B0D4Q9-TMA

0046232

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P. O. Box 4040
Richmond, CA 94804-0040
(510) 235-2633 Fax No. (510) 235-0438

NOV 1994
RECEIVED
Data
Log In

1 JAN 1997
RECEIVED
EDMC

November 18, 1994

Ms. Doris Ayres
Bechtel Hanford Company
345 Hills Street, Room 22A
Richland, WA 99352

RECORD COPY

Ref: TMA/Richmond N4-10-075-7416

Dear Ms. Ayres:

Enclosed is the data report for the single liquid sample designated as SAF B94-037, received at TMA/Norcal (currently TMA/Richmond) on October 17, 1994. Results are given for technetium-99 and gamma scan analyses.

The data package is paginated 1 through 147.

Please call if you have any questions concerning this data.

Sincerely,

N. Joseph Verville

N. Joseph Verville
Program Manager
TMA/Richmond

NJV

Enclosure: Data Package

DON'T SAY IT --- *Write It!*

DATE: March 13, 1995

TO: B0D4Q9-TMA

FROM: Pat Reich H4-14

Telephone: 372-2785

cc:

SUBJECT: DATA VALIDATION REPORT FOR 200-BP-5, Round 2, Groundwater Sampling Project

The Final Validation Report for this data package is filed in B0D4N2-TMA.

Pat Reich
Sample Management

54-3000-101 (12/92) GEF014

TMA/Richmond

Report N4-10-075-7416
Sample Delivery Group 7416

Westinghouse Hanford Company
P.O. MBH-SVV-069262

Case Narrative

November 18, 1994

1.0 GENERAL

TMA/Richmond Sample Delivery Group 7416 is comprised of the single liquid sample designated as SAF B94-037 delivered under field logbook No. EFL-1125.

2.0 ANALYSIS NOTES

2.1 Technetium-99 Analyses
No problems were encountered with the analyses.

2.2 Gamma Scan Analyses
No problems were encountered with the analyses.

4

N410075-01

TMA/RICHMOND
SAMPLE DELIVERY GROUP 7416

DATA SHEET

B0D4Q9

SDG 7416
Contact N. Joseph Verville
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N410075-01
Dept sample id 7416-001
Received 10/17/94
Client sample id B0D4Q9
Location/Matrix 200 AREAS LIQUID
Collected 10/13/94
Chain of custody id EFL-1125

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Technetium 99	14133-76-7	-0.15	0.97	2	5	U	TC
GAMMA SCAN ANALYTES		U					
Sodium 22	13966-32-0	U		10		U	GAM
Potassium 40	13966-00-2	U		100		U	GAM
Manganese 54	13966-31-9	U		10		U	GAM
Iron 59	14596-12-4	U		20	30	U	GAM
Cobalt 58	13981-38-9	U		10	20	U	GAM
Cobalt 60	10198-40-0	U		20	20	U	GAM
Niobium 94	14681-63-1	U		10		U	GAM
Ruthenium 103	13968-53-1	U		10		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Tin 113	13966-06-8	U		10		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Cerium 144	14762-78-8	U		50		U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		10	40	U	GAM
Europium 155	14391-16-3	U		30	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Radium 228	15262-20-1	U		50		U	GAM
Thorium 228	14274-82-9	22	16				GAM
Thorium 232	7440-29-1	U		50		U	GAM

Lab id TMANC
Protocol WHC-HASM-1
Version Ver 1.0
Form DVD-DS
Version 3.04
Report date 11/18/94

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: A.J. Simpson	Company Contact: PH BUTCHER	Telephone No.: (509) 376-4388
Project Designation: 200-BP-5	Sampling Location: 200 AREAS	SAF No.: B94-037
Ice Chest No.: GWS-125	Field Logbook No.: EFL-1125	Method of Shipment: EMERY
Shipped To: TMA	Offsite Property No.: W95-0-0001-16	Bill of Lading/Air Bill No.: 140213501T

Possible Sample Hazards/Remarks

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS

Sample No.	Matrix*	Date Sampled	Time Sampled	Preservative: HNO3 <2	Preservative: HCl <2
				Type of Container: G/P	Type of Container: G/P
				No. of Container(s): 2	No. of Container(s): 1
				Volume: 1000ml	Volume: 1000ml
				GAMMA SPEC (Co-60)	Tc-99
BOD4Q9	W	10/13/94	1640	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
AJSimpson	10/13/94 1225	Bwhitten	1225 10-13-94
Bwhitten	0900 10-14-94	[illegible]	10-17-94 800

SPECIAL INSTRUCTIONS
NOTE: DATA DELIVERABLE-STANDALONE

Matrix*
S = Soil
SE = Sediment
SO = Solid
SL = Sludge
W = Water
O = Oil
A = Air
DS = Drum Solids
DL = Drum Liquids
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
X = Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Received [illegible] Monday 10-17-94

SATURDAY DELIVERY

Signature Security Service

Contractor WHC	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) W95-0-0001-16

PART I – TO BE COMPLETED BY ORIGINATOR

Department Env. Eng. & Tech.	Section Geosciences	Unit Geochem. & Hydrochem.

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing Emery ☒ Contractor ☐ Vendor

Shipped to
TMA/NORCAL
2030 Wright Ave.
Richmond, CA 94804

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 59 lbs.	Sample #: B0D4Q9 Cooler ID: GWS-125 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	~~Sample #:~~ Cooler ID: Polycooler with groundwater samples ~~packed~~ in wet ice and vermiculite	N/A

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in ~~the~~ 200 AREA

Bill of lading # 1402135017

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release	RM Survey No.	Date
K K[illegible]	OFF-0129	10.14.94

Location of Property (Area & Bldg.)	Contact	Phone
	PH Butcher	(509) 376-5045

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
~~10-14-95~~ 10-14-94	PL531 ~~W812627~~ IJE 2072	

Originated By	Date	Authorized By	Date
B.T. WHITEN	10-14-94	[illegible]	10-14-94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[illegible]	10/14/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[illegible]	36			
Date 10-14-94.				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain Green – Property Control Custodian (Issuing Office) Pink – Originator

54-3000-479 (09/89)

FORM OF PAYMENT

☐ GSL ☐ FCCOD ☐

[X] Bill to Consignee ☐ Third Party Billing ☐

Shipper's Account Number

EMERY WORLDWIDE — A CF Company

SERVICES * *

UNITED STATES CANADA: Same Day ☐ ☐; AM ☐ PM ☐; Second Day ☐ Saturday Delivery [X]

INTERNATIONAL: Express ☐; Standard Plus ☐; Preferred ☐; Standard ☐; Business Documents ☐; Customs Clearance ☐; Delivery ☐

Date: 10-14-94 | Origin | Shipment Number: 140213501 T

~~STINGHOUSE SHIPPING DEPT (509) 376-6665~~
S. DEPARTMENT OF ENERGY C/O

To:
TMA/NORCAL
RMAX TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA USA

Tariff Dest. | Gateway

Check to Shipper $

Hold for Pick Up ☐

Canada ☐ ☐

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers
531 ITE2072 W9[illegible]-0-001#16
WHITTEN

E Consignee's Account Number: 94804

Description	Pcs.	L	W	H	Total Pieces	Total Weight (in Lbs.)
COOLER GWS-125	1	24	16	16	1	59

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

Remarks
ATURDAY DELIVERY
GNATURE SECURITY SERVI
re X

Zip Ship ☐
For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used
Urgent Letter 9X12 ☒ Urgent Pack 12X15 ☒

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. E Third Party Account Number

International Customs Value | International Insurance

Charge

Total Transportation Charges | Other Charges/Advance at Orig. OC/AO- $

140213501 T

EMERY WORLDWIDE

1 OF 1 PIECES / 59 LB WEIGHT

PSC 13:41 14 OCT 94
140 213 501 T

94804 -CA-PM

SERVICE

Golder Associates Inc.

4104-148th Avenue, NE
Redmond, WA 98052
Telephone (206) 883-0777
Fax (206) 882-5498

RECORD COPY

Golder Associates

JAN 1995
RECEIVED
Validation
Log In

January 19, 1995

Our ref: 943-1610.061.0400
94-1610/O/196

CH2M Hill
P.O. Box 1510
Richland, Washington 99352

ATTENTION: Ms. Jeanette Duncan

RE: TRANSMITTAL OF DATA VALIDATION PACKAGES
CONTRACT NO. MSH-SWV-315905

Dear Ms. Duncan:

This letter is to transmit the following data validation packages:

Data Package	Analyses
B0D4Q9-TMA	Radiochemistry

Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Christina I. Jensen

Christina I. Jensen
Task Manager

Douglas G. Dunster

Douglas G. Dunster
Project Manager

Enclosures

p:\enviros\whc\dv\dptran.ltr

RECORD COPY

MEMORANDUM

TO: 200-BP-5 Round 2 Groundwater, Project QA Record January 18, 1995

FR: Thomas Stapp, Golder Associates Inc.

RE: RADIOCHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE B0D4Q9-TMA (943-1610.061, 4Q9RAD.BP5)

INTRODUCTION

This memo presents the results of data validation on data package B0D4Q9-TMA prepared by TMA/NORCAL Laboratories. Sample information is provided in the following table.

SAMPLE ID	COMMENTS	ANALYSIS	MEDIA
B0D4Q9*		RADIOCHEMISTRY SEE ATTACHMENT 4	WATER
* - Indicates sample results which were 100% recalculated.			

Data validation was conducted to level D in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

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

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data package with a total of twenty-one (21) determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets the 90% objective of the work plan.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

There were no minor deficiencies identified during data validation which required qualification of data.

REFERENCES

WHC 1993, Data Validation Procedures for Radiochemical Analyses, WHC-SD-EN-SPP-001, Rev. 1, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Environmental and Waste Characterization Analytical Data Validation, Purchase Order MSH-SWV-315905; Validation Statement of Work, Revision 1.0, September 7, 1994; Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

ATTACHMENT 1

GLOSSARY OF RADIOCHEMISTRY DATA REPORTING QUALIFIERS

U - Indicates the constituent was analyzed for, but was not detected at a concentration above the minimum detectable activity (MDA). The concentration reported is the MDA corrected for sample aliquot size, dilution factors and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and was not detected at a concentration above the MDA. Due to a quality control deficiency identified during data validation, the concentration reported may not accurately reflect the sample MDA. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. The concentration reported is qualified as estimated due to a quality control deficiency identified during data validation. The associated data should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected.. The concentration reported is qualified as unusable due to a quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported is qualified as unusable due to a quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B0D4Q9-TMA	REVIEWER: T. Stapp	DATE: 1-18-95	PAGE 1 OF 1
COMMENTS: RADIOCHEMISTRY			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
NO QUALIFICATION REQUIRED			

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: B0D4Q9-TMA

	Samp#	B0D4Q9	
	Date	10-13-94	
	Location	299-E34-2	
	Depth	---	
	Type	WATER	
	Comments	SPLIT	
Parameter	Units	Result	Q
TECHNETIUM-99	pCi/L	-0.150	U
SODIUM-22	pCi/L	10.000	U
POTASSIUM-40	pCi/L	100.000	U
MANGANESE-54	pCi/L	10.000	U
IRON-59	pCi/L	20.000	U
COBALT-58	pCi/L	10.000	U
COBALT-60	pCi/L	20.000	U
NIOBIUM-94	pCi/L	10.000	U
RUTHENIUM-103	pCi/L	10.000	U
RUTHENIUM-106	pCi/L	100.000	U
TIN-113	pCi/L	10.000	U
CESIUM-134	pCi/L	10.000	U
CESIUM-137	pCi/L	10.000	U
CERIUM-144	pCi/L	50.000	U
EUROPIUM-152	pCi/L	20.000	U
EUROPIUM-154	pCi/L	10.000	U
EUROPIUM-155	pCi/L	30.000	U
RADIUM-226	pCi/L	20.000	U
RADIUM-228	pCi/L	50.000	U
THORIUM-228	pCi/L	22.000	
THORIUM-232	pCi/L	50.000	U

The decimal places shown do not reflect the precision reported by the laboratory

verified oj 1/19/95

008

N410075-01

TMA/RICHMOND
SAMPLE DELIVERY GROUP 7416

DATA SHEET

B0D4Q9

SDG 7416
Contact N. Joseph Verville
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N410075-01
Dept sample id 7416-001
Received 10/17/94
Client sample id B0D4Q9
Location/Matrix 200 AREAS LIQUID
Collected 10/13/94
Chain of custody id EFL-1125

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Technetium 99	14133-76-7	-0.15	0.97	2	5	U	TC
GAMMA SCAN ANALYTES		U					
Sodium 22	13966-32-0	U		10		U	GAM
Potassium 40	13966-00-2	U		100		U	GAM
Manganese 54	13966-31-9	U		10		U	GAM
Iron 59	14596-12-4	U		20	30	U	GAM
Cobalt 58	13981-38-9	U		10	20	U	GAM
Cobalt 60	10198-40-0	U		20	20	U	GAM
Niobium 94	14681-63-1	U		10		U	GAM
Ruthenium 103	13968-53-1	U		10		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Tin 113	13966-06-8	U		10		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
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Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		10	40	U	GAM
Europium 155	14391-16-3	U		30	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Radium 228	15262-20-1	U		50		U	GAM
Thorium 228	14274-82-9	22	16				GAM
Thorium 232	7440-29-1	U		50		U	GAM

Verified 1-18-95

Lab id TMANC
Protocol WHC-HASM-1
Version Ver 1.0
Form DVD-DS
Version 3.04
Report date 11/18/94

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

TMA/Richmond

Report N4-10-075-7416
Sample Delivery Group 7416

Westinghouse Hanford Company
P.O. MBH-SVV-069262

Case Narrative

November 18, 1994

1.0 GENERAL

TMA/Richmond Sample Delivery Group 7416 is comprised of the single liquid sample designated as SAF B94-037 delivered under field logbook No. EFL-1125.

2.0 ANALYSIS NOTES

2.1 Technetium-99 Analyses
No problems were encountered with the analyses.

2.2 Gamma Scan Analyses
No problems were encountered with the analyses.

1-18-95

011

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: A.J. SIMPSON	Company Contact: PH BUTCHER	Telephone No.: (509) 376-4388
Project Designation: 200-BP-5	Sampling Location: 200 AREAS	SAF No.: B94-037
Ice Chest No.: GUS-125	Field Logbook No.: EFL-1125	Method of Shipment: EMERY
Shipped To: TMA	Offsite Property No.: W95-0-0001-16	Bill of Lading/Air Bill No.: 140213501T

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS

Preservative	HNO3 <2	HCl <2
Type of Container	G/P	G/P
No. of Container(s)	2	1
Volume	1000ml	1000ml
	GAMMA SPEC (Co-60)	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled	GAMMA SPEC (Co-60)	Tc-99
B0D4Q9	W	10/13/94	1640	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
A.J. Simpson	10/13/94 1225	Butcher	1225 10-13-94
Butcher	0900 10-14-94		10-17-94 800

SPECIAL INSTRUCTIONS
NOTE: DATA DELIVERABLE-STANDALONE

Matrix*
S = Soil
SE = Sediment
SO = Solid
SL = Sludge
W = Water
O = Oil
A = Air
DS = Drum Solids
DL = Drum Liquids
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
X = Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Round trip - May 10-15-94 Rec'd Approx Monday 10-17-94

112

1-18-95

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200 BP-5 ROUND 2 GROUNDWATER	DATA PACKAGE: BOD4Q9-TMA	
VALIDATOR: T. Stapp	LAB: TMA / NORCAL	DATE: 1-17-95
CASE:	SDG:	

ANALYSES PERFORMED

☐ Gross Alpha/Beta	☐ Strontium-90	☒ Technetium-99	☐ Alpha Spectroscopy	☐ Gamma Spectroscopy	
☐ Total Uranium	☐ Radium-22	☐ Tritium	☐		

SAMPLES/MATRIX BOD4Q9 / WATER

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? . . . . . NOTE ① . . . ~~Yes~~ ~~No~~ N/A 1-18-95

Initial calibration acceptable? . . . . . (Yes) No N/A

Standards NIST traceable? . . . . . (Yes) No N/A

Standards Expired? . . . . . Yes (No) N/A

Comments: Detectors: GRB-205 (Tc-99), MB-02 (GAMMA)
① Gamma detector calibration (intitial) was not performed within one year of sample analysis however continuing calibration criteria is acceptable and no qualification will be applied.

014

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? . NOTE ① . . . Yes (No) N/A
Calibration check standards expired? . . . . NOTE ① . . . Yes No (N/A)

Comments: ① Gamma check standard was not identified and therefore NIST Traceability and Standard expiration was not available, however the check standard and background check was confirmed to be performed and D.V. criteria do not require qualification.

4. Blanks . . . . . ☐ N/A

Method blank analyzed? . . . . . (Yes) No N/A
Method blank results acceptable? . . . . . (Yes) No N/A
Analytes detected in method blank? . NOTE ① . . . . . (Yes) ~~No~~ ~~N/A~~ 1-18-95
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: ① K-40 was detected by Gamma analysis in the method blank, however not in the sample and no qualification is applied.

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:

015

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:

7. Chemical Recovery . . . . . ☐ N/A

Chemical carrier added? . . . . . Yes No N/A
Chemical recovery acceptable? . . . . . Yes No N/A
Chemical carrier traceable? . . . NOTE ① . . . . . Yes No N/A
Chemical carrier expired? . . . . . Yes No N/A
Transcription/Calculation errors? . . . . . Yes No N/A

Comments: ① Tc-99 tracer used was not traceable to NIST documents, however recoveries were acceptable and no qualification is required.

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:

016

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:

	Collected	Analyzed		DAYS
BOD4Q9	10-13-94	10-28-94	GAMMA	≤ 180
		11-01-94	Tc-99	≤ 180

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:

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B0D4Q9-TMA

Technetium 99	
Sample ID	B0D4Q9
Detector	GRB205
Aliquot	0.200
P-Factor	2.445
Yield	0.524
Days	19.795
Lambda	8.91E-09
Decay	1.0000
Net, cpm	-0.010
Count, time	202.700
Bkg., cpm	0.354
Result, calc.	-0.105
Result, rptd.	-0.150
MDA, calc.	2.046
MDA, rptd.	2.000