

## Health Physics Sample Records

**Sample ID:** 142481

**Type:** RLSSS

**Type Detail:** SAND

**Status:** APPROVED

**Rasterized:** ☒

**Description:** 140603BD 10 , CAMP MESA # 8

### 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 09:41

**Comments:**

### Origin

**Mat. Size/Volume:** 1397 GRAMS

**Docmnt/MO/Act #:**

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

**Description:** CAMP MESA # 8

### Collection

**Sample Tech:** DYNES, WILLIAM J

**Sample Date:** 06/03/14 15:50

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

**Tritium Req:** No

**Sample Size/Volume:** 1397 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: 142481

Type: RLSSS




















Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140603BD 10 , CAMP MESA # 8

## Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
A_1L_marinelli_sand_	30363	1397	GR		.000		PARK, MICHAEL C	06/05/14 15:43		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments		Mod Id	Mod Date
0 K-40	NT	0.00001387	1.76E-6		61.526%	40				
0 TL-208	NT	3.681E-7	9.26E-8		1.633%	208				
0 PB-212	NT	7.591E-7	1.113E-7		3.367%	212				
0 BI-214	NT	7.217E-7	1.376E-7		3.201%	214				
0 PB-214	NT	9.641E-7	2.429E-7		4.277%	214				
0 RA-224	NT	1.912E-6	8.38E-7		8.481%	224				
0 RA-226	NT	2.655E-6	1.175E-6		11.777%	226				
0 AC-228	NT	1.129E-6	2.99E-7		5.008%	228				
0 U-235	NT	1.643E-7	7.27E-8		0.729%	235				
0 BE-7	AP	1.1386E-6			0.000%	7				
0 MN-54	AP	9.8547E-8			0.000%	54				
0 MN-56	AP	1.4405E-7			0.000%	56				
0 CO-57	AP	8.216E-8			0.000%	57				
0 CO-58	AP	1.5683E-7			0.000%	58				
0 CO-60	AP	5.2945E-8			0.000%	60				
0 SB-124	AP	7.4625E-8			0.000%	124				
0 SB-125	FP	3.5808E-7			0.000%	125				
0 CS-134	FP	1.0828E-7			0.000%	134				
0 CS-137	FP	1.0056E-7			0.000%	137				

## Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 14:54

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:


## Health Physics Sample Records

Sample ID: **142481**

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140603BD 10 , CAMP MESA # 8

### Review/Approve

#### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 14:55

Comments: U-235 is likely mis-ID'd off the Ra-226 peak

#### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

#### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 14:55

Comments:

```

*****
*          SONGS                      HEALTH PHYSICS REPORT          5-JUN-2014 15:39  *
*-----*
*          >>>> SAMPLE  PARAMETERS <<<<<          *
*-----*
* Title      : 140603BD 10 , CAMP MESA # 8          *
* ID         : 30363                               Acquisition date: 5-JUN-2014 15:36:24. *
* Start Time: 5-JUN-2014 15:36:00.                  *
* Stop Time: 5-JUN-2014 15:36:00.                  Counting System   : U2GSP          *
* Quantity  : 1.39700E+03 GR                        IHPS Sample Number: 142481      *
* Geometry  : A_1L_marinelli_sand_1                 Analysis Library  : HP_NATURAL      *
* Operator: MICHAEL PARK                             *
*-----*
*          >>>> A #41-TP11679B  PARAMETERS <<<<<          *
*-----*
* Elapsed Live Time : 0 00:03:00.41 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          *
*-----*
*****

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Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
1	77.07	40	34	0.99	153.86	151	7	30.2	3.92E-01	BI-214 PB-212 PB-214
1	186.04	19	21	1.69	372.01	369	7	44.3	3.43E+00	U-235 RA-226
1	238.51	64	9	0.87	477.04	474	6	14.7	1.55E+00	PB-212
1	241.38	14	12	1.30	482.78	481	6	43.8	1.32E+00	RA-224 PB-214
1	295.32	30	6	1.51	590.77	587	10	25.2	9.36E-01	PB-214
1	338.15	18	4	1.86	676.51	673	7	27.2	4.37E-01	AC-228
1	351.93	41	7	1.38	704.10	699	9	19.6	1.61E+00	PB-214
1	462.75	17	8	2.64	925.96	922	10	36.2	9.82E-01	AC-228
1	583.08	22	3	2.07	1166.84	1160	11	25.1	2.17E-01	TL-208
1	609.27	31	2	1.49	1219.27	1215	8	19.1	1.55E-01	BI-214
1	910.88	22	4	1.55	1823.06	1818	9	26.5	4.17E-01	AC-228
1	1460.62	73	3	1.72	2923.58	2917	12	12.7	9.03E-01	K-40

Summary of Nuclide Activity  
Sample ID : 30363

Page : 2  
Acquisition date : 5-JUN-2014 15:36:24

Total number of lines in spectrum 12  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 12 100.00%

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	1.387E-05	1.387E-05	0.176E-05	12.72	A
TL-208	3.05M	1.52	2.430E-07	3.681E-07	0.926E-07	25.15	A
PB-212	10.64H	1.00	7.576E-07	7.591E-07	1.113E-07	14.66	A
BI-214	19.90M	1.07	6.754E-07	7.217E-07	1.376E-07	19.06	A
PB-214	26.80M	1.05	9.178E-07	9.641E-07	2.429E-07	25.19	A
RA-224	3.66D	1.00	1.912E-06	1.912E-06	0.838E-06	43.82	A
RA-226	1600.00Y	1.00	2.655E-06	2.655E-06	1.175E-06	44.26	A
AC-228	6.13H	1.00	1.125E-06	1.129E-06	0.299E-06	26.49	A
U-235	7.04E+08Y	1.00	1.643E-07	1.643E-07	0.727E-07	44.26	A

Total Activity : 2.232E-05 2.254E-05

Grand Total Activity : 2.232E-05 2.254E-05

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

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

Unidentified Energy Lines  
Sample ID : 30363

Page : 3  
Acquisition date : 5-JUN-2014 15:36:24

None

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30363

Page : 4  
Acquisition date : 5-JUN-2014 15:36:24

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	73	10.67*	5.314E-01	1.387E-05	1.387E-05	12.72
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	22	86.00*	1.128E+00	2.430E-07	3.681E-07	25.15
	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	40	17.70	1.781E+00	1.344E-06	1.347E-06	30.20
	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	64	43.60*	2.083E+00	7.576E-07	7.591E-07	14.66
	300.03	-----	3.34	1.834E+00	-----	Line Not Found	-----
BI-214	76.86	40	0.58	1.781E+00	4.103E-05	4.383E-05	30.20
	79.29	-----	0.97	1.869E+00	-----	Line Not Found	-----
	609.31	31	46.10*	1.084E+00	6.754E-07	7.217E-07	19.06
	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	40	11.00	1.781E+00	2.163E-06	2.272E-06	30.20
	87.19	-----	3.88	2.129E+00	-----	Line Not Found	-----
	90.13	-----	1.15	2.206E+00	-----	Line Not Found	-----
	241.92	14	7.46	2.070E+00	9.993E-07	1.050E-06	43.82
	258.94	-----	0.55	1.994E+00	-----	Line Not Found	-----
	295.09	30	19.20*	1.851E+00	9.178E-07	9.641E-07	25.19
	351.87	41	37.10	1.662E+00	7.182E-07	7.545E-07	19.55
	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 uCi/GR	Decay Corr uCi/GR	1-Sigma %Error
RA-224	83.79	-----	0.20	2.027E+00	-----	Line Not Found	-----
	240.76	14	3.90*	2.070E+00	1.912E-06	1.912E-06	43.82
RA-226	81.07	-----	0.18	1.934E+00	-----	Line Not Found	-----
	186.11	19	3.28*	2.339E+00	2.655E-06	2.655E-06	44.26
AC-228	89.96	-----	3.40	2.201E+00	-----	Line Not Found	-----
	93.35	-----	5.60	2.279E+00	-----	Line Not Found	-----
	99.55	-----	1.30	2.389E+00	-----	Line Not Found	-----
	105.36	-----	2.00	2.463E+00	-----	Line Not Found	-----
	108.99	-----	0.67	2.496E+00	-----	Line Not Found	-----
	129.03	-----	2.90	2.562E+00	-----	Line Not Found	-----
	153.89	-----	0.84	2.496E+00	-----	Line Not Found	-----
	209.39	-----	4.10	2.221E+00	-----	Line Not Found	-----
	216.24	-----	0.80	2.187E+00	-----	Line Not Found	-----
	270.26	-----	3.80	1.948E+00	-----	Line Not Found	-----
	328.07	-----	3.50	1.738E+00	-----	Line Not Found	-----
	338.42	18	12.40	1.705E+00	9.350E-07	9.384E-07	27.19
	340.94	-----	0.52	1.696E+00	-----	Line Not Found	-----
	409.62	-----	2.20	1.499E+00	-----	Line Not Found	-----
	463.10	17	4.60	1.368E+00	2.895E-06	2.905E-06	36.16
	562.65	-----	1.01	1.164E+00	-----	Line Not Found	-----
	581.52	-----	3.00	1.131E+00	-----	Line Not Found	-----
	726.63	-----	0.87	9.173E-01	-----	Line Not Found	-----
	755.28	-----	1.32	8.833E-01	-----	Line Not Found	-----
	772.28	-----	1.09	8.641E-01	-----	Line Not Found	-----
	782.12	-----	0.59	8.534E-01	-----	Line Not Found	-----
	794.79	-----	4.60	8.400E-01	-----	Line Not Found	-----
	830.59	-----	0.63	8.043E-01	-----	Line Not Found	-----
	835.60	-----	1.71	7.996E-01	-----	Line Not Found	-----
	840.44	-----	0.94	7.951E-01	-----	Line Not Found	-----
	904.29	-----	0.89	7.403E-01	-----	Line Not Found	-----
	911.16	22	29.00*	7.351E-01	1.125E-06	1.129E-06	26.49
	964.64	-----	5.80	6.962E-01	-----	Line Not Found	-----
	968.97	-----	17.40	6.933E-01	-----	Line Not Found	-----
	1246.60	-----	0.57	5.673E-01	-----	Line Not Found	-----
	1459.19	-----	1.06	5.315E-01	-----	Line Not Found	-----
	1496.00	-----	1.05	5.296E-01	-----	Line Not Found	-----
	1501.44	-----	0.58	5.294E-01	-----	Line Not Found	-----
	1580.30	-----	0.71	5.295E-01	-----	Line Not Found	-----
	1588.23	-----	3.60	5.298E-01	-----	Line Not Found	-----
	1630.47	-----	1.95	5.324E-01	-----	Line Not Found	-----
	1638.10	-----	0.54	5.330E-01	-----	Line Not Found	-----
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	1.643E-07	1.643E-07	44.26
	194.96	-----	0.59	2.294E+00	-----	Line Not Found	-----

Nuclide Line Activity Report (continued)  
Sample ID : 30363

Page : 7  
Acquisition date : 5-JUN-2014 15:36:24

Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected uCi/GR	Decay Corr uCi/GR	1-Sigma %Error
	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 : 30363

Page : 8  
Acquisition date : 5-JUN-2014 15:36:24

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	7.	477.61	1.1386E-06
MN-54	1.	834.83	9.8547E-08
MN-56	3.	846.81	1.4405E-07
CO-57	9.	122.06	8.2160E-08
CO-58	4.	810.79	1.5683E-07
CO-60	0.	1332.50	5.2945E-08
SB-124	1.	602.73	7.4625E-08
SB-125	6.	427.88	3.5808E-07
CS-134	3.	604.71	1.0828E-07
CS-137	1.	661.66	1.0056E-07