blank was not analyzed. NOTE: If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.8.3.2	Do concentrations of prep. blank fall below two times IDL when IDL is grater than CRDL?	[X]		
	MMB ACTION: If no, reject (red-line) all data that has a concentration less than 10 times the prep. blank value, but not flagged with a "U" (less than).			
	(NOTE: The preparation blank for mercury is the same as the calibration balnk.)			
A.1.8.3.3	Is concentration of prep. blank greater than CRDL when IDL is less than CRDL?		[X]	
	If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep. blank value?		[ ]	N/A
	MMB ACTION: If yes, reject (red-line) all associated data that has a concentration less than ten times the prep. blank value, but not flagged with a "U" (less than).			
A.1.8.4	Form IV (ICP Interference Check Sample)			
A.1.8.4.1	Present and complete?	[ ]		N/A
	(NOTE: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)			
A.1.8.4.2	Circle all values on Data Summary Sheet that are more than $\pm$ 20% of true or established mean-value. Are all interference Check Sample results inside of control limits ($\pm$ 20%)?	[ ]		N/A

		YES	NO	N/A
	If no, is concentration of Al, Ca, Fe, or Mg lower in sample than in ICS?	[___]	___	N/A
	MMB ACTION: If no, flag as estimated (J) those sample results for which ICS recovery is between 50-79% or 121-150% of mean value; and reject (red-line) those sample results for which ICS recovery is less than 50%. If ICS recovery is above 150%, ~~Reject~~ positive results only (not flagged with a "U").			
A.1.8.4.3	Was ICS analyzed at beginning and end of run (and at least once every 8 hours)?	[___]	___	N/A
	MMB ACTION: If no flag as estimated (J) all samples for which AL, Ca, Fe, or Mg is higher than in ICS			
A.1.8.5	Form IX (ICP Serial Dilution) - (Form IX is not required under SOW 784. The data reviewer must prepare the form.)			
A.1.8.5.1	Was Serial Dilution analysis performed for: each 20 samples?	[___]	___	N/A
	each matrix type?	[___]	___	N/A
	each concentration range (i.e. low, med., high)?	[___]	___	N/A
	If no for any of above, is any sample(s) concentration (undiluted) greater than 10 x IDL?	___	[___]	N/A
	MMB ACTION: If yes, flag all associated data as estimated (J) for which Serial Dilution Analysis was not performed and summarize the deficiency on the DRO report.			
A.1.8.5.2	Was field blank(s) used for Serial Dilution Analysis?	___	[___]	N/A
	If yes, was field blank described as such on Traffic Report?	___	[___]	N/A
	MMB ACTION: If yes, flag all associated data > 10 x IDL as estimated (J).			
A.1.8.5.3	Circle all values on Data Summary Sheet with a percent difference greater than 10%. Are all ICP Serial Dilution results within control limit of 10%?	[___]	___	N/A

	YES	NO	N/A
If no, are all associated data on Form I's flagged with an "E"?	[ ]	___	N/A
MMB ACTION: If not flagged with an "E", flag as estimated (J) all associated sample results for which percent difference is greater than 10% but less than 100%; reject (red-line) all associated sample results for which PD is above 100%.			
A.1.8.6 Form V (Spiked Sample Recovery) - (NOTE: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only).			
A.1.8.6.1 Present and complete for: each 20 samples?	[X]	___	___
each matrix type?	[X]	___	___
each conc. range (i.e. low, med., high)?	[X]	___	___
For both AA and ICP when both are used for same analyte?	[ ]	___	N/A
MMB ACTION: If no for any of above, flag as estimated (J) all data for which spiked sample was not analyzed. NOTE: If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.8.6.2 Was field blank used for spiked sample?	[ ]	X	___
If yes, was field blank described as such on Traffic Report?	[ ]	___	N/A
MMB ACTION: If yes, flag all positive data as estimated (J) for which field blank was used as spiked sample.			
A.1.8.6.3 Circle all values on Data Summary Sheet that are outside of control limits (75% to 125%). Are all recoveries within control limits?	[ ]	X	___
If no, is sample concentration greater than four times spike concentration?	[X]	___	___

		YES	NO	N/A
	MMB ACTION: If yes, disregard spike recoveries for analytes whose concentrations are greater than four times spike added. If no, circle those analytes on Form V for which sample concentration was not greater than four times the spike concentration.	Mercury and lead circled on Form V for Sample No. B-16-N and B-16-W		
A.1.8.6.4	Aqueous			
	Are any spike recoveries (a) less than 30%?	___	[___]	N/A
	(b) between 30-74%?	___	[___]	N/A
	(c) between 126-150%?	___	[___]	N/A
	(d) greater than 150%?	___	[___]	N/A
	MMB ACTION: If less than 30%, reject all associated aqueous data. If between 30-74%, flag all associated aqueous data as estimated (J). If between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U". If greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".			
A.1.8.6.5	Soil/Sediment			
	Are any recoveries (a) less than 75%?	X	[___]	___
	(b) greater than 125%?	X	[___]	___
	MMB ACTION: If less than 75%, flag all associated data as estimated (J). If greater than 125%, flag as estimated (J) all associated data not flagged with a "U".	Note data disregarded in Section A.1.8.6.3		
A.1.8.7	Form VI (Lab Duplicates)			
A.1.8.7.1	Present and complete for: each 20 samples?	[X]	___	___
	each matrix type?	[X]	___	___
	each concentration range (i.e. low, med., high)?	[X]	___	___
	For both AA and ICP when both are used for same analyte?	[___]	___	N/A

	YES	NO	N/A
MMB ACTION: If no for any above, flag as estimated (J) all data >CRDL for which duplicate sample was not analyzed. Note: If one duplicate sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.8.7.2 Circle all values on Data Summary Sheet that are outside control limits: Aqueous Samples (a) 20% RPD or (b) CRDL Soil Samples (a) 35% RPD or (b) CRDL			
Are all values within control limits?	[X]	___	___
If no, are all results outside the control limits flagged with an * on form I's and VI?	[___]	___	N/A
ACTION: If no, write in the contract problems/non-compliance section of narrative.			
A.1.8.7.3 Was field blank used for duplicate analysis?	___	[X]	___
If yes, was field blank identified as such on Traffic Report?	___	[___]	N/A
ACTION: If yes, flag all data >CRDL as estimated (J) for which field blank was used as duplicate.			
A.1.8.7.4 Is "NC" reported in RPD column for any sample duplicate pair where either value is less than CRDL?	[___]	___	N/A
MMB ACTION: If no, write in "NC" with red pencil on form VI and initial. Note under Data Acceptibility Narrative (contract non-compliance).			
A.1.8.7.5 Is any value for sample duplicate pair less than CRDL and other value greater than 10 x CRDL?	___	[X]	___
MMB ACTION: If yes, reject associated data.			
A.1.8.7.6 Aqueous			
Is any RPD greater than 50% where sample and duplicate are both greater than 5 times CRDL?	___	[___]	N/A

	YES	NO	N/A
Is any difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times CRDL but greater than CRDL?	___	[___]	N/A

MMB ACTION: If yes, reject (red-line) all associated data.

A.1.8.7.7 Soil/Sediment

Is any RPD greater than 100% where sample and duplicate are both greater than 5 times CRDL?	___	[X]	___
Is any difference between sample and duplicate greater than 2 times CRDL where sample and/or duplicate is less than 5 times CRDL but greater than CRDL?	___	[X]	___

MMB ACTION: If yes, reject (red-line) all associated data.

A.1.8.8 Field Duplicates

A.1.8.8.1 Were field duplicates analyzed?	[___]	X	___

ACTION: If yes, prepare a Form VI for each sample duplicate pair, calculate RPD where both values are greater than CRDL.

NOTE: Reject (red-line) all associated data for field duplicates only.

A.1.8.8.2 Circle all values on Data Summary Sheet that are outside control limits:

Aqueous Samples (a) 20% RPD or
(b) CRDL

Soil Samples (a) 35% RPD or
(b) CRDL

Are all values within control limits?	[___]	___	N/A
If no, are all results outside the control limits flagged with an * on form I's and VI?	[___]	___	N/A

ACTION: If no, write in the contract problems/ non compliance section of narrative.

		YES	NO	N/A
A.1.8.8.3	Is "NC" reported in RPD column for any sample duplicate pair where either value is less than CRDL?	[___]	___	N/A
	MMB ACTION: If no, write in "NC" with red pencil on form VI and initial. Note under Data Acceptibility Narrative (contract non-compliance).			
A.1.8.8.4	Is any value for sample duplicate pair less than CRDL and other value greater than 10 x CRDL?	___	[___]	N/A
	MMB ACTION: If yes, reject associated data.			
A.1.8.8.5	Aqueous			
	Is any RPD greater than 50% where sample and duplicate are both greater than 5 times CRDL?	___	[___]	N/A
	Is any difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times CRDL but greater than CRDL?	___	[___]	N/A
	MMB ACTION: If yes, reject (red-line) all associated data.			
A.1.8.8.6	Soil/Sediment			
	Is any RPD greater than 100% where sample and duplicate are both greater than 5 times CRDL?	___	[___]	N/A
	Is any difference between sample and duplicate greater than 2 times CRDL where sample and/or duplicate is less than 5 times CRDL but greater than CRDL?	___	[___]	N/A
	MMB ACTION: If yes, reject (red-line) all associated data.			
A.1.8.9	Form VII (Instrument Detection Limits) - (Note: IDL - not required for cyanide.)			
A.1.8.9.1	Are IDLS present for all analytes?	[___]	___	N/A
	For both AA and ICP when both are used for same analyte?	[___]	___	N/A
	MMB ACTION: If no for any of above, prepare Telephone Record Log and contact laboratory.			

	YES	NO	N/A
Is IDL greater than CRDL for any analyte?	___	[___]	N/A
If yes, is the concentration of the sample analyzed on the instrument whose IDL exceeds CRDL, is greater than two times IDL.	[___]	___	N/A

MMB ACTION: If no, reject (red-line) all values less than two times IDL of the instrument whose IDL exceeds CRDL.

A.1.8.10 Form VII (Laboratory Control Sample) (Note: LCS - not required for aqueous Hg.)

A.1.8.10.1 Was one LCS prepared and analyzed for: every 20 water samples?	[X]	___	___
every month for solid samples?	[___]	___	N/A
for both AA and ICP when both are used for same analyte?	[___]	___	N/A

MMB ACTION: If no for any of above, prepare Telephone Record Log and contact laboratory for submittal of monthly results of solid LCS. Flag as estimated (J) all aqueous data for which LCS was not analyzed.

NOTE: If only one LCS was analyzed for more than 20 samples, then first 20 samples close to LCS do not have to be flagged as estimated.

A.1.8.10.2 Circle all LCS values outside of control limits (80% to 120%) on Data Summary Sheet.

Is any LCS value: less than 50%?	___	[X]	___
between 50% and 79%?	___	[X]	___
between 121% and 150%?	___	[X]	___
greater than 150%?	___	[X]	___

MMB ACTION: Less than 50%, reject (red-line) all data; between between 50% to 79%, flag all associated data as estimated (J); between 121% to 150%, flag all positive (not flagged with a "U") results as estimated; greater than 150%, reject all positive results.

	YES	NO	N/A
A.1.8.10.3 Is "NC" reported for an analyte in % R column of Form VIII? - VII	___	[X]	___
If yes, does concentration of the analyte fall within acceptable range of LCS?	[___]	___	N/A
MMB ACTION: If no, flag associated data as estimated (J).			
A.1.8.11 Furnace Atomic Absorbtion (AA) QC Analysis			
A.1.8.11.1 Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	[X]	___	___
MMB ACTION: If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.8.11.2 Is post digestion spike recovery less than 10% for any result?	___	[X]	___
MMB ACTION: If yes, reject (red-line) the affected data.	[___]	___	N/A
A.1.8.11.3 Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or coefficient of variation (CV) for concentration greater than CRDL?	[X]	___	___
Was a dilution analyzed for sample with post digestion spike recovery less than 40%?	[___]	___	N/A
MMB ACTION: If no for any of above, flag all the associated data as estimated (J).			
A.1.8.12 Form VIII (Method of Standard Addition Results)			
A.1.8.12.1 Present?	[X]	___	___
If no, is any Form I result coded with "S" or a "+"?	___	[___]	N/A
ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.8.12.2 Was MSA required for any sample but not performed?	___	[X]	___
Is coefficient of correlation for MSA less than 0.995?	X	[___]	___
MMB ACTION: If yes for any of above flag all the associated data as estimated (J).			

	YES	NO	N/A
A.1.8.12.3 Is coefficient of correlation for MSA less than 0.990 for any sample?	X	[ ]	
MMB ACTION: If yes, reject (red-line) affected data.	Data for Mercury for B-16-W Rejected		
A.1.8.12.4 Was proper quantitation procedure followed correctly?	[X]		
ACTION: If no, note exception under contract problem/non-compliance of data assessment narrative, or prepare a seperate list.			
A.1.8.12.5 Are MSA calculations within the linear range of the calibration curve generated at the beginning of the analytical run?	[X]		
ACTION: If no, flag all affected data as estimated (J).			
A.1.8.13. Disolved Inorganics			
A.1.8.13.1 Were any analyses performed for dissolved as well as total analytes?		[X]	
If yes, apply the following questions only if both dissolved and total constituents are above CRDL (For SAS parameters: above 5 * IDL).			
A.1.8.13.2 Is the concentration of any dissolved analyte greater than its total concentration by more than 10%?		[ ]	N/A
A.1.8.13.3 Is the concentration of any dissolved analyte greater than its total concentration by more than 50%?		[ ]	N/A
CONTRACTOR ACTION: Prepare a list comparing differences between all dissolved and toal analytes. Compute the differences as a percent of the total analyte only when both above CRDL (5 * IDL for SAS parameters).			
MMB ACTION: If more than 10%, flag both dissolved and total values as estimated (J); if more than 50% reject (red-line) the data for both values.			

	YES	NO	N/A
A.1.8.14 Form I to IX			
A.1.8.14.1 Are all the Form I through Form IX labeled with:			
laboratory name?	[X]	___	___
case number?	[___]	___	N/A
EPA sample No.?	[___]	___	N/A
lab. ID sample No.?	[X]	___	___
QC report No.?	[___]	___	N/A
date?	[X]	___	___
correct units?	[X]	___	___
matrix?	[X]	___	___

MMB ACTION: If no for any of above note under contract problem/non compliance of data assessment, narrative.

A.1.8.14.2 Do any computation/transcription errors exceed 10% of reported values on Forms I-IX for:

(NOTE: Check all forms against raw data.)

(a) all analytes analyzed by ICP?	___	[___]	N/A
(b) all analytes analyzed by GFAA?	___	[X]	___
(c) all analytes analyzed by AA Flame?	___	[X]	___
(d) Mercury?	___	[X]	___
(e) cyanide?	___	[___]	N/A

MMB ACTION: If yes, prepare Telephone Log, contact laboratory for corrected data and correct errors with red pencil and initial.

		YES	NO	N/A
A.1.8.15	Form I (Field Blank) - Do concentration of field blanks fall below two times IDL for all aqueous and soil parameters?	[___]	___	N/A
	If no, was field blank value already rejected due to other QC criteria?	[___]	___	N/A

MMB ACTION: If no, reject (red line) all aqueous and soil/sediment data (except field blank) that has a concentration less than five times the field blank value not flagged with a "U" (less than).

A.1.8.16 Form XI, XII, XIII (Quarterly Verification of Instrumental Parameters).

A.1.8.16.1 Is quarterly verification report present in MMB file for:

Instrument Detection Limits?	[___]	___	N/A
ICP Interelement Correction Factors?	[___]	___	N/A
ICP Linear Ranges?	[___]	___	N/A

MMB ACTION: If no, contact DPO of the lab.

A.1.8.16.2	Was any sample result higher than linear range of ICP by more than 10%?	___	[___]	N/A
	Was any sample result higher than highest calibration standard for non-ICP parameters?	___	[___]	N/A

MMB ACTION: If yes for any of the above, flag result reported on Form I as estimated (J).

Case# _____ Site Tops Markets Niagara Falls Boulevard Matrix: Soil X

Lab Advanced Environmental Services Water _____

Other _____

A.2.1 Are all data of acceptable quality? Yes _____ No X

If no, list exceptions with reason(s) for rejection or qualification as estimated value (J).

Data for Mercury for sample B-16-W rejected because the coefficient of correlation for the method at standard addition was less than 0.990.

Problem may be due to the non-homogenity of the contamination at the sample location and within the sample.

All other data is of acceptable quality.

A.2.1 (continuation)

A.2.2 Contract Problems/Non-compliance

No other problems noted.

WMR Reviewer: Stephen S. Ogenski Date: Jan 10, 1992
Signature

Contractor Reviewer: _____ Date: _____
Signature

Verified by: _____ Date: _____

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Sample ID	Matrix	Metals Requested	Date Rec'd	Date Analyzed
B-3-N	Soil	Cadmium	11/22/91	12/8/91
B-3-S	Soil	Cadmium	11/22/91	12/8/91
B-3-W	Soil	Cadmium	11/22/91	12/8/91
B-3-E	Soil	Cadmium	11/22/91	12/8/91
B-4-N	Soil	Mercury, Lead	11/25/91	12/5/91 12/8/91
B-4-S	Soil	Mercury, Lead	11/25/91	12/5/91 12/8/91
B-4-E	Soil	Mercury, Lead	11/25/91	12/5/91 12/8/91
B-4-W	Soil	Mercury, Lead	11/25/91	12/5/91 12/8/91
B-6-N	Soil	Cadmium, Lead	11/22/91	12/8/91 12/8/91
B-6-S	Soil	Cadmium, Lead	11/22/91	12/8/91 12/16/91
B-6-W	Soil	Cadmium, Lead	11/22/91	12/8/91 12/9/91
B-6-E	Soil	Cadmium, Lead	11/22/91	12/8/91 12/9/91
B-7-N	Soil	Cadmium, Chromium	11/25/91	12/8/91 12/8/91
B-7-S	Soil	Cadmium, Chromium	11/25/91	12/8/91 12/8/91
B-7-E	Soil	Cadmium, Chromium	11/25/91	12/8/91 12/8/91
B-7-W	Soil	Cadmium, Chromium	11/25/91	12/8/91 12/8/91
B-11-N	Soil	Mercury	11/26/91	12/5/91
B-11-S	Soil	Mercury	11/26/91	12/5/91
B-11-E	Soil	Mercury	11/26/91	12/5/91
B-11-W	Soil	Mercury	11/26/91	12/5/91
B-12-N	Soil	Mercury	11/26/91	12/5/91
B-12-S	Soil	Mercury	11/26/91	12/5/91
B-12-E	Soil	Mercury	11/26/91	12/5/91
B-12-W	Soil	Mercury	11/26/91	12/5/91
B-15-N	Soil	Cadmium	11/25/91	12/8/91
B-15-S	Soil	Cadmium	11/25/91	12/8/91
B-15-E	Soil	Cadmium	11/25/91	12/8/91
B-15-W	Soil	Cadmium	11/25/91	12/8/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Sample ID	Matrix	Metals Requested	Date Rec'd	Date Analyzed
B-16-N	Soil	Cadmium, Lead, Mercury	11/26/91	12/8/91 12/16/91 12/10/91
B-16-S	Soil	Cadmium, Lead, Mercury	11/26/91	12/8/91 12/9/91 12/10/91
B-16-E	Soil	Cadmium, Lead, Mercury	11/26/91	12/8/91 12/5/91 12/9/91
B-16-W	Soil	Cadmium, Lead, Mercury	11/26/91	12/8/91 12/16/91 12/10/91
B-17-N	Soil	Mercury	11/22/91	12/5/91
B-17-S	Soil	Mercury	11/22/91	12/10/91
B-17-W	Soil	Mercury	11/22/91	12/10/91
B-17-E	Soil	Mercury	11/22/91	12/10/91
B-19-N	Soil	Cadmium, Lead	11/25/91	12/8/91 12/9/91
B-19-S	Soil	Cadmium, Lead	11/25/91	12/8/91 12/9/91
B-19-E	Soil	Cadmium, Lead	11/25/91	12/8/91 12/9/91
B-19-W	Soil	Cadmium, Lead	11/25/91	12/8/91 12/9/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9849	Soil	7130	3050	—	None
9850	Soil	7130	3050	—	None
9851	Soil	7130	3050	—	None
9852	Soil	7130	3050	—	None
9857	Soil	7130	3050	—	None
9858	Soil	7130	3050	—	None
9859	Soil	7130	3050	—	None
9860	Soil	7130	3050	—	None
9861	Soil	7130	3050	—	None
9862	Soil	7130	3050	—	None
9863	Soil	7130	3050	—	None
9864	Soil	7130	3050	—	None
9873	Soil	7130	7130	—	None
9874	Soil	7130	3050	—	None
9875	Soil	7130	3050	—	None
9876	Soil	7130	3050	—	None
9877	Soil	7130	3050	—	None
9878	Soil	7130	3050	—	None
9879	Soil	7130	3050	—	None
9880	Soil	7130	3050	—	None
9885	Soil	7130	3050	—	None
9886	Soil	7130	3050	—	None
9887	Soil	7130	3050	—	None
9888	Soil	7130	3050	—	None

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9853	Soil	7421	3050	$La(NO_3)_2$	1:50
9854	Soil	7421	3050	$La(NO_3)_2$	1:20
9855	Soil	7421	3050	$La(NO_3)_2$	1:10
9856	Soil	7421	3050	$La(NO_3)_2$	1:50
9857	Soil	7421	3050	$La(NO_3)_2$	1:50
9858	Soil	7421	3050	$La(NO_3)_2$	1:500
9859	Soil	7421	3050	$La(NO_3)_2$	1:50
9860	Soil	7421	3050	$La(NO_3)_2$	1:100
9877	Soil	7421	3050	$La(NO_3)_2$	1:100
9878	Soil	7421	3050	$La(NO_3)_2$	1:20
9879	Soil	7421	3050	$La(NO_3)_2$	1:20
9880	Soil	7421	3050	$La(NO_3)_2$	1:10
9885	Soil	7421	3050	$La(NO_3)_2$	1:10
9886	Soil	7421	3050	$La(NO_3)_2$	1:100
9887	Soil	7421	3050	$La(NO_3)_2$	1:100
9888	Soil	7421	3050	$La(NO_3)_2$	1:8

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9861	Soil	7191	3050	$Mg(NO_3)_2$	1:25
9862	Soil	7191	3050	$Mg(NO_3)_2$	1:10
9863	Soil	7191	3050	$Mg(NO_3)_2$	1:50
9864	Soil	7191	3050	$Mg(NO_3)_2$	1:4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9853 #1	Soil	7471	7471	---	1:100
9853 #2	Soil	7471	7471	---	1:100
9853 #3	Soil	7471	7471	---	1:100
9854 #1	Soil	7471	7471	---	None
9854 #2	Soil	7471	7471	---	None
9854 #3	Soil	7471	7471	---	None
9855 #1	Soil	7471	7471	---	1:100
9855 #2	Soil	7471	7471	---	1:100
9855 #3	Soil	7471	7471	---	1:100
9856 #1	Soil	7471	7471	---	None
9856 #2	Soil	7471	7471	---	None
9856 #3	Soil	7471	7471	---	None
9865 #1	Soil	7471	7471	---	1:25
9865 #2	Soil	7471	7471	---	1:4
9865 #3	Soil	7471	7471	---	1:8
9866 #1	Soil	7471	7471	---	1:100
9866 #2	Soil	7471	7471	---	1:100
9866 #3	Soil	7471	7471	---	1:100
9867 #1	Soil	7471	7471	---	1:100
9867 #2	Soil	7471	7471	---	1:8
9867 #3	Soil	7471	7471	---	1:8
9868 #1	Soil	7471	7471	---	1:10
9868 #2	Soil	7471	7471	---	1:10
9868 #3	Soil	7471	7471	---	1:10
9869 #1	Soil	7471	7471	---	1:10
9869 #2	Soil	7471	7471	---	1:10
9869 #3	Soil	7471	7471	---	1:10
9870 #1	Soil	7471	7471	---	1:25
9870 #2	Soil	7471	7471	---	1:25
9870 #3	Soil	7471	7471	---	1:25

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9871 #1	Soil	7471	7471	—	1:25
9871 #2	Soil	7471	7471	—	1:25
9871 #3	Soil	7471	7471	—	1:25
9872 #1	Soil	7471	7471	—	1:25
9872 #2	Soil	7471	7471	—	1:25
9872 #3	Soil	7471	7471	—	1:25
9877 #1	Soil	7471	7471	—	1:20
9877 #2	Soil	7471	7471	—	1:40
9877 #3	Soil	7471	7471	—	1:20
9878 #1	Soil	7471	7471	—	1:40
9878 #2	Soil	7471	7471	—	1:100
9878 #3	Soil	7471	7471	—	1:100
9879 #1	Soil	7471	7471	—	1:25
9879 #2	Soil	7471	7471	—	1:25
9879 #3	Soil	7471	7471	—	1:25
9880 #1	Soil	7471	7471	—	1:500
9880 #2	Soil	7471	7471	—	1:500
9880 #3	Soil	7471	7471	—	1:500
9881 #1	Soil	7471	7471	—	1:50
9881 #2	Soil	7471	7471	—	1:100
9881 #3	Soil	7471	7471	—	1:200
9882 #1	Soil	7471	7471	—	1:50
9882 #2	Soil	7471	7471	—	1:25
9882 #3	Soil	7471	7471	—	1:50
9883 #1	Soil	7471	7471	—	1:100
9883 #2	Soil	7471	7471	—	1:100
9883 #3	Soil	7471	7471	—	1:100
9884 #1	Soil	7471	7471	—	1:4
9884 #2	Soil	7471	7471	—	1:10
9884 #3	Soil	7471	7471	—	1:3

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Sample ID	Matrix	Metals Requested	Date Rec'd	Date Analyzed
B-3	Soil	E. P. TOX Cadmium	6/19/91	12/8/91
B-4	Soil	E. P. TOX Lead and Mercury	11/25/91	12/8/91 12/10/91
B-6	Soil	E. P. TOX Cadmium and Lead	11/22/91	12/8/91
B-7	Soil	E. P. TOX Cadmium and Chromium	11/25/91	12/8/91
B-11	Soil	E. P. TOX Mercury	11/26/91	12/10/91
B-12	Soil	E. P. TOX Mercury	11/26/91	12/10/91
B-15	Soil	E. P. TOX Cadmium	11/25/91	12/8/91
B-16	Soil	E. P. TOX Cadmium, Lead and Mercury	11/26/91	12/8/91 12/10/91
B-17	Soil	E. P. TOX Mercury	11/22/91	12/13/91
B-19	Soil	E. P. TOX Cadmium and Lead	11/25/91	12/8/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9839	Leachate	7130	3010	—	None
9841	Leachate	7130	3010	—	None
9842	Leachate	7130	3010	—	None
9845	Leachate	7130	3010	—	None
9846	Leachate	7130	3010	—	None
9848	Leachate	7130	3010	—	None
9842	Leachate	7190	3010	—	None
9840	Leachate	7420	3010	—	None
9841	Leachate	7420	3010	—	None
9846	Leachate	7420	3010	—	None
9848	Leachate	7420	3010	—	None
9840	Leachate	7470	7470	—	None
9844	Leachate	7470	7470	—	None
9846	Leachate	7470	7470	—	None
9847	Leachate	7470	7470	—	1:4
9843	Leachate	7470	7470	—	None

ADVANCED ENVIRONMENTAL SERVICES, INC.

EXTRACTION TRACEABILITY REPORT

INORGANICS REPORT

A.E.S. JOB CODE: FIL A.E.S. JOB NUMBER: 913867

Technician	Analytical Method	Sample Code(s)	Date of Extraction
Dave Raby	1310	9839	12/3-4/91
Dave Raby	1310	9840	12/3-4/91
Dave Raby	1310	9841	12/3-4/91
Dave Raby	1310	9842	12/3-4/91
Dave Raby	1310	9843	12/3-4/91
Dave Raby	1310	9844	12/4-5/91
Dave Raby	1310	9845	12/4-5/91
Dave Raby	1310	9846	12/4-5/91
Dave Raby	1310	9847	12/4-5/91
Dave Raby	1310	9848	12/4-5/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSES

Sample ID	Matrix	Metals Requested	Date Rec'd	Date Analyzed
B-6-S	Soil	EP TOX Lead	11/22/91	12/30/91
B-7-E	Soil	EP TOX Chromium	11/25/91	12/30/91
B-11-S	Soil	EP TOX Mercury	11/26/91	12/23/91
B-12-W	Soil	EP TOX Mercury	11/26/91	12/23/91
B-16-N	Soil	EP TOX Lead	11/26/91	12/30/91
B-16-W	Soil	EP TOX Mercury	11/26/91	12/23/91
B-17-N	Soil	EP TOX Mercury	11/22/91	12/23/91
B-19-S	Soil	EP TOX Lead	11/25/91	12/30/91

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
9858	Leachate	7420	3010	—	None
9877	Leachate	7420	3010	—	None
9886	Leachate	7420	3010	—	None
9863	Leachate	7190	3010	—	None
9866	Leachate	7470	7470	—	None
9872	Leachate	7470	7470	—	None
9880	Leachate	7470	7470	—	1:25
9881	Leachate	7470	7470	—	None

ADVANCED ENVIRONMENTAL SERVICES, INC.

EXTRACTION TRACEABILITY REPORT

INORGANICS REPORT

A.E.S. JOB CODE: FIL A.E.S. JOB NUMBER: 914059

Technician	Analytical Method	Sample Code(s)	Date of Extraction
David Raby	1310	9858	12-18-91/12-19-91
David Raby	1310	9863	12-18-91/12-19-91
David Raby	1310	9866	12-18-91/12-19-91
David Raby	1310	9872	12-18-91/12-19-91
Melissa Wilson	1310	9877	12-19-91/12-20-91
David Raby	1310	9880	12-18-91/12-19-91
David Raby	1310	9881	12-18-91/12-19-91
Melissa Wilson	1310	9886	12-19-91/12-20-91