

0055774

50018

FAX COVER SHEET

Date: March 10, 2000

Page 1 of 5 Pages (Coversheet included)

Fax Number To: 372-9487	Fax Number From: (509)372-1878
Name: Steve Trent	Name: Ruth Esch
Phone Number/Location: 372-9576	Phone Number/Location: 373-4314
Organization: ERC	Organization: Fluor Hanford 222-S Analytical Production

Message

B00-032
~~B00-032~~ ~~B99-039~~ *Daynes*
 S0018 ~~S0011~~ *7/10/01*

Steve,

Attached is a data summary report for the additional ICP and Hg analysis for the 1301-N/1325-N Facility sample number BOTCO1 is attached.

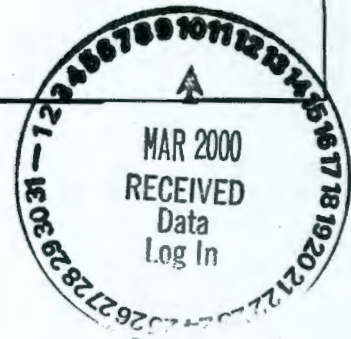
A brief review of the data is included on the attached page. Please let me know if you require a formal letter report.

Ruth E

RECEIVED
 NOV 06 2001

EDMC

PRIORITY



ADDITIONAL ANALYSIS RESULTS FOR THE 1301-N/1325-N FACILITY SAMPLES

The Laboratory received an RSA requesting additional analysis of ICP metals, mercury (Hg) and isotopic uranium on the soil sample BOTC01 that was previously received and analyzed for TCLP metals and radionuclides. A brief discussion of the results follows.

Standard Recoveries

The recoveries for all analytes except silicon (Si) were within 80% - 120% recovery. The Si standard recovery of 156.2% was attributed to unavoidable leaching from the glassware during the acid digestion. Because this leaching is unavoidable, no reanalysis was requested.

Relative Percent Difference (RPD) between Sample and Duplicate Results

Silicon (26.4%) and Hg (26.0%) were the only analytes with RPDs greater than 20%. The poor precision for the Si analysis was attributed to the leaching problem described above and no reanalysis was requested. The high RPD for Hg was attributed to the nature of the sample and the very small sample size used. Since only 0.4 g was used of a soil matrix with varying particle sizes, a reanalysis will not necessarily improve the sample results.

Spike Recoveries

Although analysis of a matrix spike was not requested on the RSA, a matrix spike was prepared for the ICP and isotopic uranium analyses to help assess the accuracy of these analyses. The following analytes had spike recoveries outside of the limits of 75% - 125% recovery: calcium, iron, potassium, magnesium, manganese, phosphorus, silicon, and zinc. Most of these failures were attributed to the high concentration of analyte found in the sample compared to the amount of spike added. The poor recovery for potassium might be attributed to the dilution of the sample so that the concentration of the spike in the solution analyzed was near the detection limit, so that when corrected for the dilution it gave a high result. The post-digestion spike recoveries were all between 90% and 103% recovery.

PRIORITY

Data Summary Report
N FACILITY

RISER: n/a
SEGMENT #: BOTCO1

SEGMENT PORTION: Soil

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count ErrX
S00M000085	A		Uranium-233 by ICP/MS AcidD159	ug/g	n/a	<2.52e-4	<5.00e-02	<5.10e-2	n/a	n/a	n/a	5.00e-02	n/a
S00M000085	A		Uranium-234 by ICP/MS AcidD159	ug/g	n/a	<2.52e-4	<5.00e-02	<5.10e-2	n/a	n/a	n/a	5.00e-02	n/a
S00M000085	A		Uranium-235 by ICP/MS AcidD159	ug/g	n/a	<2.52e-4	8.43e-01	8.11e-01	8.27e-01	3.87	n/a	5.00e-02	n/a
S00M000085	A		Uranium-236 by ICP/MS AcidD159	ug/g	n/a	<3.36e-4	9.29e-02	9.30e-02	9.29e-02	0.11	n/a	6.66e-02	n/a
S0CM000085	A		Uranium-238 by ICP/MS AcidD159	ug/g	108.0	<2.52e-4	1.16e+02	111.0	113.2	4.41	88.00	5.00e-02	n/a
S0CM000085	A		Silver -ICP-Acid Digest	ug/g	91.20	<1.00e-2	< 5.950	<6.07e0	n/a	n/a	89.50	5.940	n/a
S0CM000085	A		Aluminium -ICP-Acid Digest	ug/g	93.40	1.30e-01	4.42e+03	4.49e+03	4.46e+03	1.57	83.00	29.80	n/a
S0CM000085	A		Arsenic -ICP-Acid Digest	ug/g	89.80	<1.00e-1	< 59.50	<6.07e1	n/a	n/a	90.90	59.40	n/a
S0CM000085	A		Boron -ICP-Acid Digest	ug/g	103.6	6.18e-01	<2.98e+02	<3.03e2	n/a	n/a	102.0	298.0	n/a
S0CM000085	A		Barium -ICP-Acid Digest	ug/g	92.80	<5.00e-2	1.60e+02	148.0	154.0	7.79	83.80	29.80	n/a
S0CM000085	A		Beryllium -ICP-Acid Digest	ug/g	92.80	<5.00e-3	< 2.980	<3.03e0	n/a	n/a	90.10	2.980	n/a
S0CM000085	A		Bismuth -ICP-Acid Digest	ug/g	88.40	<1.00e-1	< 59.50	<6.07e1	n/a	n/a	92.00	59.40	n/a
S0CM000085	A		Calcium -ICP-Acid Digest	ug/g	93.00	2.31e-01	8.72e+03	8.90e+03	8.81e+03	2.04	-8.58e+01	594.0	n/a
S0CM000085	A		Cadmium -ICP-Acid Digest	ug/g	89.40	<5.00e-3	3.480	<3.03e0	n/a	n/a	91.60	2.980	n/a
S0CM000085	A		Cerium -ICP-Acid Digest	ug/g	94.60	<1.00e-1	< 59.50	<6.07e1	n/a	n/a	93.40	59.40	n/a
S0CM000085	A		Cobalt -ICP-Acid Digest	ug/g	90.60	<2.00e-2	18.00	20.00	19.00	10.5	91.60	11.90	n/a
S0CM000085	A		Chromium -ICP-Acid Digest	ug/g	92.20	<1.00e-2	1.24e+02	141.0	132.5	12.8	89.80	5.940	n/a
S0CM000085	A		Copper -ICP-Acid Digest	ug/g	92.60	<1.00e-2	2.10e+02	208.0	209.0	0.96	84.80	5.940	n/a
S0CM000085	A		Iron -ICP-Acid Digest	ug/g	93.60	5.41e-02	6.87e+04	6.98e+04	6.92e+04	1.59	-1.63e+03	298.0	n/a
S00M000085	A		Potassium -ICP-Acid Digest	ug/g	85.00	<5.00e-1	<2.98e+03	<3.03e3	n/a	n/a	205.0	2.98e+03	n/a
S00M000085	A		Lanthanum -ICP-Acid Digest	ug/g	95.00	<5.00e-2	< 29.80	<3.03e1	n/a	n/a	92.60	29.80	n/a
S00M000085	A		Lithium -ICP-Acid Digest	ug/g	92.80	<1.00e-2	< 5.950	<6.07e0	n/a	n/a	91.50	5.940	n/a
S00M000085	A		Magnesium -ICP-Acid Digest	ug/g	90.60	<1.00e-1	2.15e+03	2.24e+03	2.20e+03	4.10	66.10	594.0	n/a
S00M000085	A		Manganese -ICP-Acid Digest	ug/g	87.00	<1.00e-2	7.01e+02	712.0	706.5	1.56	64.50	59.40	n/a
S00M000085	A		Molybdenum -ICP-Acid Digest	ug/g	93.00	<5.00e-2	< 29.80	<3.03e1	n/a	n/a	92.70	29.80	n/a
S00M000085	A		Sodium -ICP-Acid Digest	ug/g	116.4	1.03e+00	1.12e+03	1.15e+03	1.14e+03	2.64	81.40	59.40	n/a
S00M000085	A		Neodymium -ICP-Acid Digest	ug/g	96.40	<1.00e-1	< 59.50	<6.07e1	n/a	n/a	93.80	59.40	n/a
S00M000085	A		Nickel -ICP-Acid Digest	ug/g	90.20	<2.00e-2	2.15e+02	256.0	235.5	17.4	85.40	11.90	n/a
S00M000085	A		Phosphorus -ICP-Acid Digest	ug/g	91.80	<2.00e-1	4.65e+03	4.73e+03	4.69e+03	1.71	-4.58e+01	1.19e+03	n/a
S00M000085	A		Lead -ICP-Acid Digest	ug/g	87.20	<1.00e-1	2.78e+02	271.0	274.5	2.55	82.00	59.40	n/a
S00M000085	A		Sulfur -ICP-Acid Digest	ug/g	88.20	<1.00e-1	<5.95e+02	<6.07e2	n/a	n/a	105.0	594.0	n/a
S00M000085	A		Antimony -ICP-Acid Digest	ug/g	89.80	<6.00e-2	< 35.70	<3.64e1	n/a	n/a	90.20	35.70	n/a
S00M000085	A		Selenium -ICP-Acid Digest	ug/g	90.40	<1.00e-1	< 59.50	<6.07e1	n/a	n/a	86.10	59.40	n/a
S00M000085	A		Silicon -ICP-Acid Digest	ug/g	156.2	1.16e+00	2.40e+03	3.13e+03	2.76e+03	26.4	159.0	298.0	n/a
S00M000085	A		Samarium -ICP-Acid Digest	ug/g	95.00	<1.00e-1	< 59.50	<6.07e1	n/a	n/a	91.80	59.40	n/a
S00M000085	A		Strontium -ICP-Acid Digest	ug/g	92.80	<1.00e-2	75.80	82.00	78.90	7.86	88.00	5.940	n/a
S00M000085	A		Titanium -ICP-Acid Digest	ug/g	94.60	<1.00e-2	3.32e+02	371.0	351.5	11.1	94.50	5.940	n/a
S00M000085	A		Thallium -ICP-Acid Digest	ug/g	89.20	<2.00e-1	<1.19e+02	<1.21e2	n/a	n/a	87.70	119.0	n/a
S00M000085	A		Uranium -ICP-Acid Digest	ug/g	96.20	<5.00e-1	<2.98e+02	<3.03e2	n/a	n/a	100.0	298.0	n/a
S00M000085	A		Vanadium -ICP-Acid Digest	ug/g	93.20	<5.00e-2	< 29.80	<3.03e1	n/a	n/a	94.10	29.80	n/a
S00M000085	A		Zinc -ICP-Acid Digest	ug/g	88.00	<1.00e-2	9.45e+02	958.0	951.5	1.37	58.60	59.40	n/a
S00M000085	A		Zirconium -ICP-Acid Digest	ug/g	95.00	<1.00e-2	< 5.950	<6.07e0	n/a	n/a	96.40	5.940	n/a
S98N000415			Mercury by CVAA (PE) with FIAS	ug/g	100.8	<8.0e-5	2.815	3.657	3.236	26.0	n/a	1.420	n/a

PRIORITY

1301-N/1325-N Facility Samples

Soil Sample
BOTCO1



S98M000415

Hg



Acid
Digest



S00M000085

ICP: metals
Isotopic Uranium

PRIORITY

REQUEST FOR SAMPLE ANALYSIS (RSA)

Group ID No. (For Release Only)
98000692

1. Sample Origin 1301-N/325-N Facility	2. Date Sampled 12/22/98	4. Requestor's Name Steve Trent	6. CACN/COA	7. Cost Center
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Customer/Project Code	3. Submitted By Steve Trent	5. Requestor's Phone/MSIN/FAX 372-9651
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8. Customer ID No.	10. Volume of Sample	11. Matrix of Sample	12. Requested Analyses	13. Expected Range
BØTDJ2			subsample package to ship	
BØTDJ3			" "	
BØTBY8			" "	} Sec 18 below
BØTCØØ			" "	
BØTCØ1			ICP (all metals); Hg	see 17 below

14. Does sample have a MSDS?

Yes HEHF assigned MSDS No. _____

No Description of process that produced waste/sample:
See Analytical Instruction

PRIORITY

Will radiochemistry results be used for unconditional release? Yes No

15. Is this sample RCRA listed? Yes No

Applicable Listed Waste Codes:

Yes No P Codes: (list) _____

Yes No U Codes: (list) _____

Yes No K Codes: (list) _____

Yes No F Codes: (list) **methanol**

Applicable Characteristic Codes:

Yes No D001: (how determined) _____ Ignitable

Yes No D002: (how determined) _____ Corrosive

Yes No D003: (how determined) _____ Reactive

Yes No Toxic: (list codes) _____

PCB: Does this waste/sample contain PCBs?

Yes Over 500 ppm

Yes Over 50 ppm

Yes PCBs are suspected

No PCBs are suspected

If YES, what is the source of the PCBs?

Transformer, capacitor, or ballast

Other, specify _____

Unknown

16. Sample Disposition	Sample(s), Dose Rate, # of Contact
<input type="checkbox"/> Return to Customer <input type="checkbox"/> Samples found to contain PCBs will be returned to the customer <input type="checkbox"/> Dispose of per facility procedures with applied charges for analyses and disposal	HPT Signature _____

17. QC Required Per 222-S Laboratory Quality Assurance Plan (HNF-SD-CP-QAPP-016)

Other (list reference document or attach) **1 STD, 1 Blank, 1 Dup. per analytical batch**

18. Special Instructions (Special Storage Requirements, Reporting format, holding times, etc.) Each sample will be subsampled into two separate bottles, containing 10 grams each. Each bottle will be labelled with the sample number and amount of sample therein.	19. Requested Turnaround Time <input type="checkbox"/> 2 Weeks <input type="checkbox"/> 4 Weeks <input type="checkbox"/> Other _____
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20. Sample Received By: _____ Date: _____ Time: _____	21. Chain of Custody <input type="radio"/> No <input type="radio"/> Yes Number: _____
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INTERIM

Interim Results Summary
N FACILITY



RISER: n/a
SEGMENT #: BOTCO1

SEGMENT PORTION: Soil

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S00M000085	A		Silver -ICP-Acid Digest	ug/g	91.20	<1.00e-02	< 5.950	<6.07e0	n/a	n/a	89.50	5.940	n/a
S00M000085	A		Aluminium -ICP-Acid Digest	ug/g	93.40	1.30e-01	4.42e+03	4.49e+03	4.46e+03	1.57	83.00	29.80	n/a
S00M000085	A		Arsenic -ICP-Acid Digest	ug/g	89.80	<1.00e-01	< 59.50	<6.07e1	n/a	n/a	90.90	59.40	n/a
S00M000085	A		Boron -ICP-Acid Digest	ug/g	103.6	6.18e-01	<2.98e+02	<3.03e2	n/a	n/a	102.0	298.0	n/a
S00M000085	A		Barium -ICP-Acid Digest	ug/g	92.80	<5.00e-02	1.60e+02	148.0	154.0	7.79	83.80	29.80	n/a
S00M000085	A		Beryllium -ICP-Acid Digest	ug/g	92.80	<5.00e-03	< 2.980	<3.03e0	n/a	n/a	90.10	2.980	n/a
S00M000085	A		Bismuth -ICP-Acid Digest	ug/g	88.40	<1.00e-01	< 59.50	<6.07e1	n/a	n/a	92.00	59.40	n/a
S00M000085	A		Calcium -ICP-Acid Digest	ug/g	93.00	2.31e-01	8.72e+03	8.90e+03	8.81e+03	2.04	-8.580e1	594.0	n/a
S00M000085	A		Cadmium -ICP-Acid Digest	ug/g	89.40	<5.00e-03	3.480	<3.03e0	n/a	n/a	91.60	2.980	n/a
S00M000085	A		Cerium -ICP-Acid Digest	ug/g	94.60	<1.00e-01	< 59.50	<6.07e1	n/a	n/a	93.40	59.40	n/a
S00M000085	A		Cobalt -ICP-Acid Digest	ug/g	90.60	<2.00e-02	18.00	20.00	19.00	10.5	91.60	11.90	n/a
S00M000085	A		Chromium -ICP-Acid Digest	ug/g	92.20	<1.00e-02	1.24e+02	141.0	132.5	12.8	89.80	5.940	n/a
S00M000085	A		Copper -ICP-Acid Digest	ug/g	92.60	<1.00e-02	2.10e+02	208.0	209.0	0.96	84.80	5.940	n/a
S00M000085	A		Iron -ICP-Acid Digest	ug/g	93.60	5.40e-02	6.87e+04	6.98e+04	6.92e+04	1.59	-1.630e3	298.0	n/a
S00M000085	A		Potassium -ICP-Acid Digest	ug/g	85.00	<5.00e-01	2.98e+03	<3.03e3	n/a	n/a	205.0	2.98e+03	n/a
S00M000085	A		Lanthanum -ICP-Acid Digest	ug/g	95.00	<5.00e-02	< 29.80	<3.03e1	n/a	n/a	92.60	29.80	n/a
S00M000085	A		Lithium -ICP-Acid Digest	ug/g	92.80	<1.00e-02	< 5.950	<6.07e0	n/a	n/a	91.50	5.940	n/a
S00M000085	A		Magnesium -ICP-Acid Digest	ug/g	98.60	<1.00e-01	2.15e+03	2.24e+03	2.20e+03	4.10	66.10	594.0	n/a
S00M000085	A		Manganese -ICP-Acid Digest	ug/g	87.00	<1.00e-02	7.01e+02	712.0	706.5	1.56	64.50	59.40	n/a
S00M000085	A		Molybdenum -ICP-Acid Digest	ug/g	93.00	<5.00e-02	< 29.80	<3.03e1	n/a	n/a	92.70	29.80	n/a
S00M000085	A		Sodium -ICP-Acid Digest	ug/g	116.4	1.030	1.12e+03	1.15e+03	1.14e+03	2.64	81.40	59.40	n/a
S00M000085	A		Neodymium -ICP-Acid Digest	ug/g	96.40	<1.00e-01	< 59.50	<6.07e1	n/a	n/a	93.80	59.40	n/a
S00M000085	A		Nickel -ICP-Acid Digest	ug/g	90.20	<2.00e-02	2.15e+02	256.0	235.5	17.4	85.40	11.90	n/a
S00M000085	A		Phosphorus -ICP-Acid Digest	ug/g	91.80	<2.00e-01	4.65e+03	4.73e+03	4.69e+03	1.71	-4.580e1	1.19e+03	n/a
S00M000085	A		Lead -ICP-Acid Digest	ug/g	87.20	<1.00e-01	2.78e+02	271.0	274.5	2.55	82.00	59.40	n/a
S00M000085	A		Sulfur -ICP-Acid Digest	ug/g	88.20	<1.00e-01	<5.95e+02	<6.07e2	n/a	n/a	105.0	594.0	n/a
S00M000085	A		Antimony -ICP-Acid Digest	ug/g	89.80	<6.00e-02	< 35.70	<3.64e1	n/a	n/a	90.20	35.70	n/a
S00M000085	A		Selenium -ICP-Acid Digest	ug/g	90.40	<1.00e-01	< 59.50	<6.07e1	n/a	n/a	86.10	59.40	n/a
S00M000085	A		Silicon -ICP-Acid Digest	ug/g	156.2	1.160	2.40e+03	3.13e+03	2.76e+03	26.4	159.0	298.0	n/a
S00M000085	A		Samarium -ICP-Acid Digest	ug/g	95.00	<1.00e-01	< 59.50	<6.07e1	n/a	n/a	91.80	59.40	n/a
S00M000085	A		Strontium -ICP-Acid Digest	ug/g	92.80	<1.00e-02	75.80	82.00	78.90	7.86	88.00	5.940	n/a
S00M000085	A		Titanium -ICP-Acid Digest	ug/g	94.60	<1.00e-02	3.32e+02	371.0	351.5	11.1	94.50	5.940	n/a
S00M000085	A		Thallium -ICP-Acid Digest	ug/g	89.20	<2.00e-01	<1.19e+02	<1.21e2	n/a	n/a	87.70	119.0	n/a
S00M000085	A		Uranium -ICP-Acid Digest	ug/g	96.20	<5.00e-01	<2.98e+02	<3.03e2	n/a	n/a	100.0	298.0	n/a
S00M000085	A		Vanadium -ICP-Acid Digest	ug/g	93.20	<5.00e-02	< 29.80	<3.03e1	n/a	n/a	94.10	29.80	n/a
S00M000085	A		Zinc -ICP-Acid Digest	ug/g	88.00	<1.00e-02	9.45e+02	958.0	951.5	1.37	58.60	59.40	n/a
S00M000085	A		Zirconium -ICP-Acid Digest	ug/g	95.00	<1.00e-02	< 5.950	<6.07e0	n/a	n/a	96.40	5.940	n/a
S98M000415			Mercury by CVAA (PE) with FIAS	ug/g	100.8	<8.00e-05	2.815	3.657	3.236	26.0	n/a	1.420	n/a

PRIORITY

High Si RPD + STD and SPK recoveries probably due to leaching from glassware.
High RPD on Hg might be due to large dilution required on possibly non-homogeneous matrix. The solids were not blended prior to remaining aliquots for analysis. Small sample size of 0.04g for Hg may cause higher variability in a difficult matrix, like soil, w/inconsistent particle sizes

02/28/00 TUE 13:31 FAX 3134004

