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Accession #: D195066659

Document #: SD-WM-DP-144

Title/Desc:
FINAL REPORT FOR TANK 241T109 AUGER SAMPLES
95-AUG-040 & 95-AUG-041 [SEC 1 OF 2]

Pages: 101

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
	5. Project Title/No./Work Order No. Tank 241-T-109	6. Bldg./Sys./Fac. No. N/A	7. Approval Designator Q
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-DP-144, Rev. 0	9. Related ECN No(s). N/A	10. Related PO No. N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

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13a. Justification (mark one)

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

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ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) ECN-627027

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

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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	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
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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N/A		

20. Approvals

	Signature	Date		Signature	Date
OPERATIONS AND ENGINEERING			ARCHITECT-ENGINEER		
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Cog. Mgr. J.G. Kristofzski		12-5-95	QA		
QA T.L. Tung	T.L. Tung	12-6-95	Safety		
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Other Program Suppport A.D. Rice	A.D. Rice	12-7-95	Other		
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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

EDT/ECN: ECN-627027 UC: 2070
Org Code: 75310 Charge Code: MD378
B&R Code: EW 3120074 Total Pages: 204

Key Words: Final, Final Report, Tank 241-T-109, Tank T-109, T-109, T Farm, Auger Sample, 95-AUG-040, 95-AUG-041

Abstract: N/A

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RECORD OF REVISION	(1) Document Number WHC-SD-WM-DP-144	Page 1

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

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) Initially released 10/02/95 on EDT-613120.	J.M. Conner	J.G. Kristofzski
1 RS	Incorporate per ECN-627027.	J.M. Conner	J.G. Kristofzski
		[signature]	[signature] 12-7-95

A-7320-005 (08/91) WEF168

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

ANALYTICAL SERVICES

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

DATE PRINTED: DECEMBER 1, 1995

84-7600-076

Hanford Operations and Engineering Contractor for the US Department of Energy

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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	19.57	16.87	18.22	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	46.50	45.44	45.60	45.50	45.55	0
AUG-041, upper half, immediate moisture	S95T001626	n/a	n/a	n/a	49.11	51.00	50.05	48.90	49.20	49.05	0
AUG-041, lower half	S95T001618	n/a	n/a	n/a	50.37	43.76	46.94	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	[illegible]	27,600	251%	23,000	209%	24,000	218%
Nitrate	86,000	38,000	44%	3530	[illegible]	3380	[illegible]	2840	[illegible]
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	%	[illegible]	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	%	[illegible]	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	%	[illegible]	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	%	[illegible]	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	98.18	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	-1.35e-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 ErrX
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	< 1.13E02	<1.13e03	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

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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	<5.44e-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	<5.99e-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	92.39	<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	4.47e+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	Aluminum -ICP-Acid Digest	ug/g	None	None	96.60	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	105.0	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	-2.79e-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	1.65e-01	326.0	324.0	325.5	0.92	103.4	100.0	n/a
S95T002177		A	Cadmium -ICP-Acid Digest	ug/g	None	None	95.60	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.[illegible]e-04	<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	2.65e-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	98.60	1.[illegible]e-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	94.00	-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.[illegible]e-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	101.8	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	96.60	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	47.50	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		105.3	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	633.2	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	-1.90e-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	7.72e+03	n/a	n/a	n/a	n/a	3.77e+03	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	733.8	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	4.76e+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	776.2	<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+05	2.97e+05	3.38e+05	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	98.69	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	553.1	425.3	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	1.98e-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	72.65	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	93.12	6.90e-03	not date	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	3.94e-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	1.50e-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 Fuhrty	8/22/95 0855	
(21) Relinquished By (Sign and PRINT)		(22) Received By (Sign and PRINT)	(23) Date/Time	(24) Receiver Comments
[signature] James Fuhrty		[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?		
☑ Yes ☐ No	☑ Yes ☐ No	Shipment No. ☑ Yes ☐ No	Cask Seal No. ☑ Yes ☐ No	Sample 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

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

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: 15'6

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		EE Dubec EE Dubec	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 Date Consistent with this Record?		
☑ Yes ☐ No	☑ Yes ☐ No	Shipment No. ☑ Yes ☐ No	Cask Seal No. ☑ Yes ☐ No	Sample 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 328 (03/0

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

PHOTOGRAPHS

T-109 95-AUG-040 Riser 6

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

SAMPLE HANDLING

LABCORE Data Entry Template for Worklist# 2096

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

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

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

~~WHO-CD-WM-DP-_____, REV.____~~

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 [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.

LABCORE Data Entry Template for Worklist# 2089

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

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

E. A. C. 8-28-95
Analyst Signature Date

E. A. C. 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/Wt set. 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.

Bertram Griffin II 28 8-31-95

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

LABCORE Data Entry Template for Worklist# 2106

Analyst: YAM **Instrument:** FUS01 AU10616 **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: JAM **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

JAM 9-12-95

Final page for worklist # 2263

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

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

Data Entry Comments: HPC was Jim Evans

Bernard 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: [illegible] **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

[illegible] 9-26-95
Analyst Signature Date

[illegible] 9/27/95
Analyst Signature Date

Data Entry Comments: HPT was Scott Claudsbock

[illegible] 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

Analyst Signature 9-22-95 Date

Analyst Signature 9-22-95 Date

Data Entry Comments:

OTR - 1 mrad β/hr

HPT - Charlene Cooper 9-22-95 Scot Lauderback

NOTE: This is the second wklst 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 1515
Analyst Signature Date

Gary Hammond 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

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

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: [signature] 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: [signature] 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:	[signature]	Date:	10/16/95
Approved by:	[signature]	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	15.0065	
SAMPLE	Gross Weight (W2) grams	15.5012	
Work List	First Residue Weight (W3) grams	15.2657	
2887	Second Residue Weight (W4) grams	15.2656	
Test Code	Percent Difference	0.0007	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	47.63	N/A
LIQUID			
Samples			
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:	[signature]	Date:	10/16/95
Approved by:	[signature]	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: BW 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-5~~ e-3 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. Quarto 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 3mf 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 S 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
Tare Weight (W1) grams		15.1300	0.0000
Gross Weight (W2) grams		15.1302	
First Residue Weight (W3) grams		15.1300	
Second Residue Weight (W4) grams		15.1298	
Percent Difference		0.0009	N/A
QC Check		Pass	N/A
Percent Weight Loss		213.33	N/A

Type	BLANK
Work List	3687
Test Code	WATER-01
Matrix	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
Type	Tare Weight (W1) grams	14.9236	
STANDARD	Gross Weight (W2) grams	16.4452	
Work List	First Residue Weight (W3) grams	15.5342	
3687	Second Residue Weight (W4) grams	15.5315	
Test Code	Percent Difference	0.0169	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	60.04	N/A
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:	Tony Hammitt	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:	[signature]	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	15.0402	
DUPLICATE	Gross Weight (W2) grams	15.4333	
Work List	First Residue Weight (W3) grams	15.2547	
3687	Second Residue Weight (W4) grams	15.2546	
Test Code	Percent Difference	0.0008	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	45.47	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 = 45.5

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

Approved by: [signature] 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		14.9231	
Gross Weight (W2) grams		15.5207	
First Residue Weight (W3) grams		15.2422	
Second Residue Weight (W4) grams		15.2423	
Percent Difference		0.0010	N/A
QC Check		Pass	N/A
Percent Weight Loss		46.59	N/A

Type	SAMPLE
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 = 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
Type	Tare Weight (W1) grams	14.9948	
DUPLICATE	Gross Weight (W2) grams	15.5051	
Work List	First Residue Weight (W3) grams	15.2717	
3687	Second Residue Weight (W4) grams	15.2717	
Test Code	Percent Difference	0.0002	N/A
WATER-01	QC Check	Pass	N/A
Matrix	Percent Weight Loss	45.75	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 = 45.7

Data Entry by: [signature] 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
Tare Weight (W1) grams		15.1625	
Gross Weight (W2) grams		15.6734	
First Residue Weight (W3) grams		15.4237	
Second Residue Weight (W4) grams		15.4236	
Percent Difference		0.0005	N/A
QC Check		Pass	N/A
Percent Weight Loss		48.89	N/A

Type	SAMPLE
Work List	3687
Test Code	WATER-01
Matrix	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: [signature] 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		15.1087	
Gross Weight (W2) grams		15.7503	
First Residue Weight (W3) grams		15.4347	
Second Residue Weight (W4) grams		15.4348	
Percent Difference		0.0006	N/A
QC Check		Pass	N/A
Percent Weight Loss		49.18	N/A

Type	DUPLICATE
Work List	3687
Test Code	WATER-01
Matrix	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: [signature] 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	15.1347	
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

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

Form 564101L1 Rev. 1.2

39.12

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			
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 =	43.7

Data Entry by:	[signature]	Date:	11/29/95
Approved by:	Ron 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
Tare Weight (W1) grams		14.9693	
Gross Weight (W2) grams		15.2927	
First Residue Weight (W3) grams		15.1515	
Second Residue Weight (W4) grams		15.1522	
Percent Difference		0.0042	N/A
QC Check		Pass	N/A
Percent Weight Loss		43.47	N/A

Type	DUPLICATE
Work List	3687
Test Code	WATER-01
Matrix	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: [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	15.0006	
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 Num			
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: [signature] Date: 11/29/95

Approved by: [signature] 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:	Tracy Hamilton	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

Form 564101L1 Rev. 1.2

39,18

LABCORE Data Entry Template for Worklist# 2456

Analyst: EHC **Instrument:** IC01 IC01 **Book #** 10609D

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		<.537	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	N/A	N/A	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		88.1	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 Jan Fuge

Analyst Signature Date 9/27/95

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

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	10.2000g/L	10.5990g/L
	S95T001620	12.0680g/L	11.9880g/L
	S95T001631	13.1710g/L	13.2990g/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:	[signature]	Date:	9/26/95
Chemist Approval:	[signature]	Date:	9/26/95

LAB LEADER INFO	
Method:	La-533-106D-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~~ 9/26/95
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

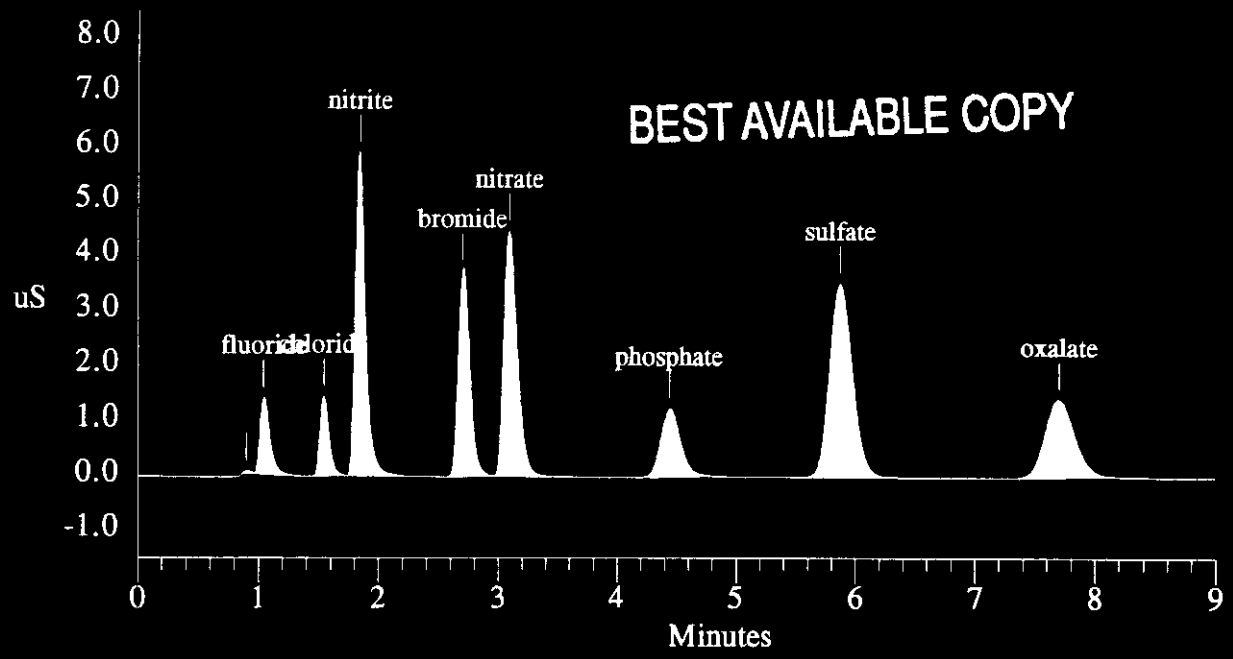
Sample Name: 106N9-D STD Date: 09/20/1995 12:29:41
Data File : C:\DX\DATA\95092081.D19
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 19 Detector:CDM-1
Analyst : [illegible] 9/21/95 Column: AG4A/AS4A anion column/SRS

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

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

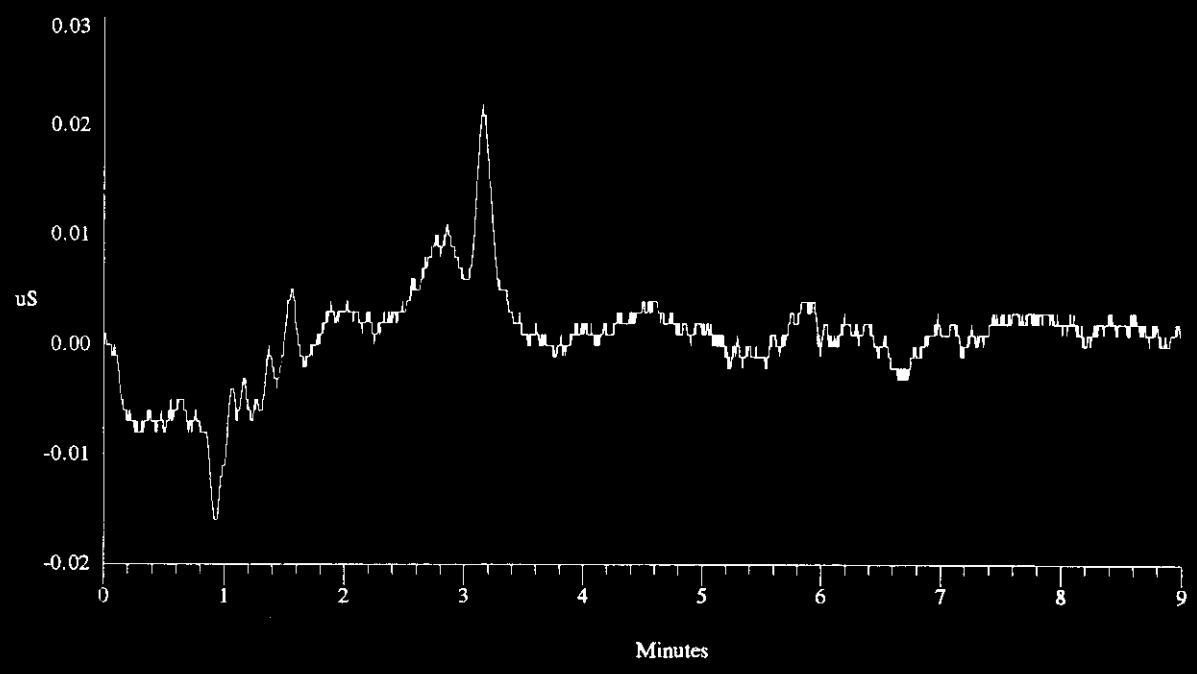
```
==========================================================================
| Sample Name: INSTR BLANK                    Date: 09/20/1995 07:10:37   |
| Data File  : C:\DX\DATA\95092081.D01                                    |
| Method     : C:\DX\METHOD\KIT.MET                                       |
| 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



WQCD-WM-DP-144, REV. 1

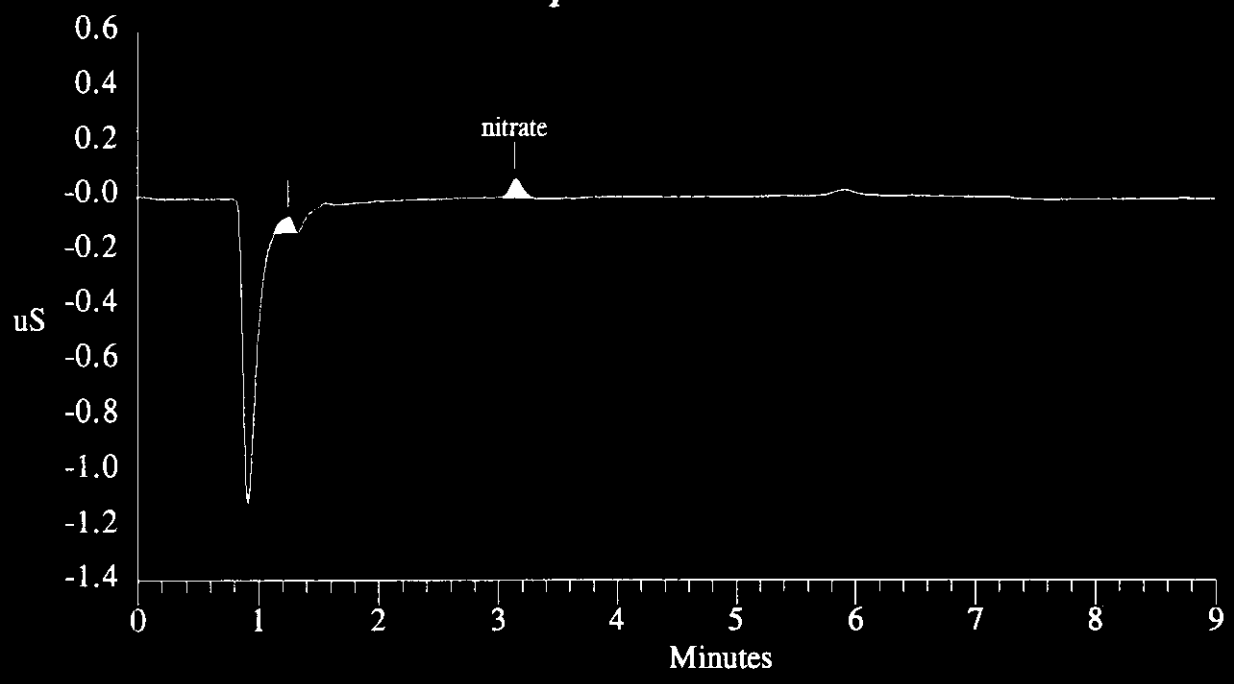
```
==================================================================================
| Sample Name: PREP BLANK                          Date: 09/20/1995 07:40:58      |
| Data File  : C:\DX\DATA\95092081.D02                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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

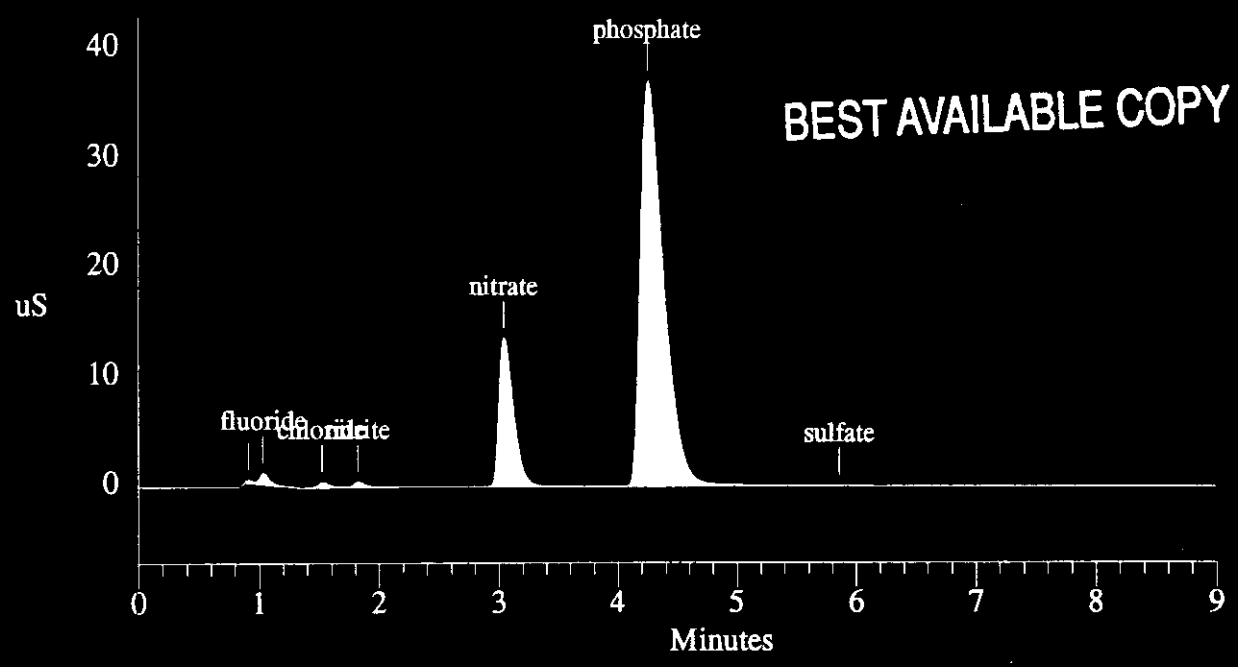
```
==================================================================================
| Sample Name: S95T001613                          Date: 09/20/1995 08:35:29      |
| Data File  : C:\DX\DATA\95092081.D05                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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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WHC-SD-WM-DP-144, REV. 1

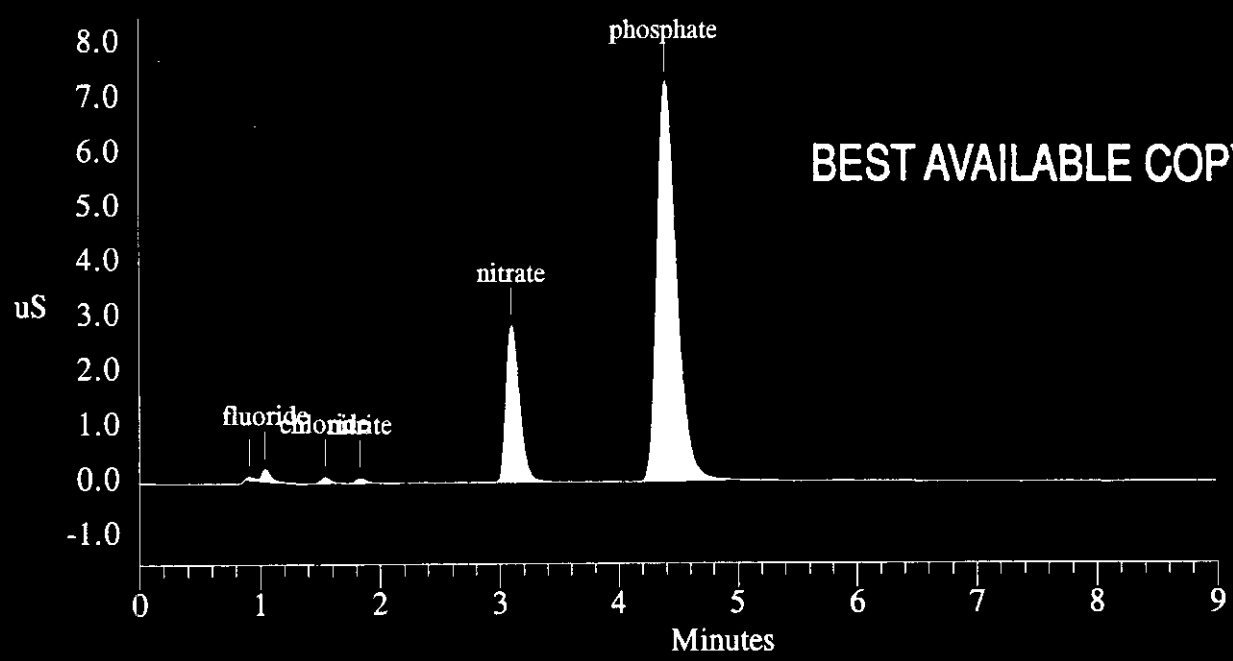
```
==================================================================================
| Sample Name: S95T001613 ~~DUP~~ EE 9-20-95          Date: 09/20/1995 09:03:39   |
| Data File  : C:\DX\DATA\95092081.D07                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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~~ EE 9-20-95



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DP-144, REV. 1

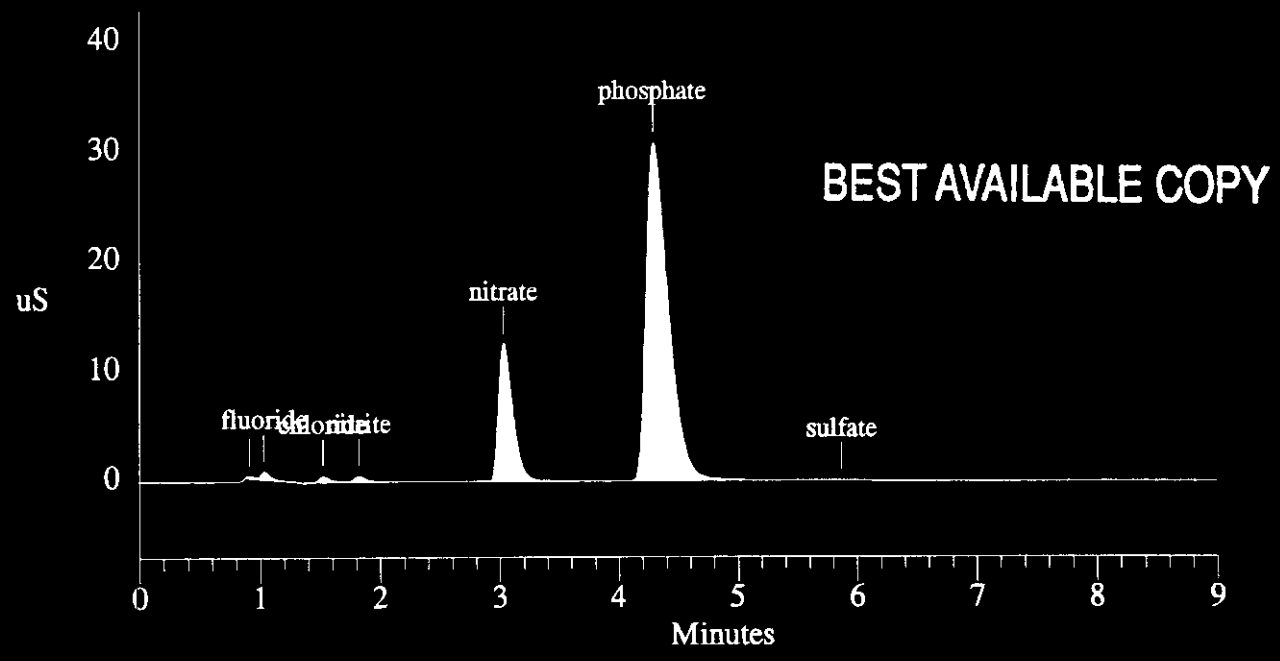
```
==================================================================================
| Sample Name: S95T001613 DUP                    Date: 09/20/1995 10:33:37        |
| Data File  : C:\DX\DATA\95092081.D11                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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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DP-144, REV 1

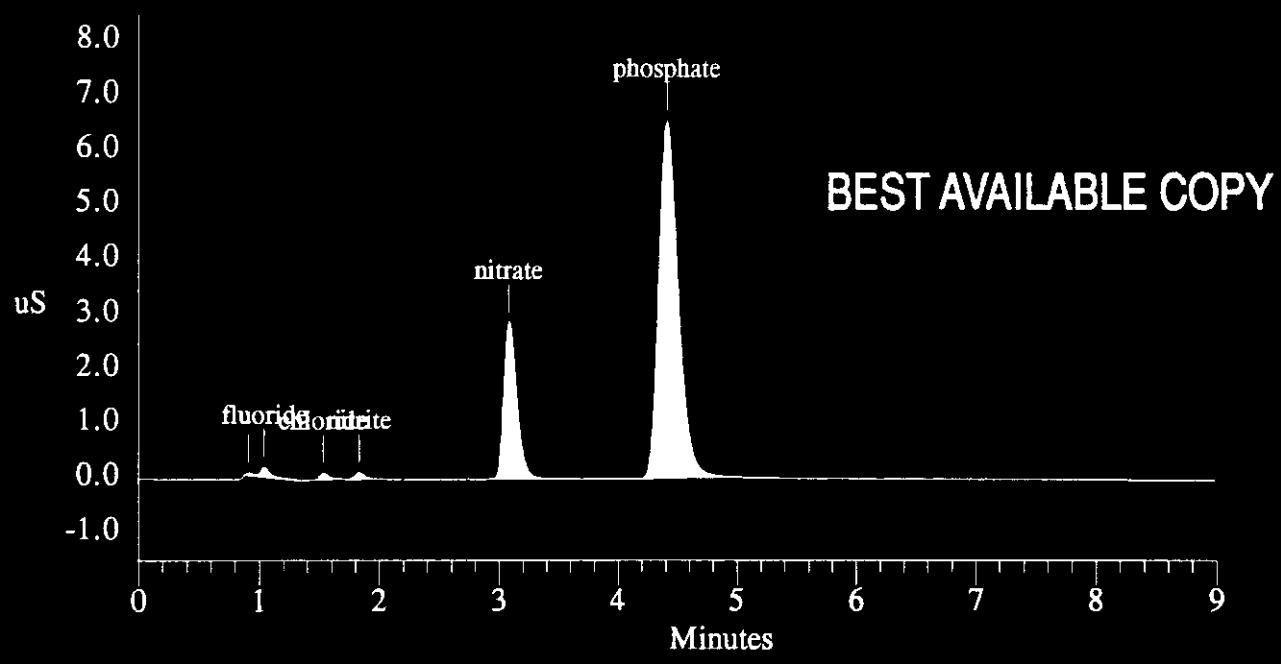
```
==================================================================================
| Sample Name: S95T001613 DUP                    Date: 09/20/1995 10:23:43        |
| Data File  : C:\DX\DATA\95092081.D10                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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

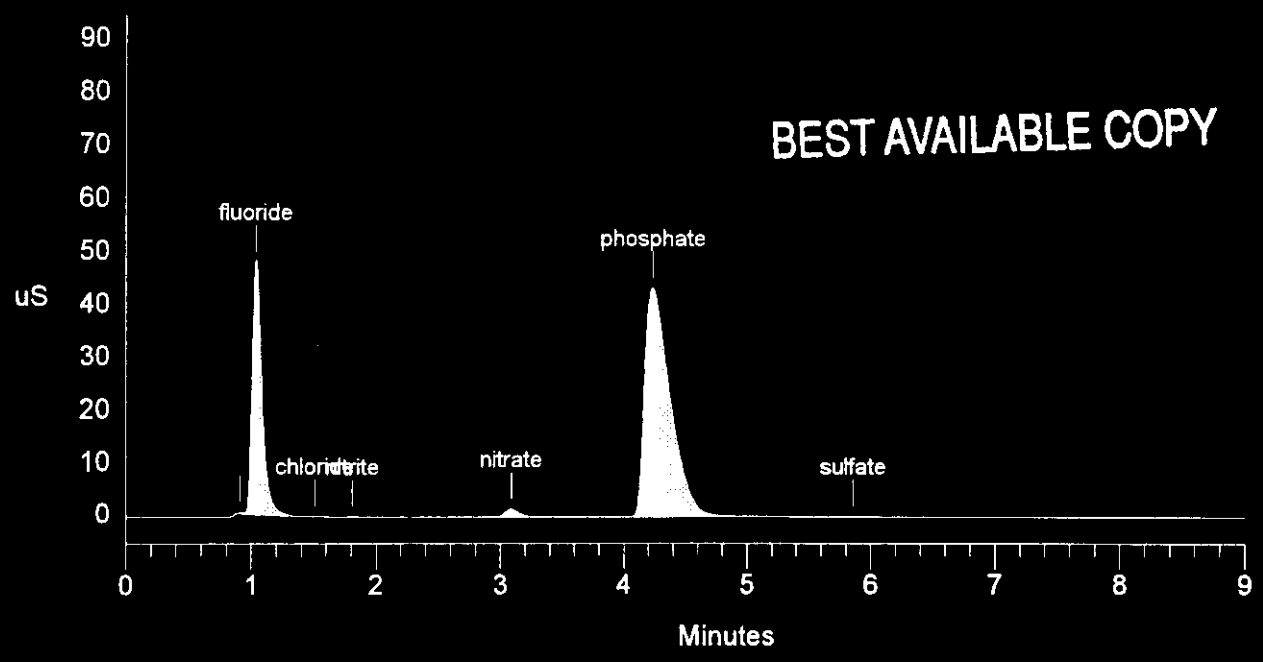
Sample Name: S95T001620	Date: 09/20/1995 11:35:33
Data File : C:\DX\DATA\95092081.D16	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 16	Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column/SRS

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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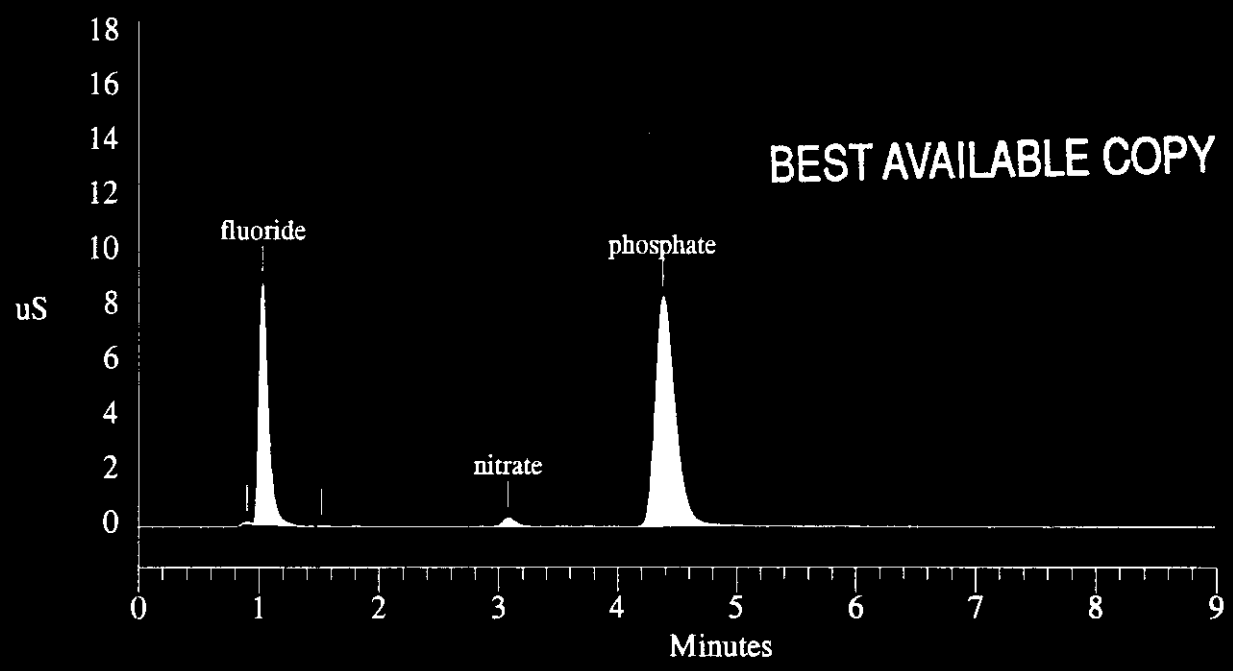
```
==================================================================================
| Sample Name: S95T001620                          Date: 09/20/1995 11:07:40      |
| Data File  : C:\DX\DATA\95092081.D14                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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



BEST AVAILABLE COPY

144, REV. 1

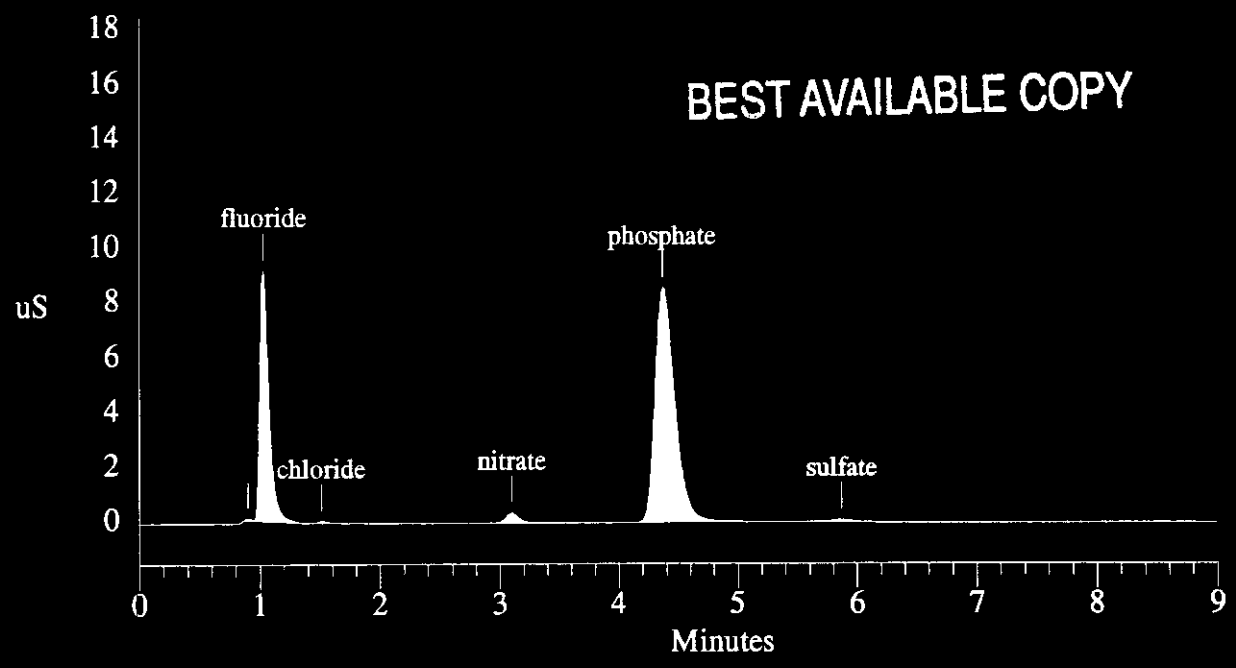
```
==================================================================================
| Sample Name: S95T001620  DUP                    Date: 09/20/1995 12:12:58       |
| Data File  : C:\DX\DATA\95092081.D18                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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



DR-141, REV. 1

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

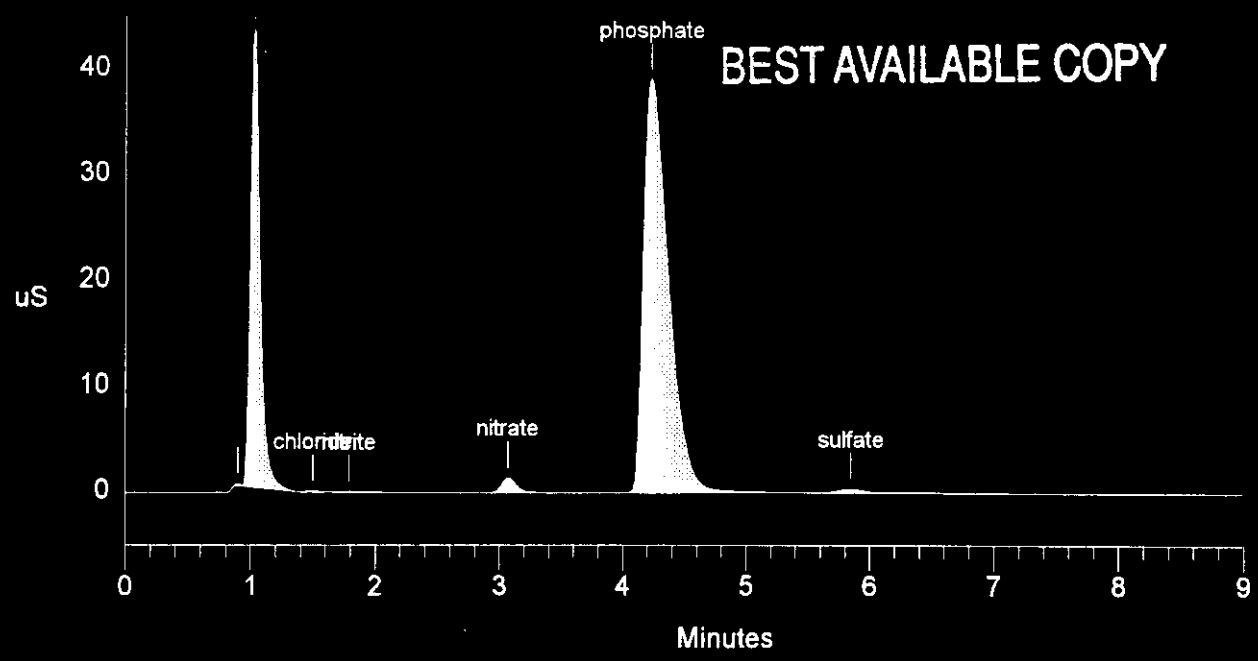
Sample Name: S95T001620 DUP Date: 09/20/1995 11:45:19
Data File : C:\DX\DATA\95092081.D17
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 17 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

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

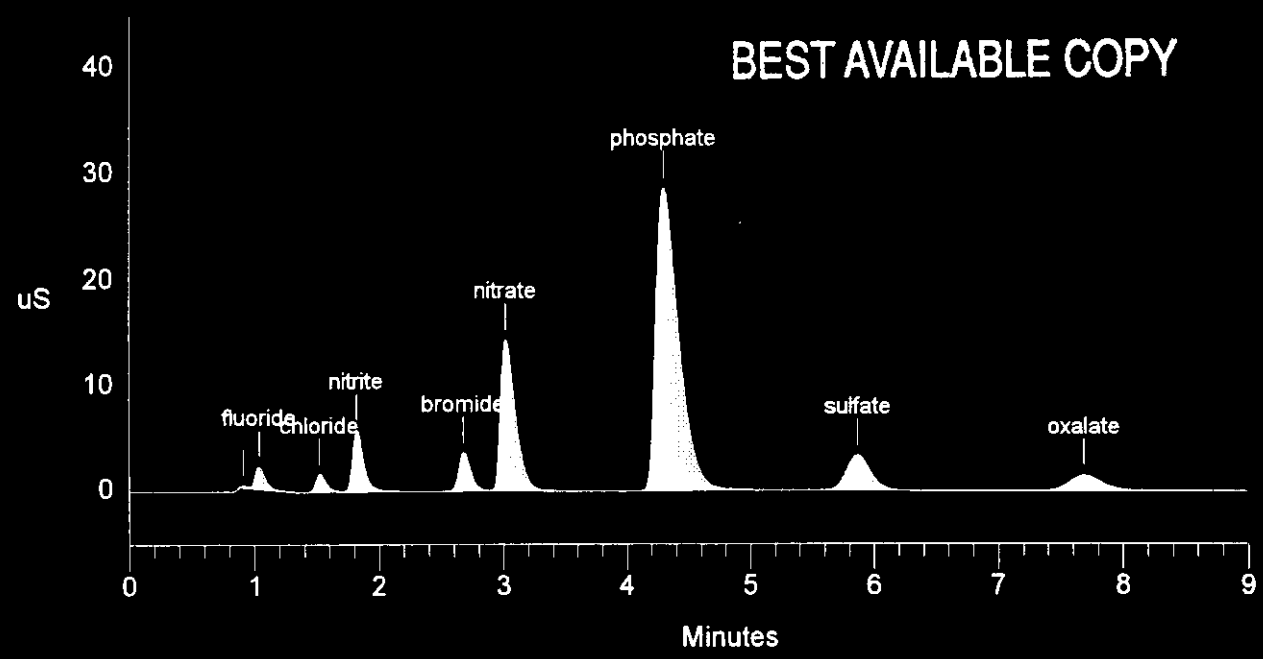
Sample Name: S95T001613 + SPIKE	Date: 09/20/1995 10:54:33
Data File : C:\DX\DATA\95092081.D13	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 13	Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column/SRS

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



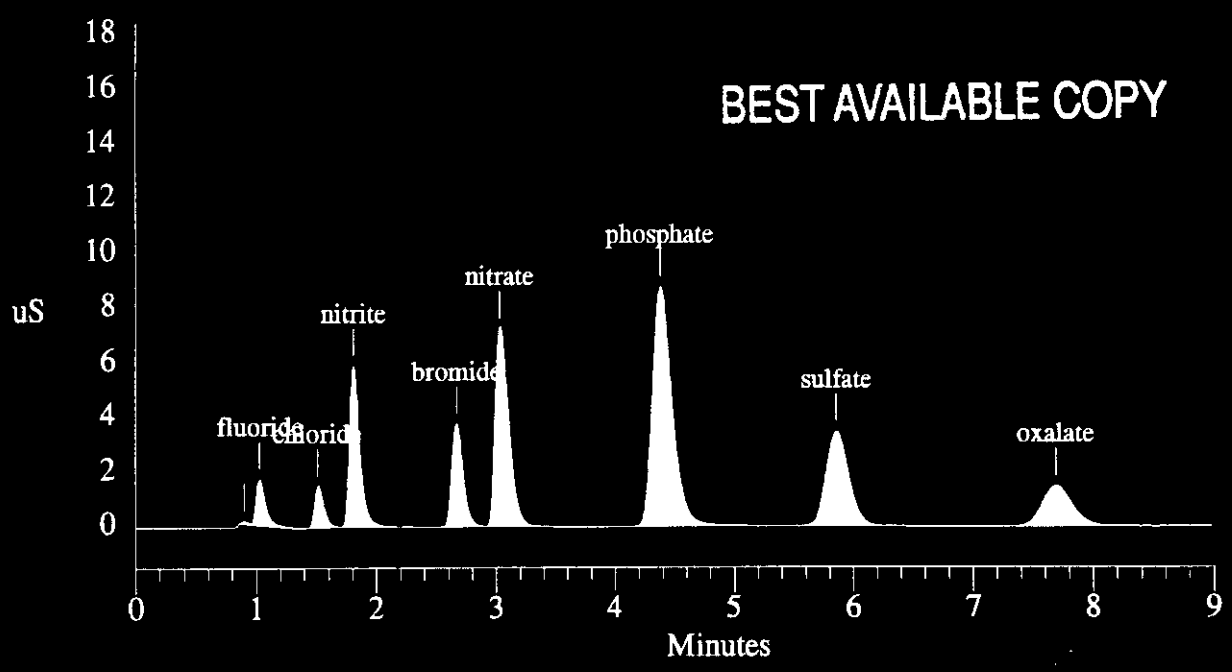
```
==========================================================================
| Sample Name: S95T001613 + SPIKE            Date: 09/20/1995 10:44:48   |
| Data File  : C:\DX\DATA\95092081.D12                                   |
| Method     : C:\DX\METHOD\KIT.MET                                      |
| 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	4.752	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	<1.61e3	<1.61e3	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

Jaime Luge for Ed. Colvin
Analyst Signature Date

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

Thomas [illegible] 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:	James Fuge	Date:	9/26/95
Chemist Approval:	James Fuge	Date:	9/26/95

LAB LEADER INFO	
Method:	La-533-105D-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	3.60E+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	108.7%	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    : [illegible]  Column: AG4A/AS4A anion column/SRS                    |
==================================================================================
```

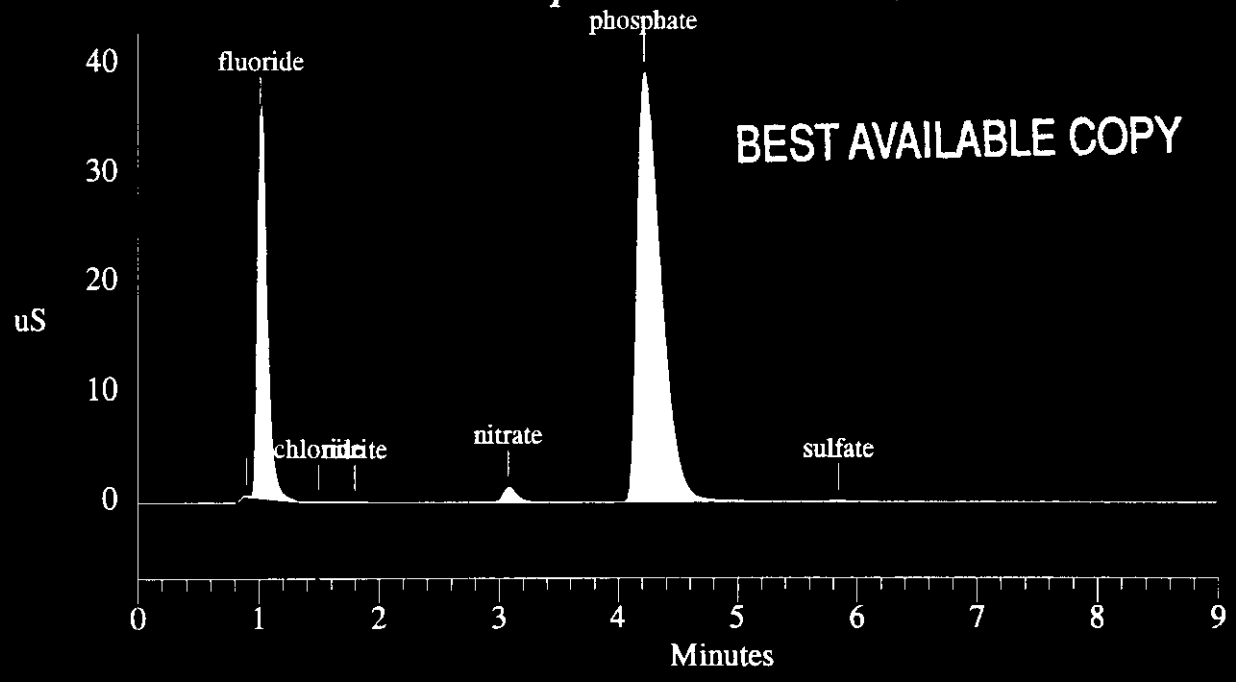
9/22/95

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



BEST AVAILABLE COPY

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

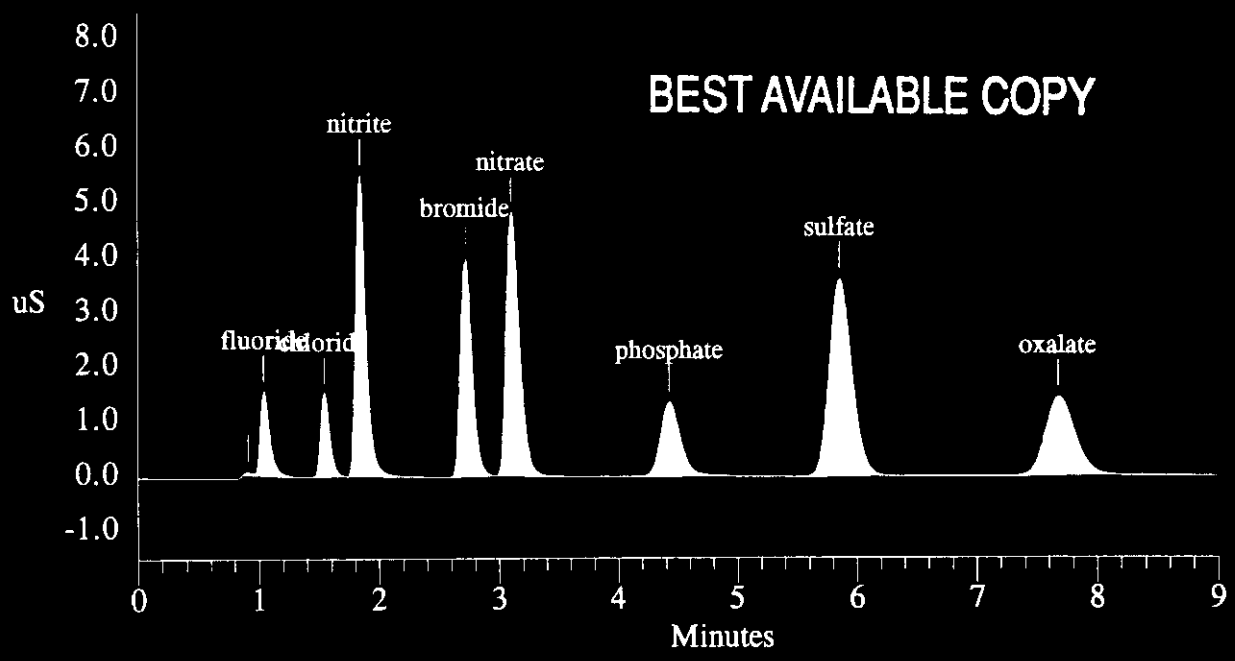
```
==================================================================================
| Sample Name: 106N9-D STD                          Date: 09/21/1995 10:44:45      |
| Data File  : C:\DX\DATA\95092181.D05                                             |
| Method     : C:\DX\METHOD\KIT.MET                                                |
| 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

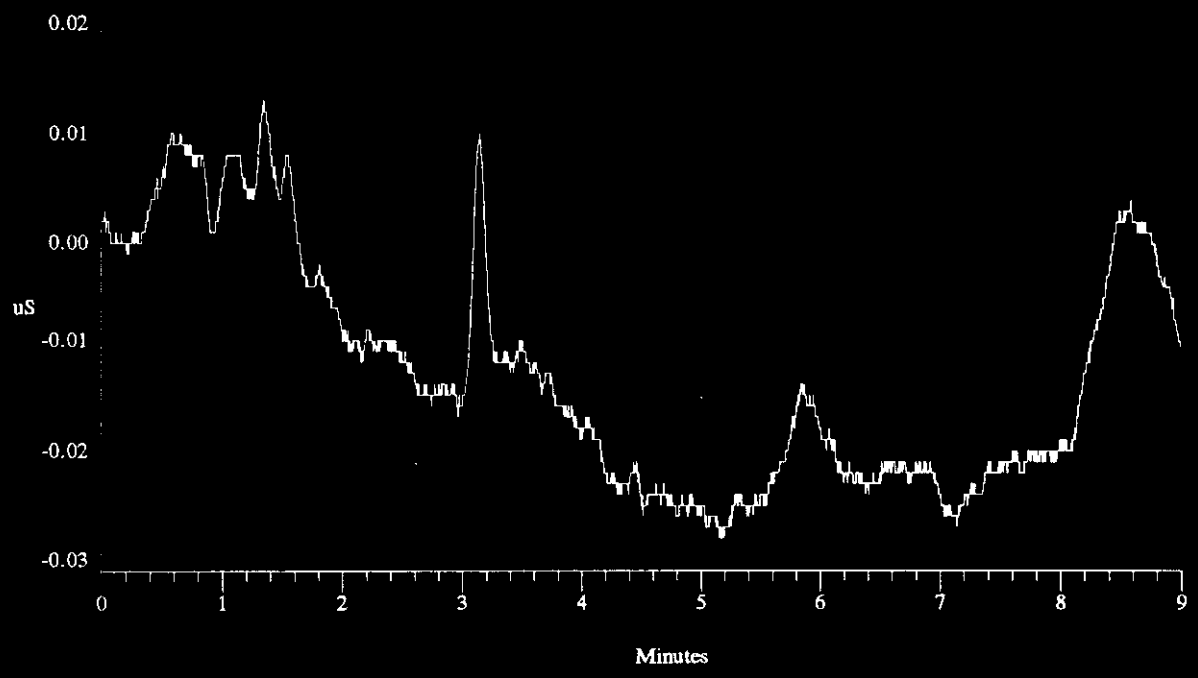
```
==============================================================================
| Sample Name: INSTR BLANK                    Date: 09/21/1995 09:48:03       |
| Data File  : C:\DX\DATA\95092181.D01                                        |
| Method     : C:\DX\METHOD\KIT.MET                                           |
| 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. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

File: 95092181.D01 Sample: INSTR BLANK



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

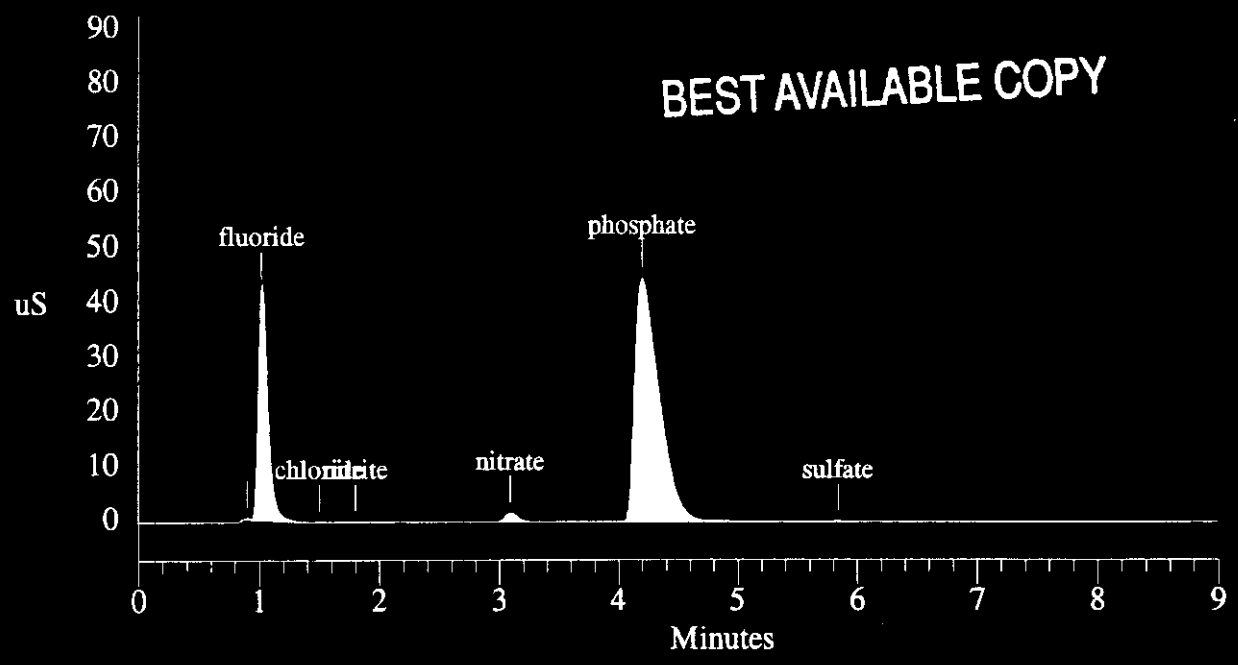
```
==================================================================================
| Sample Name: S95T001631                          Date: 09/21/1995 11:07:46      |
| Data File  : C:\DX\DATA\95092181.D07                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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



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

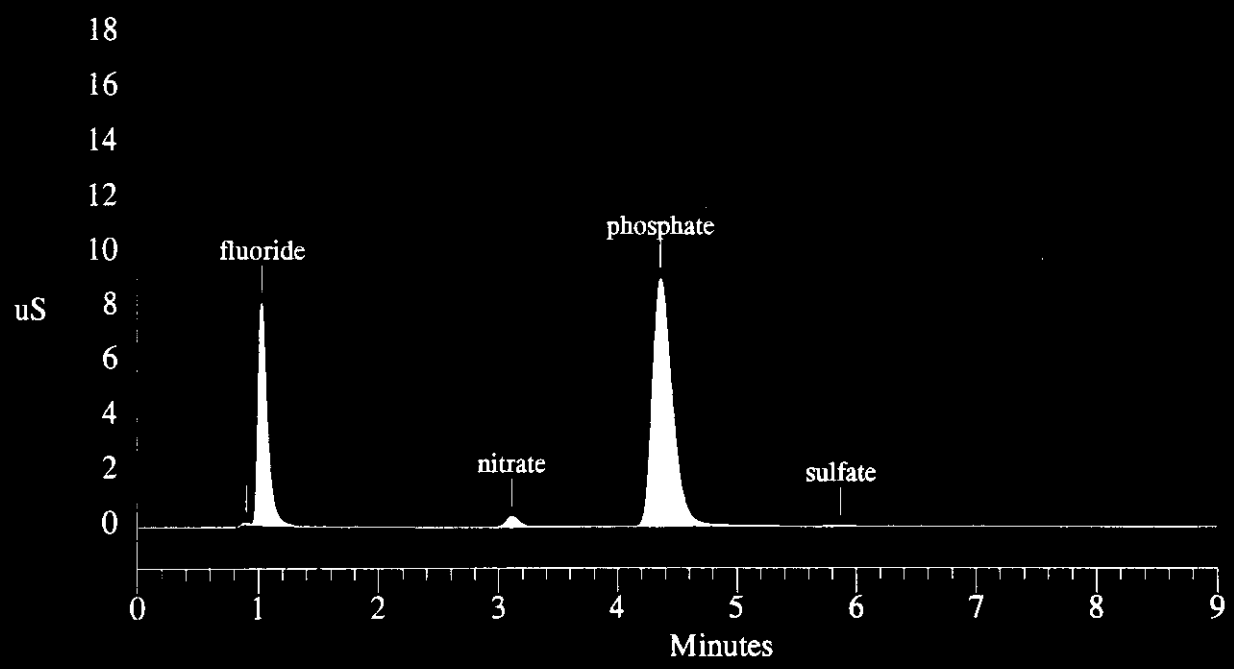
```
==================================================================================
| Sample Name: S95T001631                          Date: 09/21/1995 10:54:35      |
| Data File  : C:\DX\DATA\95092181.D06                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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-VM-DP-144, REV. 1

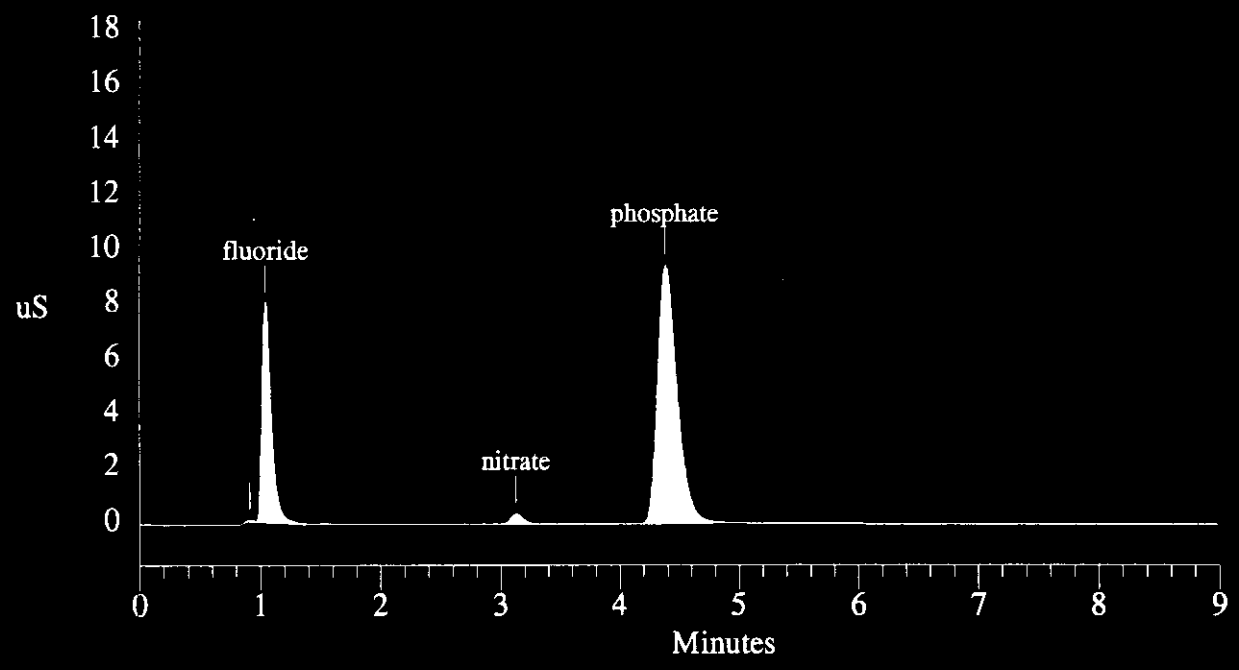
```
==================================================================================
| Sample Name: S95T001631  DUP                    Date: 09/21/1995 11:18:22       |
| Data File  : C:\DX\DATA\95092181.D08                                            |
| Method     : C:\DX\METHOD\KIT.MET                                               |
| 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.

*** RMIS View/Print Document Cover Sheet ***

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Accession #: D195066660

Document #: SD-WM-DP-144

Title/Desc:
FINAL REPORT FOR TANK 241T109 AUGER SAMPLES
95-AUG-040 & 95-AUG-041 [SEC 2 OF 2]

Pages: 111

This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

DOCUMENT NUMBER: WM-DP-144

SECTION 2 OF 3

TITLE: Final Report for Tank 241-T-109 Auger Samples 95-Aug-040 & 95-Aug-041

DATE: 12/07/95

ORIGINATOR: Conner JM

CO:

RECIPIENT:

CO:

REFERENCES:

LABCORE Data Entry Template for Worklist# 2668

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		5	CCB				IC-01	OXALATE2	SOLID		<.496	N/A	ug/g
		6	CCV				IC-01	F-02	SOLID		52.5	N/A	ug/g
		6	CCV				IC-01	CL-02	SOLID		82	N/A	ug/g
		6	CCV				IC-01	NO2-02	SOLID		518.7	N/A	ug/g
		6	CCV				IC-01	BR-02	SOLID		570.9 ~~tot.~~	N/A	ug/g
		6	CCV				IC-01	NO3-02	SOLID		609.7	N/A	ug/g
		6	CCV				IC-01	PO4-02	SOLID		540.3	N/A	ug/g
		6	CCV				IC-01	SO4-02	SOLID		619.3	N/A	ug/g
		6	CCV				IC-01	OXALATE2	SOLID		487	N/A	ug/g

GMF 10/9/95

Final page for worklist # 2668

Jerry Fuss for Ed Colair 10/9/95
Analyst Signature Date

See attached for signatures

Data Entry completed + verified 10/9/95 J. M. Fye

R+ Steck
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# 2668

Analyst: L.C **Instrument:** IC01 IC 02 **Book #** 106N9-D

Method: LA-533-105 Rev/Mod D-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			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	S95T002176	0	W	@IC-01	F-02	SOLID	N/A			ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	CL-02	SOLID	N/A			ug/g

Data Entry Comments:

	SAMPLE	DUP
S95T002176	12.3540g/L	121060

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# 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			ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	BR-02	SOLID	N/A			ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	NO3-02	SOLID	N/A			ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	PO4-02	SOLID	N/A			ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	SO4-02	SOLID	N/A			ug/g
95000121	T-109	3	SAMPLE	S95T002176	0	W	@IC-01	OXALATE2	SOLID	N/A			ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	F-02	SOLID			N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	CL-02	SOLID			N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	NO2-02	SOLID			N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	BR-02	SOLID			N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	NO3-02	SOLID			N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	PO4-02	SOLID			N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	SO4-02	SOLID			N/A	ug/g
95000121	T-109	4	DUP	S95T002176	0	W	@IC-01	OXALATE2	SOLID			N/A	ug/g

Final page for worklist # 2668

Ed. Cohen 10-2-95
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 #:	S95T002176		
TEST CODE:	@ic-01	ANALYST:	Ed Colvin
INSTRUMENT:	IC-02	ANALYSIS DATE:	10/02/95
WORK LIST #:	2668	SAMPLE POINT:	T-109
BATCH ID:		SAMPLE PREP:	water digest

Result Units µg/g	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
106N9D	97.5%	103.5%	97.1%	98.3%	99.0%	98.1%	98.3%	92.6%
S95T002176	2.36E+04	5.06E+01	<493.28	3.21E+03	2.37E+05	<503.69	<562.73	<466.35
S95T002176dup	2.46E+04	<76.33	<503.39	2.46E+03	2.39E+05	<516.96	<574.26	<477.94
Duplicate 1 RPD	4.0%	N/A	N/A	26.4%	0.7%	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
S95T002176spk	105.6%	96.6%	99.3%	89.9%	92.5%	101.9%	97.2%	88.0%

NARRATIVE: Analyst Comments:

Chemist Comments:

Form Completed By:	Jean Freye	Date:	10/9/95
Chemist Approval:	Jean Freye	Date:	10/9/95

WHC-SD-WM-DP-144, REV. 1
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LAB LEADER INFO	
Method:	LA-535-105 D-1
Matrix:	solid
Test Code:	anio-01
Work List #:	[illegible]
Batch #:	
Result Units	
(mg/L or mg/mL):	mg/L
Spike Book Number:	100NRD
Spike Sample #:	1
Prepared By:	Jann Frye
Prepared Date:	10/06/95
Checked:	Jann Frye
Analyst:	Ed Colvin
Analysis Date:	10/06/95
Time Complete:	11:30 AM
Instrument Code:	IC-02
Rerun:	0
Sample Prep:	water digest
Sample Point:	T-100
Sample Type	
STANDARD	100NRD
SAMPLE 1	395T092175
DUPLICATE 1	395T092175dup
SAMPLE 2	
DUPLICATE 2	
SAMPLE 3	
DUPLICATE 3	
SAMPLE 4	
DUPLICATE 4	
SPIKE	395T092175spk
SPIKE DUPLICATE	

PRINT

TECH INFO	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Blank Data (mg/mL)	<.053	<.084	<.054	<.099	<.096	<.078	<.032	<.026
Standard Data (mg/mL)	57.0	83	518.7	999.7	949.3	519.3	570.0	497
Sample 1 Data (mg/mL)	2.09E+00	1.00E+00	<.054	3.07E+01	2.93E+00	<.078	<.032	<.026
Sample 1 Dilution Factor	101	11	11	11	101	11	11	11
Sample 1 Prep DF	12.364	12.364	12.364	12.364	12.364	12.364	12.364	12.364
Duplicate 1 Data (mg/mL)	2.09E+00	<.084	<.054	2.98E+01	2.90E+00	<.078	<.032	<.026
Duplicate 1 Dilution Factor	101	11	11	11	101	11	11	11
Duplicate 1 Prep DF	12.108	12.108	12.108	12.108	12.108	12.108	12.108	12.108
Sample 2 Data (mg/mL)								
Sample 2 Dilution Factor								
Sample 2 Prep DF								
Duplicate 2 Data (mg/mL)								
Duplicate 2 Dilution Factor								
Duplicate 2 Prep DF								
Sample 3 Data (mg/mL)								
Sample 3 Dilution Factor								
Sample 3 Prep DF								
Duplicate 3 Data (mg/mL)								
Duplicate 3 Dilution Factor								
Duplicate 3 Prep DF								
Sample 4 Data (mg/mL)								
Sample 4 Dilution Factor								
Sample 4 Prep DF								
Duplicate 4 Data (mg/mL)								
Duplicate 4 Dilution Factor								
Duplicate 4 Prep DF								
Spike - Sample 1 (mg/mL)	3.63E+02	5.60E+00	5.30E+01	9.49E+01	3.43E+03	5.43E+01	5.50E+01	4.63E+01
Spike - Dup 1 (mg/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	11.00	11.00	11.00	10.10	11.00	11.00	11.00
Std. Conc. (mg/mL)	50	70	534	514	546	531	575	526
Detection Limit	0.053	0.084	0.054	0.099	0.096	0.078	0.032	0.026
Matrix Detection Limit 1	5.15E+01	7.40E+01	4.93E+02	5.22E+02	4.67E+03	5.94E+02	5.83E+02	4.66E+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
Duplicate % Difference	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Duplicate % Difference	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Duplicate % Diff.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Duplicate % Diff.	[illegible]	N/A	[illegible]	[illegible]	[illegible]	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
Spike % Recovery	101.0%	98.1%	99.5%	99.9%	92.0%	101.9%	97.2%	98.0%

Data Entry by: Jann Frye Date: 10/06/95
Approved by: Jann Frye Date: 10/9/95
Form DIONEX.WB1 Rev. 1.3

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```
==================================================================================
| Sample Name: S95T002176 DUP                    Date: 10/02/1995 12:27:52        |
| Data File  : C:\DX\DATA\95100271.D12                                            |
| Method     : C:\DX\METHOD\AS12A.MET                                             |
| ACI Address: 1  System: 1  Inject#: 12                    Detector:CDM-1        |
| Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS                        |
==================================================================================
```

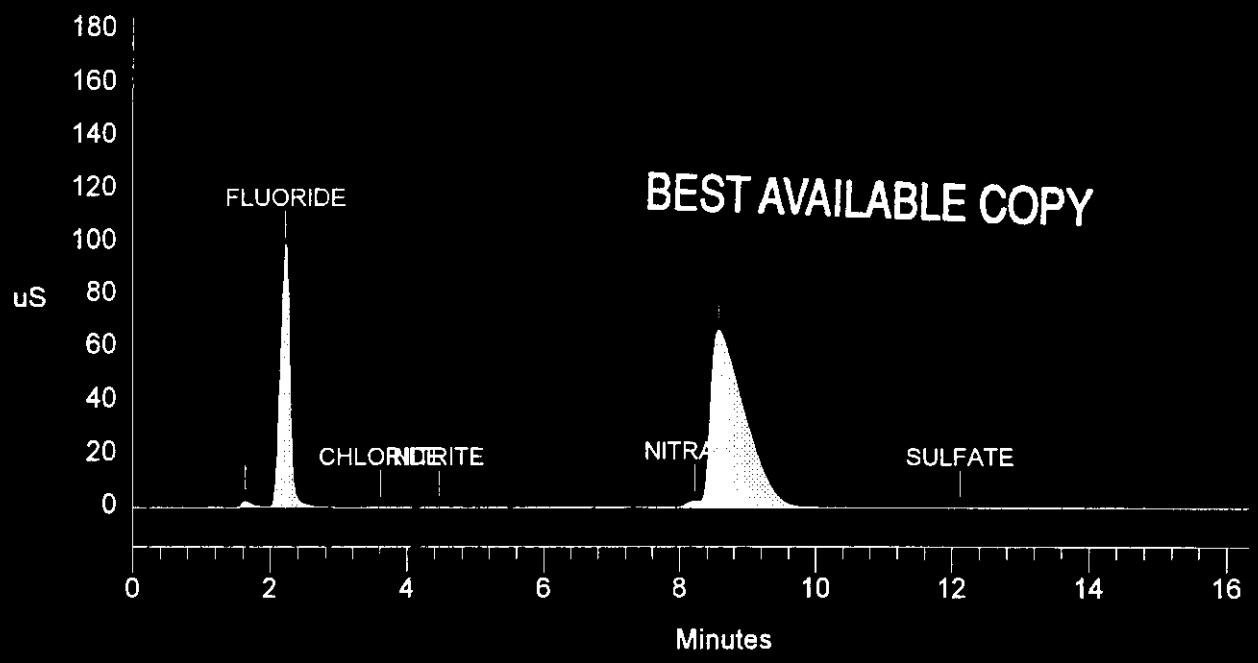
E.M. Colvin 10/02/95

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	11	4898	5Hz	0.00	16.32		200

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.64		0.000	2251	21288	2	
2	2.23	FLUORIDE	248.448	97758	891479	2	0.90
3	3.61	CHLORIDE ✓	0.792	122	1013	1	-1.37
4	4.47	NITRITE ✓	5.181	141	1404	1	-0.89
5	8.23	NITRATE ✓	29.825	2459	29649	2	4.57
6	8.58		0.000	66820	2261283	2	
7	12.12	SULFATE ✓	5.591	135	3750	1	0.33
		Totals	289.836	169686	3209867		

File: 95100271.D12 Sample: S95T002176 DUP



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SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 79 TO 87.

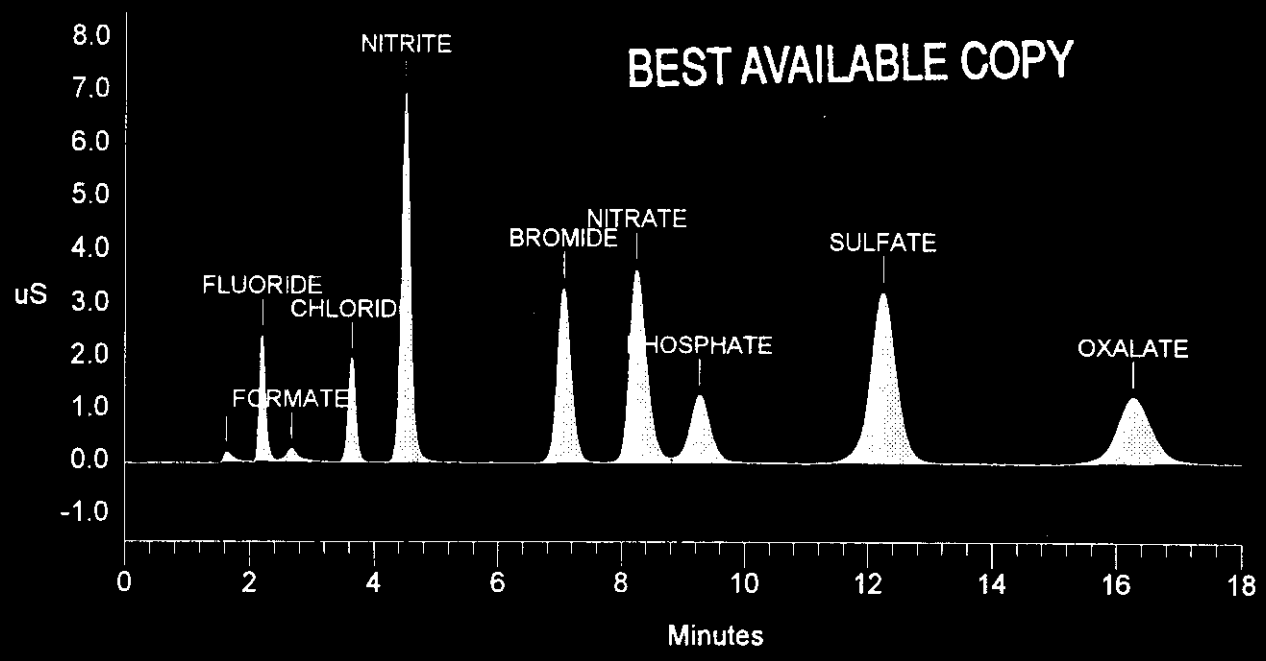
```
==========================================================================
| Sample Name: 106N9-D STD                      Date: 10/02/1995 08:57:49 |
| Data File  : C:\DX\DATA\95100271.D04                                   |
| Method     : C:\DX\METHOD\AS12A.MET                                    |
| ACI Address: 1  System: 1  Inject#: 4                Detector:CDM-1    |
| Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS              |
==========================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	5400	5Hz	0.00	18.00		200

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.63		0.000	175	1628	1	
2	2.20	FLUORIDE	57.579	2378	15767	2	-0.45
3	2.67	FORMATE	32.985	240	3062	2	1.91
4	3.64	CHLORIDE	82.025	1977	15963	1	-0.55
5	4.50	NITRITE	518.795	6967	71037	1	-0.22
6	7.06	BROMIDE	570.919	3309	50111	1	2.92
7	8.25	NITRATE	609.702	3669	69149	2	4.83
8	9.27	PHOSPHATE	540.379	1289	29156	2	0.98
9	12.24	SULFATE	619.352	3241	91873	1	1.32
10	16.27	OXALATE	487.048	1259	46765	1	1.81
		Totals	3518.785	24504	394510		

File: 95100271.D04 Sample: 106N9-D STD



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

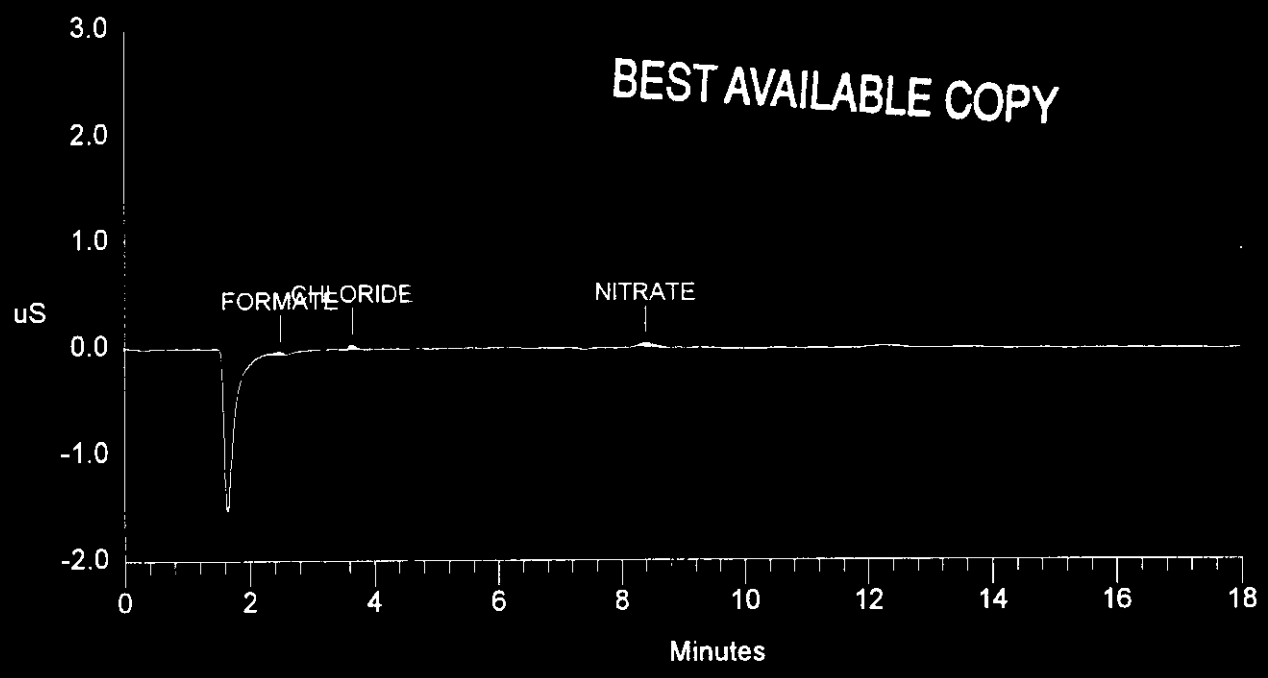
```
==========================================================================
| Sample Name: PREP BLANK                    Date: 10/02/1995 08:13:06    |
| Data File  : C:\DX\DATA\95100271.D02                                    |
| Method     : C:\DX\METHOD\AS12A.MET                                     |
| ACI Address: 1  System: 1  Inject#: 2                Detector:CDM-1     |
| Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS               |
==========================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	5400	5Hz	0.00	18.00	200

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	2.50	FORMATE	0.075	26	269	1	-4.58
2	3.66	CHLORIDE	0.036	43	300	1	0.00
3	8.40	NITRATE	0.228	35	483	1	6.73
		Totals	0.339	104	1052		

File: 95100271.D02 Sample: PREP BLANK



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

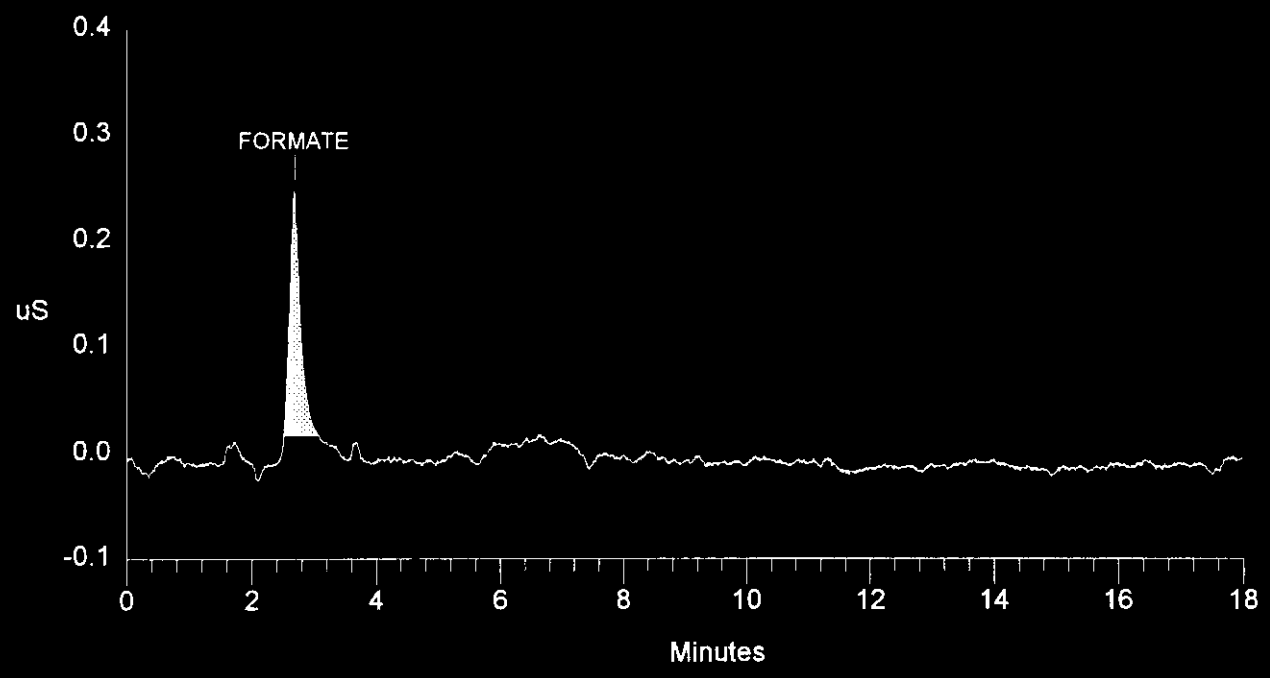
```
==================================================================================
| Sample Name: INSTR BLANK                          Date: 10/02/1995 07:53:45      |
| Data File  : C:\DX\DATA\95100271.D01                                             |
| Method     : C:\DX\METHOD\AS12A.MET                                              |
| ACI Address: 1  System: 1  Inject#: 1                        Detector:CDM-1      |
| Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS                         |
==================================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	5400	5Hz	0.00	18.00	200

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	2.69	FORMATE	0.288	230	2630	1	2.67
		Totals	0.288	230	2630		

File: 95100271.D01 Sample: INSTR BLANK



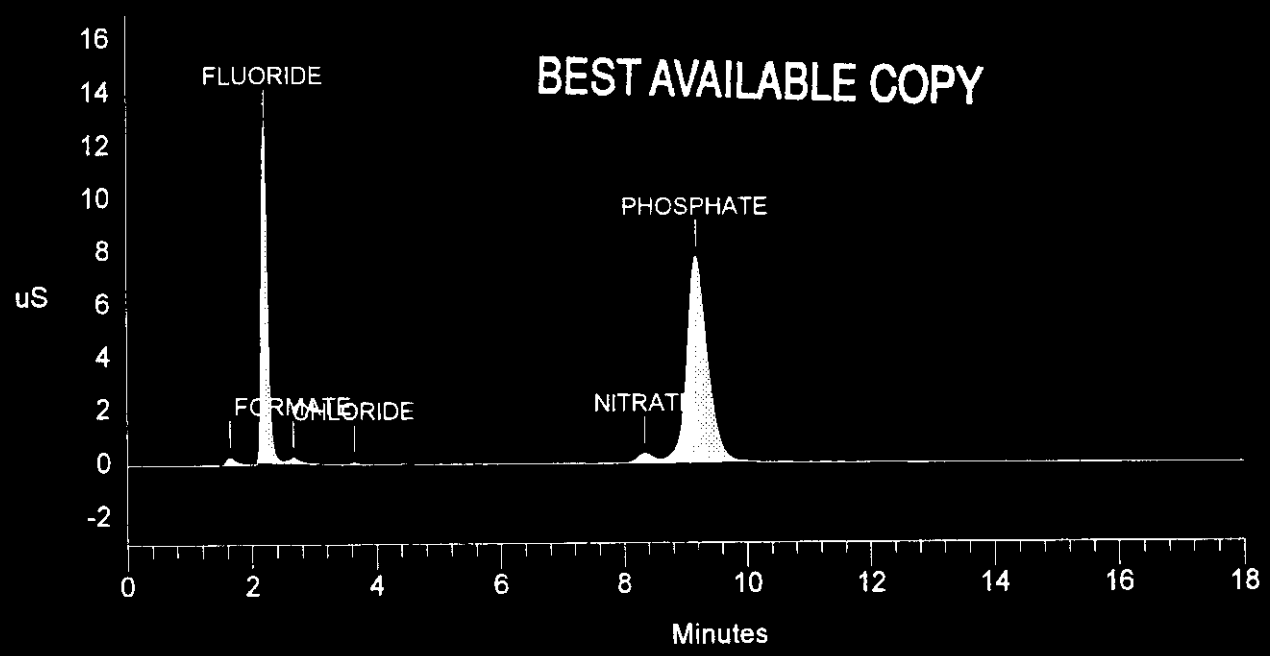
```
==========================================================================
| Sample Name: S95T002176                    Date: 10/02/1995 10:25:09    |
| Data File  : C:\DX\DATA\95100271.D06                                    |
| Method     : C:\DX\METHOD\AS12A.MET                                     |
| ACI Address: 1  System: 1  Inject#: 6                Detector:CDM-1     |
| Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS               |
==========================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	5400	5Hz	0.00	18.00		200

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.64		0.000	274	2839	1	
2	2.20	FLUORIDE ✓	290.487	12659	85047	2	-0.45
3	2.66	FORMATE	26.416	208	2340	2	1.53
4	3.64	CHLORIDE	4.723	66	510	1	-0.55
5	8.34	NITRATE	72.184	350	6176	2	5.97
6	9.18	PHOSPHATE ✓	2925.064	7773	178544	2	0.00
		Totals	3318.874	21330	275455		

File: 95100271.D06 Sample: S95T002176



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

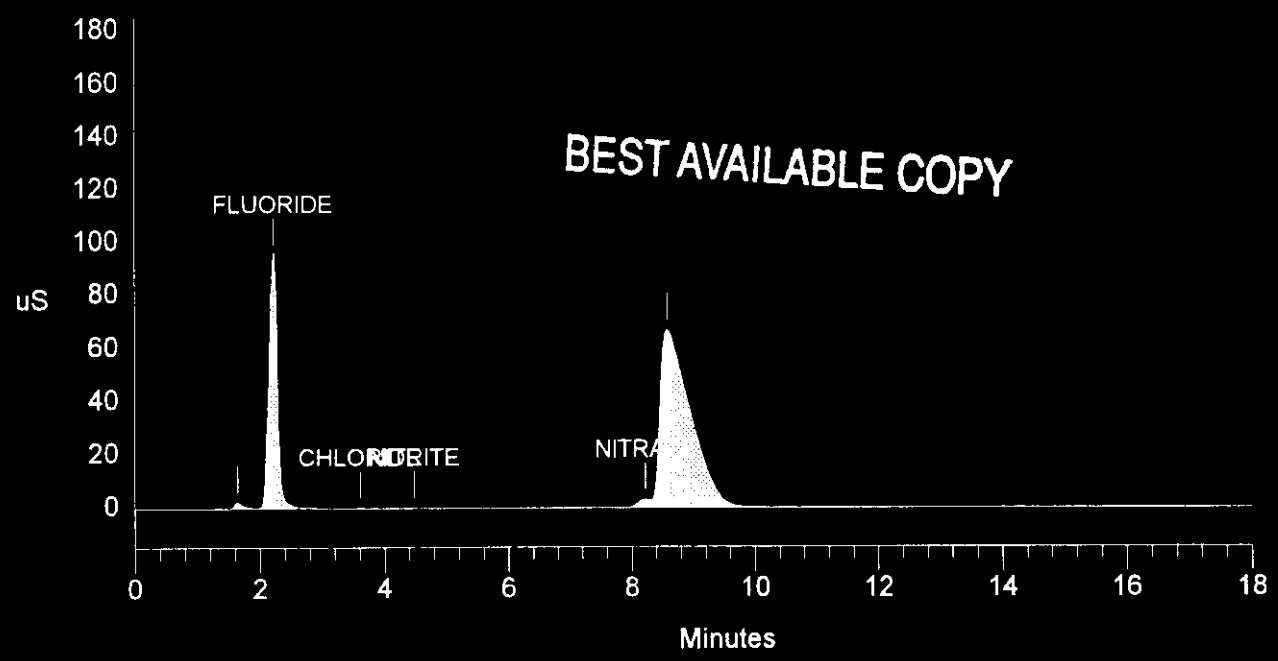
```
==============================================================================
| Sample Name: S95T002176                        Date: 10/02/1995 10:49:43    |
| Data File  : C:\DX\DATA\95100271.D07                                        |
| Method     : C:\DX\METHOD\AS12A.MET                                         |
| ACI Address: 1  System: 1  Inject#: 7                   Detector:CDM-1      |
| Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS                    |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	11	5400	5Hz	0.00	18.00	200	

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.64		0.000	2141	19896	2	
2	2.23	FLUORIDE	244.018	95497	867133	2	0.90
3	3.61	CHLORIDE ✓	1.000	161	1393	1	-1.37
4	4.48	NITRITE ✓	5.695	201	2101	1	-0.67
5	8.22	NITRATE ✓	39.709	3154	40272	2	4.45
6	8.58		0.000	66788	2254589	2	
		Totals	290.422	167942	3185382		

File: 95100271.D07 Sample: S95T002176



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

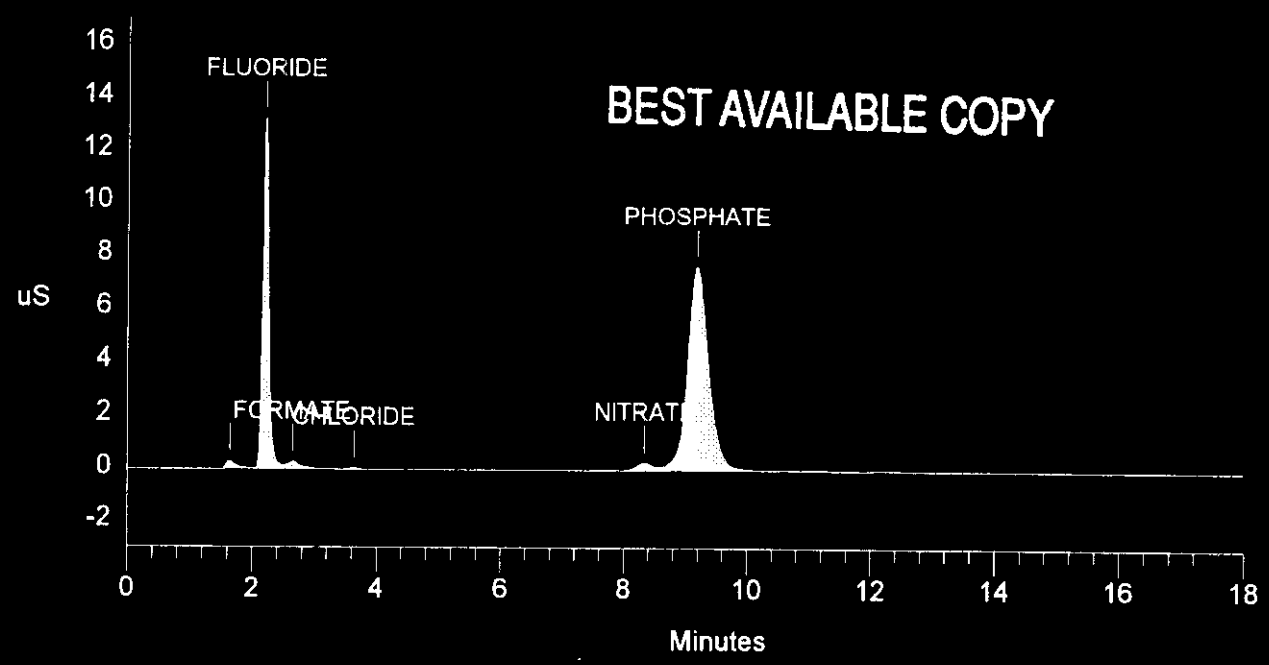
Sample Name: S95T002176 DUP
Date: 10/02/1995 11:46:21
Data File : C:\DX\DATA\95100271.D10
Method : C:\DX\METHOD\AS12A.MET
ACI Address: 1 System: 1 Inject#: 10
Detector:CDM-1
Analyst : Ed Colvin
Column: AG4A-SC,AS4A-SC, SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	5400	5Hz	0.00	18.00		200

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.64		0.000	279	2831	2	
2	2.20	FLUORIDE	296.380	13195	86838	3	-0.45
3	2.65	FORMATE	35.357	246	3322	4	1.15
4	3.64	CHLORIDE	4.114	52	389	1	-0.55
5	8.34	NITRATE	58.692	272	4612	2	5.97
6	9.18	PHOSPHATE	2886.602	7634	175927	2	0.00
		Totals	3281.145	21680	273920		

File: 95100271.D10 Sample: S95T002176 DUP



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DP-144, REV. 1

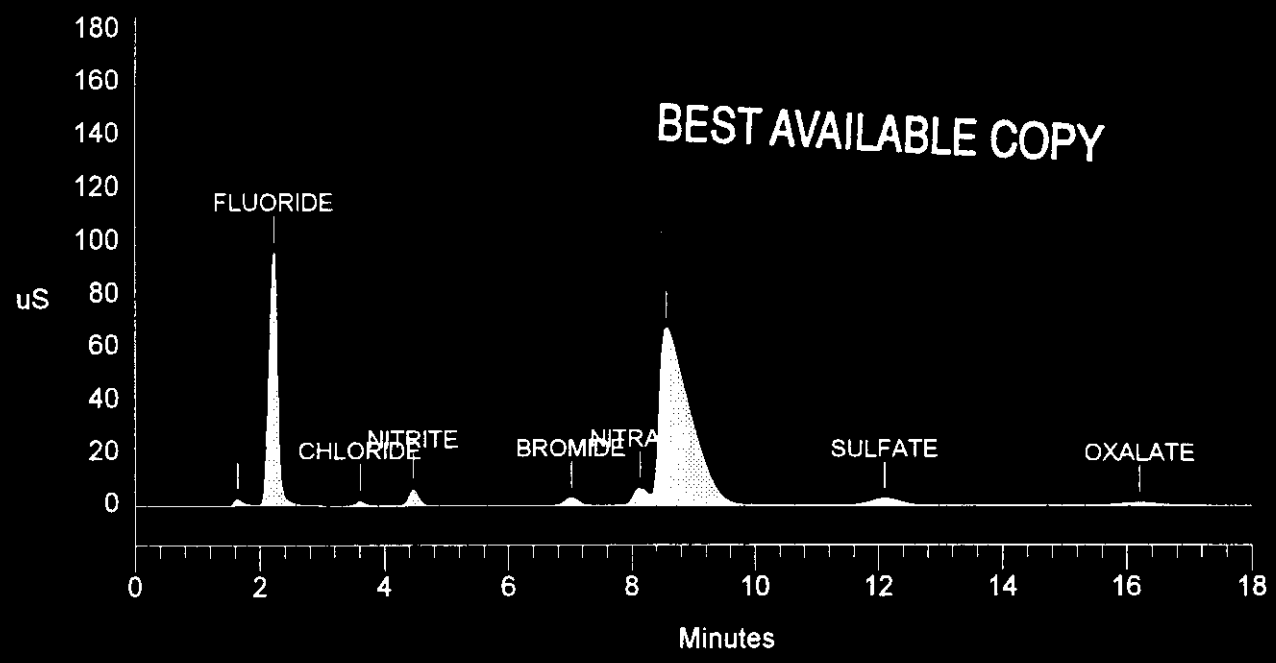
```
==========================================================================
| Sample Name: S95T002176  + SPIKE            Date: 10/02/1995 11:08:47  |
| Data File  : C:\DX\DATA\95100271.D08                                   |
| Method     : C:\DX\METHOD\AS12A.MET                                    |
| ACI Address: 1  System: 1  Inject#: 8                Detector:CDM-1    |
| Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS               |
==========================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	11	5400	5Hz	0.00	18.00		200

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.64		0.000	2311	21686	2	
2	2.23	FLUORIDE	245.807	95608	876880	2	0.90
3	3.61	CHLORIDE	8.630✓	1755	15399	1	-1.37
4	4.47	NITRITE	53.027✓	6095	66318	1	-0.89
5	7.02	BROMIDE	55.914✓	2926	44750	1	2.33
6	8.14	NITRATE	94.913✓	6472	100302	2	3.43
7	8.57		0.000	67499	2291168	2	
8	12.10	SULFATE	64.294✓	2634	87318	1	0.17
9	16.21	OXALATE	46.329✓	1059	40411	1	1.44
		Totals	568.914	186360	3544233		

File: 95100271.D08 Sample: S95T002176 + SPIKE



144

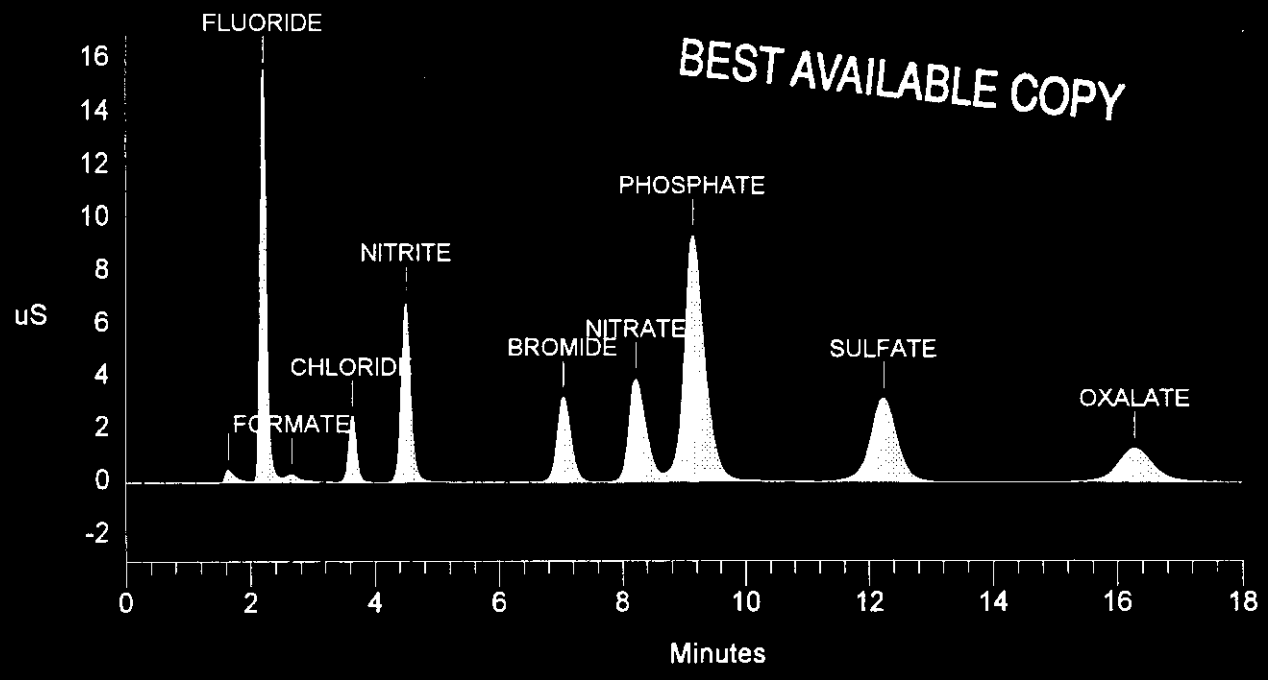
```
==========================================================================
| Sample Name: S95T002176  + SPIKE            Date: 10/02/1995 11:27:29   |
| Data File  : C:\DX\DATA\95100271.D09                                    |
| Method     : C:\DX\METHOD\AS12A.MET                                     |
| ACI Address: 1  System: 1  Inject#: 9                Detector:CDM-1     |
| Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS               |
==========================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	5400	5Hz	0.00	18.00		200

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.64		0.000	448	4370	2	
2	2.20	FLUORIDE ✓	352.714	15463	104066	3	-0.45
3	2.66	FORMATE	37.157	263	3520	4	1.53
4	3.63	CHLORIDE	105.421	2484	20709	1	-0.82
5	4.50	NITRITE	512.350	6806	70084	1	-0.22
6	7.04	BROMIDE	560.488	3217	49138	1	2.62
7	8.22	NITRATE	645.112	3904	73344	2	4.45
8	9.15	PHOSPHATE ✓	3430.032	9327	213680	2	-0.33
9	12.24	SULFATE	623.112	3171	92464	1	1.32
10	16.28	OXALATE	485.921	1243	46649	1	1.88
		Totals	6752.308	46327	678023		

File: 95100271.D09 Sample: S95T002176 + SPIKE



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DR-144, REV. 1

File # 09509268 ~~WHC-SD-WM-DP-_____, REV.___~~ 10/31/95

LABCORE Data Entry Template for Worklist# 2511

Analyst: B. Goecke **Instrument:** ~~ICP01~~ ICP02 9-26-95 **Book#** 98644A

Method: LA-505-~~151~~ 161 9-26-95 Rev/Mod 3-0

Worklist Comment: ICP T-109 (All metals) WHC-SD-WM-DP-144, REV. 1

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	ICSA				@ICP-QC	QC		
4	ICSAB				@ICP-QC	QC		
5	PREPSTDTJA				@ICP-A01	SOLID		
6	PREPBLKTJA				@ICP-A01	SOLID		
7	SAMPLE	S95T002177	0	A	@ICP-A01	SOLID	95000121	T-109

Analytes Requested: AG-A-01 , AL-A-01 , AS-A-01 , B-A-01 , BA-A-01 , BE-A-01 , BI-A-01 , CA-A-01 , CD-A-01 , CE-A-01 , CO-A-01 , CR-A-01 , CU-A-01 , FE-A-01 , K-A-01 , LA-A-01 , LI-A-01 , MG-A-01 , MN-A-01 , MO-A-01 , NA-A-01 , ND-A-01 , NI-A-01 , P-A-01 , PB-A-01 , S-A-01 , SB-A-01 , SE-A-01 , SI-A-01 , SM-A-01 , SR-A-01 , TI-A-01 , TL-A-01 , U-A-01 , V-A-01 , ZN-A-01 , ZR-A-01

8	DUP	S95T002177	0	A	@ICP-A01	SOLID		
9	SPK-PREDIG	S95T002177	0	A	@ICP-A01	SOLID		
10	ICSA				@ICP-QC	QC		
11	ICSAB				@ICP-QC	QC		
12	CCV				@ICP-QC	QC		
13	CCB				@ICP-QC	QC		

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

File # 09509266

LABCORE Data Entry Template for Worklist# 2511

S Type	Sample#	R	A	Test	Matrix	Group#	Project

Final page for worklist # 2511

Analyst Signature: [signature] Date: 9-26-95

Reviewed by: Analyst Signature: [signature] Date: 09/27/95

		DF.
PREPSTD TJA	5 mL ea. (WHC1A+2) in 100 mL	1
PREP BLK TJA	100 mL - DIRECT	1
S95T002177-L	1.0003 g in 100 mL - 1 mL - 5 mL - 2 mL - 8 mL	4999
S95TW02177	1.0003 g in 100 mL - 1 mL - 5 mL	1000
S95TW02177-D	1.0002 g in 100 mL - 1 mL - 5 mL	1000
S95TW02177-A	1.0003 g in 100 mL 1 mL - 2 mL - 2 mL	1000

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Analysis Report Summary Tue 09-26-95 01:30:16 PM page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	950926B	ICP2	09/26/95	10:44	BJG	Q	CONC
2	ICB	950926B	ICP2	09/26/95	10:47	BJG	Q	CONC
3	ICSA	950926B	ICP2	09/26/95	10:50	BJG	Q	CONC
4	ICSAB	950926B	ICP2	09/26/95	10:54	BJG	Q	CONC
5	PREPSTDTJA	950926B	ICP2	09/26/95	10:58	BJG	S	CONC
6	PREPBLKTJA	950926B	ICP2	09/26/95	11:01	BJG	S	CONC
7	S95T002177_L	950926B	ICP2	09/26/95	11:04	BJG	S	CONC
8	S95T002177_	950926B	ICP2	09/26/95	11:08	BJG	S	CONC
9	S95T002177_D	950926B	ICP2	09/26/95	11:11	BJG	S	CONC
10	S95T002177_A	950926B	ICP2	09/26/95	11:14	BJG	S	CONC
11	ICSA	950926B	ICP2	09/26/95	11:18	BJG	Q	CONC
12	ICSAB	950926B	ICP2	09/26/95	11:21	BJG	Q	CONC
13	CCV	950926B	ICP2	09/26/95	11:24	BJG	Q	CONC
14	CCB	950926B	ICP2	09/26/95	11:27	BJG	Q	CONC

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

9-26-95
T-109
S95T002177
Acid Digest
Lot 9-6

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 90 TO 93.

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.911	4.892	5.063	4.970	4.884	5.060
2	ICB	.0012	.0014	.0088	.0069	.0001	.0000
3	ICSA	-.0131	246.8	-.0707	-.0068	.0034	.0001
4	ICSAB	.9299	243.0	-.0703	.0016	.4589	.4695
5	PREPSTDTJA	.8565	4.728	4.764	4.766	4.685	5.219
6	PREPBLKTJA	-.0000	.0154	-.0047	.0081	.0001	-.0001
7	S95T002177_L	19.76	1411.	-1.051	211.7	5.769	-.3303
8	S95T002177_	18.68	1411.	10.45	217.1	6.341	-.1646
9	S95T002177_D	18.43	1421.	4.730	217.0	6.332	-.1649
10	S95T002177_A	948.9	2405.	1032.	1211.	960.0	1009.
11	ICSA	-.0131	247.2	-.0730	-.0026	.0034	.0000
12	ICSAB	.9324	244.3	-.0398	-.0017	.4595	.4719
13	CCV	4.924	4.898	5.064	5.003	4.911	5.088
14	CCB	.0006	-.0023	-.0022	.0021	.0001	.0000

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	4.980	5.057	5.005	5.000	5.001	5.044
2	ICB	.0045	.0030	.0005	.0081	.0000	.0005
3	ICSA	.0058	243.7	.0002	.0043	.0002	-.0077
4	ICSAB	-.0050	244.9	.9306	.0036	.4607	.4615
5	PREPSTDTJA	4.579	4.910	4.647	4.807	4.775	4.758
6	PREPBLKTJA	-.0078	.1632	.0005	.0039	.0013	.0021
7	S95T002177_L	333.6	216.4	2.688	-6.613	-4.391	42.32
8	S95T002177_	180.5	326.0	.5799	-3.262	-.0066	39.74
9	S95T002177_D	158.0	322.8	.5746	-1.902	-.4586	39.48
10	S95T002177_A	1175.	1360.	1000.	997.7	1001.	1049.
11	ICSA	.0171	249.7	-.0000	.0039	.0000	-.0077
12	ICSAB	.0159	247.6	.9310	.0040	.4612	.4626
13	CCV	4.990	5.195	5.002	5.036	5.009	5.058
14	CCB	.0046	.0020	.0011	.0028	-.0012	.0005

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.003	.0077	5.017	4.842	4.933	4.927
2	ICB	.0000	.0004	.0000	-.0171	.0006	.0004
3	ICSA	-.0099	.0045	91.83	-.2093	-.0045	.0027
4	ICSAB	.4664	.0021	91.22	-.1242	-.0046	.9486
5	PREPSTDTJA	4.676	.0058	4.705	4.704	4.776	4.686
6	PREPBLKTJA	.0018	-.0006	.0197	-.0131	-.0004	-.0007
7	S95T002177_L	1.886	4.860	16520.	-1154.	1.945	7.393
8	S95T002177_	3.399	-.1150	15910.	-163.6	.9758	1.874
9	S95T002177_D	4.417	-.8406	15850.	-186.6	1.085	1.085
10	S95T002177_A	996.0	.8345	16980.	885.6	980.0	967.2
11	ICSA	-.0105	-.0074	92.59	-.1431	-.0042	.0029
12	ICSAB	.4679	-.0030	91.69	-.1166	-.0044	.9548
13	CCV	5.030	.0072	5.033	4.867	4.969	4.949
14	CCB	-.0006	.0008	.0004	-.0283	.0008	.0007

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	4.904	4.907	5.068	4.922	5.092	4.973
2	ICB	.0015	.0002	.0000	.0046	.0016	-.0024
3	ICSA	248.0	-.0080	-.0157	191.6	.0158	-.0253
4	ICSAB	245.3	.4387	-.0148	189.1	.0141	.8876
5	PREPSTDTJA	4.616	4.650	4.826	4.865	4.770	4.730
6	PREPBLKTJA	.0213	.0004	-.0002	.0634	.0020	.0028
7	S95T002177_L	58.53	1152.	-14.32	186400.	-7.164	29.22
8	S95T002177_	100.4	1118.	-3.634	181900.	.5875	11.06
9	S95T002177_D	110.6	1113.	-5.171	184300.	1.699	16.40
10	S95T002177_A	1075.	2089.	1014.	184800.	1013.	1007.
11	ICSA	249.0	-.0079	-.0148	190.5	.0136	-.0182
12	ICSAB	246.7	.4391	-.0159	189.9	.0145	.8956
13	CCV	4.895	4.900	5.069	4.908	5.125	4.965
14	CCB	-.0143	.0004	.0020	.0078	-.0021	-.0042

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.089	5.009	5.035	4.741	4.980	4.988
2	ICB	.0036	-.0003	-.0062	.0095	.0183	.0082
3	ICSA	.0085	.0353	.0326	.0011	-.0983	.0121
4	ICSAB	.0300	.9962	.0319	-.0046	-.0747	.0167
5	PREPSTDTJA	4.848	4.630	4.697	4.436	4.733	5.564
6	PREPBLKTJA	.0167	.0019	.0589	.0018	.0095	.0171
7	S95T002177_L	82170.	267.1	136.5	51.13	73.04	2667.
8	S95T002177_	80970.	344.2	173.1	-5.633	-9.412	2584.
9	S95T002177_D	80980.	261.3	171.6	-3.071	-3.180	2580.
10	S95T002177_A	81850.	1292.	1172.	961.5	989.1	3602.
11	ICSA	.0279	.0473	.0309	.0122	-.1023	.0147
12	ICSAB	-.0022	1.001	.0255	.0052	-.0825	.0158
13	CCV	5.139	5.003	5.032	4.772	4.974	4.987
14	CCB	.0080	-.0056	-.0019	.0046	.0241	.0094

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.950	4.864	.0433	4.843	4.854	9.887
2	ICB	.0067	.0001	.0012	.0006	.0080	.0117
3	ICSA	-.0083	-.0040	.0001	.0012	.0213	-.2335
4	ICSAB	.0002	-.0039	.0057	.0020	.0045	-.2317
5	PREPSTDTJA	4.777	4.712	.0373	4.678	4.626	9.559
6	PREPBLKTJA	-.0085	.0002	.0036	.0006	-.0021	-.0365
7	S95T002177_L	74.25	7.254	-4.688	10.02	-44.21	228.5
8	S95T002177_	8.887	6.680	-.8382	6.564	4.826	38.47
9	S95T002177_D	2.745	6.603	2.424	6.767	5.392	15.26
10	S95T002177_A	978.9	970.5	13.83	974.1	975.0	1986.
11	ICSA	-.0036	-.0041	.0081	.0016	.0291	-.2657
12	ICSAB	-.0031	-.0040	.0041	.0020	.0213	-.2666
13	CCV	4.987	4.906	.0421	4.877	4.920	9.929
14	CCB	.0103	.0001	.0016	.0000	.0098	.0326

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

#	Sample Name	V	Y	Zn	Zr
1	ICV	4.944	.0138	5.022	4.947
2	ICB	.0012	.0001	.0005	-.0001
3	ICSA	-.0020	.0193	-.0075	-.0029
4	ICSAB	.4602	.0196	.9507	-.0026
5	PREPSTDTJA	4.694	.0112	4.576	4.744
6	PREPBLKTJA	-.0012	-.0007	.0165	-.0011
7	S95T002177_L	14.75	3.527	27.26	15.95
8	S95T002177_	2.767	.8625	48.14	12.60
9	S95T002177_D	.7932	.5488	55.94	11.82
10	S95T002177_A	987.8	3.372	1066.	990.5
11	ICSA	-.0006	.0198	-.0075	-.0028
12	ICSAB	.4615	.0195	.9573	-.0025
13	CCV	4.968	.0137	5.023	4.971
14	CCB	.0016	.0005	.0001	-.0002

LABCORE Data Entry Template for Worklist# 2211

Analyst: JK Sato Instrument: ICP012 (9-1-95) Book# 46B48B

Method: LA-505-~~151~~141 (9-1-95) Rev/Mod B-0

Worklist Comment: T-109 (FUSION)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	ICSA				@ICP-QC	QC		
4	ICSAB				@ICP-QC	QC		
5	PREPBLKTJA				@ICP-F01	SOLID		
6	SAMPLE	S95T001612	0	F	@ICP-F01	SOLID	95000121	T-109
		Analytes Requested:			AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
7	DUP	S95T001612	0	F	@ICP-F01	SOLID		
8	SPK	S95T001612	0	F	@ICP-F01	SOLID		
9	ICSA				@ICP-QC	QC		
10	ICSAB				@ICP-QC	QC		
11	CCV				@ICP-QC	QC		
12	CCB				@ICP-QC	QC		

Final page for worklist # 2211

J.K. Sato 09-01-95
Analyst Signature Date

Reviewed & Validated by:
Samuel M. Parry 09/01/95
Analyst Signature Date

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2211

S Type	Sample#	R	A	Test	Matrix	Group#	Project
Prep blk TJG	.4-10 ml						
S95T001612_L	.5305 g → 250 ml			.4-10-2.8 ml	(30 x 250)/.5305 = 61262.9		
S95T001612	.5305 g → 250			.4-10	(26 x 250)/.5305 = 12252.6		
S95T001612_D	.5348 g → 250			.4-10	(26 x 250)/.5348 = 12154.1		
S95T001612_A	.5305 g → 250			.4-10	(26 x 250)/.5305 = 12252.6		.4 ml sample + 2 ml SSTS + 8 ml HNO3

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Analysis Report Summary Fri 09-01-95 10:31:00 AM page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	950901A	ICP2	09/01/95	09:22	DKS	Q	CONC
2	ICB	950901A	ICP2	09/01/95	09:26	DKS	Q	CONC
3	ICSA	950901A	ICP2	09/01/95	09:29	DKS	Q	CONC
4	ICSAB	950901A	ICP2	09/01/95	09:33	DKS	Q	CONC
5	PREPBLKTJA	950901A	ICP2	09/01/95	09:40	DKS	S	CONC
6	S95T001612_L	950901A	ICP2	09/01/95	09:44	DKS	S	CONC
7	S95T001612_	950901A	ICP2	09/01/95	09:48	DKS	S	CONC
8	S95T001612_D	950901A	ICP2	09/01/95	09:53	DKS	S	CONC
9	S95T001612_A	950901A	ICP2	09/01/95	09:58	DKS	S	CONC
10	ICSA	950901A	ICP2	09/01/95	10:06	DKS	Q	CONC
11	ICSAB	950901A	ICP2	09/01/95	10:09	DKS	Q	CONC
12	10 ppm std	950901A	ICP2	09/01/95	10:19		X	IR
13	CCV	950901A	ICP2	09/01/95	10:23	DKS	Q	CONC
14	CCB	950901A	ICP2	09/01/95	10:27	DKS	Q	CONC

DK [illegible]

09-01-95

T-109 S95T001612

100.-K/15 f# 2211

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

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 96 TO 99.

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	5.011	5.044	5.198	5.071	5.088	5.266
2	ICB	.0007	-.0016	.0033	.0093	.0002	-.0001
3	ICSA	-.0003	250.9	-.0000	.0036	.0019	.0001
4	ICSAB	.9665	248.4	-.0368	-.0019	.4761	.4899
5	PREPBLKTJA	.0003	.0028	.0023	.0051	.0007	-.0001
6	S95T001612_L	68.03	1458.	-654.9	172.2	18.98	-2.101
7	S95T001612_	33.55	1366.	-23.10	57.95	16.60	-1.245
8	S95T001612_D	26.83	1461.	-119.6	35.32	16.52	-1.232
9	S95T001612_A	9802.	12920.	12370.	11600.	11360.	12120.
10	ICSA	-.0008	250.4	.0045	.0001	.0019	-.0000
11	ICSAB	.9699	248.6	.0132	.0026	.4742	.4958
12	10 ppm std						
13	CCV	5.072	5.097	5.308	5.140	5.205	5.381
14	CCB	.0005	-.0042	-.0012	.0033	.0001	-.0000

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.136	5.138	5.203	5.116	5.133	5.227
2	ICB	-.0043	.0056	-.0016	-.0005	-.0001	.0014
3	ICSA	.0000	252.3	.0005	.0179	.0004	.0072
4	ICSAB	.0121	251.9	.9772	.0053	.4758	.4930
5	PREPBLKTJA	-.0062	.0756	.0005	.0027	-.0016	.0009
6	S95T001612_L	-1005.	5030.	-82.99	57.92	-97.29	65.11
7	S95T001612_	300.1	1406.	-15.21	7.486	-2.497	51.54
8	S95T001612_D	-144.4	1319.	-20.81	-31.25	12.81	61.90
9	S95T001612_A	12240.	13660.	12340.	11780.	12110.	12400.
10	ICSA	.0190	257.5	-.0005	.0132	-.0011	.0053
11	ICSAB	-.0036	257.0	.9826	.0129	.4799	.4986
12	10 ppm std						
13	CCV	5.159	5.420	5.334	5.203	5.255	5.360
14	CCB	.0063	.0062	-.0010	-.0005	-.0013	.0010

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.141	.0055	5.206	4.993	5.116	4.971
2	ICB	.0008	.0011	.0000	.0428	.0005	.0006
3	ICSA	-.0099	-.0252	95.91	.2119	-.0037	.0029
4	ICSAB	.4777	-.0250	94.95	.2006	-.0048	.9771
5	PREPBLKTJA	.0011	.0014	.0009	414.8	.0000	.0015
6	S95T001612_L	25.40	63.52	3529.	5403e3	7.313	36.34
7	S95T001612_	26.67	16.29	3398.	5220e3	4.621	14.53
8	S95T001612_D	21.12	21.08	4336.	4998e3	-4.058	14.42
9	S95T001612_A	11710.	41.87	15600.	5173e3	11620.	10980.
10	ICSA	-.0099	-.0361	96.53	.0109	-.0045	.0037
11	ICSAB	.4763	-.0334	95.82	.1743	-.0044	.9689
12	10 ppm std						
13	CCV	5.209	.0056	5.342	5.075	5.196	4.989
14	CCB	.0008	.0007	.0007	.0588	.0001	.0008

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.001	5.077	5.176	4.968	5.250	5.203
2	ICB	.0029	.0005	.0032	.0076	.0015	-.0002
3	ICSA	253.2	-.0061	-.0064	193.0	.0058	-.0190
4	ICSAB	250.5	.4601	-.0102	191.6	.0033	.9377
5	PREPBLKTJA	.0046	.0009	.0020	.1352	.0020	.0034
6	S95T001612_L	252.6	1442.	41.71	174300.	59.07	3058.
7	S95T001612_	196.9	1379.	11.87	168600.	16.02	2858.
8	S95T001612_D	153.8	1626.	5.766	164300.	31.84	1673.
9	S95T001612_A	11790.	13100.	12250.	178300.	11870.	14930.
10	ICSA	253.4	-.0059	-.0051	191.6	.0034	-.0185
11	ICSAB	251.3	.4639	-.0065	190.3	.0032	.9713
12	10 ppm std						
13	CCV	5.074	5.223	5.293	5.000	5.298	5.309
14	CCB	.0083	.0004	.0012	.0054	.0018	.0007

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.380	5.174	5.133	4.839	5.059	4.870
2	ICB	.0316	-.0066	-.0042	.0040	.0352	.0084
3	ICSA	.1395	.0257	-.0217	.0018	-.0592	.0155
4	ICSAB	.0746	1.017	-.0250	.0139	-.0571	.0117
5	PREPBLKTJA	.0481	-.0133	.0129	.0020	.0534	.0252
6	S95T001612_L	86540.	-164.7	478.3	-1.510	2307.	1802.
7	S95T001612_	83830.	86.28	358.5	-84.13	450.1	1050.
8	S95T001612_D	82820.	-40.18	157.1	-13.23	352.5	1239.
9	S95T001612_A	95920.	12530.	12460.	11500.	12480.	12700.
10	ICSA	.1582	.0217	-.0152	.0089	-.0636	.0145
11	ICSAB	.1086	1.011	-.0191	-.0080	-.0317	.0160
12	10 ppm std	2.71519					
13	CCV	5.200	5.314	5.242	4.936	5.231	4.977
14	CCB	.0484	-.0068	-.0017	-.0034	.0264	.0075

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	5.117	5.044	-.0563	4.951	5.060	10.10
2	ICB	.0138	.0000	-.0019	.0000	-.0224	.0541
3	ICSA	.0052	.0017	-.0140	.0013	.0509	-.0467
4	ICSAB	.0056	.0018	-.0193	.0006	.0392	-.0510
5	PREPBLKTJA	.0172	.0004	.0023	.0000	-.0062	-.0469
6	S95T001612_L	934.6	20.18	36.34	1.371	-172.8	1478.
7	S95T001612_	214.9	8.205	91.20	23.48	-320.2	-667.7
8	S95T001612_D	250.0	6.087	47.99	33.56	-238.1	-407.1
9	S95T001612_A	11810.	11430.	3.525	11480.	12050.	22630.
10	ICSA	.0112	.0015	-.0116	.0006	-.0117	-.0744
11	ICSAB	.0105	.0015	-.0076	.0009	.0530	-.0826
12	10 ppm std						
13	CCV	5.200	5.114	-.0466	5.039	5.184	10.21
14	CCB	.0077	.0000	.0014	-.0004	-.0267	.0355

#	Sample Name	V	Y	Zn	Zr
1	ICV	5.124	.0137	5.138	5.057
2	ICB	.0029	.0009	.0004	.0013
3	ICSA	.0020	.0083	-.0041	.0002
4	ICSAB	.4760	.0082	.9835	.0006
5	PREPBLKTJA	.0034	.0011	.0199	.0016
6	S95T001612_L	223.3	52.83	1327.	66.35
7	S95T001612	49.71	14.41	295.3	28.92
8	S95T001612_D	63.08	14.29	293.2	31.75
9	S95T001612_A	12050.	53.79	12520.	11670.
10	ICSA	.0033	.0087	-.0047	-.0000
11	ICSAB	.4826	.0085	.9907	-.0004
12	10 ppm std				
13	CCV	5.231	.0143	5.240	5.150
14	CCB	.0026	.0007	.0001	.0010

JK Lo

09-01-95

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

LABCORE Data Entry Template for Worklist# 2213

Analyst: DK Soto Instrument: ICP01 Book# 46848B

Method: LA-505-151 Rev/Mod D-3

Worklist Comment: ICP T-109 (FUSION)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	ICSA				@ICP-QC	QC		
4	ICSAB				@ICP-QC	QC		
5	PREPBLKARL				@ICP-F01	SOLID		
6	SAMPLE	S95T001619	0	F	@ICP-F01	SOLID	95000121	T-109
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						
7	DUP	S95T001619	0	F	@ICP-F01	SOLID		
8	SPK	S95T001619	0	F	@ICP-F01	SOLID		
9	CCV				@ICP-QC	QC		
10	CCB				@ICP-QC	QC		
11	SAMPLE	S95T001630	0	F	@ICP-F01	SOLID	95000121	T-109
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						
12	DUP	S95T001630	0	F	@ICP-F01	SOLID		

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 2213

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
13	SPK	S95T001630	0	F	@ICP-F01	SOLID		
14	ICSA				@ICP-QC	QC		
15	ICSAB				@ICP-QC	QC		
16	CCV				@ICP-QC	QC		
17	CCB				@ICP-QC	QC		

Final page for worklist # 2213

JK [illegible] 09-05-95
Analyst Signature Date

Reviewed + Validated by:
Samuel M. Parry 09/06/95
Analyst Signature Date

Prep blank, 4.10 ml

S95T001619_L, .5752g → 250 ml, 4.10-2.8, (250 x 130)/.5752 = 56502.1
S95T001619 .5752g → 250 4.10 (250 x 26)/.5752 = 11300.4
S95T001619_D .5473g → 250 4.10 (250 x 26)/.5473 = 11857.8
S95T001619_Q .5752g → 250 4.10 (250 x 26)/.5752 = 11300.4

S95T001630_L, .5171g → 250 ml, 4.10-2.8, (250 x 130)/.5171 = 62850.5
S95T001630 .5171g → 250 4.10 (250 x 26)/.5171 = 12570.1
S95T001630_D .5218g → 250 4.10 (250 x 26)/.5218 = 12456.9
S95T001630_Q .5171g → 250 4.10 (250 x 26)/.5171 = 12570.1

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

File: 950905a

Identity 1: ICV Identity 2: Quality Control 12:08 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	4.944	5.036	5.050	4.698	5.024	4.968	5.097	5.105
S.D.	0.011	0.015	0.027	0.006	0.009	0.019	0.011	0.039
% R.S.D.	0.220	0.302	0.535	0.138	0.187	0.380	0.213	0.756

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.003	5.085	5.148	5.183	4.970	5.077	5.432	9.458
S.D.	0.008	0.024	0.009	0.020	0.012	0.017	0.032	0.019
% R.S.D.	0.166	0.471	0.181	0.379	0.251	0.328	0.581	0.199

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.088	5.083	5.055	5.111	4.931	4.967	5.127	5.048
S.D.	0.016	0.008	0.016	0.159	0.056	0.015	0.043	0.039
% R.S.D.	0.313	0.161	0.307	3.116	1.128	0.293	0.842	0.764

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	5.002	5.120	4.933	5.088	4.823	5.106	5.085	5.100
S.D.	0.012	0.043	0.009	0.055	0.013	0.018	0.017	0.037
% R.S.D.	0.243	0.840	0.192	1.088	0.262	0.358	0.334	0.718

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	5.072	4.656	4.979	5.244	4.850
S.D.	0.011	0.028	0.012	0.011	0.005
% R.S.D.	0.220	0.593	0.236	0.211	0.101

JK 09-05-95

LMO ✓ JK

7-109 595T001619
595T001630

Worklist # 2213

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 102 TO 120.

Identity 1: ICB Identity 2: Quality Control 12:12 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.000	-0.000	0.026	0.009	0.013	-0.003	0.000	0.000
S.D.	0.001	0.000	0.007	0.004	0.001	0.002	0.000	0.000
% R.S.D.	426.600	300.000	25.566	41.416	5.452	57.736	72.282	75.751

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.000	0.001	-0.000	0.003	0.001	0.002	0.003	0.049
S.D.	0.000	0.001	0.003	0.002	0.000	0.001	0.011	0.016
% R.S.D.	52.075	124.923	664.160	47.214	14.070	45.564	330.946	32.965

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.009	-0.001	0.000	0.016	-0.002	0.000	-0.006	-0.010
S.D.	0.007	0.003	0.000	0.003	0.003	0.000	0.003	0.003
% R.S.D.	75.380	291.723	169.236	21.897	147.646	173.205	53.071	30.547

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.003	-0.036	0.001	-0.018	0.001	0.001	0.003	-0.073
S.D.	0.001	0.020	0.000	0.001	0.000	0.000	0.001	0.007
% R.S.D.	57.468	55.996	23.876	5.792	32.852	50.929	33.845	9.841

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.000	-0.014	-0.000	0.000	-0.054
S.D.	0.000	0.036	0.000	0.000	0.008
% R.S.D.	0.181	254.055	142.370	1.541	14.383

Identity 1: ICSA Identity 2: Quality Control 12:15 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.008	0.001	-0.022	0.019	201.605	0.002	0.003	-0.000
S.D.	0.001	0.000	0.010	0.004	0.364	0.002	0.000	0.000
% R.S.D.	8.309	2.406	44.858	21.615	0.181	86.998	12.102	49.251

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	-0.005	0.007	0.003	100.381	101.225	-0.002	0.036	0.046
S.D.	0.001	0.002	0.001	0.138	0.073	0.003	0.007	0.009
% R.S.D.	12.147	29.440	23.231	0.137	0.072	140.017	20.181	19.660

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.005	0.027	0.004	0.062	-0.007	98.897	-0.000	188.534
S.D.	0.002	0.001	0.000	0.005	0.010	0.059	0.002	1.151
% R.S.D.	36.972	2.649	1.051	8.738	146.186	0.060	1130.213	0.610

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.000	-0.007	0.001	-0.041	0.001	-0.000	0.014	-0.097
S.D.	0.001	0.006	0.000	0.010	0.000	0.000	0.001	0.003
% R.S.D.	420.166	97.264	35.290	23.195	44.191	114.411	3.731	3.498

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.008	-0.009	-0.002	0.003	-0.002
S.D.	0.000	0.048	0.000	0.000	0.009
% R.S.D.	6.289	528.910	17.859	10.654	359.611

Identity 1: ICSAB Identity 2: Quality Control 12:18 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00 WHC-SD-WM-DP-144, REV. 1
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.003	0.001	-0.022	0.006	206.195	0.481	0.519	1.005
S.D.	0.001	0.000	0.015	0.001	0.136	0.004	0.001	0.003
% R.S.D.	29.883	6.030	69.181	16.122	0.066	0.865	0.221	0.289

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.975	0.983	0.002	101.048	102.644	0.498	0.034	-0.032
S.D.	0.000	0.002	0.001	0.175	0.087	0.002	0.006	0.032
% R.S.D.	0.035	0.177	34.856	0.174	0.084	0.392	16.722	100.629

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.002	0.028	0.521	0.056	-0.005	99.745	-0.012	196.740
S.D.	0.011	0.006	0.002	0.010	0.002	0.154	0.004	0.391
% R.S.D.	460.229	20.452	0.289	17.234	38.680	0.154	34.765	0.199

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.000	-0.033	1.018	0.995	-0.000	1.008	0.013	-0.097
S.D.	0.001	0.014	0.001	0.023	0.000	0.002	0.001	0.007
% R.S.D.	217.168	43.062	0.137	2.319	3100.909	0.226	8.490	7.338

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.508	0.010	0.487	0.509	0.030
S.D.	0.001	0.023	0.001	0.001	0.007
% R.S.D.	0.211	228.543	0.167	0.142	22.206

Identity 1: PREPBLK Identity 2: Quality Control 12:23 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.000	0.000	-0.003	-0.003	0.007	0.000	0.002	-0.000
S.D.	0.001	0.000	0.002	0.001	0.004	0.003	0.000	0.000
% R.S.D.	1823.350	13.323	73.516	30.004	60.311	59082403.838	19.527	165.939

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.019	0.366	-0.000	0.015	-0.195	0.003	0.010	0.039
S.D.	0.000	0.002	0.003	0.002	0.002	0.002	0.003	0.034
% R.S.D.	0.633	0.419	687.143	16.777	1.210	52.043	25.037	85.822

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.000	0.006	0.001	0.007	0.019	0.002	-0.005	0.196
S.D.	0.010	0.006	0.000	0.010	0.005	0.000	0.001	0.003
% R.S.D.	56466.934	106.484	22.427	136.863	28.257	7.873	17.638	1.773

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.003	0.022	-0.000	-0.024	0.001	0.001	0.001	631.784
S.D.	0.001	0.006	0.001	0.007	0.000	0.000	0.001	2.486
% R.S.D.	24.999	27.298	1045.389	30.574	21.392	30.676	53.401	0.394

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.002	0.007	-0.002	0.000	-0.012
S.D.	0.000	0.003	0.000	0.000	0.016
% R.S.D.	13.752	36.227	16.794	60.283	127.471

Identity 1: S95T001619_L Identity 2: .5752gin250.4-10-2-8 12:31 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 0.5752 Solution Volume : 32500.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-146.920	11.917	656.382	1141.524	2341.393	153.916	96.342	20.508
S.D.	84.061	3.250	325.609	150.516	331.915	88.863	18.110	15.607
% R.S.D.	57.216	27.273	49.607	13.185	14.176	57.735	18.798	76.099

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	991.358	5154.207	-118.974	5340.318	3361.763	281.480	820.726	-5604.573
S.D.	27.017	147.646	39.716	25.092	2.770	24.649	222.235	2756.397
% R.S.D.	2.725	2.865	33.382	0.470	0.082	8.757	27.078	49.181

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	843.486	-843.998	29.510	80135.141	1459.012	140.399	86.621	210806.042
S.D.	648.708	639.886	13.836	791.857	220.496	5.287	180.060	1980.426
% R.S.D.	76.908	75.816	46.886	0.988	15.113	3.765	207.871	0.939

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	38.989	1090.970	139.687	-510.671	28.173	81.413	-179.027	7681626.333
S.D.	36.841	687.150	47.566	787.259	18.039	21.036	56.198	67509.070
% R.S.D.	94.491	62.985	34.051	154.162	64.031	25.839	31.391	0.879

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	556.868	860.646	57.060	10.084	116.324
S.D.	8.980	1048.818	25.579	6.036	2093.321
% R.S.D.	1.613	121.864	44.829	59.857	1799.554

Identity 1: S95T001619 Identity 2: .5752gin250.4-10ml 12:36 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 0.5752 Solution Volume : 6500.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-26.000	6.067	-4.147	377.959	1088.047	20.522	22.011	-2.637
S.D.	9.022	0.375	74.354	7.445	23.326	30.783	2.826	0.415
% R.S.D.	34.700	6.186	1792.958	1.970	2.144	150.003	12.840	15.757

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	247.120	5240.541	-3.751	5454.690	-2052.399	39.413	38.439	-79.342
S.D.	3.589	36.476	8.082	39.667	27.318	5.645	32.082	21.114
% R.S.D.	1.453	0.696	215.458	0.727	1.331	14.322	83.464	26.611

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-74.729	-100.561	11.225	81412.710	456.069	79.967	-26.329	202630.765
S.D.	48.874	22.429	1.398	765.413	38.351	1.057	39.223	1135.252
% R.S.D.	65.401	22.304	12.452	0.940	8.409	1.322	148.973	0.560

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-24.425	25.249	4.129	-107.445	33.995	2.435	10.671	7200090.351
S.D.	9.526	119.278	3.036	114.174	1.968	4.203	4.985	27684.283
% R.S.D.	39.003	472.415	73.533	106.263	5.790	172.629	46.720	0.384

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	555.139	198.094	-11.350	0.710	88.452
S.D.	4.771	136.421	5.461	1.245	32.632
% R.S.D.	0.859	68.867	48.110	175.482	36.892

Identity 1: S95T001619_D Identity 2: .5673gin250.4-10ml 12:40 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 0.5673 Solution Volume : 6500.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-8.896	5.273	-28.280	362.411	1008.580	-20.808	19.563	-4.145
S.D.	7.633	1.007	38.116	3.404	23.684	36.040	4.656	3.359
% R.S.D.	85.803	19.094	134.780	0.939	2.348	173.204	23.802	81.047

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	247.660	5765.363	5.846	4797.765	-2369.661	53.199	-100.043	462.939
S.D.	1.387	14.498	16.559	131.126	34.414	19.381	47.603	398.307
% R.S.D.	0.560	0.251	283.235	2.733	1.452	36.432	47.583	86.039

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-189.709	231.235	11.574	79377.322	419.828	68.083	-106.231	203897.337
S.D.	126.449	94.187	2.020	892.165	32.255	1.072	13.262	1242.997
% R.S.D.	66.655	40.732	17.454	1.124	7.683	1.575	12.484	0.610

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	3.164	-86.095	5.773	-145.509	29.686	10.082	5.724	7518911.596
S.D.	13.444	67.097	9.780	185.404	0.678	8.981	2.206	39281.071
% R.S.D.	424.947	77.933	169.407	127.417	2.284	89.087	38.535	0.522

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	423.333	-441.876	-25.890	3.708	-135.862
S.D.	3.178	330.136	4.158	2.139	314.478
% R.S.D.	0.751	74.712	16.059	57.678	231.469

Identity 1: S95T001619_A Identity 2: .5752gin250,.4-10 ml 12:46 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 0.5752 Solution Volume : 6500.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	10958.923	11170.696	10822.986	10652.686	12172.244	10784.286	11368.900	10463.257
S.D.	24.426	41.215	100.978	15.503	67.000	71.090	54.757	80.616
% R.S.D.	0.223	0.369	0.933	0.146	0.550	0.659	0.482	0.770

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	10928.117	16290.757	11526.450	16911.458	8652.972	11186.192	12475.307	21331.840
S.D.	23.362	61.247	21.393	148.755	12.448	16.427	12.897	300.467
% R.S.D.	0.214	0.376	0.186	0.880	0.144	0.147	0.103	1.409

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	11395.940	11165.916	11192.637	89644.639	10631.444	10731.935	11269.206	213364.225
S.D.	67.508	8.229	49.475	4126.623	354.407	24.023	88.988	1555.038
% R.S.D.	0.592	0.074	0.442	4.603	3.334	0.224	0.790	0.729

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	10806.723	11243.488	7066.799	11097.816	10660.443	11120.222	10886.242	7242412.685
S.D.	36.774	190.494	77.563	19.847	27.829	34.441	30.818	42622.884
% R.S.D.	0.340	1.694	1.098	0.179	0.261	0.310	0.283	0.589

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	11715.873	10516.354	10980.176	11145.129	11142.193
S.D.	21.774	167.647	12.596	45.330	143.527
% R.S.D.	0.186	1.594	0.115	0.407	1.288

Identity 1: CCV Identity 2: Quality Control 12:58 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00 WHC-SD-WM-DP-144, REV. 1
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	4.974	5.112	5.044	4.667	5.049	4.914	5.183	5.203
S.D.	0.021	0.028	0.020	0.017	0.017	0.018	0.022	0.003
% R.S.D.	0.419	0.548	0.402	0.374	0.338	0.361	0.427	0.052

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	4.923	5.037	5.214	5.177	5.029	5.012	5.576	9.722
S.D.	0.009	0.006	0.018	0.020	0.025	0.014	0.043	0.020
% R.S.D.	0.191	0.124	0.351	0.383	0.500	0.278	0.770	0.209

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.156	5.197	5.150	4.897	4.789	4.916	5.137	5.134
S.D.	0.030	0.022	0.029	0.269	0.124	0.015	0.009	0.003
% R.S.D.	0.574	0.417	0.571	5.500	2.592	0.301	0.176	0.060

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	4.971	5.163	4.879	5.076	4.843	5.073	5.107	5.120
S.D.	0.016	0.034	0.013	0.010	0.021	0.005	0.019	0.051
% R.S.D.	0.326	0.661	0.268	0.195	0.427	0.101	0.367	1.001

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	5.039	4.696	4.966	5.282	4.848
S.D.	0.007	0.025	0.016	0.020	0.015
% R.S.D.	0.133	0.538	0.315	0.373	0.319

Identity 1: CCB Identity 2: Quality Control 1:03 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.001	-0.000	0.030	0.008	0.014	0.005	-0.000	-0.000
S.D.	0.000	0.000	0.009	0.002	0.005	0.003	0.000	0.000
% R.S.D.	23.945	28.868	30.792	25.998	31.550	60.000	247.430	258.917

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.001	0.002	-0.002	0.002	0.001	0.003	-0.011	0.006
S.D.	0.000	0.003	0.000	0.001	0.000	0.001	0.007	0.016
% R.S.D.	30.097	195.199	0.296	59.865	10.940	44.048	61.548	243.384

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.004	-0.015	-0.000	0.001	-0.003	0.000	0.002	-0.002
S.D.	0.002	0.004	0.000	0.005	0.003	0.000	0.006	0.001
% R.S.D.	58.069	23.593	58.820	354.914	122.330	202914397.370	380.416	57.695

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.001	-0.019	0.001	-0.019	0.001	0.001	0.001	-0.022
S.D.	0.001	0.001	0.000	0.008	0.000	0.000	0.001	0.014
% R.S.D.	142.716	4.394	60.618	41.049	39.417	45.863	109.672	61.104

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.000	0.022	-0.001	0.000	-0.003
S.D.	0.000	0.010	0.001	0.000	0.015
% R.S.D.	57.894	45.741	77.429	28.309	550.505

Identity 1: S95T001630_L Identity 2: .5171gin250.4-10-2-8 1:07 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 0.5171 Solution Volume : 32500.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-156.405	6.025	623.105	1493.102	1858.050	114.139	42.536	-23.961
S.D.	38.511	3.615	483.669	204.244	590.887	171.209	15.159	10.043
% R.S.D.	24.622	60.000	77.622	13.679	31.801	149.999	35.637	41.914

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	1200.398	4572.427	-76.873	14715.098	3945.208	276.709	1082.706	-1627.147
S.D.	29.633	177.253	0.722	147.926	15.933	50.334	65.313	1525.659
% R.S.D.	2.469	3.877	0.940	1.005	0.404	18.190	6.032	93.763

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-207.210	-719.102	14.646	83851.343	597.315	203.706	157.013	193392.576
S.D.	179.500	256.000	3.191	1994.237	68.428	10.185	137.564	1171.383
% R.S.D.	86.627	35.600	21.785	2.378	11.456	5.000	87.613	0.606

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-130.062	-1549.142	55.976	-1393.385	66.682	63.040	6.947	7912012.005
S.D.	47.761	788.921	30.902	673.946	9.078	17.696	10.474	24980.851
% R.S.D.	36.722	50.926	55.206	48.368	13.615	28.071	150.759	0.316

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	740.126	-564.701	-79.385	19.811	321.500
S.D.	9.976	653.809	51.228	0.194	903.424
% R.S.D.	1.348	115.780	64.531	0.981	281.003

Identity 1: S95T001630 Identity 2: .5171gin250.4-10 ml 1:12 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 0.5171 Solution Volume : 6500.00 WHC-SD-WM-DP-144, REV. 1
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	3.751	7.954	10.362	774.187	1430.169	-11.414	30.273	0.234
S.D.	6.936	0.417	33.620	57.563	29.781	34.241	5.389	2.813
% R.S.D.	184.943	5.249	324.457	7.435	2.082	299.982	17.802	1201.142

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	270.798	4730.251	44.386	14276.807	-1388.888	69.681	203.059	1219.207
S.D.	6.039	22.520	8.953	122.765	20.619	21.993	129.614	155.227
% R.S.D.	2.230	0.476	20.170	0.860	1.485	31.563	63.831	12.732

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	11.952	129.838	17.170	80206.535	517.297	133.769	-46.327	183701.992
S.D.	80.134	50.966	0.890	2391.128	27.178	2.352	81.744	1164.505
% R.S.D.	670.479	39.253	5.182	2.981	5.254	1.758	176.449	0.634

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-22.543	294.027	35.402	-250.514	98.011	11.058	2.435	7223458.559
S.D.	9.551	45.239	5.152	105.432	2.651	8.133	9.434	29610.322
% R.S.D.	42.369	15.386	14.552	42.086	2.705	73.554	387.376	0.410

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	753.789	218.377	-15.173	0.956	-361.926
S.D.	3.444	391.713	9.725	1.391	115.545
% R.S.D.	0.457	179.375	64.090	145.478	31.925

Identity 1: S95T001630_D Identity 2: .5218gin250.4-10 ml 1:16 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 0.5218 Solution Volume : 6500.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-42.976	4.538	-43.942	242.068	833.168	-22.623	85.922	-6.338
S.D.	13.066	0.827	162.899	22.838	44.543	19.591	7.625	3.193
% R.S.D.	30.403	18.232	370.711	9.434	5.346	86.600	8.874	50.378

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	266.175	8446.231	-14.795	3904.668	-2412.282	35.100	-30.149	-201.565
S.D.	5.086	69.423	15.576	27.066	47.208	10.520	49.803	445.521
% R.S.D.	1.911	0.822	105.283	0.693	1.957	29.972	165.188	221.031

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-148.259	-223.685	13.719	82034.347	304.402	95.553	-67.425	193799.591
S.D.	148.843	60.948	2.826	1054.804	28.257	1.166	25.313	1486.750
% R.S.D.	100.394	27.247	20.596	1.286	9.283	1.220	37.542	0.767

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-13.175	197.953	13.634	-344.389	12.428	-0.886	-12.466	8064663.086
S.D.	5.525	30.181	5.447	125.746	2.301	4.634	9.648	55142.786
% R.S.D.	41.931	15.246	39.948	36.513	18.512	523.087	77.397	0.684

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	493.283	-266.860	-21.457	-0.819	-457.263
S.D.	3.925	477.399	4.294	2.437	261.897
% R.S.D.	0.796	178.895	20.011	297.488	57.275

Identity 1: ICSAB Identity 2: Quality Control 1:36 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.003	0.002	-0.013	0.005	205.252	0.489	0.509	0.985
S.D.	0.001	0.000	0.004	0.002	0.339	0.002	0.001	0.003
% R.S.D.	20.860	2.192	32.748	51.671	0.165	0.320	0.156	0.330

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.985	1.000	0.000	101.281	102.024	0.506	0.032	-0.042
S.D.	0.000	0.000	0.001	0.150	0.178	0.003	0.006	0.023
% R.S.D.	0.027	0.045	366.283	0.148	0.175	0.655	19.799	53.938

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.017	0.010	0.514	0.090	0.015	101.663	-0.011	193.903
S.D.	0.002	0.005	0.001	0.004	0.013	0.205	0.006	0.749
% R.S.D.	8.925	45.426	0.109	4.302	83.850	0.202	57.553	0.386

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.003	-0.022	1.021	1.026	0.000	1.009	0.014	0.084
S.D.	0.002	0.026	0.000	0.013	0.000	0.001	0.001	0.013
% R.S.D.	47.683	119.962	0.038	1.257	56.520	0.104	6.067	15.381

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.512	0.009	0.490	0.506	-0.002
S.D.	0.001	0.019	0.001	0.001	0.007
% R.S.D.	0.255	201.565	0.165	0.175	459.234

Identity 1: S95T001630_A Identity 2: .5171gin250.4-10 ml 1:21 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 0.5171 Solution Volume : 6500.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	12199.328	12427.976	12394.261	12206.045	13598.166	12224.257	12570.211	11691.169
S.D.	9.683	19.325	255.691	18.720	65.077	71.280	20.886	85.186
% R.S.D.	0.079	0.155	2.063	0.153	0.479	0.583	0.166	0.729

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	12378.863	17157.681	12707.799	27071.296	10278.673	12637.662	13411.183	22609.954
S.D.	25.055	61.214	56.104	55.762	24.172	101.312	266.027	275.628
% R.S.D.	0.202	0.357	0.441	0.206	0.235	0.802	1.984	1.219

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	12643.572	12160.814	12400.718	97460.103	12428.441	12190.972	12629.562	198406.539
S.D.	54.273	27.022	16.417	1657.582	94.689	6.143	120.501	1458.603
% R.S.D.	0.429	0.222	0.132	1.701	0.762	0.050	0.954	0.735

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	12241.781	12318.912	7435.028	12552.480	11949.483	12461.738	12135.213	7348209.968
S.D.	24.791	338.700	56.732	218.656	3.965	41.214	31.308	50128.509
% R.S.D.	0.203	2.749	0.763	1.742	0.033	0.331	0.258	0.682

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	13255.196	10984.559	12315.471	12468.488	12195.375
S.D.	13.987	378.753	12.251	20.173	182.926
% R.S.D.	0.106	3.448	0.099	0.162	1.500

Identity 1: ICSA Identity 2: Quality Control 1:32 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00 WHC-SD-WM-DP-144, REV. 1
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.008	0.002	-0.012	0.014	205.451	0.007	0.004	-0.000
S.D.	0.000	0.000	0.009	0.003	0.215	0.004	0.000	0.000
% R.S.D.	5.877	4.277	73.571	20.322	0.104	57.694	10.049	80.148

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	-0.005	0.008	0.002	100.540	101.469	0.000	0.038	0.055
S.D.	0.000	0.001	0.002	0.197	0.053	0.001	0.002	0.038
% R.S.D.	3.382	11.092	116.108	0.196	0.052	548.434	4.331	69.503

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.017	0.016	0.004	0.085	-0.003	100.756	-0.001	195.691
S.D.	0.011	0.004	0.000	0.017	0.008	0.214	0.009	0.364
% R.S.D.	65.593	23.345	4.151	20.221	322.035	0.213	716.518	0.186

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.003	0.009	0.003	0.017	0.001	0.001	0.012	0.036
S.D.	0.001	0.015	0.000	0.013	0.000	0.001	0.001	0.005
% R.S.D.	28.133	178.574	18.564	75.377	13.119	107.282	9.658	14.431

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.008	-0.008	0.001	0.003	-0.028
S.D.	0.000	0.030	0.001	0.000	0.017
% R.S.D.	3.321	388.826	50.444	0.173	61.114

Identity 1: CCV Identity 2: Quality Control 1:41 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	4.990	5.114	5.066	4.692	5.057	4.967	5.175	5.181
S.D.	0.008	0.011	0.028	0.002	0.007	0.010	0.012	0.027
% R.S.D.	0.157	0.206	0.559	0.050	0.142	0.208	0.226	0.528

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	4.974	5.094	5.220	5.213	5.029	5.077	5.578	9.623
S.D.	0.002	0.016	0.003	0.010	0.006	0.005	0.015	0.008
% R.S.D.	0.042	0.312	0.060	0.188	0.118	0.106	0.262	0.086

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.140	5.172	5.143	5.282	4.980	4.955	5.155	5.130
S.D.	0.009	0.010	0.011	0.059	0.033	0.007	0.008	0.026
% R.S.D.	0.179	0.185	0.220	1.108	0.659	0.134	0.150	0.510

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	4.998	5.168	4.915	5.087	4.859	5.120	5.129	5.195
S.D.	0.012	0.026	0.005	0.036	0.009	0.008	0.008	0.022
% R.S.D.	0.246	0.497	0.100	0.704	0.191	0.159	0.154	0.431

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	5.076	4.716	4.996	5.296	4.839
S.D.	0.005	0.054	0.006	0.010	0.016
% R.S.D.	0.098	1.146	0.114	0.190	0.329

Identity 1: CCB Identity 2: Quality Control 1:45 PM September 5, 1995
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.001	-0.000	0.016	0.005	0.017	0.001	0.000	0.000
S.D.	0.000	0.000	0.004	0.001	0.004	0.002	0.000	0.000
% R.S.D.	25.650	86.603	27.266	26.772	23.341	173.206	74.933	60.161

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.000	-0.001	-0.001	0.004	0.001	0.001	0.006	0.022
S.D.	0.000	0.001	0.001	0.002	0.000	0.002	0.004	0.015
% R.S.D.	754.103	75.352	100.295	40.401	4.167	391.362	73.983	69.522

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.000	-0.012	0.000	0.025	-0.003	0.000	-0.002	-0.000
S.D.	0.006	0.004	0.000	0.012	0.005	0.000	0.002	0.001
% R.S.D.	1873.567	34.953	60.706	47.477	153.294	173.205	83.331	718051.262

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.000	-0.016	0.002	-0.007	0.000	0.000	0.000	-0.066
S.D.	0.000	0.011	0.000	0.005	0.000	0.001	0.001	0.005
% R.S.D.	119.979	64.861	22.183	67.581	182.534	153.146	566.891	7.785

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.001	0.016	-0.000	0.000	0.009
S.D.	0.000	0.014	0.000	0.000	0.010
% R.S.D.	28.943	92.274	80.264	24.205	110.773

9-5-95

RADIOCHEMICAL ANALYSES

LABCORE Data Entry Template for Worklist# 2235

Analyst: AKL **Instrument:** AB00 16 **Book #** 140B52

WO 27805

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3	BLNK/BKG	0.33			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000121	T-109	4	SAMPLE	S95T001612	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000121	T-109	4	SAMPLE	S95T001612	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000121	T-109	5	DUP	S95T001612	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000121	T-109	5	DUP	S95T001612	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000121	T-109	6	SPK	S95T001612	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g

Final page for worklist # 2235

A Jones
Analyst Signature Date

Shawn L Holder 9-7-95
Analyst Signature Date

Data Entry Comments:

Low SPK recovery is due to sample matrix interference (dissolve solids content). No rerun requested. [illegible] 9/7/95

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.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) LIQUIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STANDARD	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	4509	4340
2235	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		150.100	144.467
Sample #	Sample Concentration in µCi/L		3.21E-02	BOOK#
WORKLIST#2235	Replicate Concentration in µCi/L		3.09E-02	140B52
Instrument Code				
WB27806	Average Concentration in µCi/L		3.1532E-02	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
09/05/95	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	(Average) =	3.15E-05	
				1.01E-07 µCi/mL
RELATIVE COUNTING ERROR		=	3.0%	

Data Entry by: [signature] Date: 09/06/95

Approved by: [signature] Date: 9/7/95

Form 508101_C Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		16	16
BLANK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3	1
2235	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.122	2.122
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.191	0.191
Sample #	Sample Concentration in µCi/g	<	9.61E-04	BOOK#
S95T1612	Replicate Concentration in µCi/g	<	9.61E-04	
Instrument Code				
WB27806	Maximum Concentration in µCi/g	<	9.6112E-04	
Analyst				
AKL				
Date				
09/05/95				
Time				
02:00 PM				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

ALPHA TOTAL	in µCi/g	(Maximum) =	< 9.61E-04	DETECTION LEVEL
LESS Than Value was Determined from Lc.				2.38E-03 µCi/g
RELATIVE COUNTING ERROR		=	196.0%	

Data Entry by: [signature] Date: 09/06/95

Approved by: [signature] Date: 9/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)
LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	128	111
2235	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.122	2.122
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.067	3.500
Sample #	Sample Concentration in µCi/g		2.05E-02	BOOK#
S95T1612	Replicate Concentration in µCi/g		1.77E-02	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.9085E-02	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
09/05/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.91E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	20.2%	2.38E-03 µCi/g

Data Entry by: [signature] Date: 09/06/95
Approved by: [signature] Date: 9/7/95

Form 508101_C Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	149	126
2235	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1392	2.1392
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.767	4.000
Sample #	Sample Concentration in µCi/g		2.39E-02	BOOK#
S95T1612	Replicate Concentration in µCi/g		2.00E-02	
Instrument Code				
WB27806	Average Concentration in µCi/g		2.1934E-02	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
09/05/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/g	(Average) =	2.19E-02	
RELATIVE COUNTING ERROR		=	18.8%	2.36E-03 µCi/g

Data Entry by: Shyra L. Yager Date: 09/06/95

Approved by: [signature] Date: 9/7/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	49319	50390
2235	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.200	0.200
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.122	2.122
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	44.777	44.777
S95T1612	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	8.29E+00	8.47E+00
WB27806	AVERAGE or MAXIMUM µCi/g from FORM C		1.9085E-02	
Analyst	BOOK#		112B43	
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
09/05/95	PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100			
Time				
02:00 PM				

RESULT **AVG. PERCENT SPIKE RECOVERY = 79.3%**

Data Entry by:	Sharon L Hale	Date:	06-Sep-95
Approved by:	[illegible]	Date:	9/7/95

Form 508101_X Rev. 1.3

worklistrpt Version 2.1 05/15/95
09/05/95 07:43

LABCORE Data Entry Template for Worklist# 2236

Analyst: AKL **Instrument:** AB00 16 WD27806 **Book #** 140B52

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3	BLNK/BKG	1.74			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000121	T-109	4	SAMPLE	S95T001619	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000121	T-109	4	SAMPLE	S95T001619	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000121	T-109	5	DUP	S95T001619	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000121	T-109	5	DUP	S95T001619	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000121	T-109	6	SPK	S95T001619	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000121	T-109	7	SAMPLE	S95T001630	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000121	T-109	7	SAMPLE	S95T001630	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000121	T-109	8	DUP	S95T001630	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000121	T-109	8	DUP	S95T001630	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000121	T-109	9	SPK	S95T001630	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g

Final page for worklist # 2236

A Lewis

Sharon L Hall 9-7-95

Data Entry Comments:

High RPD for 1630 is acceptable due to low sample alpha activity. Low SPK recoveries are the result of dissolved solids in sample. No recun requested. AKL 9-7-95

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# 2236

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) LIQUIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STANDARD	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	4644	4344
2236	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.24	0.24
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		154.560	144.560
Sample #	Sample Concentration in µCi/L		3.31E-02	BOOK#
WORKLIST#2236	Replicate Concentration in µCi/L		3.09E-02	140B52
Instrument Code				
WB27806	Average Concentration in µCi/L		3.2020E-02	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
09/06/95	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/mL	(Average) =	3.20E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	3.0%	1.09E-07 µCi/mL

Data Entry by: [signature] Date: 09/07/95

Approved by: [signature] Date: 9/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)
LA-548-101 (A-3) SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		16	16
BLANK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	5	20
2236	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.24	0.24
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.3008	2.3008
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.209	0.427
Sample #	Sample Concentration in µCi/g	<	6.47E-04	BOOK#
S95T1619	Replicate Concentration in µCi/g		1.32E-03	
Instrument Code				
WB27806	Maximum Concentration in µCi/g	<	1.3234E-03	
Analyst				
AKL				
Date				
09/06/95				
Time				
12:00 PM				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

ALPHA TOTAL	in µCi/g	(Maximum) =	< 1.32E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rs.				1.58E-03 µCi/g
RELATIVE COUNTING ERROR		=	500.0%	

Data Entry by:		Date:	09/07/95
Approved by:		Date:	9/7/95

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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	78	57
2236	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.24	0.24
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.3008	2.3008
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.360	1.660
Sample #	Sample Concentration in µCi/g		7.32E-03	BOOK#
S95T1619	Replicate Concentration in µCi/g		5.15E-03	
Instrument Code				
WB27806	Average Concentration in µCi/g		6.2344E-03	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
09/06/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	6.23E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	31.5%	1.58E-03 µCi/g

Data Entry by: Stephen [illegible] Date: 09/07/95

Approved by: [illegible] Date: 9/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	76	63
2236	COUNT TIME in MINUTES	(CT)	30	30
A1 or TB ?	BACKGROUND in cpm	(BKG)	0.24	0.24
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.2692	2.2692
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.293	1.860
Sample #	Sample Concentration in µCi/g		7.21E-03	BOOK#
S95T1619	Replicate Concentration in µCi/g		5.85E-03	
Instrument Code				
WB27806	Average Concentration in µCi/g		6.5309E-03	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
09/06/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/g	(Average) =	6.53E-03	
RELATIVE COUNTING ERROR		=	29.4%	1.60E-03 µCi/g

Data Entry by:	Shawn L. Walsh	Date:	09/07/95
Approved by:	[illegible]	Date:	9/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	52637	52031
2236	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.24	0.24
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.300	0.300
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.3008	2.3008
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	44.777	44.777
S95T1619	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	5.44E+00	5.38E+00
WB27806	AVERAGE or MAXIMUM µCi/g from FORM C		6.2344E-03	
Analyst	BOOK#		112B52	
AKL				
Date				
09/06/95				
Time				
12:00 PM				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT **AVG. PERCENT SPIKE RECOVERY = 83.3%**

Data Entry by: [signature] Date: 07-Sep-95

Approved by: [signature] Date: 9/7/95

Form 508101_X Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	77	102
2236	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.24	0.24
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.0684	2.0684
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.327	3.160
Sample #	Sample Concentration in µCi/g		8.03E-03	BOOK#
S95T1630	Replicate Concentration in µCi/g		1.09E-02	
Instrument Code				
WB27806	Average Concentration in µCi/g		9.4651E-03	
Analyst				
AKL				
Date				
09/06/95				
Time				
12:00 PM				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	9.47E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	25.8%	1.75E-03 µCi/g

Data Entry by: [signature] Date: 09/07/95

Approved by: [signature] Date: 9/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	57	48
2236	COUNT TIME in MINUTES	(CT)	30	30
AT or TS ?	BACKGROUND in cpm	(BKG)	0.24	0.24
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.0872	2.0872
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.660	1.360
Sample #	Sample Concentration in µCi/g		5.68E-03	BOOK#
S95T1630	Replicate Concentration in µCi/g		4.65E-03	
Instrument Code				
WB27806	Average Concentration in µCi/g		5.1629E-03	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
09/06/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	5.16E-03	DETECTION LEVEL
				1.74E-03 µCi/g
RELATIVE COUNTING ERROR		=	35.7%	

Data Entry by:	Sharon Fitzwater	Date:	09/07/95
Approved by:	[illegible]	Date:	9/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

AT : LA-508-101 (D-2)

LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	52543	50446
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.24	0.24
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.300	0.300
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	1	1
DIGEST GRAMS of SOLIDS/L		(Dg/L)	2.0684	2.0684
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE VALUE in µCi/L		(SVal)	44.777	44.777
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
SAMPLE + SPIKE µCi/g		(S+S)	6.04E+00	5.80E+00
AVERAGE or MAXIMUM µCi/g from FORM C			9.4651E-03	
BOOK#			112B52	

Type	Work List	AT or TB ?	Test Code	Matrix	Sample #	Instrument Code	Analyst	Date	Time
SPIKE	2236	AT	@ALPHA01	SOLID	S95T1630	WB27806	AKL	09/06/95	12:00 PM

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT AVG. PERCENT SPIKE RECOVERY = 81.9%

Data Entry by: [signature] Date: 07-Sep-95

Approved by: [signature] Date: 9/7/95

Form 508101_X Rev. 1.3

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

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

PART II

WHC-SD-WM-DP-144, REV. 0

ANALYTICAL SERVICES

45-DAY SAFETY SCREENING RESULTS FOR TANK 241-T-109, AUGER SAMPLES 95-AUG-040 AND 95-AUG-041

Date Printed: SEPTEMBER 29, 1995

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

WHC-SD-WM-DP-144, REV. 0

NARRATIVE

45-DAY SAFETY SCREENING REPORT FOR TANK 241-T-109, AUGER SAMPLES 95-AUG-040 AND 95-AUG-041

ANALYTICAL SUMMARY

Two auger samples were taken from tank 241-T-109 (T-109). 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 thermogravimetric analysis (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 other safety screening analyses (DSC and total alpha analysis) were within the action limits stated in the SAP. The low moisture content of the samples is not a cause 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.

Based on the results of combustible gas monitoring prior to auger sampling, the T-109 vapor space is at zero percent of the Lower Explosive Limit (LEL). Per the criteria (energetics, criticality, and flammability) in the newly revised *Safety Screening Data Quality Objective* (DQO) [2], the results of the auger sampling event indicate that the tank is "safe."

SCOPE

This document serves as the 45-day report deliverable 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]. Included in this report are the primary safety screening results obtained from the analyses, and copies of all DSC and TGA raw data scans as requested in the SAP.

No additional testing to support safety screening analyses is required. Any additional analyses conducted by the 222-S Laboratories on these auger samples will be included in a revision to this report. The T-109 samples are being further analyzed for certain chemical constituents in accordance with the SAP.

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 of the vapor space of tank T-109 are presented in Table 1. This measurement is conducted in the field and recorded in the work package (work package for T-109 auger sampling is #WS-95-00109). 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 Through Riser 6.

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.

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 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 additional (non-safety screening) laboratory analyses and for shipment to Pacific Northwest Laboratory for use in sludge washing studies.

ANALYTICAL RESULTS

THERMOGRAVIMETRIC ANALYSIS (TGA)

Three unhomogenized and three homogenized samples were submitted for moisture content determination by TGA. Samples S95T001616 and S95T001626 were performed using procedure LA-514-114, Rev C-0. The remaining four TGA samples were performed using procedure LA-560-112, Rev. B-0. The samples were analyzed in duplicate. The results are presented in the summary tables, and the raw data scans are attached. Per the revised safety screening DQO [2], the sample results were compared to the action limit at a 95% confidence level. This is more stringent than the requirements of the SAP, which required comparison at a 90% confidence level. These comparisons are presented in Attachment 1.

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 of the samples is not a cause for concern. In fact, inspection of the thermograms (attached) reveals that the weight loss curves for these two samples were integrated conservatively (integrated only up to a slight inflection of the curves at about 105 °C). Had these thermograms been integrated out to approximately 170 °C as was done for samples S95T001616 and S95T001626 from auger 950AUG-041, the moisture results would have been between 40% and 50%.

Three standards were run with these samples. The percent recovery for each standard analyzed was within the 90-110% range specified in the SAP. The results are presented in the summary tables.

DIFFERENTIAL SCANNING CALORIMETRY (DSC)

Three samples were submitted for determination of energetics by DSC. Sample S95T001600 was performed using procedure LA-514-114, Rev. C-0 (any exotherms from this sample would be evident as decreases from the baseline of the thermogram). Samples S95T001618 and S95T001629 were performed using procedure LA-514-113, Rev. C-0 (any exotherms from these samples would be evident as increases from the baseline of the thermogram). The samples were analyzed in duplicate. The results are presented in the summary tables, and the raw data scans are attached. 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.

Two standards were run with these samples. The percent recovery for each standard analyzed was within the 90-110% range specified in the SAP. The results are presented in the summary tables.

TOTAL ALPHA

Three solids samples were submitted for total alpha analysis per procedure LA-508-101, Rev. D-2. The samples were fused 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 0.0219 μCi/g, over three 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 Attachment 1. Comparison to the limit at a 95% confidence level is more stringent than the requirements of the SAP, which required comparison at a 90% confidence level. 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 control results are presented in the summary tables.

Project Coordinator: John M. Conner

REFERENCES

[1] J. M. Conner, *Tank 241-T-109 Auger Sampling and Analysis Plan*, WHC-SD-WM-TSAP-014, Rev. 0, Westinghouse Hanford Company, Richland, Washington, June 15, 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.

Westinghouse Hanford Company

ATTACHMENT 1 (page 1 of 2)

Internal Memo

From: Process Chemistry and Statistics
Phone: 373-4034 T6-07
Date: September 27, 1995
Subject: 95% CONFIDENCE INTERVALS FOR TANK T-109

75764-PCS95-083

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

To: J. M. Conner R2-12

cc: L. Jensen R2-12
J. R. Jewett T6-06
J. G. Kristofzski R2-12
T. L. Welsh T6-07
RDC File/LB

Confidence intervals were computed for each sample number from tank T-109 analytical data per your request. The sample numbers and confidence intervals are provided in Tables 1 and 2.

The lower limit (LL) of a one-sided 95% Confidence Interval for the mean is

$$\hat{\mu} - t_{(n-1,0.95)} * \sqrt{\frac{\hat{\sigma}^2}{n}}$$

and the upper limit (UL) of a one-sided 95% Confidence Interval for the mean is

$$\hat{\mu} + t_{(n-1,0.95)} * \sqrt{\frac{\hat{\sigma}^2}{n}}.$$

For these two equations, $\hat{\mu}$ is the arithmetic mean of the data, n is the number of observations, $\hat{\sigma}^2$ is the variance of the data and $t_{(n-1,0.95)}$ is a quantile from Student's t distribution with $n-1$ degrees of freedom and 0.95 confidence level.

For the tank T-109 data (per sample number), n is two and $t_{(1,0.95)}$ is 6.314 for a one-sided 95% confidence interval.

For the thermogravimetric analysis (TGA) data, the lower limit will be used to test the null hypothesis that the mean percent water is less than or equal to 17 percent. For the Total Alpha data, the upper limit will be used to test the null hypothesis that the mean concentration is greater than or equal to 41 μCi/g.

The lower limit of the 95% confidence interval for each sample number based on the TGA data is listed in Table 1. Each confidence interval can be used to make the following statement. If the lower limit is greater than 17%,

J. M. Conner
Page 2
September 27, 1995

then one would reject the null hypothesis that the percent water is less than or equal to 17% at the 0.05 level of significance.

Table 1. 95% Confidence Interval Lower Limits for TGA for T-109.

Sample Number and Description	$\hat{\mu}$ (wt%)	$\hat{\sigma}^2/n$	LL (wt%)
S95T001597 - AUG-040, Riser 6, WS (Mettler)	16.22	0.42	12.12
S95T001600 - AUG-040, Riser 6, WS (Mettler)	12.46	0.06	10.91
S95T001616 - AUG-041, Riser 2, LH (Perkin)	45.43	1.16	38.64
S95T001618 - AUG-041, Riser 2, LH (Mettler)	42.57	10.21	22.39
S95T001626 - AUG-041, Riser 2, UH (Perkin)	50.53	2.02	41.56
S95T001629 - AUG-041, Riser 2, UH (Mettler)	49.09	0.05	47.73

AUG Auger
WS Whole Segment
UH Upper Half of Segment
LH Lower Half of Segment
LL Lower Limit

The upper limit of the 95% confidence interval for each sample number based on the Total Alpha data is listed in Table 2. Each confidence interval can be used to make the following statement. If the upper limit is less than 41 μCi/g, then one would reject the null hypothesis that the Total Alpha is greater than or equal to 41 μCi/g at the 0.05 level of significance.

Table 2. 95% Confidence Interval Upper Limits for Total Alpha for T-109.

Sample Number and Description	$\hat{\mu}$ (μCi/g)	$\hat{\sigma}^2/n$	UL (μCi/g)
S95T001612 - AUG-040, Riser 6, WS	2.05E-02	1.96E-06	2.93E-02
S95T001619 - AUG-041, Riser 2, LH	7.32E-03	4.64E-06	2.09E-02
S95T001630 - AUG-041, Riser 2, UH	6.38E-03	2.25E-08	7.33E-03

AUG Auger
WS Whole Segment
UH Upper Half of Segment
LH Lower Half of Segment
UL Upper Limit

Confidence intervals could not be performed on the differential scanning calorimetry (DSC) data, since all of the results were zero.

If you have any questions, please call me at 373-4034.

RD Cromar

R. D. Cromar, Statistician
Process Chemistry and Statistics

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

rdc

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

WHC-SD-WM-DP-144, REV. 0

SAMPLE DATA SUMMARY

INTERIM

45-Day Safety Screening Report
T-109

CORE NUMBER: n/a
SEGMENT #: 95-AU0-040

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 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 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	480.0	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	41.00	106.4	<9.61e-04	1.91e-02	2.19e-02	2.05e-02	13.7	79.30	2.38e-03	20.2

=> Limit violated
=> Selected Limit

INTERIM

INTERIM

45-Day Safety Screening Report
T-109

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

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%
S95T001616			% Water by TGA on Perkin Elmer	%	17.00	115.0	100.5	n/a	44.35	46.50	45.42	4.73	n/a	n/a	n/a
S95T001626			% Water by TGA on Perkin Elmer	%	17.00	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 TGA using Mettler	%	17.00	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	480.0	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	41.00	108.1	<1.32e-03	9.47e-03	5.16e-03	7.31e-03	58.9	81.90	1.75e-03	25.8

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 TGA using Mettler	%	17.00	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	480.0	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	41.00	108.1	<1.32e-03	6.23e-03	6.53e-03	6.38e-03	4.70	83.30	1.58e-03	31.5

=> Limit violated
=> Selected Limit

INTERIM

INORGANIC ANALYSES

LABCORE Data Entry Template for Worklist# 2118

Analyst: PJM **Instrument:** DSC0 3 **Book #** 12W14A

Method: LA-514-114 Rev/Mod C-0

Worklist Comment: Please run T-109 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	27.27	N/A	Joules/g
95000121	T-109	2	SAMPLE	S95T001600	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000121	T-109	3	DUP	S95T001600	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 2118

See attached for signature
Analyst Signature Date 9/6/95

Analyst Signature Date 9-7-95

Verified 9/7/95. Jerry M. Fuge

Data Entry Comments:
S95T001600 has endotherm of 1266 J/g at 125°C; duplicate has endotherm of 1372 J/g at 126°C. JM Fuge

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# 2118

Analyst: RJ McCann **Instrument:** DSC0 _____ **Book #** 12014A

Method: LA-514-~~113~~ 114 Rev/Mod C-0
RJM 9/3/95

Worklist Comment: Please run T-109 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	28.45	27.27	N/A	Joules/g
95000121	T-109	2	SAMPLE	S95T001600	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000121	T-109	3	DUP	S95T001600	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 2118

RJ McCann 9/3/95
Analyst Signature Date

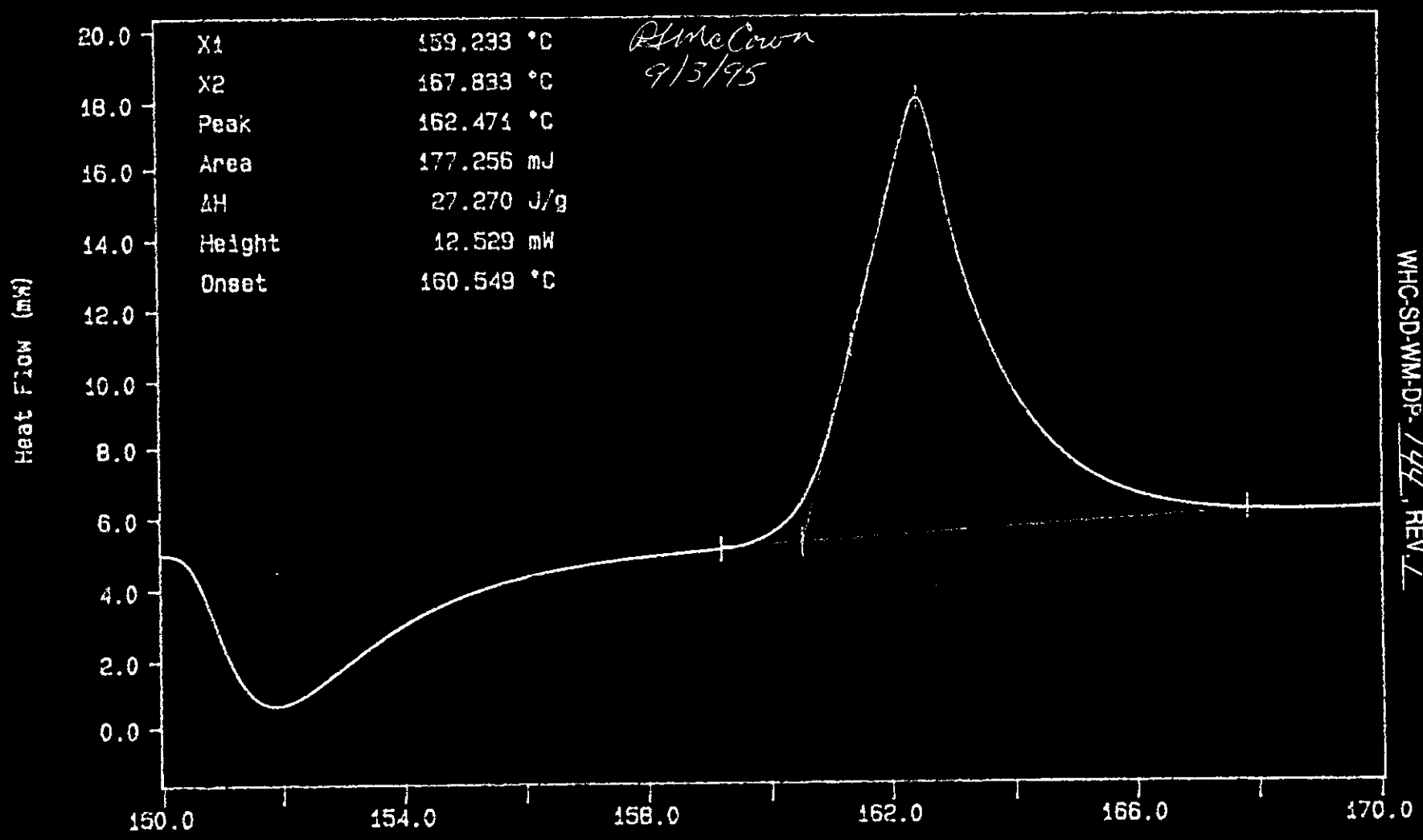
Analyst Signature Date

Data Entry Comments:
S95T001600 has endotherm of 1266 J/g at 125°C; duplicate has endotherm of 1372 J/g at 126°C. JMFaye

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.

Curve 1: DSC
File info: IND090303 Sun Sep 3 09:32:02 1995
Sample Weight: 6.500 mg
12N14A Indium at 10C/min

BEST AVAILABLE COPY



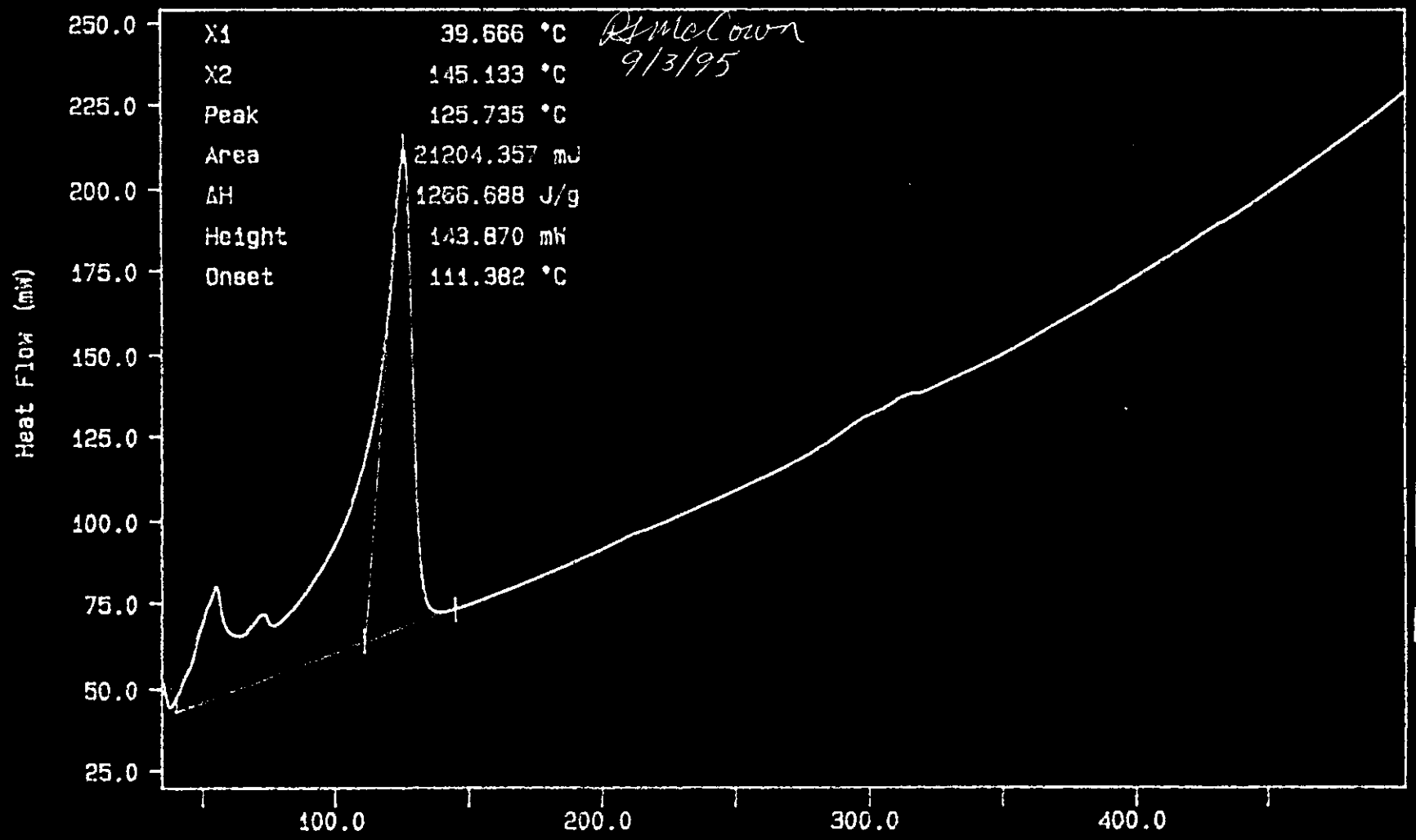
N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

PJ MCCOWN
PERKIN ELMER
222-S Lab
Sun Sep 3 09:34:00 1995

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

Curve 1: DSC
File info: qsav2 Sun Sep 3 12:09:59 1995
Sample Weight: 16.740 mg
S95T001600 SAMPLE

BEST AVAILABLE COPY



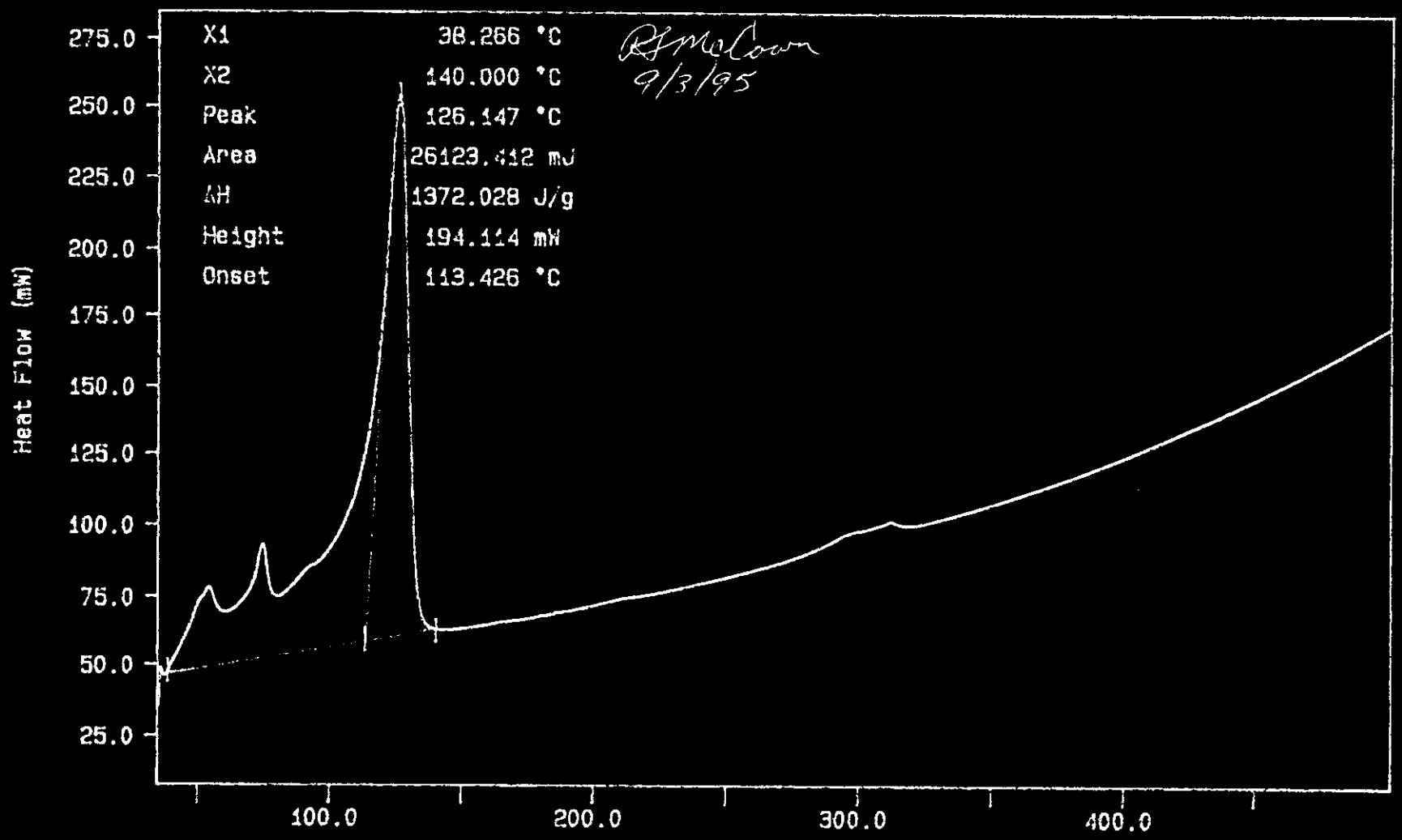
exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 800.0 C

PJ MCCOWN
PERKIN ELMER
222-S Lab
Sun Sep 3 12:12:30 1995

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

Curve 1: DSC
File info: SAM090302 Sun Sep 3 13:19:54 1995
Sample Weight: 19.040 mg
S95T001600 DUPLICATE

BEST AVAILABLE COPY



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

PJ MCCOWN
PERKIN ELMER
222-S Lab
Sun Sep 3 14:09:56 1995

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

LABCORE Data Entry Template for Worklist# 2138

Analyst: D McCown **Instrument:** DSC0 1 **Book #** 12N14A

Method: LA-514-113 Rev/Mod C-0

Worklist Comment: Please run T-109 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	28.45	29.4	N/A	Joules/g
95000121	T-109	2	SAMPLE	S95T001618	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000121	T-109	3	DUP	S95T001618	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g
95000121	T-109	4	SAMPLE	S95T001629	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000121	T-109	5	DUP	S95T001629	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 2138

D McCown 9/3/95
Analyst Signature Date

[illegible] 9-5-95
Analyst Signature Date

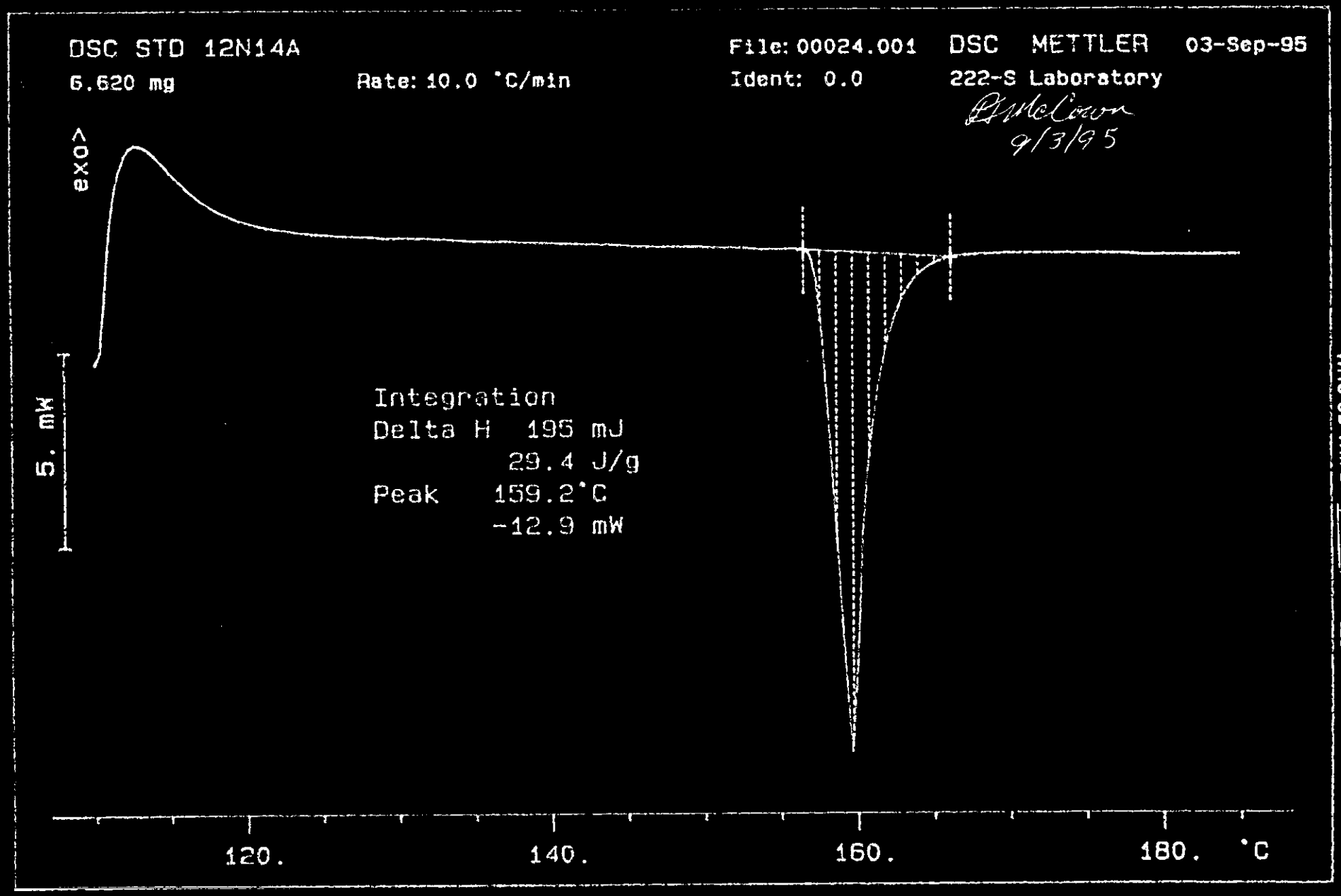
Verified J M Lyle 9/7/95

Data Entry Comments:
S95T001618 SAM has endotherm 1552.7 J/g at 121.8°C; DUP endotherm 1146.3 J/g at 1133°C and endotherm of 50.0 J/g at 276.9°C. JMF

S95T001629 SAM has endotherms 1228.0 J/g at 111.3°C and 52.0 J/g at 286.9°C; DUP has endotherms of 1141.0 J/g at 115.3°C and 45.2 J/g at 285.8°C. JMF

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.

BEST AVAILABLE COPY



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

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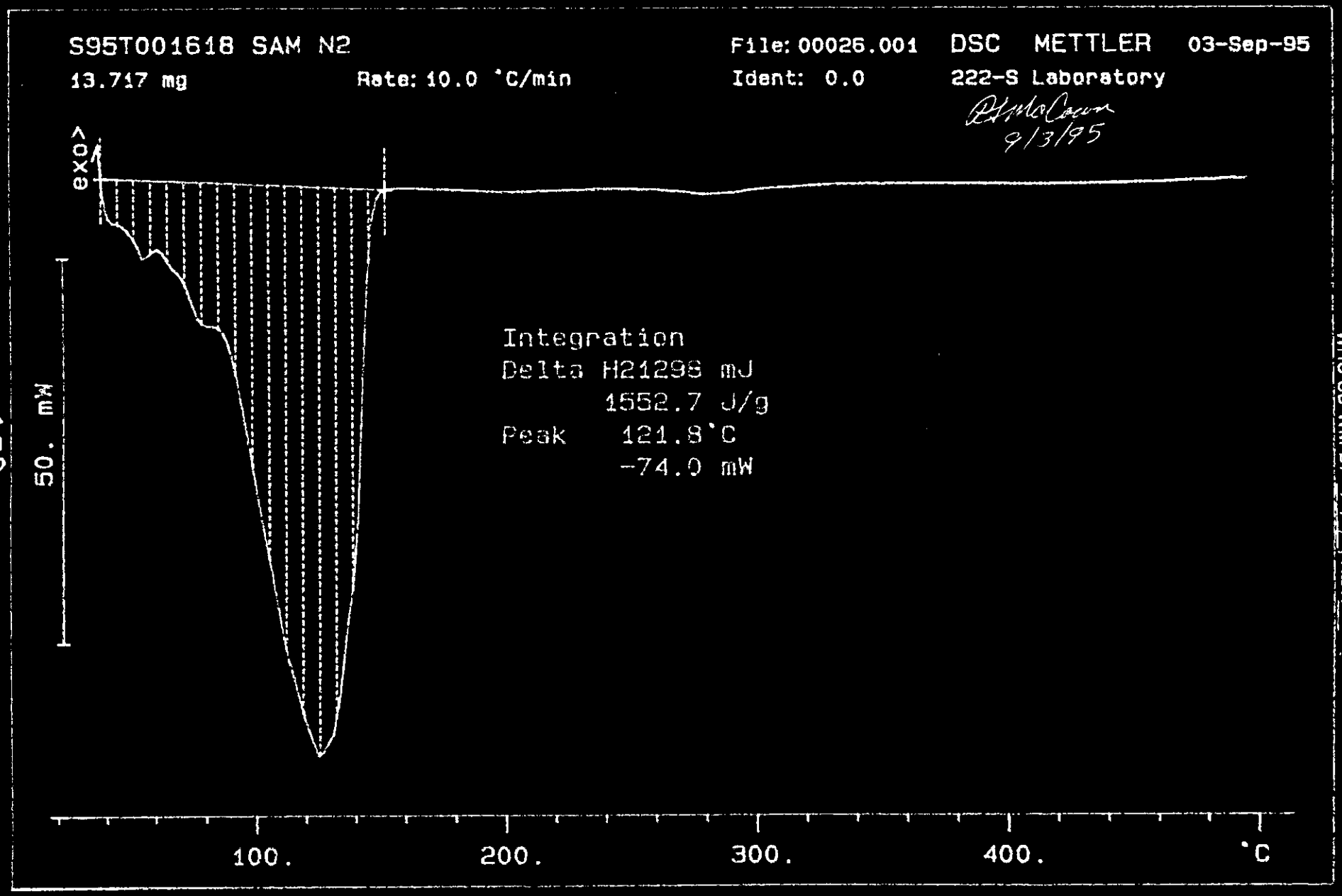

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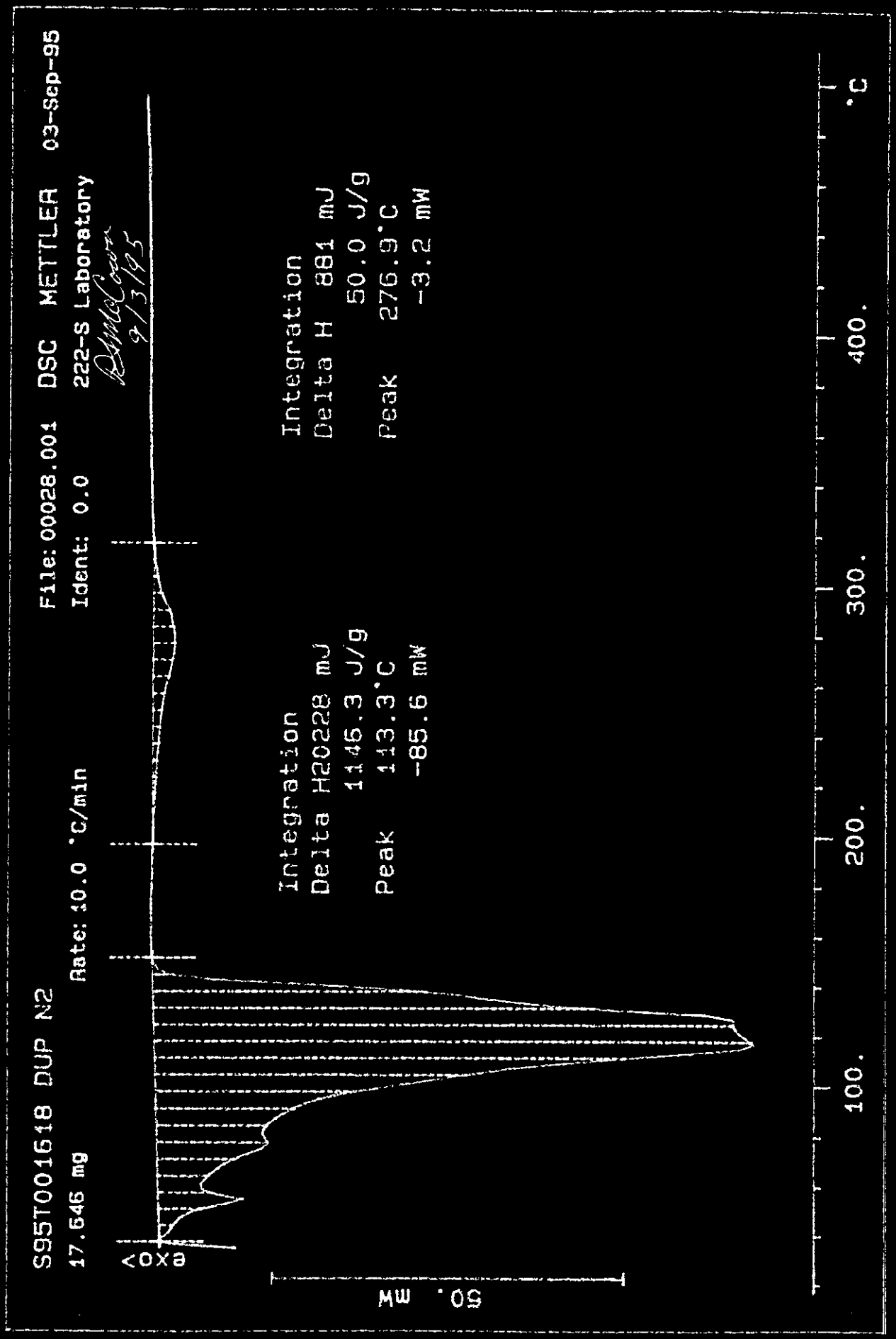

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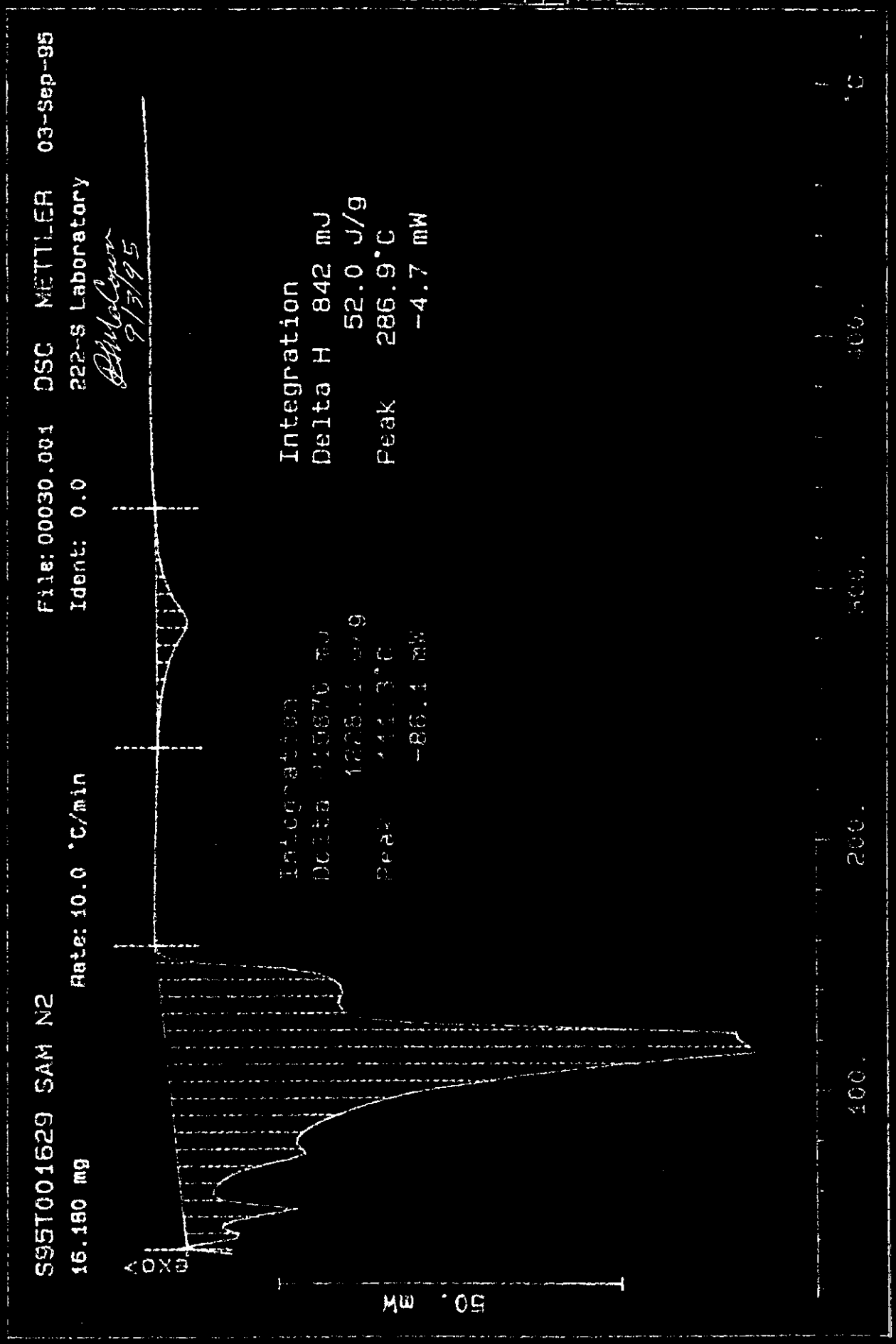

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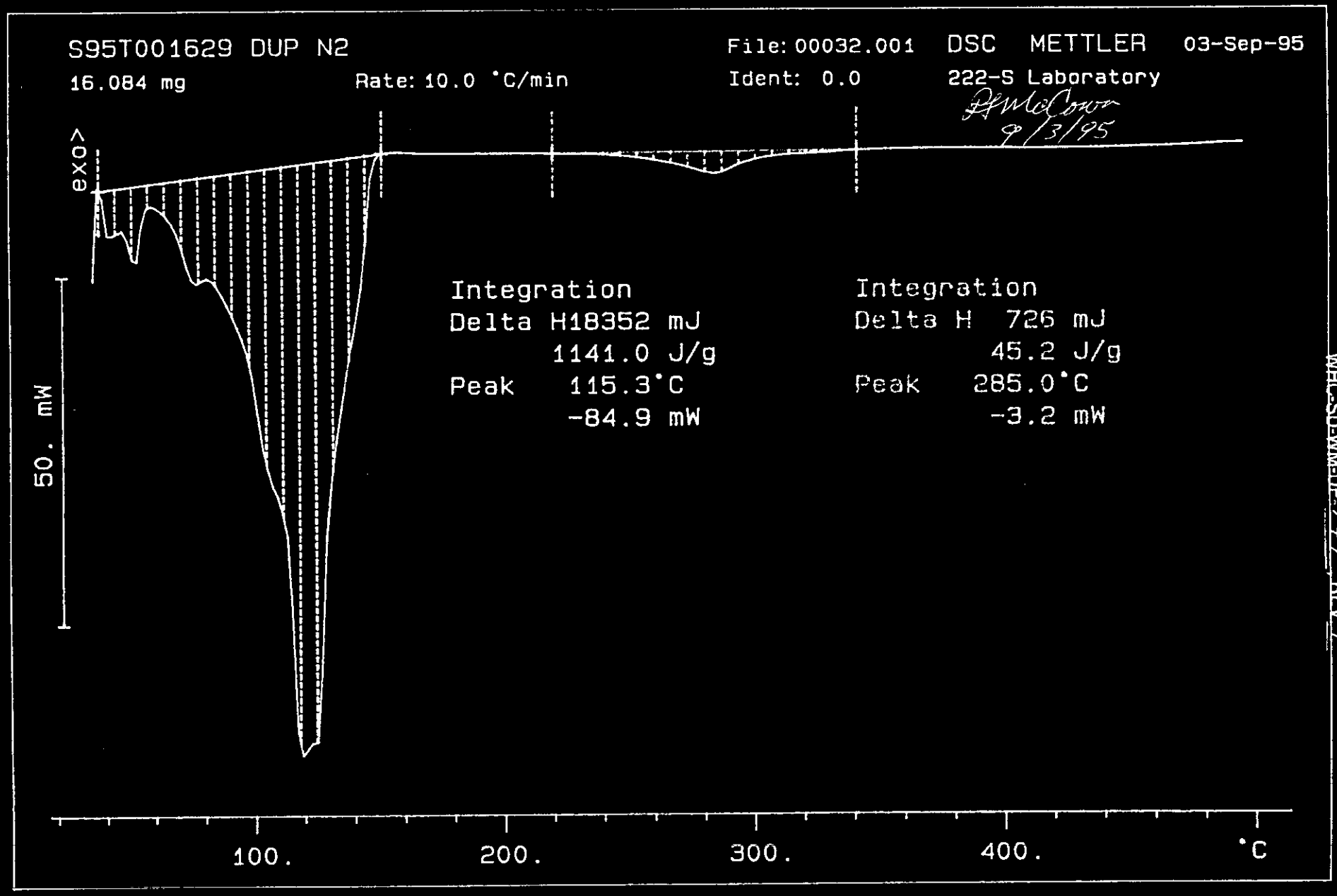

WHC-SD-WM-DP-144 REV 1

LABCORE Data Entry Template for Worklist# 2184

Analyst: R McCann **Instrument:** TGA0 1 **Book #** 65N8A

Method: LA-560-112 Rev/Mod B-0

Worklist Comment: Please run BY-110 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.74	60.27	N/A	%
95000121	T-109	2	SAMPLE	S95T001618	0		TGA-01	SOLID	N/A	39.37		%
95000121	T-109	3	DUP	S95T001618	0		TGA-01	SOLID	39.37	45.76	N/A	%
95000121	T-109	4	SAMPLE	S95T001629	0		TGA-01	SOLID	N/A	48.87		%
95000121	T-109	5	DUP	S95T001629	0		TGA-01	SOLID	48.87	49.30	N/A	%

Final page for worklist # 2184

R McCann 9/3/95
Analyst Signature Date

9-5-95
Analyst Signature Date

Verified 9/5/95. J. M. Fuge

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.

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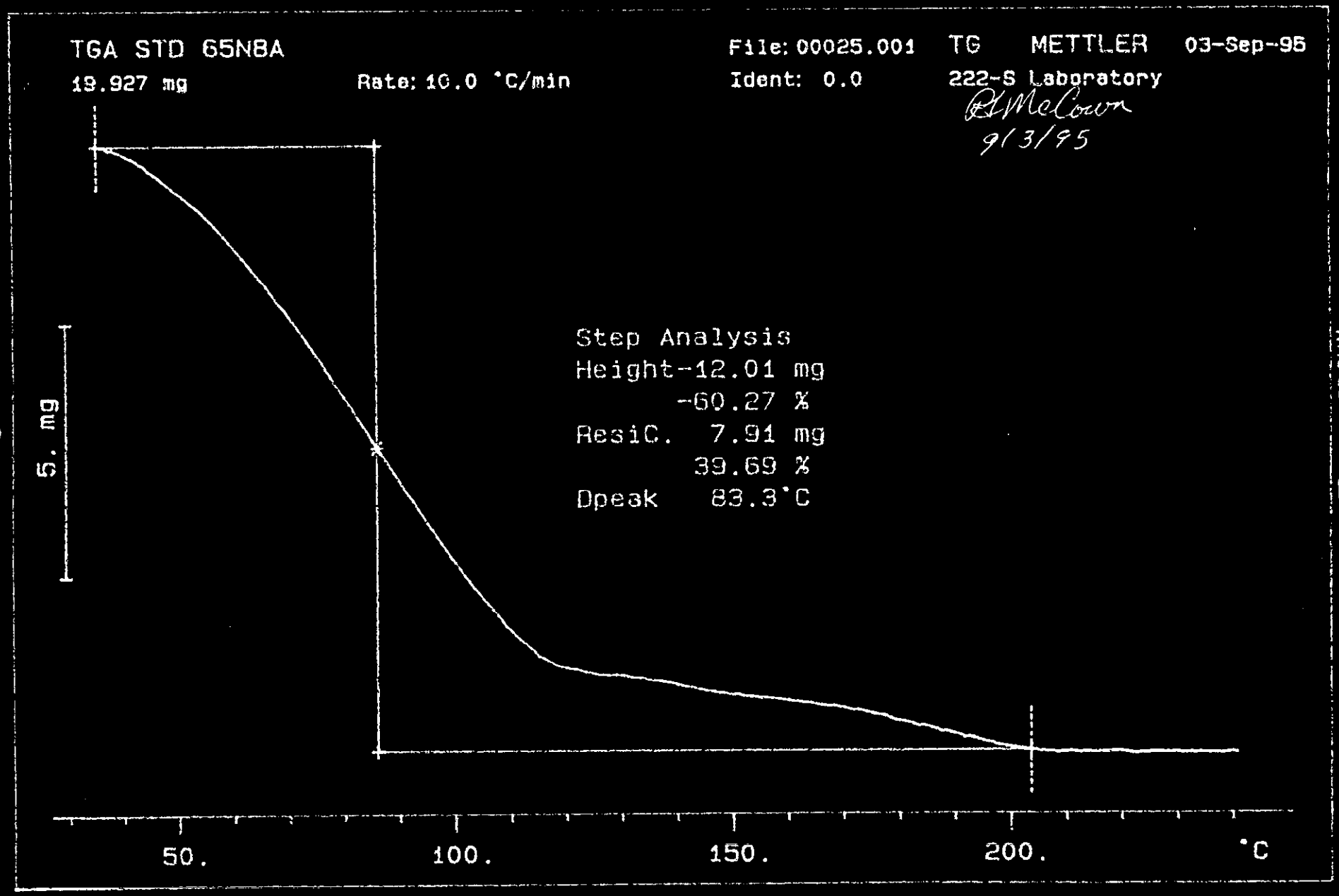

WHC-SD-WM-DP-144, REV. 1

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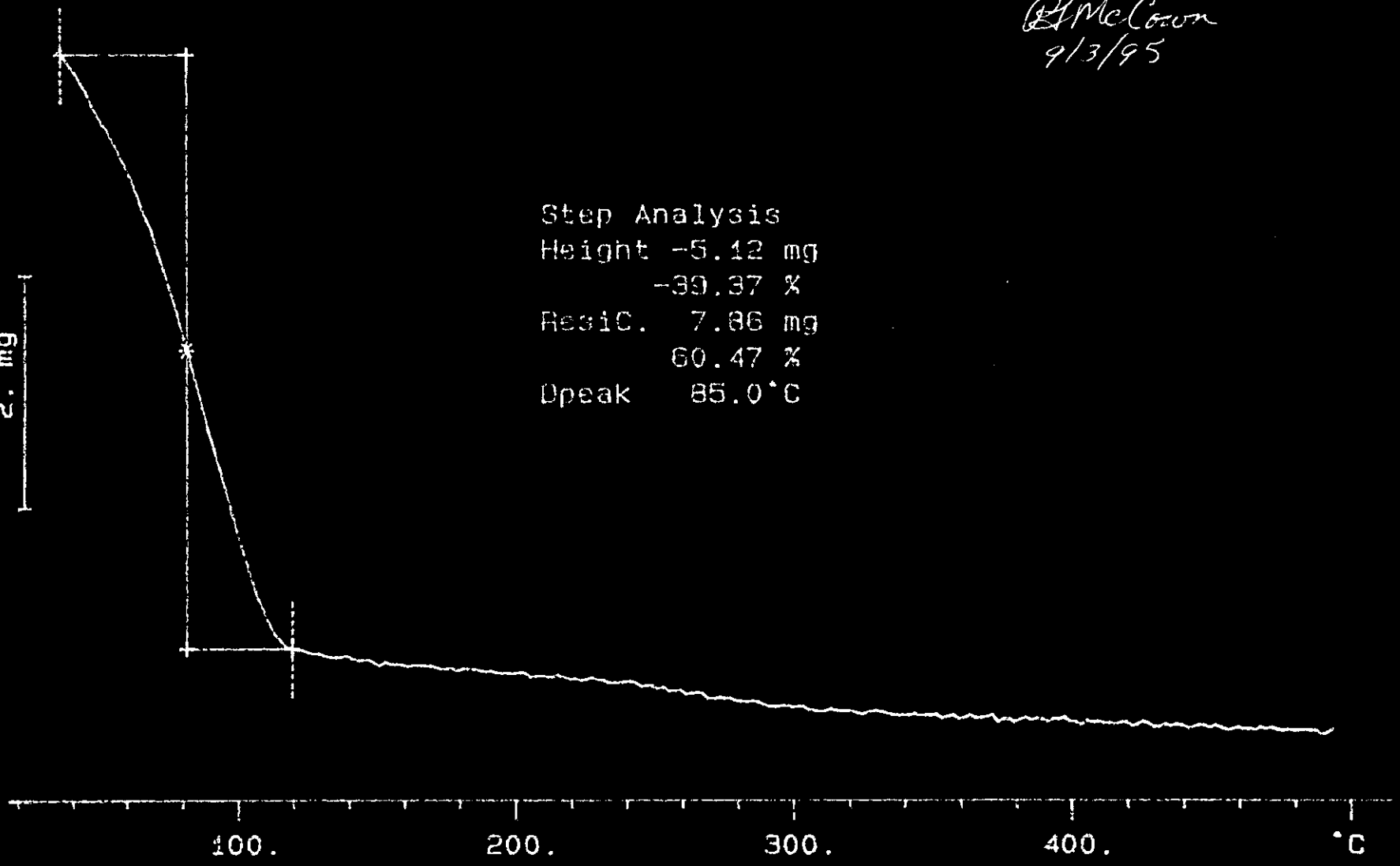
S95T001618 SAM N2 File: 00027.001 TG METTLER 04-Sep-95

12.998 mg Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory

BJ McCown
9/3/95



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

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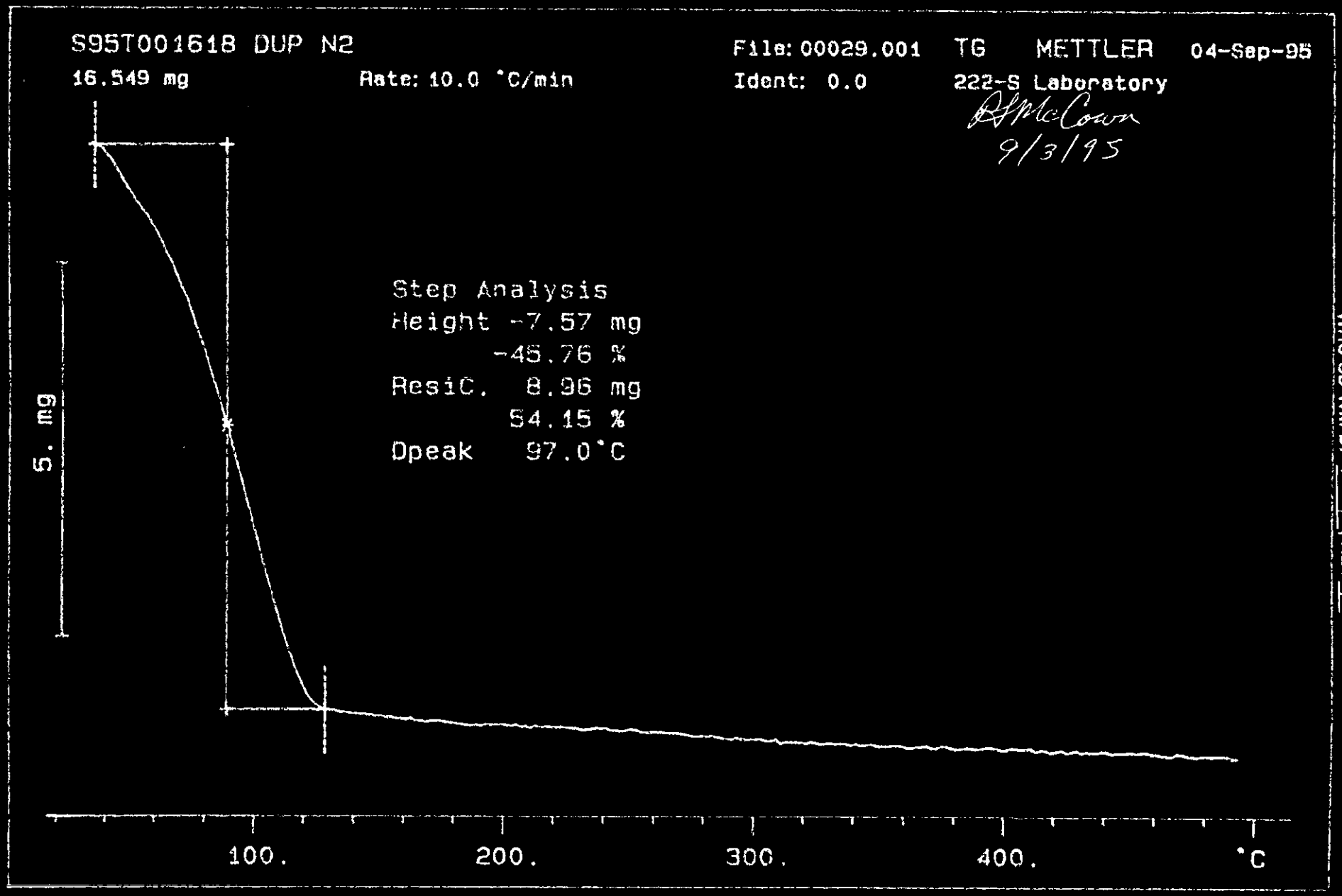

WHC-SD-WM-DP-144, REV. 1

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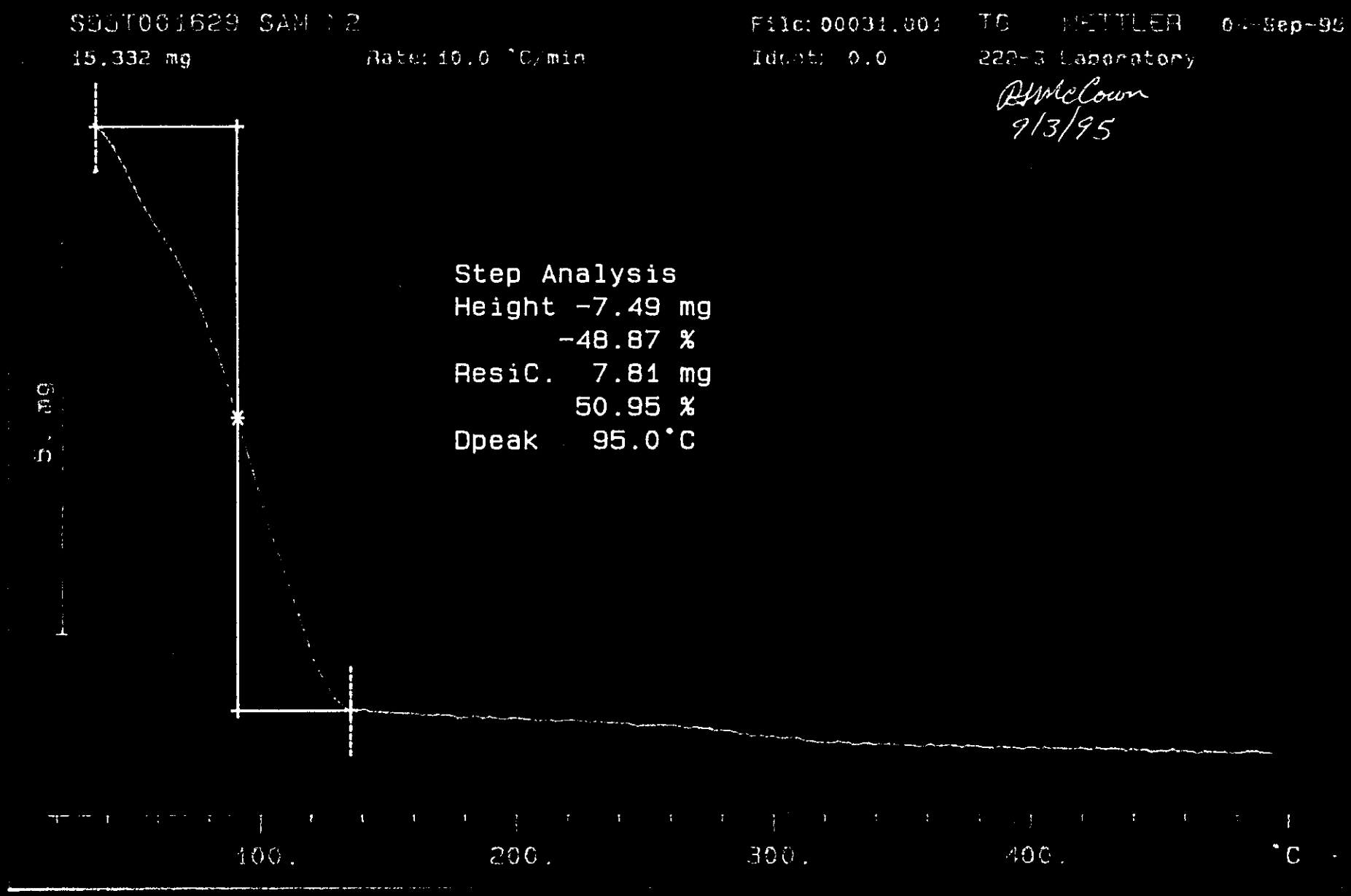

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S95T001629 DUP N2

18.165 mg

Rate: 10.0 °C/min

File: 00033.001 TG METTLER 04-Sep-95

Ident: 0.0 222-S Laboratory

RHMcCown
9/3/95

Step Analysis
Height -8.96 mg
-49.30 %
ResiC. 9.21 mg
50.70 %
Dpeak 99.0°C

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

LABCORE Data Entry Template for Worklist# 2195

Analyst: JDS Instrument: TGA0~~0~~ 1 Book # 65N8A

Method: LA-560-112 Rev/Mod B-0 9-19-95 BDV

Worklist Comment: Please run T-109 TGAs under N2. bdv WHC-SD-WM-DP-144, REV. 0

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	59.74	60.39	N/A	%
95000121	T-109	2 SAMPLE	S95T001597	0		TGA-01	SOLID	N/A	15.57		%
95000121	T-109	3 DUP	S95T001597	0		TGA-01	SOLID	15.57	16.87	N/A	%
95000121	T-109	4 SAMPLE	S95T001600	0		TGA-01	SOLID	N/A	12.70		%
95000121	T-109	5 DUP	S95T001600	0		TGA-01	SOLID	12.70	12.21	N/A	%

Final page for worklist # 2195

BD Valenzuela for JDS
Analyst Signature Date 9-19-95

[signature] 9-20-95
Analyst Signature Date

Verified by Blandina Valenzuela 9-21-95

Data Entry Comments: S95T001597 produced second and third weight loss steps. The second weight loss step of 25.41% occurred at approximately 120°C and the third step of 2.79% occurred at 250°C. The sharp dip in the curve is due to a door being slammed shut, and will not affect the validity of the results.

S95T001600 produced a second and third weight loss steps. The second weight loss step of 37.41% occurred at approximately 140°C, and the third step of 2.40% occurred at approximately 290°C.

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES _____ TO _____.

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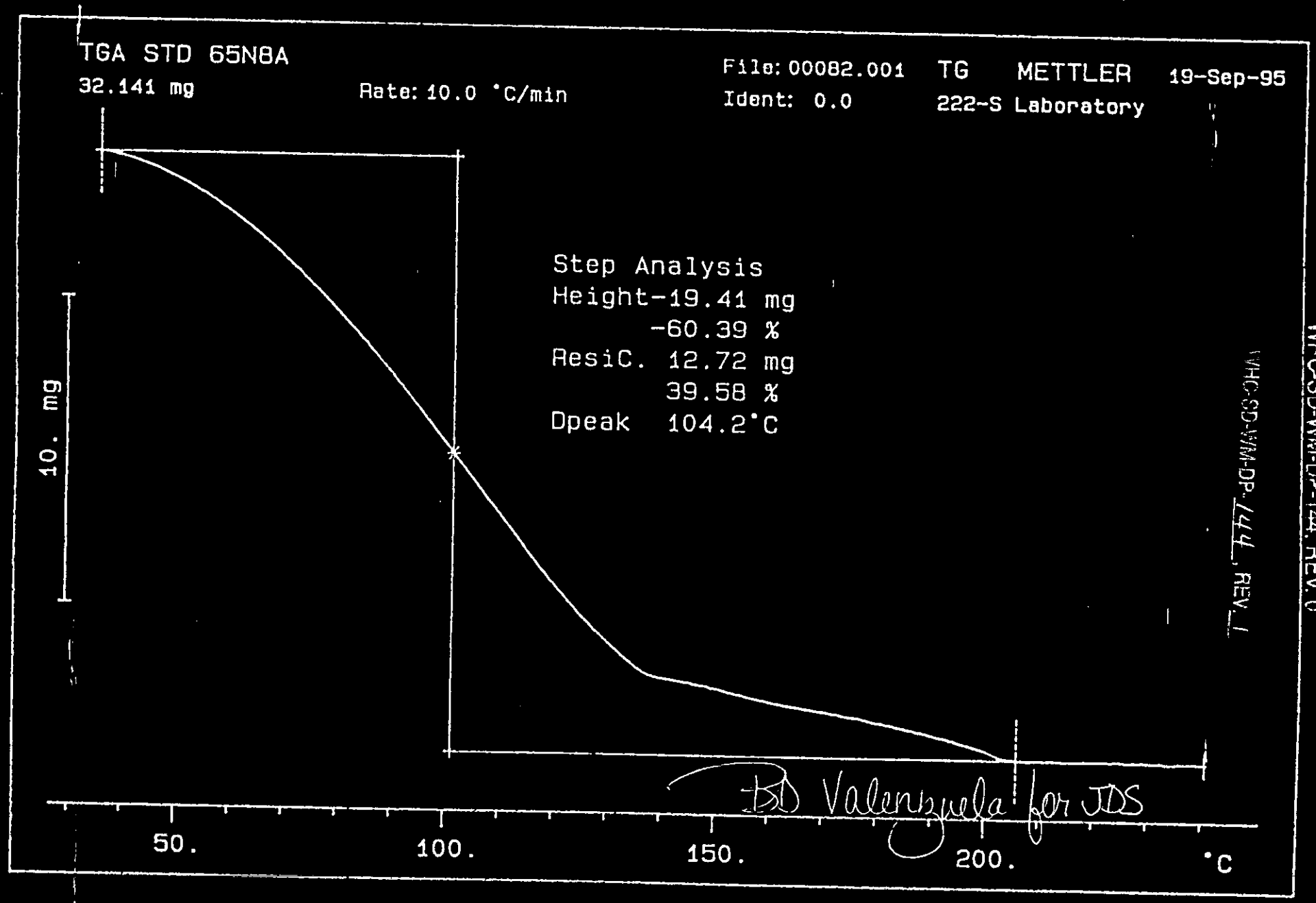

WHC-SD-WM-DP-144, REV. 0

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

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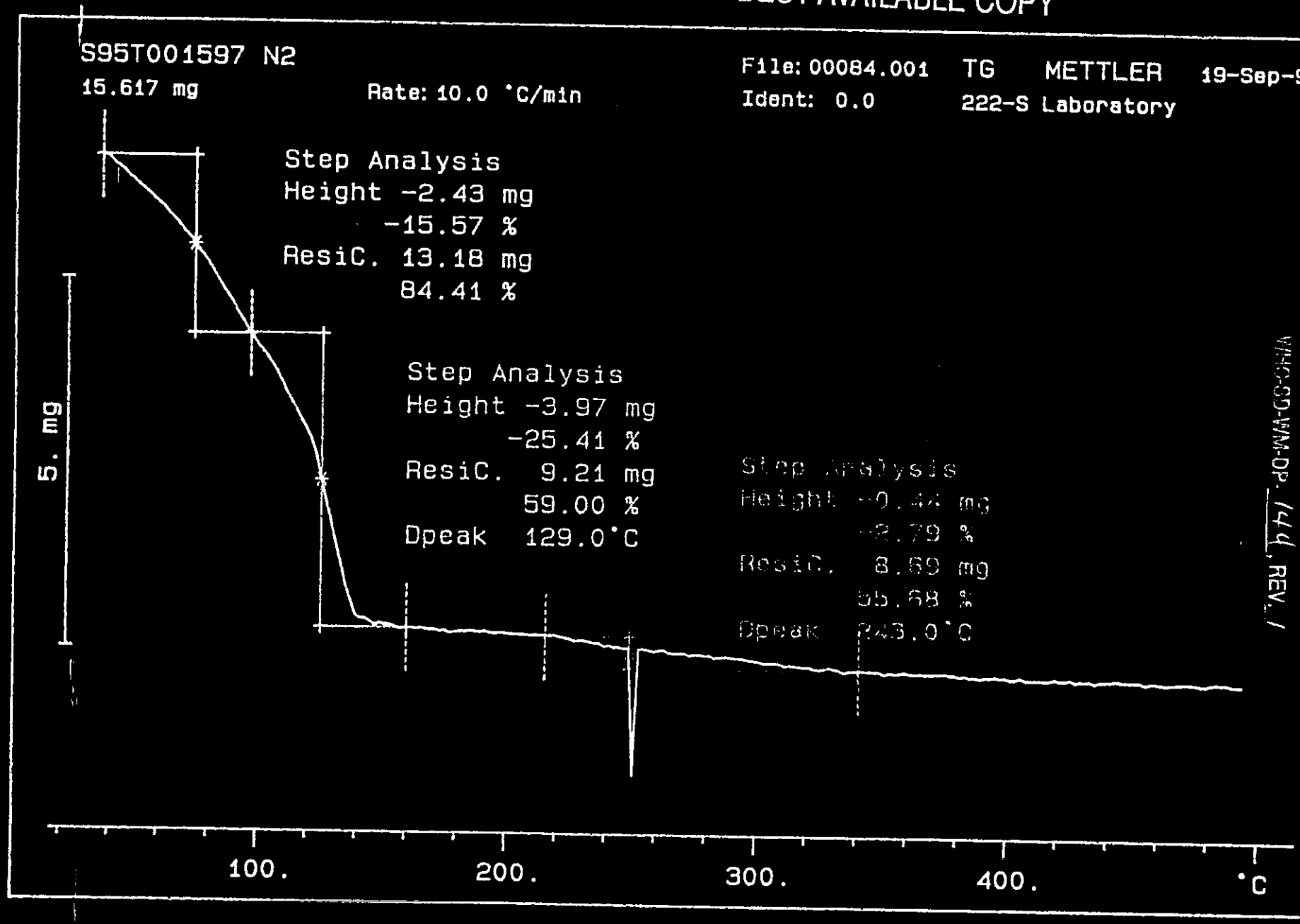

WHC-SD-WM-DP-144, REV. 0
WHC-SD-WM-DP-144, REV. 1

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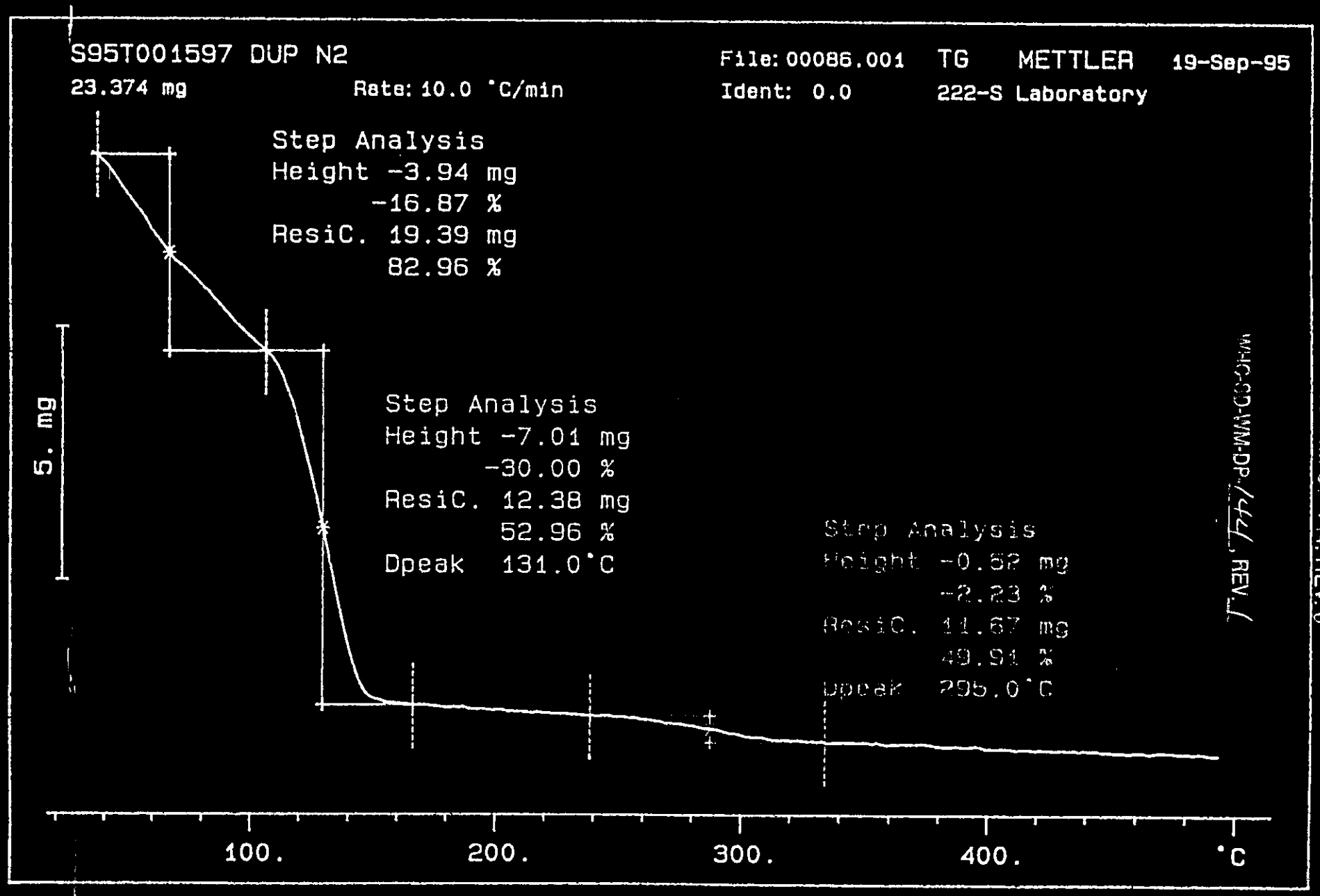

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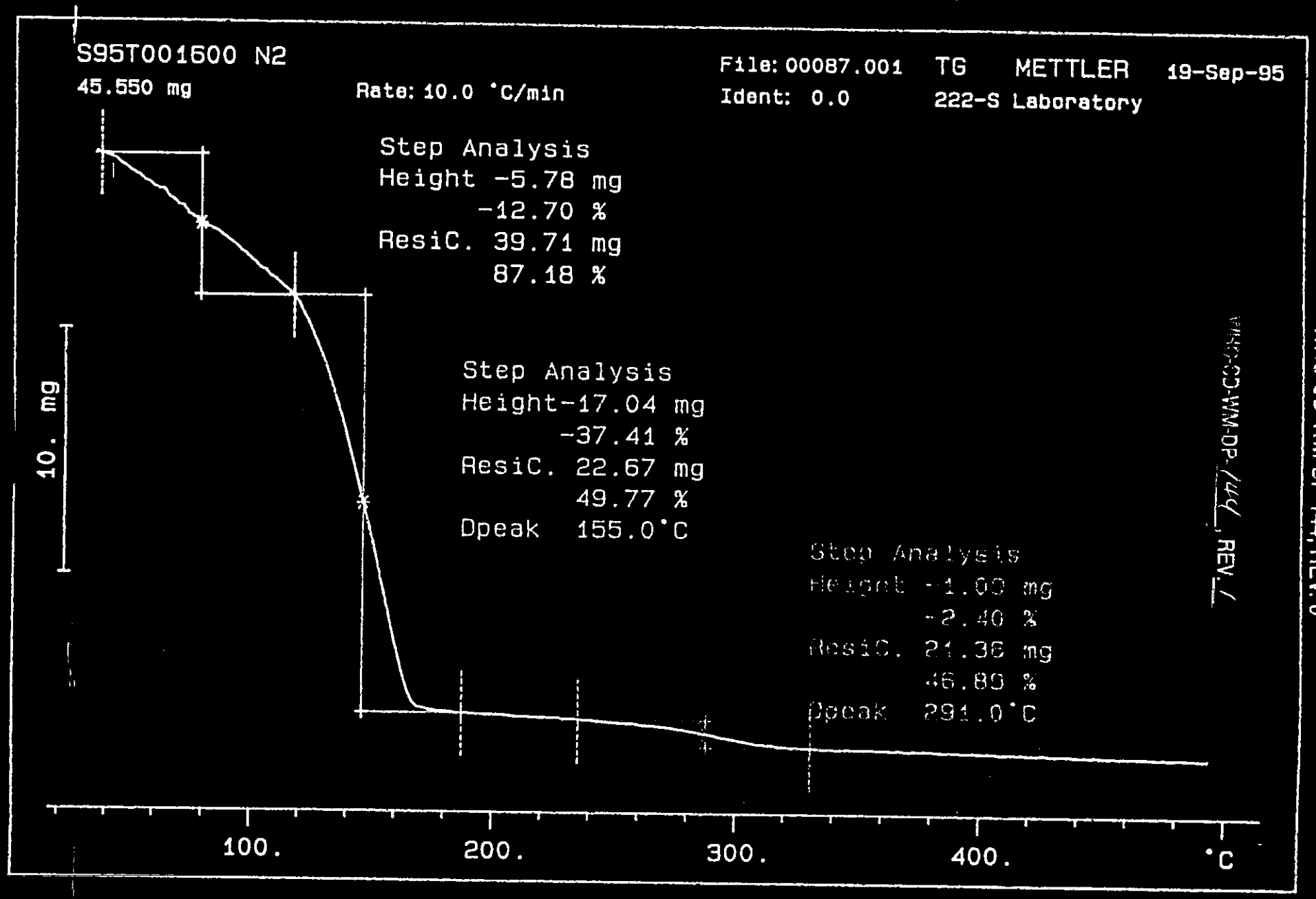

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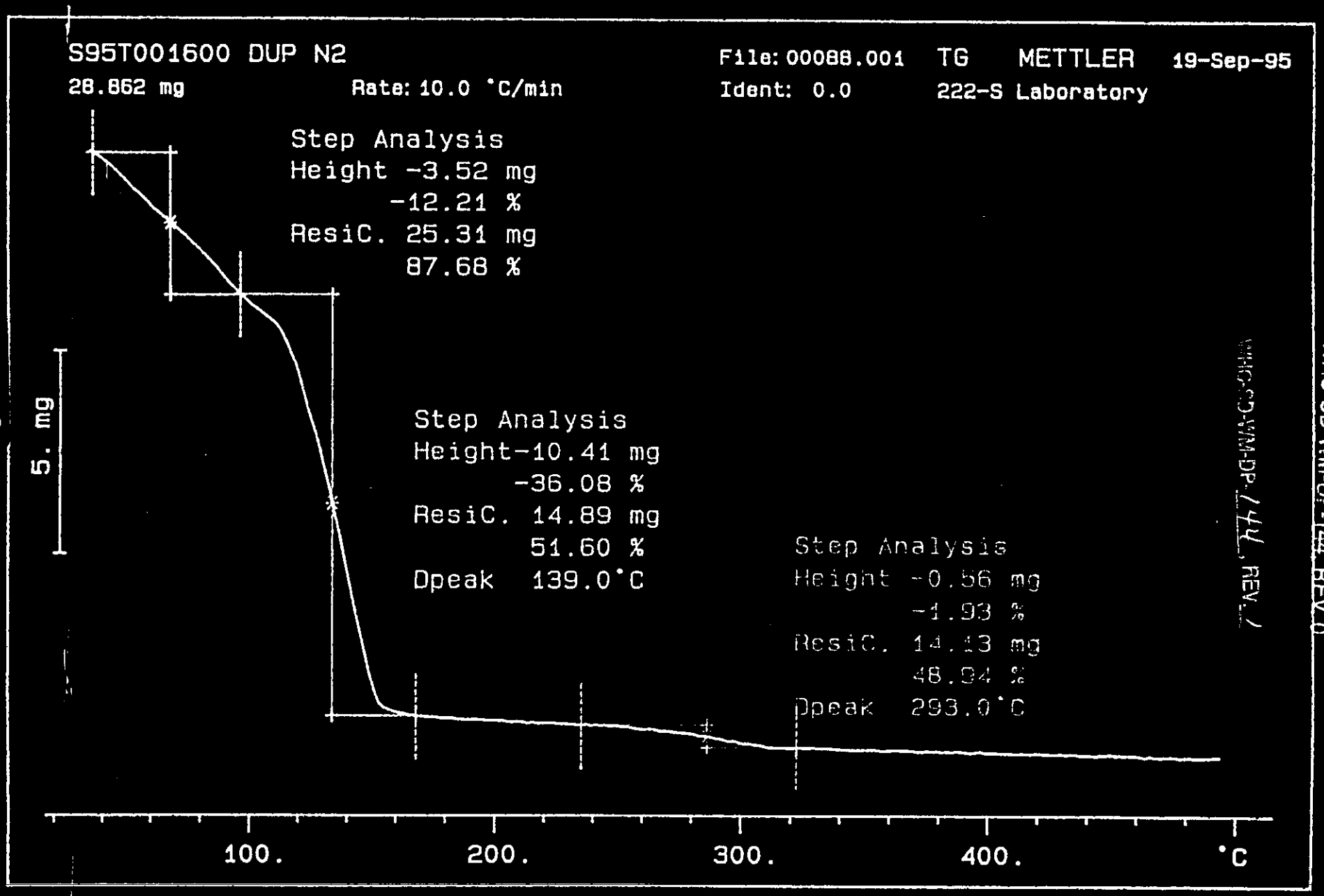

LABCORE Data Entry Template for Worklist# 2197

Analyst: PJM **Instrument:** TGA0 3 **Book #** 65A/8A

Method: LA-514-114 Rev/Mod C-0

Worklist Comment: Please run BY-110 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	SOLID	59.74	60.06	N/A	%
95000121	T-109	2	SAMPLE	S95T001616	0		TGA-03	SOLID	N/A	44.35		%
95000121	T-109	3	DUP	S95T001616	0		TGA-03	SOLID	44.35	46.50	N/A	%
95000121	T-109	4	SAMPLE	S95T001626	0		TGA-03	SOLID	N/A	49.11		%
95000121	T-109	5	DUP	S95T001626	0		TGA-03	SOLID	49.11	51.95	N/A	%

Final page for worklist # 2197

See Attached for Signature
Analyst Signature Date 9/6/95

Analyst Signature Date 9-7-95

Verified 9/7/95. J. M. Fuge

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# 2197

Analyst: RMcCann RMM 9/3/95 **Instrument:** TGA0 _____ **Book #** 65U8A

Method: LA-~~560-112 Rev~~ 514-114/Mod C-0

Worklist Comment: Please run BY-110 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
95000121	T-109	2	SAMPLE	S95T001616	0		TGA-01	SOLID	N/A			%
95000121	T-109	3	DUP	S95T001616	0		TGA-01	SOLID			N/A	%
95000121	T-109	4	SAMPLE	S95T001626	0		TGA-01	SOLID	N/A			%
95000121	T-109	5	DUP	S95T001626	0		TGA-01	SOLID			N/A	%

Final page for worklist # 2197

RMcCann 9/3/95
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.

Curve 1: TGA
File info: TER090301 Sun Sep 3 15:29:46 1995
Sample Weight: 26.081 mg
65N8-A Terliq

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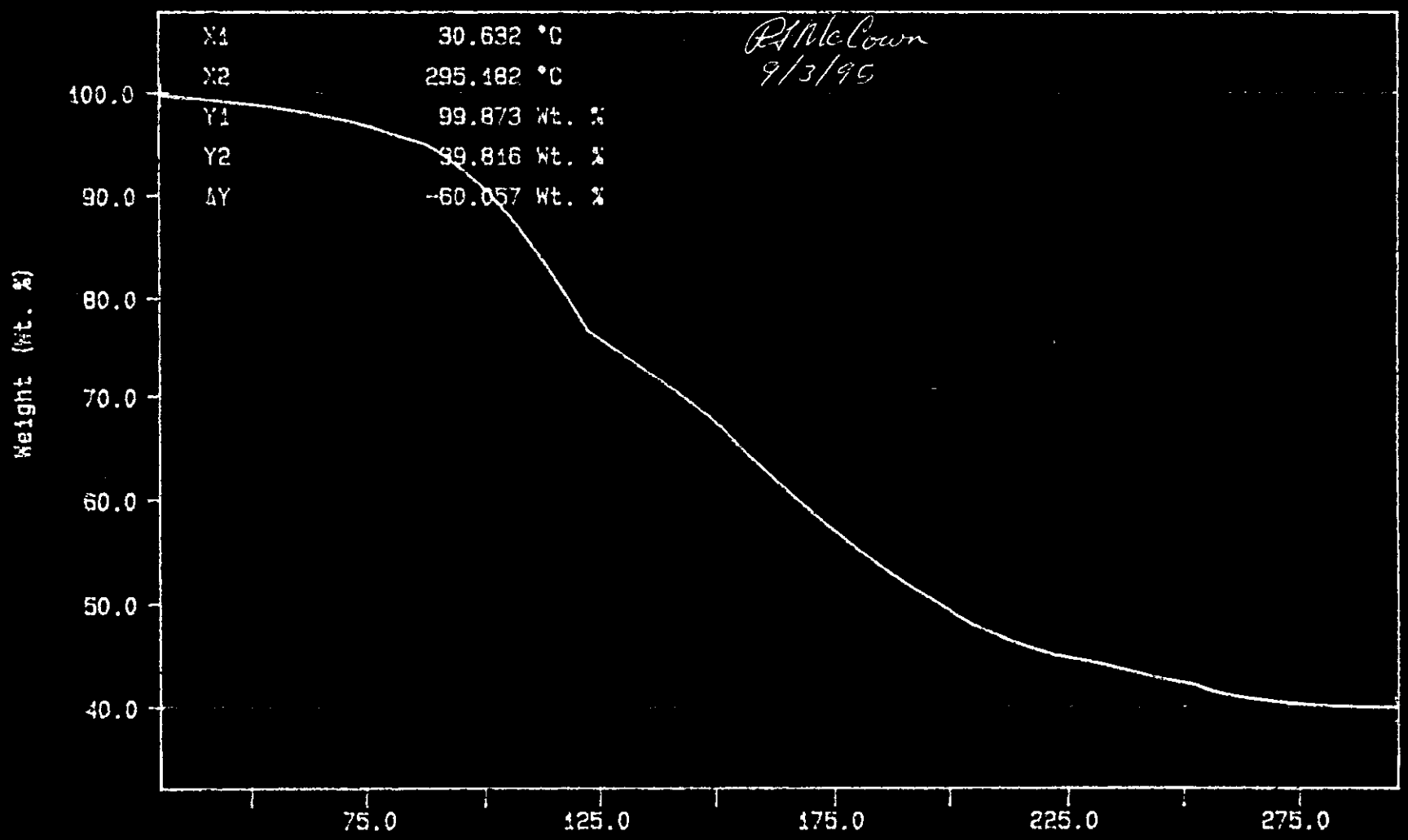

N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 17:00:45 1995

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

Curve 1: TGA
File info: SAM090301 Sun Sep 3 18:40:48 1995
Sample Weight: 8.665 mg
S95T001616

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N2 10C/MIN
TEMP1: 88.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 800.0 C

RJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 18:41:56 1995

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

Curve 1: TGA
File info: SAM090302 Sun Sep 3 19:52:39 1995
Sample Weight: 9.192 mg
S95T001616 DUP

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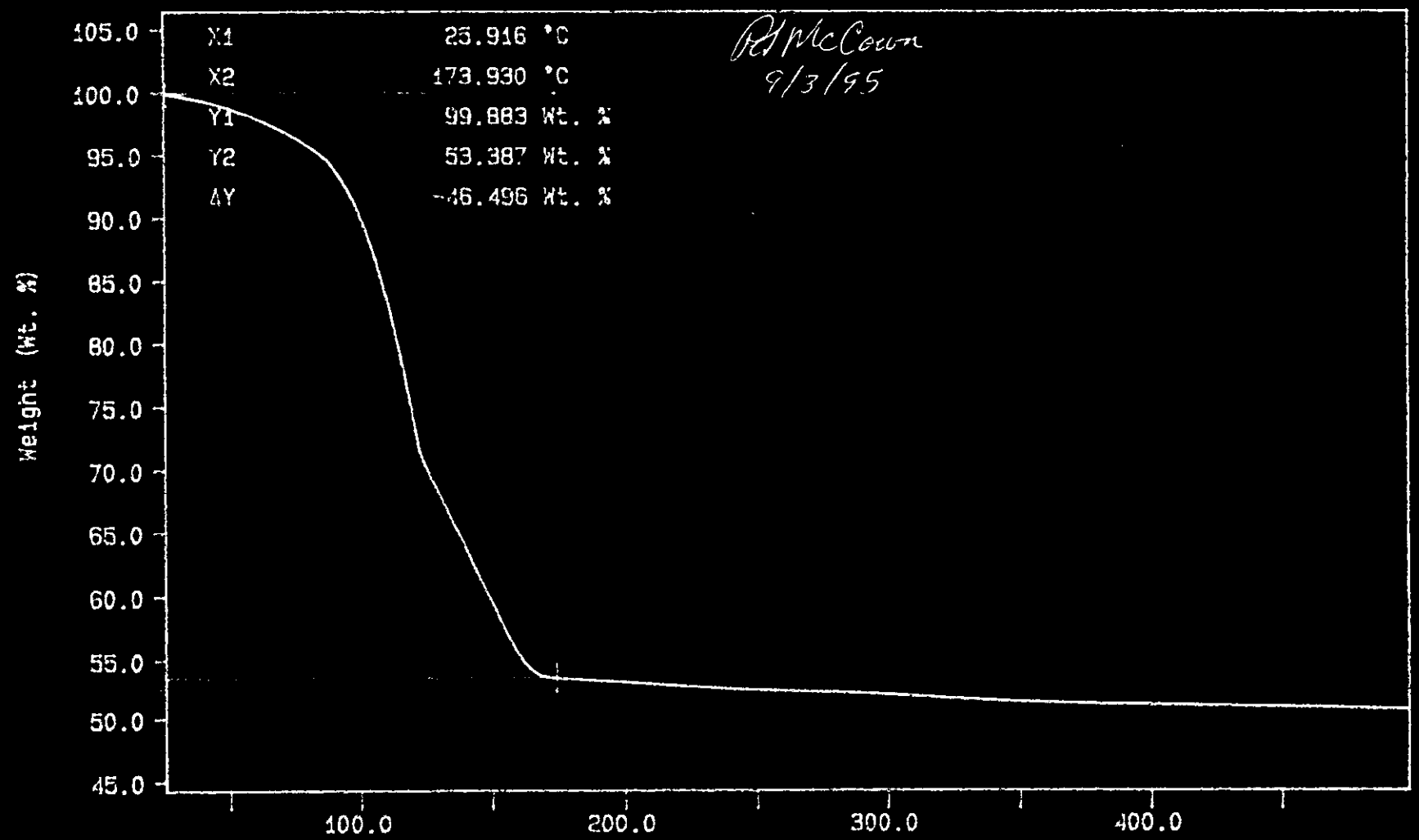

PJ McCown
9/3/95

N2 10C/MIN
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 20:05:53 1995

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

Curve 1: TGA
File info: SAM090303 Sun Sep 3 21:25:31 1995
Sample Weight: 12.544 mg
S95T001626

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N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 400.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 21:26:31 1995

WHC-SD-WM-DP-145, REV. 1

Curve 1: TGA
File Info: SAM090304 Sun Sep 3 22:37:05 1995
Sample Weight: 13.752 mg
S95T001626 DUPLICATE

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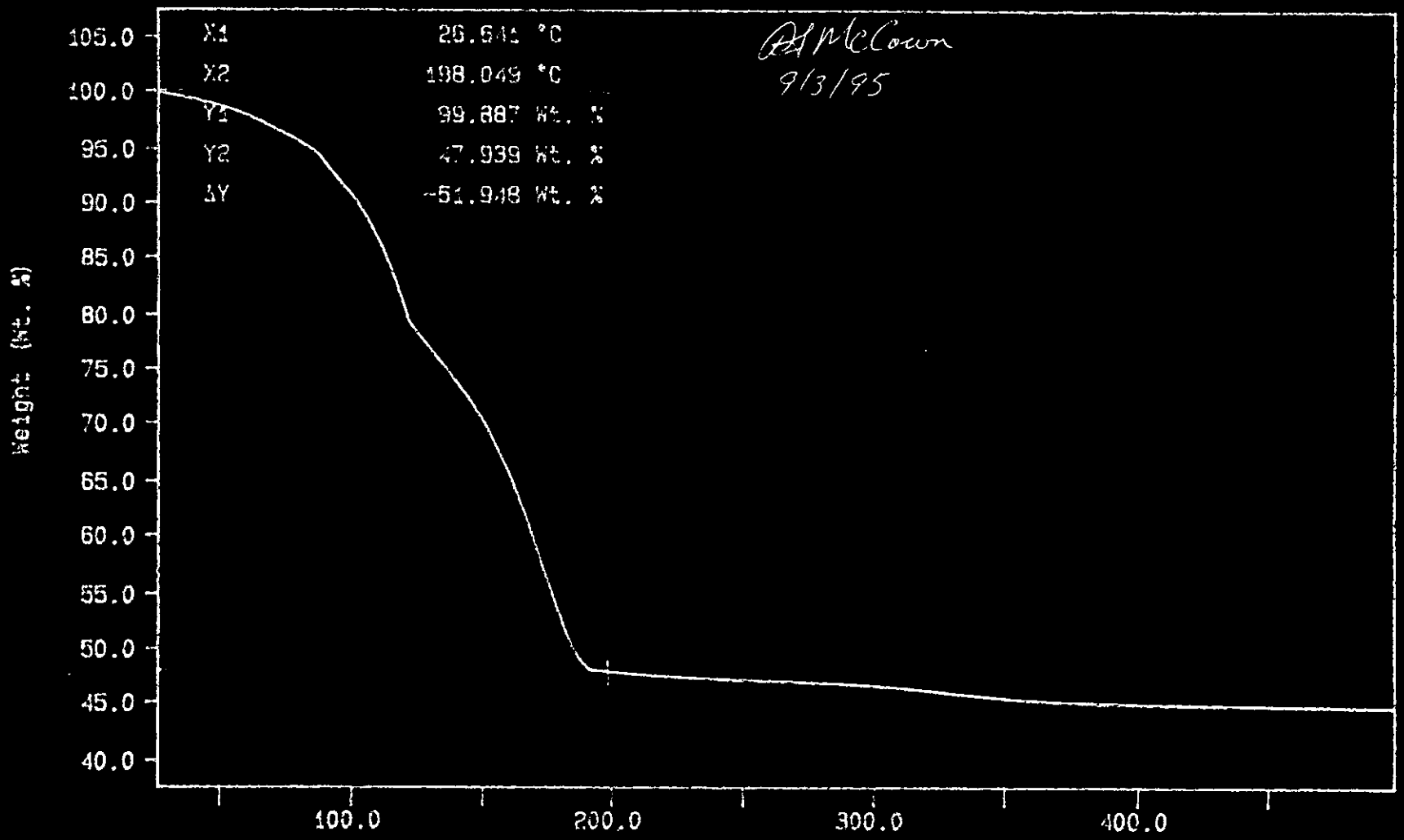

PJ McCown
9/3/95

N2 10C/MIN
TEMP1: 30.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 3 22:40:59 1995

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		ECN NO.: ECN-627027

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