

Health Physics Sample Records

Sample ID: 142437

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized:

Description: 140528BD 08 STAR 8-20 Dirt Sample

Common

Resp Org: P4000 - PROJECT MANAGEMEN

Cross Ref Sample ID:

Priority: N

Contact: COOPER, TERRY L

Survey No:

Reference ID:

Accounting Subcode:

Unknown Mat: NO

Hazardous Mat: NO

Comments:

Reviewed: DYNES, WILLIAM J

Date: 05/29/14 11:24

Comments:

Origin

Mat. Size/Volume: 1000 ml

Docmnt/MO/Act #:

Proposed Ship Date: 00/00/00 00:00

Description: STAR 02 SOIL SAMPLE

Collection

Sample Tech: DYNES, WILLIAM J

Sample Date: 05/28/14 13:11

Count Time: 900 (secs.)

Tritium Req: No

Sample Size/Volume: 2104 GRAMS

Instructions:

Comments: COUNT TO MDA

RLSSS

Exempt: No

Evaluated: No

Chem Notification: No

State Permit: No

Offsite Analysis: No

Effluent Permit: No

Container Surveyed: No

Cleared For Release: Yes

Container Evaluated: Yes

Form 212 Ready:

Location

Unit: NON-UNIT RE

Area: MS

Elev: 100

Room:

Depth: 3" (in.)

Equip ID:

Stored By: ,

Date: 00/00/00 00:00

Sample Loc:

Other:

Material Loc:


Health Physics Sample Records

Sample ID: **142437**

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Status: APPROVED

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Description: 140528BD 08 STAR 8-20 Dirt Sample

Analysis

| Geometry | MCA ID | Quant. | Units | Method | FP/AP | Lab | Analysis By | Date | Mod ID | Mod Date |
|----------------------|--------|--------|-------|--------|-------|-----|--------------------|----------------|--------|----------|
| A_1L_marinelli_sand_ | 30270 | 2104 | GR | | .000 | | ABERNATHY, AGNES B | 05/29/14 16:13 | | |

| Isotope | Mode | Activity | Activity Uncert. | LLD/MDA | % Abund. | Atom. No. | Comments | Mod Id | Mod Date |
|----------|------|------------|------------------|---------|----------|-----------|----------|--------|----------|
| 0 K-40 | NT | 0.00001147 | 1.2E-6 | ┌ | 83.624% | 40 | | | |
| 0 PB-212 | NT | 6.502E-7 | 1.47E-7 | ┌ | 4.740% | 212 | | | |
| 0 BI-214 | NT | 3.284E-7 | 8.24E-8 | ┌ | 2.394% | 214 | | | |
| 0 PB-214 | NT | 7.043E-7 | 2.136E-7 | ┌ | 5.135% | 214 | | | |
| 0 AC-228 | NT | 5.633E-7 | 1.499E-7 | ┌ | 4.107% | 228 | | | |
| 0 BE-7 | AP | 5.5993E-7 | | √ | 0.000% | 7 | | | |
| 0 MN-54 | AP | 1.0108E-7 | | √ | 0.000% | 54 | | | |
| 0 MN-56 | AP | 7.6673E-8 | | √ | 0.000% | 56 | | | |
| 0 CO-57 | AP | 7.8074E-8 | | √ | 0.000% | 57 | | | |
| 0 CO-58 | AP | 1.0738E-7 | | √ | 0.000% | 58 | | | |
| 0 CO-60 | AP | 9.5645E-8 | | √ | 0.000% | 60 | | | |
| 0 SB-124 | AP | 7.1542E-8 | | √ | 0.000% | 124 | | | |
| 0 SB-125 | FP | 1.7945E-7 | | √ | 0.000% | 125 | | | |
| 0 CS-134 | FP | 7.1416E-8 | | √ | 0.000% | 134 | | | |
| 0 CS-137 | FP | 2.25E-8 | | √ | 0.000% | 137 | | | |

Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 09:48

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:

Health Physics Sample Records

Sample ID: 142437

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized:]

Description: 140528BD 08 STAR 8-20 Dirt Sample

Review/Approve

HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 09:48

Comments:

Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 09:48

Comments:

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*****
*          SONGS                      HEALTH PHYSICS REPORT          29-MAY-2014 16:07 *
*-----*
*                >>>> SAMPLE PARAMETERS <<<<<                *
*
* Title       : 140528BD 08 STAR 8-20 DIRT SAMPLE                *
*
* ID          : 30270                      Acquisition date: 29-MAY-2014 16:04:02 *
* Start Time: 29-MAY-2014 16:04:00
* Stop Time : 29-MAY-2014 16:04:00      Counting System   : U2GSP          *
* Quantity  : 2.10400E+03 GR              IHPS Sample Number: 142437      *
* Geometry  : A_1L_marinelli_sand_1      Analysis Library  : HP_NATURAL   *
*                               Operator: AGNES ABERNATHY          *
*-----*
*                >>>> A #41-TP11679B PARAMETERS <<<<<                *
*
* Elapsed Live Time : 0 00:03:00.39      Calibration       : 28-MAY-2014 21:10 *
* Elapsed Real Time  : 0 00:03:00.45      Energy Offset    : 2.58874E-01      *
* Deadtime           : 0.0%                Energy Slope     : 4.99485E-01      *
* Activity Mult Factor: 1.00000E+00        Energy Tolerance: 1.00000          *
* Half Life Ratio    : 8.00000            Sensitivity      : 5.00000          *
*
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Post-NID Peak Search Report

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | %Err | Fit | Nuclides |
|----|---------|------|-------|------|---------|------|----|------|----------|----------|
| 1 | 238.28 | 83 | 82 | 1.39 | 476.54 | 473 | 11 | 22.6 | 1.54E+01 | PB-212 |
| 1 | 295.34 | 34 | 20 | 1.55 | 590.76 | 586 | 12 | 30.3 | 1.03E+00 | PB-214 |
| 1 | 338.10 | 17 | 9 | 1.50 | 676.39 | 673 | 9 | 39.9 | 1.38E+00 | AC-228 |
| 1 | 351.84 | 51 | 18 | 1.93 | 703.90 | 700 | 10 | 21.2 | 8.24E+00 | PB-214 |
| 1 | 609.30 | 22 | 2 | 1.64 | 1219.35 | 1215 | 9 | 25.1 | 8.71E-01 | BI-214 |
| 1 | 911.24 | 17 | 2 | 1.67 | 1823.86 | 1819 | 8 | 26.6 | 2.23E-01 | AC-228 |
| 1 | 1460.73 | 91 | 0 | 1.92 | 2924.03 | 2919 | 10 | 10.4 | 7.20E-01 | K-40 |

Summary of Nuclide Activity
Sample ID : 30270

Page : 2
Acquisition date : 29-MAY-2014 16:04:02

Total number of lines in spectrum 7
Number of unidentified lines 0
Number of lines tentatively identified by NID 7 100.00%

Nuclide Type : natural

| Nuclide | Hlife | Decay | Uncorrected uCi/GR | Decay Corr uCi/GR | Decay Corr 1-Sigma Error | 1-Sigma %Error | Flags |
|------------------|-----------|-------|-----------------------|----------------------|-----------------------------|-------------------|-------|
| K-40 | 1.28E+09Y | 1.00 | 1.147E-05 | 1.147E-05 | 0.120E-05 | 10.45 | A |
| PB-212 | 10.64H | 1.00 | 6.492E-07 | 6.502E-07 | 1.470E-07 | 22.61 | A |
| BI-214 | 19.90M | 1.05 | 3.113E-07 | 3.284E-07 | 0.824E-07 | 25.10 | A |
| PB-214 | 26.80M | 1.04 | 6.768E-07 | 7.043E-07 | 2.136E-07 | 30.33 | A |
| AC-228 | 6.13H | 1.00 | 5.617E-07 | 5.633E-07 | 1.499E-07 | 26.61 | A |
| Total Activity : | | | 1.367E-05 | 1.371E-05 | | | |

Grand Total Activity : 1.367E-05 1.371E-05

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Unidentified Energy Lines
Sample ID : 30270

Page : 3
Acquisition date : 29-MAY-2014 16:04:02

None

Flags: "T" = Tentatively associated

Interference Report
Sample ID : 30270

Page : 4
Acquisition date : 29-MAY-2014 16:04:02

No interference correction performed

Nuclide Type: natural

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected Decay Corr | | 1-Sigma |
|---------|---------|-------|-----------|-----------|------------------------|----------------|---------|
| | | | | | uCi/GR | uCi/GR | |
| K-40 | 1460.83 | 91 | 10.67* | 5.314E-01 | 1.147E-05 | 1.147E-05 | 10.45 |
| PB-212 | 74.81 | ----- | 10.50 | 1.685E+00 | ----- | Line Not Found | ----- |
| | 77.11 | ----- | 17.70 | 1.782E+00 | ----- | Line Not Found | ----- |
| | 87.19 | ----- | 6.27 | 2.129E+00 | ----- | Line Not Found | ----- |
| | 90.13 | ----- | 1.86 | 2.206E+00 | ----- | Line Not Found | ----- |
| | 115.12 | ----- | 0.59 | 2.535E+00 | ----- | Line Not Found | ----- |
| | 238.58 | 83 | 43.60* | 2.084E+00 | 6.492E-07 | 6.502E-07 | 22.61 |
| BI-214 | 300.03 | ----- | 3.34 | 1.834E+00 | ----- | Line Not Found | ----- |
| | 76.86 | ----- | 0.58 | 1.772E+00 | ----- | Line Not Found | ----- |
| | 79.29 | ----- | 0.97 | 1.869E+00 | ----- | Line Not Found | ----- |
| | 609.31 | 22 | 46.10* | 1.084E+00 | 3.113E-07 | 3.284E-07 | 25.10 |
| | 665.44 | ----- | 1.56 | 9.985E-01 | ----- | Line Not Found | ----- |
| | 768.35 | ----- | 4.88 | 8.685E-01 | ----- | Line Not Found | ----- |
| | 806.16 | ----- | 1.23 | 8.283E-01 | ----- | Line Not Found | ----- |
| | 934.04 | ----- | 3.16 | 7.177E-01 | ----- | Line Not Found | ----- |
| | 1120.27 | ----- | 15.00 | 6.114E-01 | ----- | Line Not Found | ----- |
| | 1155.18 | ----- | 1.69 | 5.973E-01 | ----- | Line Not Found | ----- |
| | 1238.11 | ----- | 5.92 | 5.697E-01 | ----- | Line Not Found | ----- |
| | 1280.95 | ----- | 1.47 | 5.585E-01 | ----- | Line Not Found | ----- |
| | 1377.66 | ----- | 4.02 | 5.401E-01 | ----- | Line Not Found | ----- |
| | 1385.30 | ----- | 0.78 | 5.391E-01 | ----- | Line Not Found | ----- |
| | 1401.48 | ----- | 1.39 | 5.370E-01 | ----- | Line Not Found | ----- |
| | 1407.97 | ----- | 2.48 | 5.362E-01 | ----- | Line Not Found | ----- |
| | 1509.22 | ----- | 2.19 | 5.292E-01 | ----- | Line Not Found | ----- |
| | 1583.22 | ----- | 0.72 | 5.296E-01 | ----- | Line Not Found | ----- |
| 1661.26 | ----- | 1.15 | 5.351E-01 | ----- | Line Not Found | ----- | |
| 1729.58 | ----- | 3.05 | 5.442E-01 | ----- | Line Not Found | ----- | |
| 1764.49 | ----- | 15.90 | 5.503E-01 | ----- | Line Not Found | ----- | |
| 1847.41 | ----- | 2.12 | 5.694E-01 | ----- | Line Not Found | ----- | |
| PB-214 | 53.17 | ----- | 1.10 | 5.543E-01 | ----- | Line Not Found | ----- |
| | 74.81 | ----- | 6.52 | 1.685E+00 | ----- | Line Not Found | ----- |
| | 77.11 | ----- | 11.00 | 1.782E+00 | ----- | Line Not Found | ----- |
| | 87.19 | ----- | 3.88 | 2.129E+00 | ----- | Line Not Found | ----- |
| | 90.13 | ----- | 1.15 | 2.206E+00 | ----- | Line Not Found | ----- |
| | 241.92 | ----- | 7.46 | 2.067E+00 | ----- | Line Not Found | ----- |
| | 258.94 | ----- | 0.55 | 1.994E+00 | ----- | Line Not Found | ----- |
| | 295.09 | 34 | 19.20* | 1.851E+00 | 6.768E-07 | 7.043E-07 | 30.33 |
| 351.87 | 51 | 37.10 | 1.662E+00 | 5.925E-07 | 6.165E-07 | 21.20 | |
| AC-228 | 785.83 | ----- | 1.09 | 8.495E-01 | ----- | Line Not Found | ----- |
| | 839.00 | ----- | 0.59 | 7.964E-01 | ----- | Line Not Found | ----- |
| | 89.96 | ----- | 3.40 | 2.201E+00 | ----- | Line Not Found | ----- |
| | 93.35 | ----- | 5.60 | 2.279E+00 | ----- | Line Not Found | ----- |
| | 99.55 | ----- | 1.30 | 2.389E+00 | ----- | Line Not Found | ----- |
| | 105.36 | ----- | 2.00 | 2.463E+00 | ----- | Line Not Found | ----- |
| | 108.99 | ----- | 0.67 | 2.496E+00 | ----- | Line Not Found | ----- |
| | 129.03 | ----- | 2.90 | 2.562E+00 | ----- | Line Not Found | ----- |
| | 153.89 | ----- | 0.84 | 2.496E+00 | ----- | Line Not Found | ----- |
| | 209.39 | ----- | 4.10 | 2.221E+00 | ----- | Line Not Found | ----- |
| 216.24 | ----- | 0.80 | 2.187E+00 | ----- | Line Not Found | ----- | |

Nuclide Type: natural

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected Decay Corr | | 1-Sigma %Error |
|---------|---------|-------|--------|-----------|------------------------|----------------|-------------------|
| | | | | | uCi/GR | uCi/GR | |
| | 270.26 | ----- | 3.80 | 1.948E+00 | ----- | Line Not Found | ----- |
| | 328.07 | ----- | 3.50 | 1.738E+00 | ----- | Line Not Found | ----- |
| | 338.42 | 17 | 12.40 | 1.705E+00 | 5.741E-07 | 5.758E-07 | 39.90 |
| | 340.94 | ----- | 0.52 | 1.696E+00 | ----- | Line Not Found | ----- |
| | 409.62 | ----- | 2.20 | 1.499E+00 | ----- | Line Not Found | ----- |
| | 463.10 | ----- | 4.60 | 1.368E+00 | ----- | Line Not Found | ----- |
| | 562.65 | ----- | 1.01 | 1.164E+00 | ----- | Line Not Found | ----- |
| | 581.52 | ----- | 3.00 | 1.131E+00 | ----- | Line Not Found | ----- |
| | 726.63 | ----- | 0.87 | 9.173E-01 | ----- | Line Not Found | ----- |
| | 755.28 | ----- | 1.32 | 8.833E-01 | ----- | Line Not Found | ----- |
| | 772.28 | ----- | 1.09 | 8.641E-01 | ----- | Line Not Found | ----- |
| | 782.12 | ----- | 0.59 | 8.534E-01 | ----- | Line Not Found | ----- |
| | 794.79 | ----- | 4.60 | 8.400E-01 | ----- | Line Not Found | ----- |
| | 830.59 | ----- | 0.63 | 8.043E-01 | ----- | Line Not Found | ----- |
| | 835.60 | ----- | 1.71 | 7.996E-01 | ----- | Line Not Found | ----- |
| | 840.44 | ----- | 0.94 | 7.951E-01 | ----- | Line Not Found | ----- |
| | 904.29 | ----- | 0.89 | 7.403E-01 | ----- | Line Not Found | ----- |
| | 911.16 | 17 | 29.00* | 7.348E-01 | 5.617E-07 | 5.633E-07 | 26.61 |
| | 964.64 | ----- | 5.80 | 6.962E-01 | ----- | Line Not Found | ----- |
| | 968.97 | ----- | 17.40 | 6.933E-01 | ----- | Line Not Found | ----- |
| | 1246.60 | ----- | 0.57 | 5.673E-01 | ----- | Line Not Found | ----- |
| | 1459.19 | ----- | 1.06 | 5.315E-01 | ----- | Line Not Found | ----- |
| | 1496.00 | ----- | 1.05 | 5.296E-01 | ----- | Line Not Found | ----- |
| | 1501.44 | ----- | 0.58 | 5.294E-01 | ----- | Line Not Found | ----- |
| | 1580.30 | ----- | 0.71 | 5.295E-01 | ----- | Line Not Found | ----- |
| | 1588.23 | ----- | 3.60 | 5.298E-01 | ----- | Line Not Found | ----- |
| | 1630.47 | ----- | 1.95 | 5.324E-01 | ----- | Line Not Found | ----- |
| | 1638.10 | ----- | 0.54 | 5.330E-01 | ----- | Line Not Found | ----- |

Flag: "*" = Keyline

| Nuclide | Bckgnd Sum | Energy (keV) | MDA (uCi/GR) |
|---------|---------------|-----------------|-----------------|
| BE-7 | 3. | 477.61 | 5.5993E-07 |
| MN-54 | 3. | 834.83 | 1.0108E-07 |
| MN-56 | 1. | 846.81 | 7.6673E-08 |
| CO-57 | 21. | 122.06 | 7.8074E-08 |
| CO-58 | 4. | 810.79 | 1.0738E-07 |
| CO-60 | 1. | 1332.50 | 9.5645E-08 |
| SB-124 | 3. | 602.73 | 7.1542E-08 |
| SB-125 | 3. | 427.88 | 1.7945E-07 |
| CS-134 | 3. | 604.71 | 7.1416E-08 |
| CS-137 | 0. | 661.66 | 2.2500E-08 |