

W03697

0057221



**CERTIFICATE OF ANALYSIS**

**RECEIVED**  
JUN 10 2002

**EDMC**

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

February 5, 2002

Attention: Joan Kessner

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SAF Number	:	B01-114
Date SDG Closed	:	February 4, 2002
Number of Samples	:	Three (3)
Sample Type	:	Water
SDG Number	:	W03697
Data Deliverable	:	45 Day/Summary

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**I. Introduction**

Between January 21, 2002 and January 25, 2002, three water samples were received at STL Richland (STLR) for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
ER2M7	B12XY1	WATER	1/21/02
ER74J	B140T5	WATER	1/25/02
ER74K	B12XY2	WATER	1/25/02

**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 analysis was: **Chemical Analysis**  
Chromium Hex by EPA method 7196

Bechtel Hanford, Inc.  
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### III. Quality Control

The analytical results for each analysis performed under SDG W03697 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in mg/L.

### IV. Comments

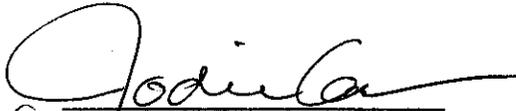
#### **Chemical Analyses**

#### Chromium Hex by EPA method 7196:

Sample B12XY1 was received outside the holding time. The sample was analyzed per directions received from Joan Kessner on 1/22/02. The LCS, batch blank, sample, sample duplicate (B12XY1 & B140T5) and sample matrix spike (B12XY1 & B140T5) results 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:

  
for Jackie Waddell  
Project Manager

## Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	STL Richland's SOP number
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

### Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship,  $R = \text{constants} * f(x,y,z,\dots)$ . The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties ( $u_i$ ) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty ( $u_c$ ) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value ( $S/\sqrt{n}$ ), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

## Report Definitions

<b>Action Lev</b>	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
<b>Batch</b>	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
<b>Bias</b>	Defined by the equation $(\text{Result}/\text{Expected})-1$ as defined by ANSI N13.30.
<b>COC No</b>	Chain of Custody Number assigned by the Client or STL Richland.
<b>Count Error (#s)</b>	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
<b>Total Uncert (#s) <i>u<sub>c</sub> - Combined Uncertainty.</i></b>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u<sub>c</sub> the combined uncertainty.</i> The uncertainty is absolute and in the same units as the result.
<b>(#s), Coverage Factor</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
<b>CRDL (RL)</b>	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
<b>Lc</b>	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (\text{BkgndCnt}/\text{BkgndCntMin}) / \text{SCntMin}}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
<b>Lot-Sample No</b>	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
<b>MDC MDA</b>	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(\text{BkgndCnt}/\text{BkgndCntMin}) / \text{SCntMin}} + 2.71 / \text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability.
<b>Primary Detector</b>	The instrument identifier associated with the analysis of the sample aliquot.
<b>Ratio U-234/U-238</b>	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
<b>Rst/MDC</b>	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Rst/TotUcert</b>	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Report DB No</b>	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
<b>RER</b>	The equation Replicate Error Ratio = $(S-D)/[\sqrt{(\text{TPUs}^2 + \text{TPUd}^2)}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
<b>SDG</b>	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
<b>Sum Rpt Alpha Spec Rst(s)</b>	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
<b>Work Order</b>	The LIMS software assign test specific identifier.
<b>Yield</b>	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

**Sample Results Summary**

Date: 14-Feb-02

**STL Richland STLRL**

Ordered by Client Sample ID, Batch No.

Report No. : 18833

SDG No: W03697

Client ID	Work Order Number	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Yield	MDC MDA	RER
B12XY1	9ER2M710	HEXCHROME	2.00E-03 +- 0.0E+00	U	mg/L	N/A	2.00E-03	
B12XY1 DUP	ER2M71AE	HEXCHROME	2.00E-03 +- 0.0E+00	U	mg/L	N/A	2.00E-03	
B12XY2	9ER74K10	HEXCHROME	5.00E-03 +- 0.0E+00		mg/L	N/A	2.00E-03	
B140T5	9ER74J10	HEXCHROME	2.00E-03 +- 0.0E+00	U	mg/L	N/A	2.00E-03	
B140T5 DUP	ER74J1AE	HEXCHROME	2.00E-03 +- 0.0E+00	U	mg/L	N/A	2.00E-03	

Number of Results: 5

**QC Results Summary**  
**STL Richland STLRL**  
 Ordered by QC Type, Batch No.

Date: 14-Feb-02

Report No. : 18833

SDG No.: W03697

QC Type	Work Order Number	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
MATRIX SPIK	ER2M71AC	HEXCHROME	5.30E-01 +- 0.0E+00		mg/L	N/A	100.76%	0.0	2.00E-03
MATRIX SPIK	ER2M71AD	HEXCHROME	5.29E-01 +- 0.0E+00		mg/L	N/A	100.57%	0.0	2.00E-03
MATRIX SPIK	ER74J1AC	HEXCHROME	5.33E-01 +- 0.0E+00		mg/L	N/A	101.33%	0.0	2.00E-03
MATRIX SPIK	ER74J1AD	HEXCHROME	5.33E-01 +- 0.0E+00		mg/L	N/A	101.33%	0.0	2.00E-03
BLANK QC	ER5AF1AA	HEXCHROME	0.00E+00 +- 0.0E+00	U	mg/L	N/A			2.00E-03
BLANK QC	ER9501AA	HEXCHROME	0.00E+00 +- 0.0E+00	U	mg/L	N/A			2.00E-03
LCS	ER5AF1AC	HEXCHROME	5.05E-01 +- 0.0E+00		mg/L	N/A	101.00%	0.0	2.00E-03
LCS	ER9501AC	HEXCHROME	5.17E-01 +- 0.0E+00		mg/L	N/A	103.40%	0.0	2.00E-03

Number of Results: 8

FORM I

Date: 14-Feb-02

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03697

Collection Date: 1/18/02 8:41:00 PM

Lot-Sample No.: J2A220141-

Report No. : 18833

Received Date: 1/21/02 12:15:00 PM

Client Sample ID: B12XY1

COC No. :

Matrix: WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2023461	Work Order:		Report DB ID: 9ER2M710									
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1. N/A	1/23/02		100.0 ML	EPA7196

Number of Results: 1

Comments:

0008

FORM I

Date: 14-Feb-02

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03697

Collection Date: 1/24/02 8:19:00 PM

Lot-Sample No.: J2A250161-

Report No. : 18833

Received Date: 1/25/02 9:40:00 AM

Client Sample ID: B12XY2

COC No. :

Matrix: WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2026139	Work Order:			Report DB ID: 9ER74K10								
HEXCHROME	5.00E-03			0.0E+00	2.00E-03	mg/L	N/A	(2.5) N/A	1/25/02		100.0 ML	EPA7196

Number of Results: 1

Comments:

6000

FORM I

Date: 14-Feb-02

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03697

Collection Date: 1/24/02 6:57:00 PM

Lot-Sample No.: J2A250161-

Report No. : 18833

Received Date: 1/25/02 9:40:00 AM

Client Sample ID: B140T5

COC No. :

Matrix: WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2026139	Work Order:				Report DB ID: 9ER74J10							
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1. N/A	1/25/02		100.0 ML	EPA7196

Number of Results: 1

Comments:

0010

FORM I

Date: 14-Feb-02

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03697

Collection Date: 1/24/02 6:57:00 PM

Lot-Sample No.: J2A250161-

Report No. : 18833

Received Date: 1/25/02 9:40:00 AM

Client Sample ID: B140T5

COC No. :

Matrix: WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
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0011

FORM II

Date: 14-Feb-02

DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W03697

Collection Date: 1/18/02 8:41:00 PM

Lot-Sample No.: J2A220141-

Report No. : 18833

Received Date: 1/21/02 12:15:00 PM

Client Sample ID: B12XY1 DUP

COC No. :

Matrix: WATER

Parameter	Result, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2023461	Work Order:			Report DB ID: ER2M71AE		Orig Sa DB ID: 9ER2M710						
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	1/23/02		100.0	EPA7196
	2.00E-03	RPD	0.0					N/A			ML	

Number of Results: 1

Comments:

0012

FORM II

Date: 14-Feb-02

DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W03697

Collection Date: 1/24/02 6:57:00 PM

Lot-Sample No.: J2A250161-

Report No. : 18833

Received Date: 1/25/02 9:40:00 AM

Client Sample ID: B140T5 DUP

COC No. :

Matrix: WATER

Parameter	Result, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2026139	Work Order:				Report DB ID: ER74J1AE	Orig Sa DB ID: 9ER74J10						
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	1/25/02		100.0	EPA7196
	1.00E-03	RPD	0.7					N/A			ML	

Number of Results: 1

Comments:

0013

FORM II

Date: 14-Feb-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03697

Lot-Sample No.: J2A230000-

Report No. : 18833

Matrix: WATER

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 2023461	Work Order:				Report DB ID: ER5AF1AA							
HEXCHROME	0.00E+00	U		0.0E+00	2.00E-03	mg/L	N/A	0. N/A	1/23/02		100.0 ML	EPA7196

Number of Results: 1

Comments:

0014

FORM II

Date: 14-Feb-02

BLANK RESULTS

Lab Name: STL Richland

SDG: W03697

Lot-Sample No.: J2A260000-

Report No. : 18833

Matrix: WATER

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2026139	Work Order:			Report DB ID: ER9501AA								
HEXCHROME	0.00E+00	U		0.0E+00	2.00E-03	mg/L	N/A	0. N/A	1/25/02		100.0 ML	EPA7196

Number of Results: 1

Comments:

0015

**FORM II**  
**LCS RESULTS**

Date: 14-Feb-02

Lab Name: STL Richland

SDG: W03697

Lot-Sample No.: J2A230000-

Report No. : 18833

Matrix: WATER

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2023461	Work Order:		Report DB ID: ER5AF1AC										
HEXCHROME	5.05E-01		0.0E+00	2.00E-03	mg/L	N/A	5.00E-01			101.00%	1/23/02	100.0	EPA7196
						Rec Limits:				0.0		ML	

Number of Results: 1

Comments:

0016

**FORM II**  
**LCS RESULTS**

Date: 14-Feb-02

Lab Name: STL Richland

SDG: W03697

Lot-Sample No.: J2A260000-

Report No. : 18833

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2026139	Work Order:		Report DB ID: ER9501AC										
HEXCHROME	5.17E-01			0.0E+00	2.00E-03	mg/L	N/A	5.00E-01		103.40%	1/25/02	100.0	EPA7196
							Rec Limits:			0.0		ML	

Number of Results: 1

Comments:

0017

FORM II

Date: 14-Feb-02

MATRIX SPIKE RESULTS

Lab Name: STL Richland

SDG: W03697

Lot-Sample No.: J2A220141-

Report No. : 18833

Matrix: WATER

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2023461	Work Order:			Report DB ID: ER2M71AD		Orig Sa DB ID: 9ER2M710							
HEXCHROME	5.29E-01			0.0E+00	2.00E-03	mg/L	N/A	100.57%	5.26E-01		1/23/02	100.0	EPA7196
	2.00E-03	RPD	2.0									ML	
HEXCHROME	5.30E-01			0.0E+00	2.00E-03	mg/L	N/A	100.76%	5.26E-01		1/23/02	100.0	EPA7196
	2.00E-03	RPD	2.0									ML	

Number of Results: 2

Comments:

0018

FORM II

Date: 14-Feb-02

MATRIX SPIKE RESULTS

Lab Name: STL Richland

SDG: W03697

Lot-Sample No.: J2A250161-

Report No. : 18833

Matrix: WATER

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2026139	Work Order:			Report DB ID: ER74J1AD		Orig Sa DB ID: 9ER74J10							
HEXCHROME	5.33E-01			0.0E+00	2.00E-03	mg/L	N/A	101.33%	5.26E-01		1/25/02	100.0	EPA7196
	1.00E-03	RPD	2.0									ML	
HEXCHROME	5.33E-01			0.0E+00	2.00E-03	mg/L	N/A	101.33%	5.26E-01		1/25/02	100.0	EPA7196
	1.00E-03	RPD	2.0									ML	

Number of Results: 2

Comments:

0019

# CHAIN OF CUSTODY

Q-27023

0021

<b>Bechtel Hanford Inc.</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>			<b>B01-114-13</b>	Page 1 of 1
Collector Renee Nielson	Company Contact Virginia Rohay	Telephone No. 372-9100	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation PFP Well Installation Sampling and Analysis - Water		Sampling Location 200 West; Well Number C3803; Well Name 299-W15-42		SAF No. B01-114	Air Quality <input type="checkbox"/>	
Ice Chest No. <i>ERC 00 010</i>	Field Logbook No. EL-1562	COA T20ZPID722	Method of Shipment Hand deliver - Govt vehicle			
Shipped To Severn Trent Incorporated, Richland		Offsite Property No. <i>N/A</i>	Bill of Lading/Air Bill No. <i>N/A</i>			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C											
	Type of Container	P											
	No. of Container(s)	1											
	Volume	500mL											
Special Handling and/or Storage													
SDG W03697		SAMPLE ANALYSIS J2A220141		Chromium Hex - 7196									
Sample No.	Matrix *	Sample Date	Sample Time										
B12XY1 <i>ER2M7</i>	WATER	<i>1/18/02</i>	<i>2041</i>	X									<i>B12XLB</i>

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From <i>Renee Nielson</i>	Date/Time <i>01/19/02</i>	Received By/Stored In <i>Ref #2C</i>	Date/Time <i>01/19/02</i>
Relinquished By/Removed From <i>REF 2C</i>	Date/Time <i>1/21/02 1100</i>	Received By/Stored In <i>David R. Kalken</i>	Date/Time <i>1-21-02/1100</i>
Relinquished By/Removed From <i>David R. Kalken</i>	Date/Time <i>1-21-02/1215</i>	Received By/Stored In <i>David R. Kalken</i>	Date/Time <i>1-21-02/1215</i>
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

**SPECIAL INSTRUCTIONS**  
 \*\* All requests for Cr VI at the Severn Trent Laboratory, MUST BE routed to Richland.

**SAMPLES STORED IN REF.# 2C AT THE 3728 SHIPPING FACILITY ON 1/19/02. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON 1/21/02 FOR SHIPMENT.**

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

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

# ERC Radiological Counting Facility Analysis Report

RCF Number RCF10026

Sample Date & Time 1/18/02 2041

Project ID: 200 W Well

SAF Number: B01-114

Date Analyzed 1/21/02 9:23:5

Sample ID: B12XL3

## Gamma Energy Analysis

Nuclide	Activity (pCi/g)	Error (pCi/g)	MDC (pCi/g)
K-40	< 3.2E+00		3.2E+00
Co-60	< 4.1E-01		4.1E-01
Cs-137	< 4.0E-01		4.0E-01
Eu-152	< 1.1E+00		1.1E+00
Eu-154	< 1.1E+00		1.1E+00
Eu-155	< 1.1E+00		1.1E+00
Am-241	< 4.4E-01		4.4E-01

Total GEA (pCi/g) +/-

	Activity (pCi/g)	Error (pCi/g)
Gross Alpha**	N/R +/-	N/R
Gross Beta	N/R +/-	N/R

### Definitions:

All errors reported at 2 standard deviations.

N/R = no result or analysis not requested. <MDA = Less than detection limit.

All GEA results reported as "<" list the Minimum Detectable Concentration (MDC) value for that radionuclide.

Rounding error may result in the reported total GRA activity differing from the sum of the > MDA GEA values in the second significant digit.

### For soils and natural samples, the following applies:

The analysis of U-238 is based on the activity of Pa-234m.

The analysis of Np-237 is based on the activity of Pa-233.

U-238da is the activity of Pb-214 and Bi-214, short lived daughter products of U-238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.

Th-232da is the activity of Ac-228, Pb-212, and Tl-208, short lived daughter products of Th-232. Equilibrium between parent and daughter products may not exist in disturbed materials.

Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.

\*\*The gross alpha results are not corrected for mass absorption

# No peaks for this radionuclide were visible above background in the spectrum. The result was reported as less than MDC.

Analyst



V.J. Smiter

1/21/02

Report To  
Virginia Rohay  
SJ Trent  
Rad Screen

Fax  
372-9447  
372-9292  
373-2706

Report Printed: Monday, January 21, 2002

0022

**Sample Check-in List**

Date/Time Received: 1-21 1215  
 Client: BHI SDG #: W03697 NA [ ] SAF #: 300-030 NA [ ]  
 Work Order Number: J2A220141 Chain of Custody # 301-114-13, 300-030-041  
 Shipping Container ID: ERC00010 Air Bill # na

1. Custody Seals on shipping container intact? NA [ ] Yes [X] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [X] No [ ]
3. Chain of Custody record present? Yes [X] No [ ]
4. Cooler temperature: on ice NA [ ] 5. Vermiculite/packing materials is NA [X] Wet [ ] Dry [ ]
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? NA [ ] Yes [ ] No [X]
8. Samples have:  
 tape  hazard labels  
 custody seals  appropriate samples labels
9. Samples are:  
 in good condition  leaking  
 broken  have air bubbles  
 (Only for samples requiring head space)
10. Sample pH taken? NA [X] pH < 2 [ ] pH > 2 [ ]
11. Sample Location, Sample Collector Listed? \* Yes [ ] No [X]  
 \*For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [X] No [X]
13. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian: Hidberg Date: 1-22-02

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on 1/22/02 by J.W. Person contacted J. Kessner

No action necessary; process as is.  
 Project Manager: Joelle Date: 2/5/02

Q-27023

0024

<b>Bechtel Hanford Inc.</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>			<b>B01-114-51</b>	Page 1 of 1
Collector Renee Nielson	Company Contact Virginia Rohay	Telephone No. 372-9100	Project Coordinator TRENT, SJ		Price Code '7N	Data Turnaround 45 Days
Project Designation PFP Well Installation Sampling and Analysis - Water		Sampling Location 200 West	SAF No. B01-114		Air Quality <input type="checkbox"/>	
Ice Chest No. ABC-1	Field Logbook No. EL-1562	COA T20ZP1D722	Method of Shipment Hand deliver - Govt vehicle			
Shipped To Severn Trent Incorporated, Richland		Offsite Property No. NA	Bill of Lading/Air Bill No. NA			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C																		
	Type of Container	P																		
	No. of Container(s)	1																		
	Special Handling and/or Storage	Volume	500mL																	
SDG W03697		SAMPLE ANALYSIS J2A250161		Chromium Hex - 7196																
Sample No.	Matrix *	Sample Date	Sample Time																	
B140T5 ER74J	WATER	1/24/02	1857	X																

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By Renee Nielson	Date/Time 1/25/02 0305	Received By REC # 2C	Date/Time 1/25/02 0305
Relinquished By Doug Bowen	Date/Time 1-25-02/0905	Received By Doug Bowen	Date/Time 1-25-02/0905
Relinquished By Doug Bowen	Date/Time 1-25-02/0940	Received By T. Heidelberg	Date/Time 1-25-02 0940
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

**SPECIAL INSTRUCTIONS**

USE B12xL3 for shipping

SAMPLES STORED IN REF.# 2C AT THE 3728 SHIPPING FACILITY ON 1/24/02. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON 1/25/02 FOR SHIPMENT.

24hr hold time

Matrix \*

- S=Soil
- SE=sediment
- SO=Solid
- S=Sludge
- W=Water
- O=Oil
- A=Air
- DS=Drum Solids
- DL=Drum Liquids
- T=Time
- WI=Wipe
- L=Liquid
- V=Vegetation
- X=Other

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

<b>Bechtel Hanford Inc.</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>			<b>B01-114-14</b>	Page 1 of 1
Collector Renee Nielson		Company Contact Virginia Rohay		Telephone No. 372-9100	Project Coordinator TRENT, SJ	Price Code 7N Data Turnaround 45 Days
Project Designation PFP Well Installation Sampling and Analysis - Water		Sampling Location 200 West; Well Number C3803; Well Name 299-W15-42			SAF No. B01-114	Air Quality <input type="checkbox"/>
Ice Chest No. <b>A BC-1</b>		Field Logbook No. EL-1562	COA T20ZP1D722		Method of Shipment Hand deliver - Govt vehicle	
Shipped To Severn Trent Incorporated, Richland		Offsite Property No. <b>NA</b>			Bill of Lading/Air Bill No. <b>NA</b>	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C																		
	Type of Container	P																		
	No. of Container(s)	1																		
	Volume	500mL																		

SAMPLE ANALYSIS		Chromium Hex - 7196																		
-----------------	--	---------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time																	
B12XY2 <b>ERTAK</b>	WATER	1/24/02	2019	X																

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From <i>Renee Nielson</i>	Date/Time 1/25/02 0805	Received By/Stored In <i>Ref # 2C</i>	Date/Time 1/25/02 0805
Relinquished By/Removed From <i>Ref # 2C 3228</i>	Date/Time 1/24/02/0909	Received By/Stored In <i>Ref # 2C 3228</i>	Date/Time 1/25/02/0909
Relinquished By/Removed From <i>Doug Bowser</i>	Date/Time 1/25/02/0940	Received By/Stored In <i>T. Heidelberg</i>	Date/Time 1/25/02/0940
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

**SPECIAL INSTRUCTIONS**  
 \*\* All requests for Cr VI at the Severn Trent Laboratory, MUST BE routed to Richland.

*USE B12XL3 FOR SHIPPING*

**SAMPLES STORED IN REF.# 2C AT THE 3728 SHIPPING FACILITY ON 1/25/02 COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON 1/25/02 FOR SHIPMENT.**

*24 hr hold time*

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

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

**Sample Check-in List**

Date/Time Received: 1-25 0925  
 Client: BHI SDG #: W03697 NA [ ] SAF #: P01-114 NA [ ]  
 Work Order Number: J2A250161 Chain of Custody # P01-114-51 + 14  
 Shipping Container ID: ABC-1 Air Bill # na

1. Custody Seals on shipping container intact? NA [ ] Yes  No [ ]
2. Custody Seals dated and signed? NA [ ] Yes  No [ ]
3. Chain of Custody record present? Yes  No [ ]
4. Cooler temperature: 3° NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [ ]
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? NA [ ] Yes [ ] No
8. Samples have:  
 tape  hazard labels  
 custody seals  appropriate samples labels
9. Samples are:  
 in good condition  leaking  
 broken  have air bubbles  
 (Only for samples requiring head space)
10. Sample pH taken? NA  pH < 2 [ ] pH > 2  #1-2502
11. Sample Location, Sample Collector Listed? \* Yes [ ] No   
 \*For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No
13. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian: Hendberg Date: 1-25-02

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on \_\_\_\_\_ by \_\_\_\_\_ Person contacted \_\_\_\_\_

[ ] No action necessary; process as is.

Project Manager \_\_\_\_\_ Date \_\_\_\_\_

**SEVERN****TRENT****SERVICES**

Richland Laboratory  
Data Review Check List  
METALS

Work Order Number(s): <b>ER2M7</b>		BATCH # <b>2023461</b>		
Lab Sample Numbers or SDG: <b>WD3697</b>		LOT# <b>J2A220141</b>		
Method/Test/Parameter: <b>CR+6 IN WATER</b>		<b>RICHWC 5803 R.4</b>		
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 <sup>nd</sup> Level Review (✓)
<b>A. Initial Calibration</b>				
1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient within QC limits?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
<b>B. Continuing Calibration</b>				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
<b>C. Sample Analysis</b>				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?		✓	✓	✓
<b>D. QC Samples</b>				
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?			✓	✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓

Review Item	Yes (✓)	No (✓)	N/A (✓)	2 <sup>nd</sup> Level Review (✓)
<b>E. Other</b>				
1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response:

C2) RECEIVED SAMPLES OUTSIDE ITS HOLDING  
TIME FROM CLIENT.

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Analyst: Martha Fabris

Date: 1/30/02

Second-Level Review: Josie

Date: 2/5/02

1/23/02 5:01:14 PM

### Sample Preparation/Analysis

Balance Id: \_\_\_\_\_

127642, BECHTEL HANFORD, INC.  
Bechtel Hanford, Inc.

88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION  
EA Chromium, Hexavalent (7196A)

Pipet #: \_\_\_\_\_

Analys Due: 03/07/2002

*WO3697*

SI CLIENT: HANFORD

Sep1 DT/Tm Tech: \_\_\_\_\_

Batch: 2023461 WATER mg/L

PM, Quote: JW2, 27023

Sep2 DT/Tm Tech: \_\_\_\_\_

SEQ Batch, Test: None

Prep Tech: \_\_\_\_\_

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date
--------------------------------------	-------------------	-----------------------------	------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------

1 ER2M7-1-AA J2A220141-1-SAMP								
01/18/2002 8:41:00		AmtRec: 500P	#Containers: 1			Scr Rst:	Alpha:	Beta:

2 ER2M7-1-AC-S J2A220141-1-MS								
01/18/2002 8:41:00		AmtRec: 500P	#Containers: 1			Scr Rst:	Alpha:	Beta:

3 ER2M7-1-AD-D J2A220141-1-MSD								
01/18/2002 8:41:00		AmtRec: 500P	#Containers: 1			Scr Rst:	Alpha:	Beta:

4 ER2M7-1-AE-X J2A220141-1-DUP								
01/18/2002 8:41:00		AmtRec: 500P	#Containers: 1			Scr Rst:	Alpha:	Beta:

5 ER5AF-1-AA-B J2A230000-461-BLK								
01/18/2002 8:41:00		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

6 ER5AF-1-AC-C J2A230000-461-LCS								
01/18/2002 8:41:00		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

0129

**Sample Preparation/Analysis**

**88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION**  
**EA Chromium, Hexavalent (7196A)**  
**SI CLIENT: HANFORD**

Balance Id: \_\_\_\_\_

Pipet #: \_\_\_\_\_

Analy Due: 03/07/2002

Sep1 DT/Tm Tech: \_\_\_\_\_

Batch: 2023461

mg/L

Sep2 DT/Tm Tech: \_\_\_\_\_

SEQ Batch, Test: None

Prep Tech: \_\_\_\_\_

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date
--------------------------------------	-------------------	-----------------------------	------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------

**Comments:**

All Clients for Batch:

127642, BECHTEL HANFORD, INC.

Bechtel Hanford, Inc.

, JW2, 27023

ER2M71AA-SAMP Constituent List:

ER2M71AC-MS Constituent List:

ER2M71AD-MSD:

ER5AF1AA-BLK:

ER5AF1AC-LCS:

ER2M71AA-SAMP Calc Info:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

ER2M71AC-MS Calc Info:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

ER2M71AD-MSD:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

ER5AF1AA-BLK:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

ER5AF1AC-LCS:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

0030

**SEVERN****TRENT****SERVICES**

Richland Laboratory  
Data Review Check List  
METALS

Work Order Number(s): <u>ER74J, ER74K</u> BATCH# <u>2026139</u>				
Lab Sample Numbers or SDG: <u>W03697</u> LOT# <u>J2A250161</u>				
Method/Test/Parameter: <u>CR+6 IN WATER</u> RICHWC 5003 R.4				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 <sup>nd</sup> Level Review (✓)
<b>A. Initial Calibration</b>				
1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient within QC limits?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters $\leq$ reporting limit?	✓			✓
<b>B. Continuing Calibration</b>				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results $\leq$ reporting limit?	✓			✓
<b>C. Sample Analysis</b>				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
<b>D. QC Samples</b>				
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?			✓	✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓



1/26/02 5:08:14 PM

### Sample Preparation/Analysis

Balance Id: \_\_\_\_\_

127642, BECHTEL HANFORD, INC.  
Bechtel Hanford, Inc.

88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION  
EA Chromium, Hexavalent (7196A)

Pipet #: \_\_\_\_\_

Analy Due: 03/11/2002

W03697

SI CLIENT: HANFORD

Sep1 DT/Tm Tech: \_\_\_\_\_

Batch: 2026139 WATER mg/L

PM, Quote: JW2, 27023

Sep2 DT/Tm Tech: \_\_\_\_\_

SEQ Batch, Test: None

Prep Tech: \_\_\_\_\_

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date
--------------------------------------	-------------------	-----------------------------	------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------

1 ER74J-1-AA  
J2A250161-1-SAMP

01/24/2002 6:57:00 AmtRec: 500P #Containers: 1 Scr Rst: Alpha: Beta:

2 ER74J-1-AC-S  
J2A250161-1-MS

01/24/2002 6:57:00 AmtRec: 500P #Containers: 1 Scr Rst: Alpha: Beta:

3 ER74J-1-AD-D  
J2A250161-1-MSD

01/24/2002 6:57:00 AmtRec: 500P #Containers: 1 Scr Rst: Alpha: Beta:

4 ER74J-1-AE-X  
J2A250161-1-DUP

01/24/2002 6:57:00 AmtRec: 500P #Containers: 1 Scr Rst: Alpha: Beta:

5 ER74K-1-AA  
J2A250161-2-SAMP

01/24/2002 8:19:00 AmtRec: 500P #Containers: 1 Scr Rst: Alpha: Beta:

6 ER950-1-AA-B  
J2A260000-139-BLK

01/24/2002 6:57:00 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta:

7 ER950-1-AC-C  
J2A260000-139-LCS

01/24/2002 6:57:00 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta:

**Sample Preparation/Analysis**

88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION  
 EA Chromium, Hexavalent (7196A)  
 5I CLIENT: HANFORD

Balance Id: \_\_\_\_\_

Pipet #: \_\_\_\_\_

Analy Due: 03/11/2002

Sep1 DT/Tm Tech: \_\_\_\_\_

Batch: 2026139

mg/L

Sep2 DT/Tm Tech: \_\_\_\_\_

SEQ Batch, Test: None

Prep Tech: \_\_\_\_\_

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date
--------------------------------------	-------------------	-----------------------------	------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------

**Comments:**

All Clients for Batch:  
 127642, BECHTEL HANFORD, INC.

Bechtel Hanford, Inc. , JW2, 27023

ER74J1AA-SAMP Constituent List:

ER74J1AC-MS Constituent List:

ER74J1AD-MSD:

ER9501AA-BLK:

ER9501AC-LCS:

ER74J1AA-SAMP Calc Info:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

ER74J1AC-MS Calc Info:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

ER74J1AD-MSD:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

ER9501AA-BLK:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

ER9501AC-LCS:

Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B

# ICOC Fraction Transfer/Status Report

ByDate: 1/15/02, 2/15/02, Batch: '2023461', User: \*All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
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<b>2023461</b>				
AC	InPrep	FABREM	1/23/02 4:16:48 PM	
SC		FABREM	InPrep 1/23/02 4:16:48 PM	RICHWC5003 REVISION 5
SC		WagarR	IsBatched 1/23/02 4:55:22 PM	ICOC_RADCALC v4.4.3
SC		FABREM	IsDisp 1/30/02 9:30:17 AM	RICH-HS-0001 REVISION 4
AC		FABREM	1/30/02 9:29:11 AM	
AC		FABREM	1/30/02 9:30:17 AM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

# ICOC Fraction Transfer/Status Report

ByDate: 1/15/02, 2/15/02, Batch: '2026139', User: \*All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
2026139				
AC	InPrep	FABREM	1/25/02 12:00:37 PM	
SC		FABREM	InPrep 1/25/02 12:00:37 PM	RICHWC5003 REVISION 5
SC		WagarR	IsBatched 1/26/02 5:06:58 PM	ICOC_RADCALC v4.4.3
SC		FABREM	IsDisp 1/30/02 9:30:25 AM	RICH-HS-0001 REVISION 4
AC		FABREM	1/30/02 9:29:00 AM	
AC		FABREM	1/30/02 9:30:25 AM	

AC: Accepting Entry; SC: Status Change