

## Health Physics Sample Records

**Sample ID:** 142474

**Type:** RLSSS

**Type Detail:** SAND

**Status:** APPROVED

**Rasterized:** ☐

**Description:** 140603BD 3 CULVERT 5

### Common

**Resp Org:** P4000 - PROJECT MANAGEMENT

**Cross Ref Sample ID:**

**Priority:** N

**Contact:** COOPER, TERRY L

**Survey No:**

**Reference ID:**

**Accounting Subcode:**

**Unknown Mat:** NO

**Hazardous Mat:** NO

**Comments:** COUNT TO MDA

**Reviewed:** DYNES, WILLIAM J

**Date:** 06/05/14 07:06

**Comments:**

### Origin

**Mat. Size/Volume:** 1658 GRAMS

**Docmnt/MO/Act #:**

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

**Description:** CULVERT 5

### Collection

**Sample Tech:** DYNES, WILLIAM J

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

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

**Tritium Req:** No

**Sample Size/Volume:** 1658 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:** (in.)

**Equip ID:**

**Stored By:** ,

**Date:** 00/00/00 00:00

**Sample Loc:**

**Other:**

**Material Loc:**

## Health Physics Sample Records

Sample ID: **142474**

Type: RLSSS
















Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140603BD 3 CULVERT 5

### Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
A_1L_marinelli_sand_	30372	1658	GR		.000		PARK, MICHAEL C	06/05/14 16:18		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments		Mod Id	Mod Date
0 K-40	NT	0.00001367	1.49E-6		90.669%	40				
0 TL-208	NT	2.193E-7	7.88E-8		1.455%	208				
0 PB-212	NT	3.697E-7	8.23E-8		2.452%	212				
0 BI-214	NT	5.234E-7	1.072E-7		3.472%	214				
0 PB-214	NT	2.944E-7	1.556E-7		1.953%	214				
0 BE-7	AP	4.7897E-7			0.000%	7				
0 MN-54	AP	8.3025E-8			0.000%	54				
0 MN-56	AP	1.4038E-7			0.000%	56				
0 CO-57	AP	7.0589E-8			0.000%	57				
0 CO-58	AP	1.1244E-7			0.000%	58				
0 CO-60	AP	1.2135E-7			0.000%	60				
0 SB-124	AP	7.8296E-8			0.000%	124				
0 SB-125	FP	2.4951E-7			0.000%	125				
0 CS-134	FP	4.6653E-8			0.000%	134				
0 CS-137	FP	1.4004E-7			0.000%	137				

### Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 14:33

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:


## Health Physics Sample Records

Sample ID: 142474

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140603BD 3 CULVERT 5

Review/Approve

### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 14:35

Comments: 218 keV peak is not from a plant-produced radionuclide

### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 14:35

Comments:

```

*****
*          SONGS                      HEALTH PHYSICS REPORT          5-JUN-2014 16:15  *
*-----*
*          >>>> SAMPLE  PARAMETERS <<<<          *
*-----*
* Title      : 140603BD 3 CULVERT 5          *
* ID         : 30372          Acquisition date: 5-JUN-2014 16:12:48. *
* Start Time: 5-JUN-2014 16:12:00.          *
* Stop Time : 5-JUN-2014 16:12:00.          Counting System   : U2GSP      *
* Quantity  : 1.65800E+03 GR          IHPS Sample Number: 142474      *
* Geometry  : A_1L_marinelli_sand_1      Analysis Library  : HP_NATURAL  *
*          Operator: MICHAEL PARK          *
*-----*
*          >>>> A #41-TP11679B  PARAMETERS <<<<          *
*-----*
* Elapsed Live Time : 0 00:03:00.43      Calibration       : 5-JUN-2014 08:09: *
* Elapsed Real Time  : 0 00:03:00.46      Energy Offset    : 2.12659E-01      *
* Deadtime           : 0.0%              Energy Slope     : 4.99528E-01      *
* Activity Mult Factor: 1.00000E+00      Energy Tolerance: 1.00000      *
* Half Life Ratio    : 8.00000           Sensitivity      : 5.00000      *
*-----*
*****

```

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
1	76.09	47	21	5.20	151.90	145	12	24.0	4.64E+00	BI-214
1	218.08	14	6	1.68	436.14	433	9	41.9	7.07E-01	
1	238.66	37	10	1.21	477.35	473	8	22.3	1.04E+00	PB-212
1	294.99	11	9	1.32	590.11	586	7	52.8	3.00E+00	PB-214
1	351.86	24	4	1.58	703.96	700	8	24.8	8.23E-01	PB-214
1	583.07	14	5	2.04	1166.82	1161	9	35.9	6.34E-01	TL-208
1	609.24	27	0	1.84	1219.21	1212	13	20.5	5.25E-01	BI-214
1	1460.92	86	0	1.92	2924.20	2918	11	10.9	3.55E-01	K-40

Summary of Nuclide Activity  
Sample ID : 30372

Page : 2  
Acquisition date : 5-JUN-2014 16:12:48

Total number of lines in spectrum 8  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 7 87.50%

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	1.367E-05	1.367E-05	0.149E-05	10.87	A
TL-208	3.05M	1.66	1.325E-07	2.193E-07	0.788E-07	35.93	A
PB-212	10.64H	1.00	3.687E-07	3.697E-07	0.823E-07	22.26	A
BI-214	19.90M	1.08	4.833E-07	5.234E-07	1.072E-07	20.49	A
PB-214	26.80M	1.06	2.775E-07	2.944E-07	1.556E-07	52.83	A
Total Activity :			1.494E-05	1.508E-05			

Grand Total Activity : 1.494E-05 1.508E-05

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

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

Unidentified Energy Lines  
Sample ID : 30372

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Acquisition date : 5-JUN-2014 16:12:48

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
1	218.08	14	6	1.68	436.14	433	9	7.96E-02	41.9	2.18E+00	

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30372

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Acquisition date : 5-JUN-2014 16:12:48

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	86	10.67*	5.314E-01	1.367E-05	1.367E-05	10.87
TL-208	72.80	-----	2.14	1.594E+00	-----	Line Not Found	-----
	74.97	-----	3.60	1.692E+00	-----	Line Not Found	-----
	84.79	-----	1.27	2.058E+00	-----	Line Not Found	-----
	252.45	-----	0.80	2.021E+00	-----	Line Not Found	-----
	277.28	-----	6.80	1.920E+00	-----	Line Not Found	-----
	510.61	-----	21.60	1.265E+00	-----	Line Not Found	-----
	583.02	14	86.00*	1.128E+00	1.325E-07	2.193E-07	35.93
PB-212	763.06	-----	1.64	8.744E-01	-----	Line Not Found	-----
	860.30	-----	12.00	7.770E-01	-----	Line Not Found	-----
	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	-----
BI-214	238.58	37	43.60*	2.082E+00	3.687E-07	3.697E-07	22.26
	300.03	-----	3.34	1.834E+00	-----	Line Not Found	-----
	76.86	47	0.58	1.740E+00	4.207E-05	4.557E-05	23.98
	79.29	-----	0.97	1.869E+00	-----	Line Not Found	-----
	609.31	27	46.10*	1.084E+00	4.833E-07	5.234E-07	20.49
	665.44	-----	1.56	9.985E-01	-----	Line Not Found	-----
	768.35	-----	4.88	8.685E-01	-----	Line Not Found	-----
PB-214	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	-----
	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	1.1	19.20*	1.853E+00	2.775E-07	2.944E-07	52.83
	351.87	24	37.10	1.662E+00	3.449E-07	3.659E-07	24.77
	785.83	-----	1.09	8.495E-01	-----	Line Not Found	-----
	839.00	-----	0.59	7.964E-01	-----	Line Not Found	-----



Nuclide Line Activity Report (continued)  
Sample ID : 30372

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Acquisition date : 5-JUN-2014 16:12:48

Flag: "\*" = Keyline

Minimum Detectable Activity Report  
Sample ID : 30372

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Acquisition date : 5-JUN-2014 16:12:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	1.	477.61	4.7897E-07
MN-54	1.	834.83	8.3025E-08
MN-56	4.	846.81	1.4038E-07
CO-57	10.	122.06	7.0589E-08
CO-58	3.	810.79	1.1244E-07
CO-60	1.	1332.50	1.2135E-07
SB-124	2.	602.73	7.8296E-08
SB-125	4.	427.88	2.4951E-07
CS-134	0.	604.71	4.6653E-08
CS-137	5.	661.66	1.4004E-07