COMPLETE

ENGINEERING CHANGE NOTICE

1. ECN 627027

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	John M. Conner, Characterization Plans, Coordination and Reports, R2-12, 373-2711	[] Yes [X] No	12/04/95
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12. Description of Change

This ECN is being generated in order to update/add additional information to the existing document.

13a. Justification (mark one)

Criteria Change	[]	Design Improvement	[]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[X]

13b. Justification Details

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15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
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[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
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Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
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OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

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20. Approvals

	Signature	Date		Signature	Date
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			DEPARTMENT OF ENERGY		
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			ADDITIONAL		

Final Report for Tank 241-T-109, Auger Samples 95-AUG-040 and 95-AUG-041

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Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

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ANALYTICAL SERVICES

FINAL REPORT FOR TANK 241-T-109, AUGER SAMPLES 95-AUG-040 AND 95-AUG 041

DATE PRINTED: DECEMBER 1, 1995

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NARRATTIVE

FINAL REPORT FOR TANK 241-T-109, AUGER SAMPLES 95-AUG-040 AND 95-AUG-041

ANALYTICAL SUMMARY

Two 50 cm (20 inch) auger samples were taken from tank 241-T-109 (T-109) in August, 1995. The samples were received at the 222-S Laboratories and underwent safety screening analyses, consisting of differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), and determination of total alpha activity. The results were compared to the safety screening limits at a confidence level of 95%. Two of the samples submitted for moisture content determination by TGA did not meet the minimum criterion of 17 weight percent water stated in the Sampling and Analysis Plan (SAP) [1]. Written notification was provided to all appropriate parties as required in the SAP. All analytical results for the remaining safety screening analyses were within the action limits stated in the SAP. The low moisture content of the samples is not a cause for concern, as moisture is necessary only as a mitigating factor in the case of an energetic event. The lack of exothermic activity (no exotherms detected by DSC for any sample) precludes an exothermic event. In addition, results of gravimetric analyses performed on the same samples indicate that the TGA scans were interpreted conservatively; the gravimetric results indicate that the moisture content of these samples is between 47-51 percent.

Based on the results of combustible gas monitoring prior to auger sampling, the T-109 vapor space is at zero percent of the Lower Flammability Limit (LFL).

None of the analytical results indicate that the tank should be declared "unsafe" per the criteria (energetics, criticality, and flammability) in the *Tank Safety Screening Data Quality Objective* [2]. As the auger samples did not recover a full length profile of the waste in tank, the tank cannot be declared "safe." Additional sampling has been recommended [3].

The tank was evaluated against the *Historical Model Data Evaluation Requirements* [4]. The auger samples did not pass the "gateway" review specified in this document. The cumulative concentration (measured) of the specified gateway analytes, sodium, nitrate, fluoride, and phosphate, was within 85% of the cumulative values given in the DQO (expected). However, the fluoride results for sample 95-AUG-040, and the nitrate results for sample 95-AUG-041 were less than 10% of the expected concentration stated in the DQO. As requested in the DQO, the full range of analytes detected by inductively coupled plasma (ICP) and ion chromatography (IC) are reported in the data summary tables.

SCOPE

This document serves as the final report for the tank T-109 auger samples collected on August 18 and 21, 1995 (samples 95-AUG-040 and 95-AUG-041). The 222-S Laboratories received, extruded, and analyzed each sample in accordance with the SAP [1]. Part I of this report consists of the updated narrative and data summary tables, photographs of the auger samples, and raw data and laboratory worklists not included in the 45-day report. Part II contains the

45-day report in its entirety, including the raw data scans for the DSC and TGA analyses.

FLAMMABILITY SCREENING

Prior to intrusion into a tank, the working zone above the tank and the vapor space of the tank are screened for flammability issues. The results of combustible gas monitoring inside riser 6 of tank T-109 are presented in Table 1. This measurement is conducted in the field and recorded in the work package [5]. These results demonstrate that there were no flammability concerns in the vapor space of tank T-109 at the time of the sampling event.

Table 1. Characteristics of T-109 Vapor Space as Determined by Combustible Gas Monitoring.

Measurement	Result
Total Organic Carbon (TOC)	< 1 ppm
Lower Explosive Limit (LEL)	0% of LEL
Oxygen (O_2)	21.0%
Ammonia (NH_3)	0 ppm

SAMPLE RECEIPT, EXTRUSION, AND SUBSAMPLING

95-AUG-040

Auger sample 95-AUG-040 was collected from riser 6 of tank T-109 on August 18, 1995 and extruded on August 24, 1995. Most of the sample fell onto the extrusion tray. The bulk of the sample appeared to come from flutes 1-6 at the top of the auger, with only a thin coating on the remaining flutes. A total of 67.5 g of dirty-white, crystalline solids were recovered. A subsample was taken for an immediate, unhomogenized TGA analysis as required by the SAP. The remainder of the sample was homogenized and subsampled for further laboratory analyses and archiving. Due to the relatively low recovery, the sample was not divided into subsegments, but was analyzed on a whole-segment basis. Extrusion and subsampling information is also recorded in the hot cell logbook [6].

95-AUG-041

Auger sample 95-AUG-041 was collected from riser 2 of Tank T-109 on August 21, 1995, and extruded on August 25, 1995. Most of the sample fell onto the extrusion tray. A total of 232.5 g of solids was recovered. The sample was divided into upper and lower half-segments, with the upper half appearing to be gray-black crystals and the lower half appearing to be dirty white crystals. Subsamples were taken from the each half-segment for unhomogenized TGA analyses as required in the SAP. The remaining material was subsampled into upper and lower half-segments, homogenized, and subsampled further for laboratory analyses and archiving.

Subsamples of each half-segment were then recombined and subsampled for composite analyses and for shipment to Pacific Northwest National Laboratory for use in pretreatment studies. Extrusion and subsampling information is also recorded in the hot cell logbook [6].

ANALYTICAL RESULTS

The analyses are discussed below. The data summary tables are attached. For prepared samples (alpha, ICP, and IC analyses), the reported detection limits are based on the dilution factor for the sample result. The duplicate results are calculated from a different dilution; therefore the results reported as "<" ("less-than") may differ slightly from the reported detection limit.

THERMOGRAVIMETRIC ANALYSIS (TGA)

Three unhomogenized and three homogenized samples were submitted for moisture content determination by TGA per procedures LA-560-112, Rev. B-0, or LA-514-114, Rev. C-0. The samples were analyzed in duplicate. The results are presented in the summary tables, and the raw data scans included in Part II of this report. Per the safety screening DQO [2], the sample results were compared to the action limit at a 95% confidence level. These comparisons are presented in Part II. The lower 95% confidence level for two of the samples fell below the limit of 17 weight percent water stated in the SAP. These two samples were the immediate, unhomogenized sample, and the homogenized sample from auger 95-AUG-040 (samples S95T001597 and S95T001600). Since all DSC results on these auger samples were zero J/g (no exotherms detected), the low moisture content reported for these samples is not a cause for concern. In fact, inspection of the thermograms (included in Part II) revealed that the weight loss curves for these two samples were interpreted conservatively (first integration is only up to a slight inflection of the curves at about 105 °C). The second weight loss step is also integrated; if the two steps are added, the weight loss is similar to what is recorded for the other samples from this tank. Gravimetric analyses were performed for the T-109 subsamples to assess the accuracy of the TGA results. Comparison of the TGA (first and second weight loss steps) and gravimetric results is presented in Table 2.

GRAVIMETRIC ANALYSIS

Gravimetric analyses were conducted in duplicate on samples S95T001597 and S95T001600, which fell below the 17% moisture criterion as determined by TGA. The analytical procedure is method LA-564-101, Rev. F-1. The results are presented in the data summary tables.

Gravimetric analyses were also performed for the remaining T-109 subsamples to allow for a full comparison of the TGA and gravimetric results. The mean moisture results from the TGA and gravimetric analyses are compared in Table 2. These results appear to confirm that the TGA scans for samples S95T001597 and S95T001600 were interpreted conservatively.

Table 2. Moisture Results by TGA and Gravimetric Analysis for Tank T-109 Auger Samples

Sample Description	Sample Number	Thermogravimetric Analysis (TGA) (percent water)						Gravimetric Analysis (percent water)			Differential Scanning Calorimetry (DSC) (J/g)
		1st transition			2nd transition						
		Sample Result	Dup. Result	Mean	Sample Result	Dup. Result	Mean	Sample Result	Duplicate Result	Mean Result	
AUG-040, whole-segment, immediate moisture	S95T001597	15.57	16.87	16.22	40.98	46.87	43.93	50.70	50.40	50.55	0
AUG-040, whole-segment	S95T001600	12.70	12.21	12.46	50.11	48.29	49.20	47.60	49.30	48.45	0
AUG-041, lower half, immediate moisture	S95T001616	n/a	n/a	n/a	44.38	44.50	43.42	45.60	45.50	45.55	0
AUG-041, upper half, immediate moisture	S95T001626	n/a	n/a	n/a	48.11	51.06	50.53	48.90	49.20	49.05	0
AUG-041, lower half	S95T001618	n/a	n/a	n/a	39.57	45.76	42.56	46.60	45.70	46.15	0
AUG-041, upper half	S95T001629	n/a	n/a	n/a	48.87	49.30	49.08	48.10	47.30	47.40	0

Note:

Shading denotes TGA values officially reported.

DIFFERENTIAL SCANNING CALORIMETRY (DSC)

Three samples were submitted for determination of energetics by DSC per procedure LA-514-113, Rev. C-0 or procedure LA-514-114, Rev. C-0, depending on which DSC instrument was used. The samples were analyzed in duplicate. The results are presented in the summary tables, and the raw data scans are included in Part II. None of the samples exhibited exotherms. Since none of the samples exhibited any exotherms, the statistical calculation of an upper 95% confidence level for each sample is unnecessary.

ALPHA TOTAL

Three solids samples were submitted for total alpha analysis per procedure LA-508-101, Rev. D-2. The samples were fusion digested per procedure LA-549-141, Rev. D-0 prior to analysis. Two fusions were prepared per sample (for duplicate results). Each fused dilution was analyzed twice; the results were averaged and reported as one value. The highest result returned was 0.00653 μCi/g, almost four orders of magnitude below the action limit of 41 μCi/g. The upper 95% confidence level for each sample has been calculated and is presented in Part II. All of the adjusted results are far below the action limit.

Results for the two blanks run with these samples were below detection limits. The two standards run with these samples exhibited recoveries within the 90-110% range specified in the SAP. A spike was run with each of the three samples. Spike recoveries ranged from 79.30% to 83.30%, which, although somewhat low, are within the laboratory control range of 75-125%. Reruns to improve spike recovery were deemed unnecessary as the sample results were far below the action limit. These quality controlresults are presented in the summary tables.

ION CHROMATOGRAPHY

Samples for IC analysis were prepared by water digestion and performed in duplicate per procedure LA-533-105, Rev. D-1. All analytes reported by the IC instrument were requested (except for oxalate). However, only the fluoride, nitrate, and phosphate results are discussed here, as these are the only anions requested by the Historical DQO [4] for this tank. If other data are to be used, the quality control criteria and raw data should be evaluated. Of the remaining IC analytes reported, only the chloride results for auger 95-AUG-040 are above detection limits.

The average concentrations of fluoride, nitrate, and phosphate in the samples are presented in Table 3. The concentrations of fluoride and nitrate in the two auger samples are markedly different. The mean concentration of fluoride detected in auger 95-AUG-040 is approximately 30 times lower than the concentrations detected in auger 95-AUG-041. The mean concentration of nitrate in the sample from auger 95-AUG-040 is approximately ten times higher than the levels detected in the samples from auger 95-AUG-041. The nitrate results for the composite sample from auger 95-AUG-041 were low compared to the upper and lower half-segment results for the same auger.

The phosphate results appeared to be more uniform throughout the the samples than the fluoride and nitrate results. The phosphate results for the whole segment sample from auger 95-AUG-040 are close to the average concentrations determined for the samples from auger 95-AUG-041. The lower results for the composite could be attributed to inhomogeneity of the sample. The large salt crystals and range of particle sizes evident in the extrusion photographs could easily lead to poor reproducibility in subsampling. Subsample size is typically limited to approximately 5-10 g in order to conserve sample and limit dosage. Homogenization of the subsamples does not appear to have been problematic, as most of the sample/duplicate pairs exhibited low RPDs (exceptions discussed below). Another possible concern, additional evaporation of water from the composite sample (due to additional handling) also does not appear to have been a problem; had this been the case, the composite results would have been higher, not lower, than the subsegment results. The phosphate results are compared to the phosphorus results (by ICP) in the following section, "Inductively Coupled Plasma Analysis."

The standards recovery, sample/duplicate RPDs, and spike recovery data for the target analytes (F, NO_3, PO_4) were evaluated to assess the quality of the data. All of the standards data were within the limits stated in the SAP. The high RPDs for nitrate (samples S95T001631 and S95T002176) can be explained by the fact the the phosphate peak interferes with the resolution of the much smaller nitrate peak. The high RPD (34.0%) and low spike recovery (86.10%) for fluoride on sample S95T001613 (whole segment subsample from 95-AUG-040) can be attributed to the fact that the fluoride peak is very near the baseline and suffers interference from the slightly larger chloride peak. The spike result is still within the method control limits. All these quality control issues were discussed with and accepted by the Historical DQO point of contact.

Table 3. Average Results for F, NO3, and PO4 by IC

Labcore #	Sample Description	Mean Fluoride by IC (µg/g)	Mean Nitrate (µg/g)	Mean Phosphate (µg/g)
S95T001613	AUG-040, whole segment	821.5	38,000	268,000
S95T002176	AUG-041, core composite	24,000	2840	238,000
S95T001631	AUG-041, upper half	23,000	3380	268,000
S95T001620	AUG-041, lower half	27,600	3530	274,000

INDUCTIVELY COUPLED PLASMA ANALYSIS

Samples were prepared by either fusion or acid digests (the customer revised their DQO [4] to indicate that acid digests are now preferred, as fusion digests require large dilutions, leading to higher detection limits). The ICP analyses were performed per procedures LA-505-161, Rev. B-0, or LA-505-151, Rev. D-3, depending on the ICP instrument used. The full range of analytes available from the instruments are reported; however, only the sodium and phosphorus results are discussed here (sodium is the only metal analyte

specifically requested by the Historical DQO [4], and phosphorus is discussed as a cross-check for the phosphate results reported from IC analyses). If other data are to be used, the quality control criteria should be evaluated. Results for silver, aluminum, boron, bismuth, calcium, chromium, iron, manganese, lead, sulfur, silicon, and zinc are above detection limits in some (if not all) of the samples. The potassium and nickel results for the ICP-fusion analyses (samples S95T001612, S95T001619, and S95T001630) should be disregarded, as the samples were prepared in a nickel crucible by fusion using potassium hydroxide.

The average sodium and phosphorus results are presented in Table 4. The sodium results for auger 95-AUG-040 appear slightly lower than the results for auger 95-AUG-041. The phosphorus results appear to be very similar for all of the samples.

Table 4. Average Results for Sodium and Phosphorus by ICP

Labcore #	Sample Description	Mean Sodium (µg/g)	Mean Phosphorus (µg/g)
S95T001612	AUG-040, whole segment	166,000	83,300
S95T002177	AUG-041, core composite	183,000	81,000
S95T001630	AUG-041, upper half	189,000	81,100
S95T001619	AUG-041, lower half	203,000	80,400

Recoveries for the standards (for sodium and phosphorus) run with these samples were within the 90-110% range specified by the SAP. Spike recoveries for sodium ranges from 79.17% to 117.0% (within the method control limits of 75-125%). The relatively poor spike recoveries for sodium may be attributed to high concentration of sodium in the samples (samples cannot be spiked to levels much greater than already present). Spike recoveries for phosphorus exceeded the method control limits for two samples (S95T001630 and S95T001619). Reruns were not necessary, as phosphorus was not requested by the customer, but is discussed only for comparative purposes.

The phosphorus results are compared to the phosphate results (by IC) in Table 5 by assuming that all phosphorus is present in the waste as phosphate. The ICP results are adjusted by the ratio of the relative masses of phosphate to phosphorus. The RPDs between the IC results and the adjusted ICP results are presented for each subsample analyzed. The low RPDs indicate that the results are in good agreement. As discussed above, the spike recoveries for some of the phosphorus samples were outside of the method control limits. Therefore, the phosphate results are considered a better measure of actual concentrations in the waste.

Table 5. Comparison of Phosphorus and Phosphate Results, Assuming Phosphorus is Present as Phosphate

Sample Description	Mean Phosphorus by ICP (µg/g)	Adjusted PO_4 by ICP (µg/g)	Mean Phosphate by IC (µg/g)	Relative Percent Difference
AUG-040, whole segment	83,300	255,000	268,000	4.97
AUG-041, core composite	81,000	248,000	238,000	4.12
AUG-041, upper half	81,100	249,000	268,000	7.35
AUG-041, lower half	80,400	247,000	274,000	10.4

* Calculated using molar equivalence, assuming all phosphorus in present as phosphate: 30.97 µg P equals 94.97 µg PO_4.

HISTORICAL DQO EVALUATION

The historical DQO [4] requires that certain "gateway" analyses be performed in order to determine whether the targeted sample is of the waste type predicted by the tank layer model. The results from the gateway analyses are compared to the minumum expected concentrations given in the DQO. If the sum of the concentrations of the measured analytes are within 85% of the sum of the expected concentrations given in the DQO, and all target analytes are within 10% of their expected concentrations, then a more extensive suite of analyses is required by the DQO. The analytical results for the T-109 auger samples are compared to the minimum expected concentrations given in the DQO in Table 5. The samples did not pass the gateway review, since the analytical results for fluoride from auger 95-AUG-040 and for nitrate for auger 95-AUG-041 were less than 10% of their expected concentrations.

Table 6. T-109 Auger Samples: Comparison of Analytical Results to Expected Concentrations*

Analytes	Expected Conc.*+	Analytical Results							
		95-AUG-040		95-AUG-041 (lower half)		95-AUG-041 (upper half)		95-AUG-041 (composite)	
		Mean Results+	% of Expected	Mean Results+	% of Expected	Mean Results+	% of Expected	Mean Results+	% of Expected
Sodium	144,000	166,000	115%	203,000	141%	189,000	131%	183,000	127%
Fluoride	11,000	821.5	7.5%	27,600	251%	23,000	209%	24,000	218%
Nitrate	86,000	38,000	44%	3530	4.1%	3380	3.9%	2840	3.3%
Phosphate	96,900	268,000	277%	274,000	283%	268,000	277%	238,000	254%
Percent H_2O (Gravimetric)	36.1	48.45	134%	46.15	128%	47.70	132%	-	n/a
Summary of Expected/ Measured Analytes (not including H_2O)	337,900	472,800	140%	508,100	150%	483,400	143%	447,800	133%

* Expected concentrations given in the Historical DQO (Ref. 4, WHC-SD-WM-DQO-018, Rev. 0A).
\+ All results are in µg/g, except for % H_2O (gravimetric), which is in g/cm^3.
Shading denotes cases where measured concentration is less than 10% of expected (fails historical "gateway" analysis).

Project Coordinator: J. M. Conner

REFERENCES

[1] J. M. Conner, *Tank 241-T-109 Auger Sampling and Analysis Plan*, WHC-SD-WM-TSAP-014, Rev. 0A, Westinghouse Hanford Company, Richland, Washington, November 29, 1995.

[2] G. T. Dukelow, et al., *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, Washington, August 31, 1995.

[3] Internal Memo, J. M. Conner to T. J. Kelley, "Need Identified to Resample Tank 241-T-109," IM# 75310-95-098, October 24, 1995.

[4] B. C. Simpson and D. J. McCain, *Historical Model Evaluation Data Requirements*, WHC-SD-WM-DQO-018, Rev. 0A, Westinghouse Hanford Company, Richland, Washington, October 3, 1995.

[5] Work Package #WS-95-00109.

[6] WHC Controlled Notebook WHC-N-1186.

SAMPLE DATA SUMMARY

Final Report for Auger Samples 95-AUG-040 and 95-AUG-041
T-109

CORE NUMBER: n/a
SEGMENT #: 95-AUG-040

SEGMENT PORTION: Immediate Sampling (to check moisture loss)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001597			% Water by Gravimetric	%	17.00	115.0	100.8	n/a	50.70	50.40	50.55	0.59	n/a	1.00e-02	n/a
S95T001597			% Water by TGA using Mettler	%	17.00	115.0	101.1	n/a	15.57	16.87	16.22	8.01	n/a	n/a	n/a

W Whole Segment: W Whole Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001600			% Water by Gravimetric	%	17.00	115.0	100.8	n/a	47.60	49.30	48.45	3.51	n/a	1.00e-02	n/a
S95T001600			% Water by TGA using Mettler	%	17.00	115.0	101.1	n/a	12.70	12.21	12.46	3.93	n/a	n/a	n/a
S95T001600			DSC Exotherm on Perkin Elmer	Joules/g	-9.9e+01	[illegible]	95.85	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T001612	F		Alpha of Digested Solid	uCi/g	-9.9e+01	[illegible]	106.4	<9.61e-04	1.91e-02	2.19e-02	2.05e-02	13.7	79.30	2.38e-03	20.2
S95T001612	F		Silver -ICP-Fusion	ug/g	None	None	100.2	3.00e-04	<122.5260	<121.541	n/a	n/a	80.00	123.0	n/a
S95T001612	F		Aluminium -ICP-Fusion	ug/g	None	None	100.9	2.80e-03	1.37e+03	1.46e+03	1.41e+03	6.77	94.30	613.0	n/a
S95T001612	F		Arsenic -ICP-Fusion	ug/g	None	None	104.0	2.30e-03	<612.6300	<607.705	n/a	n/a	101.0	613.0	n/a
S95T001612	F		Boron -ICP-Fusion	ug/g	None	None	101.4	5.10e-03	<612.6300	<607.705	n/a	n/a	94.70	613.0	n/a
S95T001612	F		Barium -ICP-Fusion	ug/g	None	None	101.8	7.00e-04	<612.6300	<607.705	n/a	n/a	92.71	613.0	n/a
S95T001612	F		Beryllium -ICP-Fusion	ug/g	None	None	105.3	-1.00e-04	< 61.2630	<60.7705	n/a	n/a	98.94	61.30	n/a
S95T001612	F		Bismuth -ICP-Fusion	ug/g	None	None	102.7	-6.20e-03	<1225.260	<1215.41	n/a	n/a	99.90	1.23e+03	n/a
S95T001612	F		Calcium -ICP-Fusion	ug/g	None	None	102.8	7.56e-02	1.41e+03	1.32e+03	1.36e+03	6.42	100.0	1.23e+03	n/a
S95T001612	F		Cadmium -ICP-Fusion	ug/g	None	None	104.1	5.00e-04	<122.5260	<121.541	n/a	n/a	100.7	123.0	n/a
S95T001612	F		Cerium -ICP-Fusion	ug/g	None	None	102.3	2.70e-03	<1225.260	<1215.41	n/a	n/a	96.18	1.23e+03	n/a
S95T001612	F		Cobalt -ICP-Fusion	ug/g	None	None	102.7	-1.60e-03	<245.0520	<243.082	n/a	n/a	98.84	245.0	n/a
S95T001612	F		Chromium -ICP-Fusion	ug/g	None	None	104.5	9.00e-04	<122.5260	<121.541	n/a	n/a	101.2	123.0	n/a
S95T001612	F		Copper -ICP-Fusion	ug/g	None	None	102.8	1.10e-03	<122.5260	<121.541	n/a	n/a	95.56	123.0	n/a
S95T001612	F		Iron -ICP-Fusion	ug/g	None	None	104.1	9.00e-04	3.40e+03	4.34e+03	3.87e+03	24.2	99.59	613.0	n/a
S95T001612	F		Potassium -ICP-Fusion	ug/g	None	None	99.86	4.28e-02	5.22e+06	n/a	n/a	n/a	n/a	3.68e+03	n/a
S95T001612	F		Lanthanum -ICP-Fusion	ug/g	None	None	102.3	0.00e+00	<612.6300	<607.705	n/a	n/a	94.85	613.0	n/a
S95T001612	F		Lithium -ICP-Fusion	ug/g	None	None	99.43	1.50e-03	<122.5260	<121.541	n/a	n/a	89.63	123.0	n/a
S95T001612	F		Magnesium -ICP-Fusion	ug/g	None	None	100.0	4.60e-03	<1225.260	<1215.41	n/a	n/a	96.24	1.23e+03	n/a
S95T001612	F		Manganese -ICP-Fusion	ug/g	None	None	101.5	9.00e-04	1.38e+03	1.63e+03	1.50e+03	16.4	95.66	123.0	n/a
S95T001612	F		Molybdenum -ICP-Fusion	ug/g	None	None	103.5	2.00e-03	<612.6300	<607.705	n/a	n/a	99.96	613.0	n/a
S95T001612	F		Sodium -ICP-Fusion	ug/g	None	None	99.36	1.35e-01	1.69e+05	1.64e+05	1.66e+05	2.61	79.17	1.23e+03	n/a
S95T001612	F		Neodymium -ICP-Fusion	ug/g	None	None	105.0	2.00e-03	<1225.260	<1215.41	n/a	n/a	96.85	1.23e+03	n/a
S95T001612	F		Nickel -ICP-Fusion	ug/g	None	None	104.0	3.40e-03	2.86e+03	1.67e+03	2.26e+03	52.3	98.53	245.0	n/a
S95T001612	F		Phosphorus -ICP-Fusion	ug/g	None	None	107.6	4.81e-02	8.38e+04	8.28e+04	8.33e+04	1.21	98.67	2.45e+03	n/a
S95T001612	F		Lead -ICP-Fusion	ug/g	None	None	103.5	-1.33e-02	<1225.260	<1215.41	n/a	n/a	102.3	1.23e+03	n/a
S95T001612	F		Sulfur -ICP-Fusion	ug/g	None	None	102.7	1.29e-02	<612.6300	<607.705	n/a	n/a	101.7	613.0	n/a
S95T001612	F		Antimony -ICP-Fusion	ug/g	None	None	96.79	2.00e-03	<2450.520	<2430.82	n/a	n/a	93.86	2.45e+03	n/a
S95T001612	F		Selenium -ICP-Fusion	ug/g	None	None	101.2	5.34e-02	<1225.260	<1215.41	n/a	n/a	101.9	1.23e+03	n/a
S95T001612	F		Silicon -ICP-Fusion	ug/g	None	None	97.40	2.52e-02	1.05e+03	1.24e+03	1.15e+03	16.5	95.08	613.0	n/a
S95T001612	F		Samarium -ICP-Fusion	ug/g	None	None	102.3	1.72e-02	<1225.260	<1215.41	n/a	n/a	96.38	1.23e+03	n/a
S95T001612	F		Strontium -ICP-Fusion	ug/g	None	None	100.9	4.00e-04	<122.5260	<121.541	n/a	n/a	93.28	123.0	n/a
S95T001612	F		Titanium-ICP-Fusion	ug/g	None	None	99.03	0.00e+00	<122.5260	<121.541	n/a	n/a	93.70	123.0	n/a
S95T001612	F		Thallium -ICP-Fusion	ug/g	None	None	101.2	-6.20e-03	<2450.520	<2430.82	n/a	n/a	98.36	2.45e+03	n/a

=> Limit violated
=> Selected Limit

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001612		F	Uranium -ICP-Fusion	ug/g	None	None	101.0	-4.69e-02	<4901.040	<4861.64	n/a	n/a	92.35	4.90e+03	n/a
S95T001612		F	Vanadium -ICP-Fusion	ug/g	None	None	102.5	3.40e-03	<612.6300	<607.705	n/a	n/a	98.35	613.0	n/a
S95T001612		F	Zinc -ICP-Fusion	ug/g	None	None	102.8	1.99e-02	295.3	293.2	294.2	0.72	99.77	123.0	n/a
S95T001612		F	Zirconium -ICP-Fusion	ug/g	None	None	101.1	1.60e-03	<122.5260	<121.541	n/a	n/a	95.26	123.0	n/a
S95T001613		W	Bromide by Ion Chromatograph	ug/g	None	None	100.7	<6.32e-01	< 1.30E03	<1.30e03	n/a	n/a	101.2	1.30e+03	n/a
S95T001613		W	Chloride by IC - Dionex 4000i	ug/g	None	None	98.59	<8.30e-02	578.0	569.0	573.5	1.57	93.00	171.0	n/a
S95T001613		W	Fluoride by IC - Dionex 4000i	ug/g	None	None	103.5	<6.20e-02	961.0	682.0	821.5	34.0	86.10	128.0	n/a
S95T001613		W	Nitrite by IC - Dionex 4000i	ug/g	None	None	100.5	<5.47e-01	< 1.15E02	<1.15e03	n/a	n/a	98.10	113.0	n/a
S95T001613		W	Nitrate by IC - Dionex 4000i	ug/g	None	None	100.9	<6.99e-01	3.88e+04	3.73e+04	3.80e+04	3.94	104.6	6.92e+03	n/a
S95T001613		W	Phosphate by IC - Dionex 4000i	ug/g	None	None	103.4	<5.96e-01	2.85e+05	2.50e+05	2.68e+05	13.1	91.10	5.90e+03	n/a
S95T001613		W	Sulfate by IC - Dionex 4000i	ug/g	None	None	102.5	<6.78e-01	< 1.40E03	<1.40e03	n/a	n/a	103.8	1.40e+03	n/a

=> Limit violated
=> Selected Limit

WHC-SD-WM-DP-144, REV. 1

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Final Report for Auger Samples 95-AUG-040 and 95-AUG-041
T-109

CORE NUMBER: n/a
SEGMENT #: 95-AUG-041

SEGMENT PORTION: Core Composite

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T002176		W	Bromide by Ion Chromatograph	ug/g	None	None	99.29	<6.32e-01	< 5.63e2	<5.63e02	n/a	n/a	n/a	563.0	n/a
S95T002176		W	Chloride by IC - Dionex 4000i	ug/g	None	None	103.8	<8.30e-02	80.90	<7.48e01	n/a	n/a	n/a	74.80	n/a
S95T002176		W	Fluoride by IC - Dionex 4000i	ug/g	None	None	97.46	<6.30e-02	2.35e+04	2.45e+04	2.40e+04	4.17	n/a	512.0	n/a
S95T002176		W	Nitrite by IC - Dionex 4000i	ug/g	None	None	97.14	<5.54e-01	< 4.95e2	<4.95e02	n/a	n/a	n/a	495.0	n/a
S95T002176		W	Nitrate by IC - Dionex 4000i	ug/g	None	None	99.30	<6.99e-01	3.21e+03	2.46e+03	2.84e+03	26.5	n/a	622.0	n/a
S95T002176		W	Oxalate by IC - Dionex 4000i	ug/g	None	None	92.59	<4.96e-01	< 4.68e2	<4.68e02	n/a	n/a	n/a	468.0	n/a
S95T002176		W	Phosphate by IC - Dionex 4000i	ug/g	None	None	98.96	<5.96e-01	2.37e+05	2.38e+05	2.38e+05	0.42	n/a	4.87e+03	n/a
S95T002176		W	Sulfate by IC - Dionex 4000i	ug/g	None	None	98.15	<6.78e-01	< 6.04e2	<6.04e02	n/a	n/a	n/a	604.0	n/a
S95T002177		A	Silver -ICP-Acid Digest	ug/g	None	None	85.70	-1.00e-05	18.70	18.40	18.55	1.62	465.0	10.00	n/a
S95T002177		A	Aluminium -ICP-Acid Digest	ug/g	None	None	94.60	1.54e-02	1.41e+03	1.42e+03	1.42e+03	0.71	99.90	50.00	n/a
S95T002177		A	Arsenic -ICP-Acid Digest	ug/g	None	None	95.20	-4.70e-03	<1.00e+02	<1.00e2	n/a	n/a	103.0	100.0	n/a
S95T002177		A	Boron -ICP-Acid Digest	ug/g	None	None	95.40	8.13e-03	217.0	217.0	217.0	0.00	99.30	50.00	n/a
S95T002177		A	Barium -ICP-Acid Digest	ug/g	None	None	93.80	1.50e-04	<5.00e+01	<5.00e1	n/a	n/a	96.00	50.00	n/a
S95T002177		A	Beryllium -ICP-Acid Digest	ug/g	None	None	104.4	-6.00e-05	<5.00e+00	<5.00e0	n/a	n/a	101.0	5.000	n/a
S95T002177		A	Bismuth -ICP-Acid Digest	ug/g	None	None	91.60	-7.79e-03	181.0	158.0	169.5	13.6	99.00	100.0	n/a
S95T002177		A	Calcium -ICP-Acid Digest	ug/g	None	None	98.20	1.63e-01	326.0	323.0	324.5	0.92	103.4	100.0	n/a
S95T002177		A	Cadmium -ICP-Acid Digest	ug/g	None	None	95.00	5.20e-04	<5.00e+00	<5.00e0	n/a	n/a	100.0	5.000	n/a
S95T002177		A	Cerium -ICP-Acid Digest	ug/g	None	None	96.20	3.80e-03	<1.00e+02	<1.00e2	n/a	n/a	99.80	100.0	n/a
S95T002177		A	Cobalt -ICP-Acid Digest	ug/g	None	None	95.40	1.32e-03	<2.00e+01	<2.00e1	n/a	n/a	100.0	20.00	n/a
S95T002177		A	Chromium -ICP-Acid Digest	ug/g	None	None	95.20	2.05e-03	39.70	39.50	39.60	0.51	101.0	10.00	n/a
S95T002177		A	Copper -ICP-Acid Digest	ug/g	None	None	95.60	1.80e-03	<1.00e+01	<1.00e1	n/a	n/a	99.60	10.00	n/a
S95T002177		A	Iron -ICP-Acid Digest	ug/g	None	None	94.00	1.97e-02	1.59e+04	1.59e+04	1.59e+04	0.00	109.6	50.00	n/a
S95T002177		A	Potassium -ICP-Acid Digest	ug/g	None	None	94.80	-1.31e-02	<5.00e+02	<5.00e2	n/a	n/a	88.60	500.0	n/a
S95T002177		A	Lanthanum -ICP-Acid Digest	ug/g	None	None	95.60	-3.70e-04	<5.00e+01	<5.00e1	n/a	n/a	98.00	50.00	n/a
S95T002177		A	Lithium -ICP-Acid Digest	ug/g	None	None	93.80	-6.90e-04	<1.00e+01	<1.00e1	n/a	n/a	96.70	10.00	n/a
S95T002177		A	Magnesium -ICP-Acid Digest	ug/g	None	None	92.40	2.13e-02	<1.00e+02	111.0	n/a	n/a	108.0	100.0	n/a
S95T002177		A	Manganese -ICP-Acid Digest	ug/g	None	None	93.00	3.80e-04	1.12e+03	1.11e+03	1.12e+03	0.90	97.20	10.00	n/a
S95T002177		A	Molybdenum -ICP-Acid Digest	ug/g	None	None	96.60	-1.70e-04	<5.00e+01	<5.00e1	n/a	n/a	101.0	50.00	n/a
S95T002177		A	Sodium -ICP-Acid Digest	ug/g	None	None	97.20	6.34e-02	1.82e+05	1.84e+05	1.83e+05	1.09	320.4	100.0	n/a
S95T002177		A	Neodymium -ICP-Acid Digest	ug/g	None	None	95.40	2.02e-03	<1.00e+02	<1.00e2	n/a	n/a	101.0	100.0	n/a
S95T002177		A	Nickel -ICP-Acid Digest	ug/g	None	None	94.60	2.83e-03	<2.00e+01	<2.00e1	n/a	n/a	101.0	20.00	n/a
S95T002177		A	Phosphorus -ICP-Acid Digest	ug/g	None	None	97.00	1.67e-02	8.10e+04	8.10e+04	8.10e+04	0.00	85.80	200.0	n/a
S95T002177		A	Lead -ICP-Acid Digest	ug/g	None	None	92.60	1.93e-03	344.0	261.0	302.5	27.4	94.60	100.0	n/a
S95T002177		A	Sulfur -ICP-Acid Digest	ug/g	None	None	94.00	5.88e-02	173.0	172.0	172.5	0.58	99.70	100.0	n/a
S95T002177		A	Antimony -ICP-Acid Digest	ug/g	None	None	88.80	1.75e-03	<6.00e+01	<6.00e1	n/a	n/a	96.10	60.00	n/a
S95T002177		A	Selenium -ICP-Acid Digest	ug/g	None	None	94.60	9.47e-03	<1.00e+02	<1.00e2	n/a	n/a	98.90	100.0	n/a
S95T002177		A	Silicon -ICP-Acid Digest	ug/g	None	None	111.2	1.71e-02	2.58e+03	2.58e+03	2.58e+03	0.00	101.6	50.00	n/a
S95T002177		A	Samarium -ICP-Acid Digest	ug/g	None	None	95.60	-8.46e-03	<1.00e+02	<1.00e2	n/a	n/a	97.90	100.0	n/a
S95T002177		A	Strontium -ICP-Acid Digest	ug/g	None	None	94.20	2.30e-04	<1.00e+01	<1.00e1	n/a	n/a	97.00	10.00	n/a
S95T002177		A	Titanium-ICP-Acid Digest	ug/g	None	None	93.60	5.90e-04	<1.00e+01	<1.00e1	n/a	n/a	97.40	10.00	n/a
S95T002177		A	Thallium -ICP-Acid Digest	ug/g	None	None	92.60	-2.12e-03	<2.00e+02	<2.00e2	n/a	n/a	97.50	200.0	n/a
S95T002177		A	Uranium -ICP-Acid Digest	ug/g	None	None	95.60	-3.65e-02	<5.00e+02	<5.00e2	n/a	n/a	99.50	500.0	n/a
S95T002177		A	Vanadium -ICP-Acid Digest	ug/g	None	None	93.80	-1.19e-03	<5.00e+01	<5.00e1	n/a	n/a	98.80	50.00	n/a

=> Limit violated
=> Selected Limit

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WHC-SD-WM-DP-144, REV. 1

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T002177		A	Zinc -ICP-Acid Digest	ug/g	None	None	91.60	1.65e-02	48.10	55.90	52.00	15.0	102.2	10.00	n/a
S95T002177		A	Zirconium -ICP-Acid Digest	ug/g	None	None	94.80	-1.08e-03	12.60	11.80	12.20	6.56	97.70	10.00	n/a

Immediate Sampling (to check moisture loss): Immediate Sampling (to check moisture loss)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001616			% Water by Gravimetric	%		115.0	100.4	n/a	45.60	45.50	45.55	0.22	n/a	1.00e-02	n/a
S95T001616			% Water by TGA on Perkin Elmer	%		115.0	100.5	n/a	44.35	46.50	45.42	4.73	n/a	n/a	n/a
S95T001626			% Water by Gravimetric	%		115.0	100.4	n/a	48.90	49.20	49.05	0.61	n/a	1.00e-02	n/a
S95T001626			% Water by TGA on Perkin Elmer	%		115.0	100.5	n/a	49.11	51.95	50.53	5.62	n/a	n/a	n/a

U Upper Half of Segment: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001629			% Water by Gravimetric	%		115.0	100.4	n/a	48.10	47.30	47.70	1.68	n/a	1.00e-02	n/a
S95T001629			% Water by TGA using Mettler	%		115.0	100.9	n/a	48.87	49.30	49.08	0.88	n/a	n/a	n/a
S95T001629			DSC Exotherm using Mettler	Joules/g	-9.9e+01		103.3	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T001630		F	Alpha of Digested Solid	uCi/g	-9.9e+01		108.1	<1.32e-03	9.47e-03	5.16e-03	7.31e-03	58.9	81.90	1.75e-03	25.8
S95T001630		F	Silver -ICP-Fusion	ug/g	None	None	98.66	-1.00e-04	<125.7010	<124.568	n/a	n/a	59.15	126.0	n/a
S95T001630		F	Aluminum -ICP-Fusion	ug/g	None	None	100.5	7.30e-03	1.43e+03	835.2	1.13e+03	52.8	96.80	629.0	n/a
S95T001630		F	Arsenic -ICP-Fusion	ug/g	None	None	102.5	-5.00e-03	<628.5051	<622.844	n/a	n/a	100.5	629.0	n/a
S95T001630		F	Boron -ICP-Fusion	ug/g	None	None	101.7	1.40e-03	<628.5051	<622.844	n/a	n/a	96.54	629.0	n/a
S95T001630		F	Barium -ICP-Fusion	ug/g	None	None	101.1	9.00e-04	<628.5051	<622.844	n/a	n/a	98.65	629.0	n/a
S95T001630		F	Beryllium -ICP-Fusion	ug/g	None	None	104.9	3.00e-04	< 62.8505	<62.2844	n/a	n/a	99.19	62.90	n/a
S95T001630		F	Bismuth -ICP-Fusion	ug/g	None	None	101.0	-2.90e-03	<1257.010	<1245.68	n/a	n/a	98.60	1.26e+03	n/a
S95T001630		F	Calcium -ICP-Fusion	ug/g	None	None	99.39	-1.95e-01	<1257.010	<1245.68	n/a	n/a	81.77	1.26e+03	n/a
S95T001630		F	Cadmium -ICP-Fusion	ug/g	None	None	102.1	1.20e-03	<125.7010	<124.568	n/a	n/a	99.14	126.0	n/a
S95T001630		F	Cerium -ICP-Fusion	ug/g	None	None	101.8	0.00e+00	<1257.010	<1245.68	n/a	n/a	100.6	1.26e+03	n/a
S95T001630		F	Cobalt -ICP-Fusion	ug/g	None	None	99.36	0.00e+00	<251.4020	<249.137	n/a	n/a	97.25	251.0	n/a
S95T001630		F	Chromium -ICP-Fusion	ug/g	None	None	101.5	3.00e-03	<125.7010	<124.568	n/a	n/a	100.5	126.0	n/a
S95T001630		F	Copper -ICP-Fusion	ug/g	None	None	101.9	2.10e-03	<125.7010	<124.568	n/a	n/a	100.0	126.0	n/a
S95T001630		F	Iron -ICP-Fusion	ug/g	None	None	105.7	1.46e-02	1.43e+04	3.90e+03	9.09e+03	114	215.4	629.0	n/a
S95T001630		F	Potassium -ICP-Fusion	ug/g	None	None	102.0	-7.27e-02	7.22e+06	n/a	n/a	n/a	n/a	3.77e+05	n/a
S95T001630		F	Lanthanum -ICP-Fusion	ug/g	None	None	103.0	-4.00e-04	<628.5051	<622.844	n/a	n/a	101.1	629.0	n/a
S95T001630		F	Lithium -ICP-Fusion	ug/g	None	None	102.1	-2.00e-04	<125.7010	<124.568	n/a	n/a	93.01	126.0	n/a
S95T001630		F	Magnesium -ICP-Fusion	ug/g	None	None	99.34	2.40e-03	<1257.010	<1245.68	n/a	n/a	96.98	1.26e+03	n/a
S95T001630		F	Manganese -ICP-Fusion	ug/g	None	None	101.5	2.00e-03	753.8	493.3	623.5	41.8	99.45	126.0	n/a
S95T001630		F	Molybdenum -ICP-Fusion	ug/g	None	None	100.0	-2.50e-03	<628.5051	<622.844	n/a	n/a	97.39	629.0	n/a
S95T001630		F	Sodium -ICP-Fusion	ug/g	None	None	101.0	1.96e-01	1.84e+05	1.94e+05	1.89e+05	5.35	117.0	1.26e+03	n/a
S95T001630		F	Neodymium -ICP-Fusion	ug/g	None	None	108.6	1.04e-02	<1257.010	<1245.68	n/a	n/a	101.8	1.26e+03	n/a
S95T001630		F	Nickel -ICP-Fusion	ug/g	None	None	101.7	3.66e-01	4.73e+03	8.45e+03	6.59e+03	56.4	98.87	251.0	n/a
S95T001630		F	Phosphorus -ICP-Fusion	ug/g	None	None	102.2	7.50e-03	8.02e+04	8.20e+04	8.11e+04	2.25	137.3	2.51e+03	n/a
S95T001630		F	Lead -ICP-Fusion	ug/g	None	None	101.8	-2.44e-02	<1257.010	<1245.68	n/a	n/a	99.86	1.26e+03	n/a
S95T001630		F	Sulfur -ICP-Fusion	ug/g	None	None	98.62	1.87e-02	<628.5051	<622.844	n/a	n/a	98.87	629.0	n/a
S95T001630		F	Antimony -ICP-Fusion	ug/g	None	None	93.12	6.90e-03	<2514.020	<2491.37	n/a	n/a	87.39	2.51e+03	n/a
S95T001630		F	Selenium -ICP-Fusion	ug/g	None	None	102.4	2.23e-02	<1257.010	<1245.68	n/a	n/a	98.00	1.26e+03	n/a
S95T001630		F	Silicon -ICP-Fusion	ug/g	None	None	93.95	-3.00e-03	774.2	<622.844	n/a	n/a	90.94	629.0	n/a
S95T001630		F	Samarium -ICP-Fusion	ug/g	None	None	101.7	5.60e-03	<1257.010	<1245.68	n/a	n/a	96.74	1.26e+03	n/a
S95T001630		F	Strontium -ICP-Fusion	ug/g	None	None	100.7	3.00e-04	<125.7010	<124.568	n/a	n/a	98.87	126.0	n/a
S95T001630		F	Titanium-ICP-Fusion	ug/g	None	None	96.46	1.50e-03	<125.7010	<124.568	n/a	n/a	95.06	126.0	n/a

=> Limit violated
=> Selected Limit

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001630		F	Thallium -ICP-Fusion	ug/g	None	None	97.00	-1.24e-02	<2514.020	<2491.37	n/a	n/a	97.02	2.51e+03	n/a
S95T001630		F	Uranium -ICP-Fusion	ug/g	None	None	94.58	3.93e-02	<5028.041	<4982.75	n/a	n/a	89.94	5.03e+03	n/a
S95T001630		F	Vanadium -ICP-Fusion	ug/g	None	None	99.58	-2.30e-03	<628.5051	<622.844	n/a	n/a	97.97	629.0	n/a
S95T001630		F	Zinc -ICP-Fusion	ug/g	None	None	100.1	1.90e-02	270.8	266.2	268.5	1.72	96.32	126.0	n/a
S95T001630		F	Zirconium -ICP-Fusion	ug/g	None	None	98.89	1.00e-04	<125.7010	<124.568	n/a	n/a	97.05	126.0	n/a
S95T001631		W	Bromide by Ion Chromatograph	ug/g	None	None	108.2	<6.32e-01	< 1.01e03	<1.01e03	n/a	n/a	n/a	1.01e+03	n/a
S95T001631		W	Chloride by IC - Dionex 4000i	ug/g	None	None	104.5	<8.30e-02	< 1.32e02	<1.32e02	n/a	n/a	n/a	132.0	n/a
S95T001631		W	Fluoride by IC - Dionex 4000i	ug/g	None	None	108.7	<6.20e-02	2.31e+04	2.29e+04	2.30e+04	0.87	n/a	475.0	n/a
S95T001631		W	Nitrite by IC - Dionex 4000i	ug/g	None	None	95.11	<5.47e-01	< 8.72e02	<8.72e02	n/a	n/a	n/a	8.72e+03	n/a
S95T001631		W	Nitrate by IC - Dionex 4000i	ug/g	None	None	109.3	<6.99e-01	3.78e+03	2.97e+03	3.38e+03	24.0	n/a	1.11e+03	n/a
S95T001631		W	Oxalate by IC - Dionex 4000i	ug/g	None	None	96.58	<4.96e-01	< 7.91e02	<7.91e02	n/a	n/a	n/a	791.0	n/a
S95T001631		W	Phosphate by IC - Dionex 4000i	ug/g	None	None	111.7	<5.96e-01	2.66e+05	2.71e+05	2.68e+05	1.86	n/a	4.57e+03	n/a
S95T001631		W	Sulfate by IC - Dionex 4000i	ug/g	None	None	104.3	<6.78e-01	< 1.08e03	<1.08e03	n/a	n/a	n/a	1.08e+03	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001618			% Water by Gravimetric	%		115.0	100.4	n/a	46.60	45.70	46.15	1.95	n/a	1.00e-02	n/a
S95T001618			% Water by TGA using Mettler	%		115.0	100.9	n/a	39.37	45.76	42.56	15.0	n/a	n/a	n/a
S95T001618			DSC Exotherm using Mettler	Joules/g	-9.9e+01		103.3	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T001619		F	Alpha of Digested Solid	uCi/g	-9.9e+01		108.1	<1.32e-03	6.23e-03	6.53e-03	6.38e-03	4.70	83.30	1.58e-03	31.5
S95T001619		F	Silver -ICP-Fusion	ug/g	None	None	98.66	-1.00e-04	<113.0042	<114.577	n/a	n/a	62.54	113.0	n/a
S95T001619		F	Aluminium -ICP-Fusion	ug/g	None	None	100.5	7.30e-03	1.09e+03	1.01e+03	1.05e+03	7.58	98.89	565.0	n/a
S95T001619		F	Arsenic -ICP-Fusion	ug/g	None	None	102.5	-5.00e-03	<565.0209	<572.889	n/a	n/a	99.72	565.0	n/a
S95T001619		F	Boron -ICP-Fusion	ug/g	None	None	101.7	1.60e-03	<565.0209	<572.889	n/a	n/a	96.33	565.0	n/a
S95T001619		F	Barium -ICP-Fusion	ug/g	None	None	101.1	9.00e-04	<565.0209	<572.889	n/a	n/a	99.05	565.0	n/a
S95T001619		F	Beryllium -ICP-Fusion	ug/g	None	None	104.9	3.00e-04	< 56.5021	<57.2889	n/a	n/a	98.63	56.50	n/a
S95T001619		F	Bismuth -ICP-Fusion	ug/g	None	None	101.0	-2.90e-03	<1130.041	<1145.77	n/a	n/a	95.78	1.13e+03	n/a
S95T001619		F	Calcium -ICP-Fusion	ug/g	None	None	99.39	-1.95e-01	<1130.041	<1145.77	n/a	n/a	76.57	1.13e+03	n/a
S95T001619		F	Cadmium -ICP-Fusion	ug/g	None	None	102.1	1.20e-03	<113.0042	<114.577	n/a	n/a	98.41	113.0	n/a
S95T001619		F	Cerium -ICP-Fusion	ug/g	None	None	101.8	0.00e+00	<1130.041	<1145.77	n/a	n/a	100.8	1.13e+03	n/a
S95T001619		F	Cobalt -ICP-Fusion	ug/g	None	None	99.36	0.00e+00	<226.0083	<229.155	n/a	n/a	95.43	226.0	n/a
S95T001619		F	Chromium -ICP-Fusion	ug/g	None	None	101.5	3.00e-03	<113.0042	<114.577	n/a	n/a	98.99	113.0	n/a
S95T001619		F	Copper -ICP-Fusion	ug/g	None	None	101.9	2.10e-03	<113.0042	<114.577	n/a	n/a	100.6	113.0	n/a
S95T001619		F	Iron -ICP-Fusion	ug/g	None	None	103.7	1.46e-02	5.45e+03	4.80e+03	5.13e+03	12.8	101.4	565.0	n/a
S95T001619		F	Potassium -ICP-Fusion	ug/g	None	None	102.0	-7.27e-02	7.20e+06	n/a	n/a	n/a	n/a	3.39e+03	n/a
S95T001619		F	Lanthanum -ICP-Fusion	ug/g	None	None	103.0	-4.00e-04	<565.0209	<572.889	n/a	n/a	102.0	565.0	n/a
S95T001619		F	Lithium -ICP-Fusion	ug/g	None	None	102.1	-2.00e-04	<113.0042	<114.577	n/a	n/a	92.59	113.0	n/a
S95T001619		F	Magnesium -ICP-Fusion	ug/g	None	None	99.34	2.40e-03	<1130.041	<1145.77	n/a	n/a	94.97	1.13e+03	n/a
S95T001619		F	Manganese -ICP-Fusion	ug/g	None	None	101.5	2.00e-03	555.1	423.3	489.2	26.9	98.76	113.0	n/a
S95T001619		F	Molybdenum -ICP-Fusion	ug/g	None	None	100.0	-2.50e-03	<565.0209	<572.889	n/a	n/a	95.63	565.0	n/a
S95T001619		F	Sodium -ICP-Fusion	ug/g	None	None	101.0	1.96e-01	2.03e+05	2.04e+05	2.03e+05	0.62	94.98	1.13e+03	n/a
S95T001619		F	Neodymium -ICP-Fusion	ug/g	None	None	108.6	1.04e-02	<1130.041	<1145.77	n/a	n/a	110.4	1.13e+03	n/a
S95T001619		F	Nickel -ICP-Fusion	ug/g	None	None	101.7	3.66e-01	5.24e+03	5.77e+03	5.51e+03	9.54	97.79	226.0	n/a
S95T001619		F	Phosphorus -ICP-Fusion	ug/g	None	None	102.2	7.50e-03	8.14e+04	7.94e+04	8.04e+04	2.53	72.85	2.26e+03	n/a
S95T001619		F	Lead -ICP-Fusion	ug/g	None	None	101.8	-2.44e-02	<1130.041	<1145.77	n/a	n/a	98.21	1.13e+03	n/a
S95T001619		F	Sulfur -ICP-Fusion	ug/g	None	None	98.62	1.87e-02	<565.0209	<572.889	n/a	n/a	94.08	565.0	n/a
S95T001619		F	Antimony -ICP-Fusion	ug/g	None	None	95.12	6.90e-03	not dete	n/a	n/a	n/a	93.06	1.00e-02	n/a
S95T001619		F	Selenium -ICP-Fusion	ug/g	None	None	102.4	2.23e-02	<1130.041	<1145.77	n/a	n/a	99.50	1.13e+03	n/a
S95T001619		F	Silicon -ICP-Fusion	ug/g	None	None	93.95	-3.00e-03	<565.0209	<572.889	n/a	n/a	94.27	565.0	n/a

=> Limit violated
=> Selected Limit

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001619		F	Samarium -ICP-Fusion	ug/g	None	None	101.7	5.60e-03	<1130.041	<1145.77	n/a	n/a	98.81	1.13e+03	n/a
S95T001619		F	Strontium -ICP-Fusion	ug/g	None	None	100.7	3.00e-04	<113.0042	<114.577	n/a	n/a	98.85	113.0	n/a
S95T001619		F	Titanium-ICP-Fusion	ug/g	None	None	96.46	1.50e-03	<113.0042	<114.577	n/a	n/a	94.34	113.0	n/a
S95T001619		F	Thallium -ICP-Fusion	ug/g	None	None	97.00	-1.24e-02	<2260.083	<2291.55	n/a	n/a	98.60	2.26e+03	n/a
S95T001619		F	Uranium -ICP-Fusion	ug/g	None	None	94.58	3.93e-02	<4520.166	<4583.11	n/a	n/a	94.39	4.52e+03	n/a
S95T001619		F	Vanadium -ICP-Fusion	ug/g	None	None	99.58	-2.30e-03	<565.0209	<572.889	n/a	n/a	97.17	565.0	n/a
S95T001619		F	Zinc -ICP-Fusion	ug/g	None	None	100.1	1.90e-02	247.1	247.7	247.4	0.22	94.52	113.0	n/a
S95T001619		F	Zirconium -ICP-Fusion	ug/g	None	None	98.89	1.00e-04	<113.0042	<114.577	n/a	n/a	96.98	113.0	n/a
S95T001620		W	Bromide by Ion Chromatograph	ug/g	None	None	100.7	<6.32e-01	< 1.10E03	<1.10e03	n/a	n/a	n/a	1.10e+03	n/a
S95T001620		W	Chloride by IC - Dionex 4000i	ug/g	None	None	98.59	<8.30e-02	< 1.44E02	<1.44e02	n/a	n/a	n/a	144.0	n/a
S95T001620		W	Fluoride by IC - Dionex 4000i	ug/g	None	None	103.5	<6.20e-02	2.72e+04	2.79e+04	2.76e+04	2.54	n/a	519.0	n/a
S95T001620		W	Nitrite by IC - Dionex 4000i	ug/g	None	None	100.5	<5.47e-01	< 9.52E02	<9.52e02	n/a	n/a	n/a	952.0	n/a
S95T001620		W	Nitrate by IC - Dionex 4000i	ug/g	None	None	100.9	<6.99e-01	3.64e+03	3.42e+03	3.53e+03	6.23	n/a	1.22e+03	n/a
S95T001620		W	Oxalate by IC - Dionex 4000i	ug/g	None	None	95.30	<4.96e-01	< 8.63E02	<8.63e02	n/a	n/a	n/a	863.0	n/a
S95T001620		W	Phosphate by IC - Dionex 4000i	ug/g	None	None	103.4	<5.96e-01	2.71e+05	2.78e+05	2.74e+05	2.55	n/a	4.99e+03	n/a
S95T001620		W	Sulfate by IC - Dionex 4000i	ug/g	None	None	102.5	<6.78e-01	< 1.18E03	<1.18e03	n/a	n/a	n/a	1.18e+03	n/a

=> Limit violated
=> Selected Limit

WHC-SD-WM-DP-[illegible], REV. 1

CHAIN OF CUSTODY FORMS

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

COPY

(1) Shipment Number 200W-08-TF (2) Sample Number 95-Aug-041 (3) Supervisor JAMES Sickels

(4) Tank T-109 (5) Riser 2 (6) Cask Serial Number 1008 C

Radiation Survey Data:	(7) FIELD	(31) LABORATORY
Over Top Dose Rate	<.5 mR/hr	<0.5 MR/HR
Side Dose Rate	<.5 mR/hr	<0.5 MR/HR
Bottom Dose Rate	<.5 mR/hr	<0.5 MR/HR
Smearable Contamination (Alpha)	<20 dpm	<20 DPM
(Beta-Gamma)	<1000 dpm	<1K DPM
RCT* (Signature)	[signature]	RCT* [signature]

(8) Shipment Description

A. Work Package Number	WS-95-00109
B. Cask Seal Number	2586
C. Date and Time Sample Removed from Tank	8-21-95 11:00 AM
D. Expected Liquid Content	10%
E. Expected Solid Content	90%
F. Dose Rate Through Drill String	1 mR/hr
G. Expected Sample Length	15"

(9) INFORMATION (include statement of laboratory tests to be performed.)

(10) Field Comments

(32) Laboratory Comments

WHC-SD-WM-DP-144, REV. 1

(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time	(15) Sender Comments
T-109	222S LABS	JAMES Sickels [signature]	8/22/95 8:45	

(17) Relinquished By (Sign and PRINT)	(18) Received By (Sign and PRINT)	(19) Date/Time	(20) Receiver Comments
JAMES Sickels [signature]	[signature] James Fenbarty	8/22/95 0855	

(21) Relinquished By (Sign and PRINT)	(22) Received By (Sign and PRINT)	(23) Date/Time	(24) Receiver Comments
[signature] James Fenbarty	[signature] N. LAPIERS	8/22/95 0925	

(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling, F7-12 Goldenrod - Tank Farm Operations, T4-01 BC-6001-326 (03/9

12/04/95 14:50 509 373 1432 002

COPY

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 95-Aug-40 (3) Supervisor James Sickels

(4) Tank T-109 (5) Riser 6 (6) Cask Serial Number 15G

Radiation Survey Data:	(7) FIELD	(31) LABORATORY
Over Top Dose Rate	<.5 mR/hr	<0.5 mR/hr
Side Dose Rate	<.5 mR/hr	<0.5 mR/hr
Bottom Dose Rate	<.5 mR/hr	<0.5 mR/hr
Smearable Contamination	<20 dpm (Alpha)	<20 d/m (Alpha)
	<1000 dpm (Beta-Gamma)	<1000 d/m (Beta-Gamma)
RCT*	(Signature)	RCT* (Signature)

(8) Shipment Description

A. Work Package Number	WS-95-00109
B. Cask Seal Number	2556
C. Date and Time Sample Removed from Tank	8-18-95 10:20A
D. Expected Liquid Content	10%
E. Expected Solid Content	90%
F. Dose Rate Through Drill String	1 mR/hr
G. Expected Sample Length	15"

(9) INFORMATION (Include statement of laboratory tests to be performed.)

(10) Field Comments

(32) Laboratory Comments

WHC-SD-WM-DP-144, REV. 1

(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time	(15) Sender Comments
T-109	222S Labs	James Sickels James Sickels	8/21/95 9:45	

(17) Relinquished By (Sign and PRINT)	(18) Received By (Sign and PRINT)	(19) Date/Time	(20) Receiver Comments
James Sickels James Sickels	Lubal Helms Lubal Helms	8-21-95 9:50	

(21) Relinquished By (Sign and PRINT)	(22) Received By (Sign and PRINT)	(23) Date/Time	(24) Receiver Comments
Lubal Helms Lubal Helms	E E Dubes	8-21-95 [illegible]	

(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments

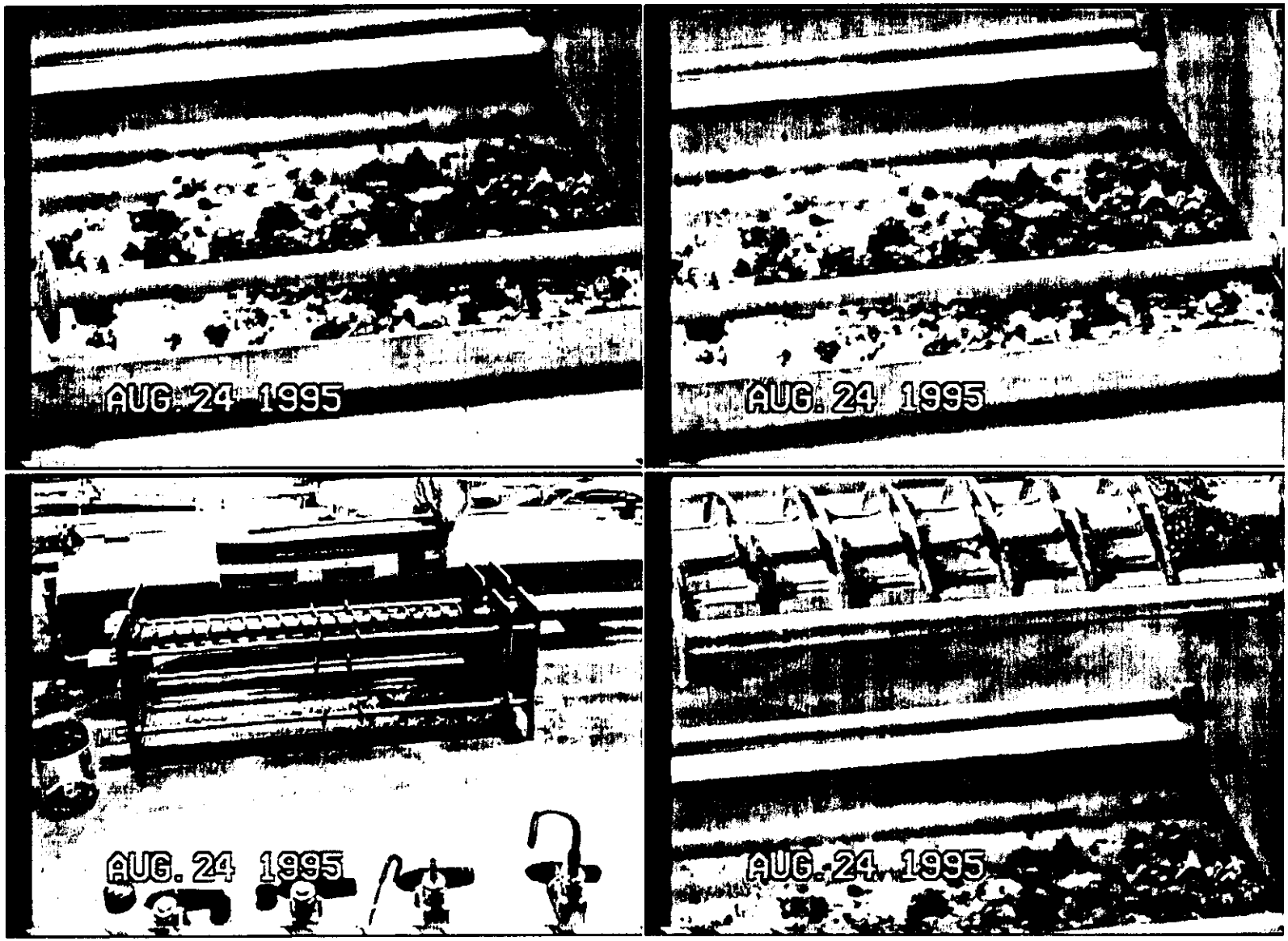
(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling, F7-12 Goldenrod - Tank Farm Operations, T4-01 BC-5001 326 (03/9

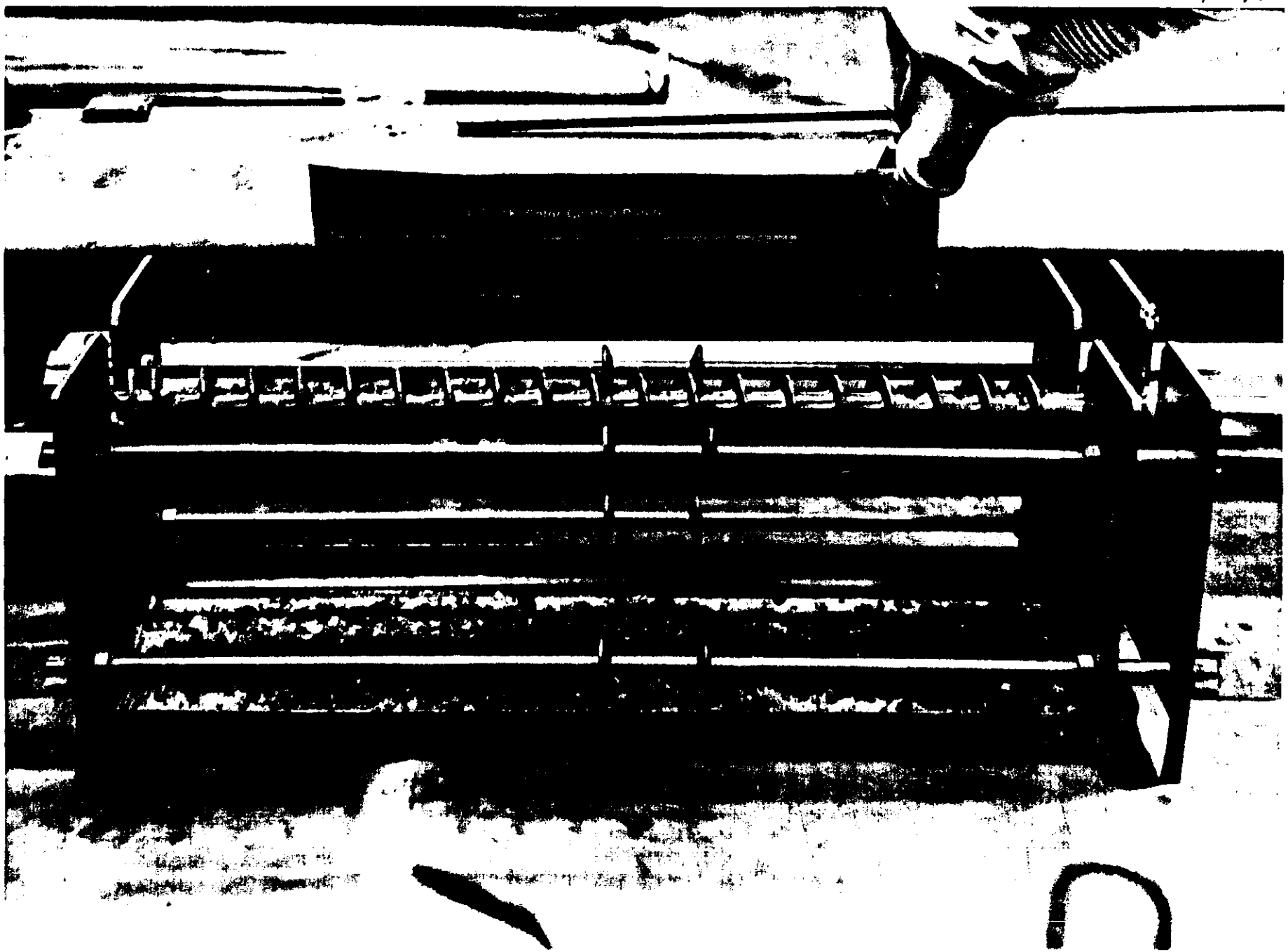
003 509 373 1432 14:51 12/04/95

PHOTOGRAPHS

T-109 95-AUG-040 Riser 6



T-109 95-AUG-041 8/25/95



SAMPLE HANDLING

WHO-CS-WM-DP-144 REV. 1

LABCORE Data Entry Template for Worklist# 2096

Analyst: EC **Instrument:** BA000 _____ **Book #** NA

Method: LO-160-103 Rev/Mod A-7

~~WHO-CS-WM-DP-_____, REV._____~~ 12/05/95

Worklist Comment: T-109 95-AUG-041 RISER 2 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	19.98	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	499.69	N/A	
95000121	T-109	3	SAMPLE	S95T001596	0		DLIQVOL1	SOLID	N/A	0		mL
95000121	T-109	4	SAMPLE	S95T001596	0		DLIQWT01	SOLID	N/A	0		g
95000121	T-109	5	SAMPLE	S95T001596	0		EST.G/ML	SOLID	N/A	0		g/mL
95000121	T-109	6	SAMPLE	S95T001596	0		EXTRUD01	SOLID	N/A	complete		
95000121	T-109	7	SAMPLE	S95T001596	0		LLIQWT01	SOLID	N/A	0		g
95000121	T-109	8	SAMPLE	S95T001596	0		NOTEBOOK	SOLID	N/A	N-1186		
95000121	T-109	9	SAMPLE	S95T001596	0		SLDVOL01	SOLID	N/A	NA		mL
95000121	T-109	10	SAMPLE	S95T001596	0		SLDWT-01	SOLID	N/A	232.5		g
95000121	T-109	11	SAMPLE	S95T001596	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 2096

EC 8-28-95
Analyst Signature **Date**

EC 8-28-95
Analyst Signature **Date**

Reviewed by Sylvia B. Bonaly 8-28-95

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2089

Analyst: EC **Instrument:** BA000 **Book #** NA

Method: LO-160-103 Rev/Mod A-7 WHC-CD-WM-DP-144, REV. 1

Worklist Comment: T-109 95-AUG-40 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01				EXTRUD01	SOLID	20	19.98	N/A	
		2 INSTCHK02				EXTRUD01	SOLID	500	499.68	N/A	
95000121	T-109	3 SAMPLE	S95T001540	0		DLIQVOL1	SOLID	N/A	0		mL
95000121	T-109	4 SAMPLE	S95T001540	0		DLIQWT01	SOLID	N/A	0		g
95000121	T-109	5 SAMPLE	S95T001540	0		EST.G/ML	SOLID	N/A	0		g/mL
95000121	T-109	6 SAMPLE	S95T001540	0		EXTRUD01	SOLID	N/A	complete		
95000121	T-109	7 SAMPLE	S95T001540	0		LLIQWT01	SOLID	N/A	0		g
95000121	T-109	8 SAMPLE	S95T001540	0		NOTEBOOK	SOLID	N/A	N-1186		
95000121	T-109	9 SAMPLE	S95T001540	0		SLDVOL01	SOLID	N/A	NA		mL
95000121	T-109	10 SAMPLE	S95T001540	0		SLDWT-01	SOLID	N/A	67.5		g
95000121	T-109	11 SAMPLE	S95T001540	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 2089

EC 8-28-95
Analyst Signature **Date**

EC 8-28-95
Analyst Signature **Date**

Reviewed by [illegible] 8-28-95

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SAMPLE PREPARATIONS

LABCORE Data Entry Template for Worklist# 2105

Analyst: EAL **Instrument:** FUS01 AL11066 **Book #** N/A

Method: LA-549-141 Rev/Mod D-0

Worklist Comment: T-109 FUSION - 1600->1612; PUT DOSE RATE W/COMMENTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	250ml total Vol		N/A	g/L
95000121	T-109	2 SAMPLE	S95T001612	0 F	FUSION01	SOLID	N/A	2.1220		g/L
		.5305g → .250ℓ								
95000121	T-109	3 DUP	S95T001612	0 F	FUSION01	SOLID	2.1220	2.1392	N/A	g/L
		.5348 → .250ℓ								

Final page for worklist # 2105

Analyst Signature Date 08/31/95

Analyst Signature Date 08/31/95

Data Entry Comments: Prep BLANK - 10ml HCL
S95T001612 - 10ml HCL, 15ml Con HNO3 15mrad
S95T001612 Dup 10ml HCL, 20ml Con HNO3 15mrad
Scale balanced @ 150.000 w/ntwt. HPT Bill Bishop
Both Sample & Dup are pale yellow & clear.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Bernard Griffin II 28 8-31-95

WHC-SD-WM-DP-144, REV. 1

LABCORE Data Entry Template for Worklist# 2106

Analyst: YAM **Instrument:** FUS01 AU10606 **Book #** N/A

Method: LA-549-141 Rev/Mod D-0

Worklist Comment: T-109 FUSION - 1618->1619, 1629->1630

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	250ml		N/A	g/L
95000121	T-109	2 SAMPLE	S95T001619	0 F	FUSION01	SOLID	N/A	2.3008		g/L
		.5752g → 250ml								
95000121	T-109	3 SAMPLE	S95T001619	0	DOSE-02	SOLID	N/A	5		mrad/hour
95000121	T-109	4 DUP	S95T001619	0 F	FUSION01	SOLID	2.3008	2.2692	N/A	g/L
		.5673g → 250ml								
95000121	T-109	5 DUP	S95T001619	0	DOSE-02	SOLID	5	5	N/A	mrad/hour
95000121	T-109	6 SAMPLE	S95T001630	0 F	FUSION01	SOLID	N/A	2.0684		g/L
		.5171g → 250ml								
95000121	T-109	7 SAMPLE	S95T001630	0	DOSE-02	SOLID	N/A	5		mrad/hour
95000121	T-109	8 DUP	S95T001630	0 F	FUSION01	SOLID	2.0684	2.0872	N/A	g/L
		.5218g → 250ml								
95000121	T-109	9 DUP	S95T001630	0	DOSE-02	SOLID	5	5	N/A	mrad/hour

Final page for worklist # 2106

YAMurphy 8-31-95
Analyst Signature **Date**

8-31-95
Analyst Signature **Date**

Data Entry Comments:
Blank - 20ml HCl, 20ml HNO_3, <1% solids. Sam&dup 1619- 20ml HCl, 30ml HNO_3, <1% solids. Sam&dup 1630- 20ml HCl, 30ml HNO_3, <1% solids. HPT was Joe Valdez.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Bertrand Griffin II 8-31-95

LABCORE Data Entry Template for Worklist# 2263

Analyst: JHM **Instrument:** H2O01 AU10616 **Book #** N/A

Method: LA-504-101 Rev/Mod D-0

Worklist Comment: T-109, H2ODIG, 1600->1613, 1618->1620, 1629->1631.gjh

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			H2ODIG01	SOLID	100ml		N/A	g/L
95000121	T-109	2 SAMPLE	S95T001613	0 W	H2ODIG01	SOLID	N/A	10.2000		g/L
		1.0200g -> 100ml								
95000121	T-109	3 SAMPLE	S95T001613	0	DOSE-02	SOLID	N/A	1		mrad/hour
95000121	T-109	4 DUP	S95T001613	0 W	H2ODIG01	SOLID	10.2000	10.5990	N/A	g/L
		1.0599g -> 100ml								
95000121	T-109	5 DUP	S95T001613	0	DOSE-02	SOLID		1	N/A	mrad/hour
95000121	T-109	6 SAMPLE	S95T001620	0 W	H2ODIG01	SOLID	N/A	12.0680		g/L
		1.2068g -> 100ml								
95000121	T-109	7 SAMPLE	S95T001620	0	DOSE-02	SOLID	N/A	2		mrad/hour
95000121	T-109	8 DUP	S95T001620	0 W	H2ODIG01	SOLID	12.0680	11.9880	N/A	g/L
		1.1988g -> 100ml								
95000121	T-109	9 DUP	S95T001620	0	DOSE-02	SOLID		1	N/A	mrad/hour
95000121	T-109	10 SAMPLE	S95T001631	0 W	H2ODIG01	SOLID	N/A	13.1710		g/L
		1.3171g -> 100ml								
95000121	T-109	11 SAMPLE	S95T001631	0	DOSE-02	SOLID	N/A	1		mrad/hour
95000121	T-109	12 DUP	S95T001631	0 W	H2ODIG01	SOLID	13.1710	13.2990	N/A	g/L
		1.3299g -> 100ml								
95000121	T-109	13 DUP	S95T001631	0	DOSE-02	SOLID		~~13.2990~~ 1	N/A	mrad/hour

JHM 9-12-95

Final page for worklist # 2263

JHMurphy 9-13-95
Analyst Signature **Date**

9-14-95
Analyst Signature **Date**

Data Entry Comments: HPC was Jim Evans

Bertrand Griffin II 9-18-95

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2494

Analyst: JAM **Instrument:** H2O01 AL11066 **Book #** N/A

Method: LA-504-101 Rev/Mod 0.0

Worklist Comment: T-109 H2O DGST - 2173->2176; REPRINTED

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP				H2ODIG01	SOLID	100	100	N/A	g/L
95000121	T-109	2 SAMPLE	S95T002176	0	W	H2ODIG01	SOLID	N/A	12.3540		g/L
		1.2354g → 100ml									
95000121	T-109	3 SAMPLE	S95T002176	0		DOSE-02	SOLID	N/A	<.5		mrad/hour
95000121	T-109	4 DUP	S95T002176	0	W	H2ODIG01	SOLID	12.3540	12.1060	N/A	g/L
		1.2106g → 100ml									
95000121	T-109	5 DUP	S95T002176	0		DOSE-02	SOLID		<.5	N/A	mrad/hour

Final page for worklist # 2494

JAMurphy 9-26-95
Analyst Signature Date

9/27/95
Analyst Signature Date

Data Entry Comments: HPT was Scott Chandrback
Bertrand Griffin II 9-28-95

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2457

Analyst: lmh **Instrument:** ACD01 AL11066 **Book #** WHC1A/G4JWHC1A2/10 WHC2/G3MWHC2U/G

Method: LA-505-159 Rev/Mod C-0

Worklist Comment: T-109, ACID DGST, 2173 -> 2177 SKM

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP				ACIDIG01	SOLID	100	100	N/A	g/L
		2	STD-PREP				ACIDIG01	SOLID	20	20	N/A	g/L
			5 mL → 100 mL									
95000121	T-109	3	SAMPLE	S95T002177	0	A	ACIDIG01	SOLID	N/A	10.0030		g/L
			1.0003 g → 100 mL									
95000121	T-109	4	SAMPLE	S95T002177	0		DOSE-02	SOLID	N/A	25		mrad/hour
95000121	T-109	5	DUP	S95T002177	0	A	ACIDIG01	SOLID	0.0030	10.0020	N/A	g/L
			1.0002 g → 100 mL									
95000121	T-109	6	DUP	S95T002177	0		DOSE-02	SOLID		25	N/A	mrad/hour

Final page for worklist # 2457

[signature] 9-22-95
Analyst Signature **Date**

[signature] 9-22-95
Analyst Signature **Date**

Data Entry Comments:

OTR - 1 mrad β/hr

HPT - Charlene Cooper 9-22-95 & NB Scot Lauderback

NOTE: This is the second wklist I've filled out for this batch.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Bernard Griffin II 9-25-95

INORGANIC ANALYSES

LABCORE Data Entry Template for Worklist# 2887

Analyst: SMF **Instrument:** BA001 _____ **Book #** 65N8A

Method: LA-564-101 Rev/Mod F-1

Worklist Comment: T-109 Gravimetric % Water -.Do not run replicates

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				WATER-01	SOLID	59.74	60.23	N/A	%
95000121	T-109	2 SAMPLE	S95T001597	0		WATER-01	SOLID	N/A	50.7	0.01	%
95000121	T-109	3 DUP	S95T001597	0		WATER-01	SOLID	50.7	50.4	N/A	%
95000121	T-109	4 SAMPLE	S95T001600	0		WATER-01	SOLID	N/A	47.6	0.01	%
95000121	T-109	5 DUP	S95T001600	0		WATER-01	SOLID	47.6	49.3	N/A	%

Final page for worklist # 2887

Susie M. Fulton 10.15.95
Analyst Signature **Date** 1515

Gary Hammett 10-16-95
Analyst Signature **Date**
RW Schroeder 10/16/95

STD
W1 15.03789 g
W2 16.38696 g
W3 15.57454 g
W4 15.57437 g

S95T001597
W1 15.02544 g
W2 15.19502 g
W3 15.10907 g
W4 15.10905 g

S95T001600
W1 15.00649 g
W2 15.50124 g
W3 ~~14.98825 g~~ SMF 10.15.95 15.26570 g
W4 ~~14.98836 g~~ SMF 10.15.95 15.26568 g

S95T001597Dup
W1 14.90157 g
W2 15.07632 g
W3 ~~15.26570 g~~ 14.98825 SMF 10.15.95
W4 14.98836 g

S95T001600Dup
W1 14.95458 g
W2 15.86253 g
W3 15.41506 g
W4 15.41495 g

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		STANDARD	REPLICATE
Type	Tare Weight (W1) grams	15.0379	
STANDARD	Gross Weight (W2) grams	16.3870	
Work List	First Residue Weight (W3) grams	15.5745	
2887	Second Residue Weight (W4) grams	15.5744	
Test Code	Percent Difference	0.0011	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	60.23	N/A
LIQUID			
Sample #			
STD			
Instrument Code			
BA001			
Analyst			
SM FULTON			
Date			
10/15/95			
Time			
03:15 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.0
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O = 60.2

Data Entry by: [signature] Date: 10/16/95

Approved by: Ru Schroeder Date: 10/16/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.0254	
SAMPLE	Gross Weight (W2) grams	15.1950	
Work List	First Residue Weight (W3) grams	15.1091	
2887	Second Residue Weight (W4) grams	15.1091	
Test Code	Percent Difference	0.0001	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	50.70	N/A
LIQUID			
Sample #			
S95T001597			
Instrument Code			
BA001			
Analyst			
SM FULTON			
Date			
10/15/95			
Time			
03:15 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.0
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	50.7

Data Entry by:	[signature]	Date:	10/16/95
Approved by:	R.W. Schroeder	Date:	10/16/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	14.9016	
SAMPLE	Gross Weight (W2) grams	15.0763	
Work List	First Residue Weight (W3) grams	14.9883	
2887	Second Residue Weight (W4) grams	14.9883	
Test Code	Percent Difference	0.0003	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	50.37	N/A
LIQUID			
Sample#			
S95T001597 / dup			
Instrument Code			
BA001			
Analyst			
SM FULTON			
Date			
10/15/95			
Time			
03:15 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.0
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	50.4

Data Entry by:	Gary Hammitt	Date:	10/16/95
Approved by:	Ron Schroeder	Date:	10/16/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Tare Weight (W1) grams		15.0065	
Gross Weight (W2) grams		15.5012	
First Residue Weight (W3) grams		15.2657	
Second Residue Weight (W4) grams		15.2656	
Percent Difference		0.0007	N/A
QC Check		Pass	N/A
Percent Weight Loss		47.63	N/A

Type	SAMPLE
Work List	2887
Test Code	WATER-01
Matrix	LIQUID
Sample #	S95T001600
Instrument Code	BA001
Analyst	SM FULTON
Date	10/15/95
Time	03:15 PM

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.0
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	47.6

Data Entry by:	Dawn Stewart	Date:	10/16/95
Approved by:	Ron Schroeder	Date:	10/16/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	14.9546	
SAMPLE	Gross Weight (W2) grams	15.8625	
Work List	First Residue Weight (W3) grams	15.4151	
2887	Second Residue Weight (W4) grams	15.4150	
Test Code	Percent Difference	0.0007	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	49.30	N/A
LIQUID			
Sample #			
S95T001600 / dup			
Instrument Code			
BA001			
Analyst			
SM FULTON			
Date			
10/15/95			
Time			
03:15 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.0
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	49.3

Data Entry by:	[signature]	Date:	10/16/95
Approved by:	[signature]	Date:	10/16/95

LABCORE Data Entry Template for Worklist# 3687

Analyst: Blue SMF **Instrument:** BA001 _____ **Book #** 65N8A

Method: LA-564-101 Rev/Mod F-1

Worklist Comment: T-109 & S-107 % Water

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK				WATER-01	SOLID	1	1.32 e-3 ~~e-5~~ RWS 11/30/95	N/A	%
		2 STD				WATER-01	SOLID		6.00e1	N/A	%
95000121	T-109	3 SAMPLE	S95T001616	0		WATER-01	SOLID	N/A	45.6	0.01	%
95000121	T-109	4 DUP	S95T001616	0		WATER-01	SOLID	45.6	45.5	N/A	%
95000121	T-109	5 SAMPLE	S95T001618	0		WATER-01	SOLID	N/A	46.6	0.01	%
95000121	T-109	6 DUP	S95T001618	0		WATER-01	SOLID	46.6	45.7	N/A	%
95000121	T-109	7 SAMPLE	S95T001626	0		WATER-01	SOLID	N/A	48.9	0.01	%
95000121	T-109	8 DUP	S95T001626	0		WATER-01	SOLID	48.9	49.2	N/A	%
95000121	T-109	9 SAMPLE	S95T001629	0		WATER-01	SOLID	N/A	48.1	0.01	%
95000121	T-109	10 DUP	S95T001629	0		WATER-01	SOLID	48.1	47.3	N/A	%
95000138	S-107	11 SAMPLE	S95T003538	0		WATER-01	SOLID	N/A	43.7	0.01	%
95000138	S-107	12 DUP	S95T003538	0		WATER-01	SOLID	43.7	43.5	N/A	%
95000138	S-107	13 SAMPLE	S95T003539	0		WATER-01	SOLID	N/A	21.4	0.01	%
95000138	S-107	14 DUP	S95T003539	0		WATER-01	SOLID	21.4	22.8	N/A	%
95000138	S-107	15 SAMPLE	S95T003540	0		WATER-01	SOLID	N/A	20.6	0.01	%
95000138	S-107	16 DUP	S95T003540	0		WATER-01	SOLID	20.6	20.5	N/A	%

Data Entry Comments: Placed in oven @ 21:00 11/27/95

Reviewed by H. Quarter 12-1-95

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

BLK	STD	595T001616	595T001616 DUP.
W1 15.13000g	W1 14.92355g	W1 15.02137g	W1 15.04020g
W2 15.13015g	W2 16.44523g	W2 15.31164g	W2 15.43327g
W3 15.12997g	W3 15.53416g	W3 15.17959g	W3 15.25467g
W4 ~~15.19983g~~ 15.12983g 11.29.95	W4 15.53154g	W4 15.17940g	W4 15.25455g

595T001618	595T001618 DUP	595T001626	595T001626 DUP
W1 14.92313g	W1 14.99480g	W1 15.16249g	W1 15.10871g
W2 15.52074g	W2 15.50513g	W2 15.67342g	W2 15.75032g
W3 15.24218g	W3 15.27170g	W3 15.42371g	W3 15.43467g
W4 15.24233g	W4 15.27167g	W4 15.42363g	W4 15.43476g

595T001629	595T001629 DUP	595T003538	595T003538 DUP
W1 15.13468g	W1 15.10552g	W1 15.17783g	W1 14.96932g
W2 15.64454g	W2 15.64952g	W2 15.79106g	W2 15.29274g
W3 15.40095g	W3 15.39213g	W3 15.52226g	W3 15.15152g
W4 15.40096g	W4 15.39212g	W4 15.52325g	W4 15.15216g

595T003539	595T003539 DUP	595T003540	595T003540 DUP
W1 15.04413g	W1 15.00056g	W1 14.96837g	W1 15.13767g
W2 15.61143g	W2 15.72187g	W2 15.55663g	W2 15.84522g
W3 15.48953g	W3 15.55621g	W3 15.43518g	W3 15.69957g
W4 15.49023g	W4 15.55730g	W4 15.43560g	W4 15.70020g

LABCORE Data Entry Template for Worklist# 3687

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT

Final page for worklist # 3687

R L McCown 11/27/95
Analyst Signature Date

Stu Peth 11-30-95
Analyst Signature Date

Susie M. Fulton 11.28.95 1700

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		BLANK	REPLICATE
Type	Tare Weight (W1) grams	15.1300	0.0000
BLANK	Gross Weight (W2) grams	15.1302	
Work List	First Residue Weight (W3) grams	15.1300	
3687	Second Residue Weight (W4) grams	15.1298	
Test Code	Percent Difference	0.0009	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	213.33	N/A
SOLID			
Sample #			
BLANK			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

0.0002/15.13 x100 =

RESULT

% H2O = 1.32e-5 ~~213.3~~ RWS 11/30/95

Data Entry by: [signature] Date: 11/29/95

Approved by: RW Schroeder Date: 11/30/95

Form 564101L1 Rev. 1.2

39.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		STANDARD	REPLICATE
Tare Weight (W1) grams		14.9236	
Gross Weight (W2) grams		16.4452	
First Residue Weight (W3) grams		15.5342	
Second Residue Weight (W4) grams		15.5315	
Percent Difference		0.0169	N/A
QC Check		Pass	N/A
Percent Weight Loss		60.04	N/A

Type	STANDARD
Work List	3687
Test Code	WATER-01
Matrix	SOLID
Sample #	STANDARD
Instrument Code	BA001
Analyst	SMF
Date	11/28/95
Time	05:00 PM

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	60.0

Data Entry by:	Gary Hammett	Date:	11/29/95
Approved by:	RW Schroeder	Date:	11/30/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.0214	
SAMPLE	Gross Weight (W2) grams	15.3116	
Work List	First Residue Weight (W3) grams	15.1796	
3687	Second Residue Weight (W4) grams	15.1794	
Test Code	Percent Difference	0.0013	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	45.56	N/A
SOLID			
Sample #			
S95T001616			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	45.6

Data Entry by:	Dan Hammett	Date:	11/29/95
Approved by:	RW Schneider	Date:	11/30/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Tare Weight (W1) grams		15.0402	
Gross Weight (W2) grams		15.4333	
First Residue Weight (W3) grams		15.2547	
Second Residue Weight (W4) grams		15.2546	
Percent Difference		0.0008	N/A
QC Check		Pass	N/A
Percent Weight Loss		45.47	N/A

Type	DUPLICATE
Work List	3687
Test Code	WATER-01
Matrix	SOLID
Sample #	S95T001616
Instrument Code	BA001
Analyst	SMF
Date	11/28/95
Time	05:00 PM

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	45.5

Data Entry by:	Dany Hunt	Date:	11/29/95
Approved by:	EW Schroeder	Date:	11/30/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

Type	Tare Weight (W1) grams	SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2) grams	15.5207	
Work List	First Residue Weight (W3) grams	15.2422	
3687	Second Residue Weight (W4) grams	15.2423	
Test Code	Percent Difference	0.0010	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	46.59	N/A
SOLID			
Sample #			
S95T001618			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	46.6

Data Entry by:	[signature]	Date:	11/29/95
Approved by:	RW Schroeder	Date:	11/30/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Tare Weight (W1) grams		14.9948	
Gross Weight (W2) grams		15.5051	
First Residue Weight (W3) grams		15.2717	
Second Residue Weight (W4) grams		15.2717	
Percent Difference		0.0002	N/A
QC Check		Pass	N/A
Percent Weight Loss		45.75	N/A

Type	DUPLICATE
Work List	3687
Test Code	WATER-01
Matrix	SOLID
Sample #	S95T001618
Instrument Code	BA001
Analyst	SMF
Date	11/28/95
Time	05:00 PM

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O = 45.7

Data Entry by: Dany Summit Date: 11/29/95

Approved by: Ron Schroeder Date: 11/30/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.1625	
SAMPLE	Gross Weight (W2) grams	15.6734	
Work List	First Residue Weight (W3) grams	15.4237	
3687	Second Residue Weight (W4) grams	15.4236	
Test Code	Percent Difference	0.0005	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	48.89	N/A
SOLID			
Sample #			
S95T001626			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O = 48.9

Data Entry by: [signature] Date: 11/29/95

Approved by: Rw Schroeder Date: 11/30/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.1087	
DUPLICATE	Gross Weight (W2) grams	15.7503	
Work List	First Residue Weight (W3) grams	15.4347	
3687	Second Residue Weight (W4) grams	15.4348	
Test Code	Percent Difference	0.0006	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	49.18	N/A
SOLID			
Sample #			
S95T001626			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	49.2

Data Entry by:	[signature]	Date:	11/29/95
Approved by:	Ruy Schroeder	Date:	11/30/95

Form 564101L1 Rev. 1.2

39.10

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.1347	
SAMPLE	Gross Weight (W2) grams	15.6475	
Work List	First Residue Weight (W3) grams	15.4010	
3687	Second Residue Weight (W4) grams	15.4010	
Test Code	Percent Difference	0.0001	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	48.08	N/A
SOLID			
Sample #			
S95T001629			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	48.1

Data Entry by:	[signature]	Date:	11/29/95
Approved by:	[signature]	Date:	11/30/95

Form 564101L1 Rev. 1.2

39.11

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV.1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.1055	
DUPLICATE	Gross Weight (W2) grams	15.6495	
Work List	First Residue Weight (W3) grams	15.3921	
3687	Second Residue Weight (W4) grams	15.3921	
Test Code	Percent Difference	0.0000	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	47.31	N/A
SOLID			
Sample #			
S95T001629			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	47.3

Data Entry by:	[signature]	Date:	11/29/95
Approved by:	RW Schroeder	Date:	11/30/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.1778	
SAMPLE	Gross Weight (W2) grams	15.7911	
Work List	First Residue Weight (W3) grams	15.5223	
3687	Second Residue Weight (W4) grams	15.5233	
Test Code	Percent Difference	0.0064	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	43.67	N/A
SOLID			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample #	
S95T003538	
Instrument Code	
BA001	
Analyst	
SMF	
Date	
11/28/95	
Time	
05:00 PM	

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	43.7

Data Entry by:	[signature]	Date:	11/29/95
Approved by:	[signature]	Date:	11/30/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	14.9693	
DUPLICATE	Gross Weight (W2) grams	15.2927	
Work List	First Residue Weight (W3) grams	15.1515	
3687	Second Residue Weight (W4) grams	15.1522	
Test Code	Percent Difference	0.0042	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	43.47	N/A
SOLID			
Sample #			
S95T003538			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	43.5

Data Entry by:	[signature]	Date:	11/29/95
Approved by:	RW Schroeder	Date:	11/30/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.0441	
SAMPLE	Gross Weight (W2) grams	15.6114	
Work List	First Residue Weight (W3) grams	15.4895	
3687	Second Residue Weight (W4) grams	15.4902	
Test Code	Percent Difference	0.0045	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	21.36	N/A
SOLID			
Sample #			
S95T003539			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	21.4

Data Entry by:	Gary Hunnicutt	Date:	11/29/95
Approved by:	RW Schneider	Date:	11/30/95

Form 564101L1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.0006	
DUPLICATE	Gross Weight (W2) grams	15.7219	
Work List	First Residue Weight (W3) grams	15.5562	
3687	Second Residue Weight (W4) grams	15.5573	
Test Code	Percent Difference	0.0070	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	22.82	N/A
SOLID			
Sample #			
S95T003539			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	22.8

Data Entry by:	Gary Lemmon	Date:	11/29/95
Approved by:	RW Schwoch	Date:	11/30/95

Form 564101L1 Rev. 1.2

39.16

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV. 1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	14.9684	
SAMPLE	Gross Weight (W2) grams	15.5566	
Work List	First Residue Weight (W3) grams	15.4352	
3687	Second Residue Weight (W4) grams	15.4356	
Test Code	Percent Difference	0.0027	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	20.57	N/A
SOLID			
Sample #			
S95T003540			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	20.6

Data Entry by:	Mary Hamett	Date:	11/29/95
Approved by:	RW Schroeder	Date:	11/30/95

Form 564101L1 Rev. 1.2

39.17

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-144, REV.1

% WATER : LA-564-101 (F-1)

		SAMPLE	REPLICATE
Type	Tare Weight (W1) grams	15.1377	
DUPLICATE	Gross Weight (W2) grams	15.8452	
Work List	First Residue Weight (W3) grams	15.6996	
3687	Second Residue Weight (W4) grams	15.7002	
Test Code	Percent Difference	0.0040	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	20.50	N/A
SOLID			
Sample #			
S95T003540			
Instrument Code			
BA001			
Analyst			
SMF			
Date			
11/28/95			
Time			
05:00 PM			

(If it is necessary to do a 3rd heating then substitute the last weight measured for W4 and the second to last weight measured for W3 in the calculations above.)

Sample = W2 - W1	= Gross Weight - Tare Weight
Weight = W2 - W4	= Gross Weight - Residue Weight
Percent Difference	= Absolute Value of [(W3-W4)/W4]*100.00
QC Check "Pass" if % Difference	= < +/- 0.1500%
Percent Water Weight Loss	= [(W2-W4)/(W2-W1)]*100 = % H2O
Percent Water (Average)	= [(% H2O for A) + (% H2O for B)] / 2

RESULT

% H2O =	20.5

Data Entry by:	[signature]	Date:	11/29/95
Approved by:	[signature]	Date:	11/30/95

LABCORE Data Entry Template for Worklist# 2456

Analyst: EHC **Instrument:** IC01 IC01 **Book #** 106N9D

Method: LA-533-105 Rev/Mod D-1

Worklist Comment: Analyze for all anions, especially want NO3, PO4, F. JMF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP			@IC-01	F-02	SOLID		<.062	N/A	ug/g
		1	BLNK-PREP			@IC-01	CL-02	SOLID		<.083	N/A	ug/g
		1	BLNK-PREP			@IC-01	NO2-02	SOLID		<.547	N/A	ug/g
		1	BLNK-PREP			@IC-01	BR-02	SOLID		<.632	N/A	ug/g
		1	BLNK-PREP			@IC-01	NO3-02	SOLID		<.699	N/A	ug/g
		1	BLNK-PREP			@IC-01	PO4-02	SOLID		<.596	N/A	ug/g
		1	BLNK-PREP			@IC-01	SO4-02	SOLID		<.678	N/A	ug/g
		1	BLNK-PREP			@IC-01	OXALATE2	SOLID		<.496	N/A	ug/g
		2	STD			@IC-01	F-02	SOLID		61.06	N/A	ug/g
		2	STD			@IC-01	CL-02	SOLID		77.89	N/A	ug/g
		2	STD			@IC-01	NO2-02	SOLID		536.8	N/A	ug/g
		2	STD			@IC-01	BR-02	SOLID		579.3	N/A	ug/g
		2	STD			@IC-01	NO3-02	SOLID		619.6	N/A	ug/g
		2	STD			@IC-01	PO4-02	SOLID		564.6	N/A	ug/g
		2	STD			@IC-01	SO4-02	SOLID		646.6	N/A	ug/g
		2	STD			@IC-01	OXALATE2	SOLID		501.3	N/A	ug/g
95000121	T-109	3	SAMPLE	S95T001613	0	W @IC-01	F-02	SOLID	N/A	9.61e2	1.28e2	ug/g
95000121	T-109	3	SAMPLE	S95T001613	0	W @IC-01	CL-02	SOLID	N/A	5.78e2	1.71e2	ug/g

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2456

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	NO2-02	SOLID	N/A	<1.13e2	1.13e2	ug/g
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	BR-02	SOLID	N/A	<1.30e3	1.30e3	ug/g
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	NO3-02	SOLID	N/A	3.88e4	6.82e3	ug/g
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	PO4-02	SOLID	N/A	2.85e5	5.90e3	ug/g
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	SO4-02	SOLID	N/A	<1.40e3	1.40e3	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	F-02	SOLID	9.61e2	6.82e2	N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	CL-02	SOLID	5.78e2	5.69e2	N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	NO2-02	SOLID	<1.13e3	<1.13e3	N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	BR-02	SOLID	<1.30e3	<1.30e3	N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	NO3-02	SOLID	3.88e4	3.73e4	N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	PO4-02	SOLID	2.85e5	2.50e5	N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	SO4-02	SOLID	<1.40e3	<1.40e3	N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	OXALATE2	SOLID	NA	NA	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	CL-02	SOLID		93.0	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	F-02	SOLID		86.1	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	NO2-02	SOLID		98.1	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	BR-02	SOLID		~~100.2~~ 101.2	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	NO3-02	SOLID		104.6	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	PO4-02	SOLID		91.1	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	SO4-02	SOLID		103.8	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	OXALATE2	SOLID		103.5	N/A	ug/g

gmF 9/26/95

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2456

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
95000121	T-109	6 SAMPLE	S95T001620	0	W	@IC-01	F-02	SOLID	N/A	2.72e4	5.19e2	ug/g
95000121	T-109	6 SAMPLE	S95T001620	0	W	@IC-01	CL-02	SOLID	N/A	<1.44e2	1.44e2	ug/g
95000121	T-109	6 SAMPLE	S95T001620	0	W	@IC-01	NO2-02	SOLID	N/A	<9.52e2	9.52e2	ug/g
95000121	T-109	6 SAMPLE	S95T001620	0	W	@IC-01	BR-02	SOLID	N/A	<1.10e3	1.10e3	ug/g
95000121	T-109	6 SAMPLE	S95T001620	0	W	@IC-01	NO3-02	SOLID	N/A	3.64e3	1.22e3	ug/g
95000121	T-109	6 SAMPLE	S95T001620	0	W	@IC-01	PO4-02	SOLID	N/A	2.71e5	4.99e3	ug/g
95000121	T-109	6 SAMPLE	S95T001620	0	W	@IC-01	SO4-02	SOLID	N/A	<1.18e3	1.18e3	ug/g
95000121	T-109	6 SAMPLE	S95T001620	0	W	@IC-01	OXALATE2	SOLID	N/A	<8.63e2	~~1.10e3~~ 8.63e2	ug/g gmF 9/26/95
95000121	T-109	7 DUP	S95T001620	0	W	@IC-01	F-02	SOLID	2.72e4	2.79e4	N/A	ug/g
95000121	T-109	7 DUP	S95T001620	0	W	@IC-01	CL-02	SOLID	<1.44e2	<1.44e2	N/A	ug/g
95000121	T-109	7 DUP	S95T001620	0	W	@IC-01	NO2-02	SOLID	<9.52e2	<9.52e2	N/A	ug/g
95000121	T-109	7 DUP	S95T001620	0	W	@IC-01	BR-02	SOLID	<1.10e3	<1.10e3	N/A	ug/g
95000121	T-109	7 DUP	S95T001620	0	W	@IC-01	NO3-02	SOLID	3.64e3	3.42e3	N/A	ug/g
95000121	T-109	7 DUP	S95T001620	0	W	@IC-01	PO4-02	SOLID	2.71e5	2.78e5	N/A	ug/g
95000121	T-109	7 DUP	S95T001620	0	W	@IC-01	SO4-02	SOLID	<1.18e3	<1.18e3	N/A	ug/g
95000121	T-109	7 DUP	S95T001620	0	W	@IC-01	OXALATE2	SOLID	<8.63e2	<8.63e2	N/A	ug/g

Final page for worklist # 2456

See attached for signatures
Analyst Signature Date

Verified 10/3/95 Jenn Fuge

Tom D. McE 9/27/95
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2456

Analyst: EE **Instrument:** IC01 _____ **Book #** 106N9-0

Method: LA-533-105 Rev/Mod 0-1

Worklist Comment: Analyze for all anions, especially want NO3, PO4, F. JMF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP			@IC-01	F-02	SOLID			N/A	ug/g
		1	BLNK-PREP			@IC-01	CL-02	SOLID			N/A	ug/g
		1	BLNK-PREP			@IC-01	NO2-02	SOLID			N/A	ug/g
		1	BLNK-PREP			@IC-01	BR-02	SOLID			N/A	ug/g
		1	BLNK-PREP			@IC-01	NO3-02	SOLID			N/A	ug/g
		1	BLNK-PREP			@IC-01	PO4-02	SOLID			N/A	ug/g
		1	BLNK-PREP			@IC-01	SO4-02	SOLID			N/A	ug/g
		1	BLNK-PREP			@IC-01	OXALATE2	SOLID			N/A	ug/g
		2	STD			@IC-01	F-02	SOLID			N/A	ug/g
		2	STD			@IC-01	CL-02	SOLID			N/A	ug/g
		2	STD			@IC-01	NO2-02	SOLID			N/A	ug/g
		2	STD			@IC-01	BR-02	SOLID			N/A	ug/g
		2	STD			@IC-01	NO3-02	SOLID			N/A	ug/g
		2	STD			@IC-01	PO4-02	SOLID			N/A	ug/g
		2	STD			@IC-01	SO4-02	SOLID			N/A	ug/g
		2	STD			@IC-01	OXALATE2	SOLID			N/A	ug/g
95000121	T-109	3	SAMPLE	S95T001613	0	W @IC-01	F-02	SOLID	N/A			ug/g
95000121	T-109	3	SAMPLE	S95T001613	0	W @IC-01	CL-02	SOLID	N/A			ug/g

Data Entry Comments:

	SAMPLE	Duplicate
H_2O Digest S95T001613	10.2000 g/L	10.5990 g/L
S95T001620	12.0680 g/L	11.9880 g/L
S95T001631	13.1710 g/L	13.2990 g/L

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2456

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	NO2-02	SOLID	N/A			ug/g
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	BR-02	SOLID	N/A			ug/g
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	NO3-02	SOLID	N/A			ug/g
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	PO4-02	SOLID	N/A			ug/g
95000121	T-109	3 SAMPLE	S95T001613	0	W	@IC-01	SO4-02	SOLID	N/A			ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	F-02	SOLID			N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	CL-02	SOLID			N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	NO2-02	SOLID			N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	BR-02	SOLID			N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	NO3-02	SOLID			N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	PO4-02	SOLID			N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	SO4-02	SOLID			N/A	ug/g
95000121	T-109	4 DUP	S95T001613	0	W	@IC-01	OXALATE2	SOLID	N/A	N/A	N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	CL-02	SOLID			N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	F-02	SOLID			N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	NO2-02	SOLID			N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	BR-02	SOLID			N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	NO3-02	SOLID			N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	PO4-02	SOLID			N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	SO4-02	SOLID			N/A	ug/g
95000121	T-109	5 SPK	S95T001613	0	W	@IC-01	OXALATE2	SOLID	N/A	N/A	N/A	ug/g

Data Entry Comments:

LMCS 106N9-D .100mL - 10mL

SPIKE 106N9-D .100mL

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2456

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
95000121	T-109	6	SAMPLE	S95T001620	0	W	@IC-01	F-02	SOLID	N/A			ug/g
95000121	T-109	6	SAMPLE	S95T001620	0	W	@IC-01	CL-02	SOLID	N/A			ug/g
95000121	T-109	6	SAMPLE	S95T001620	0	W	@IC-01	NO2-02	SOLID	N/A			ug/g
95000121	T-109	6	SAMPLE	S95T001620	0	W	@IC-01	BR-02	SOLID	N/A			ug/g
95000121	T-109	6	SAMPLE	S95T001620	0	W	@IC-01	NO3-02	SOLID	N/A			ug/g
95000121	T-109	6	SAMPLE	S95T001620	0	W	@IC-01	PO4-02	SOLID	N/A			ug/g
95000121	T-109	6	SAMPLE	S95T001620	0	W	@IC-01	SO4-02	SOLID	N/A			ug/g
95000121	T-109	6	SAMPLE	S95T001620	0	W	@IC-01	OXALATE2	SOLID	N/A			ug/g
95000121	T-109	7	DUP	S95T001620	0	W	@IC-01	F-02	SOLID			N/A	ug/g
95000121	T-109	7	DUP	S95T001620	0	W	@IC-01	CL-02	SOLID			N/A	ug/g
95000121	T-109	7	DUP	S95T001620	0	W	@IC-01	NO2-02	SOLID			N/A	ug/g
95000121	T-109	7	DUP	S95T001620	0	W	@IC-01	BR-02	SOLID			N/A	ug/g
95000121	T-109	7	DUP	S95T001620	0	W	@IC-01	NO3-02	SOLID			N/A	ug/g
95000121	T-109	7	DUP	S95T001620	0	W	@IC-01	PO4-02	SOLID			N/A	ug/g
95000121	T-109	7	DUP	S95T001620	0	W	@IC-01	SO4-02	SOLID			N/A	ug/g
95000121	T-109	7	DUP	S95T001620	0	W	@IC-01	OXALATE2	SOLID			N/A	ug/g
95000121	T-109	8	SAMPLE	S95T001631	0	W	@IC-01	F-02	SOLID	N/A			ug/g
95000121	T-109	8	SAMPLE	S95T001631	0	W	@IC-01	CL-02	SOLID	N/A			ug/g
95000121	T-109	8	SAMPLE	S95T001631	0	W	@IC-01	NO2-02	SOLID	N/A			ug/g
95000121	T-109	8	SAMPLE	S95T001631	0	W	@IC-01	BR-02	SOLID	N/A			ug/g
95000121	T-109	8	SAMPLE	S95T001631	0	W	@IC-01	NO3-02	SOLID	N/A			ug/g
95000121	T-109	8	SAMPLE	S95T001631	0	W	@IC-01	PO4-02	SOLID	N/A			ug/g

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2456

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
95000121	T-109	8 SAMPLE	S95T001631	0	W	@IC-01	SO4-02	SOLID	N/A			ug/g
95000121	T-109	8 SAMPLE	S95T001631	0	W	@IC-01	OXALATE2	SOLID	N/A			ug/g
95000121	T-109	9 DUP	S95T001631	0	W	@IC-01	F-02	SOLID			N/A	ug/g
95000121	T-109	9 DUP	S95T001631	0	W	@IC-01	CL-02	SOLID			N/A	ug/g
95000121	T-109	9 DUP	S95T001631	0	W	@IC-01	NO2-02	SOLID			N/A	ug/g
95000121	T-109	9 DUP	S95T001631	0	W	@IC-01	BR-02	SOLID			N/A	ug/g
95000121	T-109	9 DUP	S95T001631	0	W	@IC-01	NO3-02	SOLID			N/A	ug/g
95000121	T-109	9 DUP	S95T001631	0	W	@IC-01	PO4-02	SOLID			N/A	ug/g
95000121	T-109	9 DUP	S95T001631	0	W	@IC-01	SO4-02	SOLID			N/A	ug/g
95000121	T-109	9 DUP	S95T001631	0	W	@IC-01	OXALATE2	SOLID			N/A	ug/g

Final page for worklist # 2456

9-21-95

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
INORGANIC ANALYTICAL BATCH AND SUMMARY SHEET

ANION ANALYSIS ON DIONEX

SAMPLE #:	S95T001613 & S95T001620		
TEST CODE:	@IC-01	ANALYST:	Ed Colvin
INSTRUMENT:	IC-01	ANALYSIS DATE:	~~09/26/95~~ 9/20/95 gmF 9/26/95
WORK LIST #:	2456	SAMPLE POINT:	T-109
BATCH ID:		SAMPLE PREP:	water digest

Result Units µg/g	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
106N9D	103.5%	98.6%	100.5%	100.9%	103.4%	102.5%	100.7%	95.3%
S95T001613	9.61E+02	5.78E+02	9.38E+02	3.88E+04	2.85E+05	<1395.88	<1301.18	<1021.18
S95T001613dup	6.82E+02	5.69E+02	1.03E+03	3.73E+04	2.50E+05	<1343.33	<1252.19	<982.73
Duplicate 1 RPD	33.9%	1.5%	9.7%	3.9%	13.1%	N/A	N/A	N/A
S95T001620	2.72E+04	<144.43	<951.86	3.64E+03	2.71E+05	<1179.81	<1099.77	<863.11
S95T001620dup	2.79E+04	<145.40	<958.21	3.42E+03	2.78E+05	<1187.69	<1107.11	<868.87
Duplicate 2 RPD	2.5%	N/A	N/A	6.1%	2.5%	N/A	N/A	N/A
S95T001613spk	86.1%	93.0%	98.9%	104.6%	91.1%	103.8%	101.2%	103.5%

NARRATIVE: **Analyst Comments:**

Chemist Comments:

Form Completed By:	Jane Fudge	Date:	9/26/95
Chemist Approval:	Jane Fudge	Date:	9/26/95

LAB LEADER INFO	
Method:	La-533-105D-1
Matrix:	solid
Test Code:	@IC-01
Work List #:	2456
Batch #:	
Result Units	
(µg/g or µg/mL):	µg/g
Spike Book Number:	106N9D
Spike Sample #:	1
Prepared By:	Jann Frye
Prepared Date:	09/26/95
Chemist:	Jann Frye
Analyst:	Ed Colvin
Analysis Date:	~~09/26/95~~ 9/20/95
Time Complete:	
Instrument Code:	IC-01
Rerun:	0
Sample Prep:	water digest
Sample Point:	T-109
Sample Type	
STANDARD	106N9D
SAMPLE 1	S95T001613
DUPLICATE 1	S95T001613dup
SAMPLE 2	S95T001620
DUPLICATE 2	S95T001620dup
SAMPLE 3	
DUPLICATE 3	
SAMPLE 4	
DUPLICATE 4	
SPIKE	S95T001613spk
SPIKE DUPLICATE	

PRINT

TECH INFO	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Blank Data (µg/mL)	<0.062	<0.083	<0.547	<0.699	<0.596	<0.678	<0.632	<0.496
Standard Data (µg/mL)	61.06	77.89	536.8	619.6	564.6	646.6	579.3	501.3
Sample 1 Data (µg/mL)	9.80E+00	5.90E+00	9.57E+00	3.96E+02	2.91E+03	<.678	<.632	<.496
Sample 1 Dilution Factor	21	21	21	101	101	21	21	21
Sample 1 Prep DF	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Duplicate 1 Data (µg/mL)	7.23E+00	6.03E+00	1.10E+01	3.95E+02	2.65E+03	<.678	<.632	<.496
Duplicate 1 Dilution Factor	21	21	21	101	101	21	21	21
Duplicate 1 Prep DF	10.599	10.599	10.599	10.599	10.599	10.599	10.599	10.599
Sample 2 Data (µg/mL)	3.29E+02	<.083	<.547	4.39E+01	3.27E+03	<.678	<.632	<.496
Sample 2 Dilution Factor	101	21	21	21	101	21	21	21
Sample 2 Prep DF	12.068	12.068	12.068	12.068	12.068	12.068	12.068	12.068
Duplicate 2 Data (µg/mL)	3.36E+02	<.083	<.547	4.11E+01	3.34E+03	<.678	<.632	<.496
Duplicate 2 Dilution Factor	101	21	21	21	101	21	21	21
Duplicate 2 Prep DF	11.988	11.988	11.988	11.988	11.988	11.988	11.988	11.988
Sample 3 Data (µg/mL)								
Sample 3 Dilution Factor								
Sample 3 Prep DF								
Duplicate 3 Data (µg/mL)								
Duplicate 3 Dilution Factor								
Duplicate 3 Prep DF								
Sample 4 Data (µg/mL)								
Sample 4 Dilution Factor								
Sample 4 Prep DF								
Duplicate 4 Data (µg/mL)								
Duplicate 4 Dilution Factor								
Duplicate 4 Prep DF								
Spike + Sample 1 (µg/mL)	2.00E+01	2.06E+01	1.15E+02	1.04E+03	3.40E+03	1.31E+02	1.16E+02	1.09E+02
Spike + Dup 1 (µg/mL)								
Spike Volume (mL)	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Total Volume (mL)	10.50	10.50	10.50	10.10	10.10	10.50	10.50	10.50
Std. Conc. (µg/mL)	59	79	534	614	546	631	575	526
Detection Limit	0.062	0.083	0.547	0.699	0.596	0.678	0.632	0.496
Matrix Detection Limit 1	1.28E+02	1.71E+02	1.13E+03	6.92E+03	5.90E+03	1.40E+03	1.30E+03	1.02E+03
Matrix Detection Limit 2	5.19E+02	1.44E+02	9.52E+02	1.22E+03	4.99E+03	1.18E+03	1.10E+03	8.63E+02
Matrix Detection Limit 3	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
Matrix Detection Limit 4	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

Spike Recovery = [((Spike+Sample)-(Sample)*(Total Volume))/((Spike Vol.)*(Spike Std.)*(Sample DF))]*100%
Note: (For spike recovery when the sample conc. is less than detection limit you do NOT subtract sample conc.)
Duplicate Relative % Difference = ((Sample - Duplicate) / ((Sample + Duplicate) / 2) * 100%)
Less than Values are Calculated from the Detection Limit*Dilution Factor

v RESULTS v	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Standard % Recovery	103.5%	98.6%	100.5%	100.9%	103.4%	102.5%	100.7%	95.3%
Sample 1 in µg/g	9.61E+02	5.78E+02	9.38E+02	3.88E+04	2.85E+05	<1395.88	<1301.18	<1021.18
Duplicate 1 in µg/g	6.82E+02	5.69E+02	1.03E+03	3.73E+04	2.50E+05	<1343.33	<1252.19	<982.73
Duplicate 1 RPD	33.9%	1.5%	9.7%	3.9%	13.1%	N/A	N/A	N/A
Sample 2 in µg/g	2.72E+04	<144.43	<951.86	3.64E+03	2.71E+05	<1179.81	<1099.77	<863.11
Duplicate 2 in µg/g	2.79E+04	<146.40	<958.21	3.42E+03	2.78E+05	<1187.69	<1107.11	<868.87
Duplicate 2 RPD	2.5%	N/A	N/A	6.1%	2.5%	N/A	N/A	N/A
Spike % Recovery	86.1%	93.0%	98.9%	104.6%	91.1%	103.8%	101.2%	103.5%

Data Entry by: Jann Frye Date: 09/26/95
Approved by: Jann Frye Date: 9/26/95
Form DIONEX.WB1 Rev. 1.3

Sample Name: 106N9-D STD
Date: 09/20/1995 12:29:41
Data File : C:\DX\DATA\95092081.D19
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 19 Detector:CDM-1
Analyst : P.N. Cash Column: AG4A/AS4A anion column/SRS

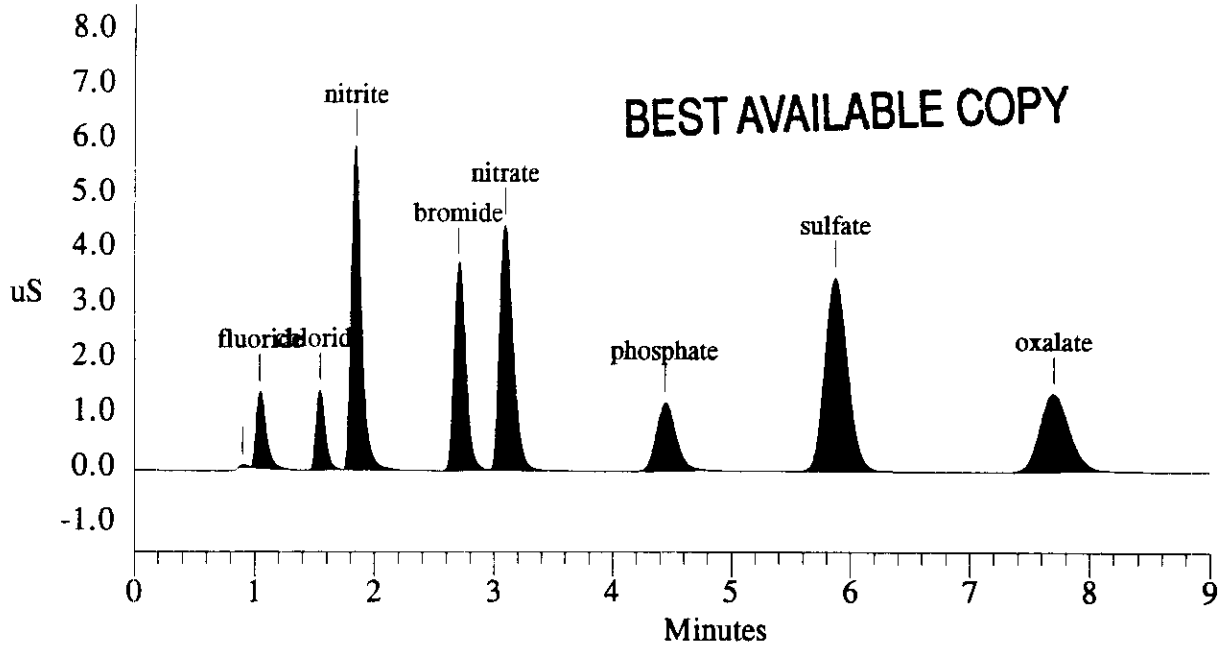
9/21/95

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.04	fluoride	61.063	1375	7680	2	-1.89
3	1.54	chloride	77.891	1438	7424	1	1.32
4	1.84	nitrite	536.813	5902	34297	1	1.10
5	2.70	bromide	579.321	3738	24776	1	0.00
6	3.09	nitrate	619.646	4465	34231	1	0.32
7	4.44	phosphate	564.647	1231	14127	1	-0.89
8	5.87	sulfate	646.614	3529	46279	1	-0.68
9	7.70	oxalate	501.322	1418	24263	1	-1.03
		Totals	3587.316	23096	193076		

File: 95092081.D19 Sample: 106N9-D STD



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WKO-CD-WM-DP-144, REV. 1

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 49 TO 61.

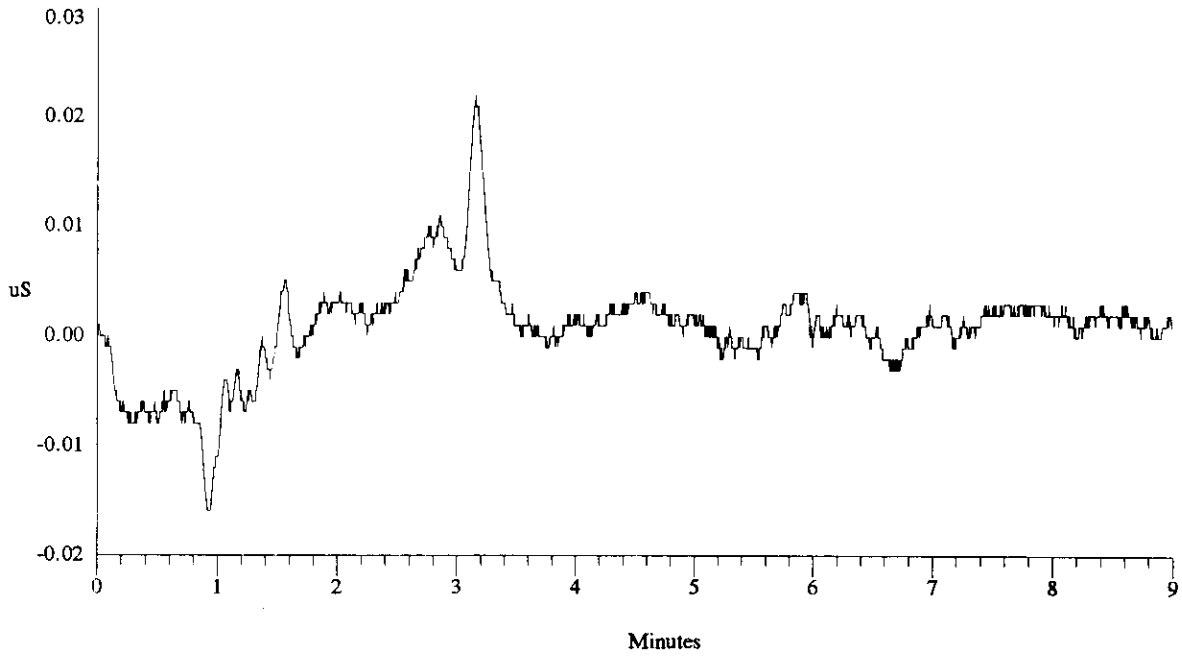
```
==============================================================================
| Sample Name: INSTR BLANK                      Date: 09/20/1995 07:10:37      |
| Data File  : C:\DX\DATA\95092081.D01                                         |
| Method     : C:\DX\METHOD\KIT.MET                                            |
| ACI Address: 1  System: 1  Inject#: 1                   Detector:CDM-1       |
| Analyst    :                Column: AG4A/AS4A anion column/SRS               |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

File: 95092081.D01 Sample: INSTR BLANK



WHG-CD-WM-DP-144, REV. 1

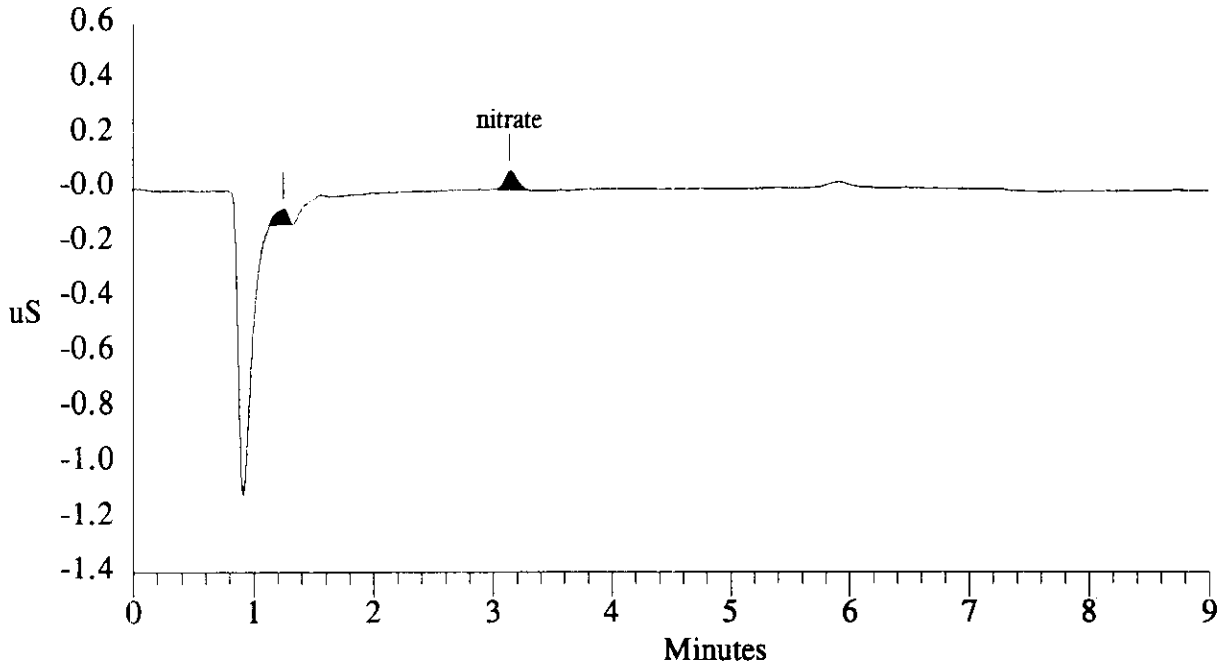
```
==============================================================================
| Sample Name: PREP BLANK                    Date: 09/20/1995 07:40:58        |
| Data File  : C:\DX\DATA\95092081.D02                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 2                   Detector:CDM-1      |
| Analyst    :                Column: AG4A/AS4A anion column/SRS              |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	2700	5Hz	0.00	9.00		200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.25		0.000	55	405	1	
2	3.14	nitrate	0.095	66	481	1	1.95
		Totals	0.095	122	886		

File: 95092081.D02 Sample: PREP BLANK



WHC-CD-WM-DP-144, REV. 1

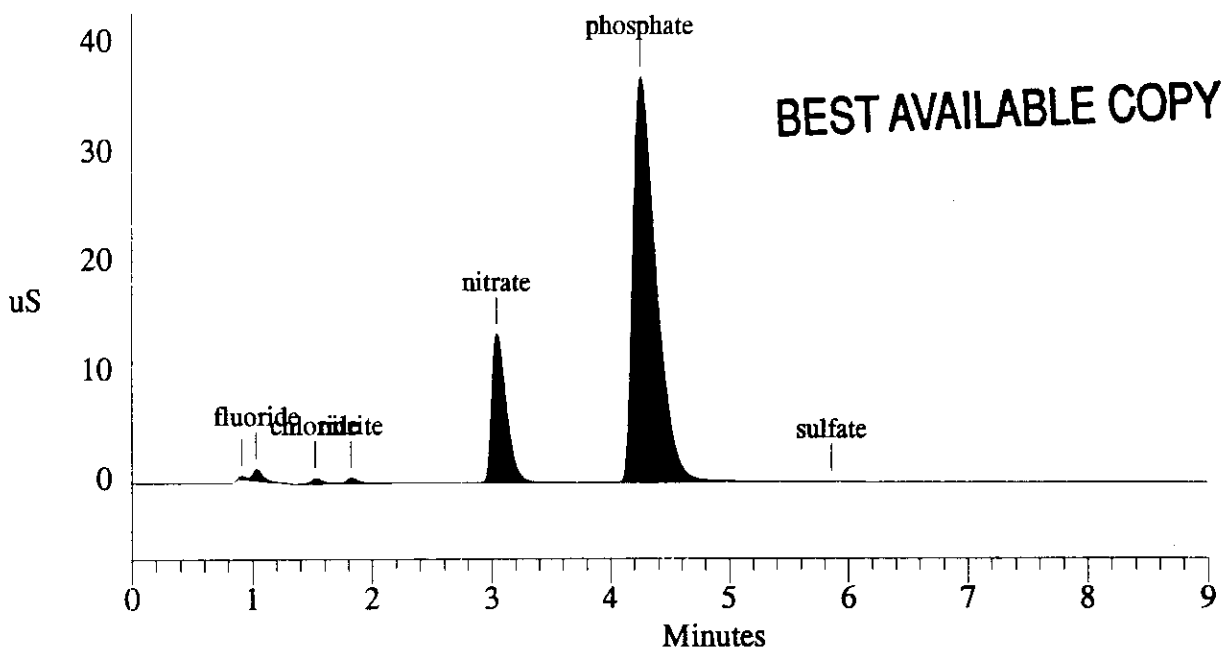
```
==============================================================================
| Sample Name: S95T001613                        Date: 09/20/1995 08:35:29    |
| Data File  : C:\DX\DATA\95092081.D05                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 5                    Detector:CDM-1     |
| Analyst    :                 Column: AG4A/AS4A anion column/SRS            |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	21	2700	5Hz	0.00	9.00		200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	224	914	2	
2	1.03	fluoride	9.800	997	5890	2	-2.83
3	1.52	chloride	5.897	475	2907	1	0.00
4	1.82	nitrite	9.572	417	2561	1	0.00
5	3.04	nitrate	410.101	13546	113943	1	-1.30
6	4.25	phosphate	1200.021	37041	498757	1	-5.13
7	5.86	sulfate	2.403	40	470	1	-0.85
		Totals	1637.794	52739	625442		

File: 95092081.D05 Sample: S95T001613



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WHG-SD-WM-DP-144, REV. 1

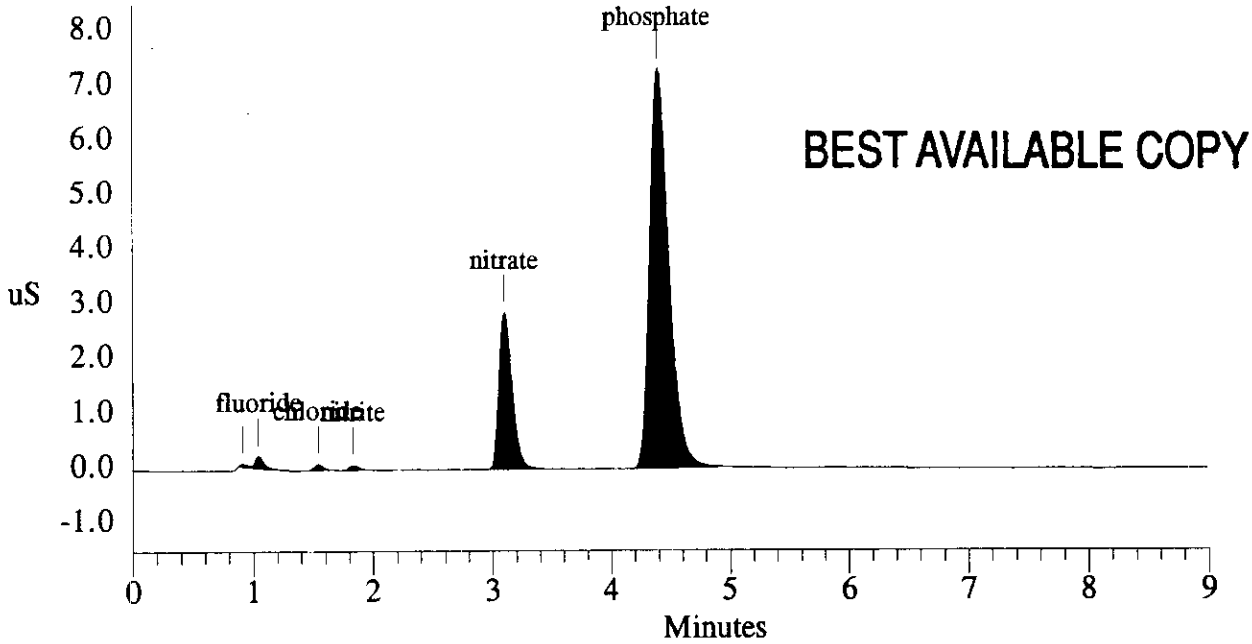
Sample Name: S95T001613 ~~DUP~~ EC 9-20-95 Date: 09/20/1995 09:03:39
Data File : C:\DX\DATA\95092081.D07
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 7 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	2700	5Hz	0.00	9.00		200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	54	230	2	
2	1.04	fluoride	10.208	219	1218	2	-1.89
3	1.54	chloride	3.026	117	630	1	1.32
4	1.83	nitrite	14.208	92	534	1	0.55
5	3.10	nitrate	395.661	2857	21696	1	0.65
6	4.39	phosphate	2905.221	7298	82799	1	-2.01
		Totals	3328.324	10637	107108		

File: 95092081.D07 Sample: S95T001613 ~~DUP~~ EC 9-20-95



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DP-144, REV. 1

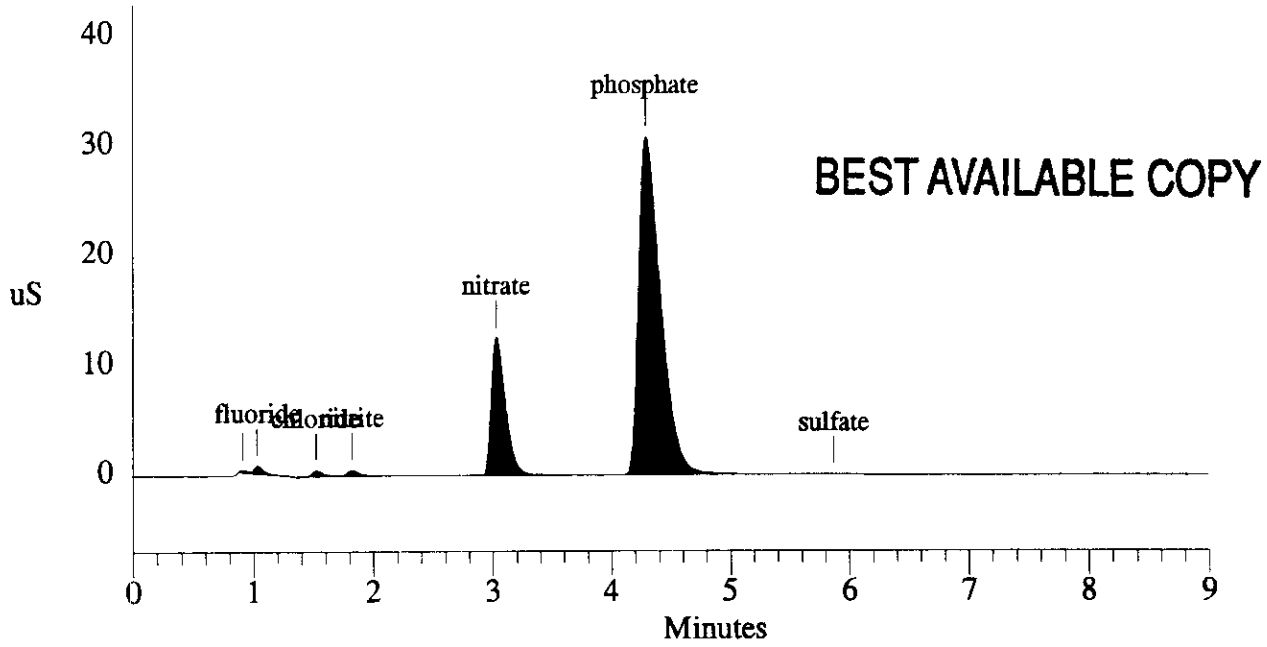
```
==============================================================================
| Sample Name: S95T001613 DUP                    Date: 09/20/1995 10:33:37    |
| Data File  : C:\DX\DATA\95092081.D11                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 11                   Detector:CDM-1     |
| Analyst    :                 Column: AG4A/AS4A anion column/SRS            |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	198	812	2	
2	1.03	fluoride	7.231	697	4315	2	-2.83
3	1.52	chloride	6.034	505	2966	1	0.00
4	1.82	nitrite	10.965	497	2988	1	0.00
5	3.03	nitrate	375.631	12508	103768	1	-1.62
6	4.29	phosphate	1425.026	30877	399058	1	-4.24
7	5.87	sulfate	1.915	26	304	1	-0.68
		Totals	1826.802	45309	514212		

File: 95092081.D11 Sample: S95T001613 DUP



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DOCUMENT DP-144, REV 1

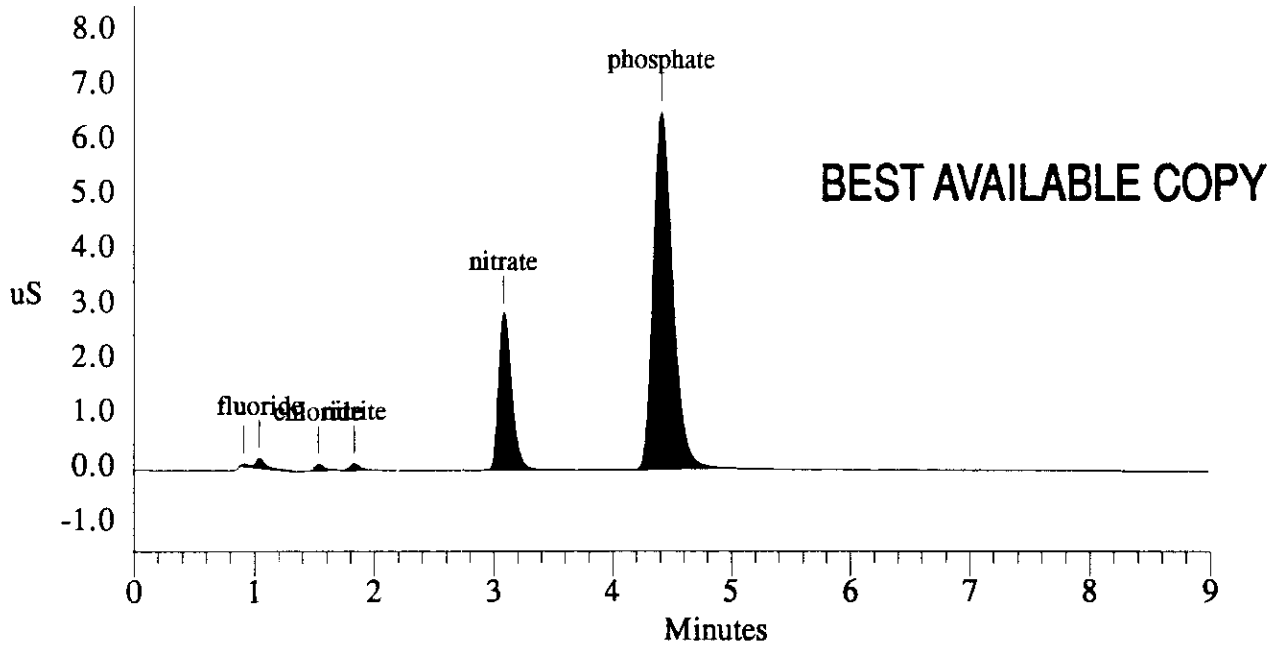
```
==============================================================================
| Sample Name: S95T001613 DUP                    Date: 09/20/1995 10:23:43    |
| Data File  : C:\DX\DATA\95092081.D10                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 10                  Detector:CDM-1      |
| Analyst    :                 Column: AG4A/AS4A anion column/SRS            |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	51	224	2	
2	1.04	fluoride	9.065	178	1076	2	-1.89
3	1.53	chloride	2.939	120	622	1	0.66
4	1.83	nitrite	15.958	117	646	1	0.55
5	3.08	nitrate	395.393	2859	21681	1	0.00
6	4.41	phosphate	2647.543	6559	74406	1	-1.56
		Totals	3070.898	9884	98654		

File: 95092081.D10 Sample: S95T001613 DUP



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144, REV. 1

Data Reprocessed On 09/21/1995 09:31:36

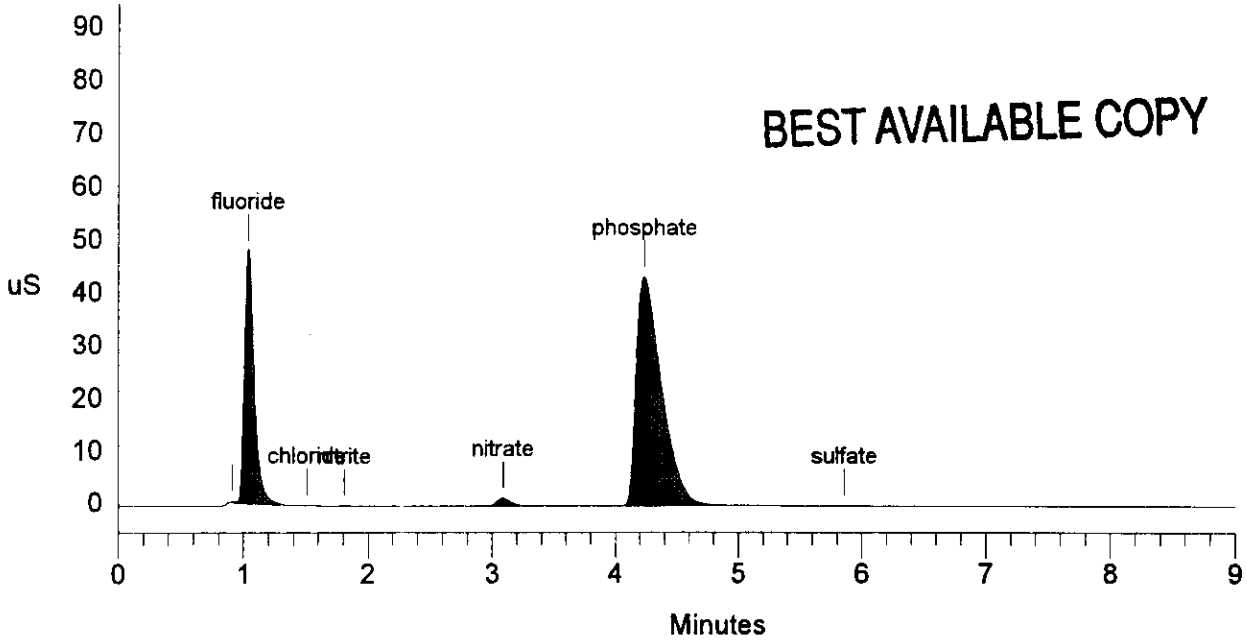
Sample Name: S95T001620	Date: 09/20/1995 11:35:33
Data File : C:\DX\DATA\95092081.D16	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 16	Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	21	2700	5Hz	0.00	9.00		200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	204	594	2	
2	1.04	fluoride	163.154	47837	259906	2	-1.89
3	1.51	chloride	-0.308	45	228	1	-0.66
4	1.81	nitrite	2.363	58	353	1	-0.55
5	3.09	nitrate	43.920	1508	11501	1	0.32
6	4.24	phosphate	608.049	43551	620932	1	-5.36
7	5.86	sulfate	5.275	105	1447	1	-0.85
		Totals	822.452	93308	894961		

File: 95092081.D16 Sample: S95T001620



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144, REV. 1

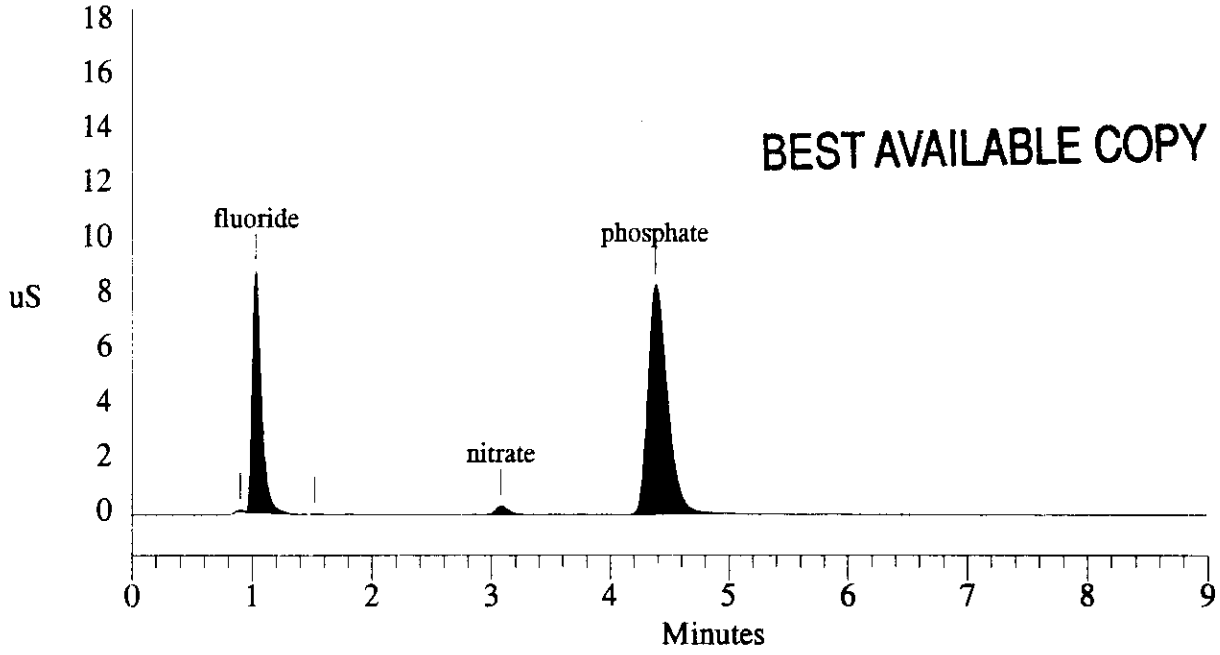
```
==============================================================================
| Sample Name: S95T001620                        Date: 09/20/1995 11:07:40    |
| Data File  : C:\DX\DATA\95092081.D14                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 14                  Detector:CDM-1      |
| Analyst    :                Column: AG4A/AS4A anion column/SRS              |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.03	fluoride	328.682	8798	45874	2	-2.83
4	3.08	nitrate	43.271	310	2313	1	0.00
5	4.38	phosphate	3274.979	8376	95321	1	-2.23
		Totals	3646.932	17484	143508		

File: 95092081.D14 Sample: S95T001620



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144, REV. 1

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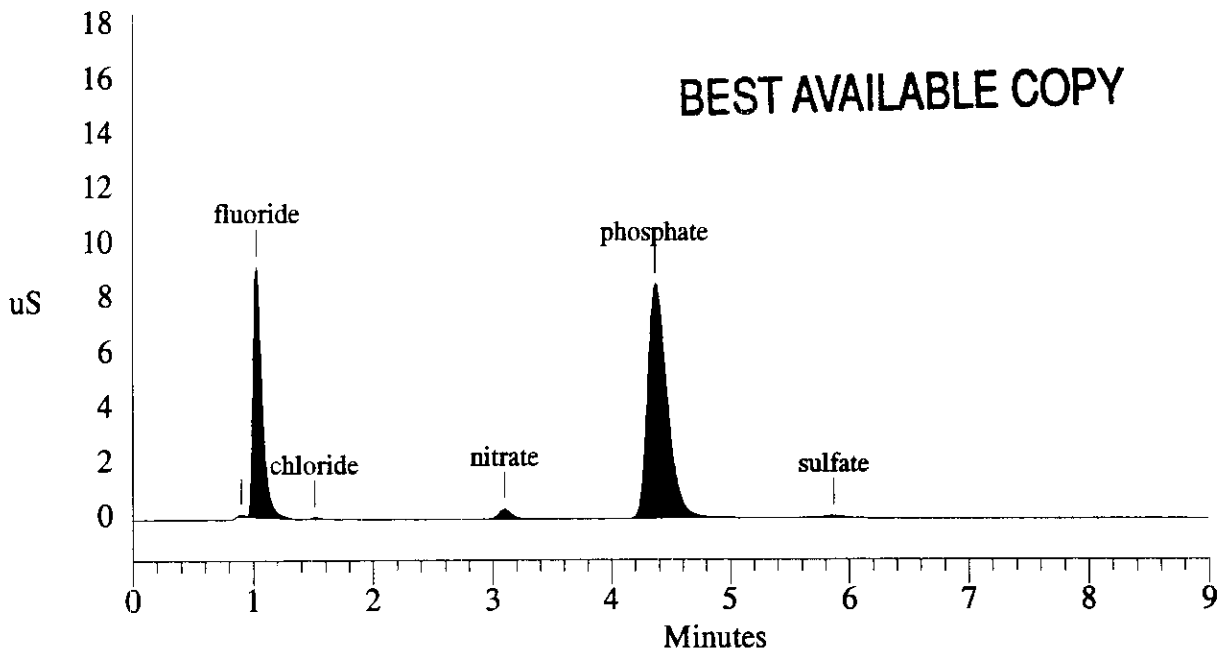
==============================================================================
| Sample Name: S95T001620  DUP                Date: 09/20/1995 12:12:58       |
| Data File  : C:\DX\DATA\95092081.D18                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 18                  Detector:CDM-1      |
| Analyst    :                Column: AG4A/AS4A anion column/SRS              |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	2700	5Hz	0.00	9.00		200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	62	218	2	
2	1.03	fluoride	334.773	9155	46849	2	-2.83
3	1.51	chloride	0.484	74	403	1	-0.66
4	3.10	nitrate	50.349	371	2698	1	0.65
5	4.37	phosphate	3335.018	8585	97413	1	-2.46
6	5.87	sulfate	18.319	79	948	1	-0.68
		Totals	3738.943	18325	148529		

File: 95092081.D18 Sample: S95T001620 DUP



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DI-141, REV. 1

Data Reprocessed On 09/21/1995 09:33:00

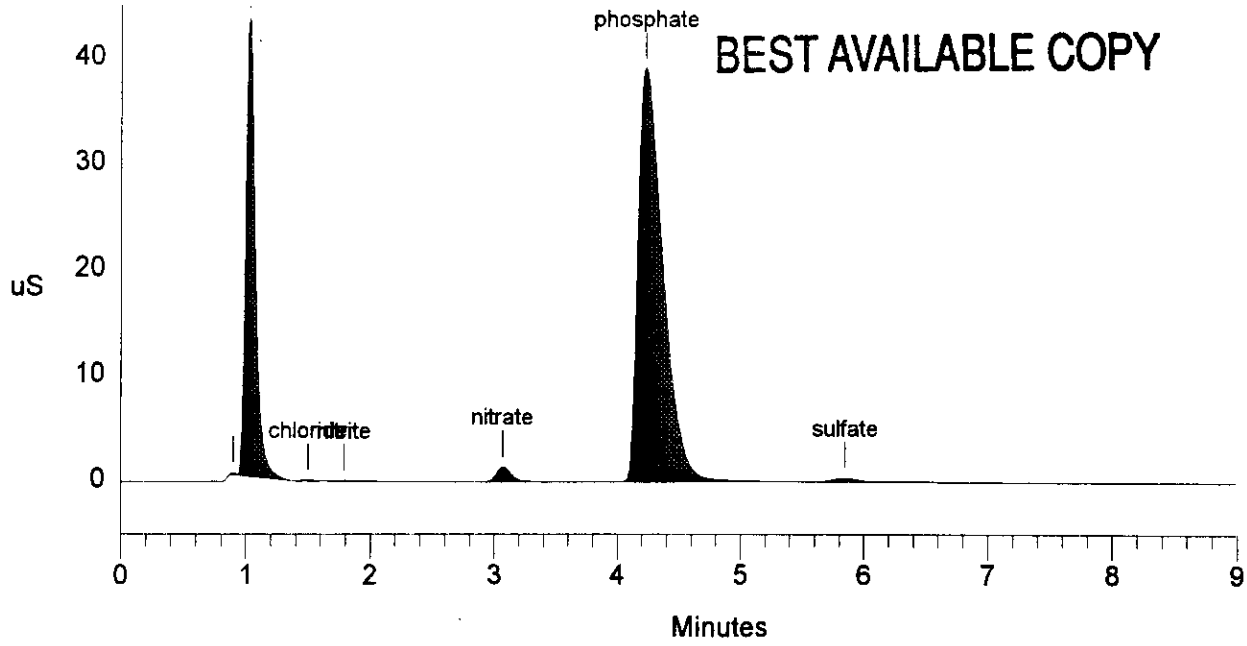
Sample Name: S95T001620 DUP Date: 09/20/1995 11:45:19
Data File : C:\DX\DATA\95092081.D17
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 17 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	148	370	2	
2	1.03	fluoride	172.186	43368	229162	2	-2.83
3	1.50	chloride	0.143	73	421	1	-1.32
4	1.79	nitrite	2.252	51	320	1	-1.65
5	3.07	nitrate	41.056	1388	10744	1	-0.32
6	4.23	phosphate	1032.392	39136	541531	1	-5.58
7	5.85	sulfate	13.630	323	4294	1	-1.02
		Totals	1261.660	84487	786843		

File: 95092081.D17 Sample: S95T001620 DUP



144, REV. 1

Data Reprocessed On 09/25/1995 10:15:23

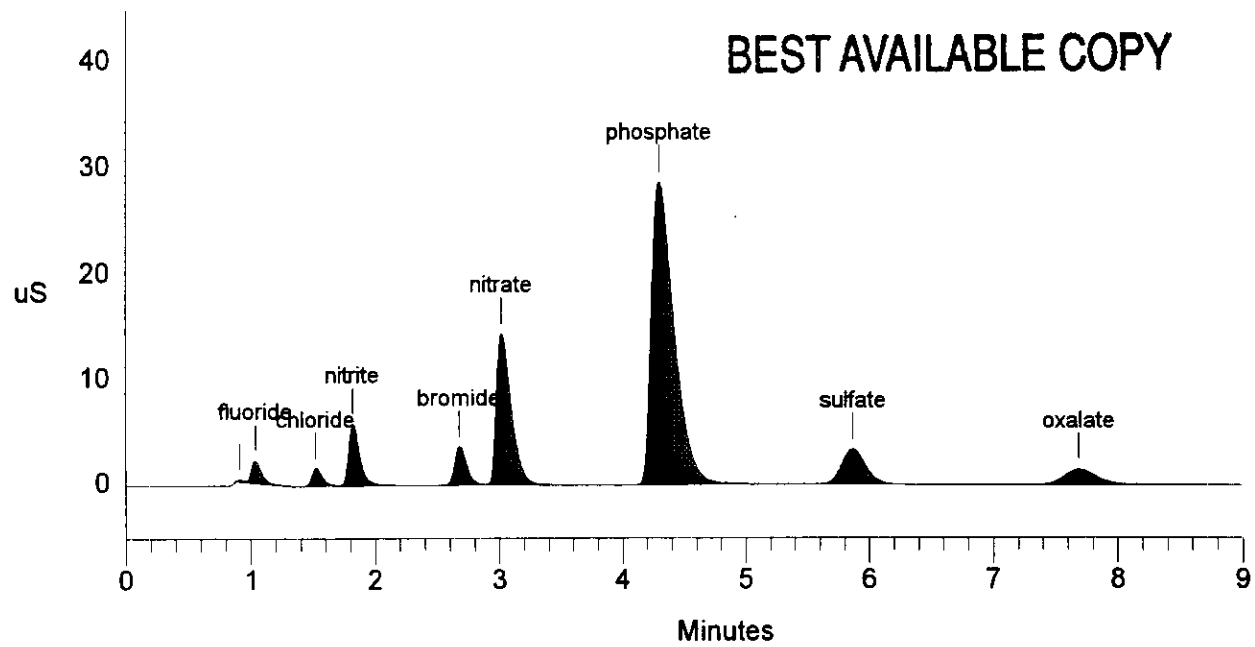
Sample Name: S95T001613 + SPIKE	Date: 09/20/1995 10:54:33
Data File : C:\DX\DATA\95092081.D13	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 13	Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	21	2700	5Hz	0.00	9.00		200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	192	714	2	
2	1.04	fluoride	19.958	2157	12241	2	-1.89
3	1.52	chloride	20.592	1649	9381	1	0.00
4	1.82	nitrite	115.172	5822	35420	1	0.00
5	2.68	bromide	116.395	3670	23904	1	-0.74
6	3.02	nitrate	428.145	14455	119320	1	-1.95
7	4.30	phosphate	1447.569	28783	368462	1	-4.02
8	5.87	sulfate	130.956	3386	45044	1	-0.68
9	7.69	oxalate	108.853	1451	25396	1	-1.16
		Totals	2387.640	61565	639883		

File: 95092081.D13 Sample: S95T001613 + SPIKE



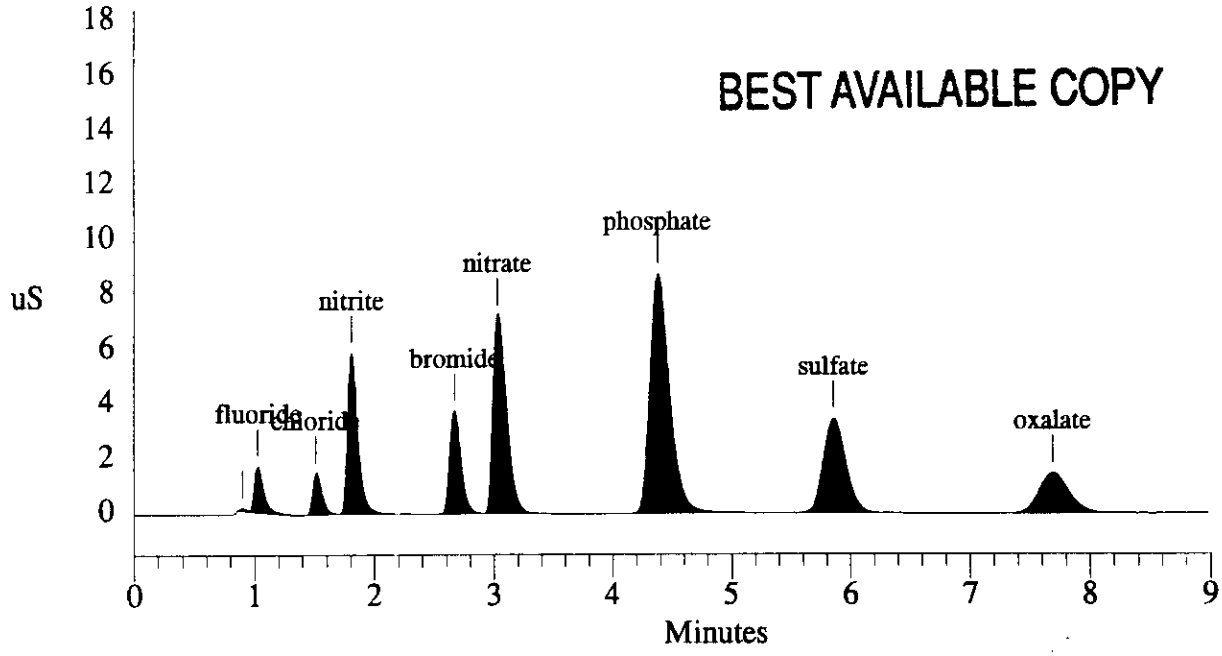
```
==============================================================================
| Sample Name: S95T001613 + SPIKE            Date: 09/20/1995 10:44:48        |
| Data File  : C:\DX\DATA\95092081.D12                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 12                  Detector:CDM-1      |
| Analyst    :                Column: AG4A/AS4A anion column/SRS              |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	81	291	2	
2	1.03	fluoride	70.500	1670	8902	2	-2.83
3	1.51	chloride	87.119	1510	8276	1	-0.66
4	1.81	nitrite	547.002	5903	34965	1	-0.55
5	2.67	bromide	575.561	3787	24608	1	-1.11
6	3.03	nitrate	1037.660	7255	58098	1	-1.62
7	4.38	phosphate	3402.685	8798	99790	1	-2.23
8	5.86	sulfate	641.619	3489	45911	1	-0.85
9	7.69	oxalate	537.762	1500	26123	1	-1.16
		Totals	6899.909	33993	306965		

File: 95092081.D12 Sample: S95T001613 + SPIKE



144

LABCORE Data Entry Template for Worklist# 2601

Analyst: EHC **Instrument:** IC01 IC-01 **Book #** 106N9D

Method: LA-533-105 Rev/Mod D-1

Worklist Comment: T-109 IC for 1631. JMF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP				@IC-01	F-02	SOLID		<.062	N/A	ug/g
		1	BLNK-PREP				@IC-01	CL-02	SOLID		<.083	N/A	ug/g
		1	BLNK-PREP				@IC-01	NO2-02	SOLID		<.547	N/A	ug/g
		1	BLNK-PREP				@IC-01	BR-02	SOLID		<.632	N/A	ug/g
		1	BLNK-PREP				@IC-01	NO3-02	SOLID		<.699	N/A	ug/g
		1	BLNK-PREP				@IC-01	PO4-02	SOLID		<.594	N/A	ug/g
		1	BLNK-PREP				@IC-01	SO4-02	SOLID		<.678	N/A	ug/g
		1	BLNK-PREP				@IC-01	OXALATE2	SOLID		<.496	N/A	ug/g
		2	STD				@IC-01	F-02	SOLID		64.12	N/A	ug/g
		2	STD				@IC-01	CL-02	SOLID		82.53	N/A	ug/g
		2	STD				@IC-01	NO2-02	SOLID		507.9	N/A	ug/g
		2	STD				@IC-01	BR-02	SOLID		621.9	N/A	ug/g
		2	STD				@IC-01	NO3-02	SOLID		670.9	N/A	ug/g
		2	STD				@IC-01	PO4-02	SOLID		609.8	N/A	ug/g
		2	STD				@IC-01	SO4-02	SOLID		658.3	N/A	ug/g
		2	STD				@IC-01	OXALATE2	SOLID		508	N/A	ug/g
95000121	T-109	3	SAMPLE	S95T001631	0	W	@IC-01	F-02	SOLID	N/A	2.31e4	4.752e2	ug/g
95000121	T-109	3	SAMPLE	S95T001631	0	W	@IC-01	CL-02	SOLID	N/A	<1.32e2	1.32e2	ug/g

Data Entry Comments:

	Sample	Duplicate
S95T 001631	13.1710 g/L	13.2990 g/L

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2601

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
95000121	T-109	3 SAMPLE	S95T001631	0	W	@IC-01	NO2-02	SOLID	N/A	<8.72e2	8.72e3	ug/g
95000121	T-109	3 SAMPLE	S95T001631	0	W	@IC-01	BR-02	SOLID	N/A	<1.01e3	1.01e3	ug/g
95000121	T-109	3 SAMPLE	S95T001631	0	W	@IC-01	NO3-02	SOLID	N/A	3.78e3	1.11e3	ug/g
95000121	T-109	3 SAMPLE	S95T001631	0	W	@IC-01	PO4-02	SOLID	N/A	2.66e5	4.57e3	ug/g
95000121	T-109	3 SAMPLE	S95T001631	0	W	@IC-01	SO4-02	SOLID	N/A	<1.08e3	1.08e3	ug/g
95000121	T-109	3 SAMPLE	S95T001631	0	W	@IC-01	OXALATE2	SOLID	N/A	<7.91e2	7.91e2	ug/g
95000121	T-109	4 DUP	S95T001631	0	W	@IC-01	F-02	SOLID	2.31e4	2.29e4	N/A	ug/g
95000121	T-109	4 DUP	S95T001631	0	W	@IC-01	CL-02	SOLID	<1.32e2	<1.32e2	N/A	ug/g
95000121	T-109	4 DUP	S95T001631	0	W	@IC-01	NO2-02	SOLID	<8.72e2	<8.72e2	N/A	ug/g
95000121	T-109	4 DUP	S95T001631	0	W	@IC-01	BR-02	SOLID	<1.01e3	<1.01e3	N/A	ug/g
95000121	T-109	4 DUP	S95T001631	0	W	@IC-01	NO3-02	SOLID	3.78e3	2.97e3	N/A	ug/g
95000121	T-109	4 DUP	S95T001631	0	W	@IC-01	PO4-02	SOLID	2.66e5	2.71e5	N/A	ug/g
95000121	T-109	4 DUP	S95T001631	0	W	@IC-01	SO4-02	SOLID	<1.08e3	<1.08e3	N/A	ug/g
95000121	T-109	4 DUP	S95T001631	0	W	@IC-01	OXALATE2	SOLID	<7.91e2	<7.91e2	N/A	ug/g

Final page for worklist # 2601

Joann Luge for Ed. Colvin
Analyst Signature Date

originally part of WKL 2956
Verified 10/3/95 J. M. Luge

Thomas D. McKee 9/27/95
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
INORGANIC ANALYTICAL BATCH AND SUMMARY SHEET

ANION ANALYSIS ON DIONEX

SAMPLE #:	S95T001631 &		
TEST CODE:	@IC-01	ANALYST:	Ed Colvin
INSTRUMENT:	IC-01	ANALYSIS DATE:	09/21/95
WORK LIST #:	2601	SAMPLE POINT:	T-109
BATCH ID:		SAMPLE PREP:	water digest

Result Units µg/g	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
106N9D	108.7%	104.5%	95.1%	109.3%	111.7%	104.3%	108.2%	96.6%
S95T001631	2.31E+04	<132.34	<872.14	3.78E+03	2.66E+05	<1081.01	<1007.67	<790.83
S95T001631dup	2.29E+04	<131.06	<863.75	2.97E+03	2.71E+05	<1070.61	<997.97	<783.22
Duplicate 1 RPD	1.0%	N/A	N/A	24.0%	1.8%	N/A	N/A	N/A
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

NARRATIVE: **Analyst Comments:**

Chemist Comments:

Form Completed By:	[signature]	Date:	9/26/95
Chemist Approval:	[signature]	Date:	9/26/95

LAB LEADER INFO	
Method:	La-633-105D-1
Matrix:	solid
Test Code:	@IC-01
Work List #:	2601
Batch #:	
Result Units	
(µg/g or µg/mL):	µg/g
Spike Book Number:	
Enter Spike Sample # (1-4):	
Prepared By:	Jann Frye
Prepared Date:	09/26/95
Chemist:	Jann Frye
Analyst:	Ed Colvin
Analysis Date:	09/21/95
Time Complete:	
Instrument Code:	IC-01
Rerun:	0
Sample Prep:	water digest
Sample Point:	T-109
Sample Type	
STANDARD	106N9D
SAMPLE 1	S95T001631
DUPLICATE 1	S95T001631dup
SAMPLE 2	
DUPLICATE 2	
SAMPLE 3	
DUPLICATE 3	
SAMPLE 4	
DUPLICATE 4	
SPIKE	
SPIKE DUPLICATE	

PRINT

TECH INFO	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Blank Data (µg/mL)	<0.062	<0.083	<0.547	<0.699	<0.596	<0.678	<0.632	<0.496
Standard Data (µg/mL)	64.12	82.53	507.9	670.9	609.8	658.3	621.9	508
Sample 1 Data (µg/mL)	3.05E+02	<.083	<.547	4.99E+01	3.50E+03	<.678	<.632	<.496
Sample 1 Dilution Factor	101	21	21	21	101	21	21	21
Sample 1 Prep DF	13.171	13.171	13.171	13.171	13.171	13.171	13.171	13.171
Duplicate 1 Data (µg/mL)	3.04E+02	<.083	<.547	3.96E+01	3.60E+03	<.678	<.632	<.496
Duplicate 1 Dilution Factor	101	21	21	21	101	21	21	21
Duplicate 1 Prep DF	13.299	13.299	13.299	13.299	13.299	13.299	13.299	13.299
Sample 2 Data (µg/mL)								
Sample 2 Dilution Factor								
Sample 2 Prep DF								
Duplicate 2 Data (µg/mL)								
Duplicate 2 Dilution Factor								
Duplicate 2 Prep DF								
Sample 3 Data (µg/mL)								
Sample 3 Dilution Factor								
Sample 3 Prep DF								
Duplicate 3 Data (µg/mL)								
Duplicate 3 Dilution Factor								
Duplicate 3 Prep DF								
Sample 4 Data (µg/mL)								
Sample 4 Dilution Factor								
Sample 4 Prep DF								
Duplicate 4 Data (µg/mL)								
Duplicate 4 Dilution Factor								
Duplicate 4 Prep DF								
Spike + Sample (µg/mL)								
Spike + Dup (µg/mL)								
Spike Volume (mL)	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Total Volume (mL)	10.10	10.50	10.50	10.50	10.10	10.50	10.50	10.50
Std. Conc. (µg/mL)	59	79	534	614	546	631	575	526
Detection Limit	0.062	0.083	0.547	0.699	0.596	0.678	0.632	0.496
Matrix Detection Limit 1	4.75E+02	1.32E+02	8.72E+02	1.11E+03	4.57E+03	1.08E+03	1.01E+03	7.91E+02
Matrix Detection Limit 2	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
Matrix Detection Limit 3	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
Matrix Detection Limit 4	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

Spike Recovery = [((Spike+Sample)-(Sample)*(Total Volume))/((Spike Vol.)*(Spike Std.)*(Sample DF))]*100%
Note: (For spike recovery when the sample conc. is less than detection limit you do NOT subtract sample conc.)
Duplicate Relative % Difference = ((Sample - Duplicate) / ((Sample + Duplicate) / 2) * 100%)
Less than Values are Calculated from the Detection Limit*Dilution Factor

v RESULTS v	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Standard % Recovery	106.7%	104.5%	95.1%	109.3%	111.7%	104.3%	108.2%	96.6%
Sample 1 in µg/g	2.31E+04	<132.34	<872.14	3.78E+03	2.66E+05	<1081.01	<1007.67	<790.83
Duplicate 1 in µg/g	2.29E+04	<131.06	<863.75	2.97E+03	2.71E+05	<1070.61	<997.97	<783.22
Duplicate 1 RPD	1.0%	N/A	N/A	24.0%	1.8%	N/A	N/A	N/A
ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

Data Entry by: Jann Frye Date: 09/26/95
Approved by: Jann Frye Date: 9/26/95

Form DIONEX.WB1 Rev. 1.3

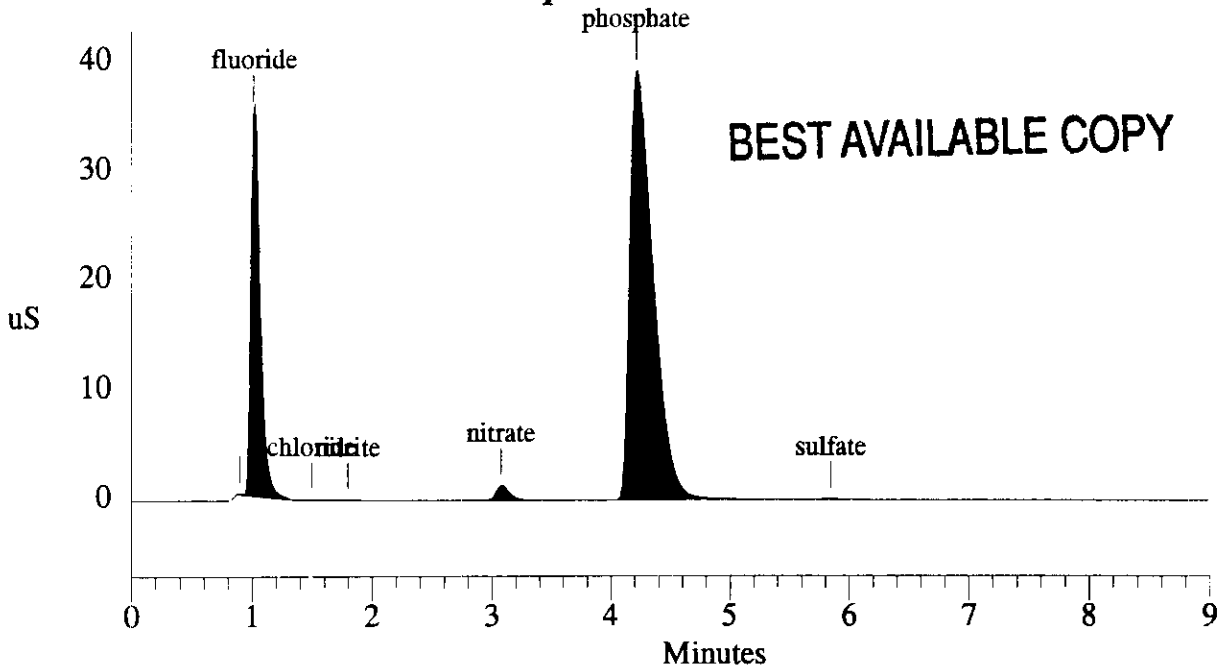
```
==================================================================================
| Sample Name: S95T001631  DUP                    Date: 09/21/1995 11:32:43       |
| Data File  : C:\DX\DATA\95092181.D09                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| ACI Address: 1  System: 1  Inject#: 9                        Detector:CDM-1     |
| Analyst    : CN. Cohn   Column: AG4A/AS4A anion column/SRS                      |
==================================================================================
                                  9/22/95
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	156	408	2	
2	1.02	fluoride	173.020	35137	192475	2	-3.77
3	1.50	chloride	0.018	71	367	1	-1.32
4	1.80	nitrite	2.394	64	363	1	-1.10
5	3.08	nitrate	39.558	1335	10349	1	0.00
6	4.22	phosphate	1048.412	39317	537869	1	-5.80
7	5.85	sulfate	3.845	77	961	1	-1.02
		Totals	1267.246	76156	742792		

File: 95092181.D09 Sample: S95T001631 DUP



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SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 66 TO 71.

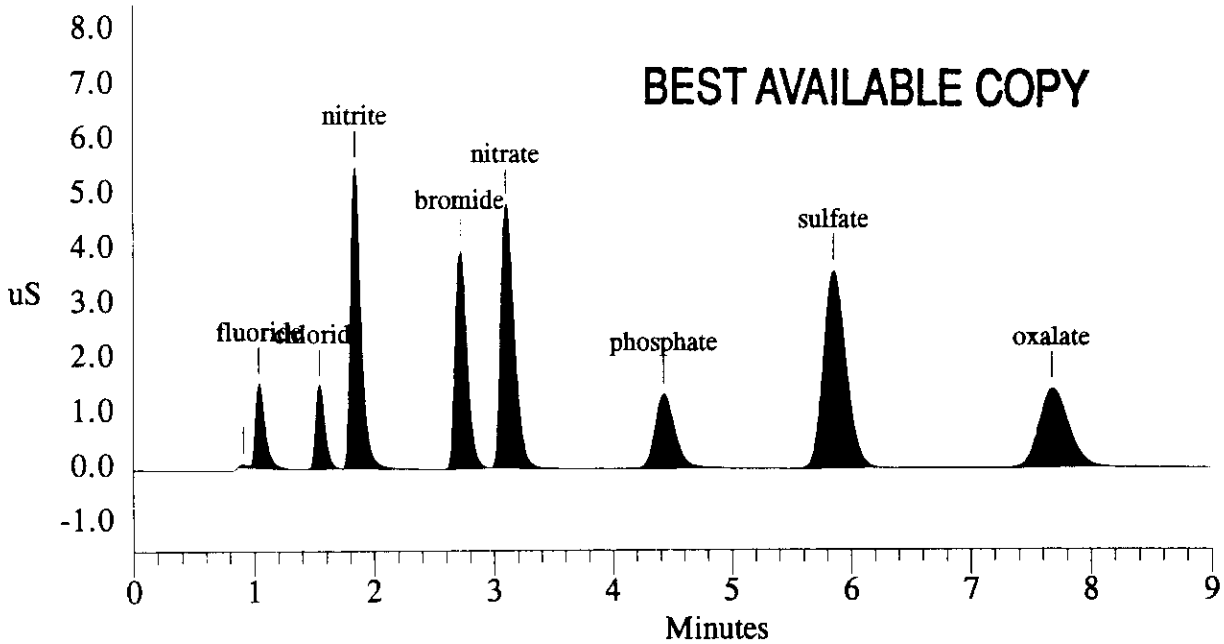
```
==============================================================================
| Sample Name: 106N9-D STD                    Date: 09/21/1995 10:44:45       |
| Data File  : C:\DX\DATA\95092181.D05                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 5                   Detector:CDM-1      |
| Analyst    :                Column: AG4A/AS4A anion column/SRS              |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	2700	5Hz	0.00	9.00		200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.04	fluoride	64.122	1507	8076	2	-1.89
3	1.54	chloride	82.535	1497	7852	1	1.32
4	1.84	nitrite	507.987	5487	32407	1	1.10
5	2.72	bromide	621.967	3954	26685	1	0.74
6	3.10	nitrate	670.949	4784	37126	1	0.65
7	4.43	phosphate	609.893	1348	15321	1	-1.12
8	5.86	sulfate	658.390	3611	47146	1	-0.85
9	7.68	oxalate	508.055	1433	24606	1	-1.29
		Totals	3723.898	23622	199219		

File: 95092181.D05 Sample: 106N9-D STD



WHC-SD-WM-DP-144, REV. 1

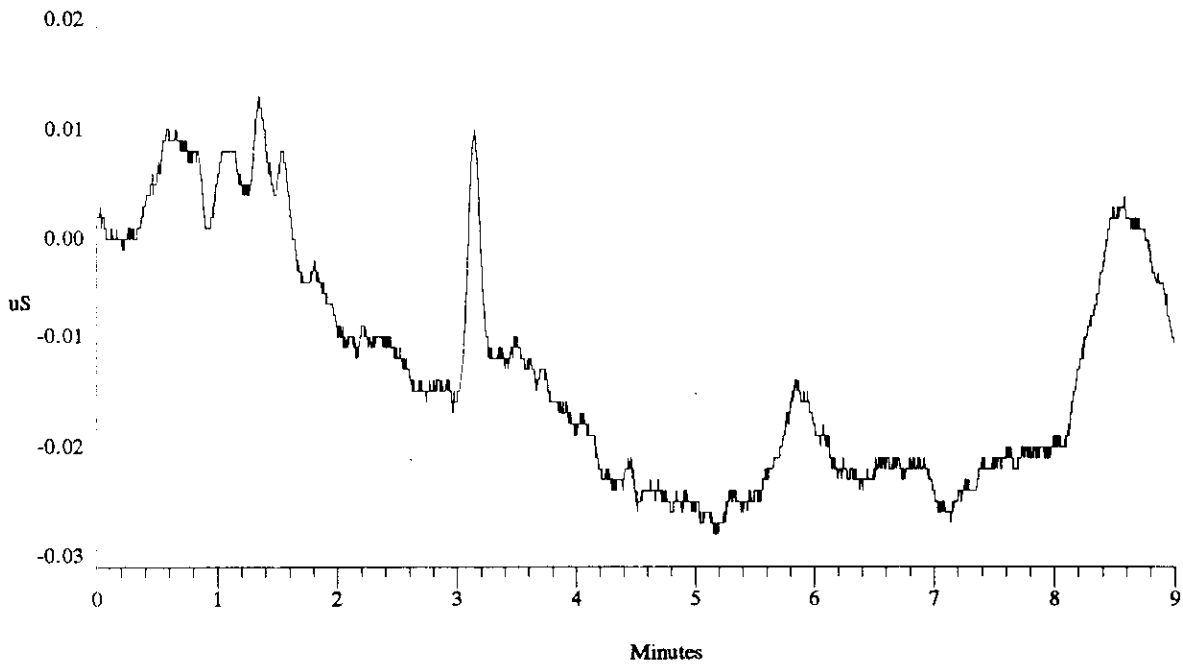
```
==============================================================================
| Sample Name: INSTR BLANK                    Date: 09/21/1995 09:48:03       |
| Data File  : C:\DX\DATA\95092181.D01                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| ACI Address: 1  System: 1  Inject#: 1                   Detector:CDM-1      |
| Analyst    :                Column: AG4A/AS4A anion column/SRS              |
==============================================================================

Calibration  Volume   Dilution Points Rate  Start   Stop Area Reject
-----------------------------------------------------------------------
External          1          1   2700  5Hz   0.00   9.00         200

*************************** Peak Report: All Peaks ****************************

 Pk.    Ret Component          Concentration     Height       Area  Bl. %Delta
 Num   Time Name                     ug/ml                          Code
-----------------------------------------------------------------------------
                              ----------------------------------
                     Totals         0.000          0           0
```

File: 95092181.D01 Sample: INSTR BLANK



WHC-SD-WM-DP-144, REV. 1

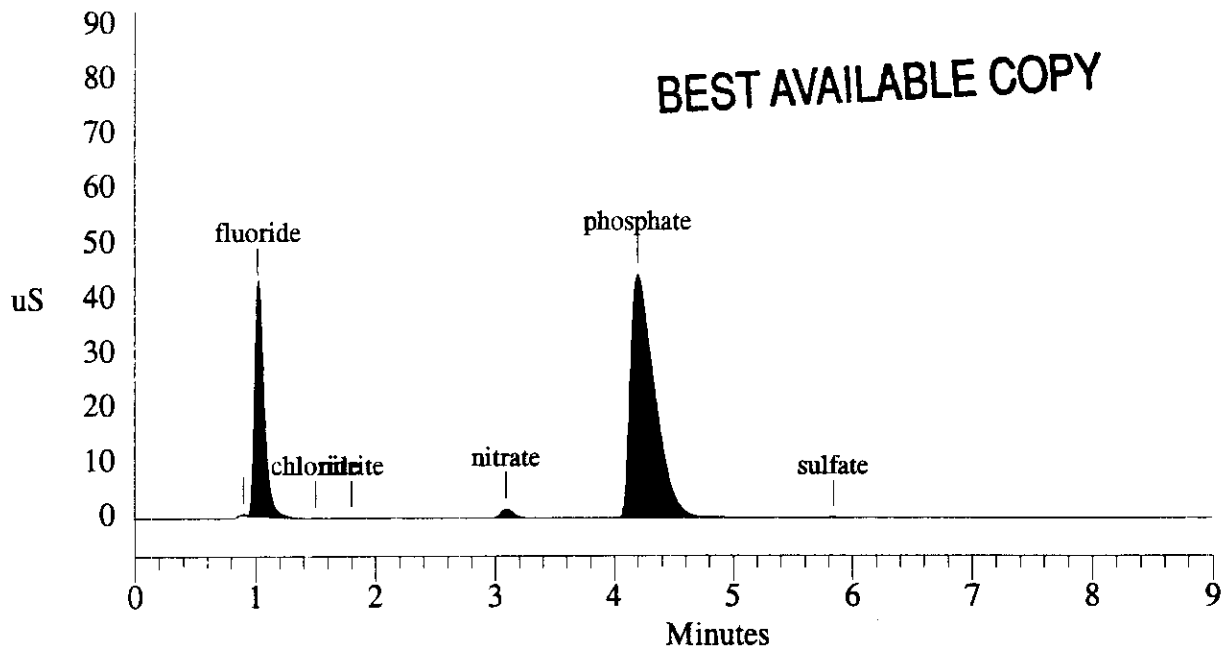
```
==========================================================================
| Sample Name: S95T001631                    Date: 09/21/1995 11:07:46    |
| Data File  : C:\DX\DATA\95092181.D07                                    |
| Method     : C:\DX\METHOD\KIT.MET                                       |
| ACI Address: 1  System: 1  Inject#: 7                Detector:CDM-1     |
| Analyst    :                Column: AG4A/AS4A anion column/SRS          |
==========================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	179	464	2	
2	1.02	fluoride	171.661	42291	232051	2	-3.77
3	1.50	chloride	0.235	88	461	1	-1.32
4	1.80	nitrite	2.732	80	466	1	-1.10
5	3.09	nitrate	49.852	1685	13071	1	0.32
6	4.20	phosphate	532.295	44878	632752	1	-6.25
7	5.84	sulfate	4.620	94	1224	1	-1.18
		Totals	761.394	89295	880489		

File: 95092181.D07 Sample: S95T001631



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WHC-SD-WM-DP-144, REV. 1

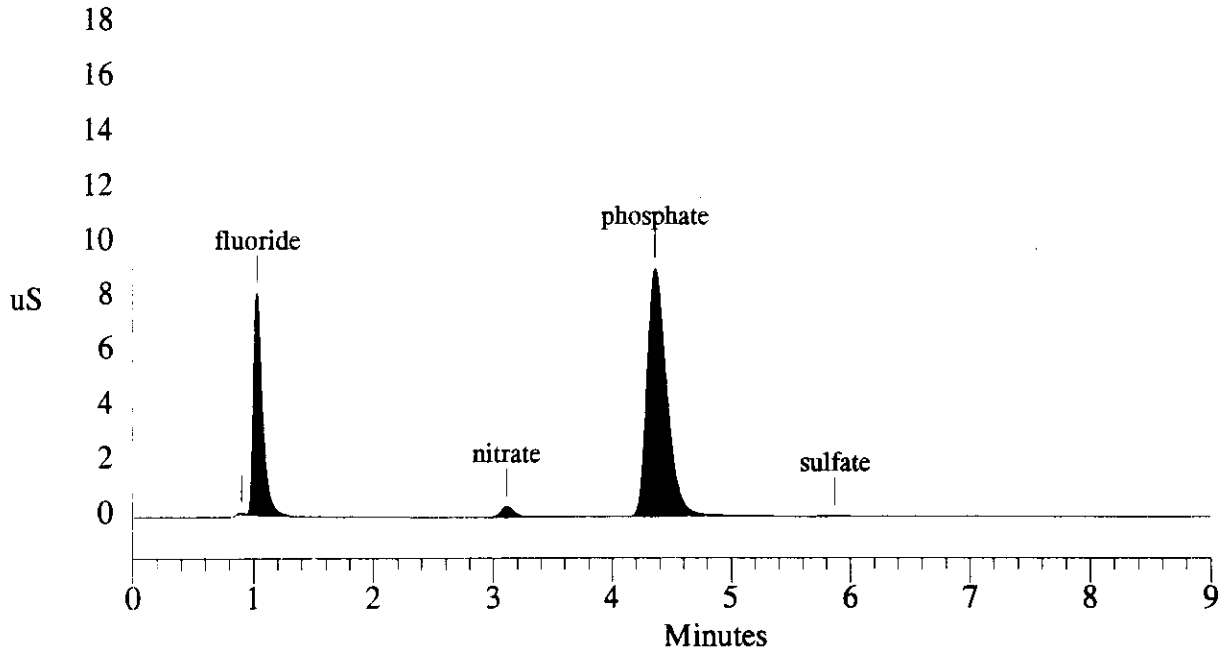
```
==========================================================================
| Sample Name: S95T001631                    Date: 09/21/1995 10:54:35    |
| Data File  : C:\DX\DATA\95092181.D06                                    |
| Method     : C:\DX\METHOD\KIT.MET                                       |
| ACI Address: 1  System: 1  Inject#: 6                  Detector:CDM-1   |
| Analyst    :                Column: AG4A/AS4A anion column/SRS          |
==========================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	2700	5Hz	0.00	9.00		200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.03	fluoride	304.640	8105	42083	2	-2.83
3	3.11	nitrate	52.557	373	2818	1	0.97
4	4.36	phosphate	3504.980	9108	103428	1	-2.68
5	5.87	sulfate	7.902	20	212	1	-0.68
		Totals	3870.080	17606	148541		

File: 95092181.D06 Sample: S95T001631



WHC-CD-V.M-DP-144, REV. 1

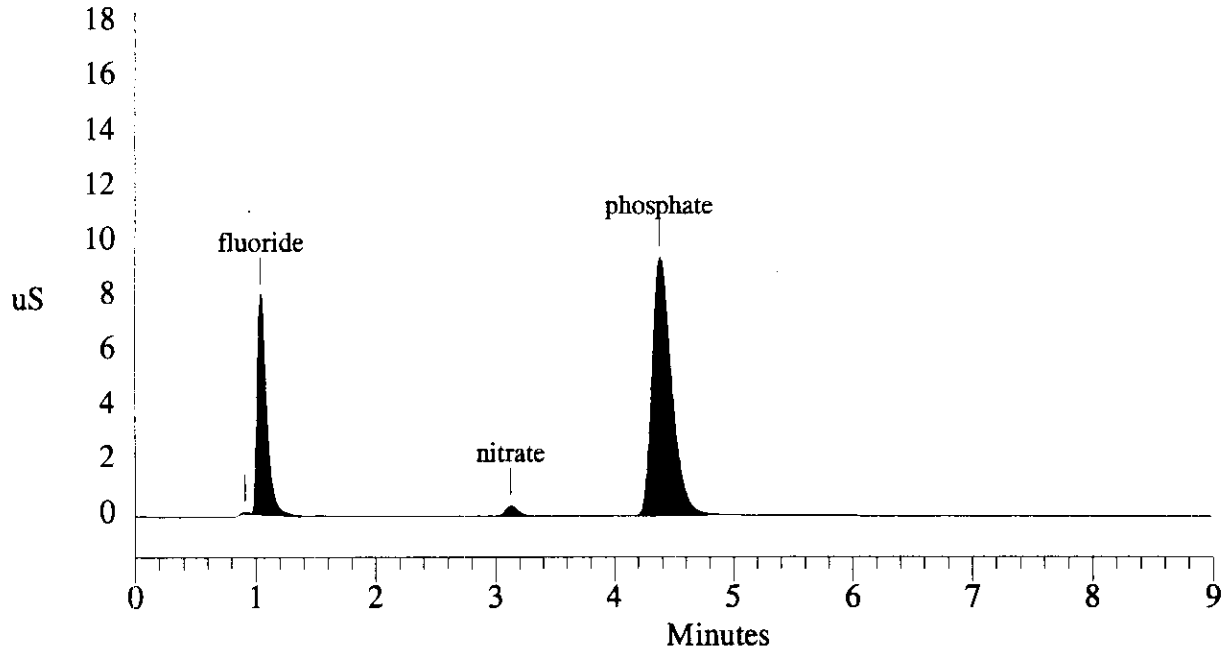
```
==================================================================================
| Sample Name: S95T001631  DUP                    Date: 09/21/1995 11:18:22       |
| Data File  : C:\DX\DATA\95092181.D08                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| ACI Address: 1  System: 1  Inject#: 8                        Detector:CDM-1     |
| Analyst    :                  Column: AG4A/AS4A anion column/SRS               |
==================================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.04	fluoride	304.472	8001	42057	2	-1.89
3	3.13	nitrate	50.433	369	2703	1	1.62
4	4.38	phosphate	3601.671	9441	106917	1	-2.23
		Totals	3956.576	17811	151676		

File: 95092181.D08 Sample: S95T001631 DUP



WWC-SD-WM-DP-144, REV. 1

LABCORE Data Entry Template for Worklist# 2668

Analyst: EHC **Instrument:** IC01 IC02 **Book #** 106N9D

Method: LA-533-105 Rev/Mod D-1 WHO-SD-WM-DP-144, REV. 1

Worklist Comment: T-109 IC.These hve priority over B-104, and BY-110. JMF

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			@IC-01 F-02	SOLID		<.063	N/A	ug/g
		1 BLNK-PREP			@IC-01 CL-02	SOLID		<.084	N/A	ug/g
		1 BLNK-PREP			@IC-01 NO2-02	SOLID		<.554	N/A	ug/g
		1 BLNK-PREP			@IC-01 BR-02	SOLID		<.632	N/A	ug/g
		1 BLNK-PREP			@IC-01 NO3-02	SOLID		<.699	N/A	ug/g
		1 BLNK-PREP			@IC-01 PO4-02	SOLID		<.596	N/A	ug/g
		1 BLNK-PREP			@IC-01 SO4-02	SOLID		<.678	N/A	ug/g
		1 BLNK-PREP			@IC-01 OXALATE2	SOLID		<.526	N/A	ug/g
		2 STD			@IC-01 F-02	SOLID		NA	N/A	ug/g
		2 STD			@IC-01 CL-02	SOLID		NA	N/A	ug/g
		2 STD			@IC-01 NO2-02	SOLID		NA	N/A	ug/g
		2 STD			@IC-01 BR-02	SOLID		NA	N/A	ug/g
		2 STD			@IC-01 NO3-02	SOLID		NA	N/A	ug/g
		2 STD			@IC-01 PO4-02	SOLID		NA	N/A	ug/g
		2 STD			@IC-01 SO4-02	SOLID		NA	N/A	ug/g
		2 STD			@IC-01 OXALATE2	SOLID		NA	N/A	ug/g
95000121	T-109	3 SAMPLE	S95T002176	0 W	@IC-01 F-02	SOLID	N/A	2.35e4	5.12e2	ug/g
95000121	T-109	3 SAMPLE	S95T002176	0 W	@IC-01 CL-02	SOLID	N/A	8.09e1	7.48e1	ug/g

Data Entry Comments:
Enter Inst. Blank in CCB, and standard in CCV. JMF
There will be an RPD override needed on NO3. This is caused by the large PO4 peak interfering with integration of NO3.
JMF 10/9/95

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2668

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	NO2-02	SOLID	N/A	<4.93e2	4.93e2	ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	BR-02	SOLID	N/A	<5.63e2	5.63e2	ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	NO3-02	SOLID	N/A	3.21e3	6.22e2	ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	PO4-02	SOLID	N/A	2.37e5	4.87e3	ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	SO4-02	SOLID	N/A	<6.04e2	6.04e2	ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	OXALATE2	SOLID	N/A	<4.68e2	4.68e2	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	F-02	SOLID	2.35e4	2.45e4	N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	CL-02	SOLID	8.09e1	<7.48e1	N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	NO2-02	SOLID	<4.93e2	<4.93e2	N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	BR-02	SOLID	<5.63e2	<5.63e2	N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	NO3-02	SOLID	3.21e3	2.46e3	N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	PO4-02	SOLID	2.37e5	2.38e5	N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	SO4-02	SOLID	<6.04e2	<6.04e2	N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	OXALATE2	SOLID	<4.68e2	<4.68e2	N/A	ug/g
		5	CCB				@IC-01	F-02	SOLID		<.063	N/A	ug/g
		5	CCB				@IC-01	CL-02	SOLID		<.084	N/A	ug/g
		5	CCB				@IC-01	NO2-02	SOLID		<.554	N/A	ug/g
		5	CCB				@IC-01	BR-02	SOLID		<.632	N/A	ug/g
		5	CCB				@IC-01	NO3-02	SOLID		<.699	N/A	ug/g
		5	CCB				@IC-01	PO4-02	SOLID		<.596	N/A	ug/g
		5	CCB				@IC-01	SO4-02	SOLID		<.678	N/A	ug/g

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.