

## Health Physics Sample Records

**Sample ID:** 142476

**Type:** RLSSS

**Type Detail:** SAND

**Status:** APPROVED

**Rasterized:** ☒

**Description:** 140603BD 5 CULVERT #10

### 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 07:19

**Comments:**

### Origin

**Mat. Size/Volume:** 1505 GRAMS

**Docmnt/MO/Act #:**

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

**Description:** CULVERT 1

### Collection

**Sample Tech:** DYNES, WILLIAM J

**Sample Date:** 06/03/14 07:57

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

**Tritium Req:** No

**Sample Size/Volume:** 1505 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: 142476

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: ☐

Description: 140603BD 5 CULVERT #10

## Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
C_1L_marinelli_sand_	30374	1505	GR		.000		PARK, MICHAEL C	06/05/14 16:28		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments		Mod Id	Mod Date
0 K-40	NT	0.00001373	1.54E-6	<input type="checkbox"/>	82.155%	40				
0 TL-208	NT	2.712E-7	1.095E-7	<input type="checkbox"/>	1.623%	208				
0 PB-212	NT	5.065E-7	1.105E-7	<input type="checkbox"/>	3.031%	212				
0 BI-214	NT	5.49E-7	1.143E-7	<input type="checkbox"/>	3.285%	214				
0 PB-214	NT	7.395E-7	1.558E-7	<input type="checkbox"/>	4.425%	214				
0 AC-228	NT	9.161E-7	2.006E-7	<input type="checkbox"/>	5.482%	228				
0 BE-7	AP	7.4859E-7		<input checked="" type="checkbox"/>	0.000%	7				
0 MN-54	AP	1.5105E-7		<input checked="" type="checkbox"/>	0.000%	54				
0 MN-56	AP	1.1712E-7		<input checked="" type="checkbox"/>	0.000%	56				
0 CO-57	AP	8.6995E-8		<input checked="" type="checkbox"/>	0.000%	57				
0 CO-58	AP	1.1041E-7		<input checked="" type="checkbox"/>	0.000%	58				
0 CO-60	AP	1.1162E-7		<input checked="" type="checkbox"/>	0.000%	60				
0 SB-124	AP	6.6618E-8		<input checked="" type="checkbox"/>	0.000%	124				
0 SB-125	FP	1.8739E-7		<input checked="" type="checkbox"/>	0.000%	125				
0 CS-134	FP	7.5372E-8		<input checked="" type="checkbox"/>	0.000%	134				
0 CS-137	FP	1.707E-7		<input checked="" type="checkbox"/>	0.000%	137				

## Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 14:37

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:

## Health Physics Sample Records

Sample ID: **142476**

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140603BD 5 CULVERT #10

**Review/Approve**

### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 14:38

Comments:

### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 14:38

Comments:

```

*****
*          SONGS                      HEALTH PHYSICS REPORT          5-JUN-2014 16:16  *
*-----*
*          >>>> SAMPLE   PARAMETERS <<<<          *
*-----*
* Title      : 140603BD 5 CULVERT #10          *
* ID         : 30374                          Acquisition date: 5-JUN-2014 16:13:35. *
* Start Time: 5-JUN-2014 16:13:00.             Counting System   : U2GSP          *
* Stop Time : 5-JUN-2014 16:13:00.             IHPS Sample Number: 142476         *
* Quantity  : 1.50500E+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 00:03:00.50   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	77.04	25	28	1.26	154.42	151	8	42.1	2.38E+00	BI-214 PB-212 PB-214
1	93.17	27	9	1.71	186.68	184	7	26.1	8.15E-01	AC-228
1	238.63	45	16	1.27	477.70	473	9	21.8	8.73E-01	PB-212
1	295.20	25	2	2.45	590.86	587	8	21.1	2.86E-01	PB-214
1	351.61	25	4	1.46	703.70	700	8	24.4	7.76E-01	PB-214
1	583.31	17	10	1.59	1167.19	1161	10	40.4	5.11E-01	TL-208
1	609.17	26	2	1.93	1218.91	1215	8	20.8	5.06E-01	BI-214
1	911.02	20	0	2.56	1822.67	1818	9	21.9	1.13E+00	AC-228
1	1461.00	82	0	1.93	2922.52	2917	12	11.2	6.65E-01	K-40

Summary of Nuclide Activity  
Sample ID : 30374

Page : 2  
Acquisition date : 5-JUN-2014 16:13:35

Total number of lines in spectrum 9  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 9 100.00%

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	1.373E-05	1.373E-05	0.154E-05	11.20	A
TL-208	3.05M	1.58	1.717E-07	2.712E-07	1.095E-07	40.36	A
PB-212	10.64H	1.00	5.054E-07	5.065E-07	1.105E-07	21.81	A
BI-214	19.90M	1.08	5.105E-07	5.490E-07	1.143E-07	20.82	A
PB-214	26.80M	1.06	7.006E-07	7.395E-07	1.558E-07	21.07	A
AC-228	6.13H	1.00	9.125E-07	9.161E-07	2.006E-07	21.89	A
Total Activity :			1.653E-05	1.671E-05			

Grand Total Activity : 1.653E-05 1.671E-05

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

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

Unidentified Energy Lines  
Sample ID : 30374

Page : 3  
Acquisition date : 5-JUN-2014 16:13:35

None

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30374

Page : 4  
Acquisition date : 5-JUN-2014 16:13:35

No interference correction performed

Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected uCi/GR	Decay Corr uCi/GR	1-Sigma %Error
K-40	1460.83	82	10.67*	5.560E-01	1.373E-05	1.373E-05	11.20
TL-208	72.80	-----	2.14	1.486E+00	-----	Line Not Found	-----
	74.97	-----	3.60	1.577E+00	-----	Line Not Found	-----
	84.79	-----	1.27	1.917E+00	-----	Line Not Found	-----
	252.45	-----	0.80	2.004E+00	-----	Line Not Found	-----
	277.28	-----	6.80	1.917E+00	-----	Line Not Found	-----
	510.61	-----	21.60	1.298E+00	-----	Line Not Found	-----
	583.02	17	86.00*	1.157E+00	1.717E-07	2.712E-07	40.36
	763.06	-----	1.64	8.934E-01	-----	Line Not Found	-----
	860.30	-----	12.00	7.922E-01	-----	Line Not Found	-----
PB-212	74.81	-----	10.50	1.570E+00	-----	Line Not Found	-----
	77.11	25	17.70	1.658E+00	8.563E-07	8.583E-07	42.09
	87.19	-----	6.27	1.983E+00	-----	Line Not Found	-----
	90.13	-----	1.86	2.055E+00	-----	Line Not Found	-----
	115.12	-----	0.59	2.376E+00	-----	Line Not Found	-----
	238.58	45	43.60*	2.055E+00	5.054E-07	5.065E-07	21.81
	300.03	-----	3.34	1.843E+00	-----	Line Not Found	-----
BI-214	76.86	25	0.58	1.658E+00	2.613E-05	2.810E-05	42.09
	79.29	-----	0.97	1.741E+00	-----	Line Not Found	-----
	609.31	26	46.10*	1.112E+00	5.105E-07	5.490E-07	20.82
	665.44	-----	1.56	1.023E+00	-----	Line Not Found	-----
	768.35	-----	4.88	8.873E-01	-----	Line Not Found	-----
	806.16	-----	1.23	8.454E-01	-----	Line Not Found	-----
	934.04	-----	3.16	7.310E-01	-----	Line Not Found	-----
	1120.27	-----	15.00	6.242E-01	-----	Line Not Found	-----
	1155.18	-----	1.69	6.105E-01	-----	Line Not Found	-----
	1238.11	-----	5.92	5.846E-01	-----	Line Not Found	-----
	1280.95	-----	1.47	5.747E-01	-----	Line Not Found	-----
	1377.66	-----	4.02	5.602E-01	-----	Line Not Found	-----
	1385.30	-----	0.78	5.595E-01	-----	Line Not Found	-----
	1401.48	-----	1.39	5.583E-01	-----	Line Not Found	-----
	1407.97	-----	2.48	5.578E-01	-----	Line Not Found	-----
	1509.22	-----	2.19	5.568E-01	-----	Line Not Found	-----
	1583.22	-----	0.72	5.628E-01	-----	Line Not Found	-----
	1661.26	-----	1.15	5.753E-01	-----	Line Not Found	-----
	1729.58	-----	3.05	5.918E-01	-----	Line Not Found	-----
	1764.49	-----	15.90	6.023E-01	-----	Line Not Found	-----
	1847.41	-----	2.12	6.331E-01	-----	Line Not Found	-----
PB-214	53.17	-----	1.10	5.203E-01	-----	Line Not Found	-----
	74.81	-----	6.52	1.570E+00	-----	Line Not Found	-----
	77.11	25	11.00	1.658E+00	1.378E-06	1.454E-06	42.09
	87.19	-----	3.88	1.983E+00	-----	Line Not Found	-----
	90.13	-----	1.15	2.055E+00	-----	Line Not Found	-----
	241.92	-----	7.46	2.043E+00	-----	Line Not Found	-----
	258.94	-----	0.55	1.981E+00	-----	Line Not Found	-----
	295.09	25	19.20*	1.858E+00	7.006E-07	7.395E-07	21.07
	351.87	25	37.10	1.687E+00	4.015E-07	4.238E-07	24.41
	785.83	-----	1.09	8.674E-01	-----	Line Not Found	-----
	839.00	-----	0.59	8.122E-01	-----	Line Not Found	-----



Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected uCi/GR	Decay Corr uCi/GR	1-Sigma %Error
AC-228	89.96	-----	3.40	2.051E+00	-----	Line Not Found	-----
	93.35	27	5.60	2.120E+00	2.234E-06	2.243E-06	26.08
	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	-----	12.40	1.725E+00	-----	Line Not Found	-----
	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	20	29.00*	7.488E-01	9.125E-07	9.161E-07	21.89
	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 : 30374

Page : 7  
Acquisition date : 5-JUN-2014 16:13:35

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	3.	477.61	7.4859E-07
MN-54	4.	834.83	1.5105E-07
MN-56	2.	846.81	1.1712E-07
CO-57	11.	122.06	8.6995E-08
CO-58	2.	810.79	1.1041E-07
CO-60	1.	1332.50	1.1162E-07
SB-124	1.	602.73	6.6618E-08
SB-125	1.	427.88	1.8739E-07
CS-134	1.	604.71	7.5372E-08
CS-137	7.	661.66	1.7070E-07