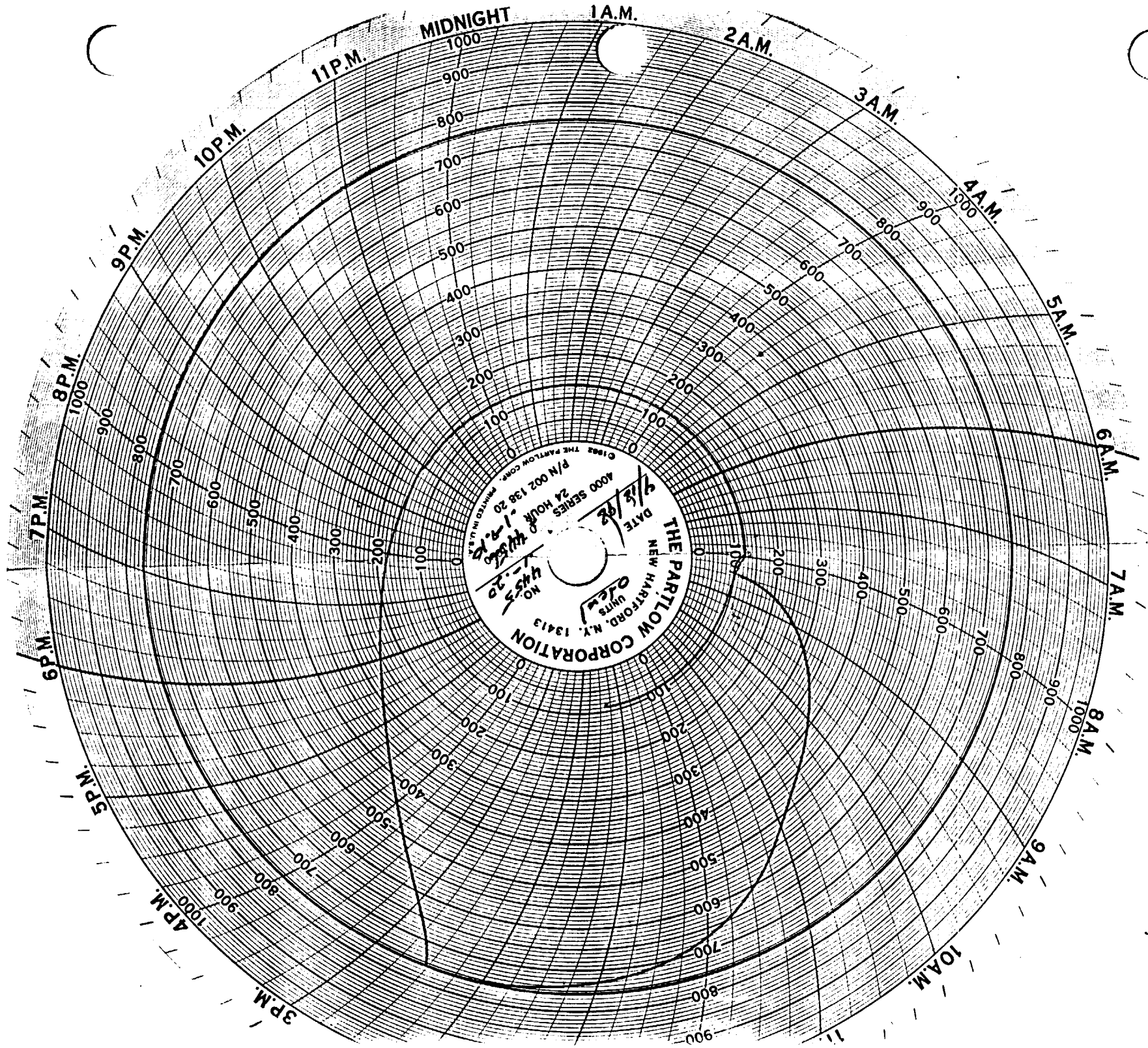


Sheet1

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 7.773E-07 | 1.376E-07 | 5.767E-08 | 6.433E-09 | | | | |
| TH-232 | 7.528E-07 | 1.636E-07 | 5.589E-08 | 7.295E-09 | | | | |
| U-235 | 1.160E-07 | 5.081E-08 | 4.231E-08 | 5.214E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 1.002E-07 | 1.349E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.869E-06 | | | | | | | |



NET WEIGHT REPORT

| Survey Number | ID | Maranelli Tare | Maranelli plus Soil | Gamma Soil | Gamma Final | A/B Tare | A/B Gross | A/B Sample Mass | Planchet Tare | Planchet Gross | Residual Mass | Collection Date | Collection Time |
|---------------|-----|----------------|---------------------|------------|-------------|----------|-----------|-----------------|---------------|----------------|---------------|-----------------|-----------------|
| ✓ 4456 | .01 | 136.02 | 955.73 | 819.71 | | | | | | | | 16-Sep-98 | 9:57:27 AM |
| ✓ 4456 | .02 | 136.09 | 921.79 | 785.70 | | | | | | | | 16-Sep-98 | 9:57:39 AM |
| ✓ 4456 | .03 | 136.01 | 948.26 | 812.25 | | | | | | | | 16-Sep-98 | 10:01:05 AM |
| ✓ 4456 | .04 | 136.30 | 972.16 | 835.86 | | | | | | | | 16-Sep-98 | 10:01:13 AM |
| ✓ 4456 | .05 | 136.40 | 876.30 | 739.90 | | | | | | | | 16-Sep-98 | 10:01:23 AM |
| ✓ 4456 | .06 | 136.36 | 1,006.45 | 870.09 | | | | | | | | 16-Sep-98 | 10:01:33 AM |
| ✓ 4456 | .07 | 134.90 | 987.92 | 853.02 | | | | | | | | 16-Sep-98 | 10:01:43 AM |
| ✓ 4456 | .08 | 134.82 | 918.01 | 783.19 | | | | | | | | 16-Sep-98 | 10:01:50 AM |
| ✓ 4456 | .09 | 134.92 | 1,023.48 | 888.56 | | | | | | | | 16-Sep-98 | 10:02:03 AM |
| ✓ 4456 | .10 | 134.93 | 1,050.94 | 916.01 | | | | | | | | 16-Sep-98 | 10:02:11 AM |
| ✓ 4456 | .11 | 134.95 | 922.67 | 787.72 | | | | | | | | 16-Sep-98 | 10:02:18 AM |
| 4456 | .12 | 134.95 | 1,011.94 | 876.99 | | | | | | | | 16-Sep-98 | 10:02:29 AM |

9/23/98

Page 1 of 3

129060

NET WEIGHT REPORT

| Survey Number | ID | Maranelli Tare | Maranelli plus Soil | Gamma Soil | Gamma Final | A/B Tare | A/B Gross | A/B Sample Mass | Planchet Tare | Planchet Gross | Residual Mass | Collection Date | Collection Time |
|---------------|-----|----------------|---------------------|------------|-------------|----------|-----------|-----------------|---------------|----------------|---------------|-----------------|-----------------|
| ✓ 4456 | .13 | 134.81 | 884.30 | 749.49 | | | | | | | | 16-Sep-98 | 10:02:38 AM |
| ✓ 4456 | .14 | 134.75 | 959.22 | 824.47 | | | | | | | | 16-Sep-98 | 10:02:46 AM |
| ✓ 4456 | .15 | 134.94 | 907.03 | 772.09 | | | | | | | | 16-Sep-98 | 10:02:59 AM |
| ✓ 4456 | .16 | 134.92 | 916.10 | 781.18 | | | | | | | | 16-Sep-98 | 10:03:09 AM |
| ✓ 4456 | .17 | 134.89 | 943.90 | 809.01 | | | | | | | | 16-Sep-98 | 10:03:17 AM |
| / 4456 | .18 | 134.99 | 949.59 | 814.60 | | | | | | | | 16-Sep-98 | 10:03:38 AM |
| ✓ 4456 | .19 | 134.98 | 889.00 | 754.02 | | | | | | | | 16-Sep-98 | 10:03:46 AM |
| / 4456 | .20 | 134.90 | 906.54 | 771.64 | | | | | | | | 16-Sep-98 | 10:03:55 AM |
| ✓ 4456 | .21 | 134.98 | 925.12 | 790.14 | | | | | | | | 16-Sep-98 | 10:04:07 AM |
| ✓ 4456 | .22 | 134.82 | 971.80 | 836.98 | | | | | | | | 16-Sep-98 | 10:04:16 AM |
| ✓ 4456 | .23 | 134.95 | 916.63 | 781.68 | | | | | | | | 16-Sep-98 | 10:04:25 AM |
| 4456 | .24 | 134.98 | 991.64 | 856.68 | | | | | | | | 16-Sep-98 | 10:04:33 AM |

NET WEIGHT REPORT

| Survey Number | ID | Maranelli Tare | Maranelli plus Soil | Gamma Soil | Gamma Final | A/B Tare | A/B Gross | A/B Sample Mass | Planchet Tare | Planchet Gross | Residual Mass | Collection Date | Collection Time |
|---------------|-----|----------------|---------------------|------------|-------------|----------|-----------|-----------------|---------------|----------------|---------------|-----------------|-----------------|
| ✓ 4456 | .25 | 134.92 | 883.10 | 748.18 | | | | | | | | 16-Sep-98 | 10:04:44 AM |
| ✓ 4456 | .26 | 134.88 | 827.49 | 692.61 | | | | | | | | 16-Sep-98 | 10:04:54 AM |
| ✓ 4456 | .27 | 134.85 | 905.40 | 770.55 | | | | | | | | 16-Sep-98 | 10:05:05 AM |
| ✓ 4456 | .28 | 135.00 | 1,035.12 | 900.12 | | | | | | | | 16-Sep-98 | 10:05:18 AM |
| ✓ 4456 | .29 | 136.04 | 908.61 | 772.57 | | | | | | | | 16-Sep-98 | 10:05:28 AM |
| 4456 | .30 | 136.38 | 1,073.20 | 936.82 | | | | | | | | 16-Sep-98 | 10:05:43 AM |
| 4456 | .31 | 136.41 | 917.74 | 781.33 | | | | | | | | 16-Sep-98 | 10:05:52 AM |
| 4456 | .32 | 136.06 | 970.70 | 834.64 | | | | | | | | 16-Sep-98 | 10:05:59 AM |

Chain of Custody

| Sample Description | | | | | | | | | | | | | |
|--------------------|---------|------|----------|----------|------|----------|---|-----------|-------------|--------------------|-------------|---------------------|------------|
| Laboratory ID | Bar Cod | Zone | Sub Zone | Building | Room | Location | # | Proximity | Sample Type | Analyses Requested | | Collected | Technician |
| 4456.01 | | 3 | NA | 9036 | NA | S1R | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 9:57:27 AM | MILLER |
| 4456.02 | | 3 | NA | 9036 | NA | S1N | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 9:57:39 AM | MILLER |
| 4456.03 | | 3 | NA | 9036 | NA | S1E | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:01:05 AM | MILLER |
| 4456.04 | | 3 | NA | 9036 | NA | S1S | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:01:13 AM | MILLER |
| 4456.05 | | 3 | NA | 9036 | NA | S1W | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:01:23 AM | MILLER |
| 4456.06 | | 3 | NA | 9036 | NA | S5R | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:01:33 AM | MILLER |
| 4456.07 | | 3 | NA | 9036 | NA | S5N | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:01:43 AM | MILLER |
| 4456.08 | | 3 | NA | 9036 | NA | S5E | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:01:50 AM | MILLER |
| 4456.09 | | 3 | NA | 9036 | NA | S5S | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:02:03 AM | MILLER |
| 4456.10 | | 3 | NA | 9036 | NA | S5W | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:02:11 AM | MILLER |
| 4456.11 | | 3 | NA | 9036 | NA | S6R | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:02:18 AM | MILLER |
| 4456.12 | | 3 | NA | 9036 | NA | S6W | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:02:29 AM | MILLER |
| 4456.13 | | 3 | NA | 9036 | NA | S14R | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:02:38 AM | MILLER |
| 4456.14 | | 3 | NA | 9036 | NA | S14N | 1 | SURFACE | SOIL | GROSS ALPHA/BET | GROSS GAMMA | 9/16/98 10:02:46 AM | MILLER |

Sample Description

| Laboratory ID | Bar Cod | Zone | Sub Zone | Building | Room | Location | # | Proximity | Sample Type | Analyses Requested | Collected | Technician |
|---------------|---------|------|----------|----------|------|----------|---|-----------|-------------|-----------------------------|---------------------|------------|
| 4456.15 | | 3 | NA | 9036 | NA | S14E | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:02:59 AM | MILLER |
| 4456.16 | | 3 | NA | 9036 | NA | S14S | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:03:09 AM | MILLER |
| 4456.17 | | 3 | NA | 9036 | NA | S14W | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:03:17 AM | MILLER |
| 4456.18 | | 3 | NA | 9036 | NA | S15R | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:03:38 AM | MILLER |
| 4456.19 | | 3 | NA | 9036 | NA | S15N | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:03:46 AM | MILLER |
| 4456.20 | | 3 | NA | 9036 | NA | S15E | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:03:55 AM | MILLER |
| 4456.21 | | 3 | NA | 9036 | NA | S15S | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:04:07 AM | MILLER |
| 4456.22 | | 3 | NA | 9036 | NA | S15W | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:04:16 AM | MILLER |
| 4456.23 | | 3 | NA | 9036 | NA | S20R | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:04:25 AM | MILLER |
| 4456.24 | | 3 | NA | 9036 | NA | S20N | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:04:33 AM | MILLER |
| 4456.25 | | 3 | NA | 9036 | NA | S20E | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:04:44 AM | MILLER |
| 4456.26 | | 3 | NA | 9036 | NA | S20S | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:04:54 AM | MILLER |
| 4456.27 | | 3 | NA | 9036 | NA | S20W | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:05:05 AM | MILLER |
| 4456.28 | | 3 | NA | 9036 | NA | S24R | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:05:18 AM | MILLER |
| 4456.29 | | 3 | NA | 9036 | NA | S24N | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:05:28 AM | MILLER |

Sample Description

| Laboratory ID | Bar Cod | Zone | Sub Zone | Building | Room | Location | # | Proximity | Sample Type | Analyses Requested | Collected | Technician |
|---------------|---------|------|----------|----------|------|----------|---|-----------|-------------|-----------------------------|---------------------|------------|
| 4456.30 | | 3 | NA | 9036 | NA | S24E | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:05:43 AM | MILLER |
| 4456.31 | | 3 | NA | 9036 | NA | S24S | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:05:52 AM | MILLER |
| 4456.32 | | 3 | NA | 9036 | NA | S24W | 1 | SURFACE | SOIL | GROSS ALPHA/BET GROSS GAMMA | 9/16/98 10:05:59 AM | MILLER |

Comments:

Relinquished by: *Craig Miller* Date: 9/16/98 Time: 1030 Received by: *J. Miller* Purpose: COG 1N

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Purpose: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Purpose: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Purpose: _____

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Purpose: _____

Field Survey Requirements Form

Survey Number: 4456

Date Issued: 9/15/98

Date Completed:

Site information

Zone: 3 **Sub Zone:** NA

Bldg. #: 9036 **Room:** SOILS

Grid: S1 **Thru Grid:** S24

Survey Type: Affected Open Land

Work Permit Required: (If permit required is checked, ensure that the permit is complete and attached before beginning work)

Sampling Plan

| Field Readings | Laboratory Samples | | |
|--|---------------------------|---------------|-------------------|
| Alpha readings: <input type="checkbox"/> | Sample Type | Number | Proximity: |
| Beta readings: <input type="checkbox"/> | Soil | 32 | Surface |
| Gamma Readings: <input checked="" type="checkbox"/> | Soil | 32 | Surface |
| | | 0 | |
| | | 0 | |
| | | | Analysis: |
| | | | Gross Alpha/Beta |
| | | | Gross Gamma |

Notes: PERFORM SOIL SAMPLING AT S1, S5, S6, S14, S15, S20, AND S24. EACH STAKE WILL RECEIVE (5) SAMPLE PULLS. ORIGINAL STAKE, THEN NORTH, EAST, SOUTH AND WEST.

Prepared by: Craig Miller **performed by:** CRAIG MILLER

prep date: 9/15/98 **performed date:** 9/15/98

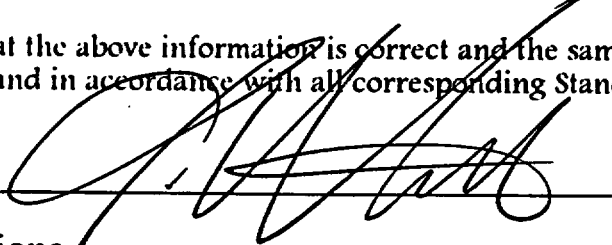
Sample Log-in Check Sheet

Survey # 4456

| | Yes | No |
|--|-----|-------|
| Does the survey number on the requirements form match the laboratory identification number on the Chain-of-Custody?..... | ✓ | _____ |
| Do samples correlate with the data listed on the Chain-of-Custody?..... | ✓ | _____ |
| Are all samples labeled and intact?..... | ✓ | _____ |
| Are the sample labels complete and legible?..... | ✓ | _____ |
| Are samples of sufficient volume to complete the analyses required?..... | ✓ | _____ |
| Were duplicate soil samples collected at a rate of at least 10%?..... | N/A | _____ |
| Has the data contained on the Chain-of-Custody been appended to the master log?..... | ✓ | _____ |
| Is the Chain-of-Custody complete and signed?..... | ✓ | _____ |

Statement:

I agree that the above information is correct and the sample log-in procedure was completed correctly and in accordance with all corresponding Standard Operating Procedures.

Signature: 

Date: 9/16/98

Instructions:

If all of the above questions are answered "YES", attach this form to the other documentation and copy the package. Place the original in a corresponding file and the copy with the samples. If any of the above questions are answered "NO", prepare the non-conformance statement below and see the project manager immediately.

Non-Conformance:

Explain the nature of the non-conformance:

Explain corrective actions taken:

Disposition (circle applicable):

| | | |
|-----------------------------|---------------------------------|----------------------------------|
| Sample label corrected | Site map amended | Chain-of Custody amended |
| Additional volume Collected | Additional duplicates collected | Tentative log-in: review pending |
| Sample recollected/replaced | Samples rejected | Survey package rejected |

Supervisory Review complete (y/n): _____

Supervisors Initials: _____

Quality Assurance Log

Survey #:

4456

| Date | Time | QC Type | Instrument Value (dpm) | Expected Value (dpm) | Pass/Fail * | Technician | Comments |
|------|------|---------|------------------------|----------------------|-------------|------------|----------|
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* Per SOP 71-02, the pass criteria is +/- 20% expected value for Tritium and α/β smear analyses, and +/- 2σ from the mean for α/β soil extracts.

LB5100-W Low Background Counting System -- Soil Analysis

Date: 10/6/98
 Counting Unit id: 2
 Data file name: [4556.XLD]SOILAB2
 Batch Ended: 10/5/98 20:55
 Crosstalk Correction: Not Applied

Alpha activity action level (pCi/g): 4.50E+00
 Beta activity action level (pCi/g): 6.00E+00
 Certainty level for MDA and flags: 95.00%
 Mass Error: 1.00%
 Alpha Beta Voltage Setting: 1500
 Application Revision: 2.1.3
 Application Version: standard

| |
|-----------------------------------|
| Alpha efficiency log file: A29G1 |
| Alpha Efficiency: 32.10% |
| Alpha to Beta Crosstalk: 20.63% |
| Alpha Background (CPM): 0.07 |
| Alpha Correction Factor: 1.000 |
| Beta efficiency log file: Cs16G1 |
| Beta Efficiency: 33.47% |
| Beta into Alpha Crosstalk: 12.24% |
| Beta Background (CPM): 1.07 |
| Beta Correction Factor: 1.000 |

Batch ID: 4556re

| Carrier | | Alpha Activity | | | | Beta Activity | | | | Mass | | Completion |
|---------|-------|----------------|----------|-------|----------|---------------|----------|-------|----------|---------------|-------------|---------------|
| Number | ID | pCi/g | 2σ | flags | MDA | pCi/g | 2σ | flags | MDA | Residual g | Sample g | Date - Time |
| 1 | .01 | 1.41E+00 | 8.81E-01 | <AL | 6.65E-01 | 2.59E+00 | 1.14E+00 | <AL | 1.17E+00 | 0.04 | 2.01 | 10/5/98 14:28 |
| 2 | .02 | 1.89E+00 | 1.07E+00 | <AL | 7.18E-01 | 2.11E+00 | 1.07E+00 | <AL | 1.21E+00 | 0.05 | 2.01 | 10/5/98 14:38 |
| 3 | .03 | 2.22E+00 | 1.22E+00 | <AL | 7.90E-01 | 2.31E+00 | 1.15E+00 | <AL | 1.28E+00 | 0.06 | 1.97 | 10/5/98 14:48 |
| 4 | .04 | 1.94E+00 | 1.13E+00 | <AL | 7.86E-01 | 4.90E+00 | 1.63E+00 | At AL | 1.27E+00 | 0.06 | 1.98 | 10/5/98 14:58 |
| 5 | .05 | 2.55E+00 | 1.52E+00 | <AL | 1.03E+00 | 4.20E+00 | 1.62E+00 | <AL | 1.40E+00 | 0.10 | 2.04 | 10/5/98 15:08 |
| 6 | .06 | 3.71E+00 | 2.12E+00 | At AL | 1.32E+00 | 5.63E+00 | 2.06E+00 | At AL | 1.57E+00 | 0.13 | 2.01 | 10/5/98 15:19 |
| 7 | .07 | 1.99E+00 | 1.06E+00 | <AL | 6.68E-01 | 2.37E+00 | 1.10E+00 | <AL | 1.18E+00 | 0.04 | 2.00 | 10/5/98 15:29 |
| 8 | .08 | 1.49E+00 | 8.34E-01 | <AL | 5.63E-01 | 1.53E+00 | 8.86E-01 | <AL | 1.08E+00 | 0.02 | 2.04 | 10/5/98 15:39 |
| 9 | .09 | 1.75E+00 | 9.84E-01 | <AL | 6.62E-01 | 1.11E+00 | 8.43E-01 | <AL | 1.17E+00 | 0.04 | 2.02 | 10/5/98 15:49 |
| 10 | .10 | 2.97E+00 | 1.32E+00 | <AL | 6.55E-01 | 3.77E+00 | 1.35E+00 | <AL | 1.16E+00 | 0.04 | 2.04 | 10/5/98 15:59 |
| 11 | .11 | 1.62E+00 | 9.10E-01 | <AL | 6.13E-01 | 1.75E+00 | 9.54E-01 | <AL | 1.13E+00 | 0.03 | 2.02 | 10/5/98 16:10 |
| 12 | .12 | 1.78E+00 | 1.04E+00 | <AL | 7.21E-01 | 2.12E+00 | 1.08E+00 | <AL | 1.22E+00 | 0.05 | 2.00 | 10/5/98 16:20 |
| 13 | .13 | 3.00E+00 | 2.03E+00 | At AL | 1.54E+00 | 4.56E+00 | 1.93E+00 | At AL | 1.67E+00 | 0.15 | 2.01 | 10/5/98 16:30 |
| 14 | .14 | 1.68E+00 | 1.50E+00 | <AL | 1.54E+00 | 4.37E+00 | 1.89E+00 | <AL | 1.68E+00 | 0.15 | 2.00 | 10/5/98 16:40 |
| 15 | .15 | 6.84E+00 | 3.85E+00 | At AL | 2.05E+00 | 7.09E+00 | 2.76E+00 | At AL | 1.87E+00 | 0.19 | 2.04 | 10/5/98 16:50 |
| 16 | .16 | 4.63E+00 | 2.80E+00 | At AL | 1.75E+00 | 6.16E+00 | 2.39E+00 | At AL | 1.75E+00 | 0.17 | 2.05 | 10/5/98 17:01 |
| 17 | .17 | 8.48E+00 | 4.59E+00 | >AL | 2.21E+00 | 1.53E+01 | 4.99E+00 | >AL | 1.92E+00 | 0.20 | 2.05 | 10/5/98 17:11 |
| 18 | .18 | 8.52E+00 | 4.62E+00 | >AL | 2.22E+00 | 7.07E+00 | 2.83E+00 | At AL | 1.93E+00 | 0.20 | 2.04 | 10/5/98 17:21 |
| 19 | .19 | 4.33E+00 | 2.69E+00 | At AL | 1.75E+00 | 9.39E+00 | 3.17E+00 | >AL | 1.75E+00 | 0.17 | 2.05 | 10/5/98 17:31 |
| 20 | .20 | 6.80E+00 | 3.72E+00 | At AL | 1.94E+00 | 5.42E+00 | 2.29E+00 | At AL | 1.85E+00 | 0.18 | 2.00 | 10/5/98 17:42 |
| 33 | .20D | 6.19E+00 | 3.63E+00 | At AL | 2.07E+00 | 5.29E+00 | 2.31E+00 | At AL | 1.89E+00 | 0.19 | 2.02 | 10/5/98 17:52 |
| 34 | .20S | 6.38E+02 | 2.05E+02 | >AL | 2.09E+00 | 6.51E+02 | 1.66E+02 | >AL | 1.91E+00 | 0.19 | 2.00 | 10/5/98 18:02 |
| 35 | .20SD | 6.16E+02 | 1.91E+02 | >AL | 1.92E+00 | 6.13E+02 | 1.51E+02 | >AL | 1.83E+00 | 0.18 | 2.02 | 10/5/98 18:12 |
| 21 | .21 | 2.25E+00 | 1.88E+00 | <AL | 1.78E+00 | 6.01E+00 | 2.37E+00 | At AL | 1.77E+00 | 0.17 | 2.02 | 10/5/98 18:22 |
| 22 | .22 | 1.01E+01 | 5.98E+00 | >AL | 3.02E+00 | 9.68E+00 | 3.91E+00 | >AL | 2.21E+00 | 0.24 | 2.03 | 10/5/98 18:32 |

LB5100-W Low Background Counting System -- Soil Analysis

Date: 10/8/98
 Counting Unit id: 2
 Data file name: [4556.XLD]SOILAB2
 Batch Ended: 10/5/98 20:55
 Crosstalk Correction: Not Applied

Alpha activity action level (pCi/g): 4.50E+00
 Beta activity action level (pCi/g): 6.00E+00
 Certainty level for MDA and flags: 95.00%
 Mass Error: 1.00%
 Alpha Beta Voltage Setting: 1500
 Application Revision: 2.1.3
 Application Version: standard

| |
|---|
| Alpha efficiency log file: A29G1 Alpha Efficiency: 32.10% Alpha to Beta Crosstalk: 20.63% Alpha Background (CPM): 0.07 Alpha Correction Factor: 1.000 |
| Beta efficiency log file: Cs16G1 Beta Efficiency: 33.47% Beta into Alpha Crosstalk: 12.24% Beta Background (CPM): 1.07 Beta Correction Factor: 1.000 |

Batch ID: 4556re

| Carrier | | Alpha Activity | | | | Beta Activity | | | | Mass | | Completion |
|---------|-------|----------------|----------|-------|----------|---------------|----------|-------|----------|---------------|-------------|---------------|
| Number | ID | pCi/g | 2σ | flags | MDA | pCi/g | 2σ | flags | MDA | Residual g | Sample g | Date - Time |
| 23 | .23 | 7.10E+00 | 3.82E+00 | At AL | 1.93E+00 | 6.12E+00 | 2.46E+00 | At AL | 1.84E+00 | 0.18 | 2.01 | 10/5/98 18:43 |
| 24 | .24 | 4.90E+00 | 2.79E+00 | At AL | 1.64E+00 | 6.02E+00 | 2.31E+00 | At AL | 1.71E+00 | 0.16 | 2.03 | 10/5/98 18:53 |
| 25 | .25 | 8.32E+00 | 3.84E+00 | >AL | 1.59E+00 | 9.76E+00 | 3.13E+00 | >AL | 1.73E+00 | 0.15 | 1.94 | 10/5/98 19:03 |
| 26 | .26 | 7.32E+00 | 3.88E+00 | At AL | 1.90E+00 | 7.47E+00 | 2.78E+00 | At AL | 1.81E+00 | 0.18 | 2.04 | 10/5/98 19:13 |
| 27 | .27 | 4.42E+00 | 2.35E+00 | At AL | 1.33E+00 | 4.62E+00 | 1.85E+00 | At AL | 1.57E+00 | 0.13 | 2.00 | 10/5/98 19:23 |
| 28 | .28 | 5.79E+00 | 3.26E+00 | At AL | 1.84E+00 | 6.32E+00 | 2.47E+00 | At AL | 1.83E+00 | 0.17 | 1.96 | 10/5/98 19:34 |
| 29 | .29 | 3.95E+00 | 2.27E+00 | At AL | 1.40E+00 | 3.72E+00 | 1.68E+00 | <AL | 1.59E+00 | 0.14 | 2.04 | 10/5/98 19:44 |
| 30 | .30 | 5.99E+00 | 3.30E+00 | At AL | 1.80E+00 | 7.97E+00 | 2.85E+00 | At AL | 1.79E+00 | 0.17 | 2.00 | 10/5/98 19:54 |
| 31 | .31 | 7.76E+00 | 4.34E+00 | At AL | 2.22E+00 | 4.90E+00 | 2.26E+00 | At AL | 1.93E+00 | 0.20 | 2.04 | 10/5/98 20:04 |
| 32 | .32 | 6.71E+00 | 3.97E+00 | At AL | 2.25E+00 | 6.14E+00 | 2.60E+00 | At AL | 1.96E+00 | 0.20 | 2.01 | 10/5/98 20:15 |
| 36 | .32d | 6.27E+00 | 3.40E+00 | At AL | 1.79E+00 | 4.40E+00 | 1.99E+00 | At AL | 1.78E+00 | 0.17 | 2.01 | 10/5/98 20:25 |
| 37 | .32s | 6.54E+02 | 1.96E+02 | >AL | 1.80E+00 | 6.08E+02 | 1.45E+02 | >AL | 1.79E+00 | 0.17 | 2.00 | 10/5/98 20:35 |
| 38 | .32sd | 7.50E+02 | 2.40E+02 | >AL | 2.07E+00 | 6.31E+02 | 1.61E+02 | >AL | 1.89E+00 | 0.19 | 2.02 | 10/5/98 20:45 |
| 39 | bl | --- | --- | --- | --- | --- | --- | --- | --- | -0.01 | 0.00 | --- |

| Carrier | Chan 0 | Chan 1 | Chan 2 | Chan 3 | Chan 4 | Chan 5 | Chan 6 | Guard | Time | Aquisition | Main Bias | Aux Bias | Date/Time |
|---------|--------|--------|--------|--------|--------|--------|---------|-------|------|------------|-----------|----------|------------------|
| 1 | 13 | 44 | 57 | 0 | 0 | 0 | 10.011 | 1911 | 10 | 0 | 1500 | 0 | 10/5/98 14:28:02 |
| 2 | 16 | 37 | 53 | 0 | 0 | 0 | 10.0106 | 1830 | 10 | 0 | 1500 | 0 | 10/5/98 14:38:15 |
| 3 | 17 | 38 | 55 | 0 | 0 | 0 | 10.0106 | 1842 | 10 | 0 | 1500 | 0 | 10/5/98 14:48:29 |
| 4 | 15 | 69 | 84 | 0 | 0 | 0 | 10.0107 | 1846 | 10 | 0 | 1500 | 0 | 10/5/98 14:58:42 |
| 5 | 15 | 56 | 71 | 0 | 0 | 0 | 10.0105 | 1821 | 10 | 0 | 1500 | 0 | 10/5/98 15:08:56 |
| 6 | 17 | 65 | 82 | 0 | 0 | 0 | 10.011 | 1898 | 10 | 0 | 1500 | 0 | 10/5/98 15:19:09 |
| 7 | 18 | 41 | 59 | 0 | 0 | 0 | 10.0106 | 1829 | 10 | 0 | 1500 | 0 | 10/5/98 15:29:23 |
| 8 | 16 | 32 | 48 | 0 | 0 | 0 | 10.0109 | 1881 | 10 | 0 | 1500 | 0 | 10/5/98 15:39:36 |
| 9 | 16 | 25 | 41 | 0 | 0 | 0 | 10.0108 | 1871 | 10 | 0 | 1500 | 0 | 10/5/98 15:49:41 |
| 10 | 27 | 60 | 87 | 0 | 0 | 0 | 10.011 | 1901 | 10 | 0 | 1500 | 0 | 10/5/98 15:59:54 |
| 11 | 16 | 34 | 50 | 0 | 0 | 0 | 10.0109 | 1887 | 10 | 0 | 1500 | 0 | 10/5/98 16:10:08 |
| 12 | 15 | 37 | 52 | 0 | 0 | 0 | 10.0106 | 1835 | 10 | 0 | 1500 | 0 | 10/5/98 16:20:21 |
| 13 | 12 | 52 | 64 | 0 | 0 | 0 | 10.0105 | 1808 | 10 | 0 | 1500 | 0 | 10/5/98 16:30:35 |
| 14 | 7 | 50 | 57 | 0 | 0 | 0 | 10.0107 | 1850 | 10 | 0 | 1500 | 0 | 10/5/98 16:40:48 |
| 15 | 20 | 68 | 88 | 0 | 0 | 0 | 10.0109 | 1875 | 10 | 0 | 1500 | 0 | 10/5/98 16:50:53 |
| 16 | 16 | 64 | 80 | 0 | 0 | 0 | 10.0109 | 1879 | 10 | 0 | 1500 | 0 | 10/5/98 17:01:06 |
| 17 | 23 | 131 | 154 | 0 | 0 | 0 | 10.0107 | 1831 | 10 | 0 | 1500 | 0 | 10/5/98 17:11:20 |
| 18 | 23 | 66 | 89 | 0 | 0 | 0 | 10.0106 | 1834 | 10 | 0 | 1500 | 0 | 10/5/98 17:21:33 |
| 19 | 15 | 92 | 107 | 0 | 0 | 0 | 10.0109 | 1871 | 10 | 0 | 1500 | 0 | 10/5/98 17:31:47 |
| 20 | 21 | 55 | 76 | 0 | 0 | 0 | 10.0102 | 1755 | 10 | 0 | 1500 | 0 | 10/5/98 17:42:00 |
| 33 | 18 | 53 | 71 | 0 | 0 | 0 | 10.0106 | 1832 | 10 | 0 | 1500 | 0 | 10/5/98 17:52:05 |
| 34 | 1770 | 5173 | 6943 | 0 | 0 | 0 | 10.0175 | 1864 | 10 | 0 | 1500 | 0 | 10/5/98 18:02:18 |
| 35 | 1862 | 5080 | 6942 | 0 | 0 | 0 | 10.0178 | 1899 | 10 | 0 | 1500 | 0 | 10/5/98 18:12:32 |
| 21 | 8 | 62 | 70 | 0 | 0 | 0 | 10.0106 | 1829 | 10 | 0 | 1500 | 0 | 10/5/98 18:22:45 |

| | | | | | | | | | | | | |
|----|------|------|------|---|---|---|---------|------|----|---|------|--------------------|
| 22 | 20 | 77 | 97 | 0 | 0 | 0 | 10.0113 | 1948 | 10 | 0 | 1500 | 0 10/5/98 18:32:59 |
| 23 | 22 | 61 | 83 | 0 | 0 | 0 | 10.0106 | 1827 | 10 | 0 | 1500 | 0 10/5/98 18:43:12 |
| 24 | 18 | 64 | 82 | 0 | 0 | 0 | 10.011 | 1896 | 10 | 0 | 1500 | 0 10/5/98 18:53:25 |
| 25 | 31 | 96 | 127 | 0 | 0 | 0 | 10.0105 | 1795 | 10 | 0 | 1500 | 0 10/5/98 19:03:39 |
| 26 | 23 | 73 | 96 | 0 | 0 | 0 | 10.0107 | 1845 | 10 | 0 | 1500 | 0 10/5/98 19:13:44 |
| 27 | 20 | 55 | 75 | 0 | 0 | 0 | 10.0106 | 1828 | 10 | 0 | 1500 | 0 10/5/98 19:23:57 |
| 28 | 19 | 63 | 82 | 0 | 0 | 0 | 10.0108 | 1865 | 10 | 0 | 1500 | 0 10/5/98 19:34:11 |
| 29 | 17 | 46 | 63 | 0 | 0 | 0 | 10.0105 | 1810 | 10 | 0 | 1500 | 0 10/5/98 19:44:24 |
| 30 | 20 | 78 | 98 | 0 | 0 | 0 | 10.0105 | 1805 | 10 | 0 | 1500 | 0 10/5/98 19:54:37 |
| 31 | 21 | 49 | 70 | 0 | 0 | 0 | 10.0106 | 1838 | 10 | 0 | 1500 | 0 10/5/98 20:04:51 |
| 32 | 18 | 58 | 76 | 0 | 0 | 0 | 10.0108 | 1864 | 10 | 0 | 1500 | 0 10/5/98 20:15:04 |
| 36 | 21 | 48 | 69 | 0 | 0 | 0 | 10.0107 | 1853 | 10 | 0 | 1500 | 0 10/5/98 20:25:09 |
| 37 | 2112 | 5151 | 7263 | 0 | 0 | 0 | 10.0183 | 1922 | 10 | 0 | 1500 | 0 10/5/98 20:35:23 |
| 38 | 2100 | 5061 | 7161 | 0 | 0 | 0 | 10.0178 | 1871 | 10 | 0 | 1500 | 0 10/5/98 20:45:36 |
| 39 | 28 | 47 | 75 | 0 | 0 | 0 | 10.0107 | 1840 | 10 | 0 | 1500 | 0 10/5/98 20:55:49 |

ARCHIVE SHEET

Survey Number: 4456

Archive Location: _____

Archive Area: _____

- Are all required analysis completed? _____
- Do the samples to the Chain-of Custody? _____
- Sample labels intact? _____
- Does the data package contain the following?
 - Survey Requirements Form. _____
 - Log-in Check Sheet. _____
 - Sample Chronicle? _____
 - Results and supporting data for the analyses. _____

Comments: _____

Technician: _____

Date: _____

| | | | | |
|--|--|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 25-SEP-1998 13:06:04 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_01_GE3_800GSANDMG20_5192.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .01 | Sample Quantity | : 8.19710E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5192 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 Acquisition date : 25-SEP-1998 12:35:42 | | | |
| Decay time | : 9 12:35:42.35 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.45 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 Energy cal. oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 Effic. cal. oper.: | | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.142E-06 | 7.279E-07 | 3.085E-07 | 3.181E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.990E-08 | 2.868E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.514E-08 | 3.026E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.178E-07 | 3.246E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.463E-08 | 1.004E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.123E-08 | 5.181E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.605E-08 | 2.938E-09 |
| CS-137 | 3.570E-07 | 5.587E-08 | 2.996E-08 | 2.937E-09 |
| 144 | 0.000E+00 | 0.000E+00 | 1.879E-07 | 3.166E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 6.669E-08 | 7.789E-09 |

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 5.591E-07 | 9.991E-08 | 5.242E-08 | 6.929E-09 | | | | |
| RA-232 | 5.950E-07 | 1.426E-07 | 5.785E-08 | 7.551E-09 | | | | |
| 35 | 1.000E-07 | 1.409E-07 | 3.817E-08 | 4.704E-09 | | | | |
| RA-241 | 0.000E+00 | 0.000E+00 | 9.003E-08 | 1.213E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 5.753E-06 | | | | | | | |

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|--|--|-------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 25-SEP-1998 13:38:56 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_02_GE3_800GSANDMG20_5193.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .02 | Sample Quantity | : 7.85700E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5193 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | | | |
| Dep. Duration | : | | | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 Acquisition date : 25-SEP-1998 13:08:37 | | | |
| Decay time | : 9 13:08:37.88 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.46 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 Energy cal. oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 Effic. cal. oper.: | | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | | | |
| Propagate Errors? | : Yes | | | |
| Empirical Eff? | : Yes | | | |
| Library-based eff? | : Yes | | | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.628E-06 | 7.661E-07 | 1.943E-07 | 2.004E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.155E-08 | 3.026E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.590E-08 | 2.657E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.757E-07 | 4.107E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.946E-08 | 1.203E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.428E-08 | 5.687E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.526E-08 | 2.848E-09 |
| CS-137 | 2.766E-07 | 4.920E-08 | 3.365E-08 | 3.298E-09 |
| CS-144 | 0.000E+00 | 0.000E+00 | 1.924E-07 | 3.242E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 6.751E-08 | 7.885E-09 |

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 6.466E-07 | 1.080E-07 | 5.428E-08 | 7.175E-09 | | | | |
| -232 | 6.451E-07 | 1.353E-07 | 4.776E-08 | 6.234E-09 | | | | |
| 35 | 7.405E-08 | 1.372E-07 | 3.955E-08 | 4.875E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 8.650E-08 | 1.165E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 6.270E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| S Gamma Spectroscopy Report generated 25-SEP-1998 14:14:14 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_03_GE3_800GSANDMG20_5194.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .03 | Sample Quantity | : 8.12250E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5194 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 25-SEP-1998 13:43:57 | |
| Decay time | : 9 13:43:57.61 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.46 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 | Energy cal. oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 | Effic. cal. oper.: | | |
| ---- Processing Parameters ---- | | | | |
| channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.520E-06 | 7.312E-07 | 2.758E-07 | 2.844E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.140E-08 | 2.908E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.783E-08 | 3.350E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.351E-07 | 3.504E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.103E-08 | 1.090E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.273E-08 | 5.430E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.346E-08 | 2.645E-09 |
| CS-137 | 3.591E-07 | 6.177E-08 | 2.804E-08 | 2.748E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 1.921E-07 | 3.237E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.258E-08 | 8.477E-09 |

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 6.545E-07 | 1.112E-07 | 5.154E-08 | 5.749E-09 | | | | |
| 232 | 5.957E-07 | 1.379E-07 | 4.443E-08 | 5.799E-09 | | | | |
| 35 | 9.571E-08 | 3.507E-08 | 3.672E-08 | 4.525E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 8.702E-08 | 1.172E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 6.225E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| VMS Gamma Spectroscopy Report generated 25-SEP-1998 15:01:43 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_04_GE3_800GSANDMG20_5195.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .04 | Sample Quantity | : 8.12250E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5195 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 25-SEP-1998 14:31:21 | |
| Decay time | : 9 14:31:21.79 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.55 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 | Energy cal. oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 | Effic. cal. oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.368E-06 | 7.334E-07 | 2.487E-07 | 2.565E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.060E-08 | 2.936E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.543E-08 | 2.609E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.644E-07 | 3.939E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 9.416E-08 | 1.266E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.773E-08 | 6.259E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.481E-08 | 2.797E-09 |
| CS-137 | 1.236E-06 | 1.450E-07 | 3.255E-08 | 3.190E-09 |
| CF-144 | 0.000E+00 | 0.000E+00 | 2.064E-07 | 3.478E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.875E-08 | 9.198E-09 |

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 6.948E-07 | 1.177E-07 | 5.475E-08 | 6.108E-09 | | | | |
| 232 | 7.037E-07 | 1.428E-07 | 4.954E-08 | 6.466E-09 | | | | |
| 35 | 8.790E-08 | 3.614E-08 | 4.224E-08 | 5.206E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 1.018E-07 | 1.372E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.091E-06 | | | | | | | |

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|--|--|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 28-SEP-1998 10:36:13 | | | | |
| Configuration | : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_05_GE3_800GSANDMG20_5196.CNF;1 | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .05 | Sample Quantity | : 7.39900E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5196 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 Acqjsition date : 28-SEP-1998 10:05:56 | | | |
| Decay time | : 12 10:05:56.00 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.46 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 Energy cal. oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 Effic. cal. oper.: | | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.536E-06 | 8.187E-07 | 3.164E-07 | 3.263E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.382E-08 | 3.132E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.163E-08 | 3.245E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.327E-07 | 3.467E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 9.019E-08 | 1.213E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.658E-08 | 6.068E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 3.077E-08 | 3.470E-09 |
| CS-137 | 4.754E-07 | 6.947E-08 | 3.364E-08 | 3.297E-09 |
| -144 | 0.000E+00 | 0.000E+00 | 2.131E-07 | 3.591E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 7.309E-08 | 8.536E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 7.199E-07 | 1.226E-07 | 5.748E-08 | 6.413E-09 | | | | |
| 232 | 6.337E-07 | 1.447E-07 | 5.190E-08 | 6.773E-09 | | | | |
| 235 | 6.809E-08 | 4.457E-08 | 4.157E-08 | 5.123E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 9.936E-08 | 1.338E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 6.433E-06 | | | | | | | |

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|--|--|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 28-SEP-1998 11:09:02 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_06_GE3_800GSANDMG20_5197.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .06 | Sample Quantity | : 8.70090E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5197 | Spectrm Collector | | |
| Sample Collector | | Sample Analyst | | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | | |
| Deposition Start | | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 Acquisition date : 28-SEP-1998 10:38:44 | | | |
| Decay time | : 12 10:38:44.40 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.54 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 Energy cal. oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 Effic. cal. oper.: | | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.806E-06 | 7.733E-07 | 2.906E-07 | 2.997E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.448E-08 | 3.308E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.851E-08 | 3.431E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.398E-07 | 3.573E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.712E-08 | 1.037E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.432E-08 | 5.694E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.810E-08 | 3.169E-09 |
| CS-137 | 5.181E-07 | 7.159E-08 | 3.124E-08 | 3.062E-09 |
| 144 | 0.000E+00 | 0.000E+00 | 1.954E-07 | 3.292E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 7.038E-08 | 8.220E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 7.269E-07 | 1.192E-07 | 5.324E-08 | 5.940E-09 | | | | |
| RA-232 | 6.307E-07 | 1.273E-07 | 4.898E-08 | 6.394E-09 | | | | |
| 35 | 1.304E-07 | 1.771E-07 | 3.820E-08 | 4.708E-09 | | | | |
| RA-241 | 0.000E+00 | 0.000E+00 | 9.612E-08 | 1.295E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 6.812E-06 | | | | | | | |

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|--|--|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 28-SEP-1998 11:43:04 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_07_GE3_800GSANDMG20_5198.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .07 | Sample Quantity | : 8.53020E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5198 | Spectrm Collector | | |
| Sample Collector | | Sample Analyst | | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | | Dep. Duration | : |
| Deposition Start | | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 Acquisition date : 28-SEP-1998 11:12:45 | | | |
| Decay time | : 12 11:12:45.99 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.51 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 Energy cal. oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 Effic. cal. oper.: | | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 6.284E-06 | 9.386E-07 | 1.897E-07 | 1.957E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.283E-08 | 3.149E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.590E-08 | 2.657E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.501E-07 | 3.726E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.431E-08 | 1.134E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.514E-08 | 5.830E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.848E-08 | 3.211E-09 |
| CS-137 | 6.750E-07 | 9.363E-08 | 3.271E-08 | 3.206E-09 |
| CS-144 | 0.000E+00 | 0.000E+00 | 1.881E-07 | 3.170E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 7.346E-08 | 8.580E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 6.172E-07 | 1.051E-07 | 5.830E-08 | 7.706E-09 | | | | |
| 232 | 5.850E-07 | 1.294E-07 | 4.358E-08 | 5.688E-09 | | | | |
| 35 | 8.495E-08 | 3.511E-08 | 4.011E-08 | 4.944E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 8.925E-08 | 1.202E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.247E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|-----------------|
| Gamma Spectroscopy Report generated 28-SEP-1998 13:04:15 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_08_GE3_800GSANDMG20_5200.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | Sample ID | : .08 | Sample Quantity |
| | | | | : 7.83190E+02 G |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5200 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 28-SEP-1998 12:26:10 | |
| Decay time | : 12 12:26:10.38 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.58 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 | Energy cal. oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 | Effic. cal. oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.214E-06 | 8.578E-07 | 2.860E-07 | 2.950E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.391E-08 | 3.253E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.824E-08 | 3.400E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.400E-07 | 3.576E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 9.462E-08 | 1.272E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.932E-08 | 6.524E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.994E-08 | 3.376E-09 |
| CS-137 | 6.393E-07 | 9.362E-08 | 3.517E-08 | 3.447E-09 |
| CS-144 | 0.000E+00 | 0.000E+00 | 2.335E-07 | 3.934E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 8.088E-08 | 1.094E-08 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 8.467E-07 | 1.300E-07 | 6.359E-08 | 7.094E-09 | | | | |
| RA-232 | 7.231E-07 | 1.408E-07 | 4.968E-08 | 6.484E-09 | | | | |
| 35 | 1.090E-07 | 4.600E-08 | 4.231E-08 | 5.215E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 1.016E-07 | 1.368E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.532E-06 | | | | | | | |

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|--|---|--------------------|------------------------|------------------------|
| VMS Gamma Spectroscopy Report generated 28-SEP-1998 12:16:57 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_08_GE3_800GSANDMG20_5199.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .08 | Sample Quantity | : 7.83190E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5199 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | | Acquisition date | : 28-SEP-1998 11:46:36 |
| Decay time | : 12 11:46:36.50 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.55 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 Energy cal. oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 Effic. cal. oper.: | | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.502E-06 | 8.724E-07 | 2.803E-07 | 2.891E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.958E-08 | 3.666E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.214E-08 | 2.665E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.783E-07 | 4.147E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.449E-08 | 1.136E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.978E-08 | 6.599E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.629E-08 | 2.965E-09 |
| CS-137 | 6.593E-07 | 8.905E-08 | 3.376E-08 | 3.309E-09 |
| CE-144 | 1.693E-07 | 1.583E-07 | 2.207E-07 | 3.719E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 7.945E-08 | 9.279E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 8.308E-07 | 1.344E-07 | 5.514E-08 | 6.152E-09 | | | | |
| 232 | 6.896E-07 | 1.492E-07 | 5.323E-08 | 6.947E-09 | | | | |
| 35 | 1.421E-07 | 5.109E-08 | 4.357E-08 | 5.369E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 9.524E-08 | 1.283E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.993E-06 | | | | | | | |

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|--|--|--------------------|------------------|---------------|
| Gamma Spectroscopy Report generated 28-SEP-1998 13:36:30 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_09_GE3_800GSANDMG20_5201.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .09 | Sample Quantity | : 8.88560E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5201 | Spectrm Collector | | |
| Sample Collector | | Sample Analyst | | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | | | |
| Dep. Duration | : | | | |
| Deposition Start | : Deposition End : 16-SEP-1998 00:00:00 | | | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 Acquisition date : 28-SEP-1998 13:06:13 | | | |
| Decay time | : 12 13:06:13.14 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.52 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. time | : 23-SEP-1998 09:59:35 Energy cal. oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. cal. time | : 23-SEP-1998 09:57:56 Effic. cal. oper.: | | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 3.668E-06 | 6.336E-07 | 2.401E-07 | 2.476E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.224E-08 | 2.986E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.371E-08 | 2.432E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.506E-07 | 3.734E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.968E-08 | 1.071E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.299E-08 | 5.473E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.537E-08 | 2.861E-09 |
| CS-137 | 6.327E-07 | 8.415E-08 | 2.846E-08 | 2.789E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 1.880E-07 | 3.167E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 6.845E-08 | 7.995E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| RA-226 | 5.913E-07 | 1.171E-07 | 5.284E-08 | 6.985E-09 | | | | |
| -232 | 6.773E-07 | 1.324E-07 | 4.565E-08 | 5.959E-09 | | | | |
| 35 | 1.029E-07 | 4.379E-08 | 3.840E-08 | 4.732E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 8.810E-08 | 1.187E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 5.672E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 30-SEP-1998 08:29:53 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_10_GE3_800GSANDMG20_5203.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .10 | Sample Quantity | : 9.16010E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5203 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 30-SEP-1998 07:59:35 | |
| Decay time | : 14 07:59:35.49 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.59 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.853E-06 | 7.715E-07 | 2.329E-07 | 2.402E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.769E-08 | 2.564E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.655E-08 | 2.724E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.545E-07 | 3.792E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.403E-08 | 9.955E-09 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.220E-08 | 5.341E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.453E-08 | 2.766E-09 |
| CS-137 | 6.461E-07 | 8.374E-08 | 3.197E-08 | 3.134E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.073E-07 | 3.493E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.312E-08 | 8.540E-09 |
| 26 | 7.151E-07 | 1.188E-07 | 5.498E-08 | 6.133E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.756E-07 | 1.508E-07 | 4.720E-08 | 6.160E-09 | | | | |
| TH-235 | 1.642E-07 | 1.542E-07 | 3.930E-08 | 4.844E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 9.372E-08 | 1.263E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.154E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| VIA Gamma Spectroscopy Report generated 30-SEP-1998 09:06:59 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_11_GE3_800GSANDMG20_5204.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .11 | Sample Quantity | : 7.87720E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5204 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 30-SEP-1998 08:36:42 | |
| Decay time | : 14 08:36:42.91 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.55 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.020E-06 | 8.231E-07 | 3.321E-07 | 3.425E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.487E-08 | 2.386E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.971E-08 | 3.577E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.717E-07 | 4.049E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.976E-08 | 1.207E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 4.212E-08 | 6.987E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 3.125E-08 | 3.524E-09 |
| CS-137 | 6.017E-07 | 8.344E-08 | 3.844E-08 | 3.767E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.118E-07 | 3.569E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 7.739E-08 | 9.038E-09 |
| 26 | 7.841E-07 | 1.353E-07 | 3.643E-08 | 4.009E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 8.368E-07 | 1.675E-07 | 5.046E-08 | 6.586E-09 | | | | |
| 235 | 2.298E-07 | 1.432E-07 | 4.319E-08 | 5.323E-09 | | | | |
| 41 | 0.000E+00 | 0.000E+00 | 1.030E-07 | 1.388E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.473E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 30-SEP-1998 09:55:42 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_12_GE3_800GSANDMG20_5205.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .12 | Sample Quantity | : 8.76990E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5205 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 30-SEP-1998 09:25:20 | |
| Decay time | : 14 09:25:20.14 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.53 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff? | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.578E-06 | 7.478E-07 | 2.779E-07 | 2.866E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.872E-08 | 2.755E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.669E-08 | 2.738E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.517E-07 | 3.751E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.961E-08 | 1.071E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.398E-08 | 5.637E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.640E-08 | 2.977E-09 |
| CS-137 | 2.493E-07 | 4.809E-08 | 3.100E-08 | 3.038E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 1.905E-07 | 3.210E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.034E-08 | 8.216E-09 |
| 26 | 6.663E-07 | 1.178E-07 | 5.282E-08 | 5.893E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 6.249E-07 | 1.340E-07 | 4.532E-08 | 5.916E-09 | | | | |
| 25 | 1.381E-07 | 1.430E-07 | 3.891E-08 | 4.795E-09 | | | | |
| 41 | 0.000E+00 | 0.000E+00 | 8.954E-08 | 1.206E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 6.257E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 30-SEP-1998 12:46:17 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_13_GE3_800GSANDMG20_5207.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .13 | Sample Quantity | : 7.49490E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5207 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 30-SEP-1998 12:15:58 | |
| Decay time | : 14 12:15:58.14 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.49 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 4.948E-06 | 8.008E-07 | 2.989E-07 | 3.082E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 4.122E-08 | 3.954E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.331E-08 | 4.009E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.584E-07 | 3.851E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.840E-08 | 1.189E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.948E-08 | 6.549E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 3.134E-08 | 3.534E-09 |
| CS-137 | 4.131E-07 | 6.261E-08 | 3.427E-08 | 3.359E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.200E-07 | 3.707E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.649E-08 | 8.933E-09 |
| 26 | 7.811E-07 | 1.307E-07 | 3.829E-08 | 4.214E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 6.828E-07 | 1.424E-07 | 6.597E-08 | 8.610E-09 | | | | |
| 235 | 9.993E-08 | 5.159E-08 | 4.300E-08 | 5.299E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 9.886E-08 | 1.332E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 6.925E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| VMS Gamma Spectroscopy Report generated 30-SEP-1998 11:49:18 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_13_GE3_800GSANDMG20_5206.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .13 | Sample Quantity | : 7.49490E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5206 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 30-SEP-1998 11:18:59 | |
| Decay time | : 14 11:18:59.12 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.49 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.737E-06 | 9.074E-07 | 3.123E-07 | 3.221E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.052E-08 | 2.927E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.298E-08 | 2.358E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 3.015E-07 | 4.492E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.702E-08 | 1.170E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.802E-08 | 6.307E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.735E-08 | 3.084E-09 |
| CS-137 | 4.120E-07 | 7.041E-08 | 3.529E-08 | 3.458E-09 |
| CE-144 | 1.000E-07 | 1.322E-07 | 2.100E-07 | 3.538E-08 |
| 214Pb-152 | 0.000E+00 | 0.000E+00 | 7.674E-08 | 8.963E-09 |
| 226Ra | 7.601E-07 | 1.261E-07 | 5.797E-08 | 6.467E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.566E-07 | 1.576E-07 | 5.169E-08 | 6.746E-09 | | | | |
| 35 | 1.106E-07 | 5.291E-08 | 4.217E-08 | 5.197E-09 | | | | |
| 41 | 0.000E+00 | 0.000E+00 | 9.989E-08 | 1.346E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.877E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| V Gamma Spectroscopy Report generated 30-SEP-1998 13:21:08 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_14_GE3_800GSANDMG20_5208.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .14 | Sample Quantity | : 8.24470E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5208 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 30-SEP-1998 12:50:51 | |
| Decay time | : 14 12:50:51.11 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.52 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.206E-06 | 8.164E-07 | 2.839E-07 | 2.928E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.735E-08 | 2.533E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.848E-08 | 2.922E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.802E-07 | 4.175E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.780E-08 | 1.181E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.908E-08 | 6.483E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.786E-08 | 3.141E-09 |
| CS-137 | 4.291E-07 | 6.962E-08 | 3.552E-08 | 3.482E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 1.971E-07 | 3.321E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.404E-08 | 8.648E-09 |
| 26 | 6.917E-07 | 1.200E-07 | 5.973E-08 | 6.663E-09 |

Sheet1

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.372E-07 | 1.398E-07 | 4.760E-08 | 6.213E-09 | | | | |
| 35 | 8.916E-08 | 1.535E-07 | 4.067E-08 | 5.013E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 9.512E-08 | 1.281E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.153E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 30-SEP-1998 13:54:48 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_15_GE3_800GSANDMG20_5209.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .15 | Sample Quantity | : 7.72090E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5209 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 30-SEP-1998 13:24:28 | |
| Decay time | : 14 13:24:28.57 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.53 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.740E-06 | 9.128E-07 | 3.032E-07 | 3.127E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 4.245E-08 | 4.073E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.734E-08 | 2.804E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.796E-07 | 4.166E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 9.269E-08 | 1.247E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 4.114E-08 | 6.824E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.896E-08 | 3.266E-09 |
| CS-137 | 4.996E-07 | 7.059E-08 | 2.893E-08 | 2.835E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.240E-07 | 3.774E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.890E-08 | 9.215E-09 |
| 226 | 8.170E-07 | 1.437E-07 | 6.078E-08 | 6.780E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 8.374E-07 | 1.670E-07 | 5.212E-08 | 6.803E-09 | | | | |
| 35 | 1.024E-07 | 1.820E-07 | 4.381E-08 | 5.400E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 1.036E-07 | 1.396E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.996E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| VIA Gamma Spectroscopy Report generated 30-SEP-1998 14:38:00 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_16_GE3_800GSANDMG20_5210.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .16 | Sample Quantity | : 7.81180E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5210 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 30-SEP-1998 14:07:40 | |
| Decay time | : 14 14:07:40.88 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.56 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 6.258E-06 | 9.629E-07 | 2.731E-07 | 2.817E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.843E-08 | 3.687E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.180E-08 | 3.828E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.893E-07 | 4.311E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.544E-08 | 1.149E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 4.054E-08 | 6.725E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 3.609E-08 | 4.070E-09 |
| CS-137 | 5.401E-07 | 7.704E-08 | 3.433E-08 | 3.365E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.227E-07 | 3.753E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 7.829E-08 | 9.144E-09 |
| 226 | 7.324E-07 | 1.261E-07 | 6.614E-08 | 8.743E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.355E-07 | 1.578E-07 | 5.088E-08 | 6.641E-09 | | | | |
| 235 | 1.308E-07 | 4.699E-08 | 4.392E-08 | 5.413E-09 | | | | |
| 41 | 0.000E+00 | 0.000E+00 | 1.010E-07 | 1.361E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.397E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| V* Gamma Spectroscopy Report generated 1-OCT-1998 08:23:26 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_17_GE3_800GSANDMG20_5211.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .17 | Sample Quantity | : 8.09010E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5211 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 07:53:03. | |
| Decay time | : 15 07:53:03.71 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.66 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.248E-06 | 8.620E-07 | 2.769E-07 | 2.856E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.410E-08 | 3.159E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.745E-08 | 2.816E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 3.121E-07 | 4.651E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 1.072E-07 | 1.441E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 4.301E-08 | 7.136E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.519E-08 | 2.841E-09 |
| CS-137 | 2.367E-06 | 2.550E-07 | 4.087E-08 | 4.005E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.337E-07 | 3.937E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 8.262E-08 | 9.649E-09 |
| 26 | 7.187E-07 | 1.264E-07 | 6.426E-08 | 7.169E-09 |

Sheet1

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.079E-07 | 1.680E-07 | 5.810E-08 | 7.584E-09 | | | | |
| 35 | 1.187E-07 | 4.289E-08 | 4.797E-08 | 5.913E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 1.063E-07 | 1.432E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 9.160E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| V* Gamma Spectroscopy Report generated 1-OCT-1998 08:55:15 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_18_GE3_800GSANDMG20_5212.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .18 | Sample Quantity | : 8.14600E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5212 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 08:24:56. | |
| Decay time | : 15 08:24:56.67 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.59 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 6.174E-06 | 9.519E-07 | 3.607E-07 | 3.720E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.571E-08 | 3.425E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.303E-08 | 3.389E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 3.017E-07 | 4.496E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.785E-08 | 1.181E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.786E-08 | 6.280E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.727E-08 | 3.075E-09 |
| CS-137 | 2.993E-07 | 5.068E-08 | 3.554E-08 | 3.483E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.060E-07 | 3.471E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 8.016E-08 | 9.363E-09 |
| 26 | 8.520E-07 | 1.330E-07 | 5.687E-08 | 6.344E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.232E-07 | 1.488E-07 | 5.251E-08 | 6.854E-09 | | | | |
| 35 | 1.775E-07 | 1.567E-07 | 4.200E-08 | 5.177E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 9.849E-08 | 1.327E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.226E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| V* Gamma Spectroscopy Report generated 1-OCT-1998 09:38:06 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_19_GE3_800GSANDMG20_5213.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .19 | Sample Quantity | : 7.54020E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5213 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 09:07:44. | |
| Decay time | : 15 09:07:44.96 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.61 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 6.105E-06 | 1.022E-06 | 3.690E-07 | 3.806E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 4.332E-08 | 4.012E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.221E-08 | 3.304E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 3.060E-07 | 4.560E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 1.022E-07 | 1.374E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 4.026E-08 | 6.679E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.952E-08 | 3.329E-09 |
| CS-137 | 9.763E-07 | 1.220E-07 | 3.929E-08 | 3.851E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.265E-07 | 3.817E-08 |
| '52 | 0.000E+00 | 0.000E+00 | 9.096E-08 | 1.062E-08 |
| 26 | 9.256E-07 | 1.542E-07 | 6.304E-08 | 8.333E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.982E-07 | 1.614E-07 | 5.591E-08 | 7.297E-09 | | | | |
| TH-235 | 1.510E-07 | 4.705E-08 | 4.614E-08 | 5.686E-09 | | | | |
| TH-241 | 0.000E+00 | 0.000E+00 | 1.095E-07 | 1.475E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.956E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|-----------------|-----------------|
| V Gamma Spectroscopy Report generated 1-OCT-1998 10:19:19 | | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_20_GE3_800GSANDMG20_5214.CNF;1 | | | | | |
| ---- Sample Information ---- | | | | | |
| Sample Title | : 4456 | Sample ID | : .20 | Sample Quantity | : 7.71640E+02 G |
| Sample Type | : Soil | Sample Geometry | : Soil | | |
| Sample Number | : 5214 | Spectrm Collector | : | | |
| Sample Collector | : | Sample Analyst | : | | |
| ---- Sample Deposition Information ---- | | | | | |
| Dep. Correction? | : No | Dep. Duration | : | | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | | |
| ---- Sample Decay/Count Information ---- | | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 09:48:55. | | |
| Decay time | : 15 09:48:55.83 | % dead time | : 0.0% | | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.53 | | |
| ---- Detector Parameters ---- | | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | | |
| ---- Processing Parameters ---- | | | | | |
| Channel | : 50 | End channel | : 4096 | | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | | |
| Critical level? | : No | Propagate Errors? | : Yes | | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Nuclide | Activity | Activity | MDA | MDA | |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error | |
| K-40 | 6.681E-06 | 9.866E-07 | 3.158E-07 | 3.257E-08 | |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.661E-08 | 3.512E-09 | |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.092E-08 | 3.722E-09 | |
| RU-106 | 0.000E+00 | 0.000E+00 | 3.129E-07 | 4.662E-08 | |
| SB-125 | 0.000E+00 | 0.000E+00 | 9.306E-08 | 1.251E-08 | |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.440E-08 | 5.707E-09 | |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.328E-08 | 2.626E-09 | |
| CS-137 | 2.718E-07 | 5.829E-08 | 3.796E-08 | 3.720E-09 | |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.240E-07 | 3.775E-08 | |
| 52 | 0.000E+00 | 0.000E+00 | 7.961E-08 | 9.298E-09 | |
| 26 | 9.070E-07 | 1.450E-07 | 5.425E-08 | 6.052E-09 | |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.413E-07 | 1.545E-07 | 5.236E-08 | 6.834E-09 | | | | |
| 235 | 8.949E-08 | 1.448E-07 | 4.177E-08 | 5.147E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 1.052E-07 | 1.417E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.691E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 1-OCT-1998 11:10:08 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_21_GE3_800GSANDMG20_5215.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : 21 | Sample Quantity | : 7.90140E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5215 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 10:39:49. | |
| Decay time | : 15 10:39:49.77 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.57 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 6.327E-06 | 9.423E-07 | 2.556E-07 | 2.636E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.974E-08 | 3.812E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.190E-08 | 3.273E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.943E-07 | 4.386E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.680E-08 | 1.167E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.544E-08 | 5.880E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.757E-08 | 3.109E-09 |
| CS-137 | 3.517E-07 | 5.614E-08 | 3.395E-08 | 3.327E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.278E-07 | 3.838E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.944E-08 | 9.278E-09 |
| 26 | 8.802E-07 | 1.385E-07 | 5.034E-08 | 5.616E-09 |

Sheet1

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 8.292E-07 | 1.465E-07 | 5.335E-08 | 6.964E-09 | | | | |
| 35 | 1.368E-07 | 5.526E-08 | 4.269E-08 | 5.261E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 1.021E-07 | 1.376E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.525E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| VIA'S Gamma Spectroscopy Report generated 1-OCT-1998 11:42:23 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_22_GE3_800GSANDMG20_5216.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : 22 | Sample Quantity | : 8.36980E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5216 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 11:12:05. | |
| Decay time | : 15 11:12:05.81 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.54 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.695E-06 | 8.824E-07 | 3.126E-07 | 3.224E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.234E-08 | 2.995E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.074E-08 | 3.700E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.829E-07 | 4.215E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.691E-08 | 1.034E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.441E-08 | 5.708E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.255E-08 | 2.543E-09 |
| CS-137 | 4.059E-07 | 6.169E-08 | 3.087E-08 | 3.026E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.070E-07 | 3.489E-08 |
| I-152 | 0.000E+00 | 0.000E+00 | 7.387E-08 | 8.628E-09 |
| -226 | 7.368E-07 | 1.171E-07 | 5.002E-08 | 5.580E-09 |

Sheet1

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.118E-07 | 1.407E-07 | 4.749E-08 | 6.198E-09 | | | | |
| 35 | 9.518E-08 | 1.737E-07 | 3.700E-08 | 4.560E-09 | | | | |
| 41 | 0.000E+00 | 0.000E+00 | 8.942E-08 | 1.205E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.644E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 1-OCT-1998 12:14:05 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_23_GE3_800GSANDMG20_5217.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : 23 | Sample Quantity | : 7.81680E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5217 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 11:43:46. | |
| Decay time | : 15 11:43:46.51 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.54 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 6.686E-06 | 1.025E-06 | 2.866E-07 | 2.955E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.825E-08 | 3.669E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.214E-08 | 3.297E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.822E-07 | 4.205E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 9.294E-08 | 1.250E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.832E-08 | 6.358E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.748E-08 | 3.099E-09 |
| CS-137 | 2.800E-07 | 6.038E-08 | 3.660E-08 | 3.587E-09 |
| CF-144 | 0.000E+00 | 0.000E+00 | 2.050E-07 | 3.454E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.802E-08 | 9.113E-09 |
| 226 | 8.833E-07 | 1.396E-07 | 6.074E-08 | 8.028E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.608E-07 | 1.529E-07 | 5.393E-08 | 7.039E-09 | | | | |
| 235 | 1.379E-07 | 4.415E-08 | 4.390E-08 | 5.410E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 9.907E-08 | 1.335E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.748E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| VIA Gamma Spectroscopy Report generated 1-OCT-1998 12:55:57 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_24_GE3_800GSANDMG20_5218.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : 24 | Sample Quantity | : 8.56680E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5218 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 12:25:38. | |
| Decay time | : 15 12:25:38.04 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.55 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Start channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.728E-06 | 8.584E-07 | 2.844E-07 | 2.934E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.601E-08 | 3.335E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.904E-08 | 3.495E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.868E-07 | 4.274E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.254E-08 | 9.755E-09 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.536E-08 | 5.866E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.598E-08 | 2.929E-09 |
| CS-137 | 2.774E-07 | 4.479E-08 | 3.043E-08 | 2.983E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 1.997E-07 | 3.364E-08 |
| 152 | 0.000E+00 | 0.000E+00 | 7.573E-08 | 8.845E-09 |
| 26 | 7.914E-07 | 1.220E-07 | 5.407E-08 | 6.033E-09 |

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|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 6.780E-07 | 1.456E-07 | 4.792E-08 | 6.254E-09 | | | | |
| 35 | 6.163E-08 | 1.702E-07 | 3.994E-08 | 4.922E-09 | | | | |
| 41 | 0.000E+00 | 0.000E+00 | 9.533E-08 | 1.284E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.537E-06 | | | | | | | |

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|--|------------------------|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 1-OCT-1998 13:28:00 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_25_GE3_800GSANDMG20_5219.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .25 | Sample Quantity | : 7.48180E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5219 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 1-OCT-1998 12:57:43. | |
| Decay time | : 15 12:57:43.09 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.66 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff. | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 8.705E-06 | 1.210E-06 | 2.700E-07 | 2.784E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 4.034E-08 | 3.869E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.432E-08 | 4.131E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 3.342E-07 | 4.980E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 1.154E-07 | 1.551E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 4.531E-08 | 7.516E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 3.412E-08 | 3.847E-09 |
| CS-137 | 1.495E-06 | 1.705E-07 | 4.133E-08 | 4.051E-09 |
| CF-144 | 0.000E+00 | 0.000E+00 | 2.627E-07 | 4.427E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 9.151E-08 | 1.069E-08 |
| 226 | 9.209E-07 | 1.490E-07 | 7.375E-08 | 8.228E-09 |

Sheet1

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| TH-232 | 8.108E-07 | 1.775E-07 | 6.301E-08 | 8.224E-09 | | | | |
| 35 | 9.547E-08 | 2.155E-07 | 4.944E-08 | 6.093E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 1.175E-07 | 1.582E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 1.203E-05 | | | | | | | |

VMS Gamma Spectroscopy Report generated 1-OCT-1998 14:07:38

Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_26_GE3_800GSANDMG20_52

---- Sample Information ----

Sample Title : 4456
Sample ID : .26 Sample Quantity : 6.92610E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5220 Sctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 16-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 16-SEP-1998 00:00:00 Acquisition date : 1-OCT-1998 13:37:19.
Decay time : 15 13:37:19.30 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.56

---- Detector Parameters ----

Energy cal. Time : 23-SEP-1998 09:59:35 Energy cal. Oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. Cal. Time : 23-SEP-1998 09:57:56 Effic. Cal. Oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

| Nuclide | Activity (uCi/G) | Activity 2-Sigma Error | MDA (uCi/G) | MDA 2-Sigma Error |
|---------|---------------------|---------------------------|----------------|----------------------|
| K-40 | 8.191E-06 | 1.181E-06 | 3.651E-07 | 3.765E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.870E-08 | 3.712E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.559E-08 | 3.651E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 3.417E-07 | 5.091E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 1.040E-07 | 1.398E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.987E-08 | 6.614E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 3.187E-08 | 3.594E-09 |
| CS-137 | 3.679E-07 | 6.106E-08 | 3.926E-08 | 3.848E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.605E-07 | 4.389E-08 |
| EU-152 | 0.000E+00 | 0.000E+00 | 9.216E-08 | 1.076E-08 |
| RA-226 | 1.052E-06 | 1.662E-07 | 6.141E-08 | 6.850E-09 |

TH-232 8.159E-07 1.661E-07 5.810E-08 7.583E-09
U-235 1.752E-07 4.895E-08 4.770E-08 5.879E-09
AM-241 5.801E-08 5.706E-08 1.143E-07 1.539E-08

Total: 1.066E-05

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|--|------------------------|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 2-OCT-1998 08:17:24 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_27_GE3_800GSANDMG20_5222.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .27 | Sample Quantity | : 7.70550E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5222 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 2-OCT-1998 07:47:04. | |
| Decay time | : 16 07:47:04.88 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.48 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.513E-06 | 8.759E-07 | 3.505E-07 | 3.615E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.512E-08 | 2.410E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.657E-08 | 2.726E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.744E-07 | 4.089E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.974E-08 | 1.072E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.208E-08 | 5.322E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.784E-08 | 3.139E-09 |
| CS-137 | 1.969E-07 | 4.928E-08 | 3.622E-08 | 3.550E-09 |
| CF-144 | 0.000E+00 | 0.000E+00 | 2.029E-07 | 3.419E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.330E-08 | 8.561E-09 |
| 226 | 7.355E-07 | 1.175E-07 | 5.493E-08 | 7.260E-09 |

Sheet1

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| 232 | 7.127E-07 | 1.285E-07 | 4.893E-08 | 6.386E-09 | | | | |
| 65 | 3.907E-08 | 3.550E-08 | 3.761E-08 | 4.635E-09 | | | | |
| AM-241 | 0.000E+00 | 0.000E+00 | 1.026E-07 | 1.382E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.198E-06 | | | | | | | |

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|--|--|-------------------|------------------------|------------------|--|--|--|--|--|
| V Gamma Spectroscopy Report generated 2-OCT-1998 09:55:45 | | | | | | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_28_GE3_800GSANDMG20_5224.CNF;1 | | | | | | | | | |
| ---- Sample Information ---- | | | | | | | | | |
| Sample Title | : 4456 | | | | | | | | |
| Sample ID | : 28 | Sample Quantity | : 9.00120E+02 G | | | | | | |
| Sample Type | : Soil | Sample Geometry | : Soil | | | | | | |
| Sample Number | : 5224 | Spectrm Collector | | | | | | | |
| Sample Collector | : | Sample Analyst | | | | | | | |
| ---- Sample Deposition Information ---- | | | | | | | | | |
| Dep. Correction? | : No | | Dep. Duration | | | | | | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | | | | | | |
| ---- Sample Decay/Count Information ---- | | | | | | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 Acquisition date : 2-OCT-1998 09:25:23. | | | | | | | | |
| Decay time | : 16 09:25:23.52 | | % dead time | : 0.0% | | | | | |
| Elapsed live time | : 0 00:30:00.00 | | Elapsed real time | : 0 00:30:00.53 | | | | | |
| ---- Detector Parameters ---- | | | | | | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 Energy cal. Oper.: | | | | | | | | |
| Detector name | : GE3 | | Counting geometry | : 800G_sand_mg20 | | | | | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 Effic. Cal. Oper.: | | | | | | | | |
| ---- Processing Parameters ---- | | | | | | | | | |
| Channel | : 50 | | End channel | : 4096 | | | | | |
| Sensitivity | : 3.00000 | | Gaussian Sens. | : 5.00000 | | | | | |
| Critical level? | : No | | Propagate Errors? | : Yes | | | | | |
| Empirical Eff? | : Yes | | Library-based eff. | : Yes | | | | | |
| Energy tolerance | : 1.50000 | | Half life ratio | : 8.00000 | | | | | |
| Abundance limit | : 60.00000 | | WTM error limit | : 3.00000 | | | | | |
| MDA Width (FWHM) | : 3.00000 | | MDA Confid Level | : 5.00000 % | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Nuclide | Activity | Activity | MDA | MDA | | | | | |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error | | | | | |
| K-40 | 5.558E-06 | 8.263E-07 | 2.108E-07 | 2.175E-08 | | | | | |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.954E-08 | 2.834E-09 | | | | | |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.695E-08 | 3.244E-09 | | | | | |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.680E-07 | 3.993E-08 | | | | | |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.848E-08 | 1.055E-08 | | | | | |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.121E-08 | 5.177E-09 | | | | | |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.465E-08 | 2.780E-09 | | | | | |
| CS-137 | 5.086E-07 | 6.963E-08 | 2.730E-08 | 2.676E-09 | | | | | |
| CE-144 | 0.000E+00 | 0.000E+00 | 1.833E-07 | 3.089E-08 | | | | | |
| 52 | 0.000E+00 | 0.000E+00 | 6.964E-08 | 8.133E-09 | | | | | |
| 26 | 6.347E-07 | 1.137E-07 | 5.407E-08 | 7.148E-09 | | | | | |

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 5.890E-07 | 1.294E-07 | 4.379E-08 | 5.715E-09 | | | | |
| 35 | 7.903E-08 | 1.270E-07 | 3.659E-08 | 4.510E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 8.260E-08 | 1.113E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.369E-06 | | | | | | | |

| | | | | |
|--|------------------------|--------------------|------------------------|---------------|
| V... Gamma Spectroscopy Report generated 2-OCT-1998 09:13:51 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_28_GE3_800GSANDMG20_5223.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .28 | Sample Quantity | : 9.00120E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5223 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 2-OCT-1998 08:43:33. | |
| Decay time | : 16 08:43:33.12 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.53 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.466E-06 | 8.301E-07 | 2.370E-07 | 2.444E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.722E-08 | 2.611E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.715E-08 | 3.268E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.400E-07 | 3.576E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.520E-08 | 1.011E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.291E-08 | 5.460E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.706E-08 | 3.051E-09 |
| CS-137 | 5.290E-07 | 7.565E-08 | 3.400E-08 | 3.332E-09 |
| CE-144 | 1.575E-07 | 1.084E-07 | 1.855E-07 | 3.125E-08 |
| '52 | 0.000E+00 | 0.000E+00 | 7.186E-08 | 8.393E-09 |
| 26 | 5.910E-07 | 9.947E-08 | 5.376E-08 | 7.106E-09 |

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 5.551E-07 | 1.315E-07 | 4.452E-08 | 5.811E-09 | | | | |
| 35 | 9.565E-08 | 4.060E-08 | 3.758E-08 | 4.632E-09 | | | | |
| 241 | 5.345E-08 | 7.337E-08 | 8.363E-08 | 1.126E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 7.448E-06 | | | | | | | |

| | | | | |
|--|------------------------|--------------------|------------------------|---------------|
| V' Gamma Spectroscopy Report generated 2-OCT-1998 10:27:53 | | | | |
| Configuration : SYS\$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_29_GE3_800GSANDMG20_5225.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : 29 | Sample Quantity | : 7.72570E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5225 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 2-OCT-1998 09:57:31. | |
| Decay time | : 16 09:57:31.72 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.52 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 6.073E-06 | 9.184E-07 | 2.614E-07 | 2.696E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.062E-08 | 2.938E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 3.119E-08 | 3.199E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.674E-07 | 3.984E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 7.684E-08 | 1.033E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.762E-08 | 6.241E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.963E-08 | 3.341E-09 |
| CS-137 | 4.902E-07 | 7.361E-08 | 4.003E-08 | 3.923E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.106E-07 | 3.549E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.619E-08 | 8.899E-09 |
| 26 | 7.343E-07 | 1.214E-07 | 5.756E-08 | 6.422E-09 |

Sheet1

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.612E-07 | 1.590E-07 | 6.322E-08 | 8.252E-09 | | | | |
| 35 | 1.016E-07 | 3.755E-08 | 4.224E-08 | 5.206E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 9.801E-08 | 1.320E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.160E-06 | | | | | | | |

| | | | | |
|--|--|--------------------|------------------------|---------------|
| Gamma Spectroscopy Report generated 2-OCT-1998 11:03:03 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_30_GE3_800GSANDMG20_5226.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | | | |
| Sample ID | : .30 | Sample Quantity | : 9.36820E+02 G | |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5226 | Spectrm Collector | | |
| Sample Collector | : | Sample Analyst | | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 Acquisition date : 2-OCT-1998 10:32:42. | | | |
| Decay time | : 16 10:32:42.66 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.66 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 Energy cal. Oper.: | | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 Effic. Cal. Oper.: | | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 5.562E-06 | 8.201E-07 | 2.026E-07 | 2.089E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 2.780E-08 | 2.667E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.714E-08 | 3.267E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.532E-07 | 3.772E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.994E-08 | 1.209E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.642E-08 | 6.042E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.487E-08 | 2.804E-09 |
| CS-137 | 1.629E-06 | 1.801E-07 | 2.949E-08 | 2.890E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.024E-07 | 3.411E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.436E-08 | 8.685E-09 |
| 226 | 6.851E-07 | 1.114E-07 | 5.933E-08 | 6.618E-09 |

Sheet1

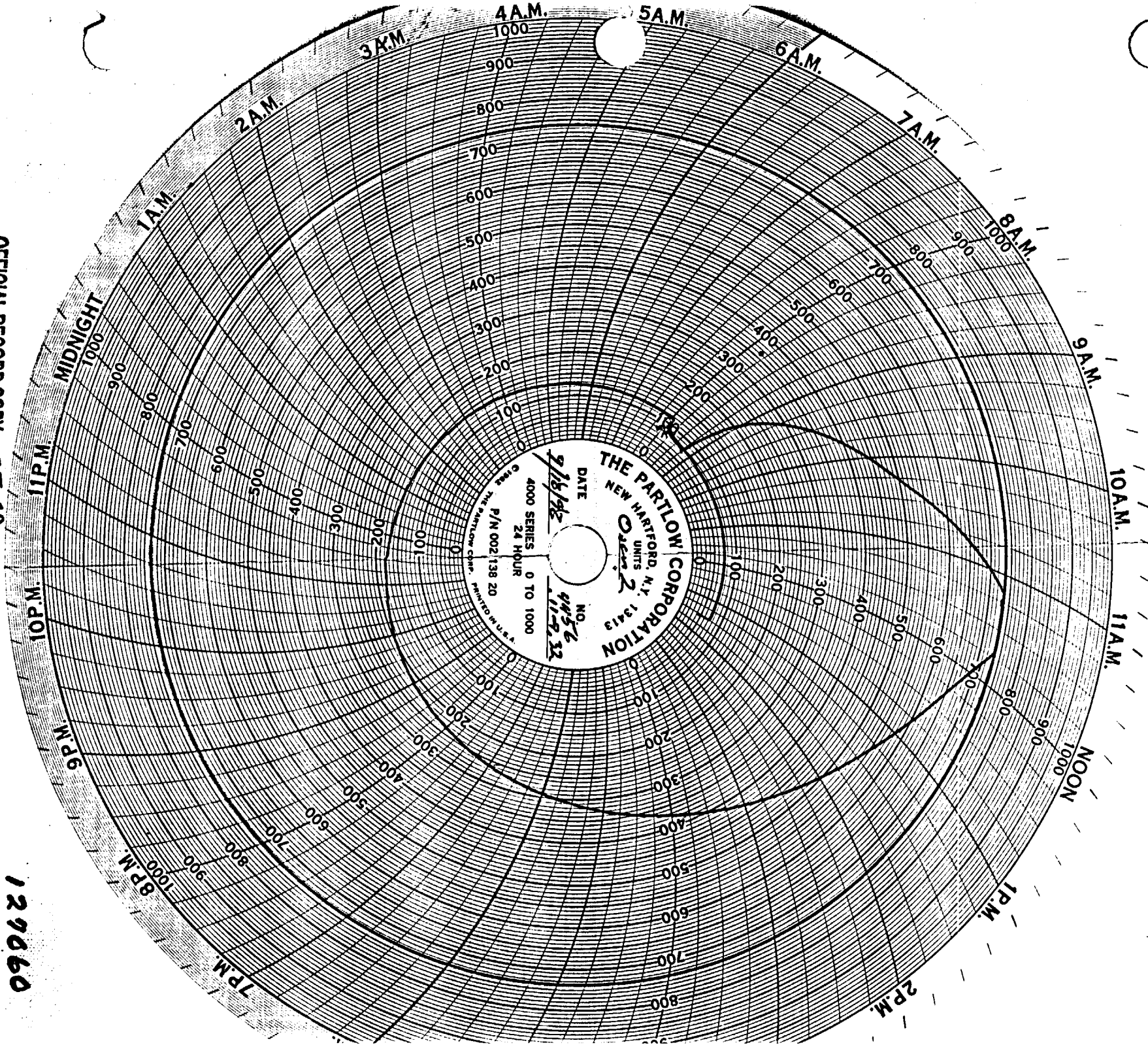
| | | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|--|
| TH-232 | 6.165E-07 | 1.301E-07 | 1.850E-08 | 4.568E-09 | | | | | |
| 35 | 1.063E-07 | 4.620E-08 | 3.862E-08 | 4.760E-09 | | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 8.958E-08 | 1.207E-08 | | | | | |
| ----- | | | | | | | | | |
| Total: | 8.599E-06 | | | | | | | | |

| | | | | |
|--|------------------------|--------------------|------------------------|---------------------------------|
| Gamma Spectroscopy Report generated 2-OCT-1998 12:55:43 | | | | |
| Configuration : SYSSYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_32_GE3_800GSANDMG20_5228.CNF;1 | | | | |
| ---- Sample Information ---- | | | | |
| Sample Title | : 4456 | Sample ID | : .32 | Sample Quantity : 8.34640E+02 G |
| Sample Type | : Soil | Sample Geometry | : Soil | |
| Sample Number | : 5228 | Spectrm Collector | : | |
| Sample Collector | : | Sample Analyst | : | |
| ---- Sample Deposition Information ---- | | | | |
| Dep. Correction? | : No | Dep. Duration | : | |
| Deposition Start | : | Deposition End | : 16-SEP-1998 00:00:00 | |
| ---- Sample Decay/Count Information ---- | | | | |
| Sample Date | : 16-SEP-1998 00:00:00 | Acquisition date | : 2-OCT-1998 12:25:26. | |
| Decay time | : 16 12:25:26.40 | % dead time | : 0.0% | |
| Elapsed live time | : 0 00:30:00.00 | Elapsed real time | : 0 00:30:00.53 | |
| ---- Detector Parameters ---- | | | | |
| Energy cal. Time | : 23-SEP-1998 09:59:35 | Energy cal. Oper.: | | |
| Detector name | : GE3 | Counting geometry | : 800G_sand_mg20 | |
| Effic. Cal. Time | : 23-SEP-1998 09:57:56 | Effic. Cal. Oper.: | | |
| ---- Processing Parameters ---- | | | | |
| Channel | : 50 | End channel | : 4096 | |
| Sensitivity | : 3.00000 | Gaussian Sens. | : 5.00000 | |
| Critical level? | : No | Propagate Errors? | : Yes | |
| Empirical Eff? | : Yes | Library-based eff: | : Yes | |
| Energy tolerance | : 1.50000 | Half life ratio | : 8.00000 | |
| Abundance limit | : 60.00000 | WTM error limit | : 3.00000 | |
| MDA Width (FWHM) | : 3.00000 | MDA Confid Level | : 5.00000 % | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Nuclide | Activity | Activity | MDA | MDA |
| | (uCi/G) | 2-Sigma Error | (uCi/G) | 2-Sigma Error |
| K-40 | 6.970E-06 | 1.039E-06 | 2.556E-07 | 2.636E-08 |
| CO-60 | 0.000E+00 | 0.000E+00 | 3.386E-08 | 3.248E-09 |
| NB-94 | 0.000E+00 | 0.000E+00 | 2.520E-08 | 3.033E-09 |
| RU-106 | 0.000E+00 | 0.000E+00 | 2.167E-07 | 3.228E-08 |
| SB-125 | 0.000E+00 | 0.000E+00 | 8.718E-08 | 1.172E-08 |
| BA-133 | 0.000E+00 | 0.000E+00 | 3.721E-08 | 6.172E-09 |
| CS-134 | 0.000E+00 | 0.000E+00 | 2.868E-08 | 3.234E-09 |
| CS-137 | 4.504E-07 | 7.420E-08 | 3.169E-08 | 3.106E-09 |
| CE-144 | 0.000E+00 | 0.000E+00 | 2.030E-07 | 3.420E-08 |
| 52 | 0.000E+00 | 0.000E+00 | 7.288E-08 | 8.512E-09 |
| 226 | 7.346E-07 | 1.183E-07 | 5.403E-08 | 6.028E-09 |

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 6.007E-07 | 1.343E-07 | 5.013E-08 | 6.543E-09 | | | | |
| 35 | 8.593E-08 | 4.853E-08 | 3.787E-08 | 4.667E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 9.400E-08 | 1.266E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 8.842E-06 | | | | | | | |

| | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|--|--|--|--|
| TH-232 | 7.614E-07 | 1.801E-07 | 5.233E-08 | 6.831E-09 | | | | |
| 235 | 1.224E-07 | 4.086E-08 | 4.112E-08 | 5.067E-09 | | | | |
| 241 | 0.000E+00 | 0.000E+00 | 1.033E-07 | 1.392E-08 | | | | |
| ----- | | | | | | | | |
| Total: | 9.260E-06 | | | | | | | |

OFFICIAL RECORD COPY MIL 10



129060



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703-5000

MS 16
J-5

December 2, 1999

Directorate for Safety

U.S. Nuclear Regulatory Commission
Region I
DNMS
Attention: Mr. Steven W. Shaffer
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Shaffer:

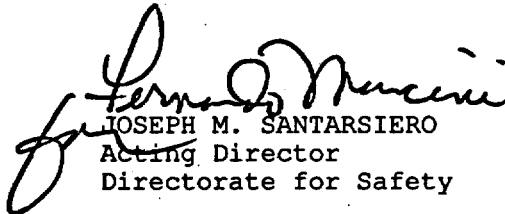
This refers to U.S. Nuclear Regulatory Commission (NRC) License Number 29-01022-06, Docket Number 030-05248; NRC License Number 29-01022-14, Docket Number 030-29741; and to the Radiological Characterization Plan for the U.S. Army Evans Area, Fort Monmouth, Wall Township, New Jersey, dated September 1996.

We have enclosed our responses to your questions in our conversation, of 8 November 1999. Your questions addressed concerns with the Report, Radiological Status Survey of Buildings, Sewer System and Soil in Survey Zones Three and Four at Evans Area, Fort Monmouth, New Jersey, conducted August 1996 to June 1999, Volumes 1 through 5.

As before, we are requesting that permission be granted for the unrestricted radiological release for public use of the buildings and land addressed by this survey report. We are also requesting that you amend the aforementioned NRC Licenses to reflect this release for unrestricted use.

Our points of contact are Mr. Richard Lovell or the undersigned, Voice on (732) 427-4427/3112, ext. 6441/6427; or Facsimile (732) 532-6403 or (732) 542-7161.

Sincerely,


JOSEPH M. SANTARSIERO
Acting Director
Directorate for Safety

Enclosure

127060/127061

RESPONSE TO NRC QUESTIONS ON EVANS AREA ZONE 3 & 4 RADIOLOGICAL
SURVEY REPORT

1. The following calculation is used to determine the scanning MDAs during alpha/beta scan surveys:

$$\text{MDA (dpm/100cm}^2\text{)} = \frac{4.65 \sqrt{\frac{R_b \text{ (cpm)}}{2\tau \text{ (min)}}}}{\epsilon \text{ (cpm / dpm)} \times P_a / 100\text{cm}^2}$$

| | | |
|--------|---|---|
| R_b | = | <i>background rate in counts per minute</i> |
| MDA | = | <i>minimum detectable activity</i> |
| τ | = | <i>meter time constant in minutes</i> |
| E | = | <i>detector efficiency in counts/disintegration</i> |
| P_a | = | <i>active probe area in cm²</i> |
| dpm | = | <i>disintegrations per minute</i> |
| cpm | = | <i>counts per minute</i> |

The calculation uses 2 for the assumption that the probe width scanning time is a two time constants per probe width. However, we scan for longer times on occasion in order to keep our MDA values below 25% of the guideline. The 2 in the equation changes accordingly to the number of time constants used during the scan.

2. Unaffected status final surveys were taken in many buildings throughout zones 3 and 4. The buildings were small or large, containing smaller unaffected areas. For this reason, buildings and portions of buildings were grouped together as survey units. The survey units were based on post location as well as size and availability at the time of survey. The final report for zones 3 and 4 has the buildings listed by zone, in a purely numerical order, without regard to survey unit. The following survey units are amended to the report.

Zone 3- Buildings 9092, 9093, and 9097 are a single survey unit. Buildings 9085, 9120, 9153, and 9155 are a single survey unit. Buildings 9334, 9342, 9344, and 9375 are a single survey unit. Buildings 9393, 9400, 9602, 9614, 9621, and 9629 are a single survey unit. The unaffected areas of buildings 9036A, 9036B, 9036C, and 9036D are a survey unit. The unaffected areas of buildings 9037A, 9037B, 9037C, and 9037D area a survey unit. The unaffected areas in buildings 9017, 9034, 9010A, 9010B, 9010C, and 9010D are a survey unit.

Zone 4- Buildings 9104, 9396, 9610, and 9616 are a single survey unit. The unaffected areas of buildings 9105, 9055, and 9053 are a survey unit. The unaffected areas of buildings 9041 and 9042 are a survey unit.

3. The soil samples collected throughout the zones 3 and 4 open lands were taken as one unaffected survey unit. However, elevated readings were found in eleven soil samples in zones 3 and 4. The elevated sample locations were investigated by performing additional soil samples at each of the elevated locations. At each elevated sample location, an additional sample was taken at the same location, as well as one additional sample taken one meter to the North, East, South, and West, for a total of five follow-up samples. No activity above background was noted in the follow-up investigative surveys. Comparable sample analysis activities can be found in the background soil samples taken from Charles Wood Area. The elevated activity was determined to be a variation in background due to these sample locations being rainwater run-off areas located near downspouts around buildings.

TELEPHONE CONVERSATION LOG

PERSON CALLED: Richard Lovell

ORGANIZATION:
US Army Ft. Monmouth

TELEPHONE NUMBER:
732-427-4427

LICENSE NUMBER:
29-01022-06; 29-01022-14

DOCKET NUMBER:
030-05248; 030-29741

MAIL CONTROL NUMBER:
127060; 127061

PERSON CALLING:

Steve W. Shaffer (610) 337-5256
 USNRC Region I FAX Numbers
 475 Allendale Road (610) 337-5269 or
 King of Prussia, PA 19406 (610) 337-5393

SUBJECT: Need for Additional Information Regarding Release Request.

SUMMARY:

I requested that their December 2, 1999 letter be resubmitted. Item 3 discussed additional sampling for averaging, I requested that the data be submitted. I also pointed out that the current letter had not been signed.

ACTION REQUIRED/TAKEN: Milestone 15.

SIGNATURE:


Steve W. Shaffer

DATE: December 6, 1999

TELEPHONE CONVERSATION LOG

PERSON CALLED: **Richard Lovell**

ORGANIZATION:
US Army Ft. Monmouth

TELEPHONE NUMBER:
732-427-4427

LICENSE NUMBER:
29-01022-06; 29-01022-14

DOCKET NUMBER:
030-05248; 030-29741

MAIL CONTROL NUMBER:
127060; 127061

PERSON CALLING:

Steve W. Shaffer (610) 337-5256
USNRC Region I FAX Numbers
475 Allendale Road (610) 337-5269 or
King of Prussia, PA 19406 (610) 337-5393

SUBJECT: **Need for Additional Information Regarding Release Request.**

SUMMARY:

I requested that a demonstration be submitted demonstrating that their scanning set ups were capable of identifying contamination at 25% of the release criteria.

I requested that they submit a detailed description of their survey unit breakdown. I informed them that a number of their soil samples exceeded their soil release criteria and therefore would need to have been surveyed as affected areas.

ACTION REQUIRED/TAKEN: **Have the MILESTONE 15 deleted from the system.**

SIGNATURE:

SW S
Steve W. Shaffer

DATE: **November 8, 1999**



DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703-5000

MS16
J-5

REPLY TO
ATTENTION OF

October 22, 1999

Directorate for Safety

U.S. Nuclear Regulatory Commission
Region I
DNMS
Attention: Mr. Steven W. Shaffer
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Shaffer:

This refers to U.S. Nuclear Regulatory Commission (NRC) License Number 29-01022-06, Docket Number 030-05248; NRC License Number 29-01022-14, Docket Number 030-29741; and to the Radiological Characterization Plan for the U.S. Army Evans Area, Fort Monmouth, Wall Township, New Jersey, dated September 1996. Control numbers 127060 and 127061 were assigned to this correspondence by your office.

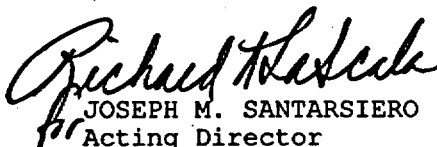
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We have enclosed our responses to your questions in your letter, dated 22 September 1999. Your questions addressed concerns with the Report, Radiological Status Survey of Buildings, Sewer System and Soil in Survey Zones Three and Four at Evans Area, Fort Monmouth, New Jersey, conducted August 1996 to June 1999, Volumes 1 through 5.

As before, we are requesting that permission be granted for the unrestricted radiological release for public use of the buildings and land addressed by this survey report. We are also requesting that you amend the aforementioned NRC Licenses to reflect this release for unrestricted use.

Our points of contact are Mr. Richard Lovell or the undersigned, Voice on (732) 427-4427/3112, ext. 6441/6427; or Facsimile (732) 532-6403 or (732) 542-7161.

Sincerely,


for JOSEPH M. SANTARSIERO
Acting Director
Directorate for Safety

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FAX RECD

**RESPONSE TO NRC QUESTIONS ON
EVANS AREA ZONE 3 & 4 RADIOLOGICAL SURVEY REPORT
21 October 1999**

1. A review of the release limit for removable tritium revealed a typographical error in Table 1 of the Zone 3 and 4 report. The correct release limit is 1000 disintegrations per minute (dpm)/100 cm². It should be noted that the analysis results for all tritium smears taken were well below the revised release criteria of 1000 dpm/100 cm².
2. Based on all historical data, findings, and personnel interviews conducted, it was concluded that there was no reason to expect any contamination on the walls and ceiling above two meters for over 140 buildings contained within Zone 3 and 4. As well, there were no research and development operations performed in zones 3 and 4 that could have necessitated any surveying of the upper walls and ceilings. In addition, analysis of survey data documentation and the results from surveys below two meters and the floor area, it was considered appropriate and cost effective to incorporate a survey protocol where the upper walls above two meters and ceilings would only be surveyed if widespread fixed or loose contamination exceeded 25% of the contamination limits.
3. Based on historical reviews of all records and interviews conducted with Government and contractor personnel familiar with research and development activities at the Evans Area, it was concluded that the main parking lot would be classified as a non-impacted area. This parking lot is located outside of the security fence and was utilized predominantly as the official visitors parking lot for the Evans Area. There were no records to indicate that any radioactive material was ever transported or temporarily stored in this parking lot. Personnel leaving the Evans Area were required to egress through a walk-through security building prior to entering the parking lot area. In order to ensure that no contamination could have been present in the parking lot, an in-depth review of all radiation protection survey documentation was performed. During this review, no records were found to indicate that contamination was ever present in any of the building hallways and common outdoor walkways located within Zones 3 and 4.
4. Calibration Data Sheets for the Ludlum survey instruments utilizing either the 43-37 or the 43-89 detectors and Eberline E600 survey instrument assemblies utilizing either the SPA-8 or the SH380 detectors are provided as Enclosure 1. The Ludlum 43-89 and 34-37-1 detector probes were used for scanning purposes where site scanning protocol met the requirements of NUREG/CR 5849, which is 25% of the contamination guidelines.
5. Based on a detailed review of all survey documentation, all elevated radiation readings were from natural contaminants found in various building materials. We evaluated the various construction materials, which revealed that ceramic tiles, sinks, toilets, urinals, cinderblock and brick walls were the main sources of these elevated readings. Historical records and interviews indicated that there was no radiation history for the four specific buildings identified in your letter dated 22 September 1999. Data obtained from the radiation protection building documentation files indicates the following information:

RESPONSE TO NRC QUESTIONS ON
EVANS AREA ZONE 3 & 4 RADIOLOGICAL SURVEY REPORT
21 October 1999

| <u>Building</u> | <u>Source of Elevated Reading</u> |
|-----------------|-----------------------------------|
| 9011DR27 | Ceramic tiles and sinks. |
| 9013R13 | Ceramic urinals. |
| 9043R25 | Porcelain sinks. |
| 9393R12 | Bathroom fixtures. |

Based on this data, there was no reason to reclassify any of the buildings from unaffected to an affected status as required by NUREG/CR-5849.

6. Our interpretation of CR/5849 is that CR/5849 does not clearly address smaller (<1500 square meter) building/areas as separate survey units. As well, we understand the minimum requirement for unaffected area survey points per unit area is an average measurement of one sample point per fifty meters squared. Our survey protocol for performing surveys in unaffected buildings of less than 1500 square meters was one sample point per fifty meters square. Our data (presented individually by survey unit/building/room) may present individual cases of survey units totaling less than 30 sample points per that individual survey unit simply because the surveys unit was less than 1500 square meters. It is noteworthy to mention that, if the total number of collected data points were combined for zones 3 and 4 unaffected areas, then the data would show that of 67 unaffected areas inside zones 3 and 4 contained over 3000 sampling points. The average number of sample points taken for the total number of survey units exceeds the minimum requirements of CR/5849. In addition, all unaffected areas received a scan of 50% of the total floor area and a minimum 10% of the total wall area.

Zones 3 and 4, respectively, were each classified as unique land survey units, however the sampling locations were biased such that they were taken adjacent to affected buildings located in zones 3 and 4. Data analysis confirms that both survey units (zones 3 and 4) contained more than 30 samples per unit, i.e., Zone 3 contained 187 soil samples and Zone 4 contained 110 soil samples.

7. A review of historical records and interviews indicates that there was no radiation history associated with building 9053. A review of the radiation protection building documentation files indicated that the source of elevated readings was from naturally occurring isotopes found in the composition of the sink material. Based on this information, no additional surveys were taken around the sink trap.

8. All soil data has been converted to net results. This data is provided as enclosure 2.

9. This information was provided and coordinated under separate cover, dated 23 September 1999.