

## Health Physics Sample Records

Sample ID: 142439

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: ☐

Description: 140528BD 09 STAR 9-20 Dirt Sample

### 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:

Reviewed: DYNES, WILLIAM J

Date: 05/29/14 11:30

Comments:

### Origin

Mat. Size/Volume: 1000 ml

Docmnt/MO/Act #:

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

Description: STAR 02 SOIL SAMPLE

### Collection

Sample Tech: DYNES, WILLIAM J

Sample Date: 05/28/14 13:17

Count Time: 900 (secs.)

Tritium Req: No

Sample Size/Volume: 1771 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: 3" (in.)

Equip ID:

Stored By: ,

Date: 00/00/00 00:00

Sample Loc:

Other:

Material Loc:


# Health Physics Sample Records

Sample ID: 142439

Type: RLSSS


















Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140528BD 09 STAR 9-20 Dirt Sample

## Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
A_1L_marinelli_sand_	30273	1771	GR		.000		ABERNATHY, AGNES B	05/29/14 16:33		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments		Mod Id	Mod Date
0 K-40	NT	8.814E-6	1.155E-6		71.678%	40				
0 TL-208	NT	1.642E-7	6.94E-8		1.335%	208				
0 PB-212	NT	3.369E-7	9.92E-8		2.740%	212				
0 BI-214	NT	4.786E-7	1.076E-7		3.892%	214				
0 PB-214	NT	2.624E-7	1.523E-7		2.134%	214				
0 RA-226	NT	2.11E-6	9.39E-7		17.159%	226				
0 U-235	NT	1.306E-7	5.81E-8		1.062%	235				
0 BE-7	AP	6.8536E-7			0.000%	7				
0 MN-54	AP	6.2046E-8			0.000%	54				
0 MN-56	AP	8.0248E-8			0.000%	56				
0 CO-57	AP	7.0245E-8			0.000%	57				
0 CO-58	AP	1.1102E-7			0.000%	58				
0 CO-60	AP	4.1759E-8			0.000%	60				
0 SB-124	AP	9.0122E-8			0.000%	124				
0 SB-125	FP	2.3429E-7			0.000%	125				
0 CS-134	FP	7.8924E-8			0.000%	134				
0 CS-137	FP	7.2703E-8			0.000%	137				

## Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 09:50

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:


## Health Physics Sample Records

Sample ID: **142439**

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140528BD 09 STAR 9-20 Dirt Sample

**Review/Approve**

### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 09:51

Comments: Peak at 338 keV is Ac-228

### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 09:51

Comments:

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*****
*          SONGS                      HEALTH PHYSICS REPORT          29-MAY-2014 16:29      *
*-----*
*          >>>> SAMPLE   PARAMETERS <<<<<          *
*          *
* Title      : 140528BD 09 STAR 9-20 DIRT SAMPLE          *
*          *
* ID         : 30273                      Acquisition date: 29-MAY-2014 16:26:04 *
* Start Time: 29-MAY-2014 16:26:00          *
* Stop Time : 29-MAY-2014 16:26:00          Counting System   : U2GSP          *
* Quantity  : 1.77100E+03 GR                IHPS Sample Number: 142439          *
* Geometry  : A_1L_marinelli_sand_1        Analysis Library  : HP_NATURAL          *
*          :                               Operator: AGNES ABERNATHY          *
*-----*
*          >>>> A #41-TP11679B   PARAMETERS <<<<<          *
*          *
* Elapsed Live Time : 0 00:03:00.43      Calibration      : 28-MAY-2014 21:10      *
* Elapsed Real Time : 0 00:03:00.48      Energy Offset    : 2.58874E-01          *
* Deadtime          : 0.0%                Energy Slope     : 4.99485E-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	76.95	28	34	1.34	153.54	151	7	39.2	1.21E+00	BI-214 PB-212 PB-214
1	186.03	19	14	1.24	371.92	367	10	44.5	1.41E+00	U-235 RA-226
1	238.65	36	28	1.66	477.29	474	8	29.5	8.63E+00	PB-212
1	295.45	11	7	1.27	591.00	585	10	58.1	2.32E+00	PB-214
1	338.46	12	3	1.31	677.10	674	6	34.6	4.78E-01	
1	351.87	34	3	1.50	703.95	698	13	22.0	1.10E+00	PB-214
1	583.59	13	7	1.62	1167.88	1164	8	42.3	4.16E-01	TL-208
1	609.29	27	2	1.45	1219.34	1215	10	22.5	4.73E-01	BI-214
1	1460.81	59	0	2.06	2924.18	2919	10	13.1	1.07E+00	K-40

Summary of Nuclide Activity  
Sample ID : 30273

Page : 2  
Acquisition date : 29-MAY-2014 16:26:04

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	8.814E-06	8.814E-06	1.155E-06	13.11	A
TL-208	3.05M	1.41	1.168E-07	1.642E-07	0.694E-07	42.26	A
PB-212	10.64H	1.00	3.363E-07	3.369E-07	0.992E-07	29.45	A
BI-214	19.90M	1.06	4.531E-07	4.786E-07	1.076E-07	22.49	A
PB-214	26.80M	1.04	2.519E-07	2.624E-07	1.523E-07	58.05	A
RA-226	1600.00Y	1.00	2.110E-06	2.110E-06	0.939E-06	44.47	A
U-235	7.04E+08Y	1.00	1.306E-07	1.306E-07	0.581E-07	44.47	A
Total Activity :			1.221E-05	1.230E-05			

Grand Total Activity : 1.221E-05 1.230E-05

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

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

Unidentified Energy Lines  
Sample ID : 30273

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Acquisition date : 29-MAY-2014 16:26:04

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
1	338.46	12	3	1.31	677.10	674	6	6.51E-02	34.6	1.70E+00	T

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30273

Page : 4  
Acquisition date : 29-MAY-2014 16:26:04

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	59	10.67*	5.314E-01	8.814E-06	8.814E-06	13.11
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	13	86.00*	1.127E+00	1.168E-07	1.642E-07	42.26
	763.06	-----	1.64	8.744E-01	-----	Line Not Found	-----
	860.30	-----	12.00	7.770E-01	-----	Line Not Found	-----
PB-212	74.81	-----	10.50	1.685E+00	-----	Line Not Found	-----
	77.11	28	17.70	1.776E+00	7.536E-07	7.549E-07	39.16
	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	-----
	238.58	36	43.60*	2.082E+00	3.363E-07	3.369E-07	29.45
	300.03	-----	3.34	1.834E+00	-----	Line Not Found	-----
BI-214	76.86	28	0.58	1.776E+00	2.300E-05	2.429E-05	39.16
	79.29	-----	0.97	1.869E+00	-----	Line Not Found	-----
	609.31	27	46.10*	1.084E+00	4.531E-07	4.786E-07	22.49
	665.44	-----	1.56	9.985E-01	-----	Line Not Found	-----
	768.35	-----	4.88	8.685E-01	-----	Line Not Found	-----
	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	-----
PB-214	53.17	-----	1.10	5.543E-01	-----	Line Not Found	-----
	74.81	-----	6.52	1.685E+00	-----	Line Not Found	-----
	77.11	28	11.00	1.776E+00	1.213E-06	1.263E-06	39.16
	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	11	19.20*	1.851E+00	2.519E-07	2.624E-07	58.05
	351.87	34	37.10	1.662E+00	4.598E-07	4.789E-07	22.04
	785.83	-----	1.09	8.495E-01	-----	Line Not Found	-----
	839.00	-----	0.59	7.964E-01	-----	Line Not Found	-----



Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected Decay Corr		1-Sigma
					uCi/GR	uCi/GR	%Error
RA-226	81.07	-----	0.18	1.934E+00	-----	Line Not Found	-----
	186.11	19	3.28*	2.339E+00	2.110E-06	2.110E-06	44.47
U-235	89.96	-----	3.36	2.201E+00	-----	Line Not Found	-----
	93.35	-----	5.50	2.279E+00	-----	Line Not Found	-----
	105.36	-----	1.98	2.463E+00	-----	Line Not Found	-----
	109.18	-----	1.50	2.498E+00	-----	Line Not Found	-----
	143.79	-----	10.50	2.533E+00	-----	Line Not Found	-----
	163.38	-----	4.70	2.453E+00	-----	Line Not Found	-----
	185.74	19	53.00*	2.339E+00	1.306E-07	1.306E-07	44.47
	194.96	-----	0.59	2.294E+00	-----	Line Not Found	-----
	202.13	-----	1.00	2.257E+00	-----	Line Not Found	-----
	205.33	-----	4.70	2.241E+00	-----	Line Not Found	-----

Flag: "\*" = Keyline

Minimum Detectable Activity Report  
Sample ID : 30273

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Acquisition date : 29-MAY-2014 16:26:04

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	3.	477.61	6.8536E-07
MN-54	0.	834.83	6.2046E-08
MN-56	1.	846.81	8.0248E-08
CO-57	11.	122.06	7.0245E-08
CO-58	3.	810.79	1.1102E-07
CO-60	0.	1332.50	4.1759E-08
SB-124	0.	1690.98	9.0122E-08
SB-125	4.	427.88	2.3429E-07
CS-134	2.	604.71	7.8924E-08
CS-137	1.	661.66	7.2703E-08