

Quanterra Incorporated  
2800 George Washington Way  
Richland, Washington 99352

509 375-3131 Telephone  
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0048752

## CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.  
3350 George Washington Way  
Richland, WA 99352

January 25, 1998

Attention: Joan Kessner

▲  
JAN 1998  
RECEIVED  
Data  
Log In

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SAF Number	:	B98-051
Date SDG Closed	:	January 7, 1998
Number of Samples	:	One (1)
Sample Type	:	Other-Filter
SDG Number	:	W02202
Data Deliverable	:	Summary

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### I. Introduction

On January 7, 1998, one-other filter sample was received by the Quanterra, Inc., Richland Laboratory (QRL) for radiochemical analysis. Upon receipt, this sample was assigned the following laboratory ID number to correspond with the Bechtel Hanford (BHI) specific ID:

<u>OTESRL ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>RECEIPT DATE</u>
80110701	BOMW36	Filter	1/07/98

### II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

- Gamma Spectroscopy**  
Gamma Scan by method RICH-RC-5017
- Gas Proportional Counting**  
Gross Alpha by method RICH-RC-5014  
Gross Beta by method RICH-RC-5014

### III. Quality Control

0002

Bechtel Hanford Inc.  
January 26, 1998  
Page 2

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The analytical results for each analysis performed under SDG W02202 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section. Quality control sample results are reported in the same units as sample results.

#### IV. Comments

##### **Gamma Spectroscopy**

##### Gamma Scan by method RICH-RC-5017

This SDG was batched with SDG 2157. The batch blank and sample results met the requirements of the contract. The Co-60 and Cs-137 recovery in the LCS was greater than 130%, therefore, the LCS was recounted. The Co-60 recovery from the recount met the contractual requirement at 108% and the Cs-137 recovery remained elevated at 140% but was within  $3\sigma$  uncertainty of the measured value. Since this sample was a other-filter there was not a duplicate available for the gamma spec analysis.

##### **Gas Proportional Counting**

##### Gross Alpha by method RICH-RC-5014

The LCS, batch blank, sample and sample duplicate (B0MW36) results are within contractual requirements.

##### Gross Beta by method RICH-RC-5014

The original duplicate result was not within contractual requirements, therefore, the sample batch was recounted. The results from the recount of the LCS, batch blank, sample and sample duplicate (B0MW36) are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for 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.

Reviewed and approved:



Andy Kopriva  
Project Manager

**SAMPLE RESULTS**

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W02202 / 4347  
 LAB SAMPLE ID: 80110701 MATRIX: OTHER  
 CLIENT ID: B0MW36 DATE RECEIVED: 1/7/1998 3:11:00 PM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
CO-60	1.61E+00	U	4.6E+00	4.6E+00	1.05E+01	pCi/sa	N/A	RICHRC5017
CS-137DA	1.41E+01	U	7.5E+00	7.7E+00	1.62E+01	pCi/sa	N/A	RICHRC5017
EU-152	1.73E+00	U	1.5E+01	1.5E+01	2.67E+01	pCi/sa	N/A	RICHRC5017
EU-154	-1.34E+00	U	1.5E+01	1.5E+01	3.02E+01	pCi/sa	N/A	RICHRC5017
EU-155	3.38E+00	U	1.4E+01	1.4E+01	2.38E+01	pCi/sa	N/A	RICHRC5017
ALPHA	2.80E+00		1.0E+00	1.1E+00	9.40E-01	pCi/sa	100.00%	RICHRC5014
BETA	1.83E+01		3.0E+00	3.4E+00	3.44E+00	pCi/sa	100.00%	RICHRC5014-B

Number of Results:

**Quanterra Data Review Checklist  
RADIOCHEMISTRY**

"Priority"

Work Order number (s): 801009, 801107

Client ID: BNI

Due Date: 1-17-98

Lab Sample Number or SDG: WB2157

Method Test Parameters: Gamma

Matrix: Other

Review Item	Yes (✓)	No (✓)	NA (✓)	Level Review (✓)
<b>A. Calibration</b>				
1. Is the calibration documentation included where applicable?			/	
<b>B. Sample Analysis</b>				
1. Are the sample yields within acceptance criteria?			/	
2. Were all sample holding times met?				
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	///		///	
<b>C. QC Samples</b>				
1. Is the blank yield within acceptance criteria?			/	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	/			
3. Is the blank result < 1/2 the Contract Detection Limit?	/			
4. Is the blank > 1/2 the Contract Detection Limit but < Contract Detection Limit?			/	
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			/	
6. Is the LCS result within acceptance criteria?				
7. Is the LCS yield within acceptance criteria?				
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?				
9. MS/MSD results and yield meet acceptance criteria?			/	
10. Duplicate sample results and yield meet acceptance criteria?			/	
<b>D. Other</b>				
1. Are all Nonconformances included and noted?	///			
2. Are all required forms filed out?	///			
3. Correct methodology used?	///			
4. Transcription checked?	///			
5. Were all calculations checked at a minimum frequency?	///			
6. Units checked?	///			

Comments on any "No" response: \_\_\_\_\_

\_\_\_\_\_

First Level Review: *[Signature]* Date: 1-17-98

Second Level Review: *[Signature]* Date: 1/18/98

Form #: LS-038.2/96, Rev 4

*Transfer request results for LCS,*

**Quanterra Data Review Checklist  
RADIOCHEMISTRY**

Work Order number (s): <u>801107</u>				
Client ID: <u>BNI</u>				
Due Date: <u>1-22-98</u>				
Lab Sample Number or SDG: <u>W02+57 2202</u>				
Method Test Parameters: <u>Alpha</u>				
Matrix: <u>Other</u>				
Review Item	Yes (✓)	No (✓)	NA (✓)	2 <sup>nd</sup> Level Review (✓)
<b>A. Calibration</b>				
1. Is the calibration documentation included where applicable?			/	
<b>B. Sample Analysis</b>				
1. Are the sample yields within acceptance criteria?			/	
2. Were all sample holding times met?	/			/
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	/			/
<b>C. QC Samples</b>				
1. Is the blank yield within acceptance criteria?			/	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	/			/
3. Is the blank result < 1/2 the Contract Detection Limit?	/		NA	/
4. Is the blank > 1/2 the Contract Detection Limit but < Contract Detection Limit?	NA		/	
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			/	
6. Is the LCS result within acceptance criteria?	/			/
7. Is the LCS yield within acceptance criteria?			/	
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	/			/
9. MS/MSD results and yield meet acceptance criteria?			/	
10. Duplicate sample results and yield meet acceptance criteria?	/			/
<b>D. Other</b>				
1. Are all Nonconformances included and noted?			/	
2. Are all required forms filed out?	/			/
3. Correct methodology used?	/			/
4. Transcription checked?				
5. Were all calculations checked at a minimum frequency?				
6. Units checked?	/			/

Comments on any "No" response: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

First Level Review: *Paul K...*  
 Second Level Review: *Other*  
 Form #: LS-038.2/96, Rev. 4

Date: 1-19-98  
 Date: 1/20/98

**Quanterra Data Review Checklist  
RADIOCHEMISTRY**

Work Order number (s): 801107				
Client ID: BHI				
Due Date: 1-22-98				
Lab Sample Number or SDG: W0059 2202				
Method Test Parameters: Beta				
Matrix: Other				
Review Item	Yes (✓)	No (✓)	NA (✓)	2 <sup>nd</sup> Level Review (✓)
<b>A. Calibration</b>				
1. Is the calibration documentation included where applicable?			/	
<b>B. Sample Analysis</b>				
1. Are the sample yields within acceptance criteria?			/	
2. Were all sample holding times met?	/			/
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	/			/
<b>C. QC Samples</b>				
1. Is the blank yield within acceptance criteria			/	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	/			/
3. Is the blank result < 1/2 the Contract Detection Limit?	/			/
4. Is the blank > 1/2 the Contract Detection Limit but < Contract Detection Limit?			/	
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			/	
6. Is the LCS result within acceptance criteria?	/			/
7. Is the LCS yield within acceptance criteria			/	
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	/			/
9. MS/MSD results and yield meet acceptance criteria?			/	
10. Duplicate sample results and yield meet acceptance criteria?	/			/
<b>D. Other</b>				
1. Are all Nonconformances included and noted?	/	1 NCM		/
2. Are all required forms filed out?	/			/
3. Correct methodology used?	/			/
4. Transcription checked?	/			/
5. Were all calculations checked at a minimum frequency?	/			/
6. Units checked?	/			/

Comments on any "No" response: \_\_\_\_\_

First Level Review: \_\_\_\_\_

Date: 1-20-98

Second Level Review: \_\_\_\_\_

Date: 1/22/98

Form #: LS-038.2/96, Rev. 4

Transfer mount results for sample & duplicate

# QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

PAGE 1 OF 2

LOG #: RD-97

Project ID: BHI NCM Initiated by: JPC 1-21-98  
 Sample Numbers: 80110701, D0110701  
 Tests: Beta  
 Matrix: W02202

**Analytical Area (check appropriate area):**

- |  |                                |  |  |
|--|--------------------------------|--|--|
| <input type="checkbox"/> Sample control        | <input type="checkbox"/> GC    | <input type="checkbox"/> Wet chemistry | <input checked="" type="checkbox"/> Data review    |
| <input type="checkbox"/> Organic preparation   | <input type="checkbox"/> HPLC  | <input type="checkbox"/> Metals        | <input checked="" type="checkbox"/> Radiochemistry |
| <input type="checkbox"/> Inorganic preparation | <input type="checkbox"/> GC/MS | <input type="checkbox"/> Reporting     | <input type="checkbox"/> Bioassay                  |

**Nonconformance (check appropriate area):**

- Holding Time Violations (exceeded by \_\_\_\_\_ days)*
- Category I: Laboratory Independent*
- 1. Holding time expired in transit
  - 2. Sample received > 48 hrs. or 1/2 holding time has expired
  - 3. Test added by client after expiration
- Category II: Laboratory Dependent*
- 4. Instrument failure
  - 5. Analyst error
  - 6. Login error
  - 7. Miscommunication
  - 8. Other (complete description required)
- Category III: Analysis Reruns (QA/QC)*
- 9. Surrogates
  - 10. Internal Standards
  - 11. Spike Recoveries
  - 12. Blank Contamination
- Category IV: Analysis Reruns (Confirmation)*
- 13. Second column
  - 14. Contamination check
  - 15. Confirmation of matrix effects
  - 16. Other (complete description required)

- Quality Assurance/Quality Control*
- 17. QC data reported outside of controls
  - 18. Incorrect procedure used
  - 19. SOP intentionally modified with QA and Tech approval
  - 20. Invalid instrument calibration
  - 21. Insufficient sample received for proper analysis
- Incorrect or Incomplete Client Deliverable*
- 22. Hardcopy deliverable error
  - 23. Electronic deliverable error
- Reported detection limits elevated due to:*
- 24. Sample matrix
  - 25. Insufficient sample volume
  - 26. Other (complete description required)
27. Other (specify): Sample + digital recorded

Comments/Explanation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Notification (check appropriate area):**

- |  |  |
|--|--|
| Client notified by (name and date): _____                | Client's name and response: _____            |
| <input checked="" type="checkbox"/> in writing <u>CM</u> | <input type="checkbox"/> process "as is"     |
| <input type="checkbox"/> by telephone                    | <input type="checkbox"/> re-sample           |
| <input type="checkbox"/> by facsimile                    | <input type="checkbox"/> on hold until _____ |
| <input type="checkbox"/> other (explain)                 | <input type="checkbox"/> other (explain)     |

Project Manager (signature and date): [Signature] 1/29/22/98

QUANTERRA LABORATORY NONCONFORMANCE MEMO (NCM)

PAGE 1 OF 2

7/21/98

LOG# ED97

Corrective Action

Root Cause

input results duplicate out of limits

Initial and date:

AK 7/21-98

Corrective Action

review data accepted within limits

Initial and Date:

AK 7/21-98

Responsibility for performing CA assigned to:

Actions to prevent recurrence

Initial and Date:

First Level Supervisor:

John Kingman

Date:

7/21-98

Responsible Manager:

D. Swann

Date:

7/26/98

Quality Assurance Review

Anomaly

Deficiency

Rerun

Further action required:

Assigned to:

QA signature:

Date:

Corrective Action Verification

Verified

Cannot Verify (specify reason):

Nonconformance Memo Closure

QA signature/date:

**CHAIN OF  
CUSTODY FORMS**

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Date Turnaround

45

VERIFY DATA TURNAROUND REQUIREMENTS ON SAF

Director <i>R. Falberg / S. Van Slyke</i>	Company Contact <i>C. W. Hirsch</i>	Telephone <i>372-9586</i>
Object Designation <i>216-B-22</i>	Sampling Location	SAF No. <i>B98-051</i>
Chest No.	Field Logbook No. <i>EL 1281</i>	Method of Shipment <i>Hand delivered</i>
Shipped To <i>Quanterra</i>	Offsite Property No. <i>N/A</i>	Bill of Lading/Air Bill No. <i>N/A</i>

Possible Sample Hazards/Remarks	Preservation	<i>None</i>	<i>None</i>	<i>None</i>
	Type of Container	<i>See</i>	<i>Below</i>	
	No. of Container(s)	<i>1</i>	<i>0</i>	<i>0</i>
	Special Handling and/or Storage	Volume	<i>1g</i>	<i>1g</i>

SAMPLE ANALYSIS  
*80110701*

*SDG 202  
W02-57  
2/12/98*

GROSS ALPHA  
GROSS BETA  
Gamma Spec  
Activity Sah

Sample No.	Matrix*	Date Sampled	Time Sampled			
<i>30MW36</i>	<i>X</i>	<i>1-7-98</i>	<i>1015</i>	<i>X</i>	<i>X</i>	<i>X</i>

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix*
Relinquished By <i>R. Falberg</i>	Date/Time <i>1-7-98 1401</i>	Received By <i>R. Falberg</i>	Date/Time <i>1-7-98 1401</i>	60 RN 6 Air filters <sup>each</sup> in an envelope placed in a 1L AG jar. Radioactivity less than background using field instrument.		S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WM = Wipe L = Liquid V = Vegetation X = Other
Relinquished By <i>R. Falberg</i>	Date/Time <i>1-7-98 1511</i>	Received By <i>R. Falberg</i>	Date/Time <i>1-7-98 1511</i>			
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	Disposal Method	Disposed By	Date/Time

010

**Interoffice Memorandum**

TO: D. A. St John L0-19  
C. D. Wittreich H9-06  
F. G. Zwiesler X0-23

DATE: December 10, 1997

COPIES: See Below

FROM: S. K. De Mers   
RadCon Engineering  
X0-23/531-0729

SUBJECT: USING FIELD READINGS TO DETERMINE SHIPPING REQUIREMENTS FOR  
SAMPLES IN SUPPORT OF THE 216 B 2-2 VADOSE ZONE INVESTIGATION

REF: The Health Physics and Radiological Health Handbook

The purpose of this memo is to provide direction in determining using field instruments, when samples taken in support of the 216 B 2-2 vadose zone investigations must be shipped as radioactive material as defined in Department of Transportation requirements.

Radioactive material for shipping purposes is defined by the Department of Transportation as any material that has an activity in excess of 2,000 pCi/gm. For the purpose of conservatism, the demarcation point for determining radioactive material for shipping purposes will be 1,500 pCi/gm. Two separate approaches will be used to validate the use of field instruments to determine activity in soil samples.

The first approach is to use a formula for determining beta exposure rate from solutions of radioactive material contained in the *Health Physics and Radiological Health Handbook*. This formula is 2.12 times the average energy of the beta particle in MEV, times the concentration of the isotope in uCi/gm.

$$2.12 \times E \times C = \text{Rads / hr}$$

Where; 2.12 is a conversion factor

E is the average energy of the beta particle (Sr90 = 0.195 MEV, Y90 = 0.935 MEV)

C is the concentration of the isotope in uCi/gm

Inserting the values for Sr/Y90 beta energy and the concentration of 1,500 pCi/gm

$$2.12 \times (0.195 + 0.935) \times 1.5 \times 10^{-3} \text{ uCi / gm} = 0.0036 \text{ Rads / hr}$$

0.0036 RADS/hr is equal to 3.6 mRad/hr. The field instrument has a correction factor of 3 for beta radiation, so the RO-20 (beta/gamma dose rate instrument) would read 1.2 mRad/hr. Field readings taken at the 216 B2-2 trench showed for each 1 mRad/hr as read (uncorrected) on the RO-20, the E-600 ratemeter equipped with an SH-380 plastic scintillator, read 100,000 dpm. Therefore, from the above comparison, a sample with an activity of 1,500 pCi/gm would read 1.2 mRad/hr on the RO-20 and 120,000 dpm on the E-600 equipped with a SH-380 probe.

For the second approach, a soil standard with 300 pCi/gm is used. This soil standard was read with Electra ratemeter equipped with a DP-6 plastic scintillator that had 30% efficiency for Sr90. The 300 pCi/gm source read 16 cpm per pCi/gm. Multiplying this value by 1,500 pCi/gm would result in reading on the Electra/DP-6 equipment of 80,000 dpm (using an efficiency of 30%). So for this instrument, 1,500 pCi/gm of Sr90 would read 80,000 dpm.

From this we can gather the 1,500 pCi/gm will range between 80,000 dpm and 120,000 dpm. The RCT and sampler/shipper will verify actual readings in the field using the 300-pCi/gm Sr90 source as logged. The 1,500-pCi/gm value will be used.

SKD:dld

Copies:

R. C. Havenor X0-17

V. J. Rohay H9-02

W. S. Thompson L0-19

RadCon Engineering File/LB X0-23

Document and Info Services H0-09

Figure 1

SAMPLE-CHECK-IN LIST

Date/Time Received: 1-7-98 1511 SG#: W02157 <sup>202</sup> 91/12/198  
Work Order Number: 801107 SAF #: B98-051  
Shipping Container ID: 96-089 Chain of Custody #: NIA

- 1. Custody Seals on shipping container intact? Yes [] No []
- 2. Custody Seals dated and signed? Yes [] No []
- 3. Chain-of-Custody record present? Yes [] No []
- 4. Cooler temperature N/A
- 5. Vermiculite/packing materials is Wet [] Dry [] NIA
- 6. Number of samples in shipping container: 1
- 7. Sample holding times exceeded? Yes [] No []

8. Samples have:  
 tape  hazard labels  
 custody seals  appropriate sample labels

9. Samples are:  
 in good condition  leaking  
 broken  have air bubbles

10. Where any anomalies identified in sample receipt? Yes [] No []

11. Description of anomalies (include sample numbers): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Sample Custodian/Laboratory: [Signature] Date: 1-7-98

Telephoned To: \_\_\_\_\_ On \_\_\_\_\_ By \_\_\_\_\_

**BATCH SUMMARY/CHAIN OF CUSTODY**

ANALYSIS Gamma MATRIX Particle filter DUE DATE 1-17-98

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
J 01009	-1B	BHI	QC BATCH REAGENT BLANK
J N/A	-1X		QC BATCH MATRIX BLANK
J 01009	-1M or <u>(S)</u> (circle)		QC BATCH MATRIX/REAGENT SPIKE
J N/A	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
D N/A	-		Duplicate of Sample # _____
80100901	N/A		
80110701	N/A		
	-		
	-		
	-		
	-		
	-		
	-		

Batched and QC updated by DK on 1-8-98

Rec'd in Prep Lab by DK on 1-8-98

Sop# RICARCS017 Rev# 1

Rec'd in Sep Lab by N/A on N/A

Sop# N/A Rev# N/A

Rec'd in Sep lab by \_\_\_\_\_ on \_\_\_\_\_

Sop# \_\_\_\_\_ Rev# \_\_\_\_\_

ED/CPPT by \_\_\_\_\_ on \_\_\_\_\_

Sop# \_\_\_\_\_ Rev# \_\_\_\_\_

Rec'd in C.R. by \_\_\_\_\_ on 1/8/98

Sop# RICARCS007 Rev# 1

Data Reviewed by [Signature] on 1-9-98

Sop# RICARCS002 Rev# 1

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/98, Rev. 8

**PRIORITY SEQUENTIAL**

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

8-Jan-1998

Page 1

*Due 1-22-98*

CUSTOMER: BHI

*SAF*

SAMPLE DELIVERY GROUP

*W02157*

MATRIX : OTHER

*B98-051*

BATCH NUMBER

*01-107*

QES ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1 )		80110701	BHI BOMW36	

ACTIONS (Initial & Date)

1) INITIATED

*JA 1/8/98*

5) COUNTING/MEASUREMENT LAB

SOP(S) #

*RD 2800*

SOP(S) #

2) PREP LAB RECEIVED

*1-8-98 DIC*

6) DATA REVIEWED AND ANALYTICAL PREP STORED

SOP(S) # *RIC+RC5017-1*

SOP(S) #

3) SAMPLE REMAINDER STORED

*1-8-98 DIC*

SOP(S) #

*n/a*

4) SEPARATION LAB RECEIVED

SOP(S) #

*[Blank]*

**PRIORITY SEQUENTIAL**

CUSTOMER

MATRIX

ANALYSIS

SAMPLE DELIVERY GROUP

BATCH NUMBER

LAB SAMPLE ID

CUSTOMER ID

COMMENT

1)	1010		
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			
16)			
17)			
18)			
19)			
20)			

ACTIONS (Initial & Date)

1) INITIATED  
SOP(S) #

MC1-9-98  
RICHARD0002hel

2) COUNTING/MEASUREMENT  
LAB RECEIVED  
SOP(S) #

1/9/98 ad  
RICHARD0007

3) DATA REVIEWED AND  
ANALYTICAL PREP STORED  
SOP(S) #

MC1-12-98  
RICHARD0002hel

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

8-Jan-1998

Page 1

Dul  
1-22-98

CUSTOMER: BHI

SAF

SAMPLE DELIVERY GROUP

W02157 2202

MATRIX : OTHER

B98-051

BATCH NUMBER

01-107

GES ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
=====				
J0110715				
J0110715				
1 ) B0110701		BHI	B0MWS6	
<u>D0110701</u>	<u>dup</u>			

ACTIONS (Initial & Date)

1) INITIATED

JH 1/8/98

5) COUNTING/MEASUREMENT LAB

1/16/98

SOP(S) #

RD2800

SOP(S) #

RICHR00003

2) PREP LAB RECEIVED

1-13-98 DIC  
RKH RC504-0

6) DATA REVIEWED AND ANALYTICAL PREP STORED

1/19-98

SOP(S) #

RICHR5016-1

SOP(S) #

RICHR5002

3) SAMPLE REMAINDER STORED

1-15-98 DIC

SOP(S) #

N/A

4) SEPARATION LAB RECEIVED

SOP(S) #

↓

SA IS A COMPOSITE OF 5 FILTERS

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

8-Jan-1998  
Page 1

*True*  
*1-22-98*

CUSTOMER: BHI  
MATRIX : OTHER

*SAC*

SAMPLE DELIVERY GROUP

*W02157 2202*

BATCH NUMBER

*01-107*

*B98-051*

QES ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
<del>J0110718</del>				
J0110715				
1 ) B0110701		BHI	B0MW36	
<del>J0110701</del>	<i>dup</i>			

ACTIONS (Initial & Date)

1) INITIATED

*DH 1/18/98*  
*RD 2800*

SOP(S) #

5) COUNTING/MEASUREMENT LAB

*1/23/98*  
*1/18/98*

SOP(S) #

*RICH00003*

2) PREP LAB RECEIVED

*1-13-98*  
*RICH R 5014-0*

SOP(S) #

*RCHRC5016-1*

6) DATA REVIEWED AND ANALYTICAL PREP STORED

*1/19/98*

SOP(S) #

*RCHRC0002 Rev 1*

3) SAMPLE REMAINDER STORED

*1-15-98*  
*DE*

SOP(S) #

*N/A*

4) SEPARATION LAB RECEIVED

SOP(S) #

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*SA is a composite of 5 filters*

3) DATA REVIEW WITH IND. ...  
ANALYTICAL RE ... STORED ...  
... CITY ...

2) ...  
LEAD ...  
SOPS ...

1) ...

ACTIO ...

18) ...

19) ...

20) ...

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