

H0611-009-R2-RA

Thermo Nutech
W.O. No. N9-11-050-7273

Bechtel Hanford Inc.
SDG H0611

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0611 is composed of one solid sample designated under SAF No. B99-007 with a Project Designation of : 105F & 105DR ISS Project-Other Solid.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the TNU Sample Receipt Checklist. The results were reported to BHI via fax on November 10, 1999.

2.0 ANALYSIS NOTES

2.1 Gamma Scan Analyses

No problems were encountered during the course of the analyses.

RECEIVED
JAN 27 2000
EDMC

12345678910111213141516171819202122232425262728293031
DEC 1999
RECEIVED
Data
Log In

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0611

SAMPLE SUMMARY

SDG 7273
Contact Kevin C. Johnson

Client Hanford
Contract TRB-SRB-207925
Case no SDG H0611

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB		CHAIN OF	
				SAMPLE ID	SAF NO	CUSTODY	COLLECTED
B0WX66	105F & 105DR ISS Pjt-OS	SOLID		N911050-01	B99-007	B99-007_23	11/02/99 10:50

SAMPLE SUMMARY

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SUMMARY DATA SECTION

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Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 11/10/99

TMA/RICHMOND
SAMPLE DELIVERY GROUP H0611

SDG 7273
Contact Kevin C. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0611

QC SUMMARY

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	DEPARTMENT SAMPLE ID
7273	B99-007_23	B0WX66	SOLID				11/04/99 2	N911050-01	7273-001

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 11/10/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0611

SDG 7273
Contact Kevin C. Johnson

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0611

TEST MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED					QUALI- FIERS	
		BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS		DUP/ORIG MS/ORIG
Gamma Spectroscopy										
GAM	Gamma Scan	6909-999	15.0	1						

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id TMANC
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Form DVD-PBS
Version 3.06
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TMA/RICHMOND
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 Contact Kevin C. Johnson

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG H0611

WORK SUMMARY

CLIENT SAMPLE ID	LAB SAMPLE ID	LOCATION	MATRIX	COLLECTED	SUF-	FIX	ANALYZED	REVIEWED	BY	METHOD
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
B0WX66		N911050-01	7273-001	GAM		11/05/99	11/09/99	NJV		Gamma Scan
105F & 105DR ISS Pjt-OS	SOLID	11/02/99								
B99-007_23	B99-007	11/04/99								

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
GAM	B99-007	Gamma Scan	GAMMAHI	1							1
TOTALS				1							1

WORK SUMMARY

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Lab id TMANC
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 Version Ver 1.0
 Form DVD-CWS
 Version 3.06
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TMA / RICHMOND
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N911050-01

B0WX66

DATA SHEET

SDG <u>7273</u>	Client/Case no <u>Hanford</u>	SDG <u>H0611</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N911050-01</u>	Client sample id <u>B0WX66</u>	
Dept sample id <u>7273-001</u>	Location/Matrix <u>105F & 105DR ISS Pjt-OS SOLID</u>	
Received <u>11/04/99</u>	Collected <u>11/02/99 10:50</u>	
	Custody/SAF No <u>B99-007 23</u> <u>B99-007</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Potassium 40	13966-00-2	U		10		U	GAM
Cobalt 60	10198-40-0	U		<u>1.4</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		<u>1.6</u>	0.10	U	GAM
Europium 152	14683-23-9	3.92	1.6	<u>1.9</u>	0.10		GAM
Europium 154	15585-10-1	U		<u>2.6</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>1.1</u>	0.10	U	GAM
Radium 226	13982-63-3	U		<u>1.7</u>	0.10	U	GAM
Radium 228	15262-20-1	U		<u>3.4</u>	0.20	U	GAM
Thorium 228	14274-82-9	U		0.87		U	GAM
Thorium 232	TH-232	U		3.4		U	GAM
Americium 241	14596-10-2	U		0.62		U	GAM
Uranium 238	U-238	U		120		U	GAM
Uranium 235	15117-96-1	U		1.9		U	GAM

105F & 105DR ISS Project-Other Solid

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/10/99</u>

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0611

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Test GAM Matrix SOLID
 SDG 7273
 Contact Kevin C. Johnson

Client Hanford
 Contract TRB-SBB-207925
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RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Cobalt 60	Cesium 137
------------------	---------------	----------	----------	----------	-----------	------------

Preparation batch 6909-999

B0WX66	N911050-01	7273-001			U	U
--------	------------	----------	--	--	---	---

Nominal values and limits from method RDLs (pCi/g) 0.050 0.10
 105F & 105DR ISS Project-Other Solid

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
------------------	---------------	----------	----------	---------------	--------	----------	------------	---------	-------	-----------	----------	-----------	-----------	----------------	------	----------

Preparation batch 6909-999 2σ prep error 15.0 % Reference Lab Notebook 6909 pg.

B0WX66	N911050-01			<u>2.4</u>	3.87					404			3	11/04/99	11/05	SP,01,00
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Nominal values and limits from method 0.050 3.87 100 180

PROCEDURES	REFERENCE	GAMMAHI
EP-060		Soil Preparation, rev 0
EP-100		Ge(Li) Preparation for Environmental Samples, rev 0

AVERAGES ± 2 SD	MDA <u>2.4</u> ± _____
FOR 1 SAMPLES	YIELD _____ ± _____

METHOD SUMMARIES

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-CMS</u>
Version <u>3.06</u>
Report date <u>11/10/99</u>

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SDG 7273
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford
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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/10/99

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SAMPLE DELIVERY GROUP H0611

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Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford
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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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REPORT GUIDE

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity).

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SAMPLE DELIVERY GROUP H0611

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GUIDE, cont.

Client Hanford
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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
- Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
- For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

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GUIDE, cont.

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DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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REPORT GUIDE

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- * The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Preparation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES

Page 14

SUMMARY DATA SECTION

Page 22

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/10/99

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0611

SDG 7273
Contact Kevin C. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SPB-207925
Case no SDG_H0611

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/10/99

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B99-007-23	Page 1 of 1
Collector Fahberg	Company Contact J Adler	Telephone No. 373-4316	Project Coordinator TRENT, SJ		Price Code 6A	Data Turnaround 11-1-99 21 Days 72 Hours
Project Designation 105F & 105DR ISS Project - Other Solid		Sampling Location 105DR	SAF No. B99-007		Air Quality <input type="checkbox"/>	
Ice Chest No. SML 519	Field Logbook No. EL 1435	COA R105D029WC	Method of Shipment Fed EX			
Shipped To TMA/RECRA TCS TMA RT 11.03.99 TCS 11.2.99		Offsite Property No. H1000023	Bill of Lading/Air Bill No. 423579531366			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation		None
	Type of Container	P	aG
	No. of Container(s)	1	1
	Special Handling and/or Storage	Volume	20mL

SAMPLE ANALYSIS		Activity Scan	Metals by ICP (ICP-A) - →→→ 6010A; →→→ (ICP-A) - →→→ →→→ RT 11.03.99
-----------------	--	---------------	--

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	Metals by ICP								
BOWX66	Other Solid	11.2.99	1050	X	X								BOWX67

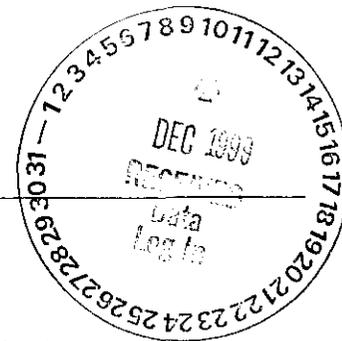
CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By R. Fahberg	Date/Time 11.2.99	Received By R. Fahberg	Date/Time 11.2.99	Report Pb Results Only 6010A TAL only				S=Soil SE=Sediment SO=Solid S=Sludge W=Water O=Oil A=Air DS=Dnum Solids DL=Dnum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By Ref 3.C	Date/Time 11.03.99/0830	Received By R. Theron	Date/Time 11.03.99/0830					
Relinquished By R. Theron	Date/Time 11.03.99/1430	Received By FED EX	Date/Time 11/3/99					
Relinquished By 10:00 FedEx	Date/Time 11/4/99	Received By TAV M. Goldberger	Date/Time 11/4/99					
Relinquished By	Date/Time	Received By	Date/Time					

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	<u>Beechitel Hanford Inc</u>	Date/Time received	<u>11-4-99 10:00</u>
CoC No.	<u>B99-007-23</u>		
Container I.D. No.	Requested TAT (Days) <u>3</u>	P.O. Received	Yes [] No [<input checked="" type="checkbox"/>]
INSPECTION			
1.	Custody seals on shipping container intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
2.	Custody seals on shipping container dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
3.	Custody seals on sample containers intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
4.	Custody seals on sample containers dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
5.	Cooler Temperature: _____	Packing material is:	Wet [] Dry [<input checked="" type="checkbox"/>]
6.	Number of samples in shipping container:	<u>1</u>	
7.	Number of containers per sample:	<u>1</u>	(Or see CoC _____)
8.	Paperwork agrees with samples?	Yes [<input checked="" type="checkbox"/>]	No []
9.	Samples have:	Tape [] Hazard labels [] Rad labels [<input checked="" type="checkbox"/>]	Appropriate sample labels [<input checked="" type="checkbox"/>]
10.	Samples are:	In good condition [<input checked="" type="checkbox"/>]	Leaking [] Broken Container [] Missing []
11.	Describe any anomalies: _____ _____ _____		
13.	Was P.M. notified of any anomalies?	Yes [<input checked="" type="checkbox"/>]	No [] Date <u>11-4-99 10:00</u>
14.	Received by	<u>M. Goldberg</u>	Date: <u>11-4-99</u> Time: <u>10:00</u>
LOGIN			
TNU W.O. No.	Group No.	Client W.O. No.	
PROGRAM MANAGER			
Sample holding times exceeded?	Yes []	No []	
Client Notified: Name	Date/time		



**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD B99-007
RFW# : 9911L613
SDG/SAF# : II0611/B99-007

W.O.# : 10985-001-001-9999-00
Date Received: 11-04-99

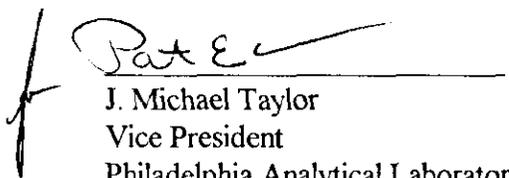
METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 solid sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. The preparation/method blank (MB) was within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. The laboratory control sample (LCS) was within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recovery for Lead was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

<u>Sample ID</u>	<u>Element</u>	<u>PDS Concentration (ppb)</u>	<u>PDS % Recovery</u>
B0WX66	Lead	5000	105.4

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

12. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory
mid/m11-613

12-7-99
Date



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this

Recre Lot#: 9911L613

Leaching Procedure: 1310 1311 1312 Other:

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050B 3051 200.7 SS17
 Other:

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Antimony	<u> </u> 6010B <u> </u> 7041 ⁵	<u> </u> 200.7 <u> </u> 204.2			<u> </u> 99
Arsenic	<u> </u> 6010B <u> </u> 7060A ⁵	<u> </u> 200.7 <u> </u> 206.2	<u> </u> 3113B		<u> </u> 99
Barium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Beryllium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Bismuth	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Boron	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Cadmium	<u> </u> 6010B <u> </u> 7131A ⁵	<u> </u> 200.7 <u> </u> 213.2			<u> </u> 99
Calcium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Chromium	<u> </u> 6010B <u> </u> 7191 ⁵	<u> </u> 200.7 <u> </u> 218.2			<u> </u> SS17
Cobalt	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Copper	<u> </u> 6010B <u> </u> 7211 ⁵	<u> </u> 200.7 <u> </u> 220.2			<u> </u> 99
Iron	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Lead	<input checked="" type="checkbox"/> 6010B <u> </u> 7421 ⁵	<u> </u> 200.7 <u> </u> 239.2	<u> </u> 3113B		<u> </u> 99
Lithium	<u> </u> 6010B <u> </u> 7430 ⁴	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Magnesium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Manganese	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Mercury	<u> </u> 7470A ³ <u> </u> 7471A ³	<u> </u> 245.1 ² <u> </u> 245.5 ²			<u> </u> 99
Molybdenum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Nickel	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Potassium	<u> </u> 6010B <u> </u> 7610 ⁴	<u> </u> 200.7 <u> </u> 258.1 ⁴			<u> </u> 99
Rare Earths	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Selenium	<u> </u> 6010B <u> </u> 7740 ⁵	<u> </u> 200.7 <u> </u> 270.2	<u> </u> 3113B		<u> </u> 99
Silicon	<u> </u> 6010B ¹	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silica	<u> </u> 6010B	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silver	<u> </u> 6010B <u> </u> 7761 ⁵	<u> </u> 200.7 <u> </u> 272.2			<u> </u> 99
Sodium	<u> </u> 6010B <u> </u> 7770 ⁴	<u> </u> 200.7 <u> </u> 273.1 ⁴			<u> </u> 99
Strontium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Thallium	<u> </u> 6010B <u> </u> 7841 ⁵	<u> </u> 200.7 <u> </u> 279.2 <u> </u> 200.9			<u> </u> 99
Tin	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Titanium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Uranium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Vanadium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Zinc	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Zirconium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99

Other:

Method:

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

- MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Recre LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/10/99

CLIENT: TNU-HANFORD B99-007

RECRA LOT #: 9911L613

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B0WX66	Lead, Total	14100	MG/KG	2.0	10.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/10/99

CLIENT: TNU-HANFORD B99-007

RECRA LOT #: 9911L613

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0757-MB1	Lead, Total	0.21 u	MG/KG	0.21	1.0

Recre LabNet - Lionville

INORGANICS ACCURACY REPORT 11/10/99

CLIENT: TNU-HANFORD B99-007

RECRA LOT #: 9911L613

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B0WX66	Lead, Total	14200	14100	48.6	258.8*	10.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/10/99

CLIENT: TNU-HANFORD B99-007

RECRA LOT #: 9911L613

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-----	-----	-----	-----	-----	-----	-----
-001REP	B0WX66	Lead, Total	14100	13100	6.9	10.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/10/99

CLIENT: TNU-HANFORD B99-007

RECRA LOT #: 9911L613

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
*****	*****	*****	*****	*****	*****	*****
LCS1	99L0757-LC1	Lead, LCS	240	250	MG/KG	95.9

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-007

DATE RECEIVED: 11/04/99

RFW LOT # :9911L613

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
---------------------	-------	-----	--------	------------	-----------	----------

BOWX66

LEAD, TOTAL	001	SO	99L0757	11/02/99	11/08/99	11/08/99
LEAD, TOTAL	001 REP	SO	99L0757	11/02/99	11/08/99	11/08/99
LEAD, TOTAL	001 MS	SO	99L0757	11/02/99	11/08/99	11/08/99

LAB QC:

LEAD LABORATORY	LC1 BS	S	99L0757	N/A	11/08/99	11/08/99
LEAD, TOTAL	MB1	S	99L0757	N/A	11/08/99	11/08/99

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B99-007-23	Page 1 of 1
Collector Fahlberg	Company Contact J Adler	Telephone No. 373-4316	Project Coordinator TRENT, SJ		Price Code 6A	Data Turnaround 31-1-99 21 Days 72 Hours
Project Designation 105F & 105DR ISS Project - Other Solid		Sampling Location 105DR	SAF No. B99-007		Air Quality <input type="checkbox"/>	
Ice Chest No. ERC-96.012	Field Logbook No. EL 1435	COA R105D029WC	Method of Shipment Fed EX			
Shipped To TMA/RECRA TRF. 11.2.99		Offsite Property No. A000024		Bill of Lading/Air Bill No. 42357953 1355		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation		None																
	Type of Container	P	aG																
	No. of Container(s)	1	1																
	Special Handling and/or Storage	Volume	20mL	250mL															
SAMPLE ANALYSIS				Activity Scan	Metals by ICP (TGM) - +1115010A; +1115010B; (PCH) - +1115010C; +1115010D; +1115010E; +1115010F; +1115010G; +1115010H; +1115010I; +1115010J; +1115010K; +1115010L; +1115010M; +1115010N; +1115010O; +1115010P; +1115010Q; +1115010R; +1115010S; +1115010T; +1115010U; +1115010V; +1115010W; +1115010X; +1115010Y; +1115010Z; +1115010AA; +1115010AB; +1115010AC; +1115010AD; +1115010AE; +1115010AF; +1115010AG; +1115010AH; +1115010AI; +1115010AJ; +1115010AK; +1115010AL; +1115010AM; +1115010AN; +1115010AO; +1115010AP; +1115010AQ; +1115010AR; +1115010AS; +1115010AT; +1115010AU; +1115010AV; +1115010AW; +1115010AX; +1115010AY; +1115010AZ; +1115010BA; +1115010BB; +1115010BC; +1115010BD; +1115010BE; +1115010BF; +1115010BG; +1115010BH; +1115010BI; +1115010BJ; +1115010BK; +1115010BL; +1115010BM; +1115010BN; +1115010BO; +1115010BP; +1115010BQ; +1115010BR; +1115010BS; +1115010BT; +1115010BU; +1115010BV; +1115010BW; +1115010BX; +1115010BY; +1115010BZ; +1115010CA; +1115010CB; +1115010CC; +1115010CD; +1115010CE; +1115010CF; +1115010CG; +1115010CH; +1115010CI; +1115010CJ; +1115010CK; +1115010CL; +1115010CM; +1115010CN; +1115010CO; +1115010CP; +1115010CQ; +1115010CR; +1115010CS; +1115010CT; +1115010CU; +1115010CV; +1115010CW; +1115010CX; +1115010CY; +1115010CZ; +1115010DA; +1115010DB; +1115010DC; +1115010DD; +1115010DE; +1115010DF; +1115010DG; +1115010DH; +1115010DI; +1115010DJ; +1115010DK; +1115010DL; +1115010DM; +1115010DN; +1115010DO; +1115010DP; +1115010DQ; +1115010DR; +1115010DS; +1115010DT; +1115010DU; +1115010DV; +1115010DW; +1115010DX; +1115010DY; +1115010DZ; +1115010EA; +1115010EB; +1115010EC; +1115010ED; +1115010EE; +1115010EF; +1115010EG; +1115010EH; +1115010EI; +1115010EJ; +1115010EK; +1115010EL; +1115010EM; +1115010EN; +1115010EO; +1115010EP; +1115010EQ; +1115010ER; +1115010ES; +1115010ET; +1115010EU; +1115010EV; +1115010EW; +1115010EX; +1115010EY; +1115010EZ; +1115010FA; +1115010FB; +1115010FC; +1115010FD; +1115010FE; +1115010FF; +1115010FG; +1115010FH; +1115010FI; +1115010FJ; +1115010FK; +1115010FL; +1115010FM; +1115010FN; +1115010FO; +1115010FP; +1115010FQ; +1115010FR; +1115010FS; +1115010FT; +1115010FU; +1115010FV; +1115010FW; +1115010FX; +1115010FY; +1115010FZ; +1115010GA; +1115010GB; +1115010GC; +1115010GD; +1115010GE; +1115010GF; +1115010GG; +1115010GH; +1115010GI; +1115010GJ; +1115010GK; +1115010GL; +1115010GM; +1115010GN; +1115010GO; +1115010GP; +1115010GQ; +1115010GR; +1115010GS; +1115010GT; +1115010GU; +1115010GV; +1115010GW; +1115010GX; +1115010GY; +1115010GZ; +1115010HA; +1115010HB; +1115010HC; +1115010HD; +1115010HE; +1115010HF; +1115010HG; +1115010HH; +1115010HI; +1115010HJ; +1115010HK; +1115010HL; +1115010HM; +1115010HN; +1115010HO; +1115010HP; +1115010HQ; +1115010HR; +1115010HS; +1115010HT; +1115010HU; +1115010HV; +1115010HW; +1115010HX; +1115010HY; +1115010HZ; +1115010IA; +1115010IB; +1115010IC; +1115010ID; +1115010IE; +1115010IF; +1115010IG; +1115010IH; +1115010II; +1115010IJ; +1115010IK; +1115010IL; +1115010IM; +1115010IN; +1115010IO; +1115010IP; +1115010IQ; +1115010IR; +1115010IS; +1115010IT; +1115010IU; +1115010IV; +1115010IW; +1115010IX; +1115010IY; +1115010IZ; +1115010JA; +1115010JB; +1115010JC; +1115010JD; +1115010JE; +1115010JF; +1115010JG; +1115010JH; +1115010JI; +1115010JJ; +1115010JK; +1115010JL; +1115010JM; +1115010JN; +1115010JO; +1115010JP; +1115010JQ; +1115010JR; +1115010JS; +1115010JT; +1115010JU; +1115010JV; +1115010JW; +1115010JX; +1115010JY; +1115010JZ; +1115010KA; +1115010KB; +1115010KC; +1115010KD; +1115010KE; +1115010KF; +1115010KG; +1115010KH; +1115010KI; +1115010KJ; +1115010KK; +1115010KL; +1115010KM; +1115010KN; +1115010KO; +1115010KP; +1115010KQ; +1115010KR; +1115010KS; +1115010KT; +1115010KU; +1115010KV; +1115010KW; +1115010KX; +1115010KY; +1115010KZ; +1115010LA; +1115010LB; +1115010LC; +1115010LD; +1115010LE; +1115010LF; +1115010LG; +1115010LH; +1115010LI; +1115010LJ; +1115010LK; +1115010LL; +1115010LM; +1115010LN; +1115010LO; +1115010LP; +1115010LQ; +1115010LR; +1115010LS; +1115010LT; +1115010LU; 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+1115010SJ; +1115010SK; +1115010SL; +1115010SM; +1115010SN; +1115010SO; +1115010SP; +1115010SQ; +1115010SR; +1115010SS; +1115010ST; +1115010SU; +1115010SV; +1115010SW; +1115010SX; +1115010SY; +1115010SZ; +1115010TA; +1115010TB; +1115010TC; +1115010TD; +1115010TE; +1115010TF; +1115010TG; +1115010TH; +1115010TI; +1115010TJ; +1115010TK; +1115010TL; +1115010TM; +1115010TN; +1115010TO; +1115010TP; +1115010TQ; +1115010TR; +1115010TS; +1115010TT; +1115010TU; +1115010TV; +1115010TW; +1115010TX; +1115010TY; +1115010TZ; +1115010UA; +1115010UB; +1115010UC; +1115010UD; +1115010UE; +1115010UF; +1115010UG; +1115010UH; +1115010UI; +1115010UJ; +1115010UK; +1115010UL; +1115010UM; +1115010UN; +1115010UO; +1115010UP; +1115010UQ; +1115010UR; +1115010US; +1115010UT; +1115010UU; +1115010UV; +1115010UW; +1115010UX; +1115010UY; +1115010UZ; +1115010VA; +1115010VB; +1115010VC; +1115010VD; +1115010VE; +1115010VF; +1115010VG; +1115010VH; +1115010VI; +1115010VJ; +1115010VK; +1115010VL; +1115010VM; +1115010VN; +1115010VO; 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Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	Metals by ICP														
B0WX66	Other Solid	11.2.99	1050	X	X														

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *							
Relinquished By		Date/Time		Received By		Date/Time		Report Pb Results Only 4010A TAL only				S=Soil SE=Soilmen SO=Solid S=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other			
R. Fahlberg		11.2.99		R. Fahlberg		11.2.99									
R. Fahlberg		11.3.99/0900		KIKKI THORSEN		11.3.99/0900									
KIKKI THORSEN		11.3.99/1430		FED EX											
Fed Ex		11.4.99/0930		S. J. ...		11.4.99/0930									
Relinquished By		Date/Time		Received By		Date/Time									
Relinquished By		Date/Time		Received By		Date/Time									
Relinquished By		Date/Time		Received By		Date/Time									

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposed Method	Disposed By	Date/Time

9911L613 / temp. 3.8°