J. Sceva
PASSF 1.7v2
2/6/86

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

MEMORANDUM

DATE: February 6, 1986

TO: John Osborn, FIT RPO, USEPA, Seattle

FROM: Roger McGinnis, Chemist, E&E, Seattle RNM
Andrew Hafferty, Senior Chemist, E&E, Seattle

THRU: D.A. Buecker, FIT RPM, E&E, Seattle DAB

SUBJ: QA of Case 4679 (Inorganics)
Resource Recovery WA 0280

CC: Gerald Muth, DPO, USEPA, Region X
Harold Takenaka, DPO, USEPA, Region IX
Jack Sceva, USEPA, Seattle
Bill Ritthaler, E&E, Seattle

The Quality Assurance review of seven samples, Case 4679, collected at Resource Recovery has been completed. The seven water samples were analyzed at low level for inorganics by California Analytical Laboratories of West Sacramento, California. The samples were numbered:

MJA201	MJA206
MJA202	MJA207
MJA203	MJA208
MJA205	

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA84J-091.

1) Timeliness - Acceptable

2) Initial Calibration - Acceptable

3) Continuing Calibration - Acceptable

4) Blanks - Acceptable

5) Instrument Detection Limits - Acceptable

recycled paper

USEPA SF
1371160

6) ICP Interference Check - Acceptable

7) Laboratory Control Sample - Acceptable

8) Duplicate Sample Analysis - Acceptable

9) Spiked Sample Analysis

Two out of 24 spike % recoveries were out of control.

Element	% Recovery	QC Limit
Selenium	42%	75-125%
Thallium	58%	75-125%

10) Furnace AA - Acceptable

11) ICP Serial Dilutions

One out of 24 elements was out of control.

Element	% Difference	QC Limit
Potassium	13.9%	< 10%

12) Mercury Analysis - Acceptable

13) Samples

Selenium and thallium results are flagged as estimated (J) based on low spike recoveries. Interferences were noted in selenium analyses of samples MJA202, 203, 205, 206, and 207. Potassium results are flagged as estimated (J) due to differences between the serial dilution and sample analyses. Reported antimony detection limits were slightly higher than contract required limits.

Data Use

The usefulness of the data is basedon the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses" (R-582-5-5-01).

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met.

R - Quality Control indicates that data unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

S - Indicates a value determined by method of standard addition.

RM:dlk

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:
MJA201
DATE:7/30/85

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AUG 16 1985

INORGANIC ANALYSIS SHEET

LAB NAME: CALIF.ANAL.LAB. CASE NO:4679
SOW NO.: 784 QC RPT.#4679
LAB.SAMPLE NO.: P2658

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2/6/86

ELEMENTS IDENTIFIED AND MEASURED

CONC.: LOW: XX MEDIUM
MATRIX: WATER: XX

ELEMENTS..METHOD	UG/L
1. ALUMINIUM...P	61 U
2. ANTIMONY....P	12 U
3. ARSENIC.....F	10.0 u
4. BARIUM.....P	20 U
5. BERYLLIUM...P	0.6
6. CADMIUM.....P	1.9 U
7. CALCIUM.....P	430 U
8. CHROMIUM....P	8
9. COBALT.....P	3.9 U
10.COPPER.....P	1.7 U
11.IRON.....P	24
12.LEAD.....F	5.0 u
13.MAGNESIUM...P	300 U
14.MANGANESE...P	2
15.MERCURY....CV	0.18 U
16.NICKEL.....P	16 U
17.POTASSIUM...P	1676 J
18.SELENIUM....F	5.0 u J
19.SILVER.....P	7.2
20.SODIUM.....P	810 U
21.THALLIUM....F	10 u J
22.TIN.....P	18 U
23.VANADIUM....P	7.1
24.ZINC.....P	1.8 U
25.CYANIDE.....C	N/R

COMMENTS:

LAB MANAGER: JRB

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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:
MJA202
DATE:7/30/85

AUG 16 1985

INORGANIC ANALYSIS SHEET

LAB NAME: CALIF.ANAL.LAB. CASE NO:4679
SOW NO.: 784 QC RPT.#4679
LAB.SAMPLE NO.: ~~EPA10~~ 88 P2659

Rnm
2/6/86

ELEMENTS IDENTIFIED AND MEASURED

CONC.: LOW: XX MEDIUM
MATRIX: WATER: XX

ELEMENTS..METHOD	UG/L
1. ALUMINIUM...P	17030
2. ANTIMONY....P	12 U
3. ARSENIC.....F	10.0 U
4. BARIUM.....P	350
5. BERYLLIUM...P	1.7
6. CADMIUM.....P	1.9 U
7. CALCIUM.....P	77740
8. CHROMIUM....P	31
9. COBALT.....P	23
10.COPPER.....P	33
11.IRON.....P	41430
12.LEAD.....F	13.2
13.MAGNESIUM...P	29140
14.MANGANESE...P	733
15.MERCURY....CV	0.6
16.NICKEL.....P	16 U
17.POTASSIUM...P	9598 J
13,SELENIUM....F	TC ~~5.0~~ <25 U J
19.SILVER.....P	8.0
20.SODIUM.....P	35140
21.THALLIUM....F	10 U J
22.TIN.....P	18 U
23.VANADIUM....P	79.4
24.ZINC.....P	132
25.CYANIDE.....C	N/R

COMMENTS:

LAB MANAGER: JRB

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:
MJA203
DATE:7/30/85

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AUG 16 1985

INORGANCC ANALYSIS SHEET

LAB NAME: CALIF.ANAL.LAB. CASE NO:4679
SOW NO.: 784 QC RPT.#4679
LAB.SAMPLE NO.: P2660

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ELEMENTS IDENTIFIED AND MEASURED

CONC.: LOW: XX MEDIUM
MATRIX: WATER: XX

ELEMENTS..METHOD	UG/L
1. ALUMINIUM...P	37210
2. ANTIMONY....P	12 U
3. ARSENIC.....F	10.0 U
4. BARIUM.....P	896
5. BERYLLIUM...P	3.1
6. CADMIUM.....P	2.8
7. CALCIUM.....P	101100
8. CHROMIUM....P	60
9. COBALT.....P	67
10.COPPER.....P	103
11.IRON.....P	89890
12.LEAD.....P	70
13.MAGNESIUM...P	38990
14.MANGANESE...P	2695
15.MERCURY....CV	0.6
16.NICKEL.....P	61
17.POTASSIUM...P	12410 J
18,SELENIUM....F	TC ~~5.0~~ 2.25 U J
19.SILVER.....P	9.8
20.SODIUM.....P	35960
21.THALLIUM....F	10 U J
22.TIN.....P	18 U
23.VANADIUM....P	164.5
24.ZINC.....P	262
25.CYANIDE.....C	N/R

COMMENTS:

LAB MANAGER: JRB

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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:
MJA205
DATE:7/30/85

AUG 16 1985

INORGANIC ANALYSIS SHEET

LAB NAME: CALIF.ANAL.LAB. CASE NO:4679
SOW NO.: 784 QC RPT.#4679
LAB.SAMPLE NO.: P2661

ELEMENTS IDENTIFIED AND MEASURED

CONC.: LOW: XX MEDIUM
MATRIX: WATER: XX

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ELEMENTS..METHOD	UG/L
1. ALUMINIUM...P	46670
2. ANTIMONY....P	12 U
3. ARSENIC.....F	12.0
4. BARIUM.....P	834
5. BERYLLIUM...P	3.6
6. CADMIUM.....P	1.9 U
7. CALCIUM.....P	116100
8. CHROMIUM....P	71
9. COBALT.....P	87
10.COPPER.....P	109
11.IRON.....P	105400
12.LEAD.....P	56
13.MAGNESIUM...P	41490
14.MANGANESE...P	2232
15.MERCURY....CV	0.2
16.NICKEL.....P	50
17.POTASSIUM...P	13420 J
18,SELENIUM....F	TC ~~5.0~~ <25 UJ
19.SILVER.....P	11.1
20.SODIUM.....P	39370
21.THALLIUM....F	10 UJ
22.TIN.....P	88
23.VANADIUM....P	195.8
24.ZINC.....P	354
25.CYANIDE.....C	N/R

COMMENTS:

LAB MANAGER: JRB

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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:
MJA206
DATE:7/30/85

AUG 16 1985

INORGANIC ANALYSIS SHEET

LAB NAME: ~~CALIF.ANAL.LAB.~~ CASE NO:4679
SOW NO.: 784 QC RPT.#4679
LAB.SAMPLE NO.: P2662

ELEMENTS IDENTIFIED AND MEASURED

CONC.: LOW: XX MEDIUM
MATRIX: WATER: XX

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2/6/86

ELEMENTS..METHOD	UG/L
1. ALUMINIUM...P	40180
2. ANTIMONY....P	12 U
3. ARSENIC.....F	40.0
4. BARIUM.....P	838
5. BERYLLIUM...P	3.0
6. CADMIUM.....P	1.9 U
7. CALCIUM.....P	100700
8. CHROMIUM....P	51
9. COBALT.....P	44
10.COPPER.....P	77
11.IRON.....P	95460
12.LEAD.....F	15.3
13.MAGNESIUM...P	39840
14.MANGANESE...P	1394
15.MERCURY....CV	0.2
16.NICKEL.....P	23
17.POTASSIUM...P	12290 J
18,SELENIUM....F	TC ~~5.0~~ <25 UJ
19.SILVER.....P	9.3
20.SODIUM.....P	36120
21.THALLIUM....F	10 UJ
22.TIN.....P	52
23.VANADIUM....P	150.0
24.ZINC.....P	211
25.CYANIDE.....C	N/R

COMMENTS:

LAB MANAGER: JRB

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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:
MJA207
DATE:7/30/85

AUG 16 1985

INORGANIC ANALYSIS SHEET

LAB NAME: CALIF.ANAL.LAB. CASE NO:4679
SOW NO.: 784 QC RPT.#4679
LAB.SAMPLE NO.: P2663

ELEMENTS IDENTIFIED AND MEASURED

RNM
2/6/86

CONC.: LOW: XX MEDIUM
MATRIX: WATER: XX

ELEMENTS..METHOD	UG/L
1. ALUMINIUM...P	129800
2. ANTIMONY....P	12 U
3. ARSENIC.....F	37.2
4. BARIUM.....P	1656
5. BERYLLIUM...P	10.4
6. CADMIUM.....P	1.9 U
7. CALCIUM.....P	332200
8. CHROMIUM....P	176
9. COBALT.....P	184
10.COPPER.....P	254
11.IRON.....P	268300
12.LEAD.....P	180
13.MAGNESIUM...P	99060
14.MANGANESE...P	5281
15.MERCURY....CV	1.0
16.NICKEL.....P	138
17.POTASSIUM...P	26000 J
18,SELENIUM....F	~~5.0~~ 2.25 U J
19.SILVER.....P	19.1
20.SODIUM.....P	41800
21.THALLIUM....F	10 U J
22.TIN.....P	18 U
23.VANADIUM....P	493.7
24.ZINC.....P	673
25.CYANIDE.....C	N/R

COMMENTS:

LAB MANAGER: JRB

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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:
MJA208
DATE:7/30/85

AUG 16 1985

INORGANIC ANALYSIS SHEET

LAB NAME: ~~CALIF.~~ ANAL.LAB.
SOW NO.: 784
LAB.SAMPLE NO.: P2664

CASE NO:4679
QC RPT.#4679

RNM
2/6/86

ELEMENTS IDENTIFIED AND MEASURED

CONC.: LOW: XX MEDIUM
MATRIX: WATER: XX

ELEMENTS..METHOD	UG/L
1. ALUMINIUM...P	61 U
2. ANTIMONY....P	12 U
3. ARSENIC.....F	10.0 U
4. BARIUM.....P	63
5. BERYLLIUM...P	0.6
6. CADMIUM.....P	1.9 U
7. CALCIUM.....P	57180
8. CHROMIUM....P	11
9. COBALT.....P	3.9 U
10.COPPER.....P	1.7 U
11.IRON.....P	24
12.LEAD.....F	5.0
13.MAGNESIUM...P	20600
14.MANGANESE...P	3
15.MERCURY....CV	0.18 U
16.NICKEL.....P	16 U
17.POTASSIUM...P	7315 J
18,SELENIUM....F	5.0 UJ
19.SILVER.....P	5.6
20.SODIUM.....P	33440
21.THALLIUM....F	10 UJ
22.TIN.....P	21
23.VANADIUM....P	23.5
24.ZINC.....P	8
25.CYANIDE.....C	N/R

COMMENTS:

LAB MANAGER: JRB