

## Health Physics Sample Records

**Sample ID:** 142448

**Type:** RLSSS

**Type Detail:** SAND

**Status:** APPROVED

**Rasterized:** ☒

**Description:** 140528BD 18 STAR 18-20 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:** Count to MDA

**Reviewed:** DYNES, WILLIAM J

**Date:** 05/30/14 08:58

**Comments:**

### Origin

**Mat. Size/Volume:** 2129 ml

**Docmnt/MO/Act #:**

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

**Description:** STAR 18 SOIL SAMPLE

### Collection

**Sample Tech:** DYNES, WILLIAM J

**Sample Date:** 05/29/14 08:02

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

**Tritium Req:** No

**Sample Size/Volume:** 2129 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:** No

**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: 142448

Type: RLSSS


















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Status: APPROVED

Rasterized: 

Description: 140528BD 18 STAR 18-20 Dirt Sample

## Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
B_1L_marinelli_sand_	30296	2129	GR		.000		PARK, MICHAEL C	06/02/14 09:58		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments		Mod Id	Mod Date
0 K-40	NT	0.00001318	1.57E-6		64.455%	40				
0 TL-208	NT	5.339E-7	9.12E-8		2.611%	208				
0 PB-212	NT	7.192E-7	1.677E-7		3.517%	212				
0 BI-214	NT	8.644E-7	1.268E-7		4.227%	214				
0 PB-214	NT	9.076E-7	2.203E-7		4.438%	214				
0 RA-226	NT	3.996E-6	1.464E-6		19.542%	226				
0 U-235	NT	2.473E-7	9.06E-8		1.209%	235				
0 BE-7	AP	8.7061E-7			0.000%	7				
0 MN-54	AP	1.1135E-7			0.000%	54				
0 MN-56	AP	1.5116E-7			0.000%	56				
0 CO-57	AP	1.0675E-7			0.000%	57				
0 CO-58	AP	8.4656E-8			0.000%	58				
0 CO-60	AP	3.965E-8			0.000%	60				
0 SB-124	AP	8.3775E-8			0.000%	124				
0 SB-125	FP	3.1326E-7			0.000%	125				
0 CS-134	FP	9.6174E-8			0.000%	134				
0 CS-137	FP	9.924E-8			0.000%	137				

## Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 10:18

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:


## Health Physics Sample Records

Sample ID: 142448

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140528BD 18 STAR 18-20 Dirt Sample

### Review/Approve

#### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 10:19

Comments: U-235 likely mis-Id from Ra-226 energy peak; peak at 429 keV is not due to plant-produced nuclide

#### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

#### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 10:19

Comments:

```

*****
*          SONGS                      HEALTH PHYSICS REPORT          2-JUN-2014 09:54      *
*-----*
*          >>>> SAMPLE   PARAMETERS <<<<          *
*-----*
* Title      : 140528BD 18 STAR 18-20 DIRT SAMPLE          *
* ID         : 30296                      Acquisition date: 2-JUN-2014 09:51:46. *
* Start Time: 2-JUN-2014 09:51:00.          Counting System   : U2GSP          *
* Stop Time  : 2-JUN-2014 09:51:00.          IHPS Sample Number: 142448          *
* Quantity   : 2.12900E+03 GR                Analysis Library  : HP_NATURAL          *
* Geometry   : B_1L_marinelli_sand_1        Operator: MICHAEL PARK          *
*-----*
*          >>>> B #42-TP11663A   PARAMETERS <<<<          *
*-----*
* Elapsed Live Time   : 0 00:03:00.40   Calibration       : 1-JUN-2014 20:28:   *
* Elapsed Real Time   : 0 00:03:00.46   Energy Offset      : -5.64750E-02          *
* Deadtime            : 0.0%             Energy Slope       : 4.99765E-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	77.67	64	101	3.50	155.53	148	16	38.3	4.45E+00	BI-214 PB-212 PB-214
1	186.28	38	30	1.94	372.85	367	14	36.6	1.72E+00	U-235 RA-226
1	238.69	80	79	1.39	477.71	474	11	23.3	4.21E+00	PB-212
1	295.47	37	9	2.15	591.32	587	12	24.3	9.90E-01	PB-214
1	352.36	42	20	2.09	705.16	698	13	26.2	3.90E+00	PB-214
1	429.43	13	10	1.78	859.37	852	14	58.6	8.57E-01	
1	582.83	37	0	2.21	1166.32	1161	12	17.1	4.63E-01	TL-208
1	609.06	46	0	1.98	1218.79	1212	11	14.7	4.18E-01	BI-214
1	1460.28	84	3	1.99	2922.04	2916	12	11.9	7.67E-01	K-40

Summary of Nuclide Activity  
Sample ID : 30296

Page : 2  
Acquisition date : 2-JUN-2014 09:51:46

Total number of lines in spectrum 9  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 8 88.89%

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	1.318E-05	1.318E-05	0.157E-05	11.88	A
TL-208	3.05M	1.64	3.250E-07	5.339E-07	0.912E-07	17.08	A
PB-212	10.64H	1.00	7.174E-07	7.192E-07	1.677E-07	23.32	A
BI-214	19.90M	1.08	7.990E-07	8.644E-07	1.268E-07	14.66	A
PB-214	26.80M	1.06	8.560E-07	9.076E-07	2.203E-07	24.27	A
RA-226	1600.00Y	1.00	3.996E-06	3.996E-06	1.464E-06	36.64	A
U-235	7.04E+08Y	1.00	2.473E-07	2.473E-07	0.906E-07	36.64	A
Total Activity :			2.012E-05	2.045E-05			

Grand Total Activity : 2.012E-05 2.045E-05

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

Unidentified Energy Lines  
Sample ID : 30296

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Acquisition date : 2-JUN-2014 09:51:46

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
1	429.43	13	10	1.78	859.37	852	14	7.25E-02	58.6	1.20E+00	

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30296

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Acquisition date : 2-JUN-2014 09:51:46

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	84	10.67*	4.212E-01	1.318E-05	1.318E-05	11.88
TL-208	72.80	-----	2.14	1.070E+00	-----	Line Not Found	-----
	74.97	-----	3.60	1.156E+00	-----	Line Not Found	-----
	84.79	-----	1.27	1.506E+00	-----	Line Not Found	-----
	252.45	-----	0.80	1.745E+00	-----	Line Not Found	-----
	277.28	-----	6.80	1.645E+00	-----	Line Not Found	-----
	510.61	-----	21.60	1.035E+00	-----	Line Not Found	-----
	583.02	37	86.00*	9.202E-01	3.250E-07	5.339E-07	17.08
	763.06	-----	1.64	7.126E-01	-----	Line Not Found	-----
	860.30	-----	12.00	6.341E-01	-----	Line Not Found	-----
	74.81	-----	10.50	1.150E+00	-----	Line Not Found	-----
PB-212	77.11	64	17.70	1.260E+00	2.015E-06	2.020E-06	38.26
	87.19	-----	6.27	1.579E+00	-----	Line Not Found	-----
	90.13	-----	1.86	1.662E+00	-----	Line Not Found	-----
	115.12	-----	0.59	2.085E+00	-----	Line Not Found	-----
	238.58	80	43.60*	1.804E+00	7.174E-07	7.192E-07	23.32
BI-214	300.03	-----	3.34	1.562E+00	-----	Line Not Found	-----
	76.86	64	0.58	1.260E+00	6.150E-05	6.653E-05	38.26
	79.29	-----	0.97	1.320E+00	-----	Line Not Found	-----
	609.31	46	46.10*	8.836E-01	7.990E-07	8.644E-07	14.66
	665.44	-----	1.56	8.131E-01	-----	Line Not Found	-----
	768.35	-----	4.88	7.078E-01	-----	Line Not Found	-----
	806.16	-----	1.23	6.754E-01	-----	Line Not Found	-----
	934.04	-----	3.16	5.861E-01	-----	Line Not Found	-----
	1120.27	-----	15.00	4.982E-01	-----	Line Not Found	-----
	1155.18	-----	1.69	4.860E-01	-----	Line Not Found	-----
PB-214	1238.11	-----	5.92	4.615E-01	-----	Line Not Found	-----
	1280.95	-----	1.47	4.510E-01	-----	Line Not Found	-----
	1377.66	-----	4.02	4.323E-01	-----	Line Not Found	-----
	1385.30	-----	0.78	4.311E-01	-----	Line Not Found	-----
	1401.48	-----	1.39	4.287E-01	-----	Line Not Found	-----
	1407.97	-----	2.48	4.277E-01	-----	Line Not Found	-----
	1509.22	-----	2.19	4.165E-01	-----	Line Not Found	-----
	1583.22	-----	0.72	4.120E-01	-----	Line Not Found	-----
	1661.26	-----	1.15	4.103E-01	-----	Line Not Found	-----
	1729.58	-----	3.05	4.114E-01	-----	Line Not Found	-----
	1764.49	-----	15.90	4.128E-01	-----	Line Not Found	-----
	1847.41	-----	2.12	4.187E-01	-----	Line Not Found	-----
	53.17	-----	1.10	2.929E-01	-----	Line Not Found	-----
	74.81	-----	6.52	1.150E+00	-----	Line Not Found	-----
	77.11	64	11.00	1.260E+00	3.243E-06	3.438E-06	38.26
	87.19	-----	3.88	1.579E+00	-----	Line Not Found	-----
	90.13	-----	1.15	1.662E+00	-----	Line Not Found	-----
	241.92	-----	7.46	1.790E+00	-----	Line Not Found	-----
	258.94	-----	0.55	1.718E+00	-----	Line Not Found	-----
	295.09	37	19.20*	1.578E+00	8.560E-07	9.076E-07	24.27
	351.87	42	37.10	1.394E+00	5.747E-07	6.093E-07	26.19
	785.83	-----	1.09	6.925E-01	-----	Line Not Found	-----
	839.00	-----	0.59	6.497E-01	-----	Line Not Found	-----



Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected Decay Corr		1-Sigma
					uCi/GR	uCi/GR	
RA-226	81.07	-----	0.18	1.383E+00	-----	Line Not Found	-----
	186.11	38	3.28*	2.042E+00	3.996E-06	3.996E-06	36.64
U-235	89.96	-----	3.36	1.657E+00	-----	Line Not Found	-----
	93.35	-----	5.50	1.743E+00	-----	Line Not Found	-----
	105.36	-----	1.98	1.973E+00	-----	Line Not Found	-----
	109.18	-----	1.50	2.024E+00	-----	Line Not Found	-----
	143.79	-----	10.50	2.177E+00	-----	Line Not Found	-----
	163.38	-----	4.70	2.133E+00	-----	Line Not Found	-----
	185.74	38	53.00*	2.042E+00	2.473E-07	2.473E-07	36.64
	194.96	-----	0.59	2.003E+00	-----	Line Not Found	-----
	202.13	-----	1.00	1.970E+00	-----	Line Not Found	-----
	205.33	-----	4.70	1.956E+00	-----	Line Not Found	-----

Flag: "\*" = Keyline

Minimum Detectable Activity Report  
Sample ID : 30296

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Acquisition date : 2-JUN-2014 09:51:46

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	6.	477.61	8.7061E-07
MN-54	3.	834.83	1.1135E-07
MN-56	5.	846.81	1.5116E-07
CO-57	29.	122.06	1.0675E-07
CO-58	1.	810.79	8.4656E-08
CO-60	0.	1173.24	3.9650E-08
SB-124	3.	602.73	8.3775E-08
SB-125	8.	427.88	3.1326E-07
CS-134	4.	604.71	9.6174E-08
CS-137	2.	661.66	9.9240E-08