

Health Physics Sample Records

Sample ID: 142522

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: ☒

Description: 140528BD 03 STAR YARD # 3-20

Common

Resp Org: P4000 - PROJECT MANAGEMEN

Cross Ref Sample ID:

Priority: N

Contact: COOPER, TERRY L

Survey No:

Reference ID: 142432

Accounting Subcode:

Unknown Mat: NO

Hazardous Mat: NO

Comments: COUNT TO MDA

Reviewed: DYNES, WILLIAM J

Date: 06/11/14 10:33

Comments: COUNT TO MDA

Origin

Mat. Size/Volume: 1816 GRAMS

Docmnt/MO/Act #:

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

Description: STAR YARD # 3

Collection

Sample Tech: DYNES, WILLIAM J

Sample Date: 05/23/14 12:48

Count Time: 900 (secs.)

Tritium Req: No

Sample Size/Volume: 1816 GRAMS

Instructions: COUNT TO MDA

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: (in.)

Equip ID:

Stored By: ,

Date: 00/00/00 00:00

Sample Loc:

Other: COUNT TO MDA

Material Loc:


Health Physics Sample Records

Sample ID: 142522

Type: RLSSS



















Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140528BD 03 STAR YARD # 3-20

Analysis

| Geometry | MCA ID | Quant. | Units | Method | FP/AP | Lab | Analysis By | Date | Mod ID | Mod Date |
|----------------------|--------|-----------|------------------|---|----------|-----------|------------------|----------------|--------|----------|
| A_1L_marinelli_sand_ | 1015 | 1000 gr | | | .000 | | DYNES, WILLIAM J | 06/11/14 14:03 | | |
| Isotope | Mode | Activity | Activity Uncert. | LLD/MDA | % Abund. | Atom. No. | Comments | | Mod Id | Mod Date |
| 0 BE-7 | AP | 1.393E-6 | 4.11E-7 |  | 7.760% | 7 | | | | |
| 0 K-40 | NT | 0.0000109 | 1.22E-6 |  | 60.722% | 40 | | | | |
| 0 TL-208 | NT | 4.929E-7 | 1.119E-7 |  | 2.746% | 208 | | | | |
| 0 PB-212 | NT | 6.869E-7 | 1.014E-7 |  | 3.827% | 212 | | | | |
| 0 BI-214 | NT | 6.623E-7 | 1.248E-7 |  | 3.690% | 214 | | | | |
| 0 PB-214 | NT | 4.85E-7 | 2.183E-7 |  | 2.702% | 214 | | | | |
| 0 RA-226 | NT | 2.663E-6 | 8.27E-7 |  | 14.835% | 226 | | | | |
| 0 AC-228 | NT | 5.029E-7 | 3.466E-7 |  | 2.802% | 228 | | | | |
| 0 U-235 | NT | 1.648E-7 | 5.55E-8 |  | 0.918% | 235 | | | | |
| 0 MN-54 | AP | 7.4934E-8 | |  | 0.000% | 54 | | | | |
| 0 MN-56 | AP | 2.2478E-8 | |  | 0.000% | 56 | | | | |
| 0 CO-57 | AP | 7.6585E-8 | |  | 0.000% | 57 | | | | |
| 0 CO-58 | AP | 1.0182E-7 | |  | 0.000% | 58 | | | | |
| 0 CO-60 | AP | 1.1046E-7 | |  | 0.000% | 60 | | | | |
| 0 SB-124 | AP | 7.1267E-8 | |  | 0.000% | 124 | | | | |
| 0 SB-125 | FP | 1.8533E-7 | |  | 0.000% | 125 | | | | |
| 0 CS-134 | FP | 1.1345E-7 | |  | 0.000% | 134 | | | | |
| 0 CS-137 | FP | 1.7609E-7 | |  | 0.000% | 137 | | | | |

Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/17/14 13:53

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments: This is a replacement for ID# 142432 that had error in description (2-20 vs: 3-20)


Health Physics Sample Records

Sample ID: **142522**

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140528BD 03 STAR YARD # 3-20

Review/Approve

HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/17/14 13:54

Comments: U-235 likely mis-ID'd off Ra-226 energy peak. Be-7 is a natural product coming from cosmic ray interaction.

Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

Final Approval

Approved: COOPER, TERRY L

Date: 06/17/14 13:54

Comments:

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*****
*          SONGS                      HEALTH PHYSICS REPORT          11-JUN-2014 14:00  *
*-----*
*          >>>> SAMPLE  PARAMETERS <<<<<          *
*          *
* Title      :          *
*          *
* ID         : 1015          Acquisition date: 11-JUN-2014 13:52:23 *
* Start Time: 11-JUN-2014 13:52:00          *
* Stop Time: 11-JUN-2014 13:52:00          Counting System   : U1GSP          *
* Quantity   : 1.00000E+03 gr          IHPS Sample Number: 142477          *
* Geometry   : A_1L_marinelli_sand_1      Analysis Library  : HP_NATURAL          *
*          Operator: BILL DYNES          *
*-----*
*          >>>> A -1922924  PARAMETERS <<<<<          *
*          *
* Elapsed Live Time : 0 00:08:00.44 Calibration      : 11-JUN-2014 09:11          *
* Elapsed Real Time  : 0 00:08:00.56 Energy Offset   : -1.07429E-01          *
* Deadtime           : 0.0%          Energy Slope    : 4.99821E-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 | 77.44 | 39 | 57 | 1.21 | 155.14 | 152 | 7 | 36.4 | 2.12E+00 | BI-214 PB-212 PB-214 |
| 1 | 185.95 | 34 | 19 | 1.73 | 372.24 | 366 | 10 | 30.9 | 9.64E-01 | U-235 RA-226 |
| 1 | 209.55 | 31 | 11 | 2.26 | 419.46 | 414 | 11 | 27.8 | 8.38E-01 | AC-228 |
| 1 | 238.66 | 103 | 35 | 1.01 | 477.69 | 473 | 9 | 14.1 | 1.73E+00 | PB-212 |
| 1 | 295.20 | 25 | 24 | 1.75 | 590.80 | 583 | 12 | 44.8 | 1.59E+00 | PB-214 |
| 1 | 338.64 | 17 | 26 | 1.13 | 677.69 | 672 | 14 | 66.3 | 2.17E+00 | AC-228 |
| 1 | 351.94 | 60 | 2 | 1.34 | 704.30 | 700 | 9 | 14.1 | 1.41E+00 | PB-214 |
| 1 | 477.68 | 31 | 12 | 2.18 | 955.83 | 949 | 12 | 28.9 | 7.81E-01 | BE-7 |
| 1 | 511.07 | 32 | 0 | 2.96 | 1022.62 | 1017 | 14 | 18.4 | 5.39E-01 | TL-208 |
| 1 | 583.46 | 32 | 5 | 1.41 | 1167.44 | 1163 | 9 | 22.0 | 1.02E+00 | TL-208 |
| 1 | 609.38 | 45 | 7 | 1.59 | 1219.28 | 1215 | 9 | 18.4 | 1.33E+00 | BI-214 |
| 1 | 1460.58 | 93 | 0 | 1.97 | 2921.64 | 2914 | 14 | 10.6 | 7.26E-01 | K-40 |

Summary of Nuclide Activity
Sample ID : 1015

Page : 2
Acquisition date : 11-JUN-2014 13:52:23

Total number of lines in spectrum 12
Number of unidentified lines 0
Number of lines tentatively identified by NID 12 100.00%

Nuclide Type : activation

| Nuclide | Hlife | Decay | Uncorrected uCi/gr | Decay Corr uCi/gr | Decay Corr 1-Sigma Error | 1-Sigma %Error | Flags |
|------------------|--------|-------|-----------------------|----------------------|-----------------------------|-------------------|-------|
| BE-7 | 53.29D | 1.00 | 1.393E-06 | 1.393E-06 | 0.411E-06 | 29.51 | A |
| Total Activity : | | | 1.393E-06 | 1.393E-06 | | | |

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 | 1.090E-05 | 1.090E-05 | 0.122E-05 | 11.16 | A |
| TL-208 | 3.05M | 2.37 | 2.078E-07 | 4.929E-07 | 1.119E-07 | 22.70 | A |
| PB-212 | 10.64H | 1.00 | 6.837E-07 | 6.869E-07 | 1.014E-07 | 14.76 | A |
| BI-214 | 19.90M | 1.16 | 5.701E-07 | 6.623E-07 | 1.248E-07 | 18.85 | A |
| PB-214 | 26.80M | 1.12 | 4.337E-07 | 4.850E-07 | 2.183E-07 | 45.00 | A |
| RA-226 | 1600.00Y | 1.00 | 2.663E-06 | 2.663E-06 | 0.827E-06 | 31.05 | A |
| AC-228 | 6.13H | 1.01 | 4.988E-07 | 5.029E-07 | 3.466E-07 | 68.91 | KA |
| U-235 | 7.04E+08Y | 1.00 | 1.648E-07 | 1.648E-07 | 0.555E-07 | 33.67 | A |
| Total Activity : | | | 1.612E-05 | 1.656E-05 | | | |

Grand Total Activity : 1.752E-05 1.795E-05

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

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

Unidentified Energy Lines
Sample ID : 1015

Page : 3
Acquisition date : 11-JUN-2014 13:52:23

None

Flags: "T" = Tentatively associated

Interference Report
Sample ID : 1015

Page : 4
Acquisition date : 11-JUN-2014 13:52:23

No interference correction performed

Nuclide Type: activation

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected uCi/gr | Decay Corr uCi/gr | 1-Sigma %Error |
|---------|--------|------|--------|-----------|-----------------------|----------------------|-------------------|
| BE-7 | 477.61 | 31 | 10.39* | 1.188E+00 | 1.393E-06 | 1.393E-06 | 29.51 |

Nuclide Type: natural

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected uCi/gr | Decay Corr uCi/gr | 1-Sigma %Error |
|---------|---------|-------|--------|-----------|-----------------------|----------------------|-------------------|
| K-40 | 1460.83 | 93 | 10.67* | 4.483E-01 | 1.090E-05 | 1.090E-05 | 11.16 |
| TL-208 | 72.80 | ----- | 2.14 | 1.155E+00 | ----- | Line Not Found | ----- |
| | 74.97 | ----- | 3.60 | 1.239E+00 | ----- | Line Not Found | ----- |
| | 84.79 | ----- | 1.27 | 1.578E+00 | ----- | Line Not Found | ----- |
| | 252.45 | ----- | 0.80 | 1.887E+00 | ----- | Line Not Found | ----- |
| | 277.28 | ----- | 6.80 | 1.783E+00 | ----- | Line Not Found | ----- |
| | 510.61 | 32 | 21.60 | 1.120E+00 | 7.384E-07 | 1.752E-06 | 19.57 |
| | 583.02 | 32 | 86.00* | 9.947E-01 | 2.078E-07 | 4.929E-07 | 22.70 |
| | 763.06 | ----- | 1.64 | 7.714E-01 | ----- | Line Not Found | ----- |
| | 860.30 | ----- | 12.00 | 6.870E-01 | ----- | Line Not Found | ----- |
| PB-212 | 74.81 | ----- | 10.50 | 1.233E+00 | ----- | Line Not Found | ----- |
| | 77.11 | 39 | 17.70 | 1.331E+00 | 9.315E-07 | 9.359E-07 | 36.66 |
| | 87.19 | ----- | 6.27 | 1.650E+00 | ----- | Line Not Found | ----- |
| | 90.13 | ----- | 1.86 | 1.730E+00 | ----- | Line Not Found | ----- |
| | 115.12 | ----- | 0.59 | 2.162E+00 | ----- | Line Not Found | ----- |
| | 238.58 | 103 | 43.60* | 1.948E+00 | 6.837E-07 | 6.869E-07 | 14.76 |
| | 300.03 | ----- | 3.34 | 1.694E+00 | ----- | Line Not Found | ----- |
| BI-214 | 76.86 | 39 | 0.58 | 1.331E+00 | 2.843E-05 | 3.302E-05 | 36.87 |
| | 79.29 | ----- | 0.97 | 1.397E+00 | ----- | Line Not Found | ----- |
| | 609.31 | 45 | 46.10* | 9.556E-01 | 5.701E-07 | 6.623E-07 | 18.85 |
| | 665.44 | ----- | 1.56 | 8.797E-01 | ----- | Line Not Found | ----- |
| | 768.35 | ----- | 4.88 | 7.663E-01 | ----- | Line Not Found | ----- |
| | 806.16 | ----- | 1.23 | 7.315E-01 | ----- | Line Not Found | ----- |
| | 934.04 | ----- | 3.16 | 6.352E-01 | ----- | Line Not Found | ----- |
| | 1120.27 | ----- | 15.00 | 5.391E-01 | ----- | Line Not Found | ----- |
| | 1155.18 | ----- | 1.69 | 5.255E-01 | ----- | Line Not Found | ----- |
| | 1238.11 | ----- | 5.92 | 4.976E-01 | ----- | Line Not Found | ----- |
| | 1280.95 | ----- | 1.47 | 4.855E-01 | ----- | Line Not Found | ----- |
| | 1377.66 | ----- | 4.02 | 4.629E-01 | ----- | Line Not Found | ----- |
| | 1385.30 | ----- | 0.78 | 4.614E-01 | ----- | Line Not Found | ----- |
| | 1401.48 | ----- | 1.39 | 4.583E-01 | ----- | Line Not Found | ----- |
| | 1407.97 | ----- | 2.48 | 4.571E-01 | ----- | Line Not Found | ----- |
| | 1509.22 | ----- | 2.19 | 4.415E-01 | ----- | Line Not Found | ----- |
| | 1583.22 | ----- | 0.72 | 4.336E-01 | ----- | Line Not Found | ----- |
| | 1661.26 | ----- | 1.15 | 4.280E-01 | ----- | Line Not Found | ----- |
| | 1729.58 | ----- | 3.05 | 4.255E-01 | ----- | Line Not Found | ----- |
| | 1764.49 | ----- | 15.90 | 4.249E-01 | ----- | Line Not Found | ----- |
| | 1847.41 | ----- | 2.12 | 4.256E-01 | ----- | Line Not Found | ----- |
| PB-214 | 53.17 | ----- | 1.10 | 3.707E-01 | ----- | Line Not Found | ----- |
| | 74.81 | ----- | 6.52 | 1.233E+00 | ----- | Line Not Found | ----- |
| | 77.11 | 39 | 11.00 | 1.331E+00 | 1.499E-06 | 1.676E-06 | 36.69 |
| | 87.19 | ----- | 3.88 | 1.650E+00 | ----- | Line Not Found | ----- |
| | 90.13 | ----- | 1.15 | 1.730E+00 | ----- | Line Not Found | ----- |

Nuclide Type: natural

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected Decay Corr | | 1-Sigma |
|---------|---------|-------|--------|-----------|------------------------|----------------|---------|
| | | | | | uCi/gr | uCi/gr | %Error |
| RA-226 | 241.92 | ----- | 7.46 | 1.933E+00 | ----- | Line Not Found | ----- |
| | 258.94 | ----- | 0.55 | 1.859E+00 | ----- | Line Not Found | ----- |
| | 295.09 | 25 | 19.20* | 1.713E+00 | 4.337E-07 | 4.850E-07 | 45.00 |
| | 351.87 | 60 | 37.10 | 1.515E+00 | 6.045E-07 | 6.760E-07 | 14.74 |
| | 785.83 | ----- | 1.09 | 7.498E-01 | ----- | Line Not Found | ----- |
| | 839.00 | ----- | 0.59 | 7.038E-01 | ----- | Line Not Found | ----- |
| | 81.07 | ----- | 0.18 | 1.459E+00 | ----- | Line Not Found | ----- |
| | 186.11 | 34 | 3.28* | 2.180E+00 | 2.663E-06 | 2.663E-06 | 31.05 |
| | 89.96 | ----- | 3.40 | 1.726E+00 | ----- | Line Not Found | ----- |
| | 93.35 | ----- | 5.60 | 1.811E+00 | ----- | Line Not Found | ----- |
| AC-228 | 99.55 | ----- | 1.30 | 1.943E+00 | ----- | Line Not Found | ----- |
| | 105.36 | ----- | 2.00 | 2.042E+00 | ----- | Line Not Found | ----- |
| | 108.99 | ----- | 0.67 | 2.093E+00 | ----- | Line Not Found | ----- |
| | 129.03 | ----- | 2.90 | 2.254E+00 | ----- | Line Not Found | ----- |
| | 153.89 | ----- | 0.84 | 2.276E+00 | ----- | Line Not Found | ----- |
| | 209.39 | 31 | 4.10 | 2.078E+00 | 2.032E-06 | 2.049E-06 | 34.10 |
| | 216.24 | ----- | 0.80 | 2.048E+00 | ----- | Line Not Found | ----- |
| | 270.26 | ----- | 3.80 | 1.812E+00 | ----- | Line Not Found | ----- |
| | 328.07 | ----- | 3.50 | 1.593E+00 | ----- | Line Not Found | ----- |
| | 338.42 | 17 | 12.40 | 1.558E+00 | 4.988E-07 | 5.029E-07 | 68.91 |
| | 340.94 | ----- | 0.52 | 1.550E+00 | ----- | Line Not Found | ----- |
| | 409.62 | ----- | 2.20 | 1.348E+00 | ----- | Line Not Found | ----- |
| | 463.10 | ----- | 4.60 | 1.219E+00 | ----- | Line Not Found | ----- |
| | 562.65 | ----- | 1.01 | 1.028E+00 | ----- | Line Not Found | ----- |
| | 581.52 | ----- | 3.00 | 9.978E-01 | ----- | Line Not Found | ----- |
| | 726.63 | ----- | 0.87 | 8.087E-01 | ----- | Line Not Found | ----- |
| | 755.28 | ----- | 1.32 | 7.791E-01 | ----- | Line Not Found | ----- |
| | 772.28 | ----- | 1.09 | 7.625E-01 | ----- | Line Not Found | ----- |
| | 782.12 | ----- | 0.59 | 7.532E-01 | ----- | Line Not Found | ----- |
| | 794.79 | ----- | 4.60 | 7.416E-01 | ----- | Line Not Found | ----- |
| | 830.59 | ----- | 0.63 | 7.107E-01 | ----- | Line Not Found | ----- |
| | 835.60 | ----- | 1.71 | 7.065E-01 | ----- | Line Not Found | ----- |
| | 840.44 | ----- | 0.94 | 7.026E-01 | ----- | Line Not Found | ----- |
| | 904.29 | ----- | 0.89 | 6.549E-01 | ----- | Line Not Found | ----- |
| | 911.16 | ----- | 29.00* | 6.502E-01 | ----- | Line Not Found | ----- |
| | 964.64 | ----- | 5.80 | 6.162E-01 | ----- | Line Not Found | ----- |
| | 968.97 | ----- | 17.40 | 6.137E-01 | ----- | Line Not Found | ----- |
| | 1246.60 | ----- | 0.57 | 4.951E-01 | ----- | Line Not Found | ----- |
| | 1459.19 | ----- | 1.06 | 4.485E-01 | ----- | Line Not Found | ----- |
| | 1496.00 | ----- | 1.05 | 4.432E-01 | ----- | Line Not Found | ----- |
| U-235 | 1501.44 | ----- | 0.58 | 4.425E-01 | ----- | Line Not Found | ----- |
| | 1580.30 | ----- | 0.71 | 4.338E-01 | ----- | Line Not Found | ----- |
| | 1588.23 | ----- | 3.60 | 4.331E-01 | ----- | Line Not Found | ----- |
| | 1630.47 | ----- | 1.95 | 4.299E-01 | ----- | Line Not Found | ----- |
| | 1638.10 | ----- | 0.54 | 4.294E-01 | ----- | Line Not Found | ----- |
| | 89.96 | ----- | 3.36 | 1.726E+00 | ----- | Line Not Found | ----- |
| | 93.35 | ----- | 5.50 | 1.811E+00 | ----- | Line Not Found | ----- |
| | 105.36 | ----- | 1.98 | 2.042E+00 | ----- | Line Not Found | ----- |
| | 109.18 | ----- | 1.50 | 2.096E+00 | ----- | Line Not Found | ----- |

Nuclide Type: natural

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected uCi/gr | Decay Corr uCi/gr | 1-Sigma %Error |
|---------|--------|-------|--------|-----------|-----------------------|----------------------|-------------------|
| | 143.79 | ----- | 10.50 | 2.283E+00 | ----- | Line Not Found | ----- |
| | 163.38 | ----- | 4.70 | 2.256E+00 | ----- | Line Not Found | ----- |
| | 185.74 | 34 | 53.00* | 2.180E+00 | 1.648E-07 | 1.648E-07 | 33.67 |
| | 194.96 | ----- | 0.59 | 2.142E+00 | ----- | Line Not Found | ----- |
| | 202.13 | ----- | 1.00 | 2.111E+00 | ----- | Line Not Found | ----- |
| | 205.33 | ----- | 4.70 | 2.097E+00 | ----- | Line Not Found | ----- |

Flag: "*" = Keyline

Minimum Detectable Activity Report
Sample ID : 1015

Page : 8
Acquisition date : 11-JUN-2014 13:52:23

| Nuclide | Bckgnd Sum | Energy (keV) | MDA (uCi/gr) |
|---------|---------------|-----------------|-----------------|
| MN-54 | 2. | 834.83 | 7.4934E-08 |
| MN-56 | 0. | 846.81 | 2.2478E-08 |
| CO-57 | 25. | 122.06 | 7.6585E-08 |
| CO-58 | 5. | 810.79 | 1.0182E-07 |
| CO-60 | 2. | 1332.50 | 1.1046E-07 |
| SB-124 | 4. | 602.73 | 7.1267E-08 |
| SB-125 | 5. | 427.88 | 1.8533E-07 |
| CS-134 | 12. | 604.71 | 1.1345E-07 |
| CS-137 | 20. | 661.66 | 1.7609E-07 |