



Analytical Data Package Prepared For

# Bechtel Hanford, Inc.

Analysis Provided By

*STL Richland*  
2800 George Washington Way  
Richland WA, 99352  
(509)375-3131  
Assigned Laboratory Code: STL R



SDG Number: W03960

Data Package Contains 75 Pages

**CERTIFICATE OF ANALYSIS**

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

March 5, 2003

Attention: Joan Kessner

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|                   |   |                             |
|-------------------|---|-----------------------------|
| SAF Number        | : | B02-066                     |
| Date SDG Closed   | : | February 28, 2003           |
| Number of Samples | : | Fifty Nine (59)             |
| Sample Type       | : | Soil                        |
| SDG Number        | : | W03960                      |
| Data Deliverable  | : | Quick Turn Metals / Summary |

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**I. Introduction**

Between January 31, 2003 and February 27, 2003, fifty nine soil samples were received at STL Richland (STLR) for ICP metals analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs as shown on the cover page.

**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: **ICP Metals**  
ICP Metals by method SW-846 6010A

**III. Quality Control**

The analytical results for each analysis performed under SDG W03960 includes a minimum of one Laboratory Control Samples (LCS) and one method (reagent) blank. A duplicate sample, matrix spike sample and a matrix spike duplicate sample will be analyzed per 20 samples or per month, whichever is more frequent. Any exceptions have been noted in the "Comments" section.

Blanks and LCS are reported in mg/L unites, other QC and sample results are reported in the same units.

#### IV. Comments

All samples analyzed for this project are reported in one SDG for the month of sampling. A summary of the results and a copy of the COCs are included.

#### **ICP Metals**

##### ICP Metals by method SW-846 6010A

The following non-conformances were noted.

For the samples analyzed 1/31/03, the MS and MSD were not analyzed.

For the samples analyzed 2/3/03, the preparation blank for silver was above the QC limit by approximately one part per billion. The initial calibration verification was below the QC limit for silver. The QC limit for silver was within range for both CCVs.

For the samples analyzed 2/7/03, the CCV concentration for silver was above the QC limit at 2.37 ppm. The preparation bland was above the contract limit for chromium at 0.007 ppm.

For the samples analyzed 2/12/03, the LCS percent recovery was slightly below the QC limits for sliver and cadmium. The CCV was a slightly greater than the QC limit for cadmium.

For the samples analyzed 2/14/03, the first CCV was slightly below the QC limit for barium and chromium. The second CCV was within QC limits.

For the samples analyzed 2/25/03, there were no non-conformances noted.

For the samples analyzed 2/26/03, there were no non-conformances noted.

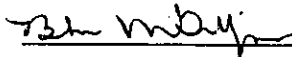
For the samples analyzed 2/28/03, the LCS percent recovery was slightly below the QC limit for silver and cadmium.

Bechtel Hanford, Inc.  
March 5, 2003  
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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:



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Barbara M. Gillespie  
Project Manager



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 01/31/03  
 Analytical Date: 01/31/03  
 Matrix: SOIL

|               | Client ID | Units | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|-----------|-------|------------|------------|------------|------------|------------|------------|------------|
| BLANK         |           |       | FG2NP-1-AA | FG2NP-1-AC | FG2NP-1-AD | FG2NP-1-AE | FG2NP-1-AF | FG2NP-1-AG | FG2NP-1-AH |
| J3B030000-200 | -----     | mg/L  | < 0.002    | < 0.0025   | < 0.03     | < 0.005    | < 0.005    | < 0.035    | < 0.015    |
| LCS           |           |       | FG2NP-1-AJ | FG2NP-1-AK | FG2NP-1-AL | FG2NP-1-AM | FG2NP-1-AN | FG2NP-1-AP | FG2NP-1-AQ |
| J3B030000-200 | -----     | mg/L  | 1.798      | 1.638      | 1.786      | 1.705      | 1.774      | 1.783      | 1.719      |
| J3A310172-001 | J00DD8    |       | FGXR4-1-AA | FGXR4-1-AC | FGXR4-1-AD | FGXR4-1-AE | FGXR4-1-AF | FGXR4-1-AG | FGXR4-1-AH |
|               |           | mg/kg | 394.8      | 34.38      | 113.0      | 9.164      | 163.3      | < 0.0035   | 1252       |
| J3A310172-001 | J00DD8    |       | FGXR4-1-A1 | FGXR4-1-A2 | FGXR4-1-A3 | FGXR4-1-A4 | FGXR4-1-A5 | FGXR4-1-A6 | FGXR4-1-A7 |
| DUPLICATE     |           | mg/kg | 535.3      | 34.29      | 102.5      | 10.74      | 106.0      | < 0.0035   | 368.5      |
| J3A310172-002 | J00DD9    |       | FGXR7-1-AA | FGXR7-1-AC | FGXR7-1-AD | FGXR7-1-AE | FGXR7-1-AF | FGXR7-1-AG | FGXR7-1-AH |
|               |           | mg/kg | 164.0      | 7.715      | 69.01      | 1.065      | 33.20      | < 0.0035   | 64.56      |
| J3A310172-003 | J00DF0    |       | FGXTK-1-AA | FGXTK-1-AC | FGXTK-1-AD | FGXTK-1-AE | FGXTK-1-AF | FGXTK-1-AG | FGXTK-1-AH |
|               |           | mg/kg | 392.5      | 467.8      | 93.81      | 5.274      | 69.05      | < 0.0035   | 359.2      |
| J3A310172-004 | J00DF1    |       | FGXTQ-1-AA | FGXTQ-1-AC | FGXTQ-1-AD | FGXTQ-1-AE | FGXTQ-1-AF | FGXTQ-1-AG | FGXTQ-1-AH |
|               |           | mg/kg | 302.7      | 27.64      | 119.2      | 6.068      | 126.0      | < 0.0035   | 242.4      |
| J3A310172-005 | J00DF2    |       | FGXTT-1-AA | FGXTT-1-AC | FGXTT-1-AD | FGXTT-1-AE | FGXTT-1-AF | FGXTT-1-AG | FGXTT-1-AH |
|               |           | mg/kg | 227.5      | 11.04      | 75.10      | 4.127      | 27.71      | 2.494      | 65.41      |
| J3A310172-006 | J00DF3    |       | FGXT0-1-AA | FGXT0-1-AC | FGXT0-1-AD | FGXT0-1-AE | FGXT0-1-AF | FGXT0-1-AG | FGXT0-1-AH |
|               |           | mg/kg | 533.2      | 50.77      | 109.2      | 14.66      | 146.3      | < 0.0035   | 803.1      |



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 01/31/03  
 Analytical Date: 01/31/03  
 Matrix: SOIL

| Client ID     | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|--------|------------|------------|------------|------------|------------|------------|------------|
| J3A310172-007 | J00DF4 | FGXT3-1-AA | FGXT3-1-AC | FGXT3-1-AD | FGXT3-1-AE | FGXT3-1-AF | FGXT3-1-AG | FGXT3-1-AH |
|               | mg/kg  | 110.0      | 3.304      | 52.38      | 0.347      | 16.87      | < 0.0035   | 102.5      |
| J3A310172-008 | J00DF5 | FGXT6-1-AA | FGXT6-1-AC | FGXT6-1-AD | FGXT6-1-AE | FGXT6-1-AF | FGXT6-1-AG | FGXT6-1-AH |
|               | mg/kg  | 125.3      | 5.664      | 58.98      | 0.505      | 17.42      | < 0.0035   | 40.30      |
| J3A310172-009 | J00DF6 | FGXVA-1-AA | FGXVA-1-AC | FGXVA-1-AD | FGXVA-1-AE | FGXVA-1-AF | FGXVA-1-AG | FGXVA-1-AH |
|               | mg/kg  | 109.3      | 10.89      | 58.04      | 1.984      | 15.05      | < 0.0035   | 35.25      |

2210 213103 em 2/3/03



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/03/03  
 Analytical Date: 02/04/03  
 Matrix: SOIL

| Client ID              | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|------------------------|--------|------------|------------|------------|------------|------------|------------|------------|
| BLANK                  |        | FG2X1-1-AA | FG2X1-1-AC | FG2X1-1-AD | FG2X1-1-AE | FG2X1-1-AF | FG2X1-1-AG | FG2X1-1-AH |
| J3B030000-266          | mg/L   | < 0.002    | 0.004      | < 0.03     | < 0.005    | < 0.005    | < 0.035    | < 0.015    |
| LCS                    |        | FG2X1-1-AJ | FG2X1-1-AK | FG2X1-1-AL | FG2X1-1-AM | FG2X1-1-AN | FG2X1-1-AP | FG2X1-1-AQ |
| J3B030000-266          | mg/L   | 1.807      | 1.650      | 1.841      | 1.694      | 1.824      | 1.803      | 1.751      |
| J3B030124-001          | J00DF7 | FG2Q1-1-AA | FG2Q1-1-AC | FG2Q1-1-AD | FG2Q1-1-AE | FG2Q1-1-AF | FG2Q1-1-AG | FG2Q1-1-AH |
|                        | mg/kg  | 194.9      | 4.197      | 132.8      | 1.406      | 41.37      | < 0.0035   | 21.16      |
| J3B030124-001          | J00DF7 | FG2Q1-1-A1 | FG2Q1-1-A2 | FG2Q1-1-A3 | FG2Q1-1-A4 | FG2Q1-1-A5 | FG2Q1-1-A6 | FG2Q1-1-A7 |
| DUPLICATE              | mg/kg  | 224.9      | 4.338      | 64.05      | 0.953      | 17.00      | < 0.0035   | 24.34      |
| J3B030124-001          | J00DF7 | FG2Q1-1-AJ | FG2Q1-1-AL | FG2Q1-1-AN | FG2Q1-1-AQ | FG2Q1-1-AT | FG2Q1-1-AV | FG2Q1-1-AX |
| MATRIX SPIKE           | mg/kg  | 349.6      | 157.2      | 231.6      | 165.3      | 188.5      | 166.0      | 190.3      |
| J3B030124-001          | J00DF7 | FG2Q1-1-AK | FG2Q1-1-AM | FG2Q1-1-AP | FG2Q1-1-AR | FG2Q1-1-AU | FG2Q1-1-AW | FG2Q1-1-A0 |
| MATRIX SPIKE DUPLICATE | mg/kg  | 378.0      | 150.5      | 226.1      | 157.3      | 185.1      | 164.1      | 188.1      |
| J3B030124-002          | J00DF8 | FG2Q3-1-AA | FG2Q3-1-AC | FG2Q3-1-AD | FG2Q3-1-AE | FG2Q3-1-AF | FG2Q3-1-AG | FG2Q3-1-AH |
|                        | mg/kg  | 355.5      | 8.558      | 84.71      | 2.549      | 25.65      | < 0.0035   | 144.3      |
| J3B030124-003          | J00DF9 | FG2Q4-1-AA | FG2Q4-1-AC | FG2Q4-1-AD | FG2Q4-1-AE | FG2Q4-1-AF | FG2Q4-1-AG | FG2Q4-1-AH |
|                        | mg/kg  | 184.3      | 4.926      | 64.79      | 1.923      | 18.71      | < 0.0035   | 44.59      |
| J3B030124-004          | J00DH0 | FG2Q6-1-AA | FG2Q6-1-AC | FG2Q6-1-AD | FG2Q6-1-AE | FG2Q6-1-AF | FG2Q6-1-AG | FG2Q6-1-AH |
|                        | mg/kg  | 281.6      | 7.457      | 65.89      | 2.188      | 35.06      | 0.133      | 138.7      |



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/03/03  
 Analytical Date: 02/04/03  
 Matrix: SOIL

| Client ID     | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|--------|------------|------------|------------|------------|------------|------------|------------|
| J3B030124-005 | J00DH1 | FG2Q7-1-AA | FG2Q7-1-AC | FG2Q7-1-AD | FG2Q7-1-AE | FG2Q7-1-AF | FG2Q7-1-AG | FG2Q7-1-AH |
|               | mg/kg  | 326.0      | 125.3      | 65.61      | 2.268      | 38.48      | < 0.0035   | 50.45      |
| J3B030124-006 | J00DH2 | FG2Q8-1-AA | FG2Q8-1-AC | FG2Q8-1-AD | FG2Q8-1-AE | FG2Q8-1-AF | FG2Q8-1-AG | FG2Q8-1-AH |
|               | mg/kg  | 104.7      | 3.133      | 44.31      | 0.952      | 9.479      | < 0.0035   | 68.95      |

ESD 2/4/03

DMQ/03



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/06/03  
 Analytical Date: 02/07/03  
 Matrix: SOIL

|               | Client ID | Units | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|-----------|-------|------------|------------|------------|------------|------------|------------|------------|
| BLANK         |           |       | FG9W8-1-AA | FG9W8-1-AC | FG9W8-1-AD | FG9W8-1-AE | FG9W8-1-AF | FG9W8-1-AG | FG9W8-1-AH |
| J3B070000-239 | -----     | mg/L  | < 0.002    | < 0.0025   | < 0.03     | < 0.005    | 0.007      | < 0.035    | < 0.015    |
| LCS           |           |       | FG9W8-1-AJ | FG9W8-1-AK | FG9W8-1-AL | FG9W8-1-AM | FG9W8-1-AN | FG9W8-1-AP | FG9W8-1-AQ |
| J3B070000-239 | -----     | mg/L  | 1.838      | 1.706      | 1.793      | 1.752      | 1.857      | 1.772      | 1.767      |
| J3B060320-001 | J00DH3    |       | FG8VW-1-AA | FG8VW-1-AC | FG8VW-1-AD | FG8VW-1-AE | FG8VW-1-AF | FG8VW-1-AG | FG8VW-1-AH |
|               |           | mg/kg | 300.2      | 12.79      | 146.6      | 1.852      | 24.55      | < 0.0035   | 92.07      |
| J3B060320-001 | J00DH3    |       | FG8VW-1-A1 | FG8VW-1-A2 | FG8VW-1-A3 | FG8VW-1-A4 | FG8VW-1-A5 | FG8VW-1-A6 | FG8VW-1-A7 |
| DUPLICATE     |           | mg/kg | 335.6      | 10.92      | 98.52      | 2.694      | 33.73      | < 0.0035   | 11444      |
| J3B060320-002 | J00DH4    |       | FG8V3-1-AA | FG8V3-1-AC | FG8V3-1-AD | FG8V3-1-AE | FG8V3-1-AF | FG8V3-1-AG | FG8V3-1-AH |
|               |           | mg/kg | 255.5      | 21.94      | 112.3      | 2.294      | 27.76      | < 0.0035   | 146.1      |
| J3B060320-003 | J00DH5    |       | FG8V5-1-AA | FG8V5-1-AC | FG8V5-1-AD | FG8V5-1-AE | FG8V5-1-AF | FG8V5-1-AG | FG8V5-1-AH |
|               |           | mg/kg | 312.2      | 5.501      | 115.0      | 1.324      | 30.91      | < 0.0035   | 70.64      |
| J3B060320-004 | J00DH6    |       | FG8V8-1-AA | FG8V8-1-AC | FG8V8-1-AD | FG8V8-1-AE | FG8V8-1-AF | FG8V8-1-AG | FG8V8-1-AH |
|               |           | mg/kg | 200.8      | 9.868      | 139.3      | 16.49      | 28.41      | < 0.0035   | 100.1      |
| J3B060320-005 | J00DH7    |       | FG8WA-1-AA | FG8WA-1-AC | FG8WA-1-AD | FG8WA-1-AE | FG8WA-1-AF | FG8WA-1-AG | FG8WA-1-AH |
|               |           | mg/kg | 367.4      | 7.689      | 105.1      | 21.08      | 46.17      | < 0.0035   | 83.14      |
| J3B060320-006 | J00DH8    |       | FG8WC-1-AA | FG8WC-1-AC | FG8WC-1-AD | FG8WC-1-AE | FG8WC-1-AF | FG8WC-1-AG | FG8WC-1-AH |
|               |           | mg/kg | 274.1      | 5.023      | 103.8      | 20.79      | 72.07      | < 0.0035   | 47.43      |



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/06/03  
 Analytical Date: 02/07/03  
 Matrix: SOIL

| Client ID     | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|--------|------------|------------|------------|------------|------------|------------|------------|
| J3B060320-007 | J00DH9 | FG8WE-1-AA | FG8WE-1-AC | FG8WE-1-AD | FG8WE-1-AE | FG8WE-1-AF | FG8WE-1-AG | FG8WE-1-AH |
|               | mg/kg  | 97.42      | 59.20      | 95.48      | 0.296      | 12.33      | < 0.0035   | 14.11      |
| J3B060320-008 | J00DJ0 | FG8WJ-1-AA | FG8WJ-1-AC | FG8WJ-1-AD | FG8WJ-1-AE | FG8WJ-1-AF | FG8WJ-1-AG | FG8WJ-1-AH |
|               | mg/kg  | 128.7      | 6.296      | 99.85      | 0.599      | 16.89      | < 0.0035   | 20.99      |
| J3B060320-009 | J00DJ1 | FG8WL-1-AA | FG8WL-1-AC | FG8WL-1-AD | FG8WL-1-AE | FG8WL-1-AF | FG8WL-1-AG | FG8WL-1-AH |
|               | mg/kg  | 101.9      | 3.306      | 124.1      | 1.143      | 31.13      | < 0.0035   | 19.40      |
| J3B060320-010 | J00DJ2 | FG8WM-1-AA | FG8WM-1-AC | FG8WM-1-AD | FG8WM-1-AE | FG8WM-1-AF | FG8WM-1-AG | FG8WM-1-AH |
|               | mg/kg  | 78.15      | 1.456      | 95.16      | 0.079      | 8.217      | < 0.0035   | 3.120      |

SMA 2/7/03 2/7/03 DM



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/12/03  
 Analytical Date: 02/12/03  
 Matrix: SOIL

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|                        | Client ID | Units | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|------------------------|-----------|-------|------------|------------|------------|------------|------------|------------|------------|
| BLANK                  |           |       | FHF6J-1-AA | FHF6J-1-AC | FHF6J-1-AD | FHF6J-1-AE | FHF6J-1-AF | FHF6J-1-AG | FHF6J-1-AH |
| J3B120000-190          | -----     | mg/L  | < 0.002    | < 0.0025   | < 0.03     | < 0.005    | < 0.005    | < 0.035    | < 0.015    |
| LCS                    |           |       | FHF6J-1-AJ | FHF6J-1-AK | FHF6J-1-AL | FHF6J-1-AM | FHF6J-1-AN | FHF6J-1-AP | FHF6J-1-AQ |
| J3B120000-190          | -----     | mg/L  | 1.767      | 1.557      | 1.660      | 1.592      | 1.716      | 1.662      | 1.669      |
| J3B110262-001          | J00DJ3    |       | FHFHJ-1-AA | FHFHJ-1-AC | FHFHJ-1-AD | FHFHJ-1-AE | FHFHJ-1-AF | FHFHJ-1-AG | FHFHJ-1-AH |
|                        |           | mg/kg | 69.24      | 2.227      | 49.32      | 0.284      | 10.51      | < 0.0035   | 3.276      |
| J3B110262-001          | J00DJ3    |       | FHFHJ-1-A1 | FHFHJ-1-A2 | FHFHJ-1-A3 | FHFHJ-1-A4 | FHFHJ-1-A5 | FHFHJ-1-A6 | FHFHJ-1-A7 |
| DUPLICATE              |           | mg/kg | 70.47      | 1.905      | 44.80      | 0.073      | 8.354      | < 0.0035   | 3.055      |
| J3B110262-001          | J00DJ3    |       | FHFHJ-1-AJ | FHFHJ-1-AL | FHFHJ-1-AN | FHFHJ-1-AQ | FHFHJ-1-AT | FHFHJ-1-AV | FHFHJ-1-AX |
| MATRIX SPIKE           |           | mg/kg | 252.2      | 154.8      | 220.0      | 164.2      | 183.1      | 165.0      | 171.1      |
| J3B110262-001          | J00DJ3    |       | FHFHJ-1-AK | FHFHJ-1-AM | FHFHJ-1-AP | FHFHJ-1-AR | FHFHJ-1-AU | FHFHJ-1-AW | FHFHJ-1-A0 |
| MATRIX SPIKE DUPLICATE |           | mg/kg | 236.5      | 149.7      | 205.8      | 157.9      | 168.8      | 159.7      | 161.9      |
| J3B110262-002          | J00DJ4    |       | FHFHL-1-AA | FHFHL-1-AC | FHFHL-1-AD | FHFHL-1-AE | FHFHL-1-AF | FHFHL-1-AG | FHFHL-1-AH |
|                        |           | mg/kg | 78.67      | 2.168      | 55.20      | 0.266      | 10.61      | < 0.0035   | 5.237      |
| J3B110262-003          | J00DJ5    |       | FHFHQ-1-AA | FHFHQ-1-AC | FHFHQ-1-AD | FHFHQ-1-AE | FHFHQ-1-AF | FHFHQ-1-AG | FHFHQ-1-AH |
|                        |           | mg/kg | 65.36      | 1.882      | 44.32      | 0.326      | 7.597      | < 0.0035   | 1.556      |
| J3B110262-004          | J00DJ6    |       | FHFJG-1-AA | FHFJG-1-AC | FHFJG-1-AD | FHFJG-1-AE | FHFJG-1-AF | FHFJG-1-AG | FHFJG-1-AH |
|                        |           | mg/kg | 56.66      | 2.256      | 39.63      | 0.182      | 7.408      | < 0.0035   | 1.216      |



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/12/03  
 Analytical Date: 02/12/03  
 Matrix: SOIL

| Client ID     | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|--------|------------|------------|------------|------------|------------|------------|------------|
| J3B110262-005 | J00DJ7 | FHFJ1-1-AA | FHFJ1-1-AC | FHFJ1-1-AD | FHFJ1-1-AE | FHFJ1-1-AF | FHFJ1-1-AG | FHFJ1-1-AH |
|               | mg/kg  | 173.5      | 2.969      | 83.99      | 0.704      | 16.94      | < 0.0035   | 35.79      |
| J3B110262-006 | J00DJ8 | FHFJ2-1-AA | FHFJ2-1-AC | FHFJ2-1-AD | FHFJ2-1-AE | FHFJ2-1-AF | FHFJ2-1-AG | FHFJ2-1-AH |
|               | mg/kg  | 222.6      | 6.528      | 75.52      | 2.141      | 23.98      | < 0.0035   | 186.0      |
| J3B110262-007 | J00DJ9 | FHFJ4-1-AA | FHFJ4-1-AC | FHFJ4-1-AD | FHFJ4-1-AE | FHFJ4-1-AF | FHFJ4-1-AG | FHFJ4-1-AH |
|               | mg/kg  | 329.3      | 2.387      | 93.22      | 0.330      | 12.34      | < 0.0035   | 105.4      |
| J3B110262-008 | J00DK0 | FHFJ5-1-AA | FHFJ5-1-AC | FHFJ5-1-AD | FHFJ5-1-AE | FHFJ5-1-AF | FHFJ5-1-AG | FHFJ5-1-AH |
|               | mg/kg  | 221.0      | 4.055      | 83.22      | 0.703      | 14.87      | < 0.0035   | 49.03      |

SDG 2/12/03

DML 2/13/03

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ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/14/03  
 Analytical Date: 02/16/03  
 Matrix: SOIL

13

| Client ID     | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|--------|------------|------------|------------|------------|------------|------------|------------|
| BLANK         |        | FHQCH-1-AA | FHQCH-1-AC | FHQCH-1-AD | FHQCH-1-AE | FHQCH-1-AF | FHQCH-1-AG | FHQCH-1-AH |
| J3B170000-277 | mg/L   | < 0.002    | < 0.0025   | < 0.03     | < 0.005    | < 0.005    | < 0.035    | < 0.015    |
| LCS           |        | FHQCH-1-AJ | FHQCH-1-AK | FHQCH-1-AL | FHQCH-1-AM | FHQCH-1-AN | FHQCH-1-AP | FHQCH-1-AQ |
| J3B170000-277 | mg/L   | 1.748      | 1.610      | 1.819      | 1.685      | 1.756      | 1.693      | 1.684      |
| J3B140264-001 | J00DK1 | FHML3-1-AA | FHML3-1-AC | FHML3-1-AD | FHML3-1-AE | FHML3-1-AF | FHML3-1-AG | FHML3-1-AH |
|               | mg/kg  | 132.8      | 2.620      | 66.05      | 0.245      | 11.33      | < 0.0035   | 13.17      |
| J3B140264-001 | J00DK1 | FHML3-1-AJ | FHML3-1-AK | FHML3-1-AL | FHML3-1-AM | FHML3-1-AN | FHML3-1-AP | FHML3-1-AQ |
| DUPLICATE     | mg/kg  | 157.5      | 4.261      | 65.99      | 0.276      | 9.348      | < 0.0035   | 11.21      |
| J3B140264-002 | J00DK2 | FHML7-1-AA | FHML7-1-AC | FHML7-1-AD | FHML7-1-AE | FHML7-1-AF | FHML7-1-AG | FHML7-1-AH |
|               | mg/kg  | 93.58      | 1.686      | 53.70      | 0.124      | 8.538      | < 0.0035   | 3.470      |
| J3B140264-003 | J00DK3 | FHML8-1-AA | FHML8-1-AC | FHML8-1-AD | FHML8-1-AE | FHML8-1-AF | FHML8-1-AG | FHML8-1-AH |
|               | mg/kg  | 61.29      | 1.293      | 41.34      | < 0.0005   | 6.016      | < 0.0035   | < 0.0015   |
| J3B140264-004 | J00DK4 | FHML9-1-AA | FHML9-1-AC | FHML9-1-AD | FHML9-1-AE | FHML9-1-AF | FHML9-1-AG | FHML9-1-AH |
|               | mg/kg  | 167.4      | 6.134      | 121.9      | 2.619      | 858.5      | < 0.0035   | 133.6      |
| J3B140264-005 | J00DK5 | FHMMA-1-AA | FHMMA-1-AC | FHMMA-1-AD | FHMMA-1-AE | FHMMA-1-AF | FHMMA-1-AG | FHMMA-1-AH |
|               | mg/kg  | 1388       | 2.317      | 160.5      | 0.292      | 15.53      | < 0.0035   | 13.70      |
| J3B140264-006 | J00DK6 | FHMME-1-AA | FHMME-1-AC | FHMME-1-AD | FHMME-1-AE | FHMME-1-AF | FHMME-1-AG | FHMME-1-AH |
|               | mg/kg  | 337.8      | 2.857      | 103.8      | 0.226      | 11.10      | < 0.0035   | 6.420      |

mg/kg = mg/L\*0.1L/kg sample used



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
Digestion Date: 02/14/03  
Analytical Date: 02/16/03  
Matrix: SOIL

| Client ID     | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|--------|------------|------------|------------|------------|------------|------------|------------|
| J3B140264-007 | J00DK7 | FHMMG-1-AA | FHMMG-1-AC | FHMMG-1-AD | FHMMG-1-AE | FHMMG-1-AF | FHMMG-1-AG | FHMMG-1-AH |
|               | mg/kg  | 549.3      | 2.254      | 124.0      | 0.567      | 13.53      | < 0.0035   | 15.54      |

*DM 2/16/03*



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/25/03  
 Analytical Date: 02/25/03  
 Matrix: SOIL

15

|                        | Client ID | Units | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|------------------------|-----------|-------|------------|------------|------------|------------|------------|------------|------------|
| BLANK                  |           |       | FH581-1-AA | FH581-1-AC | FH581-1-AD | FH581-1-AE | FH581-1-AF | FH581-1-AG | FH581-1-AH |
| J3B250000-285          | -----     | mg/L  | < 0.002    | < 0.0025   | < 0.03     | < 0.005    | < 0.005    | < 0.035    | < 0.015    |
| LCS                    |           |       | FH581-1-AJ | FH581-1-AK | FH581-1-AL | FH581-1-AM | FH581-1-AN | FH581-1-AP | FH581-1-AQ |
| J3B250000-285          | -----     | mg/L  | 1.801      | 1.617      | 1.760      | 1.607      | 1.788      | 1.640      | 1.663      |
| J3B250156-001          | J00DK8    |       | FH50H-1-AA | FH50H-1-AC | FH50H-1-AD | FH50H-1-AE | FH50H-1-AF | FH50H-1-AG | FH50H-1-AH |
|                        |           | mg/kg | 87.82      | 2.367      | 62.89      | 0.160      | 8.792      | < 0.0035   | 2.420      |
| J3B250156-001          | J00DK8    |       | FH50H-1-A1 | FH50H-1-A2 | FH50H-1-A3 | FH50H-1-A4 | FH50H-1-A5 | FH50H-1-A6 | FH50H-1-A7 |
| DUPLICATE              |           | mg/kg | 108.7      | 3.506      | 67.06      | 0.115      | 9.956      | < 0.0035   | 4.521      |
| J3B250156-001          | J00DK8    |       | FH50H-1-AJ | FH50H-1-AL | FH50H-1-AN | FH50H-1-AQ | FH50H-1-AT | FH50H-1-AV | FH50H-1-AX |
| MATRIX SPIKE           |           | mg/kg | 285.8      | 161.3      | 236.1      | 164.1      | 185.1      | 159.3      | 172.2      |
| J3B250156-001          | J00DK8    |       | FH50H-1-AK | FH50H-1-AM | FH50H-1-AP | FH50H-1-AR | FH50H-1-AU | FH50H-1-AW | FH50H-1-AO |
| MATRIX SPIKE DUPLICATE |           | mg/kg | 277.8      | 164.2      | 237.9      | 167.9      | 187.3      | 161.0      | 173.4      |
| J3B250156-002          | J00DK9    |       | FH50V-1-AA | FH50V-1-AC | FH50V-1-AD | FH50V-1-AE | FH50V-1-AF | FH50V-1-AG | FH50V-1-AH |
|                        |           | mg/kg | 547.0      | 2.505      | 121.0      | 0.329      | 12.92      | < 0.0035   | 11.95      |
| J3B250156-003          | J00DL0    |       | FH50W-1-AA | FH50W-1-AC | FH50W-1-AD | FH50W-1-AE | FH50W-1-AF | FH50W-1-AG | FH50W-1-AH |
|                        |           | mg/kg | 118.6      | 2.763      | 71.40      | 0.110      | 9.053      | < 0.0035   | 2.036      |
| J3B250156-004          | J00DL1    |       | FH50X-1-AA | FH50X-1-AC | FH50X-1-AD | FH50X-1-AE | FH50X-1-AF | FH50X-1-AG | FH50X-1-AH |
|                        |           | mg/kg | 80.37      | 3.132      | 54.05      | 0.197      | 10.37      | < 0.0035   | 6.500      |



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/25/03  
 Analytical Date: 02/25/03  
 Matrix: SOIL

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| Client ID     | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|--------|------------|------------|------------|------------|------------|------------|------------|
| J3B250156-005 | J00DL2 | FH501-1-AA | FH501-1-AC | FH501-1-AD | FH501-1-AE | FH501-1-AF | FH501-1-AG | FH501-1-AH |
|               | mg/kg  | 70.60      | 2.355      | 55.11      | 0.032      | 9.381      | < 0.0035   | 3.340      |
| J3B250156-006 | J00DL3 | FH504-1-AA | FH504-1-AC | FH504-1-AD | FH504-1-AE | FH504-1-AF | FH504-1-AG | FH504-1-AH |
|               | mg/kg  | 124.5      | 5.798      | 62.36      | 0.880      | 19.43      | < 0.0035   | 28.44      |
| J3B250156-007 | J00DL4 | FH508-1-AA | FH508-1-AC | FH508-1-AD | FH508-1-AE | FH508-1-AF | FH508-1-AG | FH508-1-AH |
|               | mg/kg  | 67.19      | 2.201      | 57.29      | < 0.0005   | 9.183      | < 0.0035   | 0.364      |
| J3B250156-008 | J00DL5 | FH51A-1-AA | FH51A-1-AC | FH51A-1-AD | FH51A-1-AE | FH51A-1-AF | FH51A-1-AG | FH51A-1-AH |
|               | mg/kg  | 233.5      | 2.806      | 64.88      | 0.070      | 4.754      | < 0.0035   | 0.550      |
| J3B250156-009 | J00DL6 | FH51C-1-AA | FH51C-1-AC | FH51C-1-AD | FH51C-1-AE | FH51C-1-AF | FH51C-1-AG | FH51C-1-AH |
|               | mg/kg  | 59.28      | 1.856      | 55.07      | 0.105      | 8.631      | < 0.0035   | 0.767      |
| J3B250156-010 | J00DL7 | FH51E-1-AA | FH51E-1-AC | FH51E-1-AD | FH51E-1-AE | FH51E-1-AF | FH51E-1-AG | FH51E-1-AH |
|               | mg/kg  | 120.4      | 2.052      | 56.57      | < 0.0005   | 8.094      | < 0.0035   | 2.676      |
| J3B250156-011 | J00DL8 | FH51F-1-AA | FH51F-1-AC | FH51F-1-AD | FH51F-1-AE | FH51F-1-AF | FH51F-1-AG | FH51F-1-AH |
|               | mg/kg  | 222.8      | 2.648      | 68.94      | 0.017      | 9.102      | < 0.0035   | 2.241      |

sent 2/26/03

DM 02/26/03



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/26/03  
 Analytical Date: 02/26/03  
 Matrix: SOIL

|               | Client ID | Units | Barium    | Silver    | Arsenic   | Cadmium   | Chromium  | Selenium  | Lead      |
|---------------|-----------|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| BLANK         |           |       | FH8TG1-AA | FH8TG1-AC | FH8TG1-AD | FH8TG1-AE | FH8TG1-AF | FH8TG1-AG | FH8TG1-AH |
| J3B260000-437 | -----     | mg/L  | < 0.002   | < 0.0025  | < 0.03    | < 0.005   | < 0.005   | < 0.035   | < 0.015   |
| LCS           |           |       | FH8TG1-AJ | FH8TG1-AK | FH8TG1-AL | FH8TG1-AM | FH8TG1-AN | FH8TG1-AP | FH8TG1-AQ |
| J3B260000-437 | -----     | mg/L  | 1.901     | 1.677     | 1.897     | 1.712     | 1.897     | 1.802     | 1.741     |
| J3B260140-001 | J00DL9    |       | FH7R21-AA | FH7R21-AC | FH7R21-AD | FH7R21-AE | FH7R21-AF | FH7R21-AG | FH7R21-AH |
|               |           | mg/kg | 174.0     | 3.229     | 52.47     | 0.031     | 38.37     | < 0.0035  | 47.92     |
| J3B260140-001 | J00DL9    |       | FH7R21-AJ | FH7R21-AK | FH7R21-AL | FH7R21-AM | FH7R21-AN | FH7R21-AP | FH7R21-AQ |
| DUPLICATE     |           | mg/kg | 181.7     | 3.302     | 49.84     | < 0.0005  | 45.02     | < 0.0035  | 49.02     |

DM 2/27/03

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ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/28/03  
 Analytical Date: 02/28/03  
 Matrix: SOIL

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| Client ID              | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|------------------------|--------|------------|------------|------------|------------|------------|------------|------------|
| BLANK                  |        | FJDGX-1-AA | FJDGX-1-AC | FJDGX-1-AD | FJDGX-1-AE | FJDGX-1-AF | FJDGX-1-AG | FJDGX-1-AH |
| J3B280000-217          | mg/L   | < 0.002    | < 0.0025   | < 0.03     | < 0.005    | < 0.005    | < 0.035    | < 0.015    |
| LCS                    |        | FJDGX-1-AJ | FJDGX-1-AK | FJDGX-1-AL | FJDGX-1-AM | FJDGX-1-AN | FJDGX-1-AP | FJDGX-1-AQ |
| J3B280000-217          | mg/L   | 1.771      | 1.523      | 1.698      | 1.565      | 1.697      | 1.688      | 1.639      |
| J3B280107-001          | J00DM5 | FJC3A-1-AA | FJC3A-1-AC | FJC3A-1-AD | FJC3A-1-AE | FJC3A-1-AF | FJC3A-1-AG | FJC3A-1-AH |
|                        | mg/kg  | 85.02      | 1.556      | 51.15      | 0.140      | 9.310      | < 0.0035   | 2.055      |
| J3B280107-001          | J00DM5 | FJC3A-1-A1 | FJC3A-1-A2 | FJC3A-1-A3 | FJC3A-1-A4 | FJC3A-1-A5 | FJC3A-1-A6 | FJC3A-1-A7 |
| DUPLICATE              | mg/kg  | 82.63      | 1.550      | 43.85      | 0.141      | 7.592      | 0.958      | 2.332      |
| J3B280107-001          | J00DM5 | FJC3A-1-AJ | FJC3A-1-AL | FJC3A-1-AN | FJC3A-1-AQ | FJC3A-1-AT | FJC3A-1-AV | FJC3A-1-AX |
| MATRIX SPIKE           | mg/kg  | 268.4      | 164.8      | 216.5      | 164.8      | 180.0      | 169.4      | 169.8      |
| J3B280107-001          | J00DM5 | FJC3A-1-AK | FJC3A-1-AM | FJC3A-1-AP | FJC3A-1-AR | FJC3A-1-AU | FJC3A-1-AW | FJC3A-1-A0 |
| MATRIX SPIKE DUPLICATE | mg/kg  | 263.4      | 166.8      | 227.4      | 173.8      | 184.0      | 170.4      | 175.9      |
| J3B280107-002          | J00DM6 | FJC3C-1-AA | FJC3C-1-AC | FJC3C-1-AD | FJC3C-1-AE | FJC3C-1-AF | FJC3C-1-AG | FJC3C-1-AH |
|                        | mg/kg  | 125.3      | 1.802      | 50.92      | 0.239      | 9.136      | < 0.0035   | 2.403      |
| J3B280107-003          | J00DM7 | FJC3D-1-AA | FJC3D-1-AC | FJC3D-1-AD | FJC3D-1-AE | FJC3D-1-AF | FJC3D-1-AG | FJC3D-1-AH |
|                        | mg/kg  | 90.89      | 2.152      | 61.76      | < 0.0005   | 8.061      | < 0.0035   | 2.228      |
| J3B280107-004          | J00DM8 | FJC3E-1-AA | FJC3E-1-AC | FJC3E-1-AD | FJC3E-1-AE | FJC3E-1-AF | FJC3E-1-AG | FJC3E-1-AH |
|                        | mg/kg  | 64.14      | 1.930      | 44.43      | 0.172      | 8.522      | < 0.0035   | 1.750      |



ICAP METAL SAMPLE AND QC SAMPLE DATA REPORT

SDG# W03960  
 Digestion Date: 02/28/03  
 Analytical Date: 02/28/03  
 Matrix: SOIL

| Client ID     | Units  | Barium     | Silver     | Arsenic    | Cadmium    | Chromium   | Selenium   | Lead       |
|---------------|--------|------------|------------|------------|------------|------------|------------|------------|
| J3B280107-005 | J00DM9 | FJC3F-1-AA | FJC3F-1-AC | FJC3F-1-AD | FJC3F-1-AE | FJC3F-1-AF | FJC3F-1-AG | FJC3F-1-AH |
|               | mg/kg  | 83.82      | 1.767      | 47.81      | 0.090      | 7.144      | < 0.0035   | 0.752      |
| J3B280107-006 | J00DN0 | FJC3G-1-AA | FJC3G-1-AC | FJC3G-1-AD | FJC3G-1-AE | FJC3G-1-AF | FJC3G-1-AG | FJC3G-1-AH |
|               | mg/kg  | 68.91      | 1.725      | 49.94      | 0.115      | 7.713      | < 0.0035   | 2.193      |
| J3B280107-007 | J00DN1 | FJC3J-1-AA | FJC3J-1-AC | FJC3J-1-AD | FJC3J-1-AE | FJC3J-1-AF | FJC3J-1-AG | FJC3J-1-AH |
|               | mg/kg  | 64.77      | 1.781      | 52.33      | 0.166      | 7.645      | < 0.0035   | 1.017      |

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*3/2/03*

*02/28/03*

# CHAIN OF CUSTODY

| Bechtel Hanford Inc.   |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |   |  |                                       | B02-066-02                               |  | Page 1 of 1  |          |  |
|--|----------|---|---|--|---------------------------------------|--|--|--|----------|--|
| Collector<br>Doug Bowers   |          | Company Contact<br>Jeff Lerch                     |   | Telephone No.<br>373-5904              |                                       | Project Coordinator<br>KESSNER, JH       |  | Price Code   |          |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals   |          | Sampling Location<br>300-FF-1 618-5 Burial Ground |   | SAF No.<br>B02-066                     |                                       | Air Quality <input type="checkbox"/>     |  | Data Turnaround<br>24 Hours  |          |  |
| Ice Chest No.<br>ERC 97.079  |          | Field Logbook No.<br>EL 1395-6                    |   | COA<br>RG618529W0                      |                                       | Method of Shipment<br>Government Vehicle |  |  |          |  |
| Shipped To<br>Savern Trent Incorporated, Richland  |          | Offsite Property No.<br>NA                        |   | Bill of Lading/Air Bill No.<br>NA      |                                       |  |  |  |          |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>Radioactive<br>SEE Attached Report<br>Special Handling and/or Storage<br>None |          |   | Preservation                            | None                                   |                                       |  |  |  |          |  |
|  |          |   | Type of Container                       | aG                                     |                                       |  |  |  |          |  |
|  |          |   | No. of Container(s)                     | 1                                      |                                       |  |  |  |          |  |
|  |          |   | Volume                                  | 60mL                                   |                                       |  |  |  |          |  |
| SDG<br>W03960  |          |   | SAMPLE ANALYSIS<br>J3A310172<br>The 314 |  | See item (1) in Special Instructions. |  |  |  |          |  |
| Sample No.   | Matrix * | Sample Date                                       | Sample Time                             |  |                                       |  |  |  |          |  |
| J00DD8   | SOIL     | 1-30-03   | 0930                                    | X                                      | FGX                                   | R4                                       |  |  |          |  |
| J00DD9   | SOIL     | 1-30-03   | 0932                                    | X                                      | FGX                                   | R7                                       |  |  |          |  |
| J00DF0   | SOIL     | 1-30-03   | 0936                                    | X                                      | FGX                                   | TK                                       |  |  |          |  |
| J00DF1   | SOIL     | 1-30-03   | 0938                                    | X                                      | FGX                                   | TQ                                       |  |  |          |  |
| J00DF2   | SOIL     | 1-30-03   | 0942                                    | X                                      | FGX                                   | TT                                       |  |  |          |  |
| CHAIN OF POSSESSION  |          |   |   | SPECIAL INSTRUCTIONS                   |                                       |  |  |  | Matrix * |  |
| Relinquished By/Removed From<br>Doug Bowers  |          | Date/Time<br>1-30-03/1545                         |   | Received By/Stored In<br>A. F. ...     |                                       | Date/Time<br>1-30-03/1545                |  | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan<br><br>Personnel not available to relinquish samples from the 3728 Ref # 1R on 1/31/03 |          | S=Soil<br>SE=Sediment<br>SO=Solid<br>SL=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>W1=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| Relinquished By/Removed From<br>LA 3728  |          | Date/Time<br>1-31-03 0900                         |   | Received By/Stored In<br>R. F. ...     |                                       | Date/Time<br>1-31-03                     |  |  |          |  |
| Relinquished By/Removed From<br>R. F. ...  |          | Date/Time<br>1-31-03 0925                         |   | Received By/Stored In<br>T. Heidelberg |                                       | Date/Time<br>1-31-03                     |  |  |          |  |
| Relinquished By/Removed From   |          | Date/Time   |   | Received By/Stored In                  |                                       | Date/Time                                |  |  |          |  |
| Relinquished By/Removed From   |          | Date/Time   |   | Received By/Stored In                  |                                       | Date/Time                                |  |  |          |  |
| LABORATORY SECTION   |          | Received By                                       |   | Title                                  |                                       |  |  | Date/Time  |          |  |
| FINAL SAMPLE DISPOSITION   |          | Disposal Method                                   |   | Disposed By                            |                                       |  |  | Date/Time  |          |  |

| Bechtel Hanford Inc.  |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |  |     | B02-066-02                               |  | Page 1 of 1   |  |  |  |
|---|----------|---|-------------|--|-----|--|--|---|--|--|--|
| Collector<br>Doug Bowers  |          | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904              |     | Project Coordinator<br>KESSNER, JH       |  | Price Code  |  |  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals  |          | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066                     |     | Air Quality <input type="checkbox"/>     |  | Data Turnaround<br>24 Hours   |  |  |  |
| Ice Chest No.<br>ERC 97-029   |          | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                      |     | Method of Shipment<br>Government Vehicle |  |   |  |  |  |
| Shipped To<br>Severn Trent Incorporated, Richland   |          | Offsite Property No.<br>NA                        |             | Bill of Lading/Air Bill No.<br>NA      |     |  |  |   |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>Radioactive<br>SEE a Hatched Report<br>Special Handling and/or Storage<br>None |          |   |             | Preservation                           |     | None                                     |  |   |  |  |  |
|   |          |   |             | Type of Container                      |     | aG                                       |  |   |  |  |  |
|   |          |   |             | No. of Container(s)                    |     | 1  |  |   |  |  |  |
|   |          |   |             | Volume                                 |     | 60mL                                     |  |   |  |  |  |
| SAMPLE ANALYSIS   |          |   |             | See item (1) in Special Instructions.  |     |  |  |   |  |  |  |
| Sample No.  | Matrix * | Sample Date                                       | Sample Time |  |     |  |  |   |  |  |  |
| J 00DF3   | SOIL     | 1.31.03   | 0944        | X                                      | FGX | T0                                       |  |   |  |  |  |
| J 00DF4   | SOIL     | 1.31.03   | 0948        | X                                      | FGX | T3                                       |  |   |  |  |  |
| J 00DF5   | SOIL     | 1.31.03   | 0950        | X                                      | FGX | T6                                       |  |   |  |  |  |
|   | SOIL     |   |             |  |     |  |  |   |  |  |  |
|   | SOIL     |   |             |  |     |  |  |   |  |  |  |
| CHAIN OF POSSESSION   |          |   |             | Sign/Print Names                       |     | SPECIAL INSTRUCTIONS                     |  |   |  |  |  |
| Relinquished By/Removed From<br>Doug Bowers   |          | Date/Time<br>1.30.03/1545                         |             | Received By/Stored In<br>A.C. / A3728  |     | Date/Time<br>1.30.03/1545                |  | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan<br><br>Personnel not available to relinquish samples from the 3728 Ref# 1A on 1/31/03 |  |  |  |
| Relinquished By/Removed From<br>IA 3728   |          | Date/Time<br>1.31.03 0900                         |             | Received By/Stored In<br>R.A.R.        |     | Date/Time<br>1.31.03 0900                |  |   |  |  |  |
| Relinquished By/Removed From<br>K. Hill & F. Hill   |          | Date/Time<br>1.31.03 0929                         |             | Received By/Stored In<br>T. Heidelberg |     | Date/Time<br>1.31.03 0929                |  |   |  |  |  |
| 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                                |  | Matrix *  |  |  |  |
|   |          |   |             |  |     |  |  | S=Soil<br>SE=Sediment<br>SO=Solid<br>SL=Sludge<br>W = Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>Wl=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other                      |  |  |  |
| LABORATORY SECTION  |          | Received By                                       |             | Title                                  |     | Date/Time                                |  |   |  |  |  |
| FINAL SAMPLE DISPOSITION  |          | Disposal Method                                   |             | Disposed By                            |     | Date/Time                                |  |   |  |  |  |

| Bechtel Hanford Inc.   |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |                                       |   | B02-066-02                               |           | Page 1 of 1   |  |          |
|--|-----------------|---|-------------|---------------------------------------|---|--|-----------|---|--|----------|
| Collector<br>Doug Bowers   |                 | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904             |   | Project Coordinator<br>KESSNER, JH       |           | Price Code  |  |          |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals   |                 | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066                    |   | Air Quality <input type="checkbox"/>     |           | Data Turnaround<br>24 Hours   |  |          |
| Ice Chest No.<br>ERC 97-079  |                 | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                     |   | Method of Shipment<br>Government Vehicle |           |   |  |          |
| Shipped To<br>Seyvern Trent Incorporated, Richland   |                 | Offsite Property No.<br>NA                        |             | Bill of Lading/Air Bill No.<br>NA     |   |  |           |   |  |          |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>Radioactive<br>See Attached Report<br>Special Handling and/or Storage<br>None |                 |   |             | Preservation                          |   | None                                     |           |   |  |          |
|  |                 |   |             | Type of Container                     |   | aG                                       |           |   |  |          |
|  |                 |   |             | No. of Container(s)                   |   | 1  |           |   |  |          |
|  |                 |   |             | Volume                                |   | 60mL                                     |           |   |  |          |
| SAMPLE ANALYSIS  |                 |   |             | See item (1) in Special Instructions. |   |  |           |   |  |          |
| Sample No.   |                 | Matrix *  | Sample Date | Sample Time                           |   |  |           |   |  |          |
| J00DF6   |                 | SOIL  | 1-30-03     | 1400                                  | X | FG-X                                     | VA        |   |  |          |
|  |                 | SOIL  |             |                                       |   |  |           |   |  |          |
|  |                 | SOIL  |             |                                       |   |  |           |   |  |          |
|  |                 | SOIL  |             |                                       |   |  |           |   |  |          |
|  |                 | SOIL  |             |                                       |   |  |           |   |  |          |
| CHAIN OF POSSESSION  |                 |   |             | Sign/Print Names                      |   | SPECIAL INSTRUCTIONS                     |           |   |  |          |
| Relinquished By/Removed From   |                 | Date/Time   |             | Received By/Stored In                 |   | Date/Time                                |           | (U) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan<br><br>276 BKG<br>348 cpm 4 bag |  | Matrix * |
| Doug Bowers  |                 | 1-30-03/1500                                      |             | 300DF6 Source Locker                  |   | 1-30-03/1500                             |           |   |  |          |
| 300DF-1 Source Locker  |                 | 1-31-03/0830                                      |             | Doug Bowers                           |   | 1-31-03/0830                             |           |   |  |          |
| Doug Bowers  |                 | 1-11-03/0845                                      |             | R. Felder                             |   | 1-31-03                                  |           |   |  |          |
| R. Felder  |                 | 1-31-03   |             | T. Heidelberg                         |   | 1-31-03                                  |           |   |  |          |
| Relinquished By/Removed From   |                 | Date/Time   |             | Received By/Stored In                 |   | Date/Time                                |           |   |  |          |
| Relinquished By/Removed From   |                 | Date/Time   |             | Received By/Stored In                 |   | Date/Time                                |           |   |  |          |
| LABORATORY SECTION   | Received By     |   |             | Title                                 |   |  | Date/Time |   |  |          |
| FINAL SAMPLE DISPOSITION   | Disposal Method |   |             | Disposed By                           |   |  | Date/Time |   |  |          |

23

# ERC RADIOLOGICAL SURVEY RECORD

Type of Survey (check one only)

\*Release  
  Routine  
  Work Progress  
  Shipment

Survey #

RSR - FF2-03-0167

\* The potential for internal contamination was evaluated.

RWP # / Rev. #

N/A

Date

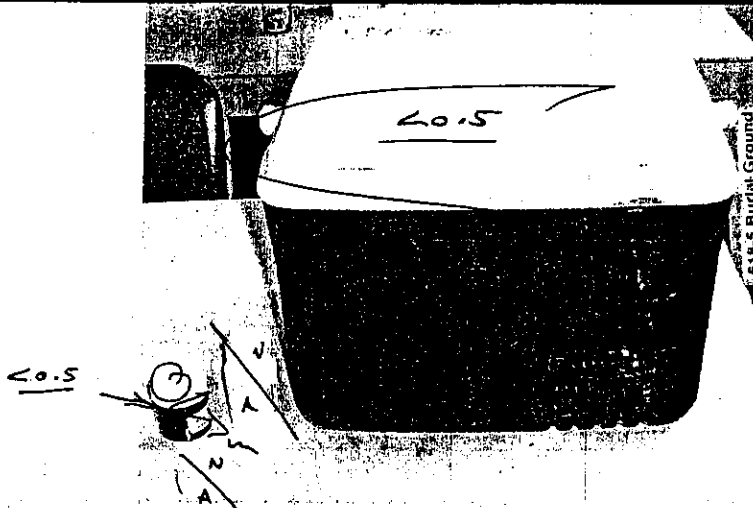
1.31.03

Time

0830

Location Code/Description

FF2 / Sample from 618-8



WORK PROGRESS SURVEY OF SAMPLE CONTAINERS

COPY

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-SR-16

|                          |                    |     |                         |     |                          |               |   |     |                                 |          |                         |     |                     |      |                          |     |                         |      |                                   |
|--------------------------|--------------------|-----|-------------------------|-----|--------------------------|---------------|---|-----|---------------------------------|----------|-------------------------|-----|---------------------|------|--------------------------|-----|-------------------------|------|-----------------------------------|
| CA                       | Contamination Area | HCA | High Contamination Area | RBA | Radiological Buffer Area | ARA           | Airborne Radioactivity Area                                 | RMA | Radioactive Materials Area      | RA       | Radiation Area          | HRA | High Radiation Area | VHRA | Very High Radiation Area |     |                         |      |                                   |
| <input type="checkbox"/> | Technical Smear    | #   | Direct                  | M   | Large Area Wipe          | Contact 30 cm | General Area Dose Rates - Uncorrected Meter Reading (mR/hr) |     | Radiological Boundary X---X---X | $\Delta$ | Micro Rem ( $\mu$ R/hr) | N   | Neutrons (mRem/hr)  | [AS] | Air Sample Location      | SCA | Soil Contamination Area | RMSA | Radioactive Material Storage Area |

### Instruments

| Model            | Serial #     | Source <input checked="" type="checkbox"/> (Initial) | CF         | Cal Due Date | Model | Serial # | Source <input checked="" type="checkbox"/> (Initial) | CF | Cal Due Date |
|------------------|--------------|--|------------|--------------|-------|----------|--|----|--------------|
| 2224-2<br>DPL6BD | 2012<br>0051 | BM   | 1.8<br>6.4 | 1-23-04      |       | N        |  |    |              |
| R020             | 0094         | BM   | 5/6        | 11-26-03     |       | A        |  |    |              |

RCT Name/Signature/Date:

BM MECEN  
 12:44  
 1.31.03

RCT Supervisor Name/Signature/Date:

# ERC RADIOLOGICAL SURVEY RECORD (continuation)

## Contamination Measurement Information

Circled values indicate Removable  $\beta$  contamination in mrad/hr  $\beta$

| No.  | Description of Item or Location | Removable (dpm/100 cm <sup>2</sup> ) |              |                    |                        | Total (dpm/100 cm <sup>2</sup> ) |              |                    |                        |
|--|---------------------------------|--------------------------------------|--------------|--------------------|------------------------|----------------------------------|--------------|--------------------|------------------------|
|  |                                 | $\alpha$                             | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F | $\alpha$                         | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F |
|  | ALL LAWS & SMEARS               | N/A                                  | →            | 2.1K               | 6.4                    | N/A                              |              |                    |                        |
| <div style="font-size: 2em; font-weight: bold; opacity: 0.5;">COPY</div> |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|  |                                 |                                      |              | N<br>A             |                        |                                  |              |                    |                        |
|  |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|  |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|  |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|  |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|  |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|  |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|  |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|  |                                 |                                      |              |                    |                        |                                  |              |                    |                        |

## Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

| Location | Contact Readings                       |                                  | 30 cm Readings                         |                                  |
|----------|--|----------------------------------|--|----------------------------------|
|          | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR |
| Samples  | (20.5-20.5)6 = 20.5                    | (20.5)5 = 20.5                   | N/A                                    | N/A                              |
|          |  | N<br>A                           |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |

Additional Information

(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03

COPY

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

Sample # J00DF6, J00CF6      $\frac{348 - 276}{4} = 18$  pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{N}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{X}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

# ERC RADIOLOGICAL SURVEY RECORD

Page 1 of 3

Type of Survey (check one only)

\*Release  Routine N/A  Work Progress  Shipment

Survey #

RSR - FF2 - 03 - 0166

\* The potential for internal contamination was evaluated.

RWP # / Rev. #

FF2-02-010 / Rev. 00

Date

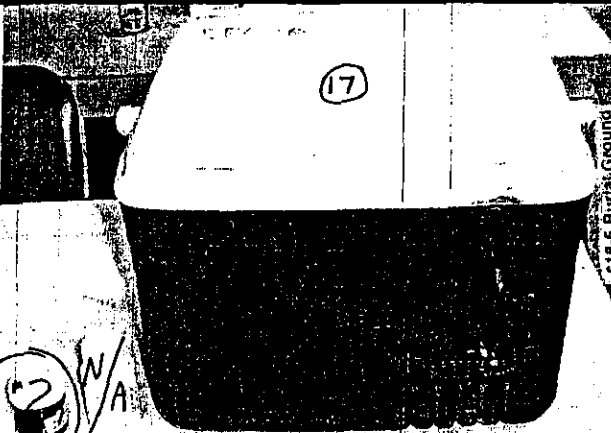
1-30-03

Time

1320

Location Code/Description

FF2/SAMPLES



### WORK PROGRESS SURVEY OF SAMPLE CONTAINERS

SEE PAGE 3 FOR pCi/gm

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-SR-16

|                          |                    |     |                         |     |                          |               |   |     |                                 |          |                         |     |                     |      |                          |     |                         |      |                                   |
|--------------------------|--------------------|-----|-------------------------|-----|--------------------------|---------------|---|-----|---------------------------------|----------|-------------------------|-----|---------------------|------|--------------------------|-----|-------------------------|------|-----------------------------------|
| CA                       | Contamination Area | HCA | High Contamination Area | RBA | Radiological Buffer Area | ARA           | Airborne Radioactivity Area                                 | RMA | Radioactive Materials Area      | RA       | Radiation Area          | HRA | High Radiation Area | VHRA | Very High Radiation Area |     |                         |      |                                   |
| <input type="checkbox"/> | Technical Smear    | #   | Direct                  | M   | Large Area Wipe          | Contact 30 cm | General Area Dose Rates = Uncorrected Meter Reading (mR/hr) |     | Radiological Boundary X---X---X | $\Delta$ | Micro Rem ( $\mu$ R/hr) | N   | Neutrons (mRem/hr)  | [AS] | Air Sample Location      | SCA | Soil Contamination Area | RMSA | Radioactive Material Storage Area |

### Instruments

| Model  | Serial # | Source (Initial) ✓ | CF  | Cal Due Date | Model | Serial # | Source (Initial) ✓ | CF | Cal Due Date |
|--------|----------|--------------------|-----|--------------|-------|----------|--------------------|----|--------------|
| 2224-2 | 0072     | JK                 | N/A | 11-8-03      |       | N        |                    |    |              |
| DPL6B0 | 0071     | JK                 | 8B  | 11-8-03      |       | A        |                    |    |              |

RCT Name/Signature/Date:

M. KNAPPER / M. Knapper / 1-30-03

RCT Supervisor Name/Signature/Date:

ERC RADIOLOGICAL SURVEY RECORD (continuation)

Contamination Measurement Information

Circled values indicate Removable  $\beta$  contamination in mrad/hr  $\beta$

| No.        | Description of Item or Location | Removable (dpm/100 cm <sup>2</sup> ) |              |                    |                        | Total (dpm/100 cm <sup>2</sup> ) |              |                    |                        |
|------------|---------------------------------|--------------------------------------|--------------|--------------------|------------------------|----------------------------------|--------------|--------------------|------------------------|
|            |                                 | $\alpha$                             | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F | $\alpha$                         | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F |
| m<br>10-18 | ALL AREAS SURVEYED              | N/A                                  | N/A          | 41K                | 8                      | N/A                              | N/A          | N/A                | N/A                    |
|            |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|            |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|            |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|            |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|            |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|            |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|            |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|            |                                 |                                      |              |                    |                        |                                  |              |                    |                        |

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

| Location | Contact Readings                       |                                  | 30 cm Readings                         |                                  |
|----------|--|----------------------------------|--|----------------------------------|
|          | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |
|          |  |                                  |  |                                  |

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03/Rev. 01

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

Sample # J00DD8, J00CN8  $\frac{1224 - 204}{4} = 105$  pCi/gm

Sample # J00DD9, J00CN9  $\frac{1276 - 204}{4} = 268$  pCi/gm

Sample # J00DF0, J00CP0  $\frac{1084 - 204}{4} = 120$  pCi/gm

Sample # J00DF1, J00CP1  $\frac{543 - 204}{4} = 85$  pCi/gm

Sample # J00DF2, J00CP2  $\frac{388 - 204}{4} = 46$  pCi/gm

Sample # J00DF3, J00CP3  $\frac{543 - 204}{4} = 85$  pCi/gm

Sample # J00DF4, J00CP4  $\frac{368 - 204}{4} = 41$  pCi/gm

Sample # J00DF5, J00CP5  $\frac{393 - 204}{4} = 47$  pCi/gm

Sample # N/A, N/A  $\frac{N/A - N/A}{4} = N/A$  pCi/gm

Sample # N/A, N/A  $\frac{N/A - N/A}{4} = N/A$  pCi/gm



Sample Check-in List

Date/Time Received: 1-31 0925
Client: BHT SDG #: W03960 NA [] SAF #: P02-0606 NA []
Work Order Number: 03A310172 Chain of Custody # P02-0606-02
Shipping Container ID: ERC 97-079 Air Bill # cha

- 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: NA [X] 5. Vermiculite/packing materials is NA [] Wet [] Dry []
6. Number of samples in shipping container: 9
7. Sample holding times exceeded? NA [] Yes [] No [X]
8. Samples have: tape custody seals hazard labels appropriate samples labels
9. Samples are: in good condition broken leaking have air bubbles
10. Sample pH taken? NA [X] pH<2 [] pH>2 []
11. Sample Location, Sample Collector Listed? \* Yes [] No [X]
12. Were any anomalies identified in sample receipt? Yes [] No [X]
13. Description of anomalies (include sample numbers):

Sample Custodian: [Signature] Date: 1-31-03

Table with 4 columns: Client Sample ID, Analysis Requested, Condition, Comments/Action

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

[ ] No action necessary; process as is.

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

| Bechtel Hanford Inc.   |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST                         |  |   |                                       | B02-066-02                               |  | Page 1 of 1  |  |
|--|----------|--|--|---|---------------------------------------|--|--|--|--|
| Collector<br>Doug Bowers   |          | Company Contact<br>Jeff Lerch                                    |  | Telephone No.<br>373-5904   |                                       | Project Coordinator<br>KESSNER, JH       |  | Price Code   |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals   |          | Sampling Location<br>300-FF-1 618-5 Burial Ground                |  | SAF No.<br>B02-066  |                                       | Air Quality <input type="checkbox"/>     |  | Data Turnaround<br><b>24 Hours</b>   |  |
| Ice Chest No.<br>FAC 96-082  |          | Field Logbook No.<br>EL 1395-6                                   |  | COA<br>RG618529W0   |                                       | Method of Shipment<br>Government Vehicle |  |  |  |
| Shipped To<br>Severn Trent Incorporated, Richland  |          | Offsite Property No.<br>None                                     |  | Bill of Lading/Air Bill No.<br>None   |                                       |  |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>Radioactive<br>SEE Attached Report<br>Special Handling and/or Storage<br>None |          |  | Preservation                             | None  |                                       |  |  |  |  |
|  |          |  | Type of Container                        | aG  |                                       |  |  |  |  |
|  |          |  | No. of Container(s)                      | 1   |                                       |  |  |  |  |
|  |          |  | Volume                                   | 60mL  |                                       |  |  |  |  |
| SDG<br>W03960  |          |  | SAMPLE ANALYSIS<br>Tue 3-14<br>J3B030124 |   | See item (1) in Special Instructions. |  |  |  |  |
| Sample No.   | Matrix * | Sample Date  | Sample Time                              |   |                                       |  |  |  |  |
| J00DF7   | SOIL     | 1.31.03  | 1300                                     | X   | FG2Q1                                 |  |  |  |  |
| J00DF8   | SOIL     | 1.31.03  | 1302                                     | X   | FG2Q3                                 |  |  |  |  |
| J00DF9   | SOIL     | 1.31.03  | 1304                                     | X   | FG2Q4                                 |  |  |  |  |
| J00DH0   | SOIL     | 1.31.03  | 1308                                     | X   | FG2Q6                                 |  |  |  |  |
| J00DH1   | SOIL     | 1.31.03  | 1310                                     | X   | FG2Q7                                 |  |  |  |  |
| CHAIN OF POSSESSION  |          |  |  | SPECIAL INSTRUCTIONS  |                                       |  |  | Matrix *   |  |
| Relinquished By/Removed From<br>Doug Bowers Bowers 2-27-03/1500  |          | Received By/Stored In<br>Jeff Lerch 2-27-03/1500                 |  | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |                                       |  |  | S=Soil<br>SE=Sediment<br>SO=Solid<br>Sl=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Dry Solids<br>DL=Dry Liquids<br>T=Tissue<br>Wl=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |  |
| Relinquished By/Removed From<br>Doug Bowers 2-27-03/0800   |          | Received By/Stored In<br>Doug Bowers 2-27-03/0800                |  |   |                                       |  |  |  |  |
| Relinquished By/Removed From<br>Doug Bowers 2-27-03/0920   |          | Received By/Stored In<br>S.L. Heidelberg Heidelberg 2-27-03/0920 |  |   |                                       |  |  |  |  |
| Relinquished By/Removed From   |          | Received By/Stored In  |  |   |                                       |  |  |  |  |
| Relinquished By/Removed From   |          | Received By/Stored In  |  |   |                                       |  |  |  |  |
| Relinquished By/Removed From   |          | Received By/Stored In  |  |   |                                       |  |  |  |  |
| LABORATORY SECTION   |          | Received By  |  | Title   |                                       |  |  | Date/Time  |  |
| FINAL SAMPLE DISPOSITION   |          | Disposal Method  |  | Disposed By   |                                       |  |  | Date/Time  |  |

| Bechtel Hanford Inc.   |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |   |                                       |  | B02-066-02                           |   | Page 1 of 1 |                             |          |  |
|--|-----------------|---|-------------|---|---------------------------------------|--|--------------------------------------|---|-------------|-----------------------------|----------|--|
| Collector<br>Doug Bowers   |                 | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904               |                                       | Project Coordinator<br>KESSNER, JH       |                                      | Price Code  |             | Data Turnaround<br>24 Hours |          |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals   |                 | Sampling Location<br>300-FF-1 618-5 Burial Ground |             |   | SAF No.<br>B02-066                    |  | Air Quality <input type="checkbox"/> |   |             |                             |          |  |
| Ice Chest No.<br>ERC 96-082  |                 | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                       |                                       | Method of Shipment<br>Government Vehicle |                                      |   |             |                             |          |  |
| Shipped To<br>Severn Trent Incorporated, Richland  |                 | Offsite Property No.<br>N/A                       |             |   | Bill of Lading/Air Bill No.<br>N/A    |  |                                      |   |             |                             |          |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>Radiation<br>SEE IATA Label Report<br>Special Handling and/or Storage<br>None |                 |   |             | Preservation                            |                                       | None                                     |                                      |   |             |                             |          |  |
|  |                 |   |             | Type of Container                       |                                       | aG                                       |                                      |   |             |                             |          |  |
|  |                 |   |             | No. of Container(s)                     |                                       | 1  |                                      |   |             |                             |          |  |
|  |                 |   |             | Volume                                  |                                       | 60mL                                     |                                      |   |             |                             |          |  |
| SAMPLE ANALYSIS  |                 |   |             |   | See item (1) in Special Instructions. |  |                                      |   |             |                             |          |  |
| Sample No.   | Matrix *        | Sample Date                                       | Sample Time |   |                                       |  |                                      |   |             |                             |          |  |
| 300 QW 2   | SOIL            | 1-31-03   | 1314        | X                                       | FG 2 QB                               |  |                                      |   |             |                             |          |  |
|  | SOIL            |   |             |   |                                       |  |                                      |   |             |                             |          |  |
|  | SOIL            |   |             |   |                                       |  |                                      |   |             |                             |          |  |
|  | SOIL            |   |             |   |                                       |  |                                      |   |             |                             |          |  |
|  | SOIL            |   |             |   |                                       |  |                                      |   |             |                             |          |  |
| CHAIN OF POSSESSION  |                 |   |             |   | Sign/Print Names                      |  | SPECIAL INSTRUCTIONS                 |   |             |                             | Matrix * |  |
| Relinquished By/Removed From<br>Doug Bowers Bowers   |                 | Date/Time<br>1-31-03/1500                         |             | Received By/Stored In<br>Jeff Lerch     |                                       | Date/Time<br>1-31-03/1500                |                                      | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |             |                             |          | S=Soil<br>SE=Sediment<br>SO=Solid<br>SI=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| Relinquished By/Removed From<br>300 FF-1 Sample Locker   |                 | Date/Time<br>2-3-03/0800                          |             | Received By/Stored In<br>Doug Bowers    |                                       | Date/Time<br>2-3-03/0800                 |                                      |   |             |                             |          |  |
| Relinquished By/Removed From<br>Doug Bowers Bowers   |                 | Date/Time<br>2-3-03/0920                          |             | Received By/Stored In<br>St. Heidelberg |                                       | Date/Time<br>2-3-03/0920                 |                                      |   |             |                             |          |  |
| 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                                |                                      |   |             |                             |          |  |
| LABORATORY SECTION   | Received By     |   |             | Title                                   |                                       |  | Date/Time                            |   |             |                             |          |  |
| FINAL SAMPLE DISPOSITION   | Disposal Method |   |             | Disposed By                             |                                       |  | Date/Time                            |   |             |                             |          |  |

# ERC RADIOLOGICAL SURVEY RECORD

Page 1 of 2

Type of Survey (check one only)

\*Release  Routine  Work Progress  Shipment

Survey #

RSR - FF2 - 03 - 0177

\* The potential for internal contamination was evaluated.

RWP # / Rev. #

N/A

Date

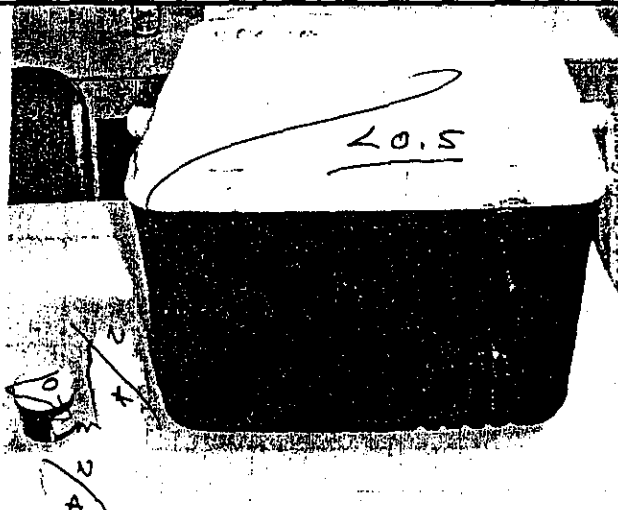
2.3.03

Time

0800

Location Code/Description

FF2 / Samples



60 mL  
X 14

WORK PROGRESS SURVEY OF SAMPLE CONTAINERS

COPY

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-SR-16

|                          |                    |     |                         |     |                          |               |   |     |                                 |          |                         |     |                     |      |                          |     |                         |      |                                   |
|--------------------------|--------------------|-----|-------------------------|-----|--------------------------|---------------|---|-----|---------------------------------|----------|-------------------------|-----|---------------------|------|--------------------------|-----|-------------------------|------|-----------------------------------|
| CA                       | Contamination Area | HCA | High Contamination Area | RBA | Radiological Buffer Area | ARA           | Airborne Radioactivity Area                                 | RMA | Radioactive Materials Area      | RA       | Radiation Area          | HRA | High Radiation Area | VHRA | Very High Radiation Area |     |                         |      |                                   |
| <input type="checkbox"/> | Technical Smear    | #   | Direct                  | M   | Large Area Wipe          | Contact 30 cm | General Area Dose Rates - Uncorrected Meter Reading (mR/hr) |     | Radiological Boundary X---X---X | $\Delta$ | Micro Rem ( $\mu$ R/hr) | N   | Neutrons (mRem/hr)  | (AS) | Air Sample Location      | SCA | Soil Contamination Area | RMSA | Radioactive Material Storage Area |

### Instruments

| Model          | Serial #     | Source <input checked="" type="checkbox"/> (Initial) | CF         | Cal Due Date | Model | Serial # | Source <input checked="" type="checkbox"/> (Initial) | CF | Cal Due Date |
|----------------|--------------|--|------------|--------------|-------|----------|--|----|--------------|
| CMNE3<br>DPLBP | 0006<br>0042 | BRM  | 0.8<br>4.8 | 10.10.03     |       | N        |  |    |              |
| R020           | 0044         | BRM  | 5/6        | 11.26.03     |       | A        |  |    |              |

RCT Name/Signature/Date:

BILL MURPHY  
12:15 pm  
2.3.03

RCT Supervisor Name/Signature/Date:

# ERC RADIOLOGICAL SURVEY RECORD (continuation)

## Contamination Measurement Information

Circled values indicate Removable  $\beta$  contamination in mrad/hr  $\beta$

| No.   | Description of Item or Location | Removable (dpm/100 cm <sup>2</sup> ) |              |                    |                        | Total (dpm/100 cm <sup>2</sup> ) |              |                    |                        |
|---|---------------------------------|--------------------------------------|--------------|--------------------|------------------------|----------------------------------|--------------|--------------------|------------------------|
|   |                                 | $\alpha$                             | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F | $\alpha$                         | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F |
|   | ALL LAWS                        | N/A                                  | →            | < 1K               | 4.8                    | N/A                              |              |                    |                        |
| <div style="position: relative; height: 100px;"> <span style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em;">N</span> <span style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em;">A</span> </div> |                                 |                                      |              |                    |                        |                                  |              |                    |                        |

COPY

## Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

| Location  | Contact Readings                       |                                  | 30 cm Readings                         |                                  |
|---|--|----------------------------------|--|----------------------------------|
|   | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR |
| Samples / Cooler  | (20.5 - 20.5) 5 = 20.5                 | (20.5) 5 = 20.5                  | N/A                                    | N/A                              |
| <div style="position: relative; height: 100px;"> <span style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em;">N</span> <span style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em;">A</span> </div> |  |                                  |  |                                  |

Additional Information

(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

COPY

Sample # J00DF7, J00CP7

$$\frac{433 - 258}{4} = 44 \text{ pCi/gm}$$

Sample # J00DF8, J00CP8

$$\frac{490 - 258}{4} = 58 \text{ pCi/gm}$$

Sample # J00DF9, J00CP9

$$\frac{427 - 258}{4} = 42 \text{ pCi/gm}$$

Sample # J00DH0, J00CR0

$$\frac{444 - 258}{4} = 47 \text{ pCi/gm}$$

Sample # J00DH1, J00CR1

$$\frac{474 - 258}{4} = 54 \text{ pCi/gm}$$

Sample # J00DH2, J00CR2

$$\frac{430 - 258}{4} = 43 \text{ pCi/gm}$$

Sample # J00DM0, J00BT0

$$\frac{400 - 258}{4} = 36 \text{ pCi/gm}$$

Sample #           ,           

$$\frac{-}{4} = \text{          } \text{ pCi/gm}$$

Sample #           ,           

$$\frac{A}{4} = \text{          } \text{ pCi/gm}$$

Sample #           ,           

$$\frac{-}{4} = \text{          } \text{ pCi/gm}$$



Sample Check-in List

Date/Time Received: 2-3 0915
Client: BATH SDG #: W039LD NA [] SAF #: B02-023 NA []
Work Order Number: J5B030124 Chain of Custody # B02-023-03
Shipping Container ID: ERC 96-082 Air Bill # B02-066-02

- 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: NA [X] 5. Vermiculite/packing materials is NA [X] Wet [] Dry []
6. Number of samples in shipping container: 7
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]
12. Were any anomalies identified in sample receipt? Yes [] No [X]
13. Description of anomalies (include sample numbers):

Sample Custodian: Aliduberg Date: 2-3-03

Table with 4 columns: Client Sample ID, Analysis Requested, Condition, Comments/Action

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

[ ] No action necessary; process as is.

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

| Bechtel Hanford Inc.  |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST                     |             |   |  | B02-066-02  |  | Page 1 of 1                        |  |  |  |
|---|----------|--|-------------|---|--|---|--|------------------------------------|--|--|--|
| Collector<br>Doug Bowers   <i>Falkenberg</i>  |          | Company Contact<br>Jeff Lerch                                |             | Telephone No.<br>373-5904                     |  | Project Coordinator<br>KESSNER, JH  |  | Price Code                         |  |  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals  |          | Sampling Location<br>300-FF-1 618-5 Burial Ground <i>23D</i> |             | SAF No.<br>B02-066                            |  | Air Quality <input type="checkbox"/>  |  | Data Turnaround<br><b>24 Hours</b> |  |  |  |
| Ice Chest No.<br><i>ERC 97-579</i>  |          | Field Logbook No.<br>EL 1395-6                               |             | COA<br>RG618529W0                             |  | Method of Shipment<br>Government Vehicle  |  |                                    |  |  |  |
| Shipped To<br>Savern Trent Incorporated, Richland   |          | Offsite Property No.<br><i>NA</i>                            |             |   | Bill of Lading/Air Bill No.<br><i>NA</i> |   |  |                                    |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br><i>Radioactive</i><br><i>See attached report</i><br>Special Handling and/or Storage<br><i>None</i> |          |  |             | Preservation                                  | None                                     |   |  |                                    |  |  |  |
|   |          |  |             | Type of Container                             | aG                                       |   |  |                                    |  |  |  |
|   |          |  |             | No. of Container(s)                           | 1  |   |  |                                    |  |  |  |
|   |          |  |             | Volume  | 60mL                                     |   |  |                                    |  |  |  |
| <i>SDG</i><br><i>W03960</i><br>SAMPLE ANALYSIS<br><i>Due 3-14</i><br><i>J3B060320</i>   |          |  |             | See item (1) in Special Instructions.         |  |   |  |                                    |  |  |  |
| Sample No.  | Matrix * | Sample Date  | Sample Time |   |  |   |  |                                    |  |  |  |
| <i>J00DH3</i>   | SOIL     | <i>2.6.03</i>  | <i>0930</i> | <i>X</i>                                      | <i>FG8</i>                               | <i>VW</i>   |  |                                    |  |  |  |
| <i>J00DH4</i>   | SOIL     | <i>2.6.03</i>  | <i>0932</i> | <i>X</i>                                      | <i>FG8</i>                               | <i>V3</i>   |  |                                    |  |  |  |
| <i>J00DH5</i>   | SOIL     | <i>2.6.02</i>  | <i>0934</i> | <i>X</i>                                      | <i>FG8</i>                               | <i>V5</i>   |  |                                    |  |  |  |
|   | SOIL     |  |             |   |  |   |  |                                    |  |  |  |
|   | SOIL     |  |             |   |  |   |  |                                    |  |  |  |
| CHAIN OF POSSESSION   |          |  |             | Sign/Print Names                              |  | SPECIAL INSTRUCTIONS  |  |                                    |  |  |  |
| Relinquished By/Removed From<br><i>R. Falkenberg</i>  |          | Date/Time<br><i>2.6.03</i>                                   |             | Received By/Stored In<br><i>A. Rhineheart</i> |  | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |  |                                    |  |  |  |
| Date/Time   |          | Date/Time  |             | Date/Time                                     |  |   |  |                                    |  |  |  |
| Date/Time   |          | Date/Time  |             | Date/Time                                     |  |   |  |                                    |  |  |  |
| Date/Time   |          | Date/Time  |             | Date/Time                                     |  |   |  |                                    |  |  |  |
| Date/Time   |          | Date/Time  |             | Date/Time                                     |  |   |  |                                    |  |  |  |
| LABORATORY SECTION  |          | Received By  |             | Title   |  | Date/Time   |  |                                    |  |  |  |
| FINAL SAMPLE DISPOSITION  |          | Disposal Method  |             | Disposed By                                   |  | Date/Time   |  |                                    |  |  |  |

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| Bechtel Hanford Inc.  |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |   |  |                                  | B02-066-02   |  | Page 1 of 1                          |  |
|---|-----------------|---|---|--|----------------------------------|--|--|--------------------------------------|--|
| Collector<br>Doug Bowers / <i>Fehlberg</i>                              |                 | Company Contact<br>Jeff Lerch                     |   | Telephone No.<br>373-5904                |                                  | Project Coordinator<br>KESSNER, JH   |  | Price Code                           |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals          |                 | Sampling Location<br>300-FF-1 618-5 Burial Ground |   | <i>ZID</i>                               |                                  | SAF No.<br>B02-066   |  | Air Quality <input type="checkbox"/> |  |
| Ice Chest No.<br><i>ERC 97079</i>                                       |                 | Field Logbook No.<br>EL 1395-6                    |   | COA<br>RG618529W0                        |                                  | Method of Shipment<br>Government Vehicle   |  |                                      |  |
| Shipped To<br>Severn Trent Incorporated, Richland                       |                 | Offsite Property No.<br><i>NA</i>                 |   | Bill of Lading/Air Bill No.<br><i>NA</i> |                                  |  |  |                                      |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br><i>Refer to Site attached Report</i> |                 |   | Preservation                                  | None                                     |                                  |  |  |                                      |  |
| Special Handling and/or Storage<br><i>None</i>                          |                 |   | Type of Container                             | aG                                       |                                  |  |  |                                      |  |
|   |                 |   | No. of Container(s)                           | 1  |                                  |  |  |                                      |  |
|   |                 |   | Volume  | 60mL                                     |                                  |  |  |                                      |  |
| SAMPLE ANALYSIS   |                 |   | See item (1) in Special Instructions.         |  |                                  |  |  |                                      |  |
| Sample No.  | Matrix *        | Sample Date                                       | Sample Time                                   |  |                                  |  |  |                                      |  |
| <i>J00DH6</i>   | SOIL            | <i>2.6.03</i>                                     | <i>0938</i>                                   | <i>X</i>                                 | <i>FG-8V8</i>                    |  |  |                                      |  |
| <i>J00DH7</i>   | SOIL            | <i>2.6.03</i>                                     | <i>0940</i>                                   | <i>X</i>                                 | <i>FG-8WA</i>                    |  |  |                                      |  |
| <i>J00DH8</i>   | SOIL            | <i>2.6.03</i>                                     | <i>0942</i>                                   | <i>X</i>                                 | <i>FG-8WC</i>                    |  |  |                                      |  |
|   | SOIL            |   |   |  |                                  |  |  |                                      |  |
|   | SOIL            |   |   |  |                                  |  |  |                                      |  |
| CHAIN OF POSSESSION   |                 |   | Sign/Print Names                              |  |                                  | SPECIAL INSTRUCTIONS   |  |                                      | Matrix *   |
| Relinquished By/Removed From<br><i>R. Fehlberg</i>                      |                 | Date/Time<br><i>2.6.03 1350</i>                   | Received By/Stored In<br><i>A. Rhineheart</i> |  | Date/Time<br><i>2/10/02 1350</i> | (1) ICP Metals - 6010A (Supertace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |  |                                      | S=Soil<br>SE=Sediment<br>SO=Solid<br>SI=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| 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                        |  |  |                                      |  |
| Relinquished By/Removed From  |                 | Date/Time   | Received By/Stored In                         |  | Date/Time                        |  |  |                                      |  |
| Relinquished By/Removed From  |                 | Date/Time   | Received By/Stored In                         |  | Date/Time                        |  |  |                                      |  |
| LABORATORY SECTION  | Received By     |   | Title   |  |                                  | Date/Time  |  |                                      |  |
| FINAL SAMPLE DISPOSITION  | Disposal Method |   | Disposed By                                   |  |                                  | Date/Time  |  |                                      |  |

| Bechtel Hanford Inc.  |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |   |              | B02-066-02  |  | Page 1 of 1  |  |           |  |
|---|----------|---|-------------|---|--------------|---|--|--|--|-----------|--|
| Collector<br>Doug Bowers / <i>Fahlberg</i>  |          | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904                       |              | Project Coordinator<br>KESSNER, JH  |  | Price Code   |  |           |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals  |          | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | 22D   |              | SAF No.<br>B02-066  |  | Air Quality <input type="checkbox"/> Data Turnaround<br>24 Hours |  |           |  |
| Ice Chest No.<br><i>ERC 97079</i>   |          | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                               |              | Method of Shipment<br>Government Vehicle  |  |  |  |           |  |
| Shipped To<br>Savern Trent Incorporated, Richland   |          | Offsite Property No.<br><i>NA</i>                 |             | Bill of Lading/Air Bill No.<br><i>NA</i>        |              |   |  |  |  |           |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br><i>Radioactive</i><br><i>See Attached Report</i><br><br>Special Handling and/or Storage<br><i>None</i> |          |   |             | Preservation                                    | None         |   |  |  |  |           |  |
|   |          |   |             | Type of Container                               | aG           |   |  |  |  |           |  |
|   |          |   |             | No. of Container(s)                             | 1            |   |  |  |  |           |  |
|   |          |   |             | Volume  | 60mL         |   |  |  |  |           |  |
| SAMPLE ANALYSIS   |          |   |             | See item (1) in Special Instructions.           |              |   |  |  |  |           |  |
| Sample No.  | Matrix * | Sample Date                                       | Sample Time |   |              |   |  |  |  |           |  |
| <i>J00 DH9</i>  | SOIL     | <i>2-6-03</i>                                     | <i>0946</i> | <i>X</i>  | <i>FG8WE</i> |   |  |  |  |           |  |
| <i>J00 DJ0</i>  | SOIL     | <i>2-6-03</i>                                     | <i>0948</i> | <i>X</i>  | <i>FG8WJ</i> |   |  |  |  |           |  |
| <i>J00 DJ1</i>  | SOIL     | <i>2-6-03</i>                                     | <i>0950</i> | <i>X</i>  | <i>FG8WL</i> |   |  |  |  |           |  |
| <i>J00 DJ2</i>  | SOIL     | <i>2-6-03</i>                                     | <i>0952</i> | <i>X</i>  | <i>FG8WM</i> |   |  |  |  |           |  |
|   | SOIL     |   |             |   |              |   |  |  |  |           |  |
| CHAIN OF POSSESSION   |          |   |             | Sign/Print Names                                |              | SPECIAL INSTRUCTIONS  |  |  |  |           |  |
| Relinquished By/Removed From<br><i>R. P. O. De</i>  |          | Date/Time<br><i>2-6-03</i>                        |             | Received By/Stored In<br><i>A. F. Rhinehart</i> |              | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan<br><br>Matrix *<br>S=Soil<br>SE=Sediment<br>SO=Solid<br>SI=Sludge<br>W = Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |  |  |  |           |  |
| 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 |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                           |              |   |  |  |  | Date/Time |  |
| LABORATORY SECTION  |          | Received By                                       |             | Title   |              | Date/Time   |  |  |  |           |  |
| FINAL SAMPLE DISPOSITION  |          | Disposal Method                                   |             | Disposed By                                     |              | Date/Time   |  |  |  |           |  |

# ERC RADIOLOGICAL SURVEY RECORD

Type of Survey (check one only)

\*Release  Routine NA  Work Progress  Shipment

Survey #

RSR - FF2-03-0201

\* The potential for internal contamination was evaluated.

RWP # / Rev. #

NA

Date

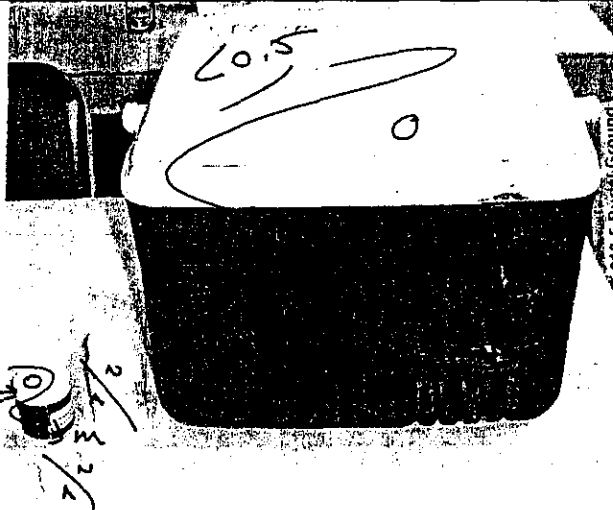
2.6.03

Time

1300

Location Code/Description

FF2 | SAMPLES FROM 618-5 PIT



60mL  
x 20

## WORK PROGRESS SURVEY OF SAMPLE CONTAINERS

COPY

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-SR-16

|  |                             |                              |                                 |   |                                   |                                  |                               |                          |                             |  |
|--|-----------------------------|------------------------------|---------------------------------|---|-----------------------------------|----------------------------------|-------------------------------|--------------------------|-----------------------------|--|
| CA Contamination Area                    | HCA High Contamination Area | RBA Radiological Buffer Area | ARA Airborne Radioactivity Area | RMA Radioactive Materials Area                              | RA Radiation Area                 | HRA High Radiation Area          | VHRA Very High Radiation Area |                          |                             |  |
| <input type="checkbox"/> Technical Smear | # Direct                    | M Large Area Wipe            | Contact 30 cm                   | General Area Dose Rates - Uncorrected Meter Reading (mR/hr) | Radiological Boundary X----X----X | $\Delta$ Micro Rem ( $\mu$ R/hr) | N Neutrons (mRem/hr)          | [AS] Air Sample Location | SCA Soil Contamination Area | RMSA Radioactive Material Storage Area |

### Instruments

| Model           | Serial #     | Source (Initial) | CF         | Cal Due Date | Model        | Serial #     | Source (Initial) | CF           | Cal Due Date |
|-----------------|--------------|------------------|------------|--------------|--------------|--------------|------------------|--------------|--------------|
| 2224-2<br>DP630 | 0007<br>0030 | BW               | 3.8<br>4.7 | 10.21.03     | <del> </del> | <del>N</del> | <del> </del>     | <del> </del> | <del> </del> |
| R020            | 0087         | com              | 4/5        | 11.26.03     | <del> </del> | <del>A</del> | <del> </del>     | <del> </del> | <del> </del> |

RCT Name/Signature/Date:

Bill Mercer  
12/1/03  
2.6.03

RCT Supervisor Name/Signature/Date:

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03 / 21

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

DEM  
2.6.03

Sample # J00DH3, J00CR3  $\frac{653 - 333}{4} = 80$  pCi/gm

Sample # J00DH4, J00CR4  $\frac{1022 - 333}{4} = 172$  pCi/gm

Sample # J00DH5, J00CR5  $\frac{696 - 333}{4} = 91$  pCi/gm

Sample # J00DH6, J00CR6  $\frac{660 - 333}{4} = 82$  pCi/gm

Sample # J00DH7, J00CR7  $\frac{677 - 333}{4} = 86$  pCi/gm

Sample # J00DH8, J00CR8  $\frac{730 - 333}{4} = 99$  pCi/gm

Sample # J00DH9, J00CR9  $\frac{499 - 333}{4} = 42$  pCi/gm

Sample # J00DJ0, J00CT0  $\frac{524 - 333}{4} = 48$  pCi/gm

Sample # J00DJ1, J00CT1  $\frac{501 - 333}{4} = 42$  pCi/gm

Sample # J00DJ2, J00CT2  $\frac{457 - 333}{4} = 31$  pCi/gm

COPY

# ERC RADIOLOGICAL SURVEY RECORD

Type of Survey (check one only)

\*Release  Routine N/A  Work Progress  Shipment

Survey #

RSR - FF2-03 - 0201

\* The potential for internal contamination was evaluated.

RWP # / Rev. #

N/A

Date

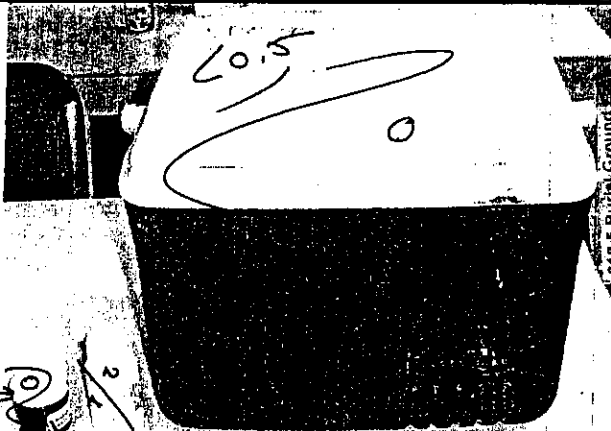
2.6.03

Time

1300

Location Code/Description

FF2 | SAMPLES FROM 418-S PIT



60mL  
X 20

WORK PROGRESS SURVEY OF SAMPLE CONTAINERS

COPY

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-SR-16

|                                       |   |                             |   |                              |               |   |  |                                 |                                  |                      |                          |                         |                         |  |  |
|---------------------------------------|---|-----------------------------|---|------------------------------|---------------|---|--|---------------------------------|----------------------------------|----------------------|--------------------------|-------------------------|-------------------------|--|--|
| CA Contamination Area                 |   | HCA High Contamination Area |   | RBA Radiological Buffer Area |               | ARA Airborne Radioactivity Area                             |  | RMA Radioactive Materials Area  |                                  | RA Radiation Area    |                          | HRA High Radiation Area |                         | VHRA Very High Radiation Area          |  |
| <input type="radio"/> Technical Smear | # | Direct                      | M | Large Area Wipe              | Contact 30 cm | General Area Dose Rates = Uncorrected Meter Reading (mR/hr) |  | Radiological Boundary X---X---X | $\Delta$ Micro Rem ( $\mu$ R/hr) | N Neutrons (mRem/hr) | [AS] Air Sample Location | SCA Contamination Area  | Soil Contamination Area | RMSA Radioactive Material Storage Area |  |

### Instruments

| Model           | Serial #     | Source $\checkmark$ (Initial) | CF         | Cal Due Date | Model | Serial # | Source $\checkmark$ (Initial) | CF | Cal Due Date |
|-----------------|--------------|-------------------------------|------------|--------------|-------|----------|-------------------------------|----|--------------|
| 2224-a<br>DP630 | 0007<br>0030 | B2m                           | 4.8<br>4.7 | 10.21.03     |       | N        |                               |    |              |
| R020            | 0087         | open                          | 6/5        | 11.26.03     |       | A        |                               |    |              |

RCT Name/Signature/Date:

Bruce Mercer  
Bruce Mercer  
2.6.03

RCT Supervisor Name/Signature/Date:

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03 / *2*

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

*26-03*

Sample # J00DH3, J00CR3  $\frac{653 - 333}{4} = 80$  pCi/gm

Sample # J00DH4, J00CR4  $\frac{1022 - 333}{4} = 172$  pCi/gm

Sample # J00DH5, J00CR5  $\frac{696 - 333}{4} = 91$  pCi/gm

Sample # J00DH6, J00CR6  $\frac{660 - 333}{4} = 82$  pCi/gm

Sample # J00DH7, J00CR7  $\frac{677 - 333}{4} = 86$  pCi/gm

Sample # J00DH8, J00CR8  $\frac{730 - 333}{4} = 99$  pCi/gm

Sample # J00DH9, J00CR9  $\frac{499 - 333}{4} = 42$  pCi/gm

Sample # J00DT0, J00CT0  $\frac{524 - 333}{4} = 49$  pCi/gm

Sample # J00DT1, J00CT1  $\frac{501 - 333}{4} = 42$  pCi/gm

Sample # J00DT2, J00CT2  $\frac{457 - 333}{4} = 31$  pCi/gm

COPY







Sample Check-in List

Date/Time Received: 2/6/03 @ 13:50 B02-023-03
Client: BHI SDG #: W03960 NA [] SAF #: B02-006 NA []
Work Order Number: J3B060320 Chain of Custody # B02-006-02, B02-023-02
Shipping Container ID: ERC-97-079 Air Bill # N/A

- 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: NA [X] 5. Vermiculite/packing materials is NA [] Wet [] Dry [X]
6. Number of samples in shipping container: 11
7. Sample holding times exceeded? NA [X] Yes [] No []
8. Samples have: [X] tape [X] hazard labels, [X] custody seals [X] appropriate samples labels
9. Samples are: [X] in good condition, [ ] broken, [ ] leaking, [ ] have air bubbles
10. Sample pH taken? NA [X] pH < 2 [ ] pH > 2 [ ]
11. Sample Location, Sample Collector Listed? \* Yes [X] No [ ]
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers):

Sample Custodian: [Signature] Date: 2/6/03

Table with 4 columns: Client Sample ID, Analysis Requested, Condition, Comments/Action

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

[ ] No action necessary; process as is.

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

| Bechtel Hanford Inc.  |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |   |  |                             | B02-066-02  |            | Page 1 of 1                 |  |           |  |
|---|-----------------|---|---|--|-----------------------------|---|------------|-----------------------------|--|-----------|--|
| Collector<br>Doug Bowers / <i>Fahlberg</i>                                    |                 | Company Contact<br>Jeff Lerch                     |   | Telephone No.<br>373-5904                  |                             | Project Coordinator<br>KESSNER, JH  |            | Price Code                  |  |           |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals                |                 | Sampling Location<br>300-FF-1 618-5 Burial Ground |   | SAF No.<br>B02-066                         |                             | Air Quality <input type="checkbox"/>  |            | Data Turnaround<br>24 Hours |  |           |  |
| Ice Chest No.<br><i>ERC-97-079</i>  |                 | Field Logbook No.<br>EL 1395-6                    |   | COA<br>RG618529W0                          |                             | Method of Shipment<br>Government Vehicle  |            |                             |  |           |  |
| Shipped To<br>Severn Trent Incorporated, Richland                             |                 | Offsite Property No.<br><i>None</i>               |   | Bill of Lading/Air Bill No.<br><i>None</i> |                             |   |            |                             |  |           |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br><i>Radioactive<br/>see attached Report</i> |                 |   | Preservation<br>None                          |  |                             |   |            |                             |  |           |  |
| Special Handling and/or Storage<br><i>None</i>                                |                 |   | Type of Container<br>aG                       |  |                             |   |            |                             |  |           |  |
|   |                 |   | No. of Container(s)<br>1                      |  |                             |   |            |                             |  |           |  |
|   |                 |   | Volume<br>60mL                                |  |                             |   |            |                             |  |           |  |
| <i>SDG</i>  |                 |   | See item (1) in Special Instructions.         |  |                             |   |            |                             |  |           |  |
| <i>W03960</i>   |                 |   | <i>Due 3-14</i>                               |  |                             |   |            |                             |  |           |  |
| <i>U3B110262</i>  |                 |   | SAMPLE ANALYSIS                               |  |                             |   |            |                             |  |           |  |
| Sample No.  | Matrix *        | Sample Date                                       | Sample Time                                   |  |                             |   |            |                             |  |           |  |
| <i>J00DJ3</i>   | SOIL            | <i>2-11-03</i>                                    | <i>1042</i>                                   | <i>X</i>                                   | <i>FHF</i>                  | <i>HJ</i>   | <i>31A</i> |                             |  |           |  |
| <i>J00DJ4</i>   | SOIL            | <i>2-11-03</i>                                    | <i>1044</i>                                   | <i>X</i>                                   | <i>FHF</i>                  | <i>HL</i>   | <i>31A</i> |                             |  |           |  |
| <i>J00DJ5</i>   | SOIL            | <i>2-11-03</i>                                    | <i>1046</i>                                   | <i>X</i>                                   | <i>FHF</i>                  | <i>HQ</i>   | <i>29A</i> |                             |  |           |  |
| <i>J00DJ6</i>   | SOIL            | <i>2-11-03</i>                                    | <i>1048</i>                                   | <i>X</i>                                   | <i>FHF</i>                  | <i>JG</i>   | <i>29A</i> |                             |  |           |  |
| <i>J00DJ7</i>   | SOIL            | <i>2-11-03</i>                                    | <i>1054</i>                                   | <i>X</i>                                   | <i>FHF</i>                  | <i>JI</i>   | <i>24P</i> |                             |  |           |  |
| CHAIN OF POSSESSION   |                 |   | Sign/Print Names                              |  | SPECIAL INSTRUCTIONS        |   |            |                             |  | Matrix *  |  |
| Relinquished By/Removed From<br><i>R. Fahlberg</i>                            |                 | Date/Time<br><i>2-11-03</i>                       | Received By/Stored In<br><i>A. Rinneheart</i> |  | Date/Time<br><i>2/11/03</i> | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |            |                             |  |           | S=Soil<br>SE=Sediment<br>SO=Solid<br>Sl=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>Wl=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| 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                   |   |            |                             |  |           |  |
| Relinquished By/Removed From  |                 | Date/Time   | Received By/Stored In                         |  | Date/Time                   |   |            |                             |  |           |  |
| Relinquished By/Removed From  |                 | Date/Time   | Received By/Stored In                         |  | Date/Time                   |   |            |                             |  |           |  |
| LABORATORY SECTION  | Received By     |   | Title   |  |                             |   |            |                             |  | Date/Time |  |
| FINAL SAMPLE DISPOSITION  | Disposal Method |   | Disposed By                                   |  |                             |   |            |                             |  | Date/Time |  |

| Bechtel Hanford Inc.  |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST                       |                     |   |               | B02-066-02                               |  | Page 1 of 1                 |  |  |
|---|-----------------|--|---------------------|---|---------------|--|--|-----------------------------|--|--|
| Collector<br>Doug Bowers / <i>Fahlberg</i>  |                 | Company Contact<br>Jeff Lerch                                  |                     | Telephone No.<br>373-5904   |               | Project Coordinator<br>KESSNER, JH       |  | Price Code                  |  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals                      |                 | Sampling Location<br>300-FF-1 618-5 Burial Ground              |                     | SAF No.<br>B02-066  |               | Air Quality <input type="checkbox"/>     |  | Data Turnaround<br>24 Hours |  |  |
| Ice Chest No.<br><i>ERC97079</i>  |                 | Field Logbook No.<br>EL 1395-6                                 |                     | COA<br>RG618529W0   |               | Method of Shipment<br>Government Vehicle |  |                             |  |  |
| Shipped To<br>Severn Trent Incorporated, Richland                                   |                 | Offsite Property No.<br><i>NA</i>                              |                     | Bill of Lading/Air Bill No.<br><i>NA</i>  |               |  |  |                             |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br><i>Radioactive</i><br><i>See attached Report</i> |                 |  | Preservation        | None  |               |  |  |                             |  |  |
| Special Handling and/or Storage<br><i>None</i>                                      |                 |  | Type of Container   | aG  |               |  |  |                             |  |  |
|   |                 |  | No. of Container(s) | 1   |               |  |  |                             |  |  |
|   |                 |  | Volume              | 60mL  |               |  |  |                             |  |  |
| SAMPLE ANALYSIS   |                 |  |                     | See item (1) in Special Instructions.   |               |  |  |                             |  |  |
| Sample No.  | Matrix *        | Sample Date  | Sample Time         |   |               |  |  |                             |  |  |
| <i>J00 DJ8</i>  | SOIL            | <i>2-11-03</i>   | <i>1056</i>         | <i>X</i>  | <i>FHF J2</i> | <i>240</i>                               |  |                             |  |  |
| <i>J00 DJ9</i>  | SOIL            | <i>2-11-03</i>   | <i>1230</i>         | <i>X</i>  | <i>FHF J4</i> | <i>250</i>                               |  |                             |  |  |
| <i>J00 D150</i>   | SOIL            | <i>2-11-03</i>   | <i>1232</i>         | <i>X</i>  | <i>FHF J5</i> | <i>250</i>                               |  |                             |  |  |
|   | SOIL            |  |                     |   |               |  |  |                             |  |  |
|   | SOIL            |  |                     |   |               |  |  |                             |  |  |
| CHAIN OF POSSESSION   |                 | Sign/Print Names   |                     | SPECIAL INSTRUCTIONS  |               |  |  |                             |  | Matrix *   |
| Relinquished By/Removed From <i>ERC</i> Date/Time <i>1450</i>                       |                 | Received By/Stored In <i>STL 2100 AM</i> Date/Time <i>1450</i> |                     | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |               |  |  |                             |  | S=Soil<br>SE=Sediment<br>SO=Solid<br>St=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>Wt=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| <i>R. F. Kelly R. F. Kelly</i> Date/Time <i>2-11-03</i>                             |                 | <i>A. Rhineheart</i> Date/Time <i>2/11/03</i>                  |                     |   |               |  |  |                             |  |  |
| Relinquished By/Removed From  |                 | Received By/Stored In  |                     |   |               |  |  |                             |  |  |
| Relinquished By/Removed From  |                 | Received By/Stored In  |                     |   |               |  |  |                             |  |  |
| Relinquished By/Removed From  |                 | Received By/Stored In  |                     |   |               |  |  |                             |  |  |
| Relinquished By/Removed From  |                 | Received By/Stored In  |                     |   |               |  |  |                             |  |  |
| LABORATORY SECTION  | Received By     | Title  |                     | Date/Time   |               |  |  |                             |  |  |
| FINAL SAMPLE DISPOSITION  | Disposal Method | Disposed By  |                     | Date/Time   |               |  |  |                             |  |  |

48

# ERC RADIOLOGICAL SURVEY RECORD

Type of Survey (check one only)

\*Release  Routine N/A  Work Progress  Shipment

Survey #

RSR - FF2-03-0232

\* The potential for internal contamination was evaluated.

RWP # / Rev. #

FF2-02-010 REV 00

Date

02/11/03

Time

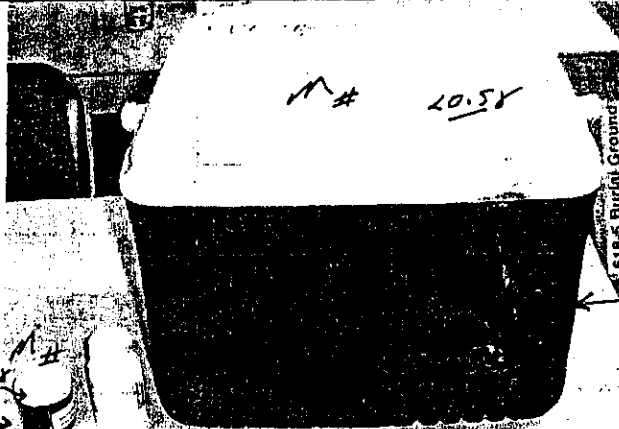
1330

Location Code/Description

FF2/618-5

60 ml bottle  
x 16

10.58



WORK PROGRESS SURVEY OF SAMPLE CONTAINERS,

along with transport chest.

## COPY

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-512-16

|                       |                    |     |                         |     |                          |               |   |     |                                 |          |                         |     |                     |      |                          |     |                         |      |                                   |
|-----------------------|--------------------|-----|-------------------------|-----|--------------------------|---------------|---|-----|---------------------------------|----------|-------------------------|-----|---------------------|------|--------------------------|-----|-------------------------|------|-----------------------------------|
| CA                    | Contamination Area | HCA | High Contamination Area | RBA | Radiological Buffer Area | ARA           | Airborne Radioactivity Area                                 | RMA | Radioactive Materials Area      | RA       | Radiation Area          | HRA | High Radiation Area | VHRA | Very High Radiation Area |     |                         |      |                                   |
| <input type="radio"/> | Technical Smear    | #   | Direct                  | M   | Large Area Wipe          | Contact 30 cm | General Area Dose Rates - Uncorrected Meter Reading (mR/hr) |     | Radiological Boundary X---X---X | $\Delta$ | Micro Rem ( $\mu$ R/hr) | N   | Neutrons (mRem/hr)  | [AS] | Air Sample Location      | SCA | Soil Contamination Area | RMSA | Radioactive Material Storage Area |

### Instruments

| Model   | Serial #                        | Source $\checkmark$ (Initial) | CF        | Cal Due Date | Model | Serial # | Source $\checkmark$ (Initial) | CF | Cal Due Date |
|---------|---------------------------------|-------------------------------|-----------|--------------|-------|----------|-------------------------------|----|--------------|
| L2224-2 | 0007<br><del>0007</del> SH      | SH                            | N/A       | 10-21-03     | RW-20 |          |                               |    |              |
| DP68D   | 0030 2.11.03<br>0075 SH 2.11.03 | SH                            | AY<br>4.7 | 10-21-03     | N/A   |          |                               |    |              |

RCT Name/Signature/Date:

*SJ Huddleston*  
02-11-03  
*SJ Huddleston*

RCT Supervisor Name/Signature/Date:

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

Sample # J00053, J000T3  $\frac{478 - 273}{4} = 51$  pCi/gm

Sample # J00054, J000T4  $\frac{476 - 273}{4} = 51$  pCi/gm

Sample # J00055, J000T5  $\frac{445 - 273}{4} = 43$  pCi/gm

Sample # J00056, J000T6  $\frac{447 - 273}{4} = 44$  pCi/gm

Sample # J00057, J000T7  $\frac{919 - 273}{4} = 162$  pCi/gm

Sample # J00058, J000T8  $\frac{1029 - 273}{4} = 189$  pCi/gm

Sample # J00059, J000T9  $\frac{827 - 273}{4} = 139$  pCi/gm

Sample # J00060, J000T0  $\frac{1084 - 273}{4} = 203$  pCi/gm

Sample #       ,         $\frac{-}{4} =$  pCi/gm

Sample #       ,         $\frac{-}{4} =$  pCi/gm

COPY

N  
A

N  
A



Sample Check-in List

Date/Time Received: 2/11/03 @ 14:50  
Client: BHT SDG #: W03960 NA [] SAF #: B02-066 NA []  
Work Order Number: J3B1102102 Chain of Custody # B02-066-02  
Shipping Container ID: ER-97-079 Air Bill # N/A

- 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: N/A 5. Vermiculite/packing materials is NA [] Wet [] Dry [X]
- 6. Number of samples in shipping container: 8
- 7. Sample holding times exceeded? N/A [X] Yes [] No []
- 8. Samples have: [X] tape [X] hazard labels [X] custody seals [X] appropriate samples labels
- 9. Samples are: [X] 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 [X] No [ ] \*For documentation only. No corrective action needed.
- 12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
- 13. Description of anomalies (include sample numbers):

Sample Custodian: [Signature] Date: 2/11/03

| Client Sample ID | Analysis Requested | Condition | Comments/Action |
|------------------|--------------------|-----------|-----------------|
|                  |                    |           |                 |
|                  |                    |           |                 |
|                  |                    |           |                 |

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

[ ] No action necessary; process as is.

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

| Bechtel Hanford Inc.  |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |   |              | B02-066-02                               |            | Page 1 of 1                 |  |
|---|----------|---|-------------|---|--------------|--|------------|-----------------------------|--|
| Collector<br>Doug Bowers <i>Fahlberg</i>                                      |          | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904                                 |              | Project Coordinator<br>KESSNER, JH       |            | Price Code                  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals                |          | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066  |              | Air Quality <input type="checkbox"/>     |            | Data Turnaround<br>24 Hours |  |
| Ice Chest No.<br><i>ERC 97-079</i>  |          | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0   |              | Method of Shipment<br>Government Vehicle |            |                             |  |
| Shipped To<br>Severn Trent Incorporated, Richland                             |          | Offsite Property No.<br><i>NA</i>                 |             | Bill of Lading/Air Bill No.<br><i>NA</i>                  |              |  |            |                             |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br><i>Radioactive<br/>See Attached Report</i> |          |   |             | Preservation<br>None                                      |              |  |            |                             |  |
| Special Handling and/or Storage<br><i>None</i>                                |          |   |             | Type of Container   |              |  |            |                             |  |
|   |          |   |             | No. of Container(s)                                       |              |  |            |                             |  |
|   |          |   |             | Volume  |              | 60mL                                     |            |                             |  |
| SDG<br>W03960   |          |   |             | SAMPLE ANALYSIS<br><i>Due 3-14-03</i><br><i>J3B140264</i> |              | See item (1) in Special Instructions.    |            |                             |  |
| Sample No.  | Matrix * | Sample Date                                       | Sample Time |   |              |  |            |                             |  |
| <i>J00 DK1</i>  | SOIL     | <i>2-14-03</i>                                    | <i>0916</i> | <i>X</i>  | <i>FHML3</i> |  | <i>33A</i> |                             |  |
| <i>J00 DK2</i>  | SOIL     | <i>2-14-03</i>                                    | <i>0920</i> | <i>X</i>  | <i>FHML7</i> |  | <i>32A</i> |                             |  |
| <i>J00 DK3</i>  | SOIL     | <i>2-14-03</i>                                    | <i>0922</i> | <i>X</i>  | <i>FHML8</i> |  | <i>32A</i> |                             |  |
| <i>J00 DK4</i>  | SOIL     | <i>2-14-03</i>                                    | <i>0940</i> | <i>X</i>  | <i>FHML9</i> |  | <i>36</i>  |                             |  |
| <i>J00 DK5</i>  | SOIL     | <i>2-14-03</i>                                    | <i>0944</i> | <i>X</i>  | <i>FHMLA</i> |  | <i>37</i>  |                             |  |
| CHAIN OF POSSESSION   |          |   |             | Sign/Print Names  |              | SPECIAL INSTRUCTIONS                     |            |                             |  |
| Relinquished By/Removed From<br><i>R. F. Lee</i>                              |          | Date/Time<br><i>2-14-03 1130</i>                  |             | Received By/Stored In<br><i>T. Heidelberg</i>             |              | Date/Time<br><i>2-14-03 1130</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                                |            |                             |  |
| 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                                |            |                             |  |
| LABORATORY SECTION  |          | Received By                                       |             | Title   |              |  |            | Date/Time                   |  |
| FINAL SAMPLE DISPOSITION  |          | Disposal Method                                   |             | Disposed By   |              |  |            | Date/Time                   |  |

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| Bechtel Hanford Inc.  |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |   |               | B02-066-02                               |           | Page 1 of 1   |  |  |  |
|---|----------|---|-------------|---|---------------|--|-----------|---|--|--|--|
| Collector<br>Doug Bowers / <i>Falkberg</i>  |          | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904                     |               | Project Coordinator<br>KESSNER, JH       |           | Price Code  |  |  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals  |          | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066                            |               | Air Quality <input type="checkbox"/>     |           | Data Turnaround<br><b>24 Hours</b>  |  |  |  |
| Ice Chest No.<br><i>ERC 97-079</i>  |          | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                             |               | Method of Shipment<br>Government Vehicle |           |   |  |  |  |
| Shipped To<br>Severn Trent Incorporated, Richland   |          | Offsite Property No.<br><i>NA</i>                 |             | Bill of Lading/Air Bill No.<br><i>NA</i>      |               |  |           |   |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br><i>Radioactive</i><br><i>see Attached Report</i><br><br>Special Handling and/or Storage<br><i>None</i> |          |   |             | Preservation                                  | None          |  |           |   |  |  |  |
|   |          |   |             | Type of Container                             | aG            |  |           |   |  |  |  |
|   |          |   |             | No. of Container(s)                           | 1             |  |           |   |  |  |  |
|   |          |   |             | Volume  | 60mL          |  |           |   |  |  |  |
| SAMPLE ANALYSIS   |          |   |             | See item (1) in Special Instructions.         |               |  |           |   |  |  |  |
| Sample No.  | Matrix * | Sample Date                                       | Sample Time |   |               |  |           |   |  |  |  |
| <i>J00D156</i>  | SOIL     | <i>2-14-03</i>                                    | <i>0948</i> | <i>X</i>                                      | <i>FHMMIE</i> |  | <i>38</i> |   |  |  |  |
| <i>J00DK7</i>   | SOIL     | <i>2-14-03</i>                                    | <i>0952</i> | <i>X</i>                                      | <i>FHMMG</i>  |  | <i>39</i> |   |  |  |  |
|   | SOIL     |   |             |   |               |  |           |   |  |  |  |
|   | SOIL     |   |             |   |               |  |           |   |  |  |  |
|   | SOIL     |   |             |   |               |  |           |   |  |  |  |
| CHAIN OF POSSESSION   |          |   |             | SPECIAL INSTRUCTIONS                          |               |  |           | Matrix *  |  |  |  |
| Relinquished By/Removed From<br><i>R. Falkberg</i>  |          | Date/Time<br><i>2-14-03</i>                       |             | Received By/Stored In<br><i>T. Heidelberg</i> |               | Date/Time<br><i>2-14-03</i>              |           | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan<br><br>S=Soil<br>SE=Sediment<br>SO=Solid<br>SL=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |  |  |  |
| 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                                |           |   |  |  |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                         |               | Date/Time                                |           |   |  |  |  |
| LABORATORY SECTION  |          | Received By                                       |             | Title   |               | Date/Time                                |           |   |  |  |  |
| FINAL SAMPLE DISPOSITION  |          | Disposal Method                                   |             | Disposed By                                   |               | Date/Time                                |           |   |  |  |  |

# ERC RADIOLOGICAL SURVEY RECORD

Page 1 of 3

Type of Survey (check one only)

\*Release  Routine N/A  Work Progress  Shipment

Survey #

RSR - FF2-03-0255

\* The potential for internal contamination was evaluated.

RWP # / Rev. #

FF2-02-010 REV 00

Date

02-14-03

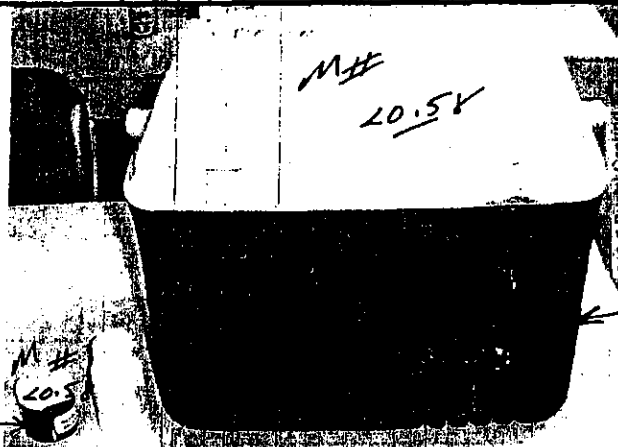
Time

1030

Location Code/Description

FF2/618-5

60 ml  
Sample Bottle  
x 14



## WORK PROGRESS SURVEY OF SAMPLE CONTAINERS

# COPY

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-SR-16

| CA                    | Contamination Area | HCA | High Contamination Area | RBA | Radiological Buffer Area | ARA     | Airborne Radioactivity Area                                 | RMA                   | Radioactive Materials Area | RA       | Radiation Area          | HRA | High Radiation Area | VHRA | Very High Radiation Area |     |                         |      |                                   |
|-----------------------|--------------------|-----|-------------------------|-----|--------------------------|---------|---|-----------------------|----------------------------|----------|-------------------------|-----|---------------------|------|--------------------------|-----|-------------------------|------|-----------------------------------|
| <input type="radio"/> | Technical Smear    | #   | Direct                  | M   | Large Area Wipe          | Contact | General Area Dose Rates - Uncorrected Meter Reading (mR/hr) | Radiological Boundary | X-----X-----X              | $\Delta$ | Micro Rem ( $\mu$ R/hr) | N   | Neutrons (mRem/hr)  | [AS] | Air Sample Location      | SCA | Soil Contamination Area | RMSA | Radioactive Material Storage Area |

### Instruments

| Model    | Serial # | Source $\checkmark$ (Initial) | CF  | Cal Due Date | Model | Serial # | Source $\checkmark$ (Initial) | CF | Cal Due Date |
|----------|----------|-------------------------------|-----|--------------|-------|----------|-------------------------------|----|--------------|
| L 2224-Z | 0072     | SA                            | N/A | 11-08-03     | RU-20 | 0089     | SA                            | 1  | 11-28-03     |
| DP6BD    | 0071     | SA                            | 8   | 11-08-03     | N/A   |          |                               |    | →            |

RCT Name/Signature/Date:

*[Signature]*

*[Signature]*

RCT Supervisor Name/Signature/Date:

# ERC RADIOLOGICAL SURVEY RECORD (continuation)

## Contamination Measurement Information

Circled values indicate Removable  $\beta$  contamination in mrad/hr  $\beta$

| No. | Description of Item or Location | Removable (dpm/100 cm <sup>2</sup> ) |              |                    |                        | Total (dpm/100 cm <sup>2</sup> ) |              |                    |                        |
|-----|---------------------------------|--------------------------------------|--------------|--------------------|------------------------|----------------------------------|--------------|--------------------|------------------------|
|     |                                 | $\alpha$                             | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F | $\alpha$                         | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F |
| M # | ALL LAWS / DIRECTS              | N/A                                  | →            | 11000              |                        | N/A                              | →            | 15000              |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|     |                                 |                                      |              |                    |                        |                                  |              |                    |                        |

COPY

## Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

| Location       | Contact Readings                       |                                  | 30 cm Readings                         |                                  |
|----------------|--|----------------------------------|--|----------------------------------|
|                | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR |
| ALL DOSE RATES | N/A                                    | 10.5                             | N/A                                    | N/A                              |
|                |  |                                  |  |                                  |
|                |  |                                  |  |                                  |
|                |  |                                  |  |                                  |
|                |  |                                  |  |                                  |
|                |  |                                  |  |                                  |
|                |  |                                  |  |                                  |
|                |  |                                  |  |                                  |
|                |  |                                  |  |                                  |
|                |  |                                  |  |                                  |

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

COPY

Sample # J000K1, J00CV1

$$\frac{542 - 376}{4} = 42 \text{ pCi/gm}$$

Sample # J000K2, J00CV2

$$\frac{452 - 376}{4} = 19 \text{ pCi/gm}$$

Sample # J000K3, J00CV3

$$\frac{469 - 376}{4} = 23 \text{ pCi/gm}$$

Sample # J000K4, J00CV4

$$\frac{1154 - 376}{4} = 195 \text{ pCi/gm}$$

Sample # J000K5, J00CV5

$$\frac{1214 - 376}{4} = 210 \text{ pCi/gm}$$

Sample # J000K6, J00CV6

$$\frac{886 - 376}{4} = 128 \text{ pCi/gm}$$

Sample # J000K7, J00CV7

$$\frac{1104 - 376}{4} = 182 \text{ pCi/gm}$$

Sample # \_\_\_\_\_, \_\_\_\_\_

$$\frac{N}{4} = \text{pCi/gm}$$

Sample # \_\_\_\_\_, \_\_\_\_\_

$$\frac{A}{4} = \text{pCi/gm}$$

Sample # \_\_\_\_\_, \_\_\_\_\_

$$\frac{-}{4} = \text{pCi/gm}$$



Sample Check-in List

Date/Time Received: 2-14 1130

Client: BHI SDG #: W039160 NA [ ] SAF #: B02-066 NA [ ]

Work Order Number: 13B140264 Chain of Custody # B02-066-03

Shipping Container ID: ERC 97-079 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: \_\_\_\_\_ NA [ ]  5. Vermiculite/packing materials is NA  Wet [ ] Dry [ ]
6. Number of samples in shipping container: 7
7. Sample holding times exceeded? NA [ ] Yes [ ] No
8. Samples have:
  - tape
  - custody seals
  - hazard labels
  - appropriate samples labels
9. Samples are:
  - in good condition
  - broken
  - leaking
  - have air bubbles
 (Only for samples requiring head space)
10. Sample pH taken? NA  pH < 2 [ ] pH > 2 [ ]
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: Heidelberg Date: 2-14-03

| Client Sample ID | Analysis Requested | Condition | Comments/Action |
|------------------|--------------------|-----------|-----------------|
|                  |                    |           |                 |
|                  |                    |           |                 |
|                  |                    |           |                 |

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

[ ] No action necessary; process as is.

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

| Bechtel Hanford Inc.   |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |  |       | B02-066-02                               |  | Page 1 of 1   |  |
|--|----------|---|-------------|--|-------|--|--|---|--|
| Collector<br>Doug Bowers                                       |          | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904                |       | Project Coordinator<br>KESSNER, JH       |  | Price Code  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals |          | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066                       |       | Air Quality <input type="checkbox"/>     |  | Data Turnaround<br>24 Hours   |  |
| Ice Chest No.<br>EAC 96-082                                    |          | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                        |       | Method of Shipment<br>Government Vehicle |  |   |  |
| Shipped To<br>Severn Trent Incorporated, Richland              |          | Offsite Property No.<br>N/A                       |             | Bill of Lading/Air Bill No.<br>N/A       |       |  |  |   |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS                                |          |   |             | Preservation                             |       | None                                     |  |   |  |
| Special Handling and/or Storage                                |          |   |             | Type of Container                        |       | aG                                       |  |   |  |
|  |          |   |             | No. of Container(s)                      |       | 1  |  |   |  |
|  |          |   |             | Volume                                   |       | 60mL                                     |  |   |  |
| SDG<br>W03960  |          |   |             | SAMPLE ANALYSIS<br>Due 3-14<br>J3B25015L |       | See item (1) in Special Instructions.    |  |   |  |
| Sample No.   | Matrix * | Sample Date                                       | Sample Time |  |       |  |  |   |  |
| J00DK8   | SOIL     | 2-24-03   | 1002        | X  | FH50H |  |  |   |  |
| J00DK9   | SOIL     | 2-24-03   | 1004        | Y  | FH50V |  |  |   |  |
| J00DL0   | SOIL     | 2-24-03   | 1006        | Y  | FH50W |  |  |   |  |
| J00DL1   | SOIL     | 2-24-03   | 1008        | Y  | FH50X |  |  |   |  |
| J00DL2   | SOIL     | 2-24-03   | 1010        | Y  | FH50I |  |  |   |  |
| CHAIN OF POSSESSION  |          |   |             | Sign/Print Names                         |       | SPECIAL INSTRUCTIONS                     |  |   |  |
| Relinquished By/Removed From<br>Doug Bowers                    |          | Date/Time<br>2-24-03/1510                         |             | Received By/Stored In<br>R.F. LA 3728    |       | Date/Time<br>2-24-03/1510                |  | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |  |
| Relinquished By/Removed From<br>R.F. LA 3728                   |          | Date/Time<br>2-25-03/0915                         |             | Received By/Stored In<br>Doug Bowers     |       | Date/Time<br>2-25-03/0915                |  |   |  |
| Relinquished By/Removed From<br>Doug Bowers                    |          | Date/Time<br>2-25-03/0928                         |             | Received By/Stored In<br>T. Heidelberg   |       | Date/Time<br>2-25-03/0930                |  |   |  |
| 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                                |  |   |  |
| LABORATORY SECTION   |          | Received By                                       |             | Title                                    |       |  |  | Date/Time   |  |
| FINAL SAMPLE DISPOSITION                                       |          | Disposal Method                                   |             | Disposed By                              |       |  |  | Date/Time   |  |

| Bechtel Hanford Inc.   |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST            |             |   |       | B02-066-02                               |  | Page 1 of 1  |  |
|--|----------|---|-------------|---|-------|--|--|--|--|
| Collector<br>Doug Bowers                                       |          | Company Contact<br>Jeff Lerch                       |             | Telephone No.<br>373-5904   |       | Project Coordinator<br>KESSNER, JH       |  | Price Code   |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals |          | Sampling Location<br>300-FF-1 618-5 Burial Ground   |             | SAF No.<br>B02-066  |       | Air Quality <input type="checkbox"/>     |  | Data Turnaround<br>24 Hours  |  |
| Ice Chest No.<br>ERC 96-082                                    |          | Field Logbook No.<br>EL 1395-6                      |             | COA<br>RG618529W0   |       | Method of Shipment<br>Government Vehicle |  |  |  |
| Shipped To<br>Savern Trent Incorporated, Richland              |          | Offsite Property No.<br>N/A                         |             | Bill of Lading/Air Bill No.<br>N/A  |       |  |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS                                |          |   |             | Preservation  | None  |  |  |  |  |
| Special Handling and/or Storage                                |          |   |             | Type of Container   | aG    |  |  |  |  |
|  |          |   |             | No. of Container(s)   | 1     |  |  |  |  |
|  |          |   |             | Volume  | 60mL  |  |  |  |  |
|  |          |   |             | See item (1) in Special Instructions.   |       |  |  |  |  |
| SAMPLE ANALYSIS  |          |   |             |   |       |  |  |  |  |
| Sample No.   | Matrix * | Sample Date   | Sample Time |   |       |  |  |  |  |
| J00DL3   | SOIL     | 2-24-03   | 1012        | X   | FH504 |  |  |  |  |
| J00DL4   | SOIL     | 2-24-03   | 1014        | X   | FH508 |  |  |  |  |
| J00DL5   | SOIL     | 2-24-03   | 1016        | X   | FH51A |  |  |  |  |
| J00DL6   | SOIL     | 2-24-03   | 1018        | X   | FH51C |  |  |  |  |
| J00DL7   | SOIL     | 2-24-03   | 1020        | X   | FH51E |  |  |  |  |
| CHAIN OF POSSESSION  |          |   |             | SPECIAL INSTRUCTIONS  |       |  |  | Matrix *   |  |
| Relinquished By/Removed From<br>Doug Bowers 2-24-03/1570       |          | Received By/Stored In<br>Rif /A 3728 2-24-03/1970   |             | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |       |  |  | S=Soil<br>SE=Sediment<br>SO=Solid<br>SI=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>Wl=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |  |
| Relinquished By/Removed From<br>R.F. JA 3728 2-25-03/0815      |          | Received By/Stored In<br>Doug Bowers 2-25-03/0815   |             |   |       |  |  |  |  |
| Relinquished By/Removed From<br>Doug Bowers 2-25-03/0826       |          | Received By/Stored In<br>T. Heidelberg 2-25-03/0830 |             |   |       |  |  |  |  |
| Relinquished By/Removed From                                   |          | Received By/Stored In                               |             |   |       |  |  |  |  |
| Relinquished By/Removed From                                   |          | Received By/Stored In                               |             |   |       |  |  |  |  |
| Relinquished By/Removed From                                   |          | Received By/Stored In                               |             |   |       |  |  |  |  |
| LABORATORY SECTION   |          | Received By   |             | Title   |       |  |  | Date/Time  |  |
| FINAL SAMPLE DISPOSITION                                       |          | Disposal Method                                     |             | Disposed By   |       |  |  | Date/Time  |  |

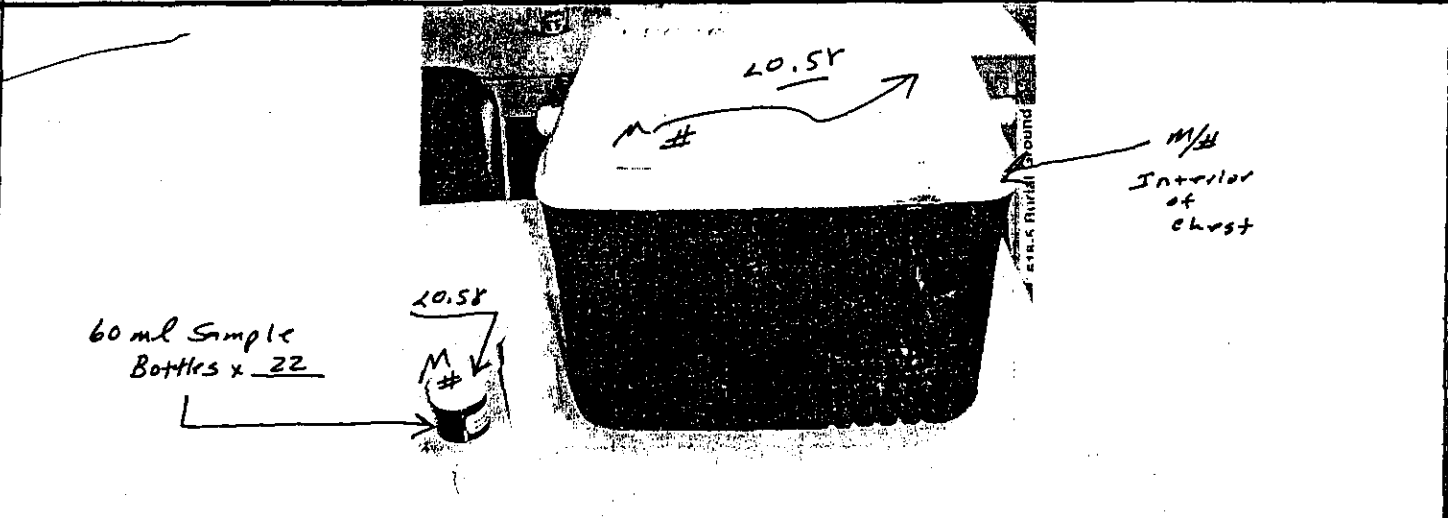
| Bechtel Hanford Inc.   |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |                                    |                                       | B02-066-02                               |  | Page 1 of 1  |  |  |
|--|----------|---|-------------|------------------------------------|---------------------------------------|--|--|--|--|--|
| Collector<br>Doug Bowers                                       |          | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904          |                                       | Project Coordinator<br>KESSNER, JH       |  | Price Code   |  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals |          | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066                 |                                       | Air Quality <input type="checkbox"/>     |  | Data Turnaround<br>24 Hours  |  |  |
| Ice Chest No.<br>ERC 96-082                                    |          | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                  |                                       | Method of Shipment<br>Government Vehicle |  |  |  |  |
| Shipped To<br>Severn Trent Incorporated, Richland              |          | Offsite Property No.<br>N/A                       |             | Bill of Lading/Air Bill No.<br>N/A |                                       |  |  |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS                                |          |   |             |                                    |                                       |  |  |  |  |  |
| Special Handling and/or Storage                                |          |   |             | Preservation                       | None                                  |  |  |  |  |  |
|  |          |   |             | Type of Container                  | aG                                    |  |  |  |  |  |
|  |          |   |             | No. of Container(s)                | 1                                     |  |  |  |  |  |
|  |          |   |             | Volume                             | 60mL                                  |  |  |  |  |  |
| SAMPLE ANALYSIS  |          |   |             |                                    | See item (1) in Special Instructions. |  |  |  |  |  |
| Sample No.   | Matrix * | Sample Date                                       | Sample Time |                                    |                                       |  |  |  |  |  |
| J00DL8   | SOIL     | 2-24-03   | 1022        | X                                  | FH5 IF                                |  |  |  |  |  |
|  | SOIL     |   |             |                                    |                                       |  |  |  |  |  |
|  | SOIL     |   |             |                                    |                                       |  |  |  |  |  |
|  | SOIL     |   |             |                                    |                                       |  |  |  |  |  |
|  | SOIL     |   |             |                                    |                                       |  |  |  |  |  |
| CHAIN OF POSSESSION  |          |   |             |                                    | SPECIAL INSTRUCTIONS                  |  |  |  |  |  |
| Relinquished By/Removed From                                   |          | Date/Time   |             | Received By/Stored In              |                                       | Date/Time                                |  | Matrix *   |  |  |
| Doug Bowers  |          | 2-24-03/1510                                      |             | RIP/A                              |                                       | 2-24-03/1710                             |  | (1) TCP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan  |  |  |
| RIP/A  |          | 2-25-03/0915                                      |             | Doug Bowers                        |                                       | 2-25-03/0915                             |  | S=Soil<br>SE=Sediment<br>SO=Solid<br>SI=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |  |  |
| Doug Bowers  |          | 2-25-03/0930                                      |             | T. Heidelberg                      |                                       | 2-25-03/0930                             |  |  |  |  |
| 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                                |  |  |  |  |
| LABORATORY SECTION   |          | Received By                                       |             |                                    | Title                                 |  |  | Date/Time  |  |  |
| FINAL SAMPLE DISPOSITION                                       |          | Disposal Method                                   |             |                                    | Disposed By                           |  |  | Date/Time  |  |  |

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# ERC RADIOLOGICAL SURVEY RECORD

|   |                             |
|---|-----------------------------|
| Type of Survey (check one only)<br><input type="checkbox"/> *Release <input type="checkbox"/> Routine <u>N/A</u> <input checked="" type="checkbox"/> Work Progress <input type="checkbox"/> Shipment<br>* The potential for internal contamination was evaluated. | Survey #<br>RSR-FF2-03-0303 |
|---|-----------------------------|

|  |                  |              |  |
|--|------------------|--------------|--|
| RWP # / Rev. #<br>FF2-02-010 <u>REV 00</u> | Date<br>02/24/03 | Time<br>1300 | Location Code/Description<br>FF2/618-5 |
|--|------------------|--------------|--|



WORK PROGRESS SURVEY OF SAMPLE CONTAINERS  
of soil for analysis from 618-5 Burial PIT.

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated. Technical Assessment # TA-01-5R-16

|                                       |                             |                              |                                 |   |                                     |                                  |                               |                          |                             |  |
|---------------------------------------|-----------------------------|------------------------------|---------------------------------|---|-------------------------------------|----------------------------------|-------------------------------|--------------------------|-----------------------------|--|
| CA Contamination Area                 | HCA High Contamination Area | RBA Radiological Buffer Area | ARA Airborne Radioactivity Area | RMA Radioactive Materials Area                              | RA Radiation Area                   | HRA High Radiation Area          | VHRA Very High Radiation Area |                          |                             |  |
| <input type="radio"/> Technical Smear | # Direct                    | M Large Area Wipe            | Contact 30 cm                   | General Area Dose Rates - Uncorrected Meter Reading (mR/hr) | Radiological Boundary X-----X-----X | $\Delta$ Micro Rem ( $\mu$ R/hr) | N Neutrons (mRem/hr)          | [AS] Air Sample Location | SCA Soil Contamination Area | RMSA Radioactive Material Storage Area |

### Instruments

| Model   | Serial # | Source <input checked="" type="checkbox"/> (Initial) | CF  | Cal Due Date | Model  | Serial # | Source <input checked="" type="checkbox"/> (Initial) | CF | Cal Due Date |
|---------|----------|--|-----|--------------|--------|----------|--|----|--------------|
| L2224-2 | 0007     | SA   | N/A | 10-21-03     | 120-20 | 0087     | SA   | 1  | 11-26-03     |
| DP68D   | 0036     | SA   | 4.7 | 10-21-03     | N/A    |          |  |    | →            |

|  |                                     |
|--|-------------------------------------|
| RCT Name/Signature/Date:<br>SJ Huddleston<br>02-24-03<br>SJ Huddleston | RCT Supervisor Name/Signature/Date: |
|--|-------------------------------------|

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL8</u> , <u>J00CW8</u> | $\frac{518 - 323}{4} = 49$ | pCi/gm |
|--|----------------------------|--------|

|  |                             |        |
|--|-----------------------------|--------|
| Sample # <u>J00DL9</u> , <u>J00CW9</u> | $\frac{957 - 323}{4} = 158$ | pCi/gm |
|--|-----------------------------|--------|

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL0</u> , <u>J00CW0</u> | $\frac{468 - 323}{4} = 36$ | pCi/gm |
|--|----------------------------|--------|

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL1</u> , <u>J00CW1</u> | $\frac{467 - 323}{4} = 36$ | pCi/gm |
|--|----------------------------|--------|

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL2</u> , <u>J00CW2</u> | $\frac{481 - 323}{4} = 40$ | pCi/gm |
|--|----------------------------|--------|

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL3</u> , <u>J00CW3</u> | $\frac{701 - 323}{4} = 95$ | pCi/gm |
|--|----------------------------|--------|

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL4</u> , <u>J00CW4</u> | $\frac{461 - 323}{4} = 35$ | pCi/gm |
|--|----------------------------|--------|

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL5</u> , <u>J00CW5</u> | $\frac{480 - 323}{4} = 39$ | pCi/gm |
|--|----------------------------|--------|

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL6</u> , <u>J00CW6</u> | $\frac{408 - 323}{4} = 21$ | pCi/gm |
|--|----------------------------|--------|

|  |                            |        |
|--|----------------------------|--------|
| Sample # <u>J00DL7</u> , <u>J00CW7</u> | $\frac{494 - 323}{4} = 43$ | pCi/gm |
|--|----------------------------|--------|

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

Sample # J00 DL B , J00 CW B      $\frac{479 - 323}{4} = 39$  pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_ , \_\_\_\_\_      $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

*N A*



Sample Check-in List

Date/Time Received: 2-25 0930
Client: BHI SDG #: W03960 NA [] SAF #: B02-066 NA []
Work Order Number: JB3250156 Chain of Custody # B02-066-02
Shipping Container ID: ERC 96-082 Air Bill #

- 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: NA [X] 5. Vermiculite/packing materials is NA [X] Wet [] Dry []
6. Number of samples in shipping container: 1011
7. Sample holding times exceeded? BHI 2/25/03 NA [] Yes [] No [X]
8. Samples have: tape custody seals hazard labels appropriate samples labels
9. Samples are: in good condition broken leaking 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]
12. Were any anomalies identified in sample receipt? Yes [] No [X]
13. Description of anomalies (include sample numbers):

Sample Custodian: JHudellheroy Date: 2/25/03

Table with 4 columns: Client Sample ID, Analysis Requested, Condition, Comments/Action

Client Informed on by Person contacted

[ ] No action necessary; process as is.

Project Manager Date

|  |                 |   |             |   |                      |  |           |  |  |  |
|--|-----------------|---|-------------|---|----------------------|--|-----------|--|--|--|
| Bechtel Hanford Inc.   |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |   |                      | B02-066-02                               |           | Page 1 of 1  |  |  |
| Collector<br>Doug Bowers                                       |                 | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904                         |                      | Project Coordinator<br>KESSNER, JH       |           | Price Code   |  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals |                 | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066                                |                      | Air Quality <input type="checkbox"/>     |           | Data Turnaround<br>24 Hours  |  |  |
| Ice Chest No. <i>WM 001</i>                                    |                 | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                                 |                      | Method of Shipment<br>Government Vehicle |           |  |  |  |
| Shipped To<br>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                                |                 |   |             |   |                      |  |           |  |  |  |
| Special Handling and/or Storage                                |                 |   |             | Preservation                                      | None                 |  |           |  |  |  |
|  |                 |   |             | Type of Container                                 | aG                   |  |           |  |  |  |
|  |                 |   |             | No. of Container(s)                               | 1                    |  |           |  |  |  |
|  |                 |   |             | Volume  | 60mL                 |  |           |  |  |  |
| SDG<br>W03960  |                 |   |             | SAMPLE ANALYSIS<br><i>Jul 3-14-03</i>             |                      | See item (1) in Special Instructions.    |           |  |  |  |
| Sample No.   | Matrix *        | Sample Date                                       | Sample Time |   |                      |  |           |  |  |  |
| <i>J00049</i>  | SOIL            | <i>2-25-03</i>                                    | <i>1030</i> | <i>X</i>  | <i>FHTR2</i>         |  |           |  |  |  |
|  | SOIL            |   |             |   |                      |  |           |  |  |  |
|  | SOIL            |   |             |   |                      |  |           |  |  |  |
|  | SOIL            |   |             |   |                      |  |           |  |  |  |
|  | SOIL            |   |             |   |                      |  |           |  |  |  |
| CHAIN OF POSSESSION  |                 |   |             |   | SPECIAL INSTRUCTIONS |  |           |  |  |  |
| Relinquished By/Removed From <i>Does</i>                       |                 | Date/Time <i>2-25-03/1515</i>                     |             | Received By/Stored In <i>Ref # 3728</i>           |                      | Date/Time <i>2-25-03/1515</i>            |           | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan<br><br>Personnel not available to relinquish samples from the 3728 Ref # <i>LA</i> on <i>2/26/03</i> |  | Matrix *<br>S=Soil<br>SE=Sediment<br>SO=Solid<br>Sl=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| Relinquished By/Removed From <i>REF # 3728</i>                 |                 | Date/Time <i>22603 0900</i>                       |             | Received By/Stored In <i>SJ GALE</i>              |                      | Date/Time <i>22603 0900</i>              |           |  |  |  |
| Relinquished By/Removed From <i>ERC</i>                        |                 | Date/Time <i>22603 0910</i>                       |             | Received By/Stored In <i>STL</i>                  |                      | Date/Time <i>9:10</i>                    |           |  |  |  |
| Relinquished By/Removed From <i>SJ GALE</i>                    |                 | Date/Time <i>22603 0910</i>                       |             | Received By/Stored In <i>Wintura A. Rhinehart</i> |                      | Date/Time <i>2/26/03</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                                |           |  |  |  |
| LABORATORY SECTION   | Received By     |   |             | Title   |                      |  | Date/Time |  |  |  |
| FINAL SAMPLE DISPOSITION                                       | Disposal Method |   |             | Disposed By                                       |                      |  | Date/Time |  |  |  |

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# ERC RADIOLOGICAL SURVEY RECORD

Page 1 of 3

Type of Survey (check one only)

\*Release  
  Routine  
  Work Progress  
  Shipment

\* The potential for internal contamination was evaluated.

Survey #

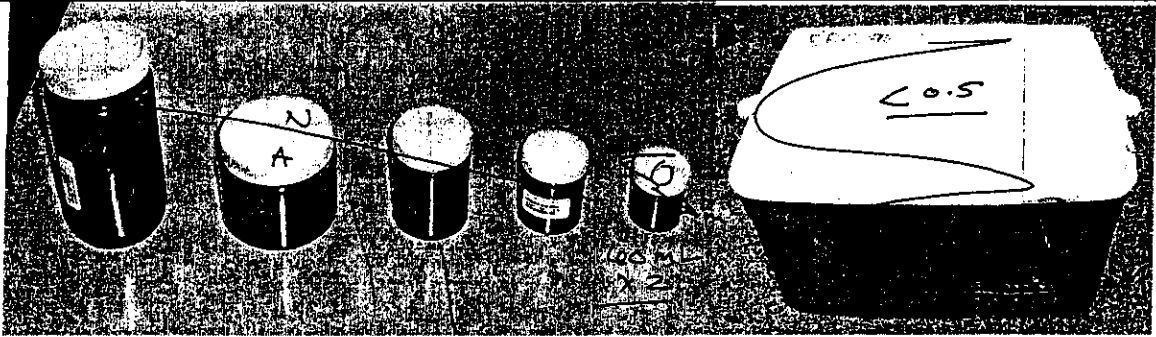
RSR - FF2-03-0308

RWP # / Rev. #  
N/A

Date  
2.25.03

Time  
1220

Location Code/Description  
FF2 | 618-5 samples



SURVEY OF SAMPLE CONTAINERS

SOIL SAMPLE FROM 618-5 BURIAL SITE

COPY

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-SR-16

|                          |                    |     |                         |     |                          |                  |   |     |                                    |          |                         |     |                     |      |                          |     |                         |      |                                   |
|--------------------------|--------------------|-----|-------------------------|-----|--------------------------|------------------|---|-----|------------------------------------|----------|-------------------------|-----|---------------------|------|--------------------------|-----|-------------------------|------|-----------------------------------|
| CA                       | Contamination Area | HCA | High Contamination Area | RBA | Radiological Buffer Area | ARA              | Airborne Radioactivity Area                                 | RMA | Radioactive Materials Area         | RA       | Radiation Area          | HRA | High Radiation Area | VHRA | Very High Radiation Area |     |                         |      |                                   |
| <input type="checkbox"/> | Technical Smear    | #   | Direct                  | M   | Large Area Wipe          | Contact<br>30 cm | General Area Dose Rates = Uncorrected Meter Reading (mR/hr) |     | Radiological Boundary<br>X---X---X | $\Delta$ | Micro Rem ( $\mu$ R/hr) | N   | Neutrons (mRem/hr)  | [AS] | Air Sample Location      | SCA | Soil Contamination Area | RMSA | Radioactive Material Storage Area |

### Instruments

| Model            | Serial #     | Source $\checkmark$ (Initial) | CF  | Cal Due Date | Model | Serial # | Source $\checkmark$ (Initial) | CF | Cal Due Date |
|------------------|--------------|-------------------------------|-----|--------------|-------|----------|-------------------------------|----|--------------|
| ELECTRA<br>DP63D | 0003<br>0054 | BSM                           | 7.2 | 12.26.03     |       | N        |                               |    |              |
| R020             | 0094         | BSM                           | 1/2 | 11.26.03     |       | A        |                               |    |              |

RCT Name/Signature/Date:

Bill Mercer  
 [Signature]  
 2.25.03

RCT Supervisor Name/Signature/Date:

# ERC RADIOLOGICAL SURVEY RECORD (continuation)

## Contamination Measurement Information

Circled values indicate Removable  $\beta$  contamination in mrad/hr  $\beta$

| No.   | Description of Item or Location | Removable (dpm/100 cm <sup>2</sup> ) |              |                    |                        | Total (dpm/100 cm <sup>2</sup> ) |              |                    |                        |
|---|---------------------------------|--------------------------------------|--------------|--------------------|------------------------|----------------------------------|--------------|--------------------|------------------------|
|   |                                 | $\alpha$                             | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F | $\alpha$                         | $\alpha$ C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$ C-F |
|   | ALL CANNS                       | N/A                                  |              | <1K                | 7.2                    | N/A                              |              |                    |                        |
| <div style="font-size: 2em; opacity: 0.5; transform: rotate(-15deg); position: absolute; left: 10%; top: 10%;">COPY</div> |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|   |                                 |                                      |              | N/A                |                        |                                  |              |                    |                        |
|   |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|   |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|   |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|   |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|   |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|   |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|   |                                 |                                      |              |                    |                        |                                  |              |                    |                        |
|   |                                 |                                      |              |                    |                        |                                  |              |                    |                        |

## Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

| Location | Contact Readings                       |                                  | 30 cm Readings                         |                                  |
|----------|--|----------------------------------|--|----------------------------------|
|          | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR |
| Cooler   | (20.5 - 20.5) 2 = 20.5                 | (20.5) 1 = 20.5                  | N/A                                    |                                  |
|          |  | N/A                              |  |                                  |
|          |  | N/A                              |  |                                  |
|          |  | N/A                              |  |                                  |
|          |  | N/A                              |  |                                  |
|          |  | N/A                              |  |                                  |
|          |  | N/A                              |  |                                  |
|          |  | N/A                              |  |                                  |
|          |  | N/A                              |  |                                  |
|          |  | N/A                              |  |                                  |

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

COPY

Sample # J00DL9, J00LW9  $\frac{3500 - 329}{4} = 193$  pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{-}{4} =$  \_\_\_\_\_ pCi/gm



Sample Check-in List

Date/Time Received: 2/26/03 @ 9:10 AM
Client: BHI SDG #: W03960 NA [] SAF #: B02-066 NA []
Work Order Number: J3B260140 Chain of Custody # B02-066-00
Shipping Container ID: WM-001 Air Bill # N/A

- 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: NA [X] 5. Vermiculite/packing materials is NA [] Wet [] Dry [X]
6. Number of samples in shipping container: 1
7. Sample holding times exceeded? NA [X] Yes [] No []
8. Samples have: tape [X] hazard labels [X] custody seals [X] appropriate samples labels [X]
9. Samples are: in good condition [X] broken [ ] leaking [ ] 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 [X] No [ ]
\*For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers):

Sample Custodian: April Runtz / Richard Date: 2/26/03

Table with 4 columns: Client Sample ID, Analysis Requested, Condition, Comments/Action

Client Informed on \_\_\_\_\_ by \_\_\_\_\_ Person contacted \_\_\_\_\_
[ ] No action necessary; process as is.
Project Manager \_\_\_\_\_ Date \_\_\_\_\_

| Bechtel Hanford Inc.  |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |                                       |        | B02-066-02                               |     | Page 1 of 1  |  |  |
|---|-----------------|---|-------------|---------------------------------------|--------|--|-----|--|--|--|
| Collector<br>Doug Bowers / <i>Fahlberg</i>  |                 | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904             |        | Project Coordinator<br>KESSNER, JH       |     | Price Code   |  |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals                      |                 | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066                    |        | Air Quality <input type="checkbox"/>     |     | Data Turnaround<br>24 Hours  |  |  |
| Ice Chest No.<br><i>ERC-79-109</i>  |                 | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                     |        | Method of Shipment<br>Government Vehicle |     |  |  |  |
| Shipped To<br>Severn Trent Incorporated, Richland                                   |                 | Offsite Property No.                              |             |                                       |        | Bill of Lading/Air Bill No.              |     |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br><i>Radioactive</i><br><i>see attached report</i> |                 |   |             | Preservation<br>None                  |        |  |     |  |  |  |
| Special Handling and/or Storage<br><i>None</i>                                      |                 |   |             | Type of Container<br>aG               |        |  |     |  |  |  |
|   |                 |   |             | No. of Container(s)<br>1              |        |  |     |  |  |  |
|   |                 |   |             | Volume<br>60mL                        |        |  |     |  |  |  |
| SDH<br>W03960<br>SAMPLE ANALYSIS<br>J3B280107                                       |                 |   |             | See item (1) in Special Instructions. |        |  |     |  |  |  |
| Sample No.  | Matrix *        | Sample Date                                       | Sample Time |                                       |        |  |     |  |  |  |
| J00DM5  | SOIL            | 2-27-03   | 1342        | X                                     | FJC 3A |  | 37A |  |  |  |
| J00DM6  | SOIL            | 2-27-03   | 1346        | X                                     | FJC 3C |  | 38A |  |  |  |
| J00DM7  | SOIL            | 2-27-03   | 1348        | X                                     | FJC 3D |  | 38A |  |  |  |
| J00DM8  | SOIL            | 2-27-03   | 1352        | X                                     | FJC 3E |  | 39A |  |  |  |
| J00DM9  | SOIL            | 2-27-03   | 1356        | X                                     | FJC 3F |  | 40A |  |  |  |
| CHAIN OF POSSESSION   |                 |   |             | Sign/Print Names                      |        | SPECIAL INSTRUCTIONS                     |     |  |  |  |
| Relinquished By/Removed From<br><i>R. Fahlberg</i>                                  |                 | Date/Time<br>2-27-03 1545                         |             | Received By/Stored In<br><i>DRK</i>   |        | Date/Time<br>2-27-03 1545                |     | (1) ICP Metals - 6010A (Supertace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |  | Matrix *<br>S=Soil<br>SE=Sediment<br>SO=Solid<br>SI=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| 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                                |     |  |  |  |
| Relinquished By/Removed From  |                 | Date/Time   |             | Received By/Stored In                 |        | Date/Time                                |     |  |  |  |
| LABORATORY SECTION  | Received By     | Title   |             |                                       |        | Date/Time                                |     |  |  |  |
| FINAL SAMPLE DISPOSITION  | Disposal Method | Disposed By                                       |             |                                       |        | Date/Time                                |     |  |  |  |

| Bechtel Hanford Inc.  |          | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST          |             |                                      |     | B02-066-02                               |  | Page 1 of 1   |  |
|---|----------|---|-------------|--------------------------------------|-----|--|--|---|--|
| Collector<br>Doug Bowers  |          | Company Contact<br>Jeff Lerch                     |             | Telephone No.<br>373-5904            |     | Project Coordinator<br>KESSNER, JH       |  | Price Code<br>Data Turnaround   |  |
| Project Designation<br>618-5 Burial Ground - Quick Turn Metals          |          | Sampling Location<br>300-FF-1 618-5 Burial Ground |             | SAF No.<br>B02-066                   |     | Air Quality <input type="checkbox"/>     |  | 24 Hours  |  |
| Ice Chest No.<br>ERC-79-109   |          | Field Logbook No.<br>EL 1395-6                    |             | COA<br>RG618529W0                    |     | Method of Shipment<br>Government Vehicle |  |   |  |
| Shipped To<br>Severn Trent Incorporated, Richland                       |          | Offsite Property No.<br>NA                        |             | Bill of Lading/Air Bill No.<br>NA    |     |  |  |   |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>Radioactive<br>see a attached report |          |   |             | Preservation<br>None                 |     |  |  |   |  |
| Special Handling and/or Storage   |          |   |             | Type of Container<br>aG              |     |  |  |   |  |
|   |          |   |             | No. of Container(s)<br>1             |     |  |  |   |  |
|   |          |   |             | Volume<br>60mL                       |     |  |  |   |  |
| SAMPLE ANALYSIS   |          |   |             | See item (1) in Special Instructions |     |  |  |   |  |
| Sample No.  | Matrix * | Sample Date                                       | Sample Time |                                      |     |  |  |   |  |
| JOODNO  | SOIL     | 2-27-03   | 1358        | X                                    | FJC | 3G                                       |  | 40A   |  |
| JOODNI  | SOIL     | 2-27-03   | 1402        | X                                    | FJC | 3J                                       |  | 41A   |  |
|   | SOIL     |   |             |                                      |     |  |  |   |  |
|   | SOIL     |   |             |                                      |     |  |  |   |  |
|   | SOIL     |   |             |                                      |     |  |  |   |  |
| CHAIN OF POSSESSION   |          |   |             | Sign/Print Names                     |     | SPECIAL INSTRUCTIONS                     |  |   |  |
| Relinquished By/Removed From<br>EPC<br>2-27-03                          |          | Date/Time<br>1547                                 |             | Received By/Stored In<br>ORK<br>1545 |     | Date/Time<br>2-27-03                     |  | (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Activity Scan |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | Matrix *  |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | S=Soil  |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | SE=Sediment   |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | SO=Solid  |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | SI=Sludge   |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | W=Water   |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | O=Oil   |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | A=Air   |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | DS=Drum Solids  |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | DL=Drum Liquids   |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | T=Tissue  |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | Wt=Wipe   |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | L=Liquid  |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | V=Vegetation  |  |
| Relinquished By/Removed From  |          | Date/Time   |             | Received By/Stored In                |     | Date/Time                                |  | X=Other   |  |
| LABORATORY SECTION  |          | Received By                                       |             | Title                                |     | Date/Time                                |  |   |  |
| FINAL SAMPLE DISPOSITION  |          | Disposal Method                                   |             | Disposed By                          |     | Date/Time                                |  |   |  |

# ERC RADIOLOGICAL SURVEY RECORD

Page 1 of 3

Type of Survey (check one only)

\*Release  Routine  Work Progress  Shipment

Survey #

RSR - FF2-03-0336

\* The potential for internal contamination was evaluated.

RWP # / Rev. #

N/A

Date

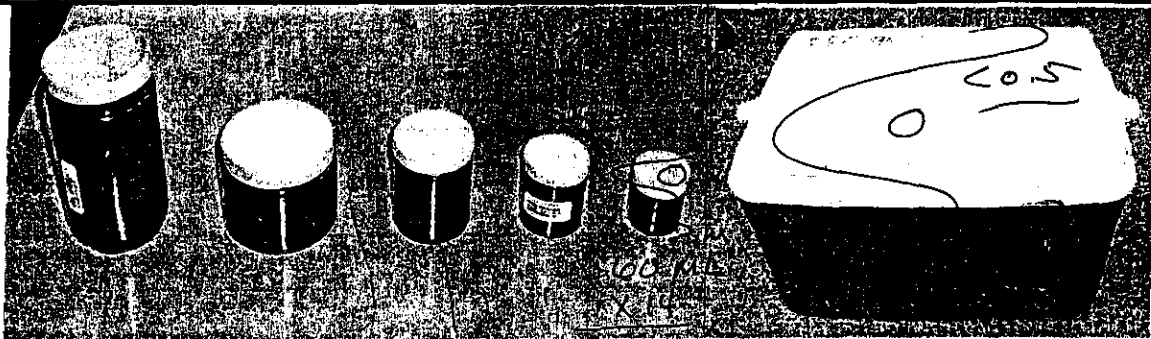
2.27.03

Time

1435

Location Code/Description

FF2/soil samples 618-5



SURVEY OF SAMPLE CONTAINERS

COPY

All radiation readings are  $\gamma$  dose rates in units of mR/hr unless otherwise indicated.

Technical Assessment # TA-01-SR-16

|                          |                    |     |                         |     |                          |               |   |     |                                 |          |                         |     |                     |      |                          |     |                         |      |                                   |
|--------------------------|--------------------|-----|-------------------------|-----|--------------------------|---------------|---|-----|---------------------------------|----------|-------------------------|-----|---------------------|------|--------------------------|-----|-------------------------|------|-----------------------------------|
| CA                       | Contamination Area | HCA | High Contamination Area | RBA | Radiological Buffer Area | ARA           | Airborne Radioactivity Area                                 | RMA | Radioactive Materials Area      | RA       | Radiation Area          | HRA | High Radiation Area | VHRA | Very High Radiation Area |     |                         |      |                                   |
| <input type="checkbox"/> | Technical Smear    | #   | Direct                  | M   | Large Area Wipe          | Contact 30 cm | General Area Dose Rates = Uncorrected Meter Reading (mR/hr) |     | Radiological Boundary X---X---X | $\Delta$ | Micro Rem ( $\mu$ R/hr) | N   | Neutrons (mRem/hr)  | [AS] | Air Sample Location      | SCA | Soil Contamination Area | RMSA | Radioactive Material Storage Area |

### Instruments

| Model        | Serial #     | Source $\checkmark$ (Initial) | CF         | Cal Due Date | Model | Serial # | Source $\checkmark$ (Initial) | CF | Cal Due Date |
|--------------|--------------|-------------------------------|------------|--------------|-------|----------|-------------------------------|----|--------------|
| LMNES-DPL6DD | 0002<br>0006 | BW                            | 150<br>7.8 | 12.26.03     |       | N        |                               |    |              |
| RO20         | 0094         | BW                            | 1/2        | 11.26.03     |       | A        |                               |    |              |

RCT Name/Signature/Date:

BILL WENGER  
12/11/03  
2.27.03

RCT Supervisor Name/Signature/Date:

# ERC RADIOLOGICAL SURVEY RECORD (continuation)

## Contamination Measurement Information

Circled values indicate Removable  $\beta$  contamination in mrad/hr  $\beta$

| No. | Description of Item or Location | Removable (dpm/100 cm <sup>2</sup> ) |                 |                    |                           | Total (dpm/100 cm <sup>2</sup> ) |                 |                    |                           |
|-----|---------------------------------|--------------------------------------|-----------------|--------------------|---------------------------|----------------------------------|-----------------|--------------------|---------------------------|
|     |                                 | $\alpha$                             | $\alpha$<br>C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$<br>C-F | $\alpha$                         | $\alpha$<br>C-F | $\beta$ - $\gamma$ | $\beta$ - $\gamma$<br>C-F |
| ALL | LAWS                            | n/A                                  | →               | < 1 K              | 7.8                       | n/A                              |                 |                    |                           |
|     |                                 |                                      |                 | N                  | A                         |                                  |                 |                    |                           |
|     |                                 |                                      |                 |                    |                           |                                  |                 |                    |                           |
|     |                                 |                                      |                 |                    |                           |                                  |                 |                    |                           |
|     |                                 |                                      |                 |                    |                           |                                  |                 |                    |                           |
|     |                                 |                                      |                 |                    |                           |                                  |                 |                    |                           |
|     |                                 |                                      |                 |                    |                           |                                  |                 |                    |                           |
|     |                                 |                                      |                 |                    |                           |                                  |                 |                    |                           |
|     |                                 |                                      |                 |                    |                           |                                  |                 |                    |                           |

COPY

## Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

| Location   | Contact Readings                       |                                  | 30 cm Readings                         |                                  |
|------------|--|----------------------------------|--|----------------------------------|
|            | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR | $\beta$ (mrad/hr)<br>(WO-WC) X CF = DR | $\gamma$ (mR/hr)<br>WC X CF = DR |
| 2/s cooler | (2.05-2.05) = 0                        | (2.05) = 2.05                    | n/A                                    |                                  |
|            |  | N                                |  |                                  |
|            |  | A                                |  |                                  |
|            |  |                                  |  |                                  |
|            |  |                                  |  |                                  |
|            |  |                                  |  |                                  |
|            |  |                                  |  |                                  |
|            |  |                                  |  |                                  |
|            |  |                                  |  |                                  |
|            |  |                                  |  |                                  |

Additional Information  
(Drawing, Map, Etc.)

GCPM to pCi/gm Conversion Chart

Refer to SSI #300RA-03

$$\frac{\text{GCPM} - \text{BKGD}}{4} = \text{pCi/gm}$$

Sample # J00CX5, J00DM5  $\frac{520 - 250}{4} = 68$  pCi/gm

Sample # J00CX6, J00DM6  $\frac{370 - 250}{4} = 30$  pCi/gm

Sample # J00CX7, J00DM7  $\frac{400 - 250}{4} = 38$  pCi/gm

Sample # J00CX8, J00DM8  $\frac{370 - 250}{4} = 30$  pCi/gm

Sample # J00CX9, J00DM9  $\frac{350 - 250}{4} = 25$  pCi/gm

Sample # J00CY0, J00DM0  $\frac{360 - 250}{4} = 28$  pCi/gm

Sample # J00CY1, J00DM1  $\frac{350 - 250}{4} = 25$  pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{N}{4}$  = \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{N}{4}$  = \_\_\_\_\_ pCi/gm

Sample # \_\_\_\_\_, \_\_\_\_\_  $\frac{N}{4}$  = \_\_\_\_\_ pCi/gm

COPY



Sample Check-in List

Date/Time Received: 2/27/03 @ 15:45 AP

Client: BHT SDG #: W03960 NA  SAF #: B02-066 NA

Work Order Number: J3B280107 Chain of Custody # B02-066-00

Shipping Container ID: ERC-79-109 Air Bill # N/A

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: \_\_\_\_\_ NA  5. Vermiculite/packing materials is NA  Wet  Dry
6. Number of samples in shipping container: 7
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
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: [Signature] Date: 2/27/03

| Client Sample ID | Analysis Requested | Condition | Comments/Action |
|------------------|--------------------|-----------|-----------------|
|                  |                    |           |                 |
|                  |                    |           |                 |

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

[ ] No action necessary; process as is.

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