

## Health Physics Sample Records

**Sample ID:** 142475

**Type:** RLSSS

**Type Detail:** SAND

**Status:** APPROVED

**Rasterized:** ☐

**Description:** 140603BD 4 CULVERT # 7

### 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:** 06/05/14 07:14

**Comments:**

### Origin

**Mat. Size/Volume:** 1675 GRAMS

**Docmnt/MO/Act #:**

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

**Description:** CULVERT # 7

### Collection

**Sample Tech:** DYNES, WILLIAM J

**Sample Date:** 06/03/14 08:11

**Count Time:** 900 (secs.)

**Tritium Req:** No

**Sample Size/Volume:** 1821 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:**

**Material Loc:**

# Health Physics Sample Records

Sample ID: 142475

Type: RLSSS

















Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140603BD 4 CULVERT # 7

## Analysis

| Geometry             | MCA ID | Quant.    | Units            | Method  | FP/AP    | Lab       | Analysis By     | Date           | Mod ID | Mod Date |
|----------------------|--------|-----------|------------------|---|----------|-----------|-----------------|----------------|--------|----------|
| C_1L_marinelli_sand_ | 30368  | 1821 GR   |                  |   | .000     |           | PARK, MICHAEL C | 06/05/14 15:58 |        |          |
| Isotope              | Mode   | Activity  | Activity Uncert. | LLD/MDA   | % Abund. | Atom. No. | Comments        |                | Mod Id | Mod Date |
| 0 K-40               | NT     | 0.000011  | 1.38E-6          |    | 85.194%  | 40        |                 |                |        |          |
| 0 TL-208             | NT     | 2.051E-7  | 6.16E-8          |    | 1.588%   | 208       |                 |                |        |          |
| 0 PB-212             | NT     | 4.561E-7  | 1.107E-7         |    | 3.532%   | 212       |                 |                |        |          |
| 0 BI-214             | NT     | 4.495E-7  | 9.81E-8          |    | 3.481%   | 214       |                 |                |        |          |
| 0 PB-214             | NT     | 3.217E-7  | 6.81E-8          |    | 2.492%   | 214       |                 |                |        |          |
| 0 AC-228             | NT     | 4.793E-7  | 2.089E-7         |    | 3.712%   | 228       |                 |                |        |          |
| 0 BE-7               | AP     | 7.2411E-7 |                  |    | 0.000%   | 7         |                 |                |        |          |
| 0 MN-54              | AP     | 1.4203E-7 |                  |    | 0.000%   | 54        |                 |                |        |          |
| 0 MN-56              | AP     | 1.1021E-7 |                  |    | 0.000%   | 56        |                 |                |        |          |
| 0 CO-57              | AP     | 6.5355E-8 |                  |    | 0.000%   | 57        |                 |                |        |          |
| 0 CO-58              | AP     | 8.0406E-8 |                  |    | 0.000%   | 58        |                 |                |        |          |
| 0 CO-60              | AP     | 3.9305E-8 |                  |    | 0.000%   | 60        |                 |                |        |          |
| 0 SB-124             | AP     | 6.9481E-8 |                  |    | 0.000%   | 124       |                 |                |        |          |
| 0 SB-125             | FP     | 2.0265E-7 |                  |    | 0.000%   | 125       |                 |                |        |          |
| 0 CS-134             | FP     | 8.0955E-8 |                  |    | 0.000%   | 134       |                 |                |        |          |
| 0 CS-137             | FP     | 1.1972E-7 |                  |  | 0.000%   | 137       |                 |                |        |          |

## Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 14:36

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:

## Health Physics Sample Records

Sample ID: 142475

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140603BD 4 CULVERT # 7

### Review/Approve

#### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 14:36

Comments:

#### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

#### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 14:36

Comments:

```

*****
*          SONGS                      HEALTH PHYSICS REPORT          5-JUN-2014 15:54      *
*-----*
*          >>>> SAMPLE  PARAMETERS <<<<          *
*-----*
* Title      : 140603BD 4 CULVERT # 7          *
* ID         : 30368                          Acquisition date: 5-JUN-2014 15:51:37. *
* Start Time: 5-JUN-2014 15:51:00.              Counting System   : U2GSP          *
* Stop Time : 5-JUN-2014 15:51:00.              IHPS Sample Number: 142475         *
* Quantity  : 1.82100E+03 GR                    Analysis Library  : HP_NATURAL        *
* Geometry  : C_1L_marinelli_sand_1              Operator: MICHAEL PARK          *
*-----*
*          >>>> C #41-TP11750A  PARAMETERS <<<<          *
*-----*
* Elapsed Live Time : 0 00:03:00.45      Calibration      : 5-JUN-2014 08:14:      *
* Elapsed Real Time : 0 00:03:00.49      Energy Offset   : -1.39807E-01          *
* Deadtime          : 0.0%                Energy Slope    : 4.99820E-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  | 238.67  | 50   | 28    | 1.65 | 477.76  | 473  | 11 | 24.3 | 3.53E+00 | PB-212   |
| 1  | 338.35  | 21   | 0     | 1.89 | 677.17  | 674  | 7  | 20.7 | 2.26E-01 | AC-228   |
| 1  | 352.14  | 23   | 0     | 1.18 | 704.77  | 701  | 7  | 21.2 | 5.33E-01 | PB-214   |
| 1  | 582.94  | 16   | 2     | 1.63 | 1166.46 | 1163 | 8  | 30.0 | 1.28E+00 | TL-208   |
| 1  | 609.60  | 26   | 2     | 2.45 | 1219.78 | 1215 | 10 | 21.8 | 5.22E-01 | BI-214   |
| 1  | 910.94  | 13   | 6     | 1.54 | 1822.50 | 1817 | 9  | 43.6 | 1.10E+00 | AC-228   |
| 1  | 1460.99 | 79   | 5     | 2.07 | 2922.51 | 2916 | 11 | 12.5 | 9.35E-01 | K-40     |

Summary of Nuclide Activity  
Sample ID : 30368

Page : 2  
Acquisition date : 5-JUN-2014 15:51:37

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<br>uCi/GR | Decay Corr<br>uCi/GR | Decay Corr<br>1-Sigma Error | 1-Sigma<br>%Error | Flags |
|------------------|-----------|-------|-----------------------|----------------------|-----------------------------|-------------------|-------|
| K-40             | 1.28E+09Y | 1.00  | 1.100E-05             | 1.100E-05            | 0.138E-05                   | 12.55             | A     |
| TL-208           | 3.05M     | 1.59  | 1.290E-07             | 2.051E-07            | 0.616E-07                   | 30.04             | A     |
| PB-212           | 10.64H    | 1.00  | 4.550E-07             | 4.561E-07            | 1.107E-07                   | 24.26             | A     |
| BI-214           | 19.90M    | 1.08  | 4.176E-07             | 4.495E-07            | 0.981E-07                   | 21.83             | A     |
| PB-214           | 26.80M    | 1.06  | 3.046E-07             | 3.217E-07            | 0.681E-07                   | 21.16             | KA    |
| AC-228           | 6.13H     | 1.00  | 4.773E-07             | 4.793E-07            | 2.089E-07                   | 43.59             | A     |
| Total Activity : |           |       | 1.279E-05             | 1.291E-05            |                             |                   |       |

Grand Total Activity : 1.279E-05 1.291E-05

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : 30368

Page : 3  
Acquisition date : 5-JUN-2014 15:51:37

None

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30368

Page : 4  
Acquisition date : 5-JUN-2014 15:51:37

No interference correction performed

Nuclide Type: natural

| Nuclide | Energy  | Area  | %Abn   | %Eff      | Uncorrected<br>uCi/GR | Decay<br>uCi/GR | Corr | 1-Sigma<br>%Error |
|---------|---------|-------|--------|-----------|-----------------------|-----------------|------|-------------------|
| AC-228  | 89.96   | ----- | 3.40   | 2.051E+00 | -----                 | Line Not Found  |      | -----             |
|         | 93.35   | ----- | 5.60   | 2.124E+00 | -----                 | Line Not Found  |      | -----             |
|         | 99.55   | ----- | 1.30   | 2.229E+00 | -----                 | Line Not Found  |      | -----             |
|         | 105.36  | ----- | 2.00   | 2.301E+00 | -----                 | Line Not Found  |      | -----             |
|         | 108.99  | ----- | 0.67   | 2.335E+00 | -----                 | Line Not Found  |      | -----             |
|         | 129.03  | ----- | 2.90   | 2.414E+00 | -----                 | Line Not Found  |      | -----             |
|         | 153.89  | ----- | 0.84   | 2.377E+00 | -----                 | Line Not Found  |      | -----             |
|         | 209.39  | ----- | 4.10   | 2.168E+00 | -----                 | Line Not Found  |      | -----             |
|         | 216.24  | ----- | 0.80   | 2.141E+00 | -----                 | Line Not Found  |      | -----             |
|         | 270.26  | ----- | 3.80   | 1.941E+00 | -----                 | Line Not Found  |      | -----             |
|         | 328.07  | ----- | 3.50   | 1.756E+00 | -----                 | Line Not Found  |      | -----             |
|         | 338.42  | 21    | 12.40  | 1.725E+00 | 8.097E-07             | 8.129E-07       |      | 20.70             |
|         | 340.94  | ----- | 0.52   | 1.718E+00 | -----                 | Line Not Found  |      | -----             |
|         | 409.62  | ----- | 2.20   | 1.531E+00 | -----                 | Line Not Found  |      | -----             |
|         | 463.10  | ----- | 4.60   | 1.401E+00 | -----                 | Line Not Found  |      | -----             |
|         | 562.65  | ----- | 1.01   | 1.195E+00 | -----                 | Line Not Found  |      | -----             |
|         | 581.52  | ----- | 3.00   | 1.160E+00 | -----                 | Line Not Found  |      | -----             |
|         | 726.63  | ----- | 0.87   | 9.382E-01 | -----                 | Line Not Found  |      | -----             |
|         | 755.28  | ----- | 1.32   | 9.027E-01 | -----                 | Line Not Found  |      | -----             |
|         | 772.28  | ----- | 1.09   | 8.827E-01 | -----                 | Line Not Found  |      | -----             |
|         | 782.12  | ----- | 0.59   | 8.716E-01 | -----                 | Line Not Found  |      | -----             |
|         | 794.79  | ----- | 4.60   | 8.576E-01 | -----                 | Line Not Found  |      | -----             |
|         | 830.59  | ----- | 0.63   | 8.205E-01 | -----                 | Line Not Found  |      | -----             |
|         | 835.60  | ----- | 1.71   | 8.155E-01 | -----                 | Line Not Found  |      | -----             |
|         | 840.44  | ----- | 0.94   | 8.108E-01 | -----                 | Line Not Found  |      | -----             |
|         | 904.29  | ----- | 0.89   | 7.542E-01 | -----                 | Line Not Found  |      | -----             |
|         | 911.16  | 13    | 29.00* | 7.489E-01 | 4.773E-07             | 4.793E-07       |      | 43.59             |
|         | 964.64  | ----- | 5.80   | 7.091E-01 | -----                 | Line Not Found  |      | -----             |
|         | 968.97  | ----- | 17.40  | 7.061E-01 | -----                 | Line Not Found  |      | -----             |
|         | 1246.60 | ----- | 0.57   | 5.825E-01 | -----                 | Line Not Found  |      | -----             |
|         | 1459.19 | ----- | 1.06   | 5.560E-01 | -----                 | Line Not Found  |      | -----             |
|         | 1496.00 | ----- | 1.05   | 5.563E-01 | -----                 | Line Not Found  |      | -----             |
|         | 1501.44 | ----- | 0.58   | 5.565E-01 | -----                 | Line Not Found  |      | -----             |
|         | 1580.30 | ----- | 0.71   | 5.624E-01 | -----                 | Line Not Found  |      | -----             |
|         | 1588.23 | ----- | 3.60   | 5.634E-01 | -----                 | Line Not Found  |      | -----             |
|         | 1630.47 | ----- | 1.95   | 5.696E-01 | -----                 | Line Not Found  |      | -----             |
|         | 1638.10 | ----- | 0.54   | 5.709E-01 | -----                 | Line Not Found  |      | -----             |

Flag: "\*" = Keyline



Minimum Detectable Activity Report  
Sample ID : 30368

Page : 7  
Acquisition date : 5-JUN-2014 15:51:37

| Nuclide | Bckgnd<br>Sum | Energy<br>(keV) | MDA<br>(uCi/GR) |
|---------|---------------|-----------------|-----------------|
| BE-7    | 4.            | 477.61          | 7.2411E-07      |
| MN-54   | 6.            | 834.83          | 1.4203E-07      |
| MN-56   | 3.            | 846.81          | 1.1021E-07      |
| CO-57   | 9.            | 122.06          | 6.5355E-08      |
| CO-58   | 1.            | 810.79          | 8.0406E-08      |
| CO-60   | 0.            | 1332.50         | 3.9305E-08      |
| SB-124  | 2.            | 602.73          | 6.9481E-08      |
| SB-125  | 3.            | 427.88          | 2.0265E-07      |
| CS-134  | 3.            | 604.71          | 8.0955E-08      |
| CS-137  | 5.            | 661.66          | 1.1972E-07      |