

H1020

Date: 20 October 2000
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100D Areas - Full Protocol - Waste Site Group 3 Small Pipelines
Subject: Inorganics - Data Package No. H1020-RLN (SDG No. H1020)

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INTRODUCTION

This memo presents the results of data validation on Data Package No. H1020-RLN prepared by RECRA LabNet (RLN). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B106F5	9/12/00	Soil	C	See note 1 & 2
B106F6	9/12/00	Soil	C	See note 1 & 2
B106F7	9/12/00	Soil	C	See note 1 & 2
B106F8	9/12/00	Soil	C	See note 1 & 2

- 1 - Chromium VI by 7196A.
- 2 - Five of the samples included in data package H1020 were not validated per instructions from Bechtel Hanford Inc.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL May 1998). Appendices 1 through 5 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

• **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 30 days for chromium VI.

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All holding times were acceptable.

- **Preparation (Method) Blanks**

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable although the target detection limit (TDL) was exceeded for chromium VI.

Field Blank

No field blanks were submitted with the sample data group (SDG), therefore, no field blank data was present for review.

- **Accuracy**

Matrix Spike

Matrix spike (MS) analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must fall within the range of 70% to 130%. Samples with a spike recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a spike recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged

"J". Finally, for samples with a spike recovery greater than 130% and a sample result less than the IDL, no qualification is required.

All matrix spike recovery results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results (MS/MSD) were acceptable.

Field Duplicate

No field duplicates were submitted with the SDG, therefore, no field duplicate data was present for review.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 Area Remedial Action Sampling and Analysis Plan TDLs to ensure that laboratory detection levels meet the required criteria. The TDL was exceeded for chromium VI in all samples. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data package No. H1020-RLN (SDG No. H1020) was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

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MINOR DEFICIENCIES

The TDL was exceeded for chromium VI in all samples. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 1, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 1998.

Appendix 1

Glossary of Data Reporting Qualifiers

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Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

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Appendix 2

Summary of Data Qualification

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DATA QUALIFICATION SUMMARY

SDG: H1020	REVIEWER: TLI	DATE: 10/20/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS: No qualifiers assigned.			

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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OCT 16 '00 09:34AM BHI S&D MANAGEMENT 509 372 9487

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Regra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 10/03/00

CLIENT: TNO-HANFORD 899-005

REGRA LOT #: 0005LE94

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B106M1	‡ Solids Chromium VI	97.3 0.41 u	‡ MG/KG	0.01 0.41	1.0 1.0
-002	B106M2	‡ Solids Chromium VI	97.3 0.41 u	‡ MG/KG	0.01 0.41	1.0 1.0
-003	B106M3	‡ Solids Chromium VI	97.0 0.41 u	‡ MG/KG	0.01 0.41	1.0 1.0
-004	B106M4	‡ Solids Chromium VI	100 0.40 u	‡ MG/KG	0.01 0.40	1.0 1.0
-005	B106M5	‡ Solids Chromium VI	96.0 0.42 u	‡ MG/KG	0.01 0.42	1.0 1.0
-006	B106F5	‡ Solids Chromium VI	98.2 0.41 u	‡ MG/KG	0.01 0.41	1.0 1.0
-007	B106F6	‡ Solids Chromium VI	97.2 0.41 u	‡ MG/KG	0.01 0.41	1.0 1.0
-008	B106F7	‡ Solids Chromium VI	98.2 0.41 u	‡ MG/KG	0.01 0.41	1.0 1.0
-009	B106F8	‡ Solids Chromium VI	95.7 0.42 u	‡ MG/KG	0.01 0.42	1.0 1.0

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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OCT 16 '00 09:33AM BHI S&D MANAGEMENT 509 372 9487

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Chemical and Environmental Measurement Information



Recra LabNet Philadelphia Analytical Report

Client : TNU-HANFORD B99-005
RFW# : 0009L594
SDG# : H1020
SAF# : B99-005

W.O. # : 10985-001-001-9999-00
Date Received: 09-14-00

INORGANIC CASE NARRATIVE

- 1. This narrative covers the analyses of 9 soil samples.
2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The cooler temperature was recorded on the chain-of-custody.
5. The method blank for Chromium VI was within method criteria.
6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.
7. The matrix spike recovery for Soluble Chromium VI was within the 75-125% control limits.
8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.
9. Results for solid samples are reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

10-12-00
Date

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 13 pages.

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Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-005-139	Page 1 of 1
Collector TRICE/COWGILL		Company Contact C.TRICE		Telephone No. 531-0601		Project Coordinator TRENT, SJ	
Project Designation 100 D Areas - Full Protocol		Sampling Location 100-D (Grp. 3 Small Pipelines)		SAF No. B99-005		Price Code 8K Data Turnaround 15 Days	
Ice Chest No. ERC 99-069		Field Logbook No. EL-1339-7		COA R180DD2F00		Method of Shipment FedEx	
Shipped To TMA/RECRA RECRA		Offsite Property No. A000310		BHI of Loading/Air-BHID 42357953 89510			
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive				Preservation	Non	Cont #C	
Special Handling and/or Storage				Type of Container	P	uG	
				No. of Container(s)	1	1	
				Volume	1L	50mL	
SAMPLE ANALYSIS				See Item (1) for Special Instructions	Chromium Msc - 7196		
Sample No.	Matrix *	Sample Date	Sample Time				
B100F6	SOIL	9/12/00	0819	✓			D3
B100F8	SOIL	9/12/00	0830	✓			D4
B100F7	SOIL	9/12/00	0822	✓			D5
B100F8	SOIL	9/12/00	0833	✓			D6
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS			Matrix *
Relinquished By C. TRICE / C. AIC 9/12/00 1520		Date/Time		Received By R. Thoren 9/12/00 1520		Date/Time	
Relinquished By STORED IN 9-12-00		Date/Time		Received By STORED IN 9-12-00		Date/Time	
Relinquished By R. Thoren 9-12-00		Date/Time		Received By R. Thoren 9-12-00		Date/Time	
Relinquished By R. Thoren 9-13-00		Date/Time		Received By R. Thoren 9-13-00		Date/Time	
Relinquished By R. Thoren 9-13-00		Date/Time		Received By FED EX		Date/Time	
Relinquished By FED EX 9/14/00 0920		Date/Time		Received By FED EX 9/14/00 0920		Date/Time	
LABORATORY SECTION		Received By		Title		Date/Time	
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time	

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Appendix 5

Data Validation Supporting Documentation

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INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100D			DATA PACKAGE: H1020		
VALIDATOR: JLL		LAB: Rect		DATE: 10/17/00	
CASE:			SDG: H1020		
ANALYSES PERFORMED					
<input type="checkbox"/> CLP/ICP	<input type="checkbox"/> CLP/GFAA	<input type="checkbox"/> CLP/Hg	<input type="checkbox"/> CLP/Cyanide	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SW-846/ICP	<input type="checkbox"/> SW-846/GFAA	<input type="checkbox"/> SW-846/Hg	<input type="checkbox"/> SW-846 Cyanide	<input checked="" type="checkbox"/> CRTI	<input type="checkbox"/>
SAMPLES/MATRIX	B106F5	B106F6	B106F7	B106F8	
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1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Yes No **N/A**

Is a case narrative present? **Yes** No N/A

Comments: _____

2. HOLDING TIMES

Are sample holding times acceptable? **Yes** No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Were initial calibrations performed on all instruments?	Yes	No	N/A
Are initial calibrations acceptable?	Yes	No	N/A
Are ICP interference checks acceptable?	Yes	No	N/A
Were ICV and CCV checks performed on all instruments?	Yes	No	N/A
Are ICV and CCV checks acceptable?	Yes	No	N/A

Comments: _____

4. BLANKS

Were ICB and CCB checks performed for all applicable analyses? Yes	No	N/A	
Are ICB and CCB results acceptable?	Yes	N/A	
Were preparation blanks analyzed?	Yes	N/A	
Are preparation blank results acceptable?	Yes	N/A	
Were field/trip blanks analyzed?	Yes	No	N/A
Are field/trip blank results acceptable?	Yes	No	N/A

Comments: no field blanks

5. ACCURACY

Were spike samples analyzed?	Yes	No	N/A
Are spike sample recoveries acceptable?	Yes	No	N/A
Were laboratory control samples (LCS) analyzed?	Yes	No	N/A
Are LCS recoveries acceptable?	Yes	No	N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

- Were laboratory duplicates analyzed? Yes No N/A
- Are laboratory duplicate samples RPD values acceptable? Yes No N/A
- Were ICP serial dilution samples analyzed? Yes No N/A
- Are ICP serial dilution %D values acceptable? Yes No N/A
- Are field duplicate RPD values acceptable? Yes No N/A
- Are field split RPD values acceptable? Yes No N/A

Comments: no field dupl

7. FURNACE AA QUALITY CONTROL

- Were duplicate injections performed as required? Yes No N/A
- Are duplicate injection %RSD values acceptable? Yes No N/A
- Were analytical spikes performed as required? Yes No N/A
- Are analytical spike recoveries acceptable? Yes No N/A
- Was MSA performed as required? Yes No N/A
- Are MSA results acceptable? Yes No N/A

Comments: _____

8. REPORTED RESULTS AND DETECTION LIMITS

- Are results reported for all requested analyses? Yes No N/A
- Are all results supported in the raw data? Yes No N/A
- Are results calculated properly? Yes No N/A
- Do results meet the CRDLs? Yes No N/A

Comments: see ~~narrative~~ narrative

Appendix 6

Additional Documentation Requested by Client

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OCT 16 '00 09:34AM BHI S&D MANAGEMENT 509 372 9487

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Recru LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/02/00

CLIENT: TNU-MANFORD 299-005

RECBA LOT #: 00091554

WORK ORDER: 16985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LV1052-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

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OCT 16 '00 09:34AM BHI S&D MANAGEMENT 509 372 9487

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Recre LabNet - Lienville

INORGANICS ACCURACY REPORT 10/02/00

CLIENT: TNU-NANFORD 899-005

RECRA LOT #: 00002594

WORK ORDER: 10985-001-001-9997-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
009	8106FA	Soluble Chromium VI	4.7	0.43u	4.3	112.8	1.0
BLANK10	00LV1052-NB1	Soluble Chromium VI	4.1	0.40u	4.0	102.0	1.0
		Insoluble Chromium VI	11.00	0.40u	11.00	100	100

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Rechts LabNet - Llewville

INORGANICS PRECISION REPORT 10/02/00

CLIENT: TNU-MANFORD 899-005

RECHA LOT #: 00001594

WORK ORDER: 18965-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	B106H1	± Solids	97.3	97.7	0.47	1.0
-009REP	B10678	Chromium VI	0.42u	0.42u	NC	1.0

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Date: 20 October 2000
To: Bechtel Hanford, Inc. (technical representative)
From: TechLaw, Inc.
Project: 100-D Areas - Full Protocol - Waste Site Group 3 Small Pipelines
Subject: Radiochemistry - Data Package No. H1020-TR (SDG No. H1020)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H1020-TR which was prepared by ThermoRetec (TR). A list of samples validated along with the analyses reported and the requested analytes is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B106F5	9/12/00	Soil	C	See note 1 & 2
B106F6	9/12/00	Soil	C	See note 1 & 2
B106F7	9/12/00	Soil	C	See note 1 & 2
B106F8	9/12/00	Soil	C	See note 1 & 2

1 - Gamma spectroscopy, total strontium, alpha spectroscopy.

2 - Five of the samples included in data package H1020 were not validated per instructions from Bechtel Hanford Inc.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL May 1998). Appendices 1 through 5 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

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All holding times were acceptable.

- **Preparation (Method) Blanks**

Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

Due to the blank not being analyzed with the sample data group (SDG), all gamma spectroscopy results were qualified as estimates and flagged "J".

All other blank results were acceptable although the MDA was exceeded for isotopic uranium. Under the BHI statement of work, no qualification is required.

Field Blank

No field blanks were submitted with the SDG, therefore, no field blank data was present for review.

- **Accuracy**

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is either 70-130% or ± 3 sigma. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% or ± 3 sigma, tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

Due to the LCS not being analyzed with the SDG, all gamma spectroscopy results were qualified as estimates and flagged "J".

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All other accuracy results were acceptable.

- **Laboratory Duplicates**

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

Due to an RPD of 41%, all uranium-238(alpha) results were qualified as estimates and flagged "J".

All other duplicate results were acceptable.

Field Duplicate

No field duplicates were submitted with the SDG, therefore, no field duplicate data was present for review.

- **Detection Levels**

Reported analytical detection levels for undetected analytes are compared against the 100 Area Remedial Action Sampling and Analysis Plan target detection limits (TDLs) to ensure that laboratory detection levels meet the required criteria. The following analytes were reported above their TDL: Uranium-235(alpha) in all samples; europium-155 in samples B106F5 and B106F7; uranium-235(GEA) in sample B106F5; uranium-238(GEA) in all samples; and americium-241(GEA) in samples B106F5 and B106F7. Under the BHI statement of work, no qualification is required. All other reported laboratory MDAs were at or below the analyte-specific TDL or contract specified MDA.

- **Completeness**

Data package No. H1020-RLN (SDG No. H1020) was submitted for validation and verified for completeness. Completeness is based on the percentage of

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data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to the blank and LCS not being analyzed with the SDG, all gamma spectroscopy results were qualified as estimates and flagged "J". Due to an RPD of 41%, all uranium-238(alpha) results were qualified as estimates and flagged "J". Data flagged "J" is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

The following analytes were reported above their TDL: Uranium-235(alpha) in all samples; europium-155 in samples B106F5 and B106F7; uranium-235(GEA) in sample B106F5; uranium-238(GEA) in all samples; and americium-241(GEA) in samples B106F5 and B106F7. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 1, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 1998.

Appendix 1

Glossary of Data Reporting Qualifiers

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Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

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Appendix 2

Summary of Data Qualification

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DATA QUALIFICATION SUMMARY

SDG: H1020	REVIEWER: TLI	DATE: 10/20/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Gamma spectroscopy	J	All	LCS and blank not analyzed w/SDG
Uranium-238(alpha)	J	All	RPD

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Project: BECHTEL-HANFORD																			
Laboratory: TR																			
Case	SDG: H1020																		
Sample Number	B106F5			B106F6			B106F7			B106F8									
Remarks																			
Sample Date	9/12/00			9/12/00			9/12/00			9/12/00									
Radiochemistry	TDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Strontium (total)	1	-0.046	U	-0.035	U	-0.052	U	0.001	U										
Uranium-233	0.1	0.226		0.471		0.343		0.458											
Uranium-235	0.1	0.027	U	0	U	0	U	0	U										
Uranium-238	0.1	0.385	J	0.538	J	0.506	J	0.562	J										
Plutonium-238	0.1	-0.003	U	-0.018	U	0.005	U	-0.004	U										
Plutonium-239/40	0.1	0.004	U	0.016	U	-0.005	U	0.028											
Americium-241		-0.004	U	0	U	-0.016	U	0.029											
Potassium-40		9.55	J	12.0	J	10.2	J	11.1	J										
Cobalt 60	0.05		U	U	U	U	U	U	U										
Cesium 137	0.05		U	U	0.028	J	0.132	J	0.748	J									
Radium-226		0.406	J	0.500	J	0.381	J	0.405	J										
Radium-228		0.638	J	0.712	J	0.592	J	0.568	J										
Europium 152	0.1		U	U	U	U	U	U	U										
Europium 154	0.1		U	U	U	U	U	U	U										
Europium 155	0.05		U	U	U	U	U	U	U										
Thorium-228		0.512	J	0.648	J	0.624	J	0.698	J										
Thorium-232		0.638	J	0.712	J	0.592	J	0.568	J										
Uranium-235 (GEA)	0.1		U	U	U	U	U	U	U										
Uranium-238 (GEA)	0.1		U	U	U	U	U	U	U										
Americium-241 (GEA)	0.1		U	U	U	U	U	U	U										

050000

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation.

OCT 17 '00 01:36PM BHI S&D MANAGEMENT 509 372 9487

P.15/26

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1020

R009078-01

B106F5

DATA SHEET

SDG <u>7488</u>	Client/Case no <u>Hanford</u>	SDG <u>H1020</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R009078-01</u>	Client sample id <u>B106F5</u>	
Dept sample id <u>7488-001</u>	Location/Matrix <u>100-D(Grp.3 Small Pipe.) SOLID</u>	
Received <u>09/14/00</u>	Collected <u>09/12/00 08:19</u>	
% solids <u>97.0</u>	Custody/SAF No <u>B99-005-139</u>	<u>B99-005</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.046	0.12	0.17	1.0	U	SR
Uranium 233	U-233/234	0.226	0.14	0.17	1.0	J	U
Uranium 235	15117-96-1	0.027	0.055	0.21	1.0	U	U
Uranium 238	U-238	0.385	0.19	0.17	1.0	J J	U
Plutonium 238	13981-16-3	-0.003	0.015	0.029	1.0	U	PU
Plutonium 239/240	PU-239/240	0.004	0.009	0.018	1.0	U	PU
Americium 241	14596-10-2	-0.004	0.018	0.034	1.0	U	AM
Potassium 40	13966-00-2	9.55	0.64	0.38		J	GAM
Cobalt 60	10198-40-0	U		0.029	0.050	U	GAM
Cesium 137	10045-97-3	U		0.030	0.10	U	GAM
Radium 226	13982-63-3	0.406	0.054	0.053	0.10		GAM
Radium 228	15262-20-1	0.638	0.14	0.14	0.20		GAM
Europium 152	14683-23-9	U		0.071	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.073	0.10	U	GAM
Thorium 228	14274-82-9	0.512	0.033	0.034			GAM
Thorium 232	TH-232	0.638	0.14	0.14			GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		4.0		U	GAM
Americium 241	14596-10-2	U		0.11		U	GAM

100 D Areas - Full Protocol

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10/28/00

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>10/08/00</u>

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OCT 17 '00 01:36PM BHI S&D MANAGEMENT 509 372 9487

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TMA / RICHMOND
SAMPLE DELIVERY GROUP H1020

R009078-02

B106F6

DATA SHEET

SDG <u>7488</u>	Client/Case no <u>Hanford</u>	SDG <u>H1020</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBF-207925</u>	
Lab sample id <u>R009078-02</u>	Client sample id <u>B106F6</u>	
Dept sample id <u>7488-002</u>	Location/Matrix <u>100-D(Grp.3 Small Pipe.) SOLID</u>	
Received <u>09/14/00</u>	Collected <u>09/12/00 08:30</u>	
% solids <u>96.3</u>	Custody/SAF No <u>B99-005-139</u>	<u>B99-005</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.035	0.12	0.17	1.0	U	SR
Uranium 233	U-233/234	0.471	0.23	0.17	1.0	J	U
Uranium 235	15117-96-1	0	0.054	0.21	1.0	U	U
Uranium 238	U-238	0.538	0.23	0.17	1.0	J J	U
Plutonium 238	13981-16-3	-0.018	0.037	0.069	1.0	U	PU
Plutonium 239/240	PU-239/240	0.016	0.026	0.047	1.0	U	PU
Americium 241	14596-10-2	0	0.024	0.044	1.0	U	AM
Potassium 40	13966-00-2	12.0	0.41	0.18		J	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Cesium 137	10045-97-3	0.028	0.019	0.022	0.10	J	GAM
Radium 226	13982-63-3	0.500	0.040	0.036	0.10		GAM
Radium 228	15262-20-1	0.712	0.089	0.083	0.20		GAM
Europium 152	14683-23-9	U		0.044	0.10	U	GAM
Europium 154	15585-10-1	U		0.065	0.10	U	GAM
Europium 155	14391-16-3	U		0.048	0.10	U	GAM
Thorium 228	14274-82-9	0.648	0.025	0.022			GAM
Thorium 232	TH-232	0.712	0.089	0.083			GAM
Uranium 235	15117-96-1	U		0.077		U	GAM
Uranium 238	U-238	U		2.0		U	GAM
Americium 241	14596-10-2	U		0.077		U	GAM

100 D Areas - Full Protocol

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Lab id <u>TMAC</u>
Protocol <u>Hanford</u>
Version <u>1.0</u>
Form <u>DVD-DS</u>
Version <u>1.06</u>
Report date <u>10/08/00</u>

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OCT 17 '00 01:36PM BHI S&D MANAGEMENT 509 372 9487

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TMA / RICHMOND
SAMPLE DELIVERY GROUP H1020

R009078-03

B106F7

DATA SHEET

SDG <u>7488</u>	Client/Case no <u>Hanford</u>	SDG <u>H1020</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R009078-03</u>	Client sample id <u>B106F7</u>	
Dept sample id <u>7488-003</u>	Location/Matrix <u>100-D(Grp.3 Small Pipe.) SOLID</u>	
Received <u>09/14/00</u>	Collected <u>09/12/00 08:22</u>	
% solids <u>97.1</u>	Custody/SAF No <u>B99-005-139</u>	<u>B99-005</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.052	0.12	0.17	1.0	U	SR
Uranium 233	U-233/234	0.343	0.15	0.14	1.0	J	U
Uranium 235	15117-96-1	0	0.044	0.17	1.0	U	U
Uranium 238	U-238	0.506	0.19	0.14	1.0	J J	U
Plutonium 238	13981-16-3	0.005	0.009	0.015	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.005	0.012	0.025	1.0	U	PU
Americium 241	14596-10-2	-0.016	0.025	0.054	1.0	U	AM
Potassium 40	13966-00-2	10.2	0.50	0.20		J	GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	0.132	0.028	0.029	0.10		GAM
Radium 226	13982-63-3	0.381	0.051	0.050	0.10		GAM
Radium 228	15262-20-1	0.592	0.11	0.11	0.20		GAM
Europium 152	14683-23-9	0.237	0.068	0.077	0.10		GAM
Europium 154	15585-10-1	U		0.074	0.10	U	GAM
Europium 155	14391-16-3	U		0.083	0.10	U	GAM
Thorium 228	14274-82-9	0.624	0.052	0.048			GAM
Thorium 232	TH-232	0.592	0.11	0.11			GAM
Uranium 235	15117-96-1	U		0.099		U	GAM
Uranium 238	U-238	U		2.7		U	GAM
Americium 241	14596-10-2	U		0.19		U	GAM

100 D Areas - Full Protocol

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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>10/08/00</u>

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TMA / RICHMOND
SAMPLE DELIVERY GROUP H1020

R009078-04

B106F8

DATA SHEET

SDG <u>7488</u>	Client/Case no <u>Hanford</u>	SDG <u>H1020</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-S&D-207925</u>	
Lab sample id <u>R009078-04</u>	Client sample id <u>B106F8</u>	
Dept sample id <u>7488-004</u>	Location/Matrix <u>100-D(Grp.3 Small Pipe.) SOLID</u>	
Received <u>09/14/00</u>	Collected <u>09/12/00 08:33</u>	
‡ solids <u>96.6</u>	Custody/SAF No <u>B99-005-139</u>	<u>B99-005</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.001	0.11	0.16	1.0	U	SR
Uranium 233	U-233/234	0.458	0.21	0.16	1.0	J	U
Uranium 235	15117-96-1	0	0.050	0.19	1.0	U	U
Uranium 238	U-238	0.562	0.21	0.16	1.0	J	U
Plutonium 238	13981-16-3	-0.004	0.012	0.029	1.0	U	PU
Plutonium 239/240	PU-239/240	0.028	0.020	0.025	1.0	J	PU
Americium 241	14596-10-2	0.029	0.015	0.018	1.0	J	AM
Potassium 40	13966-00-2	11.1	0.63	0.21		J	GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Cesium 137	10045-97-3	0.748	0.026	0.016	0.10		GAM
Radium 226	13982-63-3	0.405	0.038	0.035	0.10		GAM
Radium 228	15262-20-1	0.568	0.093	0.091	0.20		GAM
Europium 152	14683-23-9	0.164	0.029	0.043	0.10		GAM
Europium 154	15585-10-1	U		0.073	0.10	U	GAM
Europium 155	14391-16-3	U		0.042	0.10	U	GAM
Thorium 228	14274-82-9	0.698	0.039	0.037			GAM
Thorium 232	TH-232	0.568	0.093	0.091			GAM
Uranium 235	15117-96-1	U		0.067		U	GAM
Uranium 238	U-238	U		2.2		U	GAM
Americium 241	14596-10-2	U		0.026		U	GAM

100 D Areas - Full Protocol

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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>10/08/00</u>

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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**Thermo Retec
W.O. No. R0-09-078-7488**

**Bechtel Hanford Inc.
SDG H1020**

Case Narrative

Page 1 of 1

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1020 was composed of nine solid (soil) samples designated under SAF No. B99-005 with a Project Designation of: 100 D Areas - Full Protocol.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Thermo Retec Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on October 2, and 8, 2000.

2.0 ANALYSIS NOTES

2.1 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.2 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.3 Isotopic Plutonium Analyses

The Pu-238 LCS percent recovery (85%) was below the 3-sigma limits (88-112%), but within BHI's protocol limits of 80-120%.

No other problems were encountered during the course of the analyses.

2.4 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.5 Gamma Spectroscopy Analyses

The Co-137 LCS percent recovery (75%) was below the 3-sigma limits (69-131%) and the laboratory protocol limits of 70-130%.

No other problems were encountered during the course of the analyses.

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Duncan, Jeanette M

From: Weiss, Richard L
Sent: Monday, October 23, 2000 11:11 AM
To: Duncan, Jeanette M
Subject: Review of Validation Reports for SDG H1020

Jeanette,

The following are my comments on the validation reports for SDG H1020

Radiochemistry - Detection Limits, Pg 3 & 4; The TDL was missed for all samples for U-238 (GEA). The TLD for U-235 (GEA) was missed only for sample B106F5, not B106F6 as identified.

Inorganic - No comments.



Rich Weiss

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-005-139	Page 1 of 1
Collector TRICE/COWGILL		Company Contact C.TRICE		Telephone No. 531-0601		Project Coordinator TRENT, SJ	
Project Designation 100 D Areas - FWH Protocol		Sampling Location 100-D (Grp. 3 Small Pipelines)		H1020 (7488)		Price Code 8K	
Ice Chest No. 2 RC 99-067 (10A)		Field Logbook No. EL-1339-7		COA R100DD2F00		Data Turnaround 15 Days	
Shipped To TMA/KECRA		Office Property No. A0000304		Method of Shipment FedEx		Air Quality <input type="checkbox"/>	
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive		Preservation		Name		Cool 4C	
Special Handling and/or Storage		Type of Container		P		a0	
		No. of Container(s)		1		1	
		Volume		1L		60mL	
SAMPLE ANALYSIS		Sec Item (1) in Special Instructions		Cesium 11m - 7196			
Sample No.		Matrix *		Sample Date		Sample Time	
B106F5		SOIL		9/12/00		0819	
B106F6		SOIL		9/12/00		0830	
B106F7		SOIL		9/12/00		0822	
B106F8		SOIL		9/12/00		0833	
CHAIN OF POSSESSION		Sign/Print Name		SPECIAL INSTRUCTIONS		Matrix *	
Relinquished By C. Trice		Date/Time 9/12/00 1520		Received By K. Thoren		Date/Time 9/12/00	
Relinquished By R. LA		Date/Time 9-12-00		Received By R. LA		Date/Time 9-12-00	
Relinquished By K. Thoren		Date/Time 9-12-00		Received By R. LA		Date/Time 9-12-00	
Relinquished By R. LA		Date/Time 9-13-00		Received By K. Thoren		Date/Time 9-13-00	
Relinquished By K. Thoren		Date/Time 9-13-00		Received By E. Segura		Date/Time 9/13/00	
Relinquished By E. Segura		Date/Time 09/14/00		Received By C. Trice		Date/Time 9/14/00	
LABORATORY SECTION		Received By		Date/Time		Disposal Method	
FINAL SAMPLE DISPOSITION		Received By		Date/Time		Disposal Method	

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OCT 17 '00 01:47PM BHI S&D MANAGEMENT 509 372 9487 P. 23/25

Appendix 5

Data Validation Supporting Documentation

000019

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100D Sm pipes		DATA PACKAGE: H1020		
VALIDATOR:	TLI	LAB:	TR	DATE: 10/17/08	
CASE:			SDG: H1020		
ANALYSES PERFORMED					
<input type="checkbox"/> Gross Alpha/Beta	<input checked="" type="checkbox"/> Strontium-90	<input type="checkbox"/> Technetium-99	<input checked="" type="checkbox"/> Alpha Spectroscopy	<input checked="" type="checkbox"/> Gamma Spectroscopy	
<input type="checkbox"/> Total Uranium	<input type="checkbox"/> Radium-22	<input type="checkbox"/> Tritium	<input type="checkbox"/>		
SAMPLES/MATRIX	B106F5	B106F6	B106F7	B106F8	
					sal

1. Completeness N/A
 Technical verification forms present? Yes No N/A

Comments: _____

2. Initial Calibration N/A
 Instruments/detectors calibrated within
 one year of sample analysis? Yes No N/A
 Initial calibration acceptable? Yes No N/A
 Standards NIST traceable? Yes No N/A
 Standards Expired? Yes No N/A

Comments: _____

- 3. Continuing Calibration N/A
- Calibration checked within one week of sample analysis? . . . Yes No N/A
- Calibration check acceptable? Yes No N/A
- Calibration check standards NIST traceable? Yes No N/A
- Calibration check standards expired? Yes No N/A

Comments: _____

- 4. Blanks N/A
- Method blank analyzed? Yes No N/A
- Method blank results acceptable? Yes No N/A
- Analytes detected in method blank? Yes No N/A
- Field blank(s) analyzed? Yes No N/A
- Field blank results acceptable? Yes No N/A
- Analytes detected in field blank(s)? Yes No N/A
- Transcription/Calculation Errors? Yes No N/A

Comments: gamma not run w/blank J

No field blank

- 5. Matrix Spikes N/A
- Matrix spike analyzed? Yes No N/A
- Spike recoveries acceptable? Yes No N/A
- Spike source traceable? Yes No N/A
- Spike source expired? Yes No N/A
- Transcription/Calculation Errors? Yes No N/A

Comments: _____

6. Laboratory Control Samples N/A

LCS analyzed? Yes No N/A

LCS recoveries acceptable? Yes No N/A

LCS traceable? Yes No N/A

Transcription/Calculation Errors? Yes No N/A

Comments: PU238 - outside 3 sigmas - J
gamma - not run w/ LCS - J

7. Chemical Recovery N/A

Chemical carrier added? Yes No N/A

Chemical recovery acceptable? Yes No N/A

Chemical carrier traceable? Yes No N/A

Chemical carrier expired? Yes No N/A

Transcription/Calculation errors? Yes No N/A

Comments: _____

8. Duplicates N/A

Duplicates Analyzed? Yes No N/A

RPD Values Acceptable? Yes No N/A

Transcription/Calculation Errors? Yes No N/A

Comments: U 238 aspect 4190 J

- 9. Field QC Samples N/A
- Field duplicate sample(s) analyzed? Yes No N/A
- Field duplicate RPD values acceptable? Yes No N/A
- Field split sample(s) analyzed? Yes No N/A
- Field split RPD values acceptable? Yes No N/A
- Performance audit sample(s) analyzed? Yes No N/A
- Performance audit sample results acceptable? Yes No N/A

Comments: _____

10. Holding Times

- Are sample holding times acceptable? Yes No N/A

Comments: _____

11. Results and Detection Limits (Levels D & E) N/A

- Results reported for all required sample analyses? Yes No N/A
- Results supported in raw data? Yes No N/A
- Results Acceptable? Yes No N/A
- Transcription/Calculation errors? Yes No N/A
- MDA's meet required detection limits? Yes No N/A
- Transcription/calculation errors? Yes No N/A

Comments: See Navato

Appendix 6

Additional Documentation Requested by Client

000023A

OCT 17 '00 01:35PM BHI S&D MANAGEMENT 509 372 9487

P.12/26

**TMA / RICHMOND
SAMPLE DELIVERY GROUP H1020**

R009078-11

Method Blank

METHOD BLANK

SDG <u>7488</u>	Client/Case no <u>Hanford</u>	SDG <u>H1020</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R009078-11</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7488-011</u>	Material/Matrix <u>SOLID</u>	
	SAP No <u>B99-005</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.051	0.13	0.18	1.0	U	SR
Uranium 233	U-233/234	0.019	0.039	0.15	1.0	U	U
Uranium 235	15117-96-1	0.023	0.047	0.18	1.0	U	U
Uranium 238	U-238	0	0.039	0.15	1.0	U	U
Plutonium 238	13981-16-3	0.011	0.022	0.037	1.0	U	PU
Plutonium 239/240	PU-239/240	0.014	0.016	0.026	1.0	U	PU
Americium 241	14596-10-2	0.012	0.011	0.013	1.0	U	AM
Potassium 40	13966-00-2	U		0.11		U	GAM
Cobalt 60	10198-40-0	U		0.010	0.050	U	GAM
Cesium 137	10045-97-3	U		0.008	0.10	U	GAM
Radium 226	13982-63-3	U		0.018	0.10	U	GAM
Radium 228	15262-20-1	U		0.035	0.20	U	GAM
Europium 152	14603-23-9	U		0.022	0.10	U	GAM
Europium 154	15585-10-1	U		0.032	0.10	U	GAM
Europium 155	14391-16-3	U		0.017	0.10	U	GAM
Thorium 228	14274-82-9	U		0.013		U	GAM
Thorium 232	TH-232	U		0.035		U	GAM
Uranium 235	15117-96-1	U		0.031		U	GAM
Uranium 238	U-238	U		1.2		U	GAM
Americium 241	14596-10-2	U		0.028		U	GAM

100 D Areas - Full Protocol

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METHOD BLANKS

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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>10/17/00</u>

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TMA/RICHMOND

SAMPLE DELIVERY GROUP #1020

R009078-12

R106H3

DUPLICATE

<u>SDG 7488</u>		Client/Case no <u>Hanford</u>		<u>SDG #1020</u>
Contact <u>MELISSA C. MANNING</u>		Case no <u>TRC-SRB-207925</u>		
<u>DUPLICATE</u>		<u>ORIGINAL</u>		
Lab sample id <u>R009078-12</u>	Lab sample id <u>R009078-07</u>	Client sample id <u>R106H3</u>		
Dept sample id <u>7488-012</u>	Dept sample id <u>7488-007</u>	Location/Matrix <u>100-D(Grn.3 Small Pipe.) SOLID</u>		
	Received <u>09/14/00</u>	Collected <u>09/12/00 09:02</u>		
g solids <u>96.4</u>	g solids <u>96.4</u>	Custody/SAP No <u>B99-005-142</u> <u>B99-005</u>		

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MCA pCi/g	NDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MCA pCi/g	QUALI- FIERS	RPD %	3σ TOT LIMIT
Total Strontium	-0.102	0.13	0.18	1.0	U	SR	-0.017	0.12	0.17	U	-	
Uranium 233	0.554	0.20	0.15	1.0	J	U	0.514	0.20	0.13	J	7	60
Uranium 235	0.023	0.046	0.18	1.0	U	U	0	0.060	0.15	U	-	
Uranium 238	0.783	0.24	0.15	1.0	J	U	0.514	0.20	0.13	J	41	73
Plutonium 238	0.002	0.019	0.036	1.0	U	PU	0.015	0.024	0.037	U	-	
Plutonium 239/240	0.019	0.014	0.023	1.0	U	PU	0.012	0.018	0.029	U	-	
Americium 241	0.015	0.017	0.021	1.0	U	AM	-0.006	0.019	0.013	U	-	
Potassium 40	12.7	0.94	0.56			GAM	12.9	0.56	0.28		2	34
Cobalt 60	U		0.041	0.050	U	GAM	U		0.024	U	-	
Cesium 137	U		0.046	0.10	U	GAM	0.042	0.027	0.028	J	9	185
Radium 226	0.504	0.090	0.089	0.10		GAM	0.500	0.050	0.047		1	44
Radium 228	0.830	0.20	0.19	0.20		GAM	0.703	0.12	0.11		17	56
Europium 152	U		<u>0.11</u>	0.10	U	GAM	U		0.096	U	-	
Europium 154	U		<u>0.16</u>	0.10	U	GAM	U		0.085	U	-	
Europium 155	U		<u>0.11</u>	0.10	U	GAM	U		0.066	U	-	
Thorium 228	0.744	0.056	0.057			GAM	0.707	0.033	0.029		5	35
Thorium 232	0.820	0.20	0.19			GAM	0.703	0.12	0.11		17	56
Uranium 235	U		0.18		U	GAM	U		0.10	U	-	
Uranium 238	U		5.5		U	GAM	U		2.8	U	-	
Americium 241	U		0.17		U	GAM	U		0.10	U	-	

100 D Areas - Full Protocol

QC-DUP#7 35903

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 11

Lab id	<u>TMAC</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-DUP</u>
Version	<u>3.05</u>
Report date	<u>10/08/00</u>

000025

OCT 17 '00 01:36PM BHI S&D MANAGEMENT 509 372 9487

P. 13/26

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1020

R009078-10

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7488</u>	Client/Case no <u>Hanford</u>	SDG <u>H1020</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>TRC-S&D-207925</u>	
Lab sample id <u>R009078-10</u>	Client sample id <u>Lab Control Sample</u>	
Dcpt sample id <u>7488-010</u>	Material/Matrix <u>SOLTD</u>	
	S&F No <u>B99-005</u>	

ANALYTE	RESULT pCi/g	3σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS TEST	ADDED pCi/g	3σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Strontium	12.2	0.79	0.21	1.0	SR	12.2	0.49	109	80-120	80-120
Uranium 233	10.4	1.3	0.64	1.0	U	9.66	0.39	108	77-123	80-120
Uranium 235	9.68	1.2	0.18	1.0	U	7.84	0.31	115	75-125	80-120
Uranium 238	10.6	1.3	0.61	1.0	U	10.5	0.42	103	79-121	80-120
Plutonium 238	10.6	0.67	0.045	1.0	PU	12.4	0.50	85	88-112	80-120
Plutonium 239/240	11.6	0.73	0.027	1.0	PU	13.2	0.63	88	88-112	80-120
Americium 241	12.2	2.4	0.64	1.0	AM	11.5	0.46	106	67-133	80-120
Cobalt 60	0.227	0.050	0.041	0.050	GAM	0.302	0.012	75	69-131	80-120
Cesium 137	0.338	0.040	0.027	0.10	GAM	0.348	0.014	97	72-128	80-120

100 D Areas - Full Protocol

QC-LCS 35901

LAB CONTROL SAMPLES
Page 1
SUMMARY DATA SECTION
Page 10

Lab id <u>TNANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>1.06</u>
Report date <u>10/08/00</u>

000026

OCT 17 '00 01:44PM BHI S&D MANAGEMENT 509 372 9487

P.7/25

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1020

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Test GAM Matrix SDI.ED
SDG 7488
Contact Melissa C. Mannion

Client Hanford
Contract TFC-588-207925
Contract SDG H1020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SOP- pCi/g	MAX pCi/g	MDA g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT /min	FWHM keV	DRIFT keV	DATE HELD PREPARED	ANAL- YZED	DETECTOR
Preparation batch 6955-054 2σ prep error 15.0 % Reference Lab Notebook 6955 pg. 054																
B106F3	R009078-01			<u>0.076</u>	826						208			10 09/22/00 09/22	02,03,00	
B106F6	R009078-02			0.048	846						208			10 09/22/00 09/22	02,04,00	
B106F7	R009078-03			<u>0.068</u>	882						208			10 09/22/00 09/22	ME,05,00	
R106F8	R009078-04			0.050	862						208			10 09/22/00 09/22	ME,07,00	
B106H1	R009078-05			<u>0.11</u>	883						126			10 09/22/00 09/22	02,01,00	
B106H2	R009078-06			<u>0.11</u>	799						126			10 09/22/00 09/22	02,03,00	
B106H3	R009078-07			<u>0.065</u>	834						126			10 09/22/00 09/22	02,04,00	
B106H4	R009078-08			<u>0.065</u>	808						126			10 09/22/00 09/22	ME,05,00	
B106H5	R009078-09			<u>0.061</u>	836						126			10 09/22/00 09/22	ME,07,00	
BLK (QC ID-35902)	R009078-11			0.018	799						117			09/22/00 09/26	01,04,00	
LCS (QC ID-35901)	R009078-10			0.041	799						117			09/22/00 09/26	01,03,00	
Duplicate (R009078-07) (QC ID-35903)	R009078-12			<u>0.12</u>	934						117			14 09/22/00 09/26	02,03,00	
Nominal values and limits from method				0.050	799						100				180	

PROCEDURES	REFERENCE	GAMMA_GS
CP-060		Soil Preparation, rev 1
CP-100		Ge(Li) Preparation for Commercial Samples, rev 2

AVERAGES ± 2 SD	MDA	<u>0.070</u> ± <u>0.051</u>
FOR 12 SAMPLES	YIELD	_____ ± _____

Duncan, Jeanette M

From: Duncan, Jeanette M
Sent: Wednesday, November 01, 2000 1:43 PM
To: 'bchristian@techlawinc.com'
Subject: H1020 Validation Comment Disposition Comments

Bruce,

Please make the following changes to H1020 asap and send full new copies via fedex, so that I can get this one closed out:

Rad -

1. The TDL for U-235 (GEA) was not missed for sample B106F6. Delete reference to this sample in pages 3 & 4.
2. Pages 24+. Please make Appendix 6 with title "additional documentation requested by client."

Inorganic -

1. Pages 20+. Make Appendix 6 with title "additional documentation requested by client."

OCT 25 '00 03:33PM RHT S&D MANAGEMENT 509 372 9487

P. 3/3

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Monday, October 23, 2000 11:11 AM
To: Duncan, Jeanette M
Subject: Review of Validation Reports for SDG H1020

Jeanette,

The following are my comments on the validation reports for SDG H1020

Radiochemistry - Detection Limits, Pg. 3 & 4: The TDL was missed for all samples for U-238 (GEA). The TLD for U-235 (GEA) was missed only for sample B106F5, not B106F6 as identified.

Inorganic - No comments.

Rich Weiss

Carroll
did not do

Rad - pss 24+ - make Appendix 6 =

Title - "Additional Documentation Requested by client"

Inorgs pss 20+ make Appendix 6

Date: 20 October 2000
 To: Bechtel Hanford Inc. (technical representative)
 From: TechLaw, Inc.
 Project: 100D Areas - Full Protocol - Waste Site Group 3 Small Pipelines
 Subject: Inorganics - Data Package No. H1020-RLN (SDG No. H1020)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H1020-RLN prepared by RECRA LabNet (RLN). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B106F5	9/12/00	Soil	C	See note 1 & 2
B106F6	9/12/00	Soil	C	See note 1 & 2
B106F7	9/12/00	Soil	C	See note 1 & 2
B106F8	9/12/00	Soil	C	See note 1 & 2

1 - Chromium VI by 7196A.

2 - Five of the samples included in data package H1020 were not validated per instructions from Bechtel Hanford Inc.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL May 1998). Appendices 1 through 5 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation

DATA QUALITY PARAMETERS

- **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 30 days for chromium VI.

All holding times were acceptable.



<h1>Review Comment Record (RCR)</h1>	1. Date 10/23/00	2. Review No. QA-0042
	3. Project 100-D	4. Page Page 1 of 1

5. Document Number(s)/Title(s) SDG No. H1020	6. Program/Project/ Building Number 100-D Areas - Full Protocol, Waste Sites Group 3 Small Pipelines	7. Reviewer Claude Stacey	8. Organization/Group Quality Program	9. Location/Phone 372-9208
---	---	------------------------------	--	-------------------------------

17. Comment Submittal Approval: _____ 10. Agreement with indicated comment disposition(s) 11. CLOSED

_____ Organization Manager (Optional) _____ Reviewer/Point of Contact _____ Reviewer/Point of Contact
 _____ Date _____ Date _____ Date
 _____ Author/Originator _____ Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Radiochemistry: Page 02 and 08, Accuracy indicates Pu-238 flagged "J" due to exceeding the 3 sigma criteria. DOE/RL-96-22, Rev. 1 specifies the acceptance criteria for Pu-238 to be 70 to 130% recovery. The criteria is not whether the recovery is either 3 sigma or 70 to 130%, but whether it meets one or the other as specified in the criteria. Thus, Pu-238 should not be flagged "J".		<i>in acc</i>	
2	Inorganic page 015 and Radiochemistry page 017 are chain of custody pages for samples not related to this SDG and should be removed.		<i>in acc</i>	
3				
4				
5				

Duncan, Jeanette M

From: Callison, Stacey W
Sent: Monday, October 23, 2000 10:24 AM
To: Duncan, Jeanette M; Peintinger, Joanne M
Subject: D Small Pipelines Draft data validation

Joanne - This message is for Surajit Amrit.

Jeanette - I have reviewed the subject and do not have any comments.

Surajit - If you would like to review the draft validation reports, let me know and I'll bring them over, or you can pick them up in my office.

Stacey Callison
372-9590

Rad Package

1. Change "(aspec)" to "(alpha)". Please continue this in future packages. ✓
2. Accuracy: The first paragraph is unclear. Suggest replace the first two sentences with; "Accuracy is evaluated from I.CC/BSS batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts." 3rd sentence; change "laboratory control sample" to "LCS/BSS". Delete "rejected" in the last sentence of the 1st paragraph. Add; "Results are rejected for LCS/BSS recoveries of less than 30%, tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results."

Additional comments for Validation Package for SDG H1020

All packages

1. Page 1: Change "DATA QUALITY OBJECTIVES" to "DATA QUALITY PARAMETERS" ✓
2. All: Define acronyms and abbreviations (e.g., TDI, RPD, LCS) at first use. ✓
3. Appendix 3: Delete line "Location" and all contents of this line. Correct sampling date from 8/12 to 9/12. Change "CRDL" to "TDL" Add footnote "Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation."
4. Introduction: Include discussion to explain that the data package contained 9 sets of results and the only the 4 samples listed were from the site requiring validation. ✓
5. Blanks: Add section for Field Blanks and note that no field blanks were submitted as part of this analytical batch and that no evaluation was possible. ✓
6. Precision: Add section for Field Duplicates and note that no field duplicates were submitted as part of the this analytical batch and that no evaluation was possible. Add Lab Duplicate header in radchem package. ✓
7. Preparation Blanks: Revise title to "Preparation (Method) Blanks". ✓
8. Precision: Both packages have problems in the way the text reads. Delete any references to aqueous samples. Suggested revisions: "Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities(concentrations) are greater than five time the CRDL and the RPD is less than 30%, no qualification is required. If either activity(concentration) are less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects of estimated non-detects." Inorganic – note that RPD was calculated from MS/MSD. ✓
9. Annotated Form Is: Do not mark out any laboratory applied qualifiers (e.g., "J") except those specifically required to be changed due to validation (e.g., changing "B" to "U" due to blank contamination in VOA analysis).
10. Completeness: List the criteria used for determination of completeness of the data package. Such information is included in other sections. ✓
11. Appendix 1: For "UJ" and "J", insert "minor" before "QC deficiency. For "UR" and "R", insert "major" before "QC deficiency". ✓
12. Validation checklists: Review for additional documentation needs. Wherever "NO" is checked (in these packages), there should be some discussion in the comments section. This may include a comment to see validation narrative for details. ✓

Inorganic Package

1. Appendix 2: Delete blank lines in lower section of the table. This should be continued in any future packages. ✓
2. Accuracy: An LCS/BSS was performed for this analysis and should be evaluated.

This would constitute an upgrade to level D1
Validation. ✓
OK RW

FAX

TECHLAW, INC.

451 Hills, Suite 23
Richland, WA 99352
509-375-5667
509-375-5151 (fax)

To: Jeanette Duncan

From: Bruce Christian

Pages: 2

Date: 30 October 2000

Information Request H1020

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Review Comment Record (RCR)	1. Date 10/23/00	2. Review No. QA-0042
	3. Project 100-D	4. Page Page 1 of 1

5. Document Number(s)/Title(s) SDG No. H1020	6. Program/Project/ Building Number 100-D Areas - Full Protocol, Waste Sites Group 3 Small Pipelines	7. Reviewer Claude Stacey	8. Organization/Group Quality Program	9. Location/Phone 372-9208
---	---	------------------------------	--	-------------------------------

17. Comment Submitted/Approval: _____ 18. Agreement with indicated comment disposition(s) 19. CLOSED

Organization Manager (Optional) _____ Reviewer/Point of Contact _____ Date _____ 10/30/00 _____ Reviewer/Point of Contact _____
 Author/Originator _____ Author/Originator _____

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)
1	Radiochemistry: Page 02 and 08, Accuracy indicates Pu-238 flagged "J" due to exceeding the 3 sigma criteria. DOE/RL-96-22, Rev. 0 specifies the acceptance criteria for Pu-238 to be 70 to 130% recovery. The criteria is not whether the recovery is either 3 sigma or 70 to 130%, but whether it meets one or the other as specified in the criteria. Thus, Pu-238 should not be flagged "J".		in acc <i>KS</i>
2	Inorganic page 015 and Radiochemistry page 017 are chain of custody pages for samples not related to this SDG and should be removed.		in acc <i>KS</i>
3			
4			
5			

Postnet Fax Note 7671

TO: *Maquette Division*
 Co/Dept: _____
 Phone # *372-9439*
 Fax # *372-9437*

FROM: *Claude Stacey*
 Co: _____
 Phone # *372-9208*
 Fax # _____

DOCT 30 '00 02:46PM
 Pages 1

OCT 25 '00 09:24PM

UNCLASSIFIED FOR INTERNAL USE ONLY

Duncan, Jeanette M

From: Callison, Stacey W
Sent: Wednesday, November 01, 2000 9:59 AM
To: Duncan, Jeanette M
Subject: FW: Review and comments on the validation reports (H1020RLN, and H1020TR)

Jeanette -

Looks like we are good to go.

Stacey

-----Original Message-----

From: Amrit, Surajit K
Sent: Wednesday, November 01, 2000 9:57 AM
To: Weiss, Richard L; ^BHI Document & Info Services
Cc: Price, William H; Kessner, Joan H; Callison, Stacey W
Subject: RE: Review and comments on the validation reports (H1020RLN, and H1020TR)

-----Original Message-----

From: Weiss, Richard L
Sent: Tuesday, October 31, 2000 3:32 PM
To: Amrit, Surajit K; ^BHI Document & Info Services; Duncan, Jeanette M
Rich,

Your explanation below resolves the identified comments satisfactorily. We will close out the action under CCN 083324.

However my General Comments 2, 3, 6 and 10 should be considered in the future revisions of the SAP and RDR/RAWP and the upgrade of the format of the data validation packages. Also, Specific Comment (applicable to H1020-RLN) 6 and Specific Comment (applicable to H1020-TR) 7 need to be revised as we upgrade the validation procedures.

Thanks for your time spent on this matter.

Surajit.

Cc: Price, William H; Kessner, Joan H; Callison, Stacey W
Subject: RE: Review and comments on the validation reports (H1020RLN, and H1020TR)

Surajit,

Thanks for getting back quickly on these. I'm a little confused on some of the items you still are holding open, let me add some explanations and see if we can get to an agreement.

Specific Comments for H1020-RLN

1. Please note footnote 2 in the Introduction (under the table). This identifies that 5 additional samples were included in the SDG but were not included in this validation at the specification of the project (they belong to another sub-project). What more do you need here?

2. A notation has been added that no Field Blanks (which would include any equipment rinsates) were submitted as part of the sample delivery group and this not included in the validation effort. The level of validation (C) only looks at batch (preparation) blanks, any of the others you discuss would require level D evaluation as well as a higher level of data reporting (our nomenclature would be upgrading from a "summary" to a "standalone" data package) from the laboratory. This will significantly increase analysis/validation costs.

6. Please see comments to 7 below as they are the same

Is item 4 ok?

Specific Comments for H1020-TR

1. Except for the last sentence, this is the same as comment 2 for H1020-RLN. The explanation noted for that comment above applies here as well. Regarding the last sentence, first I apologize, as I missed this in yesterday's response. It is not within the scope of the validator to address the "why" for laboratory performance (or lack there of).

The "issue" addressed here is actually a technical non-issue that results in over-qualification of the results based on the current wording of the validation procedures. The reasons are somewhat complex, if the following summary doesn't make sense, let me know and I'll get with you in more detail.

Traditional non-radiological analyses technique concepts of analysis "batches" (from which the current radionuclide procedure was developed) are impossible to apply to most radionuclide "analysis" (counting) activities. Traditional non-radionuclide analysis relies on analysis on a single instrument, in sequence, normally within a single working day. Radionuclide counting can extend for in excess of 8 hours for a single sample. Multiple detectors are a necessity and the total counting time can extend for several days for a single preparation batch. For this SDG, sequential GEA analysis for all samples and batch QC on a single detector would have required 6 working days (no 2nd or 3rd shifts). The samples and batch QC were prepared on the same day. This is the important part as the batch QC really applies to sample preparation activities. Other detector QC (to ensure that a detector is properly calibrated and not contaminated) is performed but review of this QC is not part of the Level C validation. The current wording of the procedure requires that the samples and QC be counted "at the same time" which has been interpreted by the validator as within two working days. The samples were counted for GEA on a Friday on five different detectors, the blank, LCS, and Duplicate counted on the following Tuesday (on two of the detectors used for the samples). The revised validation procedure eliminates this over-requirement.

5. The revised annotated data reports in this appendix only show the qualifiers applied by the validator (J). No "altered" lab qualifiers remain. If this doesn't match your copies, please let me know.

6. I guess I've misunderstood your comment. I've looked over your notes in the packages and cannot find a direct reference to this. Let try to address a couple of things that hopefully will answer your issue. If not, please let me know more so that we can get this resolved.

The only calculation performed by the validator for level C validation is calculation of duplicate RPDs. The formula for this is contained in the validation procedure and there is no contractual requirement for an "actual calculation" sheet to be included. In this SDG the only RPD calculation was for batch duplicates and this RPD value is also provided in the laboratory data package, so the validator simply confirmed that value. The validator will calculate a field RPD if field duplicate are performed (not the case for this SGD) but only notes if the value exceeds "normal" parameters (no validation parameters have been established). During closeout verification, field duplicates are recalculated and any error made by the validator will be found (the validation package would then be corrected).

I've also noted some comments in the validation package questioning the source of "3-sigma" values. Note that the 3-sigma criteria (shorthand for a requirement that the value found be within three standard deviations [3-sigma] of a statistical average {typically at least 20 data points} for the given analysis) only applies to GEA analysis, as per the SAP. This is why the qualification of Pu-238 was removed from the revised package. The 3-sigma values is calculated by the laboratory and provided as part of the data package. Confirmation of this calculation is outside the scope of level C validation.

7. (and 6 from above) The validation checklists are a tool to be used by the validator. We require that the checklists be used and included in the package mostly to allow verification that the validator did examine the required areas. The original checklists were incomplete. The current ones probably represent the minimum but do reflect what areas the validator addressed. These checklists will be revised as we upgrade the validation procedures.

Are items 2 & 3 ok?

I think that we've gotten over all of the technical hurdles here. There are still some long term items to work through but we need to keep moving forward on this package as it is on a "fast track" for completion. Let me know what else you need or what you need further clarification on.

Rich

-----Original Message-----

From: Amrit, Surajit K
Sent: Tuesday, October 31, 2000 10:09 AM
To: Weiss, Richard L; ^BHI Document & Info Services; Duncan, Jeanette M
Cc: Price, William H; Kessner, Joan H
Subject: RE: Review and comments on the validation reports (H1020RLN, and H1020TR)

Rich,

Thanks for looking into my comments and trying (your best) to resolve most of them. I do see some improvement in the reports.

Here is my review of your resolution of my comments:

- General Comments
 - 1 was noted,
 - 4,5,7,8 and 9 have been satisfactorily resolved,
 - 2 and 3 have been deferred pending the a revision of the SAP and the RDR/RAWP which will reflect the intent of the comment,

- 6 and 10 has been deferred pending revision to the format of the validation packages (based on input from end-users).
- Specific Comment (applicable to H1020-RLN)
 - 1 and 2 have not been addressed,
 - 3 and 5 are determined to be out of scope (I concur),
 - 6 - still needs lot of work.
- Specific Comment (applicable to H1020-TR)
 - 1, 5 and 6 have not been addressed
 - 4 is determined to be out of scope (I concur),
 - 7 - still needs lot of work.

Please ensure that current and future data packages and future revision of data validation procedures, SAP and RDR/RAWP capture the essence of my comments that have been not been addressed or deferred for the time-being.

Surajit.

-----Original Message-----

From: Weiss, Richard L
Sent: Monday, October 30, 2000 2:52 PM
To: Amrit, Surajit K; ^BHI Document & Info Services
Cc: Price, William H; Kessner, Joan H
Subject: RE: Review and comments on the validation reports (H1020RLN, and H1020TR)

Surajit,

You should be shortly receiving revised copies (still draft) of these data packages. Except as noted below, your comments should have been adequately resolved or corrected. Please let me know if you find any areas where the revisions failed to address your comments. My additional notes below are to explain areas where full incorporation of your comments was not possible or not within the scope of the validation activities.

General Comments:

1. This comment does not specifically identify issues. The revised validation packages should meet the intent identified here.
2. Incorporation of the full definitions of IDL, CRDL, TDL, etc. would have required major revisions to the validation packages. Note that the usage of IDL, CRDL, and MDA by the validator follows well established and accepted published definitions. "TDL" will be better defined in future data packages to establish that these are project specific detection limit goals that may be different from the contract required detection limits. Unfortunately, PQL is less well defined by regulations. For these evaluations, the PQL values found in the RDR/RAWP are the TDL values (TDL is the terminology used by the controlling SAP which should be consistent with the associated RDR/RAWP) used by the validator.
6. Incorporation of the criteria listed for validation in a tabular format would have required major revisions to the validation packages. Switching to this type of format for future reports will be evaluated and input from all users as to the most useful format will be requested.
9. The "Location" line has been deleted from the summary sheet. Sample "location" or "sampling area" information is not required to be addressed/reported by the validator.
10. The current draft reports will be further modified to show the additional data sheets as a separate appendix provided at the specific request of the project. These sheets are not part of a "routine" validation package and are included at the project's request to streamline further evaluation of the results.

Specific Comments

3. (H1020-RLN) and 4. (H1020-TR) The determination of acceptability of data which fails to meet TDL criteria is not within the scope of the validation activities performed. This acceptability is addressed as part of the cleanup verification processes performed in-house by the ERC.
- 5 (H1020-RLN) The laboratory narrative provided as part of the result data package is required by contract to address the contract (not necessarily project-specific) specified criteria. In most cases, the contract criteria is more restrictive. Generating, essentially "custom" reports for each project would increase analytical costs.
- 7.(H1020-TR) The "Completeness" section of the radionuclide checklist actually addresses a different completeness (Were all requested analytes reported? Is all data necessary required for validation present?) determination actually preformed prior to submittal of the data packages to the validator. This section is unclear, but the format is currently "locked in" by the validation contract. This will be revised during upcoming

revisions to the validation procedures.

Please let me know if we must further address any of the above items or if the revisions failed to adequately address any of your other issues prior to issuance of the final validation packages.

Rich Weiss

372-9592

-----Original Message-----

From: Amrit, Surajit K
Sent: Wednesday, October 25, 2000 11:23 AM
To: Weiss, Richard L; ^BHI Document & Info Services
Cc: Price, William H; Kessner, Joan H
Subject: Review and comments on the validation reports (H1020RLN, and H1020TR)

The review of data validation reports for data package nos.: H1020RLN and H1020TR was completed and attached are the comments. These comments were discussed with Rich Weiss (10/25/00, 9:00 AM) who will take the necessary actions to resolve them.

The attached comments are being formally logged in DIS to aid the future revision of procedures/SOW which affect the data validation subcontract(s).

Thanks,

*Surajit Amrit
Engineering Specialist
Site Assessments and Closure
ERC*

<< File: datavr revw..doc >>

FAX

TECHLAW, INC.

451 Hills, Suite 23
Richland, WA 99352
509-375-5667
509-375-5151 (fax)

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 17 October 2000

Information Request #1

H1020 - Rad

The case narrative makes two references to LCS recoveries and the BHI & lab control limits (paragraphs 2.3 & 2.5). Both are incorrect. I need a revised case narrative.

Bruce,
Please see attached case narrative. This should
close this IR

Jeanette
10/18/00



ThermoRetec

2030 Wright Ave. Richmond, CA 94804 Tel 510-235-2633/800-841-5487 Fax 510-235-0438

Fax

To: Rich Weiss Company: _____

Fax #: _____ Telephone #: _____

From: Melissa Morrison Date: Oct 18, 2000

Total # of Pages (including cover): 3

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If you have received this facsimile in error, please immediately notify us by telephone and return the original facsimile to us at the above address via the United States Postal Service. Thank you.

IF YOU DO NOT RECEIVE ALL OF THIS TRANSMISSION, PLEASE CALL THE FACSIMILE OPERATOR AT (510) 235-2633.

Operator Name: _____

Comments:

Rich:
Please find the revised case narrative for
H1020 attached.

Melissa Morrison

ThermoRetec Nuclear Services
2030 Wright Avenue
P.O. Box 4040
Richmond, CA 94804



(800) 841-5487 Phone
(510) 235-2633 Phone
(510) 235-0438 Fax
www.thermoretec.com

October 18, 2000

Ms. Joan Kessner
Bechtel Hanford Inc.
3190 George Washington Way
Richland, WA 99352
MSIN: H9-03

Reference: **P.O. #TRC-SBB-207925**
Thermo Retec R0-09-078-7488, SDG H1020

Dear Ms. Kessner:

Enclosed is the data report for nine solid samples designated under SAF No. B99-005 received at Thermo Retec on September 14, 2000. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Program Manager

MCM/sm

Enclosure: Data Package

Thermo Retec
W.O. No. R0-09-078-7488

Bechtel Hanford Inc.
SDG H1020

Case Narrative

Page 1 of 1

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1020 was composed of nine solid (soil) samples designated under SAF No. B99-005 with a Project Designation of: 100 D Areas – Full Protocol.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Thermo Retec Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on October 2, and 8, 2000.

2.0 ANALYSIS NOTES

2.1 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.2 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.3 Isotopic Plutonium Analyses

The Pu-238 LCS percent recovery (85%) was below the 3-sigma limits (88-112%), but within laboratory protocol limits of 80 to 120%.

No other problems were encountered during the course of the analyses.

2.4 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.5 Gamma Spectroscopy Analyses

The Co-60 LCS percent recovery (75%) was below the laboratory protocol limits (80-120%), but within the 3-sigma limits of 69 to 131%.

No other problems were encountered during the course of the analyses.

THE FOLLOWING FILE(S) ERASED

FILE	FILE TYPE	OPTION	TEL NO.	PAGE	RESULT
095	MEMORY TX		12087238944	04/04	OK

ERRORS

- 1) HANG UP OR LINE FAIL
- 2) BUSY
- 3) NO ANSWER
- 4) NO FACSIMILE CONNECTION

Oct-17-00 09:55P RB Christian

OCT 17 '00 09:21PM¹

FAX

TECHLAW, INC.

451 Hills, Suite 23
 Richland, WA 99352
 509-375-5667
 509-375-5151 (fax)

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 17 October 2000

Information Request #1

THE FOLLOWING FILE(S) ERASED

FILE	FILE TYPE	OPTION	TEL NO.	PAGE	RESULT
090	MEMORY TX		12087238944	25/25	OK

ERRORS

- 1) HANG UP OR LINE FAIL 2) BUSY 3) NO ANSWER 4) NO FACSIMILE CONNECTION

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1020

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Test PU Matrix SOLID
SDG 7486
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- PIX	MAX pCi/g	MDA g	ALIQ	PREP FAC	DILD- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 6955-054 2% prep error 5.0 % Reference Lab Notebook 6955 pg. 054																	
B106F5	R009078-01			0.029	0.500				69		2211			18	09/26/00	09/30	SS-036
B106F6	R009078-02			0.069	0.500				40		2211			18	09/26/00	09/30	SS-039
B106F7	R009078-03			0.025	0.500				71		2222			18	09/26/00	09/30	SS-044
B106F8	R009078-04			0.029	0.500				54		2222			18	09/26/00	09/30	SS-045
B106H1	R009078-05			0.040	0.500				62		1266			20	09/26/00	10/02	SS-027
B106H2	R009078-06			0.20	0.500				39		748			24	09/26/00	10/06	SS-041
B106H3	R009078-07			0.037	0.500				58		1266			20	09/26/00	10/02	SS-031
B106H4	R009078-08			0.069	0.500				49		1024			21	09/26/00	10/03	SS-034
B106H5	R009078-09			0.072	0.500				50		1266			20	09/26/00	10/02	SS-033
BLK (QC ID=35902)	R009078-11			0.037	0.500				86		1025				09/26/00	10/03	SS-035
LCS (QC ID=35901)	R009078-10			0.045	0.500				64		1266				09/26/00	10/02	SS-034
Duplicate (R009078-07) (QC ID=35903)	R009078-12			0.036	0.500				74		1265			20	09/26/00	10/02	SS-036

Nominal values and limits from method 1.0 0.500 20-105 50 100 180

THE FOLLOWING FILE(S) ERASED

FILE	FILE TYPE	OPTION	TEL NO.	PAGE	RESULT
089	MEMORY TX		12087238944	26/26	OK

ERRORS

- 1) HANG UP OR LINE FAIL
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- 4) NO FACSIMILE CONNECTION

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www.thermoretec.com

October 10, 2000

Ms. Joan Kessner
 Bechtel Hanford Inc.
 3190 George Washington Way
 Richland, WA 99352
 MSIN: H9-03

Reference: **P.O. #TRC-SBB-207925**
Thermo Retec R0-09-078-7488, SDG H1020

Dear Ms. Kessner:

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Wednesday, October 25, 2000 4:11 PM
To: Duncan, Jeanette M
Subject: Additional H1020 Validation Package Comments



H1020valrvw.doc

Jenette,

The attached file contains my interpretation of S Surajit Amrit's comments on the validation packages, as well as a couple of items I noted during reevaluation. Please pass this stuff on to Bruce.

Rich Weiss

Additional comments for Validation Package for SDG H1020

All packages

1. Page 1: Change "DATA QUALITY OBJECTIVES" to "DATA QWALITY PARAMATERS".
2. All: Define acronyms and abbreviations (e.g., TDL, RPD, LCS) at first use.
3. Appendix 3: Delete line "Location" and all contents of this line. Correct sampling date from 8/12 to 9/12. Change "CRDL" to "TDL" Add footnote "Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation."
4. Introduction: Include discussion to explain that the data package contained 9 sets of results and the only the 4 samples listed were from the site requiring validation.
5. Blanks: Add section for Field Blanks and note that no field blanks were submitted as part of this analytical batch and that no evaluation was possible.
6. Precision: Add section for Field Duplicates and note that no field duplicates were submitted as part of the this analytical batch and that no evaluation was possible. Add Lab Duplicate header in radchem package.
7. Preparation Blanks: Revise title to "Preparation (Method) Blanks".
8. Precision: Both packages have problems in the way the text reads. Delete any references to aqueous samples. Suggested revisions; "Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities(concentrations) are greater than five time the CRDL and the RPD is less than 30%, no qualification is required. If either activity(concentration) are less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects of estimated non-detects." Inorganic – note that RPD was calculated from MS/MSD.
9. Annotated Form 1s: Do not mark out any laboratory applied qualifiers (e.g., "J") except those specifically required to be changed due to validation (e.g., changing "B" to "U" due to blank contamination in VOA analysis).
10. Completeness: List the criteria used for determination of completeness of the data package. Such information is included in other sections.
11. Appendix 1: For "UJ" and "J", insert "minor" before "QC deficiency. For "UR" and "R", insert "major" before "QC deficiency".
12. Validation checklists: Review for additional documentation needs. Wherever "NO" is checked (in these packages), there should be some discussion in the comments section. This may include a comment to see validation narrative for details.

Inorganic Package

1. Appendix 2: Delete blank lines in lower section of the table. This should be continued in any future packages.
2. Accuracy: An LCS/BSS was performed for this analysis and should be evaluated.

Rad Package

1. Change “(aspec)” to “(alpha)”. Please continue this in future packages.
2. Accuracy: The first paragraph is unclear. Suggest replace the first two sentences with; “Accuracy is evaluated from LCC/BSS batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts.” 3rd sentence; change “laboratory control sample” to “LCS/BSS”. Delete “rejected” in the last sentence of the 1st paragraph. Add; “Results are rejected for LCS/BSS recoveries of less than 30%, tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

<h1>Review Comment Record (RCR)</h1>	1. Date 10/23/00	2. Review No. QA-0042
	3. Project 100-D	4. Page Page 1 of 1

5. Document Number(s)/Title(s) SDG No. H1020	6. Program/Project/ Building Number 100-D Areas - Full Protocol, Waste Sites Group 3 Small Pipelines	7. Reviewer Claude Stacey	8. Organization/Group Quality Program	9. Location/Phone 372-9208
---	---	----------------------------------	--	-----------------------------------

17. Comment Submittal Approval:	10. Agreement with indicated comment disposition(s)	11. CLOSED
_____ Organization Manager (Optional)	_____ Date	_____ Date
	_____ Reviewer/Point of Contact	_____ Reviewer/Point of Contact
	_____ Author/Originator	_____ Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Radiochemistry: Page 02 and 08, Accuracy indicates Pu-238 flagged "J" due to exceeding the 3 sigma criteria. DOE/RL-96-22, Rev. 1 specifies the acceptance criteria for Pu-238 to be 70 to 130% recovery. The criteria is not whether the recovery is either 3 sigma or 70 to 130%, but whether it meets one or the other as specified in the criteria. Thus, Pu-238 should not be flagged "J".			
2	Inorganic page 015 and Radiochemistry page 017 are chain of custody pages for samples not related to this SDG and should be removed.			
3				
4				
5				

Duncan, Jeanette M

From: Callison, Stacey W
Sent: Monday, October 23, 2000 10:24 AM
To: Duncan, Jeanette M; Peintinger, Joanne M
Subject: D Small Pipelines Draft data validation

Joanne - This message is for Surajit Amrit.

Jeanette - I have reviewed the subject and do not have any comments.

Surajit - If you would like to review the draft validation reports, let me know and I'll bring them over, or you can pick them up in my office.

Stacey Callison
372-9590

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Monday, October 23, 2000 11:11 AM
To: Duncan, Jeanette M
Subject: Review of Validation Reports for SDG H1020

Jeanette,

The following are my comments on the validation reports for SDG H1020

Radiochemistry - Detection Limits, Pg. 3 & 4; The TDL was missed for all samples for U-238 (GEA). The TLD for U-235 (GEA) was missed only for sample B106F5, not B106F6 as identified.

Inorganic - No comments.

Rich Weiss

