ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

002306

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: 5751
PROJECT NAME: South Cavalcade/Koppers
SAMPLERS: (Signature) Mike R Young

Case 5751
KMA # 55127
2 med Soil
REMARKS 1,2+W

STA. NO.	DATE 1986	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8oz glass, Metals + Cyanide, Soil	Sample #	Tag #
SCK-A01-SB09-07	3/24	1050		✓	Area 1, Boring 9, 22'-24'	1	1	MFC 189	6-20268
SCK-A01-SB10-07	3/25	1010		✓	Area 1, Boring 10, 21'-23'	1	1	MFC 190	6-202-67

h-125-9-12055

1012244

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mike R Young	3/27/86 1300				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		D Hutchinson	3/28/86 8:00	FEC # 110 011 974	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—7703

002306

Project Code	5751
Station No.	SCK-AOI-SB10-07
Month, Day, Year	3/25/86
Time	1010
Designate	Grab ✓ / Comp
Samplers (Signatures)	Mike R Gray
Station Location	Area I Soil Boring SB10, 21-23'
Preservative	Yes ☐ No ☑
Tag No.	6-20267
Lab Sample No.	MFC 190

ANALYSES	
BOD Anions Solids TSS TDS ISS	
COD TOC Nutrients	
Phenolics	
Mercury	
Metals	✓
Cyanide	✓
Oil and Grease	
Organics GC/MS	
Priority Pollutant	
Volatile Organics	
Pesticides	
Mutagenicity	
Bacteriology	
Remarks	

Project Code	5751
Station No.	SCK-AOI-SB09-07
Month, Day, Year	3-24-86
Time	1050
Designate	Grab ✓ / Comp
Samplers (Signatures)	Mike R Gray
Station Location	Area I Soil Boring SB09
Preservative	Yes ☐ No ☑
Tag No.	6-20268
Lab Sample No.	MFC-189

ANALYSES	
BOD Anions Solids TSS TDS ISS	
COD TOC Nutrients	
Phenolics	
Mercury	
Metals	✓
Cyanide	✓
Oil and Grease	
Organics GC/MS	
Priority Pollutant	
Volatile Organics	
Pesticides	
Mutagenicity	
Bacteriology	
Remarks	

002307

LS BOOKING

ROLLER: TN

NO. 5751 REGION: 6

PING: 3/27

TYPE: 2LS

TALS ☒ CN ☒

NTRACT NO. 6879

5587-6-5751-8

5587-6-5751-10

002308

FEDERAL EXPRESS

USE THIS AIRBILL FOR DOMESTIC SHIPMENTS AND FOR SHIPMENTS FROM PUERTO RICO TO THE U.S.A.
FILL OUT PURPLE AREAS. FOR ASSISTANCE, CALL 800-238-5355 TOLL FREE.
SEE BACK OF FORM SET FOR COMPLETE PREPARATION INSTRUCTIONS.

SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 0787-0262-1

DATE: 3-27-86

1 From (Your Name): Mike K. Young
Your Phone Number (Very Important): (512) 345-[illegible]
Company: Comp Direct & Mikee Inc
Department/Floor No.:
Street Address: 7447 Everything Center Drive
City: Austin
State: Tx

2 To (Recipient's Name): Tony Maiorana
Recipient's Phone Number (Very Important): (303) 421-6611
Company: RMAL
Department/Floor No:
Exact Street Address (Box or P.O. Boxes or P.O. Zip Codes Will Delay Delivery And Result In Extra Charge.): 5530 Marshall St.
City: Arvada
State: Co.

ZIP Street Address Required (No P.O. Box or Zip Code)

ZIP Zip Code Required For Correct Invoicing: 70771

AIRBILL NO. 110011974

3 YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)
2777-147-TC1-SIEVL

PAYMENT: [X] Bill Shipper [ ] Bill Recipient's FedEx Acct. No. Fill in line below [ ] Bill 3rd Party FedEx Acct. No. Fill in line below [ ] Bill Credit Card Fill in line below [ ] Cash
FedEx Acct. No. or Major Credit Card No.

4 SERVICES — CHECK ONLY ONE BOX

1 [X] **PRIORITY 1** Overnight Delivery Using Your Packaging
6 [ ] **OVERNIGHT LETTER** (Our Packaging 9"x12")

OVERNIGHT DELIVERY USING OUR PACKAGING
2 [ ] Courier-Pak Overnight Envelope 12" x 15½"
3 [ ] Overnight Box 12½" x 17½" x 3" A [ ]
4 [ ] Overnight Tube 36" x 6" x 6" B [ ]

5 [ ] **STANDARD AIR** Delivery not later than second business day

SERVICE COMMITMENT
PRIORITY 1 - Delivery is scheduled early next business morning in most locations. It may take two or more business days if the destination is outside our primary service areas.
STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

DELIVERY AND SPECIAL HANDLING — CHECK SERVICES REQUIRED

1 [ ] **HOLD FOR PICK-UP** Give the Federal Express address where you want package held in Section H at right.
2 [X] **DELIVER WEEKDAY**
3 [X] **DELIVER SATURDAY** (Extra charge applies.)
4 [ ] **RESTRICTED ARTICLES SERVICE** (P-1 and Standard Air Packages only. Extra charge applies.)
5 [ ] **CONSTANT SURVEILLANCE SERVICE (CSS)** (Extra charge applies.)
6 [ ] **DRY ICE** _____ Lbs.
7 [ ] **OTHER SPECIAL SERVICE** _____
8 [ ]
9 [ ] **SATURDAY PICK-UP** (Extra charge applies.)

PACKAGES	WEIGHT	FEDEX DOCUMENTS ONLY
1	6	
Total 1	Total 6	

Received At: Shipper's Door [ ] Regular Stop [ ] On-Call Stop [X] FedEx Loc.
Federal Express Corp. Employee No.: 18446
Date/Time For Federal Express Use: 3/27 1309

H HOLD FOR PICK-UP AT THIS FEDEX LOCATION
Street Address (See Service Guide): 07-1945-7-LE85G
City:
Date:
Cash Received
Return Shipment
[ ] Third Party [ ] Chg. To Dec. [ ] Chg. To Hold
Street Address:
City: State: Zip:
Received By: K. Hutchison
Date/Time Received: 3/28/86 8:10
FedEx Employee Number:

Federal Express Use
Base Charges
Declared Value Charge
Origin Agent Charge
Other
Total Charges

PART #2041738900 FEC-S-750-25 REVISION DATE 2/85 PRINTED U.S.A. NCF

RECIPIENT'S COPY

002309

U.S. ENVIRONMENTAL PROTECTION AGENCY - HQ/Sample Management Office

INORGANICS TRAFFIC REPORT

Sample Number
MFC 189

(1) **Case Number:** [illegible]
Sample Site Name/Code:

(2) **SAMPLE CONCENTRATION**
(Check One)
___ Low Concentration
✓ Medium Concentration

(3) **SAMPLE MATRIX**
(Check One)
___ Water
✓ Soil/Sediment

(4) **Ship To:** [illegible]
Attn: [illegible]
Transfer Ship To:

(5) **Sampling Office:** [illegible]
Sampling Personnel:
(Name) [illegible]
(Phone) [illegible]
Sampling Date
(Begin) ___ (End) ___

(6) **Shipping Information:**
Name Of Carrier: [illegible]
Date Shipped: ___
Airbill Number: [illegible]

(9) **ANALYSIS LAB:**
Recd by: [illegible]
Date Recd: [illegible]

(7) **Sample Description:**
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
✓ Solids
___ Other ___ (specify)

MATCHES ORGANIC SAMPLE NO. [illegible]

(8) **Mark Volume Level On Sample Bottle**
Check Analysis required
✓ Total Metals
✓ Cyanide

(10) **Sample Condition On Receipt:**
(eg broken, leakage, chain of custody, etc.)
[illegible]

5987-0-5751-5

002310

LAB FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office

INORGANICS TRAFFIC REPORT

Sample Number
MFC 190

(1) **Case Number:** [illegible]
Sample Site Name/Code:

(2) **SAMPLE CONCENTRATION**
(Check One)
___ Low Concentration
✓ Medium Concentration

(3) **SAMPLE MATRIX**
(Check One)
___ Water
✓ Soil/Sediment

(4) **Ship To:** [illegible]
Attn:
Transfer Ship To:

(5) **Sampling Office:**
Sampling Personnel:
(Name) [illegible]
(Phone)
Sampling Date:
(Begin) ___ (End) ___

(6) **Shipping Information:**
Name Of Carrier: [illegible]
Date Shipped:
Airbill Number: [illegible]

(9) **ANALYSIS LAB:**
Recd by: [illegible]
Date Recd: [illegible]

(10) **Sample Condition On Receipt:**
(eg broken, leakage, chain of custody, etc.)
OK
2

(7) **Sample Description:**
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other ___ (specify)
MATCHES ORGANIC SAMPLE NO. [illegible]

(8) **Mark Volume Level On Sample Bottle**
Check Analysis required
✓ Total Metals
✓ Cyanide

LAB FILE COPY

002311

Rocky Mountain Analytical Laboratory

55827-6-5751-2

EPA DOCUMENT INVENTORY

RMA QC NO.	REG. NO.	CASE/SAS NO.
55827	6	5751

DOCUMENT NO. & DESCRIPTION	NO. OF PAGE	
-1 ✓ EPA Sample Receipt Checklist.	1	✓
-2 ✓ EPA Document Inventory Sheet.	1	✓
-3 ✓ Report.	10	✓
-4 ✓ Chain of Custody.	1	✓
-5. ✓ Traffic Reports or Packing List.	2	✓
-6. ✓ Airbill or Shipping Receipt.	1	✓
-7 ✓ Bench Sheet/Raw Data.	24	✓
-8 ✓ Booking Sheet.	1	✓
-9. ✓ Tags.	2	✓
-10 ✓ Furnace Tapes.	1	✓
~~-11. Miscellaneous (Specify)~~ none	0	

002312

INVENTORY COMPLETE: NAME: L. Dalla DATE: 4-7-86

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 4-4-86

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL
SOW No. 784

Case No. 5751
QC Report No. 55827

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MFC189D			
MFC189			
MFC189+			
MFC190			
[MFC999]			

55827-6-5751-3

002313

Comments: 2 MEDIUM SOILS TASK 1&2+CN-
SERIAL DILUTION OF SAMPLE MFC190 IDENTIFIED AS [MFC999]

ICP Interelement and background corrections applied? Yes X No ___.
If yes, corrections applied before X or after ___ generation of raw data.

Footnotes:

NR - not required by contract at this time
Form I:
Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).
B - Indicates a value estimated or not reported due to the presence of Interference. Explanatory note included on cover page.
S - Indicates value determined by Method of Standard Addition.
R - Indicates spike sample recovery is not within control limits.
X - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is Less than 0.995
CV - Indicates Cold Vapor
AS - Indicates Automated Spectrophotometric

2

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MFC189

Date 4-4-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5751
QC REPORT NO. 55827

Elements Identified and Measured

Concentration: Low ____ Medium X
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	16100	P	13.	MAGNESIUM	9580	P
2.	ANTIMONY	17U	P R	14.	MANGANESE	460	P
3.	ARSENIC	12	F	15.	MERCURY	0.064U	CV
4.	BARIUM	188	P	16.	NICKEL	46	P
5.	BERYLLIUM	3.3	P	17.	POTASSIUM	3340	P
6.	CADMIUM	4.3	P	18.	SELENIUM	64U	F R
7.	CALCIUM	80400	P X	19.	SILVER	2.6U	P
8.	CHROMIUM	28	P X	20.	SODIUM	[1280]	P
9.	COBALT	[31]	P	21.	THALLIUM	6.4U	F
10.	COPPER	30	P	22.	TIN	[15]	P
11.	IRON	26100	P	23.	VANADIUM	56	P
12.	LEAD	12	F	24.	ZINC	80	P X

Cyanide 0.64U AS Percent Solids (%) 78

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

002314

3

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MFC190

Date 4-4-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5751
QC REPORT NO. 55827

Elements Identified and Measured

Concentration: Low ____ Medium X
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	15200	P	13.	MAGNESIUM	8380	P
2.	ANTIMONY	16U	P R	14.	MANGANESE	582	P
3.	ARSENIC	11	F	15.	MERCURY	0.063U	CV
4.	BARIUM	148	P	16.	NICKEL	[24]	P
5.	BERYLLIUM	[1.2]	P	17.	POTASSIUM	3230	P
6.	CADMIUM	2.5U	P	18.	SELENIUM	3.2U	F R
7.	CALCIUM	87200	P X	19.	SILVER	2.5U	P
8.	CHROMIUM	19	P X	20.	SODIUM	[1260]	P
9.	COBALT	[13]	P	21.	THALLIUM	6.3U	F
10.	COPPER	21	P	22.	TIN	11U	P
11.	IRON	22400	P	23.	VANADIUM	35	P
12.	LEAD	13	F	24.	ZINC	64	P X

Cyanide 0.63U AS Percent Solids (%) 79

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

002315

1 of 2

Form II

Q.C. Report No. 55827

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME ROCKY MOUNTAIN ANALYTICAL

CASE NO. 5751

SOW NO. 784

DATE 4-4-86

UNITS ug/L

Compound	Initial Calib.[1,6]			Continuing Calibration[2]					
Metals:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. ALUMINUM	513	478	93	1000	950	95			P
2. ANTIMONY	606	570	94	1000	980	98			P
3. ARSENIC	506	480	95	20	21	105	21	105	F
4. BARIUM	474	446	94	1000	957	96			P
5. BERYLLIUM	103	100	97	1000	964	96			P
6. CADMIUM	110	107	97	1000	951	95			P
7. CALCIUM	133000	130000	98	100000	99300	99			P
8. CHROMIUM	106	107	101	1000	909	91			P
9. COBALT	102	103	101	1000	921	92			P
10. COPPER	110	104	94	1000	952	95			P
11. IRON	524	549	105	1000	1000	100			P
12. LEAD	493	480	97	20	21	105	21	105	F
13. MAGNESIUM	91300	89500	98	100000	105000	105			P
14. MANGANESE	100	106	106	1000	942	94			P
15. MERCURY	1.00	1.05	105	1.00	1.05	105			CV
16. NICKEL	105	112	106	1000	979	98			P
17. POTASSIUM	110000	100000	91	100000	105000	105			P
18. SELENIUM	509	480	94	20	20	100	20	100	F
19. SILVER	424	414	98	1000	968	97			P
20. SODIUM	139000	132000	95	100000	102000	102			P
21. THALLIUM	526	480	91	20	20	100	20	100	F
22. TIN	472	442	94	1000	965	97			P
23. VANADIUM	106	106	100	1000	956	96			P
24. ZINC	108	105	97	1000	934	93			P
Other:									
CYANIDE	65	71	109	100	96	96			AS

[1] Initial Calibration Source BAKER 186 [2] Continuing Calibration Source MCB

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace
CV - Cold Vapor AS - Automated Spectrophotometric

[5] Furnace Initial Calibration Source BAKER985

[6] Cyanide Initial Calibration Source BRA9905

002316

FORM II

Q.C. Report No. 55827
INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME ROCKY MOUNTAIN ANALYTICAL

CASE NO. 5751
SOW NO. 784
UNITS ug/L

DATE 4-4-86

Compound	Initial Calib.[1,5]			Continuing Calibration[2]					
Metals:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. ALUMINUM	513			1000					P
2. ANTIMONY	606			1000					P
3. ARSENIC	506								
4. BARIUM	474			1000					P
5. BERYLLIUM	103			1000					P
6. CADMIUM	110			1000					P
7. CALCIUM	133000			100000					P
8. CHROMIUM	106			1000					P
9. COBALT	102			1000					P
10. COPPER	110			1000					P
11. IRON	524			1000					P
12. LEAD	493								
13. MAGNESIUM	91300			100000					P
14. MANGANESE	100			1000					P
15. MERCURY	1.00			1					CV
16. NICKEL	105			1000					P
17. POTASSIUM	110000			100000					P
18. SELENIUM	509			20	20	100			F
19. SILVER	424			1000					P
20. SODIUM	139000			100000					P
21. THALLIUM	526			20					F
22. TIN	472			1000					P
23. VANADIUM	106			1000					P
24. ZINC	108			1000					P
Other:									
CYANIDE									AS

[1] Initial Calibration Source BAKER 186 [2] Continuing Calibration Source MCB
[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110
[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace
CV - Cold Vapor AS - Automated Spectrophotometric
[5] Furnace Initial Calibration Source BAKER985
[6] Cyanide Initial Calibration Source BRA9905

002317

Form III

6

Q.C. Report No. 55827

BLANKS

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 5751
DATE 4-4-86 UNITS ug/L
Matrix SOIL

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2	
Metals:								
1. ALUMINUM	23U	23U				23U		
2. ANTIMONY	26U	26U				26U		
3. ARSENIC	3u	3u	3u			3u		F
4. BARIUM	9U	9U				9U		
5. BERYLLIUM	0.4U	0.4U				0.4U		
6. CADMIUM	4U	4U				4U		
7. CALCIUM	324U	324U				324U		
8. CHROMIUM	4U	4U				4U		
9. COBALT	6U	6U				6U		
10. COPPER	4U	4U				4U		
11. IRON	11U	11U				11U		
12. LEAD	1u	1u	1u			1u		F
13. MAGNESIUM	389U	389U				389U		
14. MANGANESE	3U	3U				3U		
15. MERCURY	0.1u	0.1u				0.1u		
16. NICKEL	6U	6U				6U		
17. POTASSIUM	708U	708U				708U		
18. SELENIUM	2u	2u	2u	2u		2u		
19. SILVER	4U	4U				4U		
20. SODIUM	[818]	[910]				775U		
21. THALLIUM	3u	3u	3u			3u		
22. TIN	18U	18U				18U		
23. VANADIUM	5U	5U				5U		
24. ZINC	2U	2U				[3.9]		
Other:								
Cyanide	10u	10u	10u			10u		

002318

Form IV

Q.C. Report No. 55827

ICP INTERFERENCE CHECK SAMPLE

LAB NAME ROCKY MOUNTAIN ANALYTICAL

DATE 4-4-86

CASE NO 5751
Check Sample I.D. INT CHK
Check Sample Source EMSL-LV
Units mg/L

Compound	Control Limits[1] Mean	Control Limits[1] Std. Dev.	True[2]	Initial Observed	Initial %R	Final Observed	Final %R
Metals:							
1. ALUMINUM			503	407	81	407	81
2. ANTIMONY				0.026U		0.026U	
3. ARSENIC				0.018U		0.018U	
4. BARIUM			0.47	0.41	87	0.4	85
5. BERYLLIUM			0.46	0.46	100	0.44	96
6. CADMIUM			0.96	0.91	95	0.91	95
7. CALCIUM			499	488	98	479	96
8. CHROMIUM			0.98	0.89	91	0.87	89
9. COBALT			0.48	0.46	96	0.46	96
10. COPPER			0.51	0.51	100	0.5	98
11. IRON			198	176	89	173	87
12. LEAD	4.7	0.14	4.6	4.5	96	4.5	96
13. MAGNESIUM			497	495	100	493	99
14. MANGANESE			0.52	0.53	102	0.52	100
15. MERCURY							
16. NICKEL			0.91	0.86	95	0.85	93
17. POTASSIUM				0.71U		0.71U	
18. SELENIUM							
19. SILVER			0.99	0.9	91	0.89	90
20. SODIUM				5.4		5.2	
21. THALLIUM							
22. TIN				0.018U		0.018U	
23. VANADIUM			0.47	0.46	98	0.45	96
24. ZINC			0.95	0.88	93	0.88	93
Other:							

[1] Mean value based on n = 37.
[2] True value of EPA ICP Interference Check Sample or contractor standard.

002319

Form V

Q.C. Report No. 55827

SPIKE SAMPLE RECOVERY

LAB NAME ROCKY MOUNTAIN ANALYTICAL

DATE 4-4-86

CASE NO. 5751
EPA Sample No. MFC189
Lab Sample ID No. -
Units mg/kg

MATRIX SOIL

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R[1]	
Metals:						
1. ALUMINUM	75-125	11300	12600	NR		
2. ANTIMONY	75-125	159	13U	250	64	R
3. ARSENIC	75-125	30	9.5	20	102	
4. BARIUM	75-125	1090	147	1000	94	
5. BERYLLIUM	75-125	28	2.6	25	102	
6. CADMIUM	75-125	25	3.4	25	86	
7. CALCIUM	75-125	68000	62700	NR		
8. CHROMIUM	75-125	112	22	100	90	
9. COBALT	75-125	256	[24]	250	93	
10. COPPER	75-125	138	23	125	92	
11. IRON	75-125	17900	20300	NR		
12. LEAD	75-125	17	9.5	10	75	
13. MAGNESIUM	75-125	7230	7470	NR		
14. MANGANESE	75-125	585	358	250	91	
15. MERCURY	75-125	0.54	0.05U	0.5	108	
16. NICKEL	75-125	263	36	250	91	
17. POTASSIUM	75-125	[2420]	2600	NR		
18. SELENIUM	75-125	2.5U	50U	5	0	R
19. SILVER	75-125	20	2U	25	80	
20. SODIUM	75-125	[574]	[997]	NR		
21. THALLIUM	75-125	22	5U	25	88	
22. TIN	75-125	245	[12]	250	93	
23. VANADIUM	75-125	259	44	250	86	
24. ZINC	75-125	298	63	250	94	
Other:						
Cyanide	75-125	4.9	0.5U	5	98	

[1] %R = [(SSR - SR)/SA] x 100
"R"- out of control

Comments:

002320

Form VI

9

Q.C. Report No. 55827

DUPLICATES

LAB NAME ROCKY MOUNTAIN ANALYTICAL

DATE 4-4-86

CASE NO. 5751
EPA Sample No. MFC189D
Lab Sample ID No. -
Units mg/kg

Matrix SOIL

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]	
Metals:					
1. ALUMINUM		12600	10600	17	
2. ANTIMONY		13U	13U	NC	
3. ARSENIC		9.5	12	23	
4. BARIUM		147	[77]	NC	
5. BERYLLIUM		2.6	[0.93]	NC	
6. CADMIUM		3.4	2U	NC	
7. CALCIUM		62700	77200	21	X
8. CHROMIUM		22	15	38	X
9. COBALT		[24]	[8.1]	NC	
10. COPPER		23	15	42	
11. IRON		20300	17800	13	
12. LEAD		9.5	9.5	0	
13. MAGNESIUM		7470	7040	5.9	
14. MANGANESE		358	374	4.4	
15. MERCURY		0.05U	0.05U	NC	
16. NICKEL		36	[18]	NC	
17. POTASSIUM		2600	[2220]	NC	
18. SELENIUM		50U	50U	NC	
19. SILVER		2U	2U	NC	
20. SODIUM		[997]	[878]	NC	
21. THALLIUM		5U	5U	NC	
22. TIN		[12]	9U	NC	
23. VANADIUM		44	27	48	
24. ZINC		63	41	42	X
Other:					
Cyanide		0.5U	0.5U	NC	

X Out of Control

[1] To be added at a later date.

[2] RPD = [|S-D|/((S+D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

002321

10

Form VII

Q.C. Report No. 55827
INSTRUMENT DETECTION LIMITS AND
LABORATORY CONTROL SAMPLE

LAB NAME ROCKY MOUNTAIN ANALYTICAL
DATE 4-4-86

CASE NO 5751
UNITS ug/L

Compound	Required Detection Limits (CRDL)-ug/l	Instrument Detection Limits (IDL)-ug/l ICP/AA	Furnace	Lab Control Sample True	Found	%R	
Metals:							
1. ALUMINUM	200	23		513	475	93	
2. ANTIMONY	60	26		606	540	89	
3. ARSENIC	10	18	3	506	480	95	F
4. BARIUM	200	9		474	445	94	
5. BERYLLIUM	5	0.4		103	98	95	
6. CADMIUM	5	4		110	102	93	
7. CALCIUM	5000	324		133000	125000	94	
8. CHROMIUM	10	4		106	97	91	
9. COBALT	50	6		102	95	93	
10. COPPER	25	4		110	99	90	
11. IRON	100	11		524	562	107	
12. LEAD	5	15	1	493	440	89	F
13. MAGNESIUM	5000	389		91300	88400	97	
14. MANGANESE	15	3		100	96	96	
15. MERCURY	0.2		0.1CV	1	0.99	99	
16. NICKEL	40	6		105	98	93	
17. POTASSIUM	5000	708		110000	99200	90	
18. SELENIUM	5		2	509	460	90	
19. SILVER	10	4		424	361	85	
20. SODIUM	5000	775		139000	128000	92	
21. THALLIUM	10		3	526	520	99	
22. TIN	40	18		472	397	84	
23. VANADIUM	50	5		106	98	92	
24. ZINC	20	2		108	104	96	
Other:							
Cyanide	10		10AS	65	68	105	

CV - Cold Vapor
AS - Automated Spectrophotometric

002322

55827-6-5751-7

ICAP UNITS/DILUTION FACTORS

Soil samples are prepared at a total dilution factor of 1:500 (SOW 784). The Jarrell-Ash 9000A ICAP outputs soil data in mg/kg. Unless otherwise noted, ICAP data for soils already has the 1:500 dilution applied in the raw data.

ICAP data for waters is output, unless otherwise noted, in mg/l. The conversion from mg/l to ug/l is performed before the raw data is transferred to the Report Forms.

GRAPHITE FURNACE REPORTING LIMITS

The current scope of work (SOW784) specifies that graphite furnace data be reported only down to the Contract Required Detection Limits (CRDL's). On the Graphite Furnace Worksheets, initial concentration data are reported down to RMAL's calculated Instrument Detection Limits (IDL's). CRDL's are reported for both the final concentration (on the worksheet) and on Forms I, V, VI of the Data Package.

FW SSEC7 DISC 1N

ACT NAME : EPA-B TIME:31-MAR-86 08:21 STANDARD NAME : STD 1

	I.S.	AL	SB	AS	BA	BE	B	CD	CA	CR
EXP# 1	1000	.0020	-.0320	-.0030	-.0680	.0140	.0155	.0060	.6330	.0035
EXP# 2	1000	-.0010	-.0470	-.0020	-.0635	.0140	.0120	.0110	.6260	.0005
EXP# 3	1000	.0040	.0510	-.0090	-.0515	.0130	.0100	.0100	.6210	.0020
AVERAGE	1000	.0017	-.0093	-.0047	-.0610	.0137	.0125	.0090	.6267	.0020

	CO	CU	FE	PB	MG	MN	MO	NI	P	K
EXP# 1	-.0065	.0135	.0010	.0550	.0890	-.0035	.0120	.0165	-.1115	.7540
EXP# 2	-.0060	.0140	-.0010	.0490	.0880	-.0120	.0150	.0180	-.1720	.7500
EXP# 3	-.0065	.0095	.0010	.0420	.0880	-.0150	.0110	.0160	-.1310	.7510
AVERAGE	-.0063	.0123	.0003	.0487	.0883	-.0102	.0127	.0168	-.1382	.7517

	SE	SIO2	AG	NA	SR	TI	SN	V	ZN
EXP# 1	.4450	.0105	-.1310	1.774	-.0020	-.0030	.0140	.0100	.0975
EXP# 2	.4440	.0075	-.1240	1.748	-.0010	.0000	.0020	.0060	.0945
EXP# 3	.4470	.0075	-.1360	1.759	-.0040	-.0020	.0240	.0100	.0995
AVERAGE	.4453	.0085	-.1303	1.760	-.0023	-.0017	.0133	.0087	.0972

002324

ACT NAME : EPA-B TIME:31-MAR-86 08:24 STANDARD NAME : STD 2

	I.S.	AG
EXP# 1	1000	5.557
EXP# 2	1000	5.534
EXP# 3	1000	5.595
AVERAGE	1000	5.562

ACT NAME : EPA-B TIME:31-MAR-86 08:27 STANDARD NAME : STD 3

	I.S.	AL	SB	AS	BA	BE	B	CD	CR	CO
EXP# 1	1000	19.94	7.667	.2510	8.145	2.194	5.147	3.011	1.804	1.316
EXP# 2	1000	20.03	7.824	.2510	8.143	2.195	5.161	3.034	1.808	1.323
EXP# 3	1000	20.30	7.797	.2590	8.251	2.229	5.214	3.074	1.836	1.345
AVERAGE	1000	20.09	7.763	.2537	8.179	2.206	5.174	3.040	1.816	1.328

	CU	FE	PB	MN	MO	NI	P	SE	SR	TI
EXP# 1	2.179	1.592	.9360	5.835	2.119	1.061	.3940	1.433	.5050	2.022
EXP# 2	2.192	1.590	.9410	5.876	2.123	1.067	.3840	1.421	.5120	2.026
EXP# 3	2.216	1.615	.9610	5.933	2.135	1.080	.3665	1.439	.5250	2.055
AVERAGE	2.195	1.599	.9460	5.881	2.126	1.069	.3815	1.431	.5140	2.034

STANDARDS PREPARED BY E.R.A.

SDM

ACT NAME : EPA-B TIME:31-MAR-86 08:27 STANDARD NAME : STD 3

	SN	V	ZN
EXP# 1	3.328	3.444	6.796
EXP# 2	3.279	3.461	6.794
EXP# 3	3.290	3.508	6.883
AVERAGE	3.299	3.471	6.824

ACT NAME : EPA-B TIME:31-MAR-86 08:30 STANDARD NAME : STD 4

	I.S.	CA	MG	K	SIO2	NA
EXP# 1	1000	23.56	5.336	21.92	12.98	5.019
EXP# 2	1000	23.68	5.399	22.18	13.11	5.033
EXP# 3	1000	23.80	5.376	22.04	13.14	5.056
AVERAGE	1000	23.68	5.370	22.05	13.08	5.036

002325

ELEMENT	SLOPE	INTERCEPT
AL	.497768339	-8.29613898E-04
SB	.12866701	1.20089209E-03
AS	3.87096774	.0180645161
BA	.121354314	7.40261316E-03
BE	.456135016	-6.23384522E-03
B	.193748385	-2.42185482E-03
CD	.329960405	-2.96964364E-03
CA	4.33757934	-2.71821639
CR	.551369234	-1.10273847E-03
CO	.749531543	4.7470331E-03
CU	.458085204	-5.64971751E-03
FE	6.25521268	-2.08507089E-03
PB	1.11441308	-.0542347697
MG	18.9322226	-1.67234633
MN	.169750467	1.72579641E-03
MO	.473260767	-5.99463638E-03
NI	.950269243	-.0159961959
P	1.92431046	.265875561
K	4.69564401	-3.52955908
SE	10.1454177	-4.51809266
SIO2	16.3729566	-.139170131
AG	.175674884	.0228962933
NA	30.5281368	-53.7396968
SR	1.93673338	4.51904455E-03
TI	.491159135	8.18598559E-04
SN	.304352237	-4.05802983E-03
V	.288822567	-2.50312891E-03
ZN	.148658358	-.0144446372

002326

INITIAL INTERFERENCE CHECK

FILE NAME : IC#2 3/31

DATE : 31-MAR-86 15:03

ACT NAME : EPA-B

SAMPLE INT CHI	ANALYSIS TIME	OPERATOR	CONCENTRATION TEXT STRING
	31-MAR-86 11:52	JTW	

002327

INITIAL INTERFERENCE CHECK

FILE NAME : IC#2 3/31

ACT NAME : EPA-B

DATE : 31-MAR-86 15:03

CONCENTRATION

	INT CHK
AL	406.7
SB	-.0107
AS	-.2003
BA	.4058
BE	.4583
CD	.9053
CA	487.6
CR	.8864
CO	.4603
CU	.5076
FE	176.3
PB	4.431
MG	494.8
MN	.5325
NI	.8634
K	-.0410
AG	.8962
NA	5.370
SN	-.0184
V	.4590
ZN	.8752

002328

FINAL INTERFERENCE CHECK

FILE NAME : IC#3 3/31

DATE : 31-MAR-86 15:04

ACT NAME : EPA-B

SAMPLE INT CHK	ANALYSIS TIME	OPERATOR	CONCENTRATION TEXT STRING
	31-MAR-86 14:59	JTW	

002329

FINAL INTERFERENCE CHECK

FILE NAME : IC#3 3/31

DATE : 31-MAR-86 15:04

ACT NAME : EPA-B

CONCENTRATION

	INT CHK
AL	406.7
SB	.0075
AS	-.1808
BA	.4013
BE	.4415
CD	.9132
CA	478.6
CR	.8704
CO	.4557
CU	.4999
FE	173
PB	4.473
MG	493.3
MN	.5248
NI	.8456
K	-.0032
AG	.8934
NA	5.185
SN	.0013
V	.4485
ZN	.8780

002330

QC# 55827 CASE# 5751

FILE NAME : 55827

DATE : 31-MAR-86 15:16

ACT NAME : EPA-B

SAMPLE	ANALYSIS	TIME	OPERATOR	CONCENTRATION TEXT STRING
ICB	31-MAR-86	14:25	JTW	
ICV	31-MAR-86	14:30	JTW	
PREP BLK	31-MAR-86	14:32	JTW	BAKER 186
MFC189D	31-MAR-86	14:34	JTW	
MFC189	31-MAR-86	14:36	JTW	
MFC189+	31-MAR-86	14:39	JTW	
MFC190	31-MAR-86	14:41	JTW	
MFC999	31-MAR-86	14:44	JTW	MFC 190 - Serial Dilution -10x
LCS	31-MAR-86	14:48	JTW	BAKER 186
CCB	31-MAR-86	14:49	JTW	
CCV	31-MAR-86	14:56	JTW	

002331

QC# 55827 CASE# 5751

10

FILE NAME : 55827

DATE : 31-MAR-86 15:16

ACT NAME : EPA-B

CONCENTRATION

	ICB	ICV BAKER186	PREP BLK	MFC189D	MFC189	MFC189+
AL	-.0033	.4782	.0022	10634	12593	11259
SB	-.0120	.5700	.0032	-.1431	8.776	158.9
AS	-.0159	.4836	-.0086	**-6.669**	**6.317**	**238.4**
BA	-.0011	.4458	-.0008	76.79	147	1089
BE	.0003	.0999	.0003	.9321	2.611	27.72
CD	.0012	.1071	-.0005	-1.196	3.385	24.55
CA	.0538	130.1	.0835	77246	62677	67966
CR	-.0021	.1071	-.0011	15.45	22.11	111.8
CO	-.0012	.1027	-.0012	8.145	24.07	255.5
CU	-.0001	.1038	.0004	14.77	23.39	137.6
FE	.0080	.5494	-.0040	17788	20349	17882
PB	-.0085	.4960	.0010	**13.97**	**23.92**	**265.5**
MG	.0190	89.52	.0380	7036	7474	7227
MN	-.0016	.1058	-.0011	373.6	358.5	584.8
NI	.0008	.1116	-.0001	17.52	35.76	262.9
K	.0725	100	.1008	2217	2605	2416
AG	-.0009	.4145	-.0028	-.7499	.8889	20.32
NA	.8183	132	.6949	877.6	996.8	574.4
SN	-.0004	.4422	-.0097	-1.019	11.59	245.3
V	-.0006	.1063	.0011	26.51	43.99	259.2
ZN	.0006	.1050	.0039	41.41	62.75	297.9

002332

QC# 55827 CASE# 5751

FILE NAME : 55827

DATE : 31-MAR-86 15:16

ACT NAME : EPA-B

SERIAL Dilution

CONCENTRATION

	MFC190	MFC999 MFC190-10X	LCS BAKER186	CCB	CCV
AL	12033	12135	.4752	.0022	.9498
SB	-9.257	20.69	.5403	.0007	.9795
AS	**-.8323**	55.32	.4212	-.0049	.9459
BA	117	127.6	.4453	-.0001	.9568
BE	.9292	1.352	.0982	-.0001	.9642
CD	-1.247	-10.34	.1021	.0037	.9514
CA	68875	71474	124.9	.0878	99.33
CR	15.05	14.66	.0968	.0021	.9089
CO	10.29	20.86	.0949	-.0012	.9210
CU	16.55	27.33	.0986	-.0001	.9520
FE	17710	18613	.5615	-.0040	1
PB	**14.06**	1.715	.4918	.0085	1.035
MG	6618	6846	88.39	.0380	104.6
MN	459.7	489.3	.0955	-.0011	.9420
NI	19.33	43.34	.0980	.0008	.9794
K	2553	3080	99.23	.1055	104.8
AG	-1.018	-.2356	.3609	-.0025	.9679
NA	998.9	6381	128.5	.9104	102.1
SN	-.7603	-9.782	.3972	.0002	.9652
V	27.48	29.80	.0975	-.0003	.9562
ZN	50.17	75.27	.1042	.0005	.9344

002333

12

GRAPHITE FURNACE WORKSHEET

STANDARD CONCENTRATION (ppb)	ABSORBANCE
20	.107
50	.251
100	.469

ELEMENT As MATRIX Med Soil
BACKGROUND CORRECTION D2
CASE/SAS NO. 5751
RMA NO. ~~5827~~ DATE 3-31-86
ANALYST DMB

CUP NO.	EPA NO.	CONC. 1 (ppb)	CONC. 2 (ppb)	AVERAGE CONC. (ppb)	% RSD	D/F	FINAL CONCENTRATION ug/L (mg/kg)	COMMENTS
1	ICB	3u	3u	3u	NC			
2	ICV	24	24	24	3.3	20X		ICV = Baker 98% Spike Recovery
3	Prep BLK	3u	3u	3u	NC			
4	MFC 189	20	19	19	1.3	500	9.5	
5	189+	38	40	39	4.6			100%
6	189D	22	25	24	9.6	500	12	
7	189D+	44	44	44	1.3			100%
8	189S	59	58	59	1.4	500	30	
9	189S+	76	77	76	.57			85%
10	190	19	18	18	2.6	500	9.0	
11	190+	36	36	36	1.4			90%
12	CCB	3u	3u	3u	NC			
13	CCV	20	21	21	3.1			
14	LCS	24	24	24	.99	20X		Baker 98%
15	LCS+	44	44	44	1.5			100%
16	CCB	3u	3u	3u	NC			
17	CCV	20	21	21	2.8			
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

002334

13

GRAPHITE FURNACE WORKSHEET

STANDARD CONCENTRATION (ppb)	ABSORBANCE
10	.077
20	.151
50	.371

ELEMENT Se MATRIX Med Soil
BACKGROUND CORRECTION D2
CASE/SAS NO. 5751
RMA NO. 55827 DATE 3-31-86
ANALYST DMB

CUP NO.	EPA NO.	CONC. 1 (ppb)	CONC. 2 (ppb)	AVERAGE CONC. (ppb)	% RSD	D/F	FINAL CONCENTRATION ug/L (mg/kg)	COMMENTS
1	ICB	2u	2u	2u	NC			
2	ICV	24	24	24	.24	20X		
3	PrepBlk	2u	2u	2u	NC			ICV=Baker 985
4	MFC189	2u	2u	2u	NC	500	Requires 10X	% Spike Recov
5	189+	[3.2]	[3.9]	[3.5]	15			
6	189D	2u	2u	2u	NC	500	Requires 10X	<40%
7	189D+	2u	2u	2u	NC			
8	189S	[2.7]	[2.5]	[2.6]	5.7	500	5u	<40%
9	189S+	7.7	7.8	7.8	.24			
10	190	2u	2u	2u	NC	500	5u	52%
11	190+	[3.9]	[4.1]	[4.0]	12			
12	CCB	2u	2u	2u	NC			40%
13	CCV	20	20	20	.33			
14	LCS	23	23	23	.94	20X		
15	LCS+	32	33	32	2.2			Baker 985
16	CCB	2u	2u	2u	NC			90%
17	CCV	20	20	20	.24			
18	189	2u	2u	2u	NC	5KDB DMB		
19	189+	8.3	7.7	8.0	5.0		50u	
20	189D	2u	2u	2u	NC	5K		80%
21	189D+	7.2	6.9	7.0	2.9		50u	
22	CCB	2u	2u	2u	NC			70%
23	CCV	21	20	20	4.2			
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Jeff

002335

GRAPHITE FURNACE WORKSHEET

STANDARD CONCENTRATION (ppb)	ABSORBANCE
10	0.071
50 ~~20~~ AT	0.295
100	~~0.2~~ AT 0.560

ELEMENT TI MATRIX MED SOIL
BACKGROUND CORRECTION D2
CASE/SAS NO. 5751
RMA NO. 55827 DATE 31 March 86
ANALYST AT

CUP NO.	EPA NO.	CONC. 1 (ppb)	CONC. 2 (ppb)	AVERAGE CONC. (ppb)	% RSD	D/F	FINAL CONCENTRATION mg/kg	COMMENTS
1	ICB	3u	3u	3u	NC			ICV=Baker 985
2	ICV	23	25	24	3.5	20		True value=526
3	Prep Blk	3u	3u	3u	NC			
4	MFC189	3u	3u	3u	NC	500	5u	% spike recovery
5	MFC189+	18	18	18	1.4			90%
6	MFC189D	3u	3u	3u	NC	500	5u	
7	MFC189D+	18	18	18	0.62			90%
8	MFC189S	42	44	43	3.5	500	22	
9	MFC189S+	62	62	62	0.23			90%
10	MFC190	3u	3u	3u	NC	500	5u	
11	MFC190+	18	18	18	0.13			90%
12	LCS	26	26	26	1.4	20		Baker 985
13	~~LCS~~ AT +CCB	3u	3u	3u	NC			
14	~~CCB~~ AT CCV	20	20	20	1.4			
15	~~CCV~~ AT LCS+	45	43	44	2.6			90%
16	CCB	3u	3u	3u	NC			
17	CCV	20	21	20	4.6			
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

002336

GRAPHITE FURNACE WORKSHEET

STANDARD CONCENTRATION (ppb)	ABSORBANCE
10	0.117
20	0.202
50	0.504

ELEMENT Pb MATRIX MED SOIL
BACKGROUND CORRECTION D2
CASE/SAS NO. 5751
RMA NO. 55827 DATE 31March86
ANALYST AT

CUP NO.	EPA NO.	CONC. 1 (ppb)	CONC. 2 (ppb)	AVERAGE CONC. (ppb)	% RSD	D/F	FINAL CONCENTRATION mg/kg	COMMENTS
1	ICB	1u	1u	1u	NC			ICV=Batch985
2	ICV	24	23	24	0.39	20		True value=493
3	Prep Blk	1u	1u	1u	NC			
4	MFC189	19	19	19	2.1	500	9.5	%spike recovery
5	MFC189+	28	29	29	3.0			100%
6	MFC189D	20	18	19	6.3	500	9.5	
7	MFC189D+	28	28	28	0.34			90%
8	MFC189S	33	34	34	1.0	500	17	
9	MFC189S+	46	44	45	1.7			110%
10	MFC190	20	20	20	0.43	500	10	
11	MFC190+	30	29	29	0.77			90%
12	LCS	22	23	22	0.40	20		Batch985
13	~~LCS~~ AT CCB	1u	1u	1u	NC			
14	~~CCB~~ AT CCV	20	21	21	0.34			
15	~~CCV~~ AT LCS+	34	33	33	1.9			110%
16	CCB	1u	1u	1u	NC			
17	CCV	21	21	21	0.14			
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

002337

MERCURY WORKSHEET

16

STANDARD CONCENTRATION (ppb)	READING (mV)
112S BLANK	0.001
72m 0.2	0.025
23E 0.5	0.054
11A 1.0	0.121
22 2.0	0.225

CASE/SAS NO. 5751

RMA NO. 55827

MATRIX MED SOIL

ANALYST SMS

DATE 3-31-86

BOTTLE NO.	EPA NO.	READING (mV)	INITIAL CONCENTRATION (ppb)	D/F	FINAL CONCENTRATION mg/kg	COMMENTS
107s	ICB	0.004	0.10u			
30E	ICV	0.120	1.05			
97m 520	PrepBlk	0.006	0.10u	500x	0.05u	
~~16~~ 97M	MFC189	0.000	0.10u		0.05u	
~~44s~~ 16	MFC189D	0.012	0.10u		0.05u	
~~520~~ 44s	MFC189+	0.122	1.07		0.54	
66s	MFC190	0.000	0.10u		0.05u	
55M	LCS	0.114	0.99			
380	CCB	0.009	0.10u			
33	CCV	0.120	1.05			

002338

SD 18

Linear equation: Y = Ax + B
A = 3.97
B = .3048

TECHNICON Control: ERA 9905

ANALYST:	JB	CONTROL:	65 ug/l		DATE:	3-31-86
PARAMETER:	CN-	SPIKE:	100 ug/l		UNITS:	ug/l mg/kg
		CC = .9994		DF		
SAMPLE	SMPL DATE	READING	CONC	prep / anlyt	CONCf	%REC/RPD
1 STD 10		3.0				
2 STD 40		9.0				
3 STD 100		24.0				
4 STD 200		52.8				
5 STD 400		99.8				
6 RINSE						
7 ICB		—			10u	
8 ICV 9905		17.7	70.52		71 ug/l	109 %
9 ICV 9905		17.5	69.73		70 ug/l	108 %
10 RINSE						
55820 11 SMPL 910		—			10u	
12 DUP 910D		—			10u	NC
13 SMPL 911		—			10u	
14 SPK 911+		25.6	101.859		102 ug/l	102 %
15 912		—			10u	
16 913		—			10u	
17 940		—			10u	
18 914		—			10u	
19 915		—			10u	
20 916		—			10u	
21 RINSE						
22 CCB		—			10u	
23 CCV		24.0	95.512		96 ug/l	96 %
24 RINSE						
25 917		—			10u	
26 942		—			10u	
27 943		—			10u	
28 579		—			10u	
29 909		—			10u	
30 941		—			10u	
31 944		—			10u	
32 Prep Blank		—			10u	
33 LCS 55820		15.6	62.190		62 ug/l	95 %
34 RINSE						
35 CCB		—			10u	
36 CCV		24.0	95.512		96 ug/l	96 %
37 ~~LCB~~ RINSE						
55825 38 47		—		50	0.5u	
39 47D		—		50	0.5u	NC
40 47+		26.9	107.02	50		

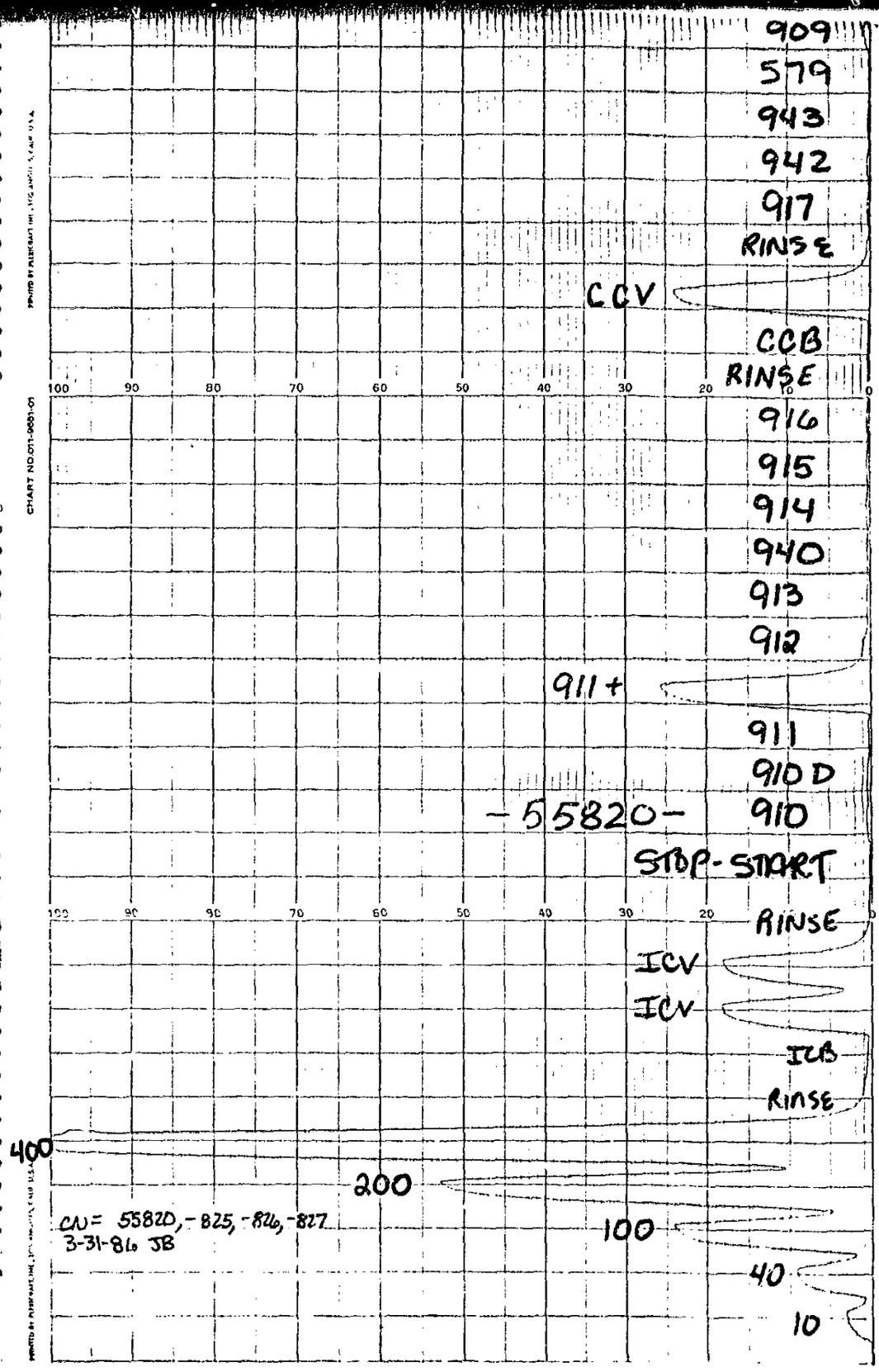
002339

002339

TECHNICON

	SAMPLE	SMPL DATE	READING	CONCf	prep	anlyt	CONCf	%REC/RPD
	1 Prep Blank		—		50		0.5u	
	2 LCS· 55825		16.5	65.760			66 ug/l	102 %
55826	3 71		—		50		0.5u	
	4 71D		—		50		0.5u	NC
	5 71+		21.7	86.388	50		4.3 mg/kg	86 %
	6 72		—		50		0.5u	
	7 73		—		50		0.5u	
	8 RINSE							
	9 CCB		—				10u	
	10 CCV		24.3	96.702			97 ug/l	97 %
	11 RINSE							
	12 76		—		50		0.5u	
	13 77		—		50		0.5u	
	14 78		—		50		0.5u	
	15 79		—		50		0.5u	
	16 80		—		50		0.5u	
	17 Prep Blank		—		50		0.5u	
	18 LCS·55826		18.0	71.71			72 ug/l	111 %
55827	19 189		—		50		0.5u	
	20 189D		—		50		0.5u	NC
	21 189+		24.5	97.496	50	4.9	~~97~~ ug/l JML	97 %
	22 RINSE							
	23 CCB		—				10u	
	24 CCV		24.0	95.512			96 ug/l	96 %
	25 RINSE							
	26 190		—		50		0.5u	
	27 Prep Blank		—		50		0.5u	
	28 LCS· 55827		17.0	67.743			68 ug/l	105 %
	29 RINSE							
	30 CCB		—				10u	
	31 CCV		23.8	94.712			95 ug/l	95 %
	32							
	33							
	34							
	35							
	36							
	37							
	38							
	39							
	40							

002340


909
579
943
942
917
RINSE
CCV
CCB
RINSE
916
915
914
940
913
912
911+
911
910D
-55820-
910
STOP-START
RINSE
ICV
ICV
ICB
RINSE
400
200
100
40
10
CN= 55820,-825,-826,-827
3-31-86 JB
100 90 80 70 60 50 40 30 20 10 0
CHART NO.011-0051-01

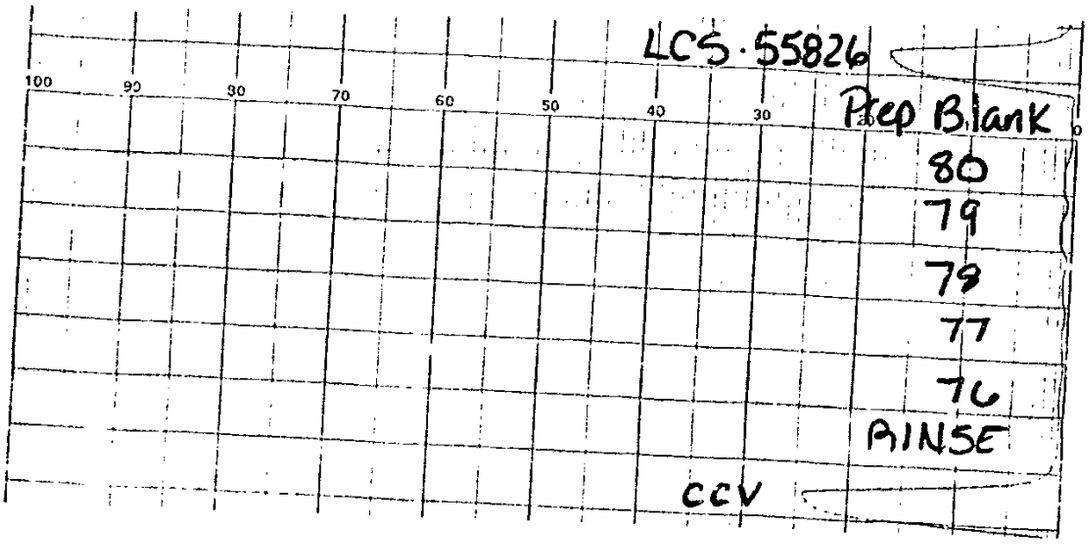
002341

79
77
76
RINSE
CCV
CCB
RINSE
73
72
71+
71D
— 55826 —
71
LCS-55825
Prep Blank
47+
47D
— 55825 —
47
RINSE
CCV
CCB
RINSE
LCS 55820
Prep Blank
944
941
909
579
943
942

100 90 80 70 60 50 40 30 20 10 0

100 90 80 70 60 50 40 30 20 10 0

002342


LCS 55826
100
90
80
70
60
50
40
30
20
10
Prep Blank
80
79
78
77
76
RINSE
CCV

10

PERCENT SOLIDS

27

DATE: 3-30-86
CASE/SAS NO. 5751

ANALYST: Dave A. MP
RMA NO. 55827

EPA NO.	WET SAMPLE + CRUCIBLE WEIGHT (g)	CRUCIBLE WEIGHT (g)	CRUCIBLE NO.	WET SAMPLE WEIGHT (g)	DRY SAMPLE + CRUCIBLE WEIGHT (g)	DRY SAMPLE WEIGHT (g)	PERCENT
MFC189	25.25	15.23	10x	10.02	23.10	7.87	78
MFC190	25.50	15.40	72	10.10	23.34	7.94	79

COMMENTS:

002344

EPA SAMPLE DESCRIPTION SHEET

23

RMA NO. 55827 CASE/SAS NO. 5751 MATRIX: MED SOIL

EPA NO.	COLOR	TEXTURE
MFC189	RED	FINE (POWDERY)
MFC190	RED	FINE (POWDERY)

KEY:

COLOR		CLARITY	TEXTURE
1 RED	7 WHITE	1 CLEAR	1 FINE (POWDERY)
2 BLUE	8 COLORLESS	2 CLOUDY	2 MEDIUM (SAND)
3 YELLOW	9 BROWN	3 OPAQUE	3 COARSE (LARGE CRYSTALS OR ROCKS)
4 GREEN	10 GREY	4 OTHER (SPECIFY)	4 OTHER (SPECIFY)
5 ORANGE	11 BLACK		
6 VIOLET	12 OTHER (SPECIFY)		

COMMENTS:

002345

EPA SAMPLE PREPARATION SHEET

24

RMA NO. 55827 CASE/SAS NO. 5751 MATRIX: MED SOIL

EPA NO.	DATE REC'D	PARAMETERS	ICP METALS g/ml	ICP METALS ml	FURNACE METALS g/ml	FURNACE METALS ml	MERCURY g/ml	MERCURY ml	CYANIDE g/ml	CYANIDE ml	SOLIDS
PREP BLK	------	METALS & CN-	1.0	500	1.0	500	.2	100	1.0	50	
LCS	------	METALS & CN-	100	100	100	100	100	100	50	50	
MFC189	3-28-86	METALS & CN-	1.0	500	1.0	500	.2	100	1.0	50	↓
MFC189D	3-28-86	METALS & CN-	↓	↓	↓	↓	↓	↓	↓	↓	—
MFC189+	3-28-86	METALS & CN-	↓	↓	↓	↓	↓	↓	↓	↓	—
MFC190	3-28-86	METALS & CN-	↓	↓	↓	↓	↓	↓	↓	↓	↓

DATE / INITIALS: 3-30 DA/MA 3-30 DA/MA 3-30 DA/MA 3/28 SM 3-30 DA/MA

SPECIAL INSTRUCTIONS and/or CAUTIONS:

SAMPLE LOCATION

SOILS REFRIG

002346