```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S           *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004271.CNF

Report Generated On                : 4/5/2018   11:54:34 AM

Sample Title                       : B101100AFSWM001GD
Sample Description                 : U1 Containment 565'
Sample Identification              : 001
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/20/2018  10:00:00 PM
Acquisition Started                : 3/20/2018  10:32:24 AM

Live Time                          :       600.0 seconds
Real Time                          :       600.2 seconds

Dead Time                          :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
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Data Validated
4/5/18 1545
WR Mihale

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*****************************************************************************
*****              P E A K   A N A L Y S I S   R E P O R T             *****
*****************************************************************************
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Detector Name: 5456-A
Sample Title: B101100AFSWM001GD
Peak Analysis Performed on: 4/5/2018 11:54:34 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	287-	306	300.71	75.18	1.21	1.40E+002	51.12	1.47E+002
2	483-	496	488.51	122.13	0.81	2.70E+001	36.61	1.12E+002
3	1370-	1379	1374.49	343.62	0.41	1.37E+001	14.03	1.53E+001
4	2636-	2655	2645.49	661.37	1.62	2.23E+002	32.60	1.24E+001
5	3637-	3650	3643.79	910.95	1.21	1.15E+001	12.74	1.05E+001
6	4680-	4700	4690.99	1172.75	1.33	1.06E+002	23.97	1.05E+001
7	5318-	5338	5328.61	1332.15	1.25	1.06E+002	20.59	0.00E+000
8	5831-	5852	5842.98	1460.74	1.26	1.15E+002	22.48	2.87E+000
9	7049-	7064	7056.06	1764.02	0.87	1.25E+001	10.64	4.47E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

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*************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*************************************************************************
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Sample Title: B101100AFSWM001GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.35410E+005	1.57130E+005
Co-60	1.000	1173.23*	99.85	6.39513E+004	1.54019E+004
		1332.49*	99.98	6.83803E+004	1.43657E+004
Cs-137	1.000	661.66*	85.10	1.17941E+005	2.23373E+004
Eu-152	0.693	121.78*	28.67	2.02985E+004	2.78211E+004
		344.28*	26.60	1.64037E+004	1.70482E+004
		1408.01	21.07		
Ac-228	0.545	338.32*	11.27	3.87195E+004	4.02355E+004
		911.20*	25.80	2.35685E+004	2.61967E+004
		968.97	15.80		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
	K-40	1.000	7.354096E+005	1.571296E+005
	Co-60	1.000	6.631980E+004✓	1.050531E+004
	Cs-137	1.000	1.179406E+005✓	2.233726E+004
	Eu-152	0.693	1.125077E+004✓	1.641470E+004
X	Pb-214	0.367		
	Ac-228	0.545	2.017234E+004	2.479208E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 11:54:34 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.18	2.3412E-001	36.39		
9	1764.02	2.0882E-002	84.92	Tol.	Bi-214

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM001GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	8.750E+004	8.75E+004	7.354E+005	3.511E+004
+	Co-60	1173.23*	99.85	1.395E+004	1.75E+003	6.395E+004	6.154E+003
		1332.49*	99.98	1.746E+003		6.838E+004	0.000E+000
	Nb-94	702.65	99.81	1.443E+004	1.44E+004	2.116E+003	6.584E+003
		871.09	99.89	1.562E+004		2.177E+002	7.109E+003
	Ag-108m	433.90	90.50	1.474E+004	1.47E+004	-1.305E+004	6.829E+003
		614.30	89.80	2.039E+004		3.987E+003	9.540E+003
		722.90	90.80	1.628E+004		-5.255E+003	7.438E+003
	Cs-134	604.72	97.62	1.810E+004	1.68E+004	1.186E+004✓	8.456E+003
		795.86	85.46	1.676E+004		1.458E+004	7.598E+003
+	Cs-137	661.66*	85.10	1.288E+004	1.29E+004	1.179E+005	5.723E+003
+	Eu-152	121.78*	28.67	4.545E+004	2.68E+004	2.030E+004	2.171E+004
		344.28*	26.60	2.678E+004		1.640E+004	1.177E+004
		1408.01	21.07	7.913E+004		7.274E+004	3.528E+004
	Eu-154	123.07	40.40	4.691E+004	4.36E+004	1.853E+004✓	2.273E+004
		723.30	20.06	7.281E+004		-6.868E+004	3.323E+004
		1274.43	34.80	4.356E+004		2.404E+004	1.933E+004
	Eu-155	86.55	30.70	6.341E+004	6.34E+004	3.846E+004	3.068E+004
		105.31	21.10	8.752E+004		-8.185E+004	4.234E+004
	Tl-208	583.19	85.00	1.703E+004	1.70E+004	-8.801E+003	7.842E+003
	Bi-212	727.33	6.67	2.352E+005	2.35E+005	2.107E+005	1.080E+005
	Pb-212	238.63	43.60	3.755E+004	3.75E+004	-6.517E+003	1.795E+004
	Bi-214	609.32	45.49	3.982E+004	3.98E+004	1.375E+004	1.862E+004
		1120.29	14.92	1.369E+005		-6.588E+003	6.311E+004
		1764.49	15.30	1.176E+005		1.000E+005	5.202E+004
	Pb-214	295.22	18.42	8.723E+004	2.00E+004	2.749E+004	4.145E+004
		351.93*	35.60	2.001E+004		1.226E+004	8.792E+003
	Ra-226	186.21	3.64	4.707E+005	4.71E+005	2.145E+005	2.266E+005
+	Ac-228	338.32*	11.27	6.321E+004	4.19E+004	3.872E+004	2.777E+004
		911.20*	25.80	4.192E+004		2.357E+004	1.819E+004
		968.97	15.80	1.172E+005		1.269E+005	5.392E+004
	Am-241	59.54	35.90	5.991E+004	5.99E+004	3.513E+003	2.867E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S               *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002688.CNF

Report Generated On	:	4/5/2018 12:12:49 PM
Sample Title	:	B101100AFSWM002GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	002
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/22/2018 2:41:00 PM
Acquisition Started	:	3/22/2018 2:41:38 PM
Live Time	:	600.0 seconds
Real Time	:	600.9 seconds
Dead Time	:	0.15 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 1359
WR Mihalk

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM002GD
Peak Analysis Performed on: 4/5/2018 12:12:49 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	143-	151	147.31	36.83	0.45	1.64E+001	18.19	3.06E+001
2	296-	309	301.11	75.28	0.64	4.92E+001	42.46	1.42E+002
3	1402-	1414	1407.80	351.95	1.05	3.05E+001	19.28	2.35E+001
4	2637-	2655	2647.00	661.75	1.01	1.02E+002	23.82	1.18E+001
5	4686-	4703	4694.28	1173.57	1.60	6.52E+001	19.37	8.82E+000
6	5322-	5341	5332.49	1333.12	0.86	7.56E+001	20.19	7.38E+000
7	5837-	5856	5845.72	1461.43	1.15	1.05E+002	24.06	1.16E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM002GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.79650E+005	1.65900E+005
Co-60	1.000	1173.23*	99.85	3.96989E+004	1.22167E+004
		1332.49*	99.98	4.91343E+004	1.36968E+004
Cs-137	1.000	661.66*	85.10	5.46243E+004	1.43184E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.78080E+004	1.81132E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

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*************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T  *****
*************************************************************************
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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.796501E+005	1.659000E+005
Co-60	1.000	4.387942E+004√	9.117030E+003
Cs-137	1.000	5.462434E+004✓	1.431845E+004
Pb-214	0.438	2.780803E+004	1.811318E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 12:12:49 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	36.83	2.7287E-002	111.09		
2	75.28	8.2020E-002	86.29		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

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*****************************************************************************
*****                 N U C L I D E   M D A   R E P O R T               *****
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Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM002GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.502E+005	1.50E+005	6.797E+005	6.640E+004
+	Co-60	1173.23*	99.85	1.237E+004	1.24E+004	3.970E+004	5.359E+003
		1332.49*	99.98	1.273E+004		4.913E+004	5.483E+003
	Nb-94	702.65	99.81	1.400E+004	1.40E+004	-2.346E+002	6.366E+003
		871.09	99.89	1.956E+004		2.203E+004	9.077E+003
	Ag-108m	433.90	90.50	1.757E+004	1.64E+004	1.086E+004	8.244E+003
		614.30	89.80	2.245E+004		2.772E+004	1.057E+004
		722.90	90.80	1.642E+004		-9.155E+002	7.502E+003
	Cs-134	604.72	97.62	1.922E+004	1.92E+004	-2.660E+002	9.009E+003
		795.86	85.46	1.977E+004		6.742E+003✓	9.096E+003
+	Cs-137	661.66*	85.10	1.251E+004	1.25E+004	5.462E+004	5.532E+003
	Eu-152	121.78	28.67	6.481E+004	6.18E+004	-1.382E+004	3.139E+004
		344.28	26.60	6.180E+004		5.321E+004✓	2.927E+004
		1408.01	21.07	6.978E+004		3.024E+004	3.058E+004
	Eu-154	123.07	40.40	4.531E+004	4.38E+004	-2.733E+004	2.194E+004
		723.30	20.06	7.434E+004	0.00E+0 ✓	-3.045E+004	3.397E+004
		1274.43	34.80	4.382E+004		-9.444E+003	1.944E+004
	Eu-155	86.55	30.70	6.039E+004	6.04E+004	3.845E+004	2.918E+004
		105.31	21.10	8.273E+004		4.473E+004	3.995E+004
	Tl-208	583.19	85.00	1.863E+004	1.86E+004	-3.201E+003	8.636E+003
	Bi-212	727.33	6.67	2.347E+005	2.35E+005	-3.240E+004	1.077E+005
	Pb-212	238.63	43.60	4.071E+004	4.07E+004	-2.039E+004	1.954E+004
	Bi-214	609.32	45.49	4.436E+004	4.44E+004	1.208E+004	2.089E+004
		1120.29	14.92	1.293E+005		9.149E+003	5.928E+004
		1764.49	15.30	1.190E+005		6.030E+004	5.266E+004
+	Pb-214	295.22	18.42	9.363E+004	2.61E+004	6.665E+004	4.464E+004
		351.93*	35.60	2.613E+004		2.781E+004	1.183E+004
	Ra-226	186.21	3.64	4.910E+005	4.91E+005	1.641E+005	2.368E+005
	Ac-228	338.32	11.27	1.513E+005	6.95E+004	5.284E+004	7.182E+004
		911.20	25.80	6.948E+004		5.779E+004	3.194E+004
		968.97	15.80	1.265E+005		3.737E+004	5.852E+004
	Am-241	59.54	35.90	5.632E+004	5.63E+004	-2.858E+004	2.686E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S          *****
*************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002689.CNF

Report Generated On                  : 4/5/2018   10:28:54 AM

Sample Title                         : B101100AFSWM003GD
Sample Description                   : U1 CONTAINMENT - 565
Sample Identification                : 003
Sample Type                          : GAMMA DIRECT
Sample Geometry                      :

Peak Locate Threshold                :  3.00
Peak Locate Range (in channels)      :    85 -  8192
Peak Area Range (in channels)        :    85 -  8192
Identification Energy Tolerance      :   10.000 keV

Sample Size                          :  2.826E+001 M^2

Sample Taken On                      : 3/22/2018   2:56:00 PM
Acquisition Started                  : 3/22/2018   2:56:14 PM

Live Time                            :       600.0 seconds
Real Time                            :       601.1 seconds

Dead Time                            :    0.19 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 1610
DRMuhalla

****
*****   P E A K   A N A L Y S I S   R E P O R T   *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM003GD
Peak Analysis Performed on: 4/5/2018 10:28:54 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	288-	307	300.88	75.22	0.75	1.31E+002	48.71	1.32E+002
2	333-	348	340.32	85.08	0.89	5.38E+001	39.57	1.12E+002
3	1402-	1413	1407.74	351.93	0.49	1.10E+001	19.80	3.40E+001
4	2327-	2338	2332.91	583.23	0.33	7.00E+000	12.17	1.20E+001
5	2636-	2658	2646.55	661.64	1.49	1.79E+002	30.55	1.41E+001
6	4690-	4703	4696.99	1174.25	0.38	2.47E+001	20.19	2.23E+001
7	5326-	5340	5332.96	1333.24	0.49	3.69E+001	18.67	1.71E+001
8	5834-	5856	5846.07	1461.52	1.38	9.60E+001	19.60	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM003GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.18774E+005	1.37261E+005
Co-60	0.999	1173.23*	99.85	1.50718E+004	1.23589E+004
		1332.49*	99.98	2.39888E+004	1.22817E+004
Cs-137	1.000	661.66*	85.10	9.55691E+004	1.99529E+004
Eu-155	0.337	86.55*	30.70	4.12230E+004	3.14152E+004
		105.31	21.10		
Tl-208	1.000	583.19*	85.00	3.50383E+003	6.10680E+003
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	1.00248E+004	1.81024E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.187739E+005	1.372607E+005
Co-60	0.999	1.955825E+004✓	8.711642E+003
Cs-137	1.000	9.556914E+004✓	1.995288E+004
Eu-155	0.337	4.122297E+004	3.141524E+004
Tl-208	1.000	3.503826E+003	6.106802E+003
Pb-214	0.438	1.002482E+004	1.810237E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018 10:28:54 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.22	2.1829E-001	37.19		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
******************************************************************************
*****              N U C L I D E   M D A   R E P O R T                  *****
******************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM003GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.744E+004	1.74E+004	6.188E+005	0.000E+000
+	Co-60	1173.23*	99.85	1.926E+004	1.69E+004	1.507E+004	8.803E+003
		1332.49*	99.98	1.691E+004		2.399E+004	7.574E+003
	Nb-94	702.65	99.81	1.400E+004	1.40E+004	7.384E+002	6.366E+003
		871.09	99.89	1.786E+004		2.087E+004	8.227E+003
	Ag-108m	433.90	90.50	1.820E+004	1.82E+004	-4.569E+003	8.555E+003
		614.30	89.80	2.027E+004		2.982E+004	9.477E+003
		722.90	90.80	1.880E+004		2.562E+003	8.691E+003
	Cs-134	604.72	97.62	1.825E+004	1.76E+004	-5.879E+002	8.522E+003
		795.86	85.46	1.762E+004	0.00E+00 /	-1.984E+004	8.022E+003
+	Cs-137	661.66*	85.10	1.441E+004	1.44E+004	9.557E+004	6.484E+003
	Eu-152	121.78	28.67	6.373E+004	5.34E+004	5.540E+003✓	3.085E+004
		344.28	26.60	5.341E+004		-3.860E+003	2.507E+004
		1408.01	21.07	6.978E+004		3.244E+004	3.058E+004
	Eu-154	123.07	40.40	4.517E+004	4.52E+004	2.432E+004✓	2.187E+004
		723.30	20.06	8.355E+004		-8.919E+003	3.857E+004
		1274.43	34.80	4.650E+004		-1.185E+004	2.078E+004
+	Eu-155	86.55*	30.70	4.839E+004	4.84E+004	4.122E+004	2.316E+004
		105.31	21.10	8.288E+004		-5.437E+004	4.003E+004
+	Tl-208	583.19*	85.00	1.038E+004	1.04E+004	3.504E+003	4.513E+003
	Bi-212	727.33	6.67	2.472E+005	2.47E+005	2.125E+005	1.139E+005
	Pb-212	238.63	43.60	4.162E+004	4.16E+004	1.343E+004	1.999E+004
	Bi-214	609.32	45.49	4.038E+004	4.04E+004	3.243E+004	1.889E+004
		1120.29	14.92	1.443E+005		5.268E+004	6.677E+004
		1764.49	15.30	9.862E+004		6.581E+004	4.246E+004
+	Pb-214	295.22	18.42	8.914E+004	3.04E+004	7.603E+004	4.240E+004
		351.93*	35.60	3.041E+004		1.002E+004	1.397E+004
	Ra-226	186.21	3.64	5.352E+005	5.35E+005	3.892E+005	2.589E+005
	Ac-228	338.32	11.27	1.374E+005	7.77E+004	3.872E+004	6.490E+004
		911.20	25.80	7.766E+004		4.368E+004	3.603E+004
		968.97	15.80	1.068E+005		5.465E+004	4.869E+004
	Am-241	59.54	35.90	5.706E+004	5.71E+004	1.308E+004	2.723E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****          G A M M A   S P E C T R U M   A N A L Y S I S          *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004272.CNF

Report Generated On               : 4/5/2018   12:12:48 PM

Sample Title                      : B101100AFSWM004GD
Sample Description                : U1 Containment 565'
Sample Identification             : 004
Sample Type                       : GAMMA DIRECT
Sample Geometry                   :

Peak Locate Threshold             :  3.00
Peak Locate Range (in channels)   :    85 -  8192
Peak Area Range (in channels)     :    85 -  8192
Identification Energy Tolerance   :   10.000 keV

Sample Size                       :  2.830E+001 M^2

Sample Taken On                   : 3/20/2018  12:34:00 PM
Acquisition Started               : 3/20/2018  12:34:43 PM

Live Time                         :       600.0 seconds
Real Time                         :       600.2 seconds

Dead Time                         :   0.04 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/5/18 1806
DR Michalek

****
*****   P E A K   A N A L Y S I S   R E P O R T   *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM004GD
Peak Analysis Performed on: 4/5/2018 12:12:47 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	2428-	2439	2433.41	608.35	0.86	2.77E+001	14.40	9.28E+000
2	2629-	2655	2642.83	660.71	2.79	3.11E+002	38.42	1.34E+001
3	4674-	4694	4685.58	1171.39	1.19	8.94E+001	21.60	7.64E+000
4	5314-	5332	5321.48	1330.37	1.28	7.56E+001	21.55	1.24E+001
5	5823-	5848	5833.83	1458.46	2.11	1.30E+002	26.02	9.48E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM004GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.991	1460.82*	10.66	8.26545E+005	1.80898E+005
Co-60	0.994	1173.23*	99.85	5.41417E+004	1.37874E+004
		1332.49*	99.98	4.87174E+004	1.44293E+004
Cs-137	0.999	661.66*	85.10	1.64474E+005	2.83547E+004
Bi-214	0.443	609.32*	45.49	2.63088E+004	1.40257E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

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*****************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*****************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.991	8.265450E+005	1.808980E+005
Co-60	0.994	5.155287E+004✓	9.968351E+003
Cs-137	0.999	1.644737E+005✓	2.835466E+004
Bi-214	0.443	2.630880E+004	1.402573E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 12:12:47 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide

All peaks were identified.

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM004GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.496E+005	1.50E+005	8.265E+005	6.618E+004
+	Co-60	1173.23*	99.85	1.206E+004	1.21E+004	5.414E+004	5.209E+003
		1332.49*	99.98	1.525E+004		4.872E+004	6.751E+003
	Nb-94	702.65	99.81	1.407E+004	1.41E+004	2.526E+003	6.404E+003
		871.09	99.89	1.839E+004		-2.691E+003	8.497E+003
	Ag-108m	433.90	90.50	1.739E+004	1.70E+004	-1.860E+004	8.154E+003
		614.30	89.80	2.012E+004		-5.701E+003	9.406E+003
		722.90	90.80	1.704E+004		8.268E+003	7.820E+003
	Cs-134	604.72	97.62	1.811E+004	1.81E+004	6.167E+003✓	8.459E+003
		795.86	85.46	1.877E+004		1.118E+004	8.604E+003
+	Cs-137	661.66*	85.10	1.474E+004	1.47E+004	1.645E+005	6.656E+003
	Eu-152	121.78	28.67	7.017E+004	6.77E+004	2.436E+004✓	3.407E+004
		344.28	26.60	6.770E+004		-2.290E+004	3.222E+004
		1408.01	21.07	7.270E+004		-6.184E+004	3.207E+004
	Eu-154	123.07	40.40	4.975E+004	4.87E+004	3.218E+004✓	2.415E+004
		723.30	20.06	7.546E+004		1.629E+004	3.455E+004
		1274.43	34.80	4.874E+004		3.506E+004	2.192E+004
	Eu-155	86.55	30.70	6.482E+004	6.48E+004	1.368E+003	3.139E+004
		105.31	21.10	9.259E+004		4.466E+004	4.487E+004
	Tl-208	583.19	85.00	1.970E+004	1.97E+004	2.418E+003	9.178E+003
	Bi-212	727.33	6.67	2.377E+005	2.38E+005	2.664E+005	1.093E+005
	Pb-212	238.63	43.60	4.200E+004	4.20E+004	-2.399E+004	2.018E+004
+	Bi-214	609.32*	45.49	1.790E+004	1.79E+004	2.631E+004	7.664E+003
		1120.29	14.92	1.328E+005		4.483E+004	6.106E+004
		1764.49	15.30	1.251E+005		1.150E+005	5.579E+004
	Pb-214	295.22	18.42	9.641E+004	5.24E+004	-7.102E+004	4.604E+004
		351.93	35.60	5.243E+004		1.545E+004	2.499E+004
	Ra-226	186.21	3.64	5.347E+005	5.35E+005	9.010E+004	2.586E+005
	Ac-228	338.32	11.27	1.496E+005	6.81E+004	-6.464E+004	7.098E+004
		911.20	25.80	6.809E+004		5.125E+002	3.127E+004
		968.97	15.80	1.296E+005		1.036E+005	6.015E+004
	Am-241	59.54	35.90	6.703E+004	6.70E+004	9.536E+002	3.222E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

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*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S             *****
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Filename: C:\GENIE2K\CAMFILES\00004273.CNF

Report Generated On	:	4/5/2018 12:14:30 PM
Sample Title	:	B101100AFSWM005GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	005
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/20/2018 12:50:00 PM
Acquisition Started	:	3/20/2018 12:55:48 PM
Live Time	:	600.0 seconds
Real Time	:	600.4 seconds
Dead Time	:	0.07 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/6/18 CC51
DRMihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM005GD
Peak Analysis Performed on: 4/5/2018 12:14:29 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	265-	273	269.99	67.50	0.76	7.51E+000	18.30	3.55E+001
2	2629-	2657	2643.26	660.81	2.11	5.49E+002	55.56	4.76E+001
3	4673-	4694	4686.08	1171.52	1.55	6.99E+001	27.18	3.11E+001
4	5317-	5333	5323.91	1330.98	0.40	6.21E+001	18.90	8.94E+000
5	5823-	5848	5836.14	1459.04	2.25	1.07E+002	24.21	9.43E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
****

Sample Title: B101100AFSWM005GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.995	1460.82*	10.66	6.80235E+005	1.65421E+005
Co-60	0.996	1173.23*	99.85	4.23732E+004	1.68146E+004
		1332.49*	99.98	4.00217E+004	1.26056E+004
Cs-137	0.999	661.66*	85.10	2.90948E+005	4.56786E+004
Am-241	0.904	59.54*	35.90	6.12687E+003	1.49880E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

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************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T  *****
************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.995	6.802354E+005	1.654208E+005
Co-60	0.996	4.086778E+004 ✓	1.008600E+004
Cs-137	0.999	2.909480E+005 ✓	4.567860E+004
Am-241	0.904	6.126873E+003	1.498802E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018 12:14:29 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide

All peaks were identified.

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM005GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.500E+005	1.50E+005	6.802E+005	6.635E+004
+	Co-60	1173.23*	99.85	2.300E+004	1.28E+004	4.237E+004	1.068E+004
		1332.49*	99.98	1.283E+004		4.002E+004	5.542E+003
	Nb-94	702.65	99.81	1.460E+004	1.46E+004	8.381E+003	6.673E+003
		871.09	99.89	1.805E+004		3.535E+003	8.325E+003
	Ag-108m	433.90	90.50	1.976E+004	1.65E+004	7.629E+003	9.339E+003
		614.30	89.80	1.915E+004		-4.117E+003	8.924E+003
		722.90	90.80	1.647E+004		1.169E+004	7.535E+003
	Cs-134	604.72	97.62	1.931E+004	1.83E+004	1.520E+004✓	9.060E+003
		795.86	85.46	1.835E+004		-9.001E+003	8.392E+003
+	Cs-137	661.66*	85.10	2.741E+004	2.74E+004	2.909E+005	1.299E+004
	Eu-152	121.78	28.67	6.571E+004	6.37E+004	2.967E+004✓	3.184E+004
		344.28	26.60	6.370E+004		-4.212E+004	3.022E+004
		1408.01	21.07	7.099E+004		2.833E+004	3.122E+004
	Eu-154	123.07	40.40	4.644E+004	3.97E+004	3.111E+004✓	2.250E+004
		723.30	20.06	7.371E+004		-2.317E+004	3.368E+004
		1274.43	34.80	3.969E+004		-1.101E+004	1.739E+004
	Eu-155	86.55	30.70	6.209E+004	6.21E+004	4.374E+004	3.002E+004
		105.31	21.10	9.152E+004		4.427E+004	4.434E+004
	Tl-208	583.19	85.00	2.013E+004	2.01E+004	7.015E+003	9.394E+003
	Bi-212	727.33	6.67	2.084E+005	2.08E+005	-1.327E+005	9.464E+004
	Pb-212	238.63	43.60	4.466E+004	4.47E+004	5.530E+003	2.151E+004
	Bi-214	609.32	45.49	4.110E+004	4.11E+004	4.222E+004	1.927E+004
		1120.29	14.92	1.081E+005		1.108E+005	4.871E+004
		1764.49	15.30	1.095E+005		8.501E+004	4.796E+004
	Pb-214	295.22	18.42	9.520E+004	5.08E+004	-3.228E+004	4.543E+004
		351.93	35.60	5.080E+004		3.737E+004	2.417E+004
	Ra-226	186.21	3.64	5.161E+005	5.16E+005	1.615E+005	2.493E+005
	Ac-228	338.32	11.27	1.555E+005	7.30E+004	2.890E+004	7.393E+004
		911.20	25.80	7.299E+004		5.428E+004	3.372E+004
		968.97	15.80	1.207E+005		8.738E+004	5.569E+004
+	Am-241	59.54*	35.90	2.565E+004	2.57E+004	6.127E+003	1.172E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S               *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002708.CNF

Report Generated On                 : 4/5/2018    5:35:18 PM

Sample Title                        : B101100AFSWM006GD
Sample Description                  : U1 CONTAINMENT - 565
Sample Identification               : 006
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.826E+001 M^2

Sample Taken On                     : 3/23/2018   1:30:00 PM
Acquisition Started                 : 3/23/2018   1:29:54 PM

Live Time                           :      600.0 seconds
Real Time                           :      601.2 seconds

Dead Time                           :   0.20 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 1907
WR Mihalik

****
***** P E A K   A N A L Y S I S   R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM006GD
Peak Analysis Performed on: 4/5/2018 5:35:18 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	309	300.82	75.21	0.42	5.68E+001	42.41	1.37E+002
2	2637-	2657	2646.23	661.56	1.31	3.25E+002	39.72	1.87E+001
3	5325-	5338	5331.27	1332.82	1.73	4.01E+001	15.70	7.89E+000
4	5835-	5853	5844.28	1461.07	1.00	6.74E+001	20.16	9.65E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*************************************************************************
*****  N U C L I D E   I D E N T I F I C A T I O N   R E P O R T  *****
*************************************************************************
```

Sample Title: B101100AFSWM006GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	4.34028E+005	1.35277E+005
Cs-137	1.000	661.66*	85.10	1.73812E+005	2.97671E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	4.340283E+005	1.352772E+005
Cs-137	1.000	1.738121E+005✓	2.976710E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 5:35:18 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.21	9.4585E-002	74.72		
3	1332.82	6.6849E-002	39.13	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                 N U C L I D E   M D A   R E P O R T              *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM006GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.415E+005	1.42E+005	4.340E+005	6.205E+004
	Co-60	1173.23	99.85	2.449E+004	2.45E+004	3.468E+004	1.142E+004
		1332.49	99.98	2.650E+004		3.362E+004	1.237E+004
	Nb-94	702.65	99.81	1.303E+004	1.30E+004	-1.361E+004	5.879E+003
		871.09	99.89	1.617E+004		1.543E+004	7.378E+003
	Ag-108m	433.90	90.50	1.870E+004	1.52E+004	-1.288E+004	8.806E+003
		614.30	89.80	1.944E+004		1.875E+004	9.062E+003
		722.90	90.80	1.518E+004		6.323E+003	6.885E+003
	Cs-134	604.72	97.62	1.653E+004	1.65E+004	-9.026E+002	7.664E+003
		795.86	85.46	1.829E+004		4.318E+003	8.359E+003
+	Cs-137	661.66*	85.10	1.606E+004	1.61E+004	1.738E+005	7.307E+003
	Eu-152	121.78	28.67	7.100E+004	5.76E+004	4.683E+004	3.448E+004
		344.28	26.60	5.762E+004		1.144E+004	2.718E+004
		1408.01	21.07	8.711E+004		6.634E+004	3.924E+004
	Eu-154	123.07	40.40	5.065E+004	4.56E+004	1.493E+004	2.460E+004
		723.30	20.06	6.777E+004		-5.291E+003	3.068E+004
		1274.43	34.80	4.563E+004		-1.943E+003	2.035E+004
	Eu-155	86.55	30.70	7.390E+004	7.39E+004	5.415E+004	3.593E+004
		105.31	21.10	9.143E+004		-2.317E+004	4.430E+004
	Tl-208	583.19	85.00	1.984E+004	1.98E+004	2.206E+004	9.242E+003
	Bi-212	727.33	6.67	2.160E+005	2.16E+005	-5.500E+004	9.831E+004
	Pb-212	238.63	43.60	4.250E+004	4.25E+004	1.558E+004	2.043E+004
	Bi-214	609.32	45.49	3.849E+004	3.85E+004	5.001E+004	1.795E+004
		1120.29	14.92	1.122E+005		-1.729E+005	5.071E+004
		1764.49	15.30	9.529E+004		6.074E+004	4.079E+004
	Pb-214	295.22	18.42	9.269E+004	4.75E+004	4.370E+004	4.417E+004
		351.93	35.60	4.752E+004		1.607E+004	2.253E+004
	Ra-226	186.21	3.64	5.221E+005	5.22E+005	1.224E+005	2.524E+005
	Ac-228	338.32	11.27	1.413E+005	7.16E+004	-5.177E+004	6.686E+004
		911.20	25.80	7.162E+004		-2.243E+004	3.301E+004
		968.97	15.80	1.207E+005		6.286E+004	5.564E+004
	Am-241	59.54	35.90	8.666E+004	8.67E+004	5.818E+004	4.203E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002710.CNF

Report Generated On                 : 4/5/2018    5:36:34 PM

Sample Title                        : B101100AFSWM007GD
Sample Description                  : U1 CONTAINMENT - 565
Sample Identification               : 007
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.826E+001 M^2

Sample Taken On                     : 3/23/2018   2:02:00 PM
Acquisition Started                 : 3/23/2018   2:02:14 PM

Live Time                           :       600.0 seconds
Real Time                           :       601.2 seconds

Dead Time                           :   0.20 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 3M0.153 cm Liner
```

Data Validated
4/5/18 1915
DRMichalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM007GD
Peak Analysis Performed on: 4/5/2018 5:36:33 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	309	301.13	75.28	0.73	6.87E+001	41.70	1.21E+002
2	333-	346	339.88	84.97	0.47	4.15E+001	40.85	1.37E+002
3	666-	676	671.71	167.93	0.55	6.50E+000	26.57	7.15E+001
4	954-	963	958.65	239.66	0.40	2.16E+001	23.25	4.84E+001
5	2636-	2659	2647.19	661.80	1.68	4.06E+002	44.05	2.02E+001
6	4685-	4704	4694.37	1173.59	1.91	7.13E+001	19.88	7.67E+000
7	5325-	5339	5332.77	1333.19	0.73	4.91E+001	15.62	3.92E+000
8	5838-	5857	5846.97	1461.74	1.69	9.78E+001	21.10	4.23E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*****************************************************************************
```

Sample Title: B101100AFSWM007GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.30241E+005	1.46612E+005
Co-60	1.000	1173.23*	99.85	4.34448E+004	1.25950E+004
		1332.49*	99.98	3.18890E+004	1.04639E+004
Cs-137	1.000	661.66*	85.10	2.16839E+005	3.50991E+004
Eu-155	0.337	86.55*	30.70	3.18340E+004	3.19754E+004
		105.31	21.10		
Pb-212	0.998	238.63*	43.60	1.31197E+004	1.42827E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*****************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.302410E+005	1.466121E+005
Co-60	1.000	3.660795E+004✓	8.048598E+003
Cs-137	1.000	2.168395E+005✓	3.509907E+004
Eu-155	0.337	3.183398E+004	3.197536E+004
Pb-212	0.998	1.311970E+004	1.428273E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018 5:36:33 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.28	1.1454E-001	60.68		
3	167.93	1.0833E-002	408.76	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                N U C L I D E   M D A   R E P O R T               *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM007GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	9.546E+004	9.55E+004	6.302E+005	3.901E+004
+	Co-60	1173.23*	99.85	1.214E+004	9.13E+003	4.344E+004	5.248E+003
		1332.49*	99.98	9.133E+003		3.189E+004	3.687E+003
	Nb-94	702.65	99.81	1.455E+004	1.45E+004	2.375E+003	6.641E+003
		871.09	99.89	1.447E+004		1.133E+004	6.532E+003
	Ag-108m	433.90	90.50	1.840E+004	1.74E+004	7.818E+003	8.656E+003
		614.30	89.80	1.827E+004		-3.343E+003	8.477E+003
		722.90	90.80	1.738E+004		1.556E+004	7.981E+003
	Cs-134	604.72	97.62	1.667E+004	1.67E+004	9.479E+002	7.734E+003
		795.86	85.46	1.692E+004		-3.543E+003	7.670E+003
+	Cs-137	661.66*	85.10	1.709E+004	1.71E+004	2.168E+005	7.824E+003
	Eu-152	121.78	28.67	6.442E+004	6.02E+004	-3.155E+003	3.120E+004
		344.28	26.60	6.016E+004		2.922E+004	2.845E+004
		1408.01	21.07	8.986E+004		4.224E+004	4.062E+004
	Eu-154	123.07	40.40	4.682E+004	4.68E+004	5.082E+004	2.269E+004
		723.30	20.06	7.868E+004		7.307E+004	3.613E+004
		1274.43	34.80	5.294E+004		3.154E+004	2.400E+004
+	Eu-155	86.55*	30.70	5.099E+004	5.10E+004	3.183E+004	2.446E+004
		105.31	21.10	8.635E+004		-4.642E+003	4.176E+004
	Tl-208	583.19	85.00	1.799E+004	1.80E+004	-9.746E+003	8.316E+003
	Bi-212	727.33	6.67	2.423E+005	2.42E+005	-6.897E+004	1.115E+005
+	Pb-212	238.63*	43.60	2.294E+004	2.29E+004	1.312E+004	1.065E+004
	Bi-214	609.32	45.49	3.650E+004	3.65E+004	6.378E+003	1.696E+004
		1120.29	14.92	1.034E+005		-8.604E+004	4.629E+004
		1764.49	15.30	1.242E+005		1.114E+005	5.524E+004
	Pb-214	295.22	18.42	9.331E+004	4.89E+004	3.827E+004	4.449E+004
		351.93	35.60	4.889E+004		4.920E+004	2.321E+004
	Ra-226	186.21	3.64	5.022E+005	5.02E+005	-2.661E+004	2.424E+005
	Ac-228	338.32	11.27	1.401E+005	6.87E+004	-1.197E+005	6.621E+004
		911.20	25.80	6.875E+004		-1.365E+004	3.157E+004
		968.97	15.80	1.242E+005		6.140E+004	5.738E+004
	Am-241	59.54	35.90	6.490E+004	6.49E+004	5.750E+004	3.115E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
******************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S         *****
******************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004276.CNF

```
Report Generated On                   : 4/6/2018    5:46:30 AM

Sample Title                          : B101100AFSWM008GD
Sample Description                    : U1 Containment 565'
Sample Identification                 : 008
Sample Type                           : GAMMA DIRECT
Sample Geometry                       :

Peak Locate Threshold                 :  3.00
Peak Locate Range (in channels)       :    85 - 8192
Peak Area Range (in channels)         :    85 - 8192
Identification Energy Tolerance       :   10.000 keV

Sample Size                           :  2.830E+001 M^2

Sample Taken On                       : 3/20/2018   2:45:00 PM
Acquisition Started                   : 3/20/2018   2:49:27 PM

Live Time                             :       600.0 seconds
Real Time                             :       600.7 seconds

Dead Time                             :   0.11 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0618
DR Mihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM008GD
Peak Analysis Performed on: 4/6/2018 5:46:30 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	2633-	2656	2642.02	660.51	1.46	3.13E+002	54.68	1.09E+002
2	5827-	5846	5835.99	1459.00	1.28	7.10E+001	24.31	2.20E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM008GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.995	1460.82*	10.66	4.53147E+005	1.60104E+005
Cs-137	0.998	661.66*	85.10	1.65875E+005	3.51392E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.995	4.531473E+005	1.601043E+005
Cs-137	0.998	1.658747E+005✓	3.513918E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

**********   U N I D E N T I F I E D   P E A K S   **********

Peak Locate Performed on: 4/6/2018   5:46:30 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide

All peaks were identified.

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM008GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	2.013E+005	2.01E+005	4.531E+005	9.201E+004
	Co-60	1173.23	99.85	3.083E+004	2.88E+004	3.330E+004	1.459E+004
		1332.49	99.98	2.877E+004		2.654E+004	1.351E+004
	Nb-94	702.65	99.81	1.594E+004	1.29E+004	-5.376E+003	7.342E+003
		871.09	99.89	1.292E+004		-9.427E+003	5.763E+003
	Ag-108m	433.90	90.50	1.548E+004	1.55E+004	-3.855E+003	7.198E+003
		614.30	89.80	1.985E+004		-2.679E+003	9.271E+003
		722.90	90.80	1.608E+004		8.663E+003	7.339E+003
	Cs-134	604.72	97.62	1.848E+004	1.63E+004	6.636E+003	8.644E+003
		795.86	85.46	1.628E+004		6.161E+002	7.360E+003
+	Cs-137	661.66*	85.10	3.772E+004	3.77E+004	1.659E+005	1.814E+004
	Eu-152	121.78	28.67	9.946E+004	6.05E+004	-1.034E+004	4.871E+004
		344.28	26.60	6.051E+004		-1.606E+004	2.863E+004
		1408.01	21.07	7.437E+004		1.344E+004	3.290E+004
	Eu-154	123.07	40.40	7.101E+004	4.17E+004	2.919E+004	3.478E+004
		723.30	20.06	7.371E+004		4.347E+004	3.368E+004
		1274.43	34.80	4.168E+004		-6.108E+003	1.839E+004
	Eu-155	86.55	30.70	1.137E+005	1.14E+005	9.883E+004	5.582E+004
		105.31	21.10	1.515E+005		-1.176E+005	7.432E+004
	Tl-208	583.19	85.00	1.720E+004	1.72E+004	-1.988E+003	7.927E+003
	Bi-212	727.33	6.67	2.113E+005	2.11E+005	5.082E+004	9.606E+004
	Pb-212	238.63	43.60	5.327E+004	5.33E+004	1.456E+004	2.582E+004
	Bi-214	609.32	45.49	4.211E+004	4.21E+004	3.978E+004	1.977E+004
		1120.29	14.92	1.196E+005		-7.801E+003	5.446E+004
		1764.49	15.30	8.710E+004		5.000E+004	3.679E+004
	Pb-214	295.22	18.42	1.050E+005	5.01E+004	4.890E+004	5.035E+004
		351.93	35.60	5.006E+004		2.279E+004	2.380E+004
	Ra-226	186.21	3.64	6.839E+005	6.84E+005	6.677E+005	3.332E+005
	Ac-228	338.32	11.27	1.428E+005	6.88E+004	1.777E+004	6.759E+004
		911.20	25.80	6.881E+004		3.177E+004	3.163E+004
		968.97	15.80	1.045E+005		-2.947E+004	4.755E+004
	Am-241	59.54	35.90	1.259E+005	1.26E+005	-5.115E+004	6.168E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S           *****
*****************************************************************************
```

ilename: C:\GENIE2K\CAMFILES\00004291.CNF

Report Generated On	: 4/5/2018 2:49:03 PM
Sample Title	: B101100AFSWM009GD
Sample Description	: U1 Containment 565'
Sample Identification	: 009
Sample Type	: GAMMA DIRECT
Sample Geometry	:
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 85 - 8192
Peak Area Range (in channels)	: 85 - 8192
Identification Energy Tolerance	: 10.000 keV
Sample Size	: 2.830E+001 M^2
Sample Taken On	: 3/21/2018 8:32:00 PM
Acquisition Started	: 3/21/2018 8:39:45 AM
Live Time	: 600.0 seconds
Real Time	: 600.6 seconds
Dead Time	: 0.10 %

Energy Calibration Used Done On	: 3/15/2018
Efficiency Calibration Used Done On	: 4/5/2018
Efficiency ID	: 0D_0.153CM_LINER

Data Validated
4/6/18 0207
WR Mikalle

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM009GD
Peak Analysis Performed on: 4/5/2018 2:49:02 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	205-	215	209.12	52.28	0.77	6.09E+001	61.15	3.65E+002
2	367-	382	372.47	93.12	0.38	4.06E+001	57.10	2.56E+002
3	1374-	1385	1379.25	344.81	0.49	1.35E+001	18.40	2.75E+001
4	2635-	2657	2646.82	661.70	1.44	4.45E+002	46.22	2.30E+001
5	4684-	4701	4693.71	1173.43	0.91	8.23E+001	19.82	4.68E+000
6	5323-	5340	5331.27	1332.82	1.28	7.59E+001	18.19	2.15E+000
7	5835-	5855	5845.13	1461.28	1.30	8.70E+001	23.15	1.30E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM009GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.55749E+005	1.55599E+005
Co-60	1.000	1173.23*	99.85	4.99129E+004	1.26640E+004
		1332.49*	99.98	4.89452E+004	1.23714E+004
Cs-137	1.000	661.66*	85.10	2.35812E+005	3.74415E+004
Pb-214	0.386	295.22	18.42		
		351.93*	35.60	1.20921E+004	1.66383E+004
Am-241	0.919	59.54*	35.90	5.80928E+004	5.95312E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

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****************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T  *****
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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.557492E+005	1.555993E+005
Co-60	1.000	4.941773E+004✓	8.849532E+003
Cs-137	1.000	2.358118E+005✓	3.744148E+004
Pb-214	0.386	1.209209E+004	1.663833E+004
Am-241	0.919	5.809280E+004	5.953120E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********  U N I D E N T I F I E D   P E A K S  **********
```

Peak Locate Performed on: 4/5/2018 2:49:02 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
2	93.12	6.7716E-002	140.53	Tol.	Eu-155

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM009GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.614E+005	1.61E+005	5.557E+005	7.208E+004
+	Co-60	1173.23*	99.85	9.594E+003	7.30E+003	4.991E+004	3.976E+003
		1332.49*	99.98	7.297E+003		4.895E+004	2.776E+003
	Nb-94	702.65	99.81	1.478E+004	1.48E+004	3.490E+002	6.760E+003
		871.09	99.89	1.582E+004		-9.814E+003	7.210E+003
	Ag-108m	433.90	90.50	1.781E+004	1.74E+004	2.093E+003	8.363E+003
		614.30	89.80	1.843E+004		4.093E+003	8.562E+003
		722.90	90.80	1.741E+004		-1.809E+003	8.004E+003
	Cs-134	604.72	97.62	1.907E+004	1.79E+004	1.432E+004✓	8.939E+003
		795.86	85.46	1.790E+004		5.485E+003	8.170E+003
+	Cs-137	661.66*	85.10	1.789E+004	1.79E+004	2.358E+005	8.230E+003
	Eu-152	121.78	28.67	7.016E+004	6.42E+004	-2.789E+004	3.406E+004
		344.28	26.60	6.421E+004		3.232E+003✓	3.048E+004
		1408.01	21.07	8.359E+004		8.222E+004	3.751E+004
	Eu-154	123.07	40.40	5.000E+004	4.07E+004	-1.318E+004	2.428E+004
		723.30	20.06	7.799E+004		-2.860E+004	3.582E+004
		1274.43	34.80	4.070E+004	0.00E+0✓	-1.090E+004	1.789E+004
	Eu-155	86.55	30.70	9.469E+004	9.47E+004	6.735E+003	4.632E+004
		105.31	21.10	1.243E+005		9.193E+004	6.072E+004
	Tl-208	583.19	85.00	1.880E+004	1.88E+004	3.475E+003	8.730E+003
	Bi-212	727.33	6.67	2.545E+005	2.54E+005	7.967E+004	1.177E+005
	Pb-212	238.63	43.60	4.307E+004	4.31E+004	1.051E+004	2.072E+004
	Bi-214	609.32	45.49	3.929E+004	3.93E+004	1.203E+004	1.836E+004
		1120.29	14.92	1.196E+005		2.123E+004	5.446E+004
		1764.49	15.30	1.095E+005		8.501E+004	4.796E+004
+	Pb-214	295.22	18.42	9.114E+004	2.74E+004	-3.249E+004	4.341E+004
		351.93*	35.60	2.736E+004		1.209E+004	1.246E+004
	Ra-226	186.21	3.64	5.347E+005	5.35E+005	1.306E+005	2.586E+005
	Ac-228	338.32	11.27	1.316E+005	7.30E+004	-3.990E+004	6.199E+004
		911.20	25.80	7.299E+004		4.407E+004	3.372E+004
		968.97	15.80	1.071E+005		1.821E+003	4.889E+004
+	Am-241	59.54*	35.90	9.543E+004	9.54E+004	5.809E+004	4.642E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

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*************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S       *****
*************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002711.CNF

Report Generated On                : 4/5/2018    5:37:56 PM

Sample Title                       : B101100AFSWM010GD
Sample Description                 : U1 CONTAINMENT - 565
Sample Identification              : 010
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.826E+001 M^2

Sample Taken On                    : 3/23/2018   2:34:00 PM
Acquisition Started                : 3/23/2018   2:35:01 PM

Live Time                          :       600.0 seconds
Real Time                          :       601.3 seconds

Dead Time                          :   0.21 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
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Data Validated
4/5/18 1921
DRMichalek

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                *****
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Detector Name: 5452A
Sample Title: B101100AFSWM010GD
Peak Analysis Performed on: 4/5/2018 5:37:56 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	297-	307	301.31	75.33	0.96	5.33E+001	34.21	9.87E+001
2	334-	344	339.14	84.79	0.46	3.02E+001	29.58	7.88E+001
3	1403-	1415	1408.29	352.07	0.59	1.97E+001	22.17	3.83E+001
4	2432-	2444	2438.35	609.59	0.35	3.20E+001	17.82	1.80E+001
5	2636-	2658	2646.74	661.69	1.49	3.73E+002	41.85	1.69E+001
6	4687-	4701	4694.17	1173.54	0.60	4.75E+001	15.15	3.48E+000
7	5323-	5338	5331.36	1332.84	1.65	4.82E+001	16.90	7.77E+000
8	5836-	5856	5845.91	1461.48	1.07	1.11E+002	23.60	7.67E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM010GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	7.17570E+005	1.64365E+005
Co-60	1.000	1173.23*	99.85	2.89411E+004	9.51546E+003
		1332.49*	99.98	3.13359E+004	1.12631E+004
Cs-137	1.000	661.66*	85.10	1.99365E+005	3.27591E+004
Eu-155	0.336	86.55*	30.70	2.32369E+004	2.32096E+004
		105.31	21.10		
Bi-214	0.444	609.32*	45.49	3.06823E+004	1.74569E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	1.79467E+004	2.04010E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

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*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	7.175702E+005	1.643651E+005
Co-60	1.000	2.993853E+004✓	7.268686E+003
Cs-137	1.000	1.993650E+005✓	3.275909E+004
Eu-155	0.336	2.323685E+004	2.320956E+004
Bi-214	0.444	3.068226E+004	1.745689E+004
Pb-214	0.438	1.794670E+004	2.040105E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 5:37:56 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.33	8.8868E-002	64.16		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM010GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.294E+005	1.29E+005	7.176E+005	5.598E+004
+	Co-60	1173.23*	99.85	7.950E+003	7.95E+003	2.894E+004	3.151E+003
		1332.49*	99.98	1.205E+004		3.134E+004	5.146E+003
	Nb-94	702.65	99.81	1.343E+004	1.34E+004	1.139E+004	6.078E+003
		871.09	99.89	1.402E+004		3.683E+003	6.303E+003
	Ag-108m	433.90	90.50	1.860E+004	1.81E+004	7.015E+003	8.756E+003
		614.30	89.80	2.233E+004		-1.182E+004	1.050E+004
		722.90	90.80	1.810E+004		6.937E+003	8.344E+003
	Cs-134	604.72	97.62	2.218E+004	2.13E+004	9.831E+002✓	1.049E+004
		795.86	85.46	2.132E+004		8.443E+003	9.871E+003
+	Cs-137	661.66*	85.10	1.558E+004	1.56E+004	1.994E+005	7.069E+003
	Eu-152	121.78	28.67	6.442E+004	5.62E+004	1.099E+004✓	3.120E+004
		344.28	26.60	5.615E+004		-1.040E+005	2.645E+004
		1408.01	21.07	7.819E+004		7.013E+004	3.478E+004
	Eu-154	123.07	40.40	4.601E+004	4.60E+004	-1.735E+004	2.228E+004
		723.30	20.06	8.196E+004		6.431E+004✓	3.778E+004
		1274.43	34.80	4.820E+004		-5.348E+003	2.163E+004
+	Eu-155	86.55*	30.70	3.681E+004	3.68E+004	2.324E+004	1.736E+004
		105.31	21.10	8.845E+004		-4.261E+004	4.281E+004
	Tl-208	583.19	85.00	2.084E+004	2.08E+004	6.312E+003	9.742E+003
	Bi-212	727.33	6.67	2.347E+005	2.35E+005	-1.732E+005	1.077E+005
	Pb-212	238.63	43.60	4.412E+004	4.41E+004	3.798E+004	2.124E+004
+	Bi-214	609.32*	45.49	2.427E+004	2.43E+004	3.068E+004	1.084E+004
		1120.29	14.92	1.404E+005		7.363E+004	6.481E+004
		1764.49	15.30	8.818E+004		5.062E+004	3.724E+004
+	Pb-214	295.22	18.42	9.456E+004	3.29E+004	3.727E+004	4.511E+004
		351.93*	35.60	3.291E+004		1.795E+004	1.522E+004
	Ra-226	186.21	3.64	5.194E+005	5.19E+005	2.551E+005	2.510E+005
	Ac-228	338.32	11.27	1.420E+005	6.26E+004	8.830E+003	6.718E+004
		911.20	25.80	6.257E+004		-1.784E+004	2.849E+004
		968.97	15.80	1.171E+005		7.012E+004	5.383E+004
	Am-241	59.54	35.90	5.405E+004	5.41E+004	-1.135E+004	2.573E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S           *****
*************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002712.CNF

Report Generated On	:	4/5/2018 5:40:03 PM
Sample Title	:	B101100AFSWM011GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	011
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/23/2018 2:47:00 PM
Acquisition Started	:	3/23/2018 2:47:11 PM
Live Time	:	600.0 seconds
Real Time	:	601.2 seconds
Dead Time	:	0.20 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 1926
DRMcHale

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*****************************************************************************
*****        P E A K   A N A L Y S I S   R E P O R T                   *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM011GD
Peak Analysis Performed on: 4/5/2018 5:40:03 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	286-	310	300.17	75.04	0.77	1.66E+002	54.14	1.37E+002
2	950-	959	954.78	238.69	0.48	2.08E+001	21.78	4.32E+001
3	2432-	2443	2437.50	609.38	0.47	3.24E+001	17.06	1.46E+001
4	2637-	2657	2647.01	661.75	1.17	1.58E+002	32.78	3.07E+001
5	4687-	4701	4693.68	1173.42	0.80	3.59E+001	17.51	1.41E+001
6	5325-	5340	5332.72	1333.18	0.52	5.64E+001	16.35	3.59E+000
7	5836-	5857	5846.01	1461.50	0.58	1.12E+002	23.51	7.43E+000
8	7056-	7071	7063.54	1765.89	1.19	1.83E+001	9.66	1.75E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
****

Sample Title: B101100AFSWM011GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	7.19122E+005	1.63883E+005
Co-60	1.000	1173.23*	99.85	2.18754E+004	1.08087E+004
		1332.49*	99.98	3.66536E+004	1.10198E+004
Cs-137	1.000	661.66*	85.10	8.46055E+004	2.02475E+004
Pb-212	1.000	238.63*	43.60	1.26168E+004	1.33567E+004
Bi-214	0.706	609.32*	45.49	3.10208E+004	1.67479E+004
		1120.29	14.92		
		1764.49*	15.30	9.24268E+004	4.94952E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	7.191219E+005	1.638829E+005
Co-60	1.000	2.912158E+004✓	7.716439E+003
Cs-137	1.000	8.460553E+004✓	2.024754E+004
Pb-212	1.000	1.261678E+004	1.335672E+004
Bi-214	0.706	3.732932E+004	1.586431E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 5:40:03 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.04	2.7675E-001	32.60		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM011GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.268E+005	1.27E+005	7.191E+005	5.467E+004
+	Co-60	1173.23*	99.85	1.444E+004	8.65E+003	2.188E+004	6.396E+003
		1332.49*	99.98	8.653E+003		3.665E+004	3.448E+003
	Nb-94	702.65	99.81	1.624E+004	1.51E+004	4.106E+003	7.484E+003
		871.09	99.89	1.513E+004		9.515E+003	6.861E+003
	Ag-108m	433.90	90.50	1.682E+004	1.52E+004	1.215E+004	7.865E+003
		614.30	89.80	2.220E+004		-6.951E+003	1.044E+004
		722.90	90.80	1.518E+004		3.646E+003	6.885E+003
	Cs-134	604.72	97.62	2.003E+004	1.74E+004	-2.712E+004	9.415E+003
		795.86	85.46	1.739E+004	0.00 E+00 ✓	-1.244E+004	7.906E+003
+	Cs-137	661.66*	85.10	1.990E+004	1.99E+004	8.461E+004	9.229E+003
	Eu-152	121.78	28.67	6.413E+004	5.73E+004	2.128E+004✓	3.105E+004
		344.28	26.60	5.733E+004		1.890E+004	2.703E+004
		1408.01	21.07	8.278E+004		2.949E+004	3.708E+004
	Eu-154	123.07	40.40	4.496E+004	3.99E+004	-3.229E+004	2.176E+004
		723.30	20.06	6.777E+004		2.781E+004	3.068E+004
		1274.43	34.80	3.992E+004		3.192E+003✓	1.749E+004
	Eu-155	86.55	30.70	6.437E+004	6.44E+004	5.350E+004	3.116E+004
		105.31	21.10	8.649E+004		5.344E+004	4.183E+004
	Tl-208	583.19	85.00	1.999E+004	2.00E+004	3.173E+003	9.315E+003
	Bi-212	727.33	6.67	2.269E+005	2.27E+005	9.726E+004	1.038E+005
+	Pb-212	238.63*	43.60	2.136E+004	2.14E+004	1.262E+004	9.858E+003
+	Bi-214	609.32*	45.49	2.259E+004	2.26E+004	3.102E+004	1.000E+004
		1120.29	14.92	1.391E+005		1.405E+004	6.415E+004
		1764.49*	15.30	5.131E+004		9.243E+004	1.880E+004
	Pb-214	295.22	18.42	8.194E+004	4.75E+004	-3.799E+004	3.880E+004
		351.93	35.60	4.752E+004		3.649E+004	2.253E+004
	Ra-226	186.21	3.64	4.796E+005	4.80E+005	3.129E+005	2.311E+005
	Ac-228	338.32	11.27	1.381E+005	7.16E+004	-6.516E+004	6.523E+004
		911.20	25.80	7.162E+004		3.656E+004	3.301E+004
		968.97	15.80	1.207E+005		1.967E+004	5.564E+004
	Am-241	59.54	35.90	5.632E+004	5.63E+004	-3.784E+004	2.686E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S         *****
*************************************************************************

ilename: C:\GENIE2K\CAMFILES\00004292.CNF

Report Generated On                : 4/5/2018    2:50:30 PM

Sample Title                       : B101100AFSWM012GD
Sample Description                 : U1 Containment 565'
Sample Identification              : 012
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/21/2018   8:52:00 PM
Acquisition Started                : 3/21/2018   8:55:15 AM

Live Time                          :       600.0 seconds
Real Time                          :       600.5 seconds

Dead Time                          :   0.08 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0218
WRMichalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM012GD
Peak Analysis Performed on: 4/5/2018 2:50:29 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	195-	204	198.69	49.67	0.68	5.49E+001	50.48	2.57E+002
2	297-	307	301.90	75.47	0.44	6.83E+001	43.10	1.65E+002
3	710-	719	714.88	178.72	0.29	8.46E+000	24.13	6.05E+001
4	1402-	1414	1408.51	352.13	0.52	2.83E+001	18.79	2.28E+001
5	2327-	2339	2333.59	583.40	0.76	1.85E+001	15.95	1.65E+001
6	2636-	2659	2646.76	661.69	1.26	4.21E+002	44.90	2.07E+001
7	4683-	4704	4694.77	1173.69	0.72	8.70E+001	22.65	1.10E+001
8	5324-	5341	5332.04	1333.01	1.59	6.95E+001	18.36	4.50E+000
9	5628-	5641	5635.00	1408.75	0.26	1.52E+001	10.38	3.76E+000
10	5836-	5857	5845.70	1461.43	0.96	9.20E+001	20.96	4.98E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

rrors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM012GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	5.87924E+005	1.43321E+005
Co-60	1.000	1173.23*	99.85	5.27589E+004	1.43699E+004
		1332.49*	99.98	4.48499E+004	1.23780E+004
Cs-137	1.000	661.66*	85.10	2.23237E+005	3.58424E+004
Tl-208	1.000	583.19*	85.00	9.21452E+003	8.00675E+003
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.56540E+004	1.75499E+004
Ra-226	0.914	186.21*	3.64	5.38323E+004	1.53894E+005
Am-241	0.856	59.54*	35.90	5.24531E+004	4.93315E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	5.879244E+005	1.433211E+005
Co-60	1.000	4.821865E+004✓	9.378375E+003
Cs-137	1.000	2.232371E+005✓	3.584237E+004
Tl-208	1.000	9.214516E+003	8.006749E+003
Pb-214	0.438	2.565402E+004	1.754994E+004
Ra-226	0.914	5.383233E+004	1.538937E+005
Am-241	0.856	5.245306E+004	4.933146E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018   2:50:29 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
2	75.47	1.1384E-001	63.10		
9	1408.75	2.5395E-002	68.11		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM012GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.060E+005	1.06E+005	5.879E+005	4.436E+004
+	Co-60	1173.23*	99.85	1.446E+004	9.90E+003	5.276E+004	6.408E+003
		1332.49*	99.98	9.900E+003		4.485E+004	4.077E+003
	Nb-94	702.65	99.81	1.312E+004	1.31E+004	5.933E+003	5.929E+003
		871.09	99.89	1.520E+004		5.991E+003	6.903E+003
	Ag-108m	433.90	90.50	1.861E+004	1.65E+004	-8.797E+002	8.767E+003
		614.30	89.80	2.091E+004		1.413E+004	9.801E+003
		722.90	90.80	1.647E+004		-7.424E+003	7.535E+003
	Cs-134	604.72	97.62	1.930E+004	1.86E+004	1.950E+004✓	9.056E+003
		795.86	85.46	1.855E+004		-7.217E+002	8.495E+003
+	Cs-137	661.66*	85.10	1.728E+004	1.73E+004	2.232E+005	7.924E+003
	Eu-152	121.78	28.67	6.778E+004	5.94E+004	-1.963E+004	3.287E+004
		344.28	26.60	5.941E+004		-3.370E+004	2.808E+004
		1408.01	21.07	8.064E+004		4.859E+004✓	3.604E+004
	Eu-154	123.07	40.40	4.955E+004	3.76E+004	4.398E+004✓	2.405E+004
		723.30	20.06	7.370E+004		-3.605E+004	3.367E+004
		1274.43	34.80	3.758E+004		-6.648E+002	1.634E+004
	Eu-155	86.55	30.70	8.284E+004	8.28E+004	-1.068E+003	4.040E+004
		105.31	21.10	1.141E+005		1.915E+005	5.565E+004
+	Tl-208	583.19*	85.00	1.233E+004	1.23E+004	9.215E+003	5.490E+003
	Bi-212	727.33	6.67	2.249E+005	2.25E+005	1.666E+005	1.029E+005
	Pb-212	238.63	43.60	3.958E+004	3.96E+004	4.242E+003	1.897E+004
	Bi-214	609.32	45.49	4.059E+004	4.06E+004	-2.375E+003	1.901E+004
		1120.29	14.92	1.227E+005		4.524E+004	5.600E+004
		1764.49	15.30	1.036E+005		7.501E+004	4.505E+004
+	Pb-214	295.22	18.42	9.335E+004	2.56E+004	-1.379E+004	4.451E+004
		351.93*	35.60	2.560E+004		2.565E+004	1.157E+004
+	Ra-226	186.21*	3.64	2.625E+005	2.62E+005	5.383E+004	1.226E+005
	Ac-228	338.32	11.27	1.343E+005	6.59E+004	-5.077E+004	6.336E+004
		911.20	25.80	6.587E+004		1.085E+004	3.016E+004
		968.97	15.80	1.196E+005		-9.042E+003	5.510E+004
+	Am-241	59.54*	35.90	7.836E+004	7.84E+004	5.245E+004	3.789E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
    the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

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*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

 ilename: C:\GENIE2K\CAMFILES\00004293.CNF

Report Generated On                  : 4/5/2018    2:52:34 PM

Sample Title                         : B101100AFSWM013GD
Sample Description                   : U1 Containment 565'
Sample Identification                : 013
Sample Type                          : GAMMA DIRECT
Sample Geometry                      :

Peak Locate Threshold                :  3.00
Peak Locate Range (in channels)      :    85 -  8192
Peak Area Range (in channels)        :    85 -  8192
Identification Energy Tolerance      :   10.000 keV

Sample Size                          :  2.830E+001 M^2

Sample Taken On                      : 3/21/2018   9:09:00 PM
Acquisition Started                  : 3/21/2018   9:10:05 AM

Live Time                            :       600.0 seconds
Real Time                            :       600.2 seconds

Dead Time                            :   0.03 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0229
DRMihalik

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
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Detector Name: 5456-A
Sample Title: B101100AFSWM013GD
Peak Analysis Performed on: 4/5/2018 2:52:34 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	125-	135	129.13	32.28	0.61	2.70E+001	25.25	5.50E+001
2	283-	307	301.36	75.34	0.82	1.47E+002	56.24	1.57E+002
3	336-	346	341.26	85.32	0.72	2.94E+001	31.30	9.06E+001
4	1403-	1414	1408.59	352.15	0.63	2.62E+001	21.38	3.48E+001
5	2432-	2445	2437.52	609.38	0.87	3.42E+001	15.63	9.78E+000
6	2638-	2655	2646.93	661.73	1.54	4.19E+002	43.70	1.79E+001
7	4685-	4705	4694.05	1173.51	1.89	1.31E+002	24.49	5.25E+000
8	5321-	5341	5332.09	1333.02	0.99	1.14E+002	22.32	2.75E+000
9	5835-	5856	5845.44	1461.36	1.63	1.32E+002	24.67	5.50E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM013GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	8.40184E+005	1.73677E+005
Co-60	1.000	1173.23*	99.85	7.92838E+004	1.61459E+004
		1332.49*	99.98	7.37311E+004	1.55674E+004
Cs-137	1.000	661.66*	85.10	2.22070E+005	3.53193E+004
Eu-155	0.338	86.55*	30.70	2.25765E+004	2.44185E+004
		105.31	21.10		
Bi-214	0.443	609.32*	45.49	3.25067E+004	1.53566E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.37976E+004	1.97875E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*****************************************************************************
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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	8.401843E+005	1.736770E+005
Co-60	1.000	7.640621E+004✓	1.120675E+004
Cs-137	1.000	2.220704E+005✓	3.531926E+004
Eu-155	0.338	2.257653E+004	2.441848E+004
Bi-214	0.443	3.250675E+004	1.535661E+004
Pb-214	0.438	2.379764E+004	1.978747E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 2:52:34 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.28	4.5000E-002	93.50		
2	75.34	2.4493E-001	38.27		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM013GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.128E+005	1.13E+005	8.402E+005	4.774E+004
+	Co-60	1173.23*	99.85	1.037E+004	8.57E+003	7.928E+004	4.364E+003
		1332.49*	99.98	8.575E+003		7.373E+004	3.414E+003
	Nb-94	702.65	99.81	1.657E+004	1.64E+004	2.675E+003	7.654E+003
		871.09	99.89	1.641E+004		1.901E+003	7.504E+003
	Ag-108m	433.90	90.50	1.985E+004	1.67E+004	-9.450E+003	9.385E+003
		614.30	89.80	2.104E+004		-8.249E+003	9.865E+003
		722.90	90.80	1.667E+004		-1.132E+004	7.631E+003
	Cs-134	604.72	97.62	1.954E+004	1.70E+004	-1.185E+004	9.171E+003
		795.86	85.46	1.699E+004		2.463E+003✓	7.716E+003
+	Cs-137	661.66*	85.10	1.476E+004	1.48E+004	2.221E+005	6.661E+003
	Eu-152	121.78	28.67	6.806E+004	6.81E+004	3.385E+003✓	3.301E+004
		344.28	26.60	6.817E+004		2.003E+004	3.246E+004
		1408.01	21.07	8.642E+004		8.855E+004	3.893E+004
	Eu-154	123.07	40.40	4.825E+004	4.07E+004	-3.299E+004	2.340E+004
		723.30	20.06	7.545E+004		-4.664E+004	3.455E+004
		1274.43	34.80	4.070E+004	0.00E+0 ✓	-2.266E+004	1.789E+004
+	Eu-155	86.55*	30.70	3.910E+004	3.91E+004	2.258E+004	1.851E+004
		105.31	21.10	8.822E+004		1.067E+005	4.269E+004
	Tl-208	583.19	85.00	2.083E+004	2.08E+004	1.323E+004	9.743E+003
	Bi-212	727.33	6.67	2.402E+005	2.40E+005	1.456E+005	1.105E+005
	Pb-212	238.63	43.60	4.230E+004	4.23E+004	1.981E+004	2.033E+004
+	Bi-214	609.32*	45.49	1.877E+004	1.88E+004	3.251E+004	8.102E+003
		1120.29	14.92	1.328E+005		2.316E+004	6.106E+004
		1764.49	15.30	9.413E+004		6.000E+004	4.030E+004
+	Pb-214	295.22	18.42	9.489E+004	3.05E+004	2.800E+003	4.528E+004
		351.93*	35.60	3.050E+004		2.380E+004	1.402E+004
	Ra-226	186.21	3.64	5.476E+005	5.48E+005	6.209E+005	2.651E+005
	Ac-228	338.32	11.27	1.514E+005	7.76E+004	-1.231E+005	7.188E+004
		911.20	25.80	7.755E+004		5.842E+004	3.600E+004
		968.97	15.80	1.242E+005		-3.262E+004	5.740E+004
	Am-241	59.54	35.90	5.710E+004	5.71E+004	8.863E+003	2.726E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A    S P E C T R U M    A N A L Y S I S            *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002713.CNF

Report Generated On                 : 4/5/2018    5:41:14 PM

Sample Title                        : B101100AFSWM014GD
Sample Description                  : U1 CONTAINMENT - 565
Sample Identification               : 014
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.826E+001 M^2

Sample Taken On                     : 3/23/2018   3:00:00 PM
Acquisition Started                 : 3/23/2018   2:59:33 PM

Live Time                           :       600.0 seconds
Real Time                           :       601.2 seconds

Dead Time                           :   0.20 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 1932
WRMihalik

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM014GD
Peak Analysis Performed on: 4/5/2018 5:41:14 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	310	300.49	75.12	0.56	8.85E+001	42.93	1.19E+002
2	1403-	1414	1408.36	352.09	0.28	1.54E+001	18.98	2.96E+001
3	2638-	2656	2647.06	661.77	1.13	1.53E+002	27.93	1.22E+001
4	4687-	4704	4696.46	1174.12	0.61	5.37E+001	19.02	1.13E+001
5	5325-	5342	5333.68	1333.42	1.53	7.30E+001	19.17	6.02E+000
6	5835-	5858	5845.80	1461.45	1.05	1.29E+002	26.48	1.17E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM014GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	8.33670E+005	1.85421E+005
Co-60	0.999	1173.23*	99.85	3.27393E+004	1.18788E+004
		1332.49*	99.98	4.74276E+004	1.30217E+004
Cs-137	1.000	661.66*	85.10	8.16641E+004	1.78584E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	1.40310E+004	1.74373E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	8.336700E+005	1.854208E+005
Co-60	0.999	3.941062E+004✓	8.775881E+003
Cs-137	1.000	8.166412E+004✓	1.785841E+004
Pb-214	0.438	1.403103E+004	1.743726E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 5:41:14 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.12	1.4744E-001	48.53		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM014GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.613E+005	1.61E+005	8.337E+005	7.193E+004
+	Co-60	1173.23*	99.85	1.379E+004	1.10E+004	3.274E+004	6.070E+003
		1332.49*	99.98	1.105E+004		4.743E+004	4.644E+003
	Nb-94	702.65	99.81	1.608E+004	1.61E+004	4.086E+003	7.404E+003
		871.09	99.89	1.786E+004		-1.839E+003	8.227E+003
	Ag-108m	433.90	90.50	1.590E+004	1.59E+004	6.459E+003	7.409E+003
		614.30	89.80	2.081E+004		1.120E+004	9.744E+003
		722.90	90.80	1.880E+004		1.016E+004	8.691E+003
	Cs-134	604.72	97.62	2.059E+004	2.00E+004	3.109E+004	9.694E+003
		795.86	85.46	1.997E+004		-1.001E+004	9.196E+003
+	Cs-137	661.66*	85.10	1.287E+004	1.29E+004	8.166E+004	5.711E+003
	Eu-152	121.78	28.67	6.625E+004	5.90E+004	4.664E+004	3.211E+004
		344.28	26.60	5.905E+004		-3.617E+004	2.789E+004
		1408.01	21.07	9.884E+004		1.179E+005	4.511E+004
	Eu-154	123.07	40.40	4.517E+004	3.89E+004	-5.374E+004	2.187E+004
		723.30	20.06	8.276E+004		-2.316E+004	3.818E+004
		1274.43	34.80	3.888E+004		1.368E+003	1.697E+004
	Eu-155	86.55	30.70	6.496E+004	6.50E+004	6.803E+004	3.146E+004
		105.31	21.10	8.720E+004		-7.252E+004	4.218E+004
	Tl-208	583.19	85.00	1.894E+004	1.89E+004	-6.586E+002	8.791E+003
	Bi-212	727.33	6.67	2.347E+005	2.35E+005	1.694E+005	1.077E+005
	Pb-212	238.63	43.60	3.830E+004	3.83E+004	2.472E+004	1.833E+004
	Bi-214	609.32	45.49	4.192E+004	4.19E+004	1.447E+004	1.966E+004
		1120.29	14.92	1.203E+005		-5.083E+004	5.478E+004
		1764.49	15.30	1.108E+005		4.161E+004	4.855E+004
+	Pb-214	295.22	18.42	9.045E+004	2.84E+004	-2.688E+004	4.305E+004
		351.93*	35.60	2.836E+004		1.403E+004	1.295E+004
	Ra-226	186.21	3.64	4.976E+005	4.98E+005	3.374E+005	2.401E+005
	Ac-228	338.32	11.27	1.525E+005	7.44E+004	8.461E+004	7.241E+004
		911.20	25.80	7.437E+004		4.767E+004	3.439E+004
		968.97	15.80	1.231E+005		4.681E+004	5.681E+004
	Am-241	59.54	35.90	5.520E+004	5.52E+004	2.149E+004	2.630E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S             *****
****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004393.CNF

Report Generated On               : 4/5/2018    8:28:46 PM

Sample Title                      : B101100BFSWM015GD
Sample Description                : UNIT 1 CONTAINMENT 565'
Sample Identification             : 015
Sample Type                       : GAMMA DIRECT
Sample Geometry                   :

Peak Locate Threshold             :  3.00
Peak Locate Range (in channels)   :    85 -  8192
Peak Area Range (in channels)     :    85 -  8192
Identification Energy Tolerance   :   10.000 keV

Sample Size                       :  2.830E+001 M^2

Sample Taken On                   : 3/28/2018   8:50:00 AM
Acquisition Started               : 3/28/2018   8:59:48 AM

Live Time                         :       600.0 seconds
Real Time                         :       600.2 seconds

Dead Time                         :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : OD_0.153CM_LINER
```

Data Validated
4/6/18 0040
WRMihalik

```
*************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T          *****
*************************************************************************
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Detector Name: 5456-A
Sample Title: B101100BFSWM015GD
Peak Analysis Performed on: 4/5/2018 8:28:46 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	297-	310	301.03	75.26	0.54	5.07E+001	44.25	1.45E+002
2	2039-	2051	2044.61	511.15	0.45	2.85E+001	20.65	2.85E+001
3	2638-	2655	2646.60	661.65	0.50	1.35E+002	27.82	1.80E+001
4	4685-	4702	4693.91	1173.48	1.32	4.50E+001	21.63	2.20E+001
5	5322-	5341	5330.25	1332.56	1.58	7.98E+001	19.33	4.25E+000
6	5837-	5854	5844.69	1461.17	0.36	1.12E+002	23.32	7.76E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100BFSWM015GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.17081E+005	1.61500E+005
Co-60	1.000	1173.23*	99.85	2.72961E+004	1.33003E+004
		1332.49*	99.98	5.14636E+004	1.31387E+004
Cs-137	1.000	661.66*	85.10	7.15378E+004	1.70644E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.170810E+005	1.615003E+005
Co-60	1.000	3.952749E+004✓	9.347069E+003
Cs-137	1.000	7.153784E+004✓	1.706436E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 8:28:46 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.26	8.4477E-002	87.31		
2	511.15	4.7566E-002	72.34		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   M D A   R E P O R T   *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100BFSWM015GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.198E+005	1.20E+005	7.171E+005	5.123E+004
+	Co-60	1173.23*	99.85	1.857E+004	9.61E+003	2.730E+004	8.465E+003
		1332.49*	99.98	9.607E+003		5.146E+004	3.930E+003
	Nb-94	702.65	99.81	1.717E+004	1.60E+004	5.773E+002	7.954E+003
		871.09	99.89	1.602E+004		1.316E+003	7.309E+003
	Ag-108m	433.90	90.50	1.900E+004	1.76E+004	8.636E+003	8.962E+003
		614.30	89.80	2.379E+004		2.719E+004	1.124E+004
		722.90	90.80	1.759E+004		1.288E+003	8.094E+003
	Cs-134	604.72	97.62	2.242E+004	2.02E+004	2.666E+004✓	1.061E+004
		795.86	85.46	2.018E+004		-3.833E+003	9.310E+003
+	Cs-137	661.66*	85.10	1.477E+004	1.48E+004	7.154E+004	6.669E+003
	Eu-152	121.78	28.67	7.452E+004	6.29E+004	-1.995E+004	3.624E+004
		344.28	26.60	6.292E+004		6.935E+003✓	2.983E+004
		1408.01	21.07	7.913E+004		2.293E+004	3.529E+004
	Eu-154	123.07	40.40	5.356E+004	4.36E+004	7.528E+003✓	2.606E+004
		723.30	20.06	7.965E+004		-1.238E+004	3.665E+004
		1274.43	34.80	4.357E+004		6.649E+003	1.933E+004
	Eu-155	86.55	30.70	7.003E+004	7.00E+004	3.165E+004	3.399E+004
		105.31	21.10	9.219E+004		-2.286E+004	4.468E+004
	Tl-208	583.19	85.00	2.083E+004	2.08E+004	6.682E+003	9.743E+003
	Bi-212	727.33	6.67	2.635E+005	2.64E+005	1.080E+005	1.222E+005
	Pb-212	238.63	43.60	4.288E+004	4.29E+004	6.045E+003	2.062E+004
	Bi-214	609.32	45.49	4.743E+004	4.74E+004	1.624E+004	2.243E+004
		1120.29	14.92	1.314E+005		8.706E+004	6.037E+004
		1764.49	15.30	1.066E+005		8.001E+004	4.653E+004
	Pb-214	295.22	18.42	9.641E+004	4.72E+004	-5.950E+003	4.604E+004
		351.93	35.60	4.716E+004		-3.435E+004	2.235E+004
	Ra-226	186.21	3.64	5.347E+005	5.35E+005	-6.210E+004	2.586E+005
	Ac-228	338.32	11.27	1.363E+005	8.24E+004	-7.514E+004	6.436E+004
		911.20	25.80	8.244E+004		1.067E+005	3.845E+004
		968.97	15.80	1.230E+005		6.820E+004	5.683E+004
	Am-241	59.54	35.90	6.579E+004	6.58E+004	3.575E+004	3.161E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S        *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004394.CNF

Report Generated On               : 4/5/2018    9:04:28 PM

Sample Title                      : B101100BFSWM016GD
Sample Description                : UNIT 1 CONTAINMENT 565'
Sample Identification             : 016
Sample Type                       : GAMMA DIRECT
Sample Geometry                   :

Peak Locate Threshold             :  3.00
Peak Locate Range (in channels)   :    85 -  8192
Peak Area Range (in channels)     :    85 -  8192
Identification Energy Tolerance   :   10.000 keV

Sample Size                       :  2.830E+001 M^2

Sample Taken On                   : 3/28/2018   8:15:00 AM
Acquisition Started               : 3/28/2018   9:16:03 AM

Live Time                         :       600.0 seconds
Real Time                         :       600.2 seconds

Dead Time                         :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 1135
WR Mihalik

****

***** P E A K A N A L Y S I S R E P O R T *****

****

Detector Name: 5456-A
Sample Title: B101100BFSWM016GD
Peak Analysis Performed on: 4/5/2018 9:04:28 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	2431-	2445	2436.84	609.21	1.19	3.56E+001	19.73	2.14E+001
2	2637-	2656	2646.23	661.56	2.02	2.38E+002	34.69	1.77E+001
3	3191-	3202	3196.50	799.13	0.63	1.20E+001	6.93	0.00E+000
4	4685-	4702	4692.51	1173.13	1.00	7.30E+001	17.09	0.00E+000
5	5321-	5340	5330.79	1332.70	2.07	6.90E+001	20.40	1.00E+001
6	5833-	5856	5844.90	1461.23	1.49	1.33E+002	24.04	2.89E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100BFSWM016GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	8.50424E+005	1.70394E+005
Co-60	1.000	1173.23*	99.85	4.42668E+004	1.09505E+004
		1332.49*	99.98	4..45297E+004	1.36380E+004
Cs-134	0.975	604.72*	97.62	1.57729E+004	8.93859E+003
		795.86*	85.46	6.94575E+003	4.08017E+003
Cs-137	1.000	661.66*	85.10	1.26287E+005	2.38291E+004
Bi-214	0.443	609.32*	45.49	3.38468E+004	1.91825E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	8.504241E+005	1.703941E+005
Co-60	1.000	4.436986E+004	8.538657E+003
Cs-134	0.975	6.945756E+003	4.080161E+003
Cs-137	1.000	1.262867E+005	2.382915E+004
Bi-214	0.443	1.894204E+004	2.108484E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018 9:04:28 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide

All peaks were identified.

```
*****************************************************************************
*****                N U C L I D E   M D A   R E P O R T               *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100BFSWM016GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	8.800E+004	8.80E+004	8.504E+005	3.536E+004
+	Co-60	1173.23*	99.85	1.641E+003	1.64E+003	4.427E+004	0.000E+000
		1332.49*	99.98	1.431E+004		4.453E+004	6.283E+003
	Nb-94	702.65	99.81	1.512E+004	1.51E+004	-7.436E+003	6.931E+003
		871.09	99.89	1.660E+004		4.106E+003	7.600E+003
	Ag-108m	433.90	90.50	1.770E+004	1.69E+004	8.641E+003	8.312E+003
		614.30	89.80	2.299E+004		-2.932E+003	1.084E+004
		722.90	90.80	1.686E+004		1.556E+003	7.726E+003
+	Cs-134	604.72*	97.62	1.264E+004	1.57E+003	1.577E+004	5.721E+003
		795.86*	85.46	1.566E+003		6.946E+003	0.000E+000
+	Cs-137	661.66*	85.10	1.521E+004	1.52E+004	1.263E+005	6.889E+003
	Eu-152	121.78	28.67	6.464E+004	6.46E+004	1.419E+004	3.130E+004
		344.28	26.60	6.573E+004		-5.874E+004	3.124E+004
		1408.01	21.07	6.923E+004		5.377E+004	3.034E+004
	Eu-154	123.07	40.40	4.568E+004	4.57E+004	7.080E+003	2.212E+004
		723.30	20.06	7.716E+004		2.671E+004	3.540E+004
		1274.43	34.80	4.624E+004		1.587E+004	2.067E+004
	Eu-155	86.55	30.70	5.870E+004	5.87E+004	2.328E+004	2.833E+004
		105.31	21.10	8.838E+004		4.255E+004	4.277E+004
	Tl-208	583.19	85.00	2.013E+004	2.01E+004	1.659E+004	9.394E+003
	Bi-212	727.33	6.67	2.451E+005	2.45E+005	-5.029E+004	1.129E+005
	Pb-212	238.63	43.60	4.151E+004	4.15E+004	-4.561E+003	1.994E+004
+	Bi-214	609.32*	45.49	2.713E+004	2.71E+004	3.385E+004	1.228E+004
		1120.29	14.92	1.300E+005		6.988E+004	5.966E+004
		1764.49	15.30	1.251E+005		1.150E+005	5.579E+004
	Pb-214	295.22	18.42	9.304E+004	5.10E+004	5.688E+004	4.435E+004
		351.93	35.60	5.099E+004		2.614E+004	2.426E+004
	Ra-226	186.21	3.64	4.939E+005	4.94E+005	-2.562E+004	2.382E+005
	Ac-228	338.32	11.27	1.508E+005	7.23E+004	3.810E+004	7.158E+004
		911.20	25.80	7.231E+004		-1.162E+004	3.338E+004
		968.97	15.80	1.196E+005		6.392E+004	5.510E+004
	Am-241	59.54	35.90	5.728E+004	5.73E+004	-7.999E+002	2.735E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004395.CNF

Report Generated On               : 4/5/2018    8:31:20 PM

Sample Title                      : B101100BFSWM017GD
Sample Description                : UNIT 1 CONTAINMENT 565'
Sample Identification             : 017
Sample Type                       : GAMMA DIRECT
Sample Geometry                   :

Peak Locate Threshold             :  3.00
Peak Locate Range (in channels)   :    85 -  8192
Peak Area Range (in channels)     :    85 -  8192
Identification Energy Tolerance   :   10.000 keV

Sample Size                       :  2.830E+001 M^2

Sample Taken On                   : 3/28/2018   8:35:00 AM
Acquisition Started               : 3/28/2018   9:36:03 AM

Live Time                         :       600.0 seconds
Real Time                         :       600.2 seconds

Dead Time                         :   0.03 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/6/18 1323
DRMichalik

```
*****************************************************************************
*****           P E A K   A N A L Y S I S   R E P O R T               *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100BFSWM017GD
Peak Analysis Performed on: 4/5/2018 8:31:19 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	112-	128	124.67	31.17	0.44	1.66E+001	35.62	9.34E+001
2	2431-	2442	2436.91	609.23	1.23	3.00E+001	13.42	6.00E+000
3	2635-	2655	2645.87	661.47	1.24	2.52E+002	35.66	1.83E+001
4	4684-	4703	4693.11	1173.28	0.36	6.70E+001	21.89	1.50E+001
5	5321-	5339	5329.41	1332.35	1.14	7.56E+001	18.96	4.36E+000
6	5835-	5856	5844.34	1461.09	1.20	1.37E+002	23.41	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100BFSWM017GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	8.75223E+005	1.67754E+005
Co-60	1.000	1173.23*	99.85	4.06311E+004	1.36673E+004
		1332.49*	99.98	4.88104E+004	1.28411E+004
Cs-137	1.000	661.66*	85.10	1.33370E+005	2.47673E+004
Bi-214	0.443	609.32*	45.49	2.84978E+004	1.31972E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	8.752233E+005	1.677545E+005
Co-60	1.000	4.497544E+004	9.358464E+003
Cs-137	1.000	1.333698E+005	2.476735E+004
Bi-214	0.443	2.849776E+004	1.319718E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 8:31:19 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	31.17	2.7712E-002	214.23		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100BFSWM017GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.729E+004	1.73E+004	8.752E+005	0.000E+000
+	Co-60	1173.23*	99.85	1.614E+004	9.75E+003	4.063E+004	7.249E+003
		1332.49*	99.98	9.748E+003		4.881E+004	4.001E+003
	Nb-94	702.65	99.81	1.546E+004	1.46E+004	-2.034E+003	7.098E+003
		871.09	99.89	1.456E+004		-1.468E+003	6.582E+003
	Ag-108m	433.90	90.50	1.718E+004	1.42E+004	-7.237E+003	8.048E+003
		614.30	89.80	1.985E+004		-1.356E+004	9.271E+003
		722.90	90.80	1.417E+004		-2.827E+004	6.385E+003
	Cs-134	604.72	97.62	1.860E+004	1.77E+004	3.638E+003	8.705E+003
		795.86	85.46	1.769E+004		-1.362E+004	8.063E+003
+	Cs-137	661.66*	85.10	1.561E+004	1.56E+004	1.334E+005	7.087E+003
	Eu-152	121.78	28.67	6.385E+004	5.71E+004	4.682E+004	3.091E+004
		344.28	26.60	5.714E+004		-2.418E+003	2.695E+004
		1408.01	21.07	6.362E+004		1.988E+004	2.753E+004
	Eu-154	123.07	40.40	4.519E+004	3.76E+004	2.930E+004	2.187E+004
		723.30	20.06	6.620E+004		-3.530E+004	2.992E+004
		1274.43	34.80	3.758E+004		-2.469E+004	1.634E+004
	Eu-155	86.55	30.70	6.032E+004	6.03E+004	4.606E+004	2.913E+004
		105.31	21.10	8.511E+004		2.630E+004	4.113E+004
	Tl-208	583.19	85.00	1.865E+004	1.87E+004	8.787E+003	8.653E+003
	Bi-212	727.33	6.67	2.223E+005	2.22E+005	8.144E+004	1.016E+005
	Pb-212	238.63	43.60	4.373E+004	4.37E+004	5.897E+004	2.105E+004
+	Bi-214	609.32*	45.49	1.468E+004	1.47E+004	2.850E+004	6.052E+003
		1120.29	14.92	1.356E+005		-1.400E+005	6.244E+004
		1764.49	15.30	1.299E+005		8.761E+004	5.816E+004
	Pb-214	295.22	18.42	8.346E+004	4.89E+004	9.855E+003	3.957E+004
		351.93	35.60	4.892E+004		1.889E+004	2.323E+004
	Ra-226	186.21	3.64	5.152E+005	5.15E+005	2.501E+004	2.489E+005
	Ac-228	338.32	11.27	1.343E+005	6.43E+004	-2.100E+005	6.336E+004
		911.20	25.80	6.434E+004		3.226E+004	2.940E+004
		968.97	15.80	1.135E+005		-3.541E+004	5.209E+004
	Am-241	59.54	35.90	5.582E+004	5.58E+004	2.415E+004	2.662E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
***************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S        *****
***************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004397.CNF

Report Generated On	:	4/5/2018 8:33:45 PM
Sample Title	:	B101100BFSWM018GD
Sample Description	:	UNIT 1 CONTAINMENT 565'
Sample Identification	:	018
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/28/2018 10:09:00 AM
Acquisition Started	:	3/28/2018 10:09:15 AM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.03 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/6/18 1329
DRMihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100BFSWM018GD
Peak Analysis Performed on: 4/5/2018 8:33:45 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	307	301.07	75.27	1.08	1.05E+002	47.05	1.72E+002
2	2431-	2442	2436.93	609.23	0.31	2.30E+001	16.49	1.80E+001
3	2639-	2653	2646.39	661.60	1.46	1.04E+002	25.20	1.86E+001
4	4685-	4703	4693.14	1173.28	0.40	7.02E+001	22.22	1.58E+001
5	5322-	5339	5330.59	1332.65	0.56	7.43E+001	19.58	6.65E+000
6	5626-	5639	5632.27	1408.07	0.52	2.60E+001	10.20	0.00E+000
7	5835-	5855	5844.53	1461.13	1.11	1.08E+002	23.32	7.71E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100BFSWM018GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.91802E+005	1.60648E+005
Co-60	1.000	1173.23*	99.85	4.25768E+004	1.38980E+004
		1332.49*	99.98	4.79798E+004	1.32060E+004
Cs-137	1.000	661.66*	85.10	5.53152E+004	1.49148E+004
Bi-214	0.443	609.32*	45.49	2.18484E+004	1.58861E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.918022E+005	1.606478E+005
Co-60	1.000	4.541618E+004	9.573365E+003
Cs-137	1.000	5.531519E+004	1.491484E+004
Bi-214	0.443	2.184839E+004	1.588606E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 8:33:45 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.27	1.7495E-001	44.82		
6	1408.07	4.3333E-002	39.22	Tol.	Eu-152

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100BFSWM018GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.279E+005	1.28E+005	6.918E+005	5.530E+004
+	Co-60	1173.23*	99.85	1.619E+004	1.16E+004	4.258E+004	7.277E+003
		1332.49*	99.98	1.159E+004		4.798E+004	4.922E+003
	Nb-94	702.65	99.81	1.760E+004	1.76E+004	1.159E+004	8.172E+003
		871.09	99.89	1.839E+004		6.482E+002	8.497E+003
	Ag-108m	433.90	90.50	1.852E+004	1.85E+004	-3.187E+003	8.717E+003
		614.30	89.80	2.357E+004		-1.011E+004	1.113E+004
		722.90	90.80	2.056E+004		-1.179E+004	9.577E+003
	Cs-134	604.72	97.62	1.966E+004	1.94E+004	-1.965E+003	9.233E+003
		795.86	85.46	1.939E+004		2.626E+002	8.914E+003
+	Cs-137	661.66*	85.10	1.429E+004	1.43E+004	5.532E+004	6.428E+003
	Eu-152	121.78	28.67	7.611E+004	6.27E+004	-1.813E+004	3.704E+004
		344.28	26.60	6.265E+004		-2.220E+004	2.970E+004
		1408.01	21.07	9.436E+004		5.772E+004	4.290E+004
	Eu-154	123.07	40.40	5.507E+004	4.62E+004	6.341E+004	2.682E+004
		723.30	20.06	9.444E+004		-1.572E+003	4.404E+004
		1274.43	34.80	4.624E+004		4.352E+004	2.067E+004
	Eu-155	86.55	30.70	8.138E+004	8.14E+004	5.226E+004	3.967E+004
		105.31	21.10	1.090E+005		2.210E+004	5.309E+004
	Tl-208	583.19	85.00	2.124E+004	2.12E+004	1.079E+004	9.947E+003
	Bi-212	727.33	6.67	2.679E+005	2.68E+005	-1.530E+005	1.244E+005
	Pb-212	238.63	43.60	4.530E+004	4.53E+004	6.994E+003	2.183E+004
+	Bi-214	609.32*	45.49	2.354E+004	2.35E+004	2.185E+004	1.048E+004
		1120.29	14.92	1.409E+005		-1.695E+005	6.509E+004
		1764.49	15.30	1.066E+005		4.430E+004	4.653E+004
	Pb-214	295.22	18.42	9.937E+004	4.99E+004	5.270E+004	4.752E+004
		351.93	35.60	4.987E+004		4.817E+004	2.371E+004
	Ra-226	186.21	3.64	5.338E+005	5.34E+005	-1.750E+005	2.582E+005
	Ac-228	338.32	11.27	1.415E+005	8.36E+004	-6.955E+004	6.696E+004
		911.20	25.80	8.361E+004		4.950E+004	3.903E+004
		968.97	15.80	1.296E+005		7.678E+004	6.015E+004
	Am-241	59.54	35.90	8.318E+004	8.32E+004	6.437E+004	4.030E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S             *****
*****************************************************************************
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```
Filename: C:\GENIE2K\CAMFILES\00004398.CNF

Report Generated On                : 4/5/2018    8:40:27 PM

Sample Title                       : B101100BFSWM019GD
Sample Description                 : UNIT 1 CONTAINMENT 565'
Sample Identification              : 019
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/28/2018  10:24:00 AM
Acquisition Started                : 3/28/2018  10:24:41 AM

Live Time                          :       600.0 seconds
Real Time                          :       600.2 seconds

Dead Time                          :   0.04 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : OD_0.153CM_LINER
```

Data Validated
4/6/18 1334
DR Michalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100BFSWM019GD
Peak Analysis Performed on: 4/5/2018 8:40:26 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	286-	307	301.42	75.36	1.10	1.96E+002	61.89	2.03E+002
2	458-	470	462.56	115.64	0.46	1.48E+001	37.36	1.26E+002
3	950-	959	954.18	238.55	0.59	1.73E+001	23.29	5.17E+001
4	2036-	2050	2043.30	510.83	0.62	3.81E+001	20.06	2.09E+001
5	2431-	2442	2436.33	609.08	0.49	2.57E+001	17.23	1.93E+001
6	2638-	2655	2646.36	661.59	1.57	1.14E+002	25.87	1.61E+001
7	4686-	4702	4692.83	1173.21	0.38	5.87E+001	19.06	1.03E+001
8	5323-	5341	5331.11	1332.78	1.14	8.71E+001	21.57	8.88E+000
9	5627-	5640	5633.69	1408.42	1.13	1.45E+001	9.83	3.50E+000
10	5834-	5855	5844.66	1461.16	1.77	1.17E+002	24.26	8.14E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
****

Sample Title: B101100BFSWM019GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.46584E+005	1.68028E+005
Co-60	1.000	1173.23*	99.85	3.56067E+004	1.19031E+004
		1332.49*	99.98	5.62279E+004	1.46292E+004
Cs-137	1.000	661.66*	85.10	6.03712E+004	1.55093E+004
Eu-152	0.418	121.78*	28.67	1.12513E+004	2.84517E+004
		344.28	26.60		
		1408.01*	21.07	4.58672E+004	3.12961E+004
Pb-212	1.000	238.63*	43.60	1.04391E+004	1.41773E+004
Bi-214	0.443	609.32*	45.49	2.43784E+004	1.66216E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.465841E+005	1.680284E+005
Co-60	1.000	4.382066E+004	9.232946E+003
Cs-137	1.000	6.037119E+004	1.550927E+004
Eu-152	0.418	2.691504E+004	2.105234E+004
Pb-212	1.000	1.043910E+004	1.417728E+004
Bi-214	0.443	2.437843E+004	1.662159E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 8:40:26 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.36	3.2666E-001	31.58		
4	510.83	6.3482E-002	52.66		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100BFSWM019GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.330E+005	1.33E+005	7.466E+005	5.788E+004
+	Co-60	1173.23*	99.85	1.294E+004	1.29E+004	3.561E+004	5.651E+003
		1332.49*	99.98	1.322E+004		5.623E+004	5.736E+003
	Nb-94	702.65	99.81	1.460E+004	1.46E+004	2.630E+003	6.673E+003
		871.09	99.89	2.001E+004		9.650E+003	9.308E+003
	Ag-108m	433.90	90.50	1.871E+004	1.83E+004	1.718E+004	8.816E+003
		614.30	89.80	2.264E+004		-1.471E+004	1.067E+004
		722.90	90.80	1.830E+004		-5.454E+003	8.446E+003
	Cs-134	604.72	97.62	2.098E+004	2.00E+004	8.806E+003	9.893E+003
		795.86	85.46	1.999E+004		1.126E+004	9.213E+003
+	Cs-137	661.66*	85.10	1.418E+004	1.42E+004	6.037E+004	6.372E+003
+	Eu-152	121.78*	28.67	4.771E+004	4.09E+004	1.125E+004	2.283E+004
		344.28	26.60	6.573E+004		-2.175E+004	3.124E+004
		1408.01*	21.07	4.086E+004		4.587E+004	1.615E+004
	Eu-154	123.07	40.40	4.968E+004	3.97E+004	3.817E+004	2.412E+004
		723.30	20.06	8.361E+004		-9.252E+003	3.863E+004
		1274.43	34.80	3.969E+004		-2.448E+004	1.739E+004
	Eu-155	86.55	30.70	7.218E+004	7.22E+004	6.866E+004	3.507E+004
		105.31	21.10	9.623E+004		8.942E+003	4.670E+004
	Tl-208	583.19	85.00	2.164E+004	2.16E+004	3.413E+003	1.015E+004
	Bi-212	727.33	6.67	2.568E+005	2.57E+005	1.292E+005	1.188E+005
+	Pb-212	238.63*	43.60	2.327E+004	2.33E+004	1.044E+004	1.082E+004
+	Bi-214	609.32*	45.49	2.434E+004	2.43E+004	2.438E+004	1.088E+004
		1120.29	14.92	1.447E+005		2.942E+004	6.702E+004
		1764.49	15.30	1.149E+005		9.501E+004	5.071E+004
	Pb-214	295.22	18.42	9.178E+004	5.02E+004	5.038E+004	4.373E+004
		351.93	35.60	5.025E+004		1.902E+004	2.389E+004
	Ra-226	186.21	3.64	5.179E+005	5.18E+005	1.698E+005	2.502E+005
	Ac-228	338.32	11.27	1.578E+005	7.37E+004	-5.604E+004	7.508E+004
		911.20	25.80	7.366E+004		1.691E+004	3.406E+004
		968.97	15.80	1.264E+005		6.406E+004	5.852E+004
	Am-241	59.54	35.90	6.779E+004	6.78E+004	1.834E+004	3.260E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S      *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004399.CNF

Report Generated On	:	4/5/2018 8:41:21 PM
Sample Title	:	B101100BFSWM020GD
Sample Description	:	UNIT 1 CONTAINMENT 565'
Sample Identification	:	020
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/28/2018 10:38:00 AM
Acquisition Started	:	3/28/2018 10:38:10 AM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.03 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/9/18 1247
DK Mihalik

```
****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                *****
****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100BFSWM020GD
Peak Analysis Performed on: 4/5/2018 8:41:21 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	278-	296	290.52	72.63	0.85	7.76E+001	49.65	1.56E+002
2	332-	346	339.49	84.87	0.54	1.76E+001	37.73	1.17E+002
3	950-	960	955.53	238.88	0.49	1.05E+001	22.67	4.95E+001
4	2430-	2444	2437.31	609.33	0.43	3.48E+001	17.30	1.32E+001
5	2637-	2655	2646.05	661.51	1.09	1.86E+002	32.08	2.12E+001
6	3638-	3651	3644.65	911.16	1.39	2.43E+001	13.90	8.71E+000
7	4684-	4703	4692.46	1173.11	1.16	8.73E+001	19.72	2.66E+000
8	5324-	5338	5331.03	1332.76	0.52	5.43E+001	17.56	7.69E+000
9	5834-	5854	5844.58	1461.14	1.50	1.20E+002	21.91	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****

***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****

****

Sample Title: B101100BFSWM020GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.66638E+005	1.54993E+005
Co-60	1.000	1173.23*	99.85	5.29590E+004	1.26841E+004
		1332.49*	99.98	3.50527E+004	1.16734E+004
Cs-137	1.000	661.66*	85.10	9.84220E+004	2.07048E+004
Eu-155	0.336	86.55*	30.70	1.35766E+004	2.91999E+004
		105.31	21.10		
Pb-212	1.000	238.63*	43.60	6.35084E+003	1.37520E+004
Bi-214	0.443	609.32*	45.49	3.31067E+004	1.69069E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.666379E+005	1.549933E+005
Co-60	1.000	4.326410E+004	8.589447E+003
Cs-137	1.000	9.842200E+004	2.070478E+004
Eu-155	0.336	1.357660E+004	2.919990E+004
Pb-212	1.000	6.350840E+003	1.375205E+004
Bi-214	0.443	3.310674E+004	1.690695E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 8:41:21 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	72.63	1.2927E-001	64.01		
6	911.16	4.0480E-002	57.23	Tol.	Ac-228

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100BFSWM020GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.729E+004	1.73E+004	7.666E+005	0.000E+000
+	Co-60	1173.23*	99.85	7.901E+003	7.90E+003	5.296E+004	3.130E+003
		1332.49*	99.98	1.188E+004		3.505E+004	5.065E+003
	Nb-94	702.65	99.81	1.443E+004	1.44E+004	1.396E+004	6.584E+003
		871.09	99.89	1.520E+004		-3.940E+003	6.903E+003
	Ag-108m	433.90	90.50	1.770E+004	1.77E+004	5.586E+003	8.312E+003
		614.30	89.80	2.252E+004		6.013E+003	1.061E+004
		722.90	90.80	1.812E+004		1.115E+004	8.359E+003
	Cs-134	604.72	97.62	1.931E+004	1.75E+004	2.458E+003✓	9.060E+003
		795.86	85.46	1.746E+004		-4.382E+003	7.950E+003
+	Cs-137	661.66*	85.10	1.618E+004	1.62E+004	9.842E+004	7.374E+003
	Eu-152	121.78	28.67	6.484E+004	5.63E+004	2.032E+004✓	3.140E+004
		344.28	26.60	5.626E+004		-3.575E+004	2.651E+004
		1408.01	21.07	6.923E+004		5.377E+004	3.034E+004
	Eu-154	123.07	40.40	4.644E+004	3.29E+004	2.209E+004✓	2.250E+004
		723.30	20.06	8.284E+004		8.368E+004	3.824E+004
		1274.43	34.80	3.289E+004		-7.706E+003	1.399E+004
+	Eu-155	86.55*	30.70	4.871E+004	4.87E+004	1.358E+004	2.331E+004
		105.31	21.10	8.171E+004		-1.179E+004	3.943E+004
	Tl-208	583.19	85.00	2.013E+004	2.01E+004	1.018E+004	9.394E+003
	Bi-212	727.33	6.67	2.426E+005	2.43E+005	4.426E+004	1.117E+005
+	Pb-212	238.63*	43.60	2.325E+004	2.33E+004	6.351E+003	1.081E+004
+	Bi-214	609.32*	45.49	2.232E+004	2.23E+004	3.311E+004	9.877E+003
		1120.29	14.92	1.227E+005		-1.874E+004	5.600E+004
		1764.49	15.30	1.095E+005		8.501E+004	4.796E+004
	Pb-214	295.22	18.42	9.273E+004	4.76E+004	1.827E+004	4.420E+004
		351.93	35.60	4.756E+004		1.315E+004	2.255E+004
	Ra-226	186.21	3.64	4.746E+005	4.75E+005	-1.819E+005	2.286E+005
	Ac-228	338.32	11.27	1.383E+005	7.56E+004	-5.888E+004	6.535E+004
		911.20	25.80	7.563E+004		5.227E+004	3.504E+004
		968.97	15.80	1.419E+005		1.087E+005	6.628E+004
	Am-241	59.54	35.90	5.782E+004	5.78E+004	1.424E+004	2.762E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S          *****
*************************************************************************

ilename: C:\GENIE2K\CAMFILES\00004297.CNF

Report Generated On               : 4/5/2018    3:20:18 PM

Sample Title                      : B101100AFSWM021GD
Sample Description                : U1 Containment 565'
Sample Identification             : 021
Sample Type                       : GAMMA DIRECT
Sample Geometry                   :

Peak Locate Threshold             :  3.00
Peak Locate Range (in channels)   :    85 -  8192
Peak Area Range (in channels)     :    85 -  8192
Identification Energy Tolerance   :   10.000 keV

Sample Size                       :  2.830E+001 M^2

Sample Taken On                   : 3/21/2018  10:16:00 AM
Acquisition Started               : 3/21/2018  10:17:17 AM

Live Time                         :       600.0 seconds
Real Time                         :       600.2 seconds

Dead Time                         :   0.03 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/8/18 2'56
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM021GD
Peak Analysis Performed on: 4/5/2018 3:20:17 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	156-	166	160.07	40.02	0.58	1.57E+001	25.20	5.93E+001
2	297-	307	301.18	75.29	0.75	6.62E+001	34.53	9.28E+001
3	765-	774	769.70	192.42	0.56	1.37E+001	23.49	5.43E+001
4	961-	972	965.35	241.34	0.33	1.80E+001	26.07	6.00E+001
5	1372-	1414	1408.58	352.14	0.70	4.37E+001	52.85	1.02E+002
6	2430-	2443	2437.28	609.32	0.37	3.43E+001	17.04	1.37E+001
7	2637-	2657	2647.16	661.79	1.37	2.65E+002	37.03	2.11E+001
8	3638-	3651	3644.38	911.09	0.81	1.85E+001	11.92	5.50E+000
9	4685-	4705	4694.05	1173.51	1.54	1.18E+002	24.95	1.05E+001
10	5322-	5342	5331.90	1332.98	1.73	1.31E+002	25.21	7.70E+000
11	5627-	5640	5633.40	1408.35	0.57	1.62E+001	12.76	8.82E+000
12	5836-	5856	5844.84	1461.21	1.29	9.75E+001	23.30	1.05E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
****

Sample Title: B101100AFSWM021GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.22911E+005	1.58384E+005
Co-60	1.000	1173.23*	99.85	7.12622E+004	1.61717E+004
		1332.49*	99.98	8.47449E+004	1.76280E+004
Cs-137	1.000	661.66*	85.10	1.40363E+005	2.58704E+004
Pb-212	0.988	238.63*	43.60	1.09458E+004	1.59536E+004
Bi-214	0.443	609.32*	45.49	3.25771E+004	1.66558E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	3.97136E+004	4.84181E+004
Ra-226	0.940	186.21*	3.64	8.97287E+004	1.54518E+005

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.229110E+005	1.583838E+005
Co-60	1.000	7.742365E+004✓	1.191675E+004
Cs-137	1.000	1.403628E+005	2.587043E+004
Pb-212	0.988	1.094575E+004	1.595361E+004
Bi-214	0.443	3.257708E+004	1.665584E+004
Pb-214	0.438	3.971361E+004	4.841810E+004
Ra-226	0.940	8.972874E+004	1.545182E+005

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 3:20:17 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	40.02	2.6117E-002	160.79		
2	75.29	1.1028E-001	52.19		
8	911.09	3.0833E-002	64.43	Sum	
11	1408.35	2.6967E-002	78.89	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM021GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.472E+005	1.47E+005	6.229E+005	6.498E+004
+	Co-60	1173.23*	99.85	1.397E+004	1.29E+004	7.126E+004	6.163E+003
		1332.49*	99.98	1.290E+004		8.474E+004	5.578E+003
	Nb-94	702.65	99.81	1.578E+004	1.58E+004	3.955E+002	7.261E+003
		871.09	99.89	1.697E+004		-2.629E+003	7.788E+003
	Ag-108m	433.90	90.50	1.707E+004	1.71E+004	1.398E+003	7.994E+003
		614.30	89.80	2.117E+004		-3.476E+004	9.929E+003
		722.90	90.80	1.881E+004		9.136E+003	8.701E+003
	Cs-134	604.72	97.62	2.044E+004	1.96E+004	1.069E+003✓	9.623E+003
		795.86	85.46	1.959E+004		-1.441E+004	9.014E+003
+	Cs-137	661.66*	85.10	1.683E+004	1.68E+004	1.404E+005	7.700E+003
	Eu-152	121.78	28.67	6.999E+004	6.62E+004	6.788E+004✓	3.398E+004
		344.28	26.60	6.623E+004		-6.867E+003	3.149E+004
		1408.01	21.07	9.927E+004		1.202E+005	4.536E+004
	Eu-154	123.07	40.40	4.955E+004	3.97E+004	2.125E+004✓	2.405E+004
		723.30	20.06	8.361E+004		3.713E+004	3.863E+004
		1274.43	34.80	3.969E+004		1.472E+004	1.739E+004
	Eu-155	86.55	30.70	6.781E+004	6.78E+004	7.619E+004	3.288E+004
		105.31	21.10	9.430E+004		3.224E+004	4.573E+004
	Tl-208	583.19	85.00	2.164E+004	2.16E+004	3.691E+003	1.015E+004
	Bi-212	727.33	6.67	2.744E+005	2.74E+005	1.481E+005	1.276E+005
+	Pb-212	238.63*	43.60	2.631E+004	2.63E+004	1.095E+004	1.233E+004
+	Bi-214	609.32*	45.49	2.192E+004	2.19E+004	3.258E+004	9.672E+003
		1120.29	14.92	1.342E+005		-8.332E+004	6.175E+004
		1764.49	15.30	1.149E+005		4.843E+004	5.071E+004
+	Pb-214	295.22	18.42	9.210E+004	7.89E+004	2.368E+004	4.388E+004
		351.93*	35.60	7.890E+004		3.971E+004	3.822E+004
+	Ra-226	186.21*	3.64	2.579E+005	2.58E+005	8.973E+004	1.201E+005
	Ac-228	338.32	11.27	1.428E+005	7.23E+004	1.095E+005	6.759E+004
		911.20	25.80	7.231E+004		2.859E+004	3.338E+004
		968.97	15.80	1.359E+005		1.344E+005	6.329E+004
	Am-241	59.54	35.90	5.940E+004	5.94E+004	2.408E+004	2.841E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S         *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002722.CNF

Report Generated On              : 4/5/2018    7:23:18 PM

Sample Title                     : B101100AFSWM022GD
Sample Description               : U1 CONTAINMENT - 565
Sample Identification            : 022
Sample Type                      : GAMMA DIRECT
Sample Geometry                  :

Peak Locate Threshold            :  3.00
Peak Locate Range (in channels)  :    85 -  8192
Peak Area Range (in channels)    :    85 -  8192
Identification Energy Tolerance  :   10.000 keV

Sample Size                      :  2.826E+001 M^2

Sample Taken On                  : 3/24/2018   8:40:00 AM
Acquisition Started              : 3/24/2018   8:40:21 AM

Live Time                        :       600.0 seconds
Real Time                        :       601.2 seconds

Dead Time                        :   0.20 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 2058
WR Mihalek

****
*****   P E A K   A N A L Y S I S   R E P O R T   *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM022GD
Peak Analysis Performed on: 4/5/2018 7:23:18 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	307	300.71	75.18	0.31	4.96E+001	42.04	1.52E+002
2	328-	344	339.03	84.76	0.43	5.43E+001	42.81	1.29E+002
3	2639-	2656	2648.42	662.11	1.31	9.65E+001	26.05	2.25E+001
4	4687-	4703	4696.51	1174.13	0.63	6.30E+001	22.11	1.90E+001
5	5323-	5344	5334.64	1333.66	0.83	9.17E+001	22.17	8.26E+000
6	5839-	5857	5847.76	1461.94	1.77	1.09E+002	23.54	8.95E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM022GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.998	1460.82*	10.66	7.03023E+005	1.63563E+005
Co-60	0.998	1173.23*	99.85	3.84014E+004	1.38167E+004
		1332.49*	99.98	5.96233E+004	1.51758E+004
Cs-137	1.000	661.66*	85.10	5.15784E+004	1.52406E+004
Eu-155	0.336	86.55*	30.70	4.17361E+004	3.39625E+004
		105.31	21.10		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.998	7.030226E+005	1.635634E+005
Co-60	0.998	4.801969E+004	1.021667E+004
Cs-137	1.000	5.157838E+004	1.524056E+004
Eu-155	0.336	4.173606E+004	3.396253E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 7:23:18 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.18	8.2745E-002	84.67		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   M D A   R E P O R T   *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM022GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.326E+005	1.33E+005	7.030E+005	5.756E+004
+	Co-60	1173.23*	99.85	1.707E+004	1.37E+004	3.840E+004	7.711E+003
		1332.49*	99.98	1.368E+004		5.962E+004	5.962E+003
	Nb-94	702.65	99.81	1.655E+004	1.62E+004	1.719E+004	7.642E+003
		871.09	99.89	1.617E+004		-9.184E+003	7.378E+003
	Ag-108m	433.90	90.50	1.840E+004	1.81E+004	6.527E+003	8.656E+003
		614.30	89.80	2.041E+004		2.838E+004	9.545E+003
		722.90	90.80	1.810E+004		3.793E+003	8.344E+003
	Cs-134	604.72	97.62	2.003E+004	1.94E+004	2.122E+004✓	9.415E+003
		795.86	85.46	1.936E+004		1.236E+004	8.892E+003
+	Cs-137	661.66*	85.10	1.649E+004	1.65E+004	5.158E+004	7.523E+003
	Eu-152	121.78	28.67	6.993E+004	5.93E+004	1.204E+004✓	3.395E+004
		344.28	26.60	5.933E+004		1.834E+004	2.803E+004
		1408.01	21.07	7.155E+004		3.024E+004	3.146E+004
	Eu-154	123.07	40.40	4.848E+004	4.19E+004	-1.506E+004	2.352E+004
		723.30	20.06	8.276E+004		1.954E+004✓	3.818E+004
		1274.43	34.80	4.192E+004		-7.991E+003	1.849E+004
+	Eu-155	86.55*	30.70	5.293E+004	5.29E+004	4.174E+004	2.542E+004
		105.31	21.10	8.621E+004		-4.909E+004	4.169E+004
	Tl-208	583.19	85.00	2.098E+004	2.10E+004	-6.144E+003	9.812E+003
	Bi-212	727.33	6.67	2.347E+005	2.35E+005	-1.293E+005	1.077E+005
	Pb-212	238.63	43.60	4.152E+004	4.15E+004	3.492E+004	1.994E+004
	Bi-214	609.32	45.49	3.958E+004	3.96E+004	-4.379E+004	1.850E+004
		1120.29	14.92	1.404E+005		-1.604E+003	6.481E+004
		1764.49	15.30	9.862E+004		6.581E+004	4.246E+004
	Pb-214	295.22	18.42	9.205E+004	4.87E+004	4.949E+004	4.385E+004
		351.93	35.60	4.870E+004		6.407E+003	2.312E+004
	Ra-226	186.21	3.64	4.815E+005	4.82E+005	2.011E+005	2.321E+005
	Ac-228	338.32	11.27	1.374E+005	6.87E+004	-6.275E+004	6.490E+004
		911.20	25.80	6.875E+004		-7.352E+004	3.157E+004
		968.97	15.80	1.183E+005		5.254E+004	5.444E+004
	Am-241	59.54	35.90	6.145E+004	6.14E+004	1.963E+004	2.943E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

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*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S             *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002723.CNF

Report Generated On                : 4/5/2018    7:22:15 PM

Sample Title                       : B101100AFSWM023GD
Sample Description                 : U1 CONTAINMENT - 565
Sample Identification              : 023
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.826E+001 M^2

Sample Taken On                    : 3/24/2018   8:55:00 AM
Acquisition Started                : 3/24/2018   8:55:10 AM

Live Time                          :      600.0 seconds
Real Time                          :      601.3 seconds

Dead Time                          :   0.22 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 3M0.153 cm Liner
```

Data Validated
4/5/18 2107
DR Michaels

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM023GD
Peak Analysis Performed on: 4/5/2018 7:22:14 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	293-	307	300.51	75.13	1.19	9.64E+001	42.59	1.22E+002
2	1402-	1414	1407.97	351.99	0.69	2.90E+001	18.35	2.10E+001
3	2430-	2444	2437.91	609.48	0.79	4.58E+001	17.70	1.12E+001
4	2638-	2656	2647.61	661.90	0.57	8.52E+001	27.61	3.08E+001
5	4687-	4704	4696.03	1174.01	1.01	4.53E+001	19.03	1.37E+001
6	5325-	5342	5333.54	1333.39	0.88	5.35E+001	19.74	1.35E+001
7	5631-	5644	5637.31	1409.33	0.31	1.62E+001	11.03	4.79E+000
8	5839-	5857	5847.58	1461.89	1.50	1.02E+002	24.38	1.39E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM023GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.998	1460.82*	10.66	6.58138E+005	1.67261E+005
Co-60	0.999	1173.23*	99.85	2.76084E+004	1.18035E+004
		1332.49*	99.98	3.47671E+004	1.31254E+004
Cs-137	1.000	661.66*	85.10	4.55089E+004	1.57320E+004
Bi-214	0.444	609.32*	45.49	4.37976E+004	1.77456E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.63908E+004	1.72439E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.998	6.581382E+005	1.672611E+005
Co-60	0.999	3.080920E+004✓	8.776569E+003
Cs-137	1.000	4.550893E+004✓	1.573196E+004
Bi-214	0.444	4.379761E+004	1.774563E+004
Pb-214	0.438	2.639077E+004	1.724394E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018   7:22:14 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.13	1.6061E-001	44.19		
7	1409.33	2.7024E-002	68.00		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   M D A   R E P O R T   *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM023GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.622E+005	1.62E+005	6.581E+005	7.236E+004
+	Co-60	1173.23*	99.85	1.513E+004	1.51E+004	2.761E+004	6.741E+003
		1332.49*	99.98	1.593E+004		3.477E+004	7.083E+003
	Nb-94	702.65	99.81	1.525E+004	1.53E+004	1.010E+004	6.990E+003
		871.09	99.89	1.804E+004		6.121E+003	8.315E+003
	Ag-108m	433.90	90.50	1.590E+004	1.59E+004	-1.244E+004	7.409E+003
		614.30	89.80	2.293E+004		-2.830E+003	1.081E+004
		722.90	90.80	1.700E+004		-4.300E+003	7.793E+003
	Cs-134	604.72	97.62	2.145E+004	1.83E+004	-5.971E+003	1.013E+004
		795.86	85.46	1.829E+004		2.347E+003✓	8.359E+003
+	Cs-137	661.66*	85.10	1.949E+004	1.95E+004	4.551E+004	9.023E+003
	Eu-152	121.78	28.67	6.132E+004	6.10E+004	1.555E+004✓	2.965E+004
		344.28	26.60	6.099E+004		1.285E+004	2.886E+004
		1408.01	21.07	8.850E+004		4.935E+004	3.994E+004
	Eu-154	123.07	40.40	4.324E+004	4.32E+004	1.672E+004✓	2.090E+004
		723.30	20.06	7.783E+004		-5.744E+004	3.571E+004
		1274.43	34.80	4.903E+004		2.347E+004	2.205E+004
	Eu-155	86.55	30.70	6.008E+004	6.01E+004	3.504E+004	2.902E+004
		105.31	21.10	8.229E+004		7.698E+003	3.973E+004
	Tl-208	583.19	85.00	1.954E+004	1.95E+004	-7.785E+003	9.094E+003
	Bi-212	727.33	6.67	2.520E+005	2.52E+005	7.231E+004	1.163E+005
	Pb-212	238.63	43.60	4.289E+004	4.29E+004	2.734E+004	2.062E+004
+	Bi-214	609.32*	45.49	2.057E+004	2.06E+004	4.380E+004	8.991E+003
		1120.29	14.92	1.234E+005		-2.074E+005	5.632E+004
		1764.49	15.30	1.049E+005		7.593E+004	4.561E+004
+	Pb-214	295.22	18.42	9.237E+004	2.47E+004	1.061E+005	4.401E+004
		351.93*	35.60	2.474E+004		2.639E+004	1.114E+004
	Ra-226	186.21	3.64	4.939E+005	4.94E+005	9.047E+004	2.382E+005
	Ac-228	338.32	11.27	1.348E+005	7.70E+004	-1.564E+005	6.356E+004
		911.20	25.80	7.702E+004		-4.139E+003	3.571E+004
		968.97	15.80	1.041E+005		-1.574E+005	4.732E+004
	Am-241	59.54	35.90	5.687E+004	5.69E+004	2.269E+004	2.714E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

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*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004322.CNF

Report Generated On	: 4/5/2018 5:28:11 PM
Sample Title	: B101100AFSWM024GD
Sample Description	: UNIT 1 CONTAINMENT 565'
Sample Identification	: 024
Sample Type	: GAMMA DIRECT
Sample Geometry	:
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 85 - 8192
Peak Area Range (in channels)	: 85 - 8192
Identification Energy Tolerance	: 10.000 keV
Sample Size	: 2.830E+001 M^2
Sample Taken On	: 3/22/2018 9:23:00 AM
Acquisition Started	: 3/22/2018 9:23:23 AM
Live Time	: 600.0 seconds
Real Time	: 600.3 seconds
Dead Time	: 0.05 %

Energy Calibration Used Done On	: 3/15/2018
Efficiency Calibration Used Done On	: 4/5/2018
Efficiency ID	: 0D_0.153CM_LINER

Data Validated
4/6/18 0242
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM024GD
Peak Analysis Performed on: 4/5/2018 5:28:11 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	288-	308	301.38	75.35	0.91	1.57E+002	60.13	2.05E+002
2	1403-	1414	1408.16	352.04	1.18	1.85E+001	18.48	2.65E+001
3	2636-	2657	2647.03	661.76	1.28	3.87E+002	42.36	1.65E+001
4	4476-	4489	4482.63	1120.66	0.67	1.68E+001	13.02	8.20E+000
5	4685-	4705	4694.56	1173.64	1.41	1.26E+002	27.25	1.61E+001
6	5322-	5343	5332.15	1333.04	1.57	1.16E+002	21.54	0.00E+000
7	5837-	5855	5845.79	1461.45	0.90	1.09E+002	22.39	4.75E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM024GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.98049E+005	1.55394E+005
Co-60	1.000	1173.23*	99.85	7.63574E+004	1.76205E+004
		1332.49*	99.98	7.48716E+004	1.51387E+004
Cs-137	1.000	661.66*	85.10	2.04845E+005	3.33006E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	1.68078E+004	1.69909E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

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**************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
**************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.980494E+005	1.553941E+005
Co-60	1.000	7.550257E+004✓	1.148272E+004
Cs-137	1.000	2.048447E+005✓	3.330065E+004
Pb-214	0.438	1.680781E+004	1.699089E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 5:28:11 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.35	2.6120E-001	38.37		
4	1120.66	2.8000E-002	77.49	Tol.	Bi-214

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM024GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.017E+005	1.02E+005	6.980E+005	4.220E+004
+	Co-60	1173.23*	99.85	1.707E+004	1.75E+003	7.636E+004	7.712E+003
		1332.49*	99.98	1.747E+003		7.487E+004	0.000E+000
	Nb-94	702.65	99.81	1.657E+004	1.64E+004	8.205E+003	7.654E+003
		871.09	99.89	1.641E+004		2.156E+003	7.504E+003
	Ag-108m	433.90	90.50	1.760E+004	1.53E+004	-7.839E+003	8.260E+003
		614.30	89.80	2.142E+004		2.627E+004	1.006E+004
		722.90	90.80	1.527E+004		8.251E+002	6.931E+003
	Cs-134	604.72	97.62	2.055E+004	1.92E+004	1.588E+004 ✓	9.678E+003
		795.86	85.46	1.919E+004		1.011E+003	8.812E+003
+	Cs-137	661.66*	85.10	1.516E+004	1.52E+004	2.048E+005	6.863E+003
	Eu-152	121.78	28.67	7.478E+004	7.48E+004	-2.147E+003	3.637E+004
		344.28	26.60	7.481E+004		-5.236E+003	3.578E+004
		1408.01	21.07	9.685E+004		9.214E+004 ✓	4.415E+004
	Eu-154	123.07	40.40	5.302E+004	3.53E+004	-4.519E+003	2.579E+004
		723.30	20.06	7.099E+004	0.00E+0 ✓	-3.539E+003	3.232E+004
		1274.43	34.80	3.533E+004		-7.392E+004	1.521E+004
	Eu-155	86.55	30.70	7.597E+004	7.60E+004	3.729E+004	3.696E+004
		105.31	21.10	9.469E+004		-2.507E+004	4.592E+004
	Tl-208	583.19	85.00	2.177E+004	2.18E+004	-2.464E+003	1.021E+004
	Bi-212	727.33	6.67	2.451E+005	2.45E+005	1.452E+005	1.129E+005
	Pb-212	238.63	43.60	4.566E+004	4.57E+004	-9.873E+003	2.201E+004
	Bi-214	609.32	45.49	4.427E+004	4.43E+004	2.954E+004	2.085E+004
		1120.29	14.92	1.409E+005		-4.092E+004	6.509E+004
		1764.49	15.30	1.176E+005		5.938E+004	5.202E+004
+	Pb-214	295.22	18.42	9.937E+004	2.69E+004	2.680E+004	4.752E+004
		351.93*	35.60	2.688E+004		1.681E+004	1.221E+004
	Ra-226	186.21	3.64	5.610E+005	5.61E+005	-8.500E+005	2.718E+005
	Ac-228	338.32	11.27	1.750E+005	7.88E+004	7.825E+004	8.368E+004
		911.20	25.80	7.880E+004		4.240E+004	3.663E+004
		968.97	15.80	1.307E+005		0.000E+000	6.068E+004
	Am-241	59.54	35.90	1.010E+005	1.01E+005	-2.867E+004	4.921E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S          *****
*************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004323.CNF

Report Generated On	:	4/5/2018 5:20:43 PM
Sample Title	:	B101100AFSWM025GD
Sample Description	:	UNIT 1 CONTAINMENT 565'
Sample Identification	:	025
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/22/2018 9:43:00 AM
Acquisition Started	:	3/22/2018 9:41:32 AM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.03 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/6/18 0250
WR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM025GD
Peak Analysis Performed on: 4/5/2018 5:20:43 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	288-	307	301.52	75.38	1.39	1.34E+002	47.15	1.20E+002
2	335-	345	339.73	84.93	0.35	3.76E+001	30.48	8.14E+001
3	755-	764	759.64	189.91	0.70	2.75E+000	22.23	5.33E+001
4	2431-	2445	2438.22	609.55	0.49	4.18E+001	17.23	1.13E+001
5	2637-	2657	2646.98	661.75	1.57	3.18E+002	39.71	2.10E+001
6	3637-	3650	3643.82	910.95	0.29	1.33E+001	11.73	6.75E+000
7	4687-	4702	4694.37	1173.59	0.38	6.60E+001	17.68	4.00E+000
8	5325-	5341	5332.51	1333.13	1.10	6.65E+001	20.18	1.15E+001
9	5837-	5858	5846.94	1461.74	0.89	1.39E+002	23.58	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*****************************************************************************
```

Sample Title: B101100AFSWM025GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	8.88244E+005	1.69274E+005
Co-60	1.000	1173.23*	99.85	4.00294E+004	1.11899E+004
		1332.49*	99.98	4.28948E+004	1.34725E+004
Cs-137	1.000	661.66*	85.10	1.68523E+005	2.91960E+004
Eu-155	0.337	86.55*	30.70	2.89137E+004	2.41747E+004
		105.31	21.10		
Bi-214	0.443	609.32*	45.49	3.96704E+004	1.70504E+004
		1120.29	14.92		
		1764.49	15.30		
Ra-226	0.978	186.21*	3.64	1.78741E+004	1.44726E+005

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	8.882438E+005	1.692739E+005
Co-60	1.000	4.119919E+004✓	8.608011E+003
Cs-137	1.000	1.685232E+005✓	2.919603E+004
Eu-155	0.337	2.891365E+004	2.417466E+004
Bi-214	0.443	3.967036E+004	1.705039E+004
Ra-226	0.978	1.787408E+004	1.447263E+005

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 5:20:43 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.38	2.2305E-001	35.24		
6	910.95	2.2083E-002	88.51	Tol.	Ac-228

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM025GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.729E+004	1.73E+004	8.882E+005	0.000E+000
+	Co-60	1173.23*	99.85	8.590E+003	8.59E+003	4.003E+004	3.475E+003
		1332.49*	99.98	1.438E+004		4.289E+004	6.317E+003
	Nb-94	702.65	99.81	1.594E+004	1.46E+004	-9.761E+002	7.342E+003
		871.09	99.89	1.456E+004		1.291E+003	6.582E+003
	Ag-108m	433.90	90.50	1.618E+004	1.62E+004	-4.044E+003	7.549E+003
		614.30	89.80	2.228E+004		-1.933E+004	1.049E+004
		722.90	90.80	1.795E+004		4.524E+002	8.272E+003
	Cs-134	604.72	97.62	2.011E+004	1.96E+004	-1.086E+004	9.458E+003
		795.86	85.46	1.959E+004	0.00E+00 ✓	-5.946E+003	9.014E+003
+	Cs-137	661.66*	85.10	1.666E+004	1.67E+004	1.685E+005	7.612E+003
	Eu-152	121.78	28.67	6.464E+004	6.36E+004	2.367E+004	3.130E+004
		344.28	26.60	6.818E+004		3.610E+004	3.246E+004
		1408.01	21.07	6.362E+004		-5.535E+003	2.753E+004
	Eu-154	123.07	40.40	4.554E+004	2.88E+004	-2.008E+004	2.205E+004
		723.30	20.06	8.284E+004		2.104E+004✓	3.824E+004
		1274.43	34.80	2.877E+004		-7.434E+004	1.193E+004
+	Eu-155	86.55*	30.70	3.744E+004	3.74E+004	2.891E+004	1.768E+004
		105.31	21.10	8.155E+004		3.054E+004	3.936E+004
	Tl-208	583.19	85.00	1.911E+004	1.91E+004	1.031E+004	8.882E+003
	Bi-212	727.33	6.67	2.474E+005	2.47E+005	1.079E+005	1.141E+005
	Pb-212	238.63	43.60	4.181E+004	4.18E+004	3.341E+004	2.009E+004
+	Bi-214	609.32*	45.49	2.038E+004	2.04E+004	3.967E+004	8.904E+003
		1120.29	14.92	1.212E+005		-9.096E+003	5.523E+004
		1764.49	15.30	1.036E+005		7.501E+004	4.505E+004
	Pb-214	295.22	18.42	9.366E+004	5.44E+004	3.295E+004	4.467E+004
		351.93	35.60	5.436E+004		-9.529E+002	2.595E+004
+	Ra-226	186.21*	3.64	2.530E+005	2.53E+005	1.787E+004	1.177E+005
	Ac-228	338.32	11.27	1.478E+005	7.56E+004	-7.419E+004	7.008E+004
		911.20	25.80	7.563E+004		5.227E+004	3.504E+004
		968.97	15.80	1.172E+005		2.438E+003	5.392E+004
	Am-241	59.54	35.90	6.144E+004	6.14E+004	2.354E+004	2.943E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S          *****
*************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002724.CNF

Report Generated On                : 4/5/2018    7:20:39 PM

Sample Title                       : B101100AFSWM026GD
Sample Description                 : U1 CONTAINMENT - 565
Sample Identification              : 026
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.826E+001 M^2

Sample Taken On                    : 3/24/2018    9:09:00 AM
Acquisition Started                : 3/24/2018    9:09:34 AM

Live Time                          :       600.0 seconds
Real Time                          :       601.1 seconds

Dead Time                          :   0.19 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 3M0.153 cm Liner
```

Data Validated
4/5/18 2121
DRMihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM026GD
Peak Analysis Performed on: 4/5/2018 7:20:39 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	2639-	2656	2647.98	661.99	1.98	1.39E+002	28.52	1.99E+001
2	4689-	4704	4695.68	1173.92	1.03	4.28E+001	18.82	1.53E+001
3	5837-	5857	5846.21	1461.55	1.40	9.79E+001	21.56	5.07E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM026GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.31236E+005	1.49358E+005
Cs-137	1.000	661.66*	85.10	7.43637E+004	1.76636E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.312361E+005	1.493583E+005
Cs-137	1.000	7.436372E+004✓	1.766357E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018 7:20:39 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
2	1173.92	7.1250E-002	44.03	Tol.	Co-60

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*********************************************************************************
*****                 N U C L I D E   M D A   R E P O R T                  *****
*********************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM026GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.080E+005	1.08E+005	6.312E+005	4.526E+004
	Co-60	1173.23	99.85	2.699E+004	2.69E+004	3.014E+004	1.267E+004
		1332.49	99.98	2.686E+004		2.988E+004✓	1.255E+004
	Nb-94	702.65	99.81	1.542E+004	1.54E+004	1.096E+004	7.075E+003
		871.09	99.89	1.713E+004		-6.269E+002	7.861E+003
	Ag-108m	433.90	90.50	1.518E+004	1.52E+004	-7.845E+003	7.047E+003
		614.30	89.80	2.208E+004		5.658E+003	1.038E+004
		722.90	90.80	1.540E+004		6.884E+003	6.991E+003
	Cs-134	604.72	97.62	1.898E+004	1.90E+004	1.447E+004✓	8.890E+003
		795.86	85.46	1.997E+004		2.693E+003	9.196E+003
+	Cs-137	661.66*	85.10	1.553E+004	1.55E+004	7.436E+004	7.042E+003
	Eu-152	121.78	28.67	5.976E+004	5.65E+004	-2.587E+003	2.887E+004
		344.28	26.60	5.645E+004		6.316E+003✓	2.659E+004
		1408.01	21.07	6.795E+004		2.515E+004	2.966E+004
	Eu-154	123.07	40.40	4.257E+004	4.26E+004	6.306E+003✓	2.057E+004
		723.30	20.06	6.576E+004		-4.749E+004	2.967E+004
		1274.43	34.80	4.736E+004		-9.046E+003	2.121E+004
	Eu-155	86.55	30.70	5.912E+004	5.91E+004	6.123E+004	2.854E+004
		105.31	21.10	8.184E+004		9.754E+003	3.951E+004
	Tl-208	583.19	85.00	1.909E+004	1.91E+004	1.309E+004	8.868E+003
	Bi-212	727.33	6.67	2.160E+005	2.16E+005	1.015E+004	9.831E+004
	Pb-212	238.63	43.60	4.142E+004	4.14E+004	-3.636E+003	1.989E+004
	Bi-214	609.32	45.49	4.242E+004	4.24E+004	2.188E+004	1.992E+004
		1120.29	14.92	1.322E+005		4.975E+004	6.071E+004
		1764.49	15.30	1.216E+005		5.574E+004	5.397E+004
	Pb-214	295.22	18.42	9.045E+004	4.97E+004	3.307E+004	4.305E+004
		351.93	35.60	4.966E+004		-4.407E+001	2.360E+004
	Ra-226	186.21	3.64	4.708E+005	4.71E+005	2.213E+005	2.267E+005
	Ac-228	338.32	11.27	1.368E+005	6.80E+004	1.528E+005	6.457E+004
		911.20	25.80	6.801E+004		2.636E+004	3.120E+004
		968.97	15.80	1.108E+005		5.608E+004	5.068E+004
	Am-241	59.54	35.90	5.463E+004	5.46E+004	-7.123E+003	2.602E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S             *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002727.CNF

Report Generated On                : 4/5/2018    7:14:35 PM

Sample Title                       : B101100AFSWM027GD
Sample Description                 : U1 CONTAINMENT - 565
Sample Identification              : 027
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.826E+001 M^2

Sample Taken On                    : 3/24/2018   9:45:00 AM
Acquisition Started                : 3/24/2018   9:44:47 AM

Live Time                          :       600.0 seconds
Real Time                          :       601.1 seconds

Dead Time                          :   0.18 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 2130
WR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM027GD
Peak Analysis Performed on: 4/5/2018 7:14:34 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	294-	307	300.95	75.24	1.01	6.26E+001	37.57	1.03E+002
2	574-	583	578.02	144.50	0.76	9.64E+000	22.83	5.34E+001
3	2432-	2444	2437.74	609.43	0.99	3.54E+001	14.90	7.65E+000
4	2639-	2657	2647.39	661.85	1.74	1.53E+002	30.40	2.33E+001
5	4689-	4702	4695.63	1173.91	0.59	4.26E+001	14.43	3.39E+000
6	5324-	5342	5333.40	1333.35	2.03	5.11E+001	19.22	1.19E+001
7	5839-	5859	5847.67	1461.92	0.42	8.02E+001	20.33	6.78E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM027GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.998	1460.82*	10.66	5.17179E+005	1.38530E+005
Co-60	0.999	1173.23*	99.85	2.59544E+004	9.03017E+003
		1332.49*	99.98	3.31883E+004	1.27697E+004
Cs-137	1.000	661.66*	85.10	8.15944E+004	1.89691E+004
Bi-214	0.444	609.32*	45.49	3.38414E+004	1.48347E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****

***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****

****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.998	5.171794E+005	1.385299E+005
Co-60	0.999	2.836591E+004✓	7.372939E+003
Cs-137	1.000	8.159440E+004✓	1.896914E+004
Bi-214	0.444	3.384141E+004	1.483473E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 7:14:34 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.24	1.0437E-001	60.00		
2	144.50	1.6071E-002	236.72	D-Esc.	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM027GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.193E+005	1.19E+005	5.172E+005	5.095E+004
+	Co-60	1173.23*	99.85	7.802E+003	7.80E+003	2.595E+004	3.077E+003
		1332.49*	99.98	1.550E+004		3.319E+004	6.869E+003
	Nb-94	702.65	99.81	1.542E+004	1.49E+004	-1.101E+003	7.075E+003
		871.09	99.89	1.492E+004		1.261E+004	6.753E+003
	Ag-108m	433.90	90.50	1.578E+004	1.58E+004	-7.830E+003	7.350E+003
		614.30	89.80	2.081E+004		-1.381E+004	9.744E+003
		722.90	90.80	1.738E+004		8.632E+003	7.981E+003
	Cs-134	604.72	97.62	1.992E+004	1.78E+004	-1.247E+004	9.358E+003
		795.86	85.46	1.785E+004		4.193E+003✓	8.136E+003
+	Cs-137	661.66*	85.10	1.700E+004	1.70E+004	8.159E+004	7.778E+003
	Eu-152	121.78	28.67	5.891E+004	5.18E+004	-2.249E+004	2.844E+004
		344.28	26.60	5.182E+004		-6.621E+004	2.428E+004
		1408.01	21.07	7.328E+004		6.057E+004✓	3.232E+004
	Eu-154	123.07	40.40	4.227E+004	3.67E+004	-3.211E+003	2.042E+004
		723.30	20.06	7.698E+004		-1.209E+004	3.528E+004
		1274.43	34.80	3.668E+004	0.0E+0 ✓	-1.811E+004	1.587E+004
	Eu-155	86.55	30.70	5.976E+004	5.98E+004	4.372E+004	2.886E+004
		105.31	21.10	7.228E+004		-6.715E+004	3.473E+004
	Tl-208	583.19	85.00	2.013E+004	2.01E+004	-6.622E+003	9.388E+003
	Bi-212	727.33	6.67	2.373E+005	2.37E+005	7.745E+004	1.090E+005
	Pb-212	238.63	43.60	3.819E+004	3.82E+004	3.313E+004	1.827E+004
+	Bi-214	609.32*	45.49	1.674E+004	1.67E+004	3.384E+004	7.073E+003
		1120.29	14.92	1.249E+005		5.692E+004	5.707E+004
		1764.49	15.30	1.190E+005		1.012E+005	5.266E+004
	Pb-214	295.22	18.42	7.938E+004	4.79E+004	4.487E+004	3.752E+004
		351.93	35.60	4.791E+004		3.254E+004	2.272E+004
	Ra-226	186.21	3.64	4.698E+005	4.70E+005	3.596E+005	2.262E+005
	Ac-228	338.32	11.27	1.278E+005	6.01E+004	-1.080E+004	6.009E+004
		911.20	25.80	6.008E+004		-2.096E+004	2.724E+004
		968.97	15.80	1.253E+005		9.851E+004	5.795E+004
	Am-241	59.54	35.90	5.307E+004	5.31E+004	-2.422E+004	2.524E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S         *****
************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004324.CNF

Report Generated On                : 4/5/2018    6:25:38 PM

Sample Title                       : B101100AFSWM028GD
Sample Description                 : UNIT 1 CONTAINMENT 565'
Sample Identification              : 028
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/22/2018   9:53:00 AM
Acquisition Started                : 3/22/2018   9:59:13 AM

Live Time                          :      600.0 seconds
Real Time                          :      600.2 seconds

Dead Time                          :   0.03 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0307
WR Mihalik

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                  *****
*****************************************************************************
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Detector Name: 5456-A
Sample Title: B101100AFSWM028GD
Peak Analysis Performed on: 4/5/2018 6:25:38 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	156-	163	159.68	39.92	0.52	1.06E+001	15.44	2.34E+001
2	296-	307	301.89	75.47	0.80	1.84E+001	37.56	1.24E+002
3	336-	345	340.96	85.24	0.82	3.28E+001	25.34	5.62E+001
4	2434-	2445	2439.49	609.87	0.65	1.69E+001	14.79	1.31E+001
5	2638-	2658	2646.76	661.69	1.17	2.46E+002	33.30	8.26E+000
6	4686-	4703	4693.61	1173.40	0.57	6.00E+001	18.91	9.00E+000
7	5325-	5341	5332.52	1333.13	0.44	5.30E+001	14.56	0.00E+000
8	5835-	5855	5845.27	1461.32	1.54	1.22E+002	24.61	7.91E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM028GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.80049E+005	1.71190E+005
Co-60	1.000	1173.23*	99.85	3.63875E+004	1.18319E+004
		1332.49*	99.98	3.42100E+004	9.78860E+003
Cs-137	1.000	661.66*	85.10	1.30225E+005	2.35775E+004
Eu-155	0.337	86.55*	30.70	2.51731E+004	2.00868E+004
		105.31	21.10		
Bi-214	0.443	609.32*	45.49	1.60942E+004	1.41893E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.800494E+005	1.711904E+005
Co-60	1.000	3.509481E+004	7.542111E+003
Cs-137	1.000	1.302246E+005	2.357754E+004
Eu-155	0.337	2.517305E+004	2.008679E+004
Bi-214	0.443	1.609419E+004	1.418933E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 6:25:38 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	39.92	1.7745E-002	144.98		
2	75.47	3.0587E-002	204.67		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM028GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.311E+005	1.31E+005	7.800E+005	5.688E+004
+	Co-60	1173.23*	99.85	1.246E+004	1.75E+003	3.639E+004	5.409E+003
		1332.49*	99.98	1.747E+003		3.421E+004	0.000E+000
	Nb-94	702.65	99.81	1.478E+004	1.48E+004	-5.646E+003	6.760E+003
		871.09	99.89	1.602E+004		1.166E+003	7.309E+003
	Ag-108m	433.90	90.50	1.696E+004	1.70E+004	9.918E+002	7.940E+003
		614.30	89.80	1.944E+004		8.734E+003	9.064E+003
		722.90	90.80	1.723E+004		1.203E+004	7.912E+003
	Cs-134	604.72	97.62	1.943E+004	1.77E+004	-4.639E+003	9.118E+003
		795.86	85.46	1.769E+004	0.00E+0 √	-5.816E+003	8.063E+003
+	Cs-137	661.66*	85.10	1.121E+004	1.12E+004	1.302E+005	4.887E+003
	Eu-152	121.78	28.67	6.081E+004	5.74E+004	2.411E+004√	2.939E+004
		344.28	26.60	5.743E+004		-4.996E+004	2.709E+004
		1408.01	21.07	6.555E+004		4.744E+004	2.850E+004
	Eu-154	123.07	40.40	4.331E+004	3.87E+004	1.992E+004√	2.093E+004
		723.30	20.06	7.716E+004		3.640E+004	3.540E+004
		1274.43	34.80	3.865E+004		2.901E+004	1.687E+004
+	Eu-155	86.55*	30.70	3.061E+004	3.06E+004	2.517E+004	1.427E+004
		105.31	21.10	8.095E+004		1.535E+004	3.905E+004
	Tl-208	583.19	85.00	1.850E+004	1.85E+004	1.155E+004	8.575E+003
	Bi-212	727.33	6.67	2.276E+005	2.28E+005	5.143E+004	1.042E+005
	Pb-212	238.63	43.60	3.766E+004	3.77E+004	5.489E+003	1.801E+004
+	Bi-214	609.32*	45.49	2.178E+004	2.18E+004	1.609E+004	9.606E+003
		1120.29	14.92	1.286E+005		7.625E+003	5.894E+004
		1764.49	15.30	1.095E+005		8.501E+004	4.796E+004
	Pb-214	295.22	18.42	8.554E+004	4.49E+004	-3.447E+004	4.060E+004
		351.93	35.60	4.491E+004		5.052E+004	2.123E+004
	Ra-226	186.21	3.64	4.697E+005	4.70E+005	8.433E+003	2.261E+005
	Ac-228	338.32	11.27	1.370E+005	7.02E+004	-1.350E+005	6.469E+004
		911.20	25.80	7.023E+004		2.381E+004	3.234E+004
		968.97	15.80	1.031E+005		8.089E+004	4.687E+004
	Am-241	59.54	35.90	5.016E+004	5.02E+004	-2.381E+004	2.379E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S            *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004325.CNF

Report Generated On                : 4/5/2018    5:33:46 PM

Sample Title                       : B101100AFSWM029GD
Sample Description                 : UNIT 1 CONTAINMENT 565'
Sample Identification              : 029
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 - 8192
Peak Area Range (in channels)      :    85 - 8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/22/2018  10:13:00 AM
Acquisition Started                : 3/22/2018  10:18:06 AM

Live Time                          :      600.0 seconds
Real Time                          :      600.2 seconds

Dead Time                          :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0630
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM029GD
Peak Analysis Performed on: 4/5/2018 5:33:46 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	123-	134	128.33	32.08	0.28	9.40E+000	26.86	6.76E+001
2	297-	308	301.27	75.32	0.94	6.42E+001	34.74	9.18E+001
3	484-	493	488.32	122.08	0.58	2.24E+001	28.62	7.96E+001
4	1373-	1382	1377.07	344.27	0.31	1.40E+001	13.92	1.50E+001
5	2038-	2049	2043.70	510.92	0.62	1.48E+001	16.67	2.12E+001
6	2432-	2444	2438.09	609.52	0.30	2.50E+001	15.73	1.30E+001
7	2638-	2656	2647.05	661.76	1.43	2.53E+002	32.82	4.75E+000
8	4685-	4703	4694.40	1173.60	1.66	9.38E+001	21.74	7.17E+000
9	5323-	5341	5331.38	1332.84	0.77	7.99E+001	22.08	1.21E+001
10	5837-	5856	5846.30	1461.57	0.42	9.66E+001	22.70	9.43E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM029GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.17069E+005	1.54613E+005
Co-60	1.000	1173.23*	99.85	5.69083E+004	1.39522E+004
		1332.49*	99.98	5.15401E+004	1.48361E+004
Cs-137	1.000	661.66*	85.10	1.34211E+005	2.37131E+004
Eu-152	0.693	121.78*	28.67	1.68504E+004	2.17812E+004
		344.28*	26.60	1.68144E+004	1.69465E+004
		1408.01	21.07		
Bi-214	0.443	609.32*	45.49	2.37916E+004	1.52176E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
***************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
***************************************************************************
```

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
	K-40	0.999	6.170688E+005	1.546131E+005
	Co-60	1.000	5.438886E+004✓	1.016381E+004
	Cs-137	1.000	1.342108E+005✓	2.371312E+004
	Eu-152	0.693	1.682799E+004✓	1.337511E+004
	Bi-214	0.443	2.379158E+004	1.521764E+004
X	Pb-214	0.378		

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 5:33:46 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.08	1.5671E-002	285.68		
2	75.32	1.0693E-001	54.15		
5	510.92	2.4630E-002	112.79		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM029GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.366E+005	1.37E+005	6.171E+005	5.966E+004
+	Co-60	1173.23*	99.85	1.149E+004	1.15E+004	5.691E+004	4.926E+003
		1332.49*	99.98	1.551E+004		5.154E+004	6.884E+003
	Nb-94	702.65	99.81	1.512E+004	1.51E+004	7.033E+003	6.931E+003
		871.09	99.89	1.641E+004		-3.765E+003	7.504E+003
	Ag-108m	433.90	90.50	1.791E+004	1.79E+004	-1.160E+004	8.415E+003
		614.30	89.80	2.012E+004		-1.988E+004	9.406E+003
		722.90	90.80	1.812E+004		4.133E+002	8.359E+003
	Cs-134	604.72	97.62	1.836E+004	1.84E+004	-1.124E+004	8.583E+003
		795.86	85.46	2.038E+004		9.398E+003✓	9.407E+003
+	Cs-137	661.66*	85.10	8.427E+003	8.43E+003	1.342E+005	3.497E+003
+	Eu-152	121.78*	28.67	3.544E+004	2.64E+004	1.685E+004	1.670E+004
		344.28*	26.60	2.644E+004		1.681E+004	1.160E+004
		1408.01	21.07	6.162E+004		-2.950E+004	2.653E+004
	Eu-154	123.07	40.40	4.678E+004	4.17E+004	-1.014E+004	2.267E+004
		723.30	20.06	8.361E+004		2.642E+003	3.863E+004
		1274.43	34.80	4.168E+004		7.492E+003✓	1.839E+004
	Eu-155	86.55	30.70	5.793E+004	5.79E+004	4.805E+004	2.794E+004
		105.31	21.10	7.972E+004		-4.415E+004	3.844E+004
	Tl-208	583.19	85.00	2.097E+004	2.10E+004	-2.537E+002	9.811E+003
	Bi-212	727.33	6.67	2.426E+005	2.43E+005	-4.434E+004	1.117E+005
	Pb-212	238.63	43.60	4.061E+004	4.06E+004	-4.731E+003	1.949E+004
+	Bi-214	609.32*	45.49	2.154E+004	2.15E+004	2.379E+004	9.485E+003
		1120.29	14.92	1.257E+005		1.224E+005	5.749E+004
		1764.49	15.30	1.095E+005		-1.250E+004	4.796E+004
	Pb-214	295.22	18.42	9.082E+004	1.98E+004	-3.565E+004	4.325E+004
		351.93*	35.60	1.976E+004		1.256E+004	8.664E+003
	Ra-226	186.21	3.64	4.977E+005	4.98E+005	1.968E+005	2.401E+005
	Ac-228	338.32	11.27	1.396E+005	7.88E+004	-9.014E+004	6.600E+004
		911.20	25.80	7.880E+004		-3.321E+004	3.663E+004
		968.97	15.80	1.253E+005		1.304E+005	5.796E+004
	Am-241	59.54	35.90	5.336E+004	5.34E+004	9.510E+003	2.539E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S        *****
*************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002728.CNF

Report Generated On	:	4/5/2018 7:13:17 PM
Sample Title	:	B101100AFSWM030GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	030
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/24/2018 10:02:00 AM
Acquisition Started	:	3/24/2018 10:02:33 AM
Live Time	:	600.0 seconds
Real Time	:	601.3 seconds
Dead Time	:	0.21 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 2145
WR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM030GD
Peak Analysis Performed on: 4/5/2018 7:13:16 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	217-	224	220.28	55.07	0.29	6.06E+000	13.79	1.99E+001
2	907-	916	911.31	227.83	0.33	-3.25E+000	21.79	5.23E+001
3	1626-	1637	1631.02	407.75	0.31	1.20E+001	13.94	1.30E+001
4	2431-	2442	2436.69	609.17	0.78	3.85E+001	16.09	1.05E+001
5	2638-	2657	2647.76	661.94	0.74	1.29E+002	26.21	1.24E+001
6	5326-	5342	5334.21	1333.55	0.78	5.21E+001	15.21	1.92E+000
7	5838-	5857	5848.24	1462.06	0.75	5.77E+001	18.21	7.27E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM030GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.998	1460.82*	10.66	3.72195E+005	1.21755E+005
Cs-137	1.000	661.66*	85.10	6.87381E+004	1.62590E+004
Bi-214	0.444	609.32*	45.49	3.68682E+004	1.60242E+004
		1120.29	14.92		
		1764.49	15.30		
Am-241	0.969	59.54*	35.90	5.81525E+003	1.32878E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T  *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.998	3.721949E+005	1.217553E+005
Cs-137	1.000	6.873812E+004✓	1.625904E+004
Bi-214	0.444	3.686821E+004	1.602422E+004
Am-241	0.969	5.815249E+003	1.328776E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 7:13:16 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
2	227.83	-5.4167E-003	-670.42		
3	407.75	2.0067E-002	115.75		
6	1333.55	8.6798E-002	29.20	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****              N U C L I D E   M D A   R E P O R T                 *****
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Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM030GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.238E+005	1.24E+005	3.722E+005	5.319E+004
	Co-60	1173.23	99.85	2.414E+004	2.41E+004	1.994E+004	1.124E+004
		1332.49	99.98	2.575E+004		3.557E+004✓	1.199E+004
	Nb-94	702.65	99.81	1.282E+004	1.28E+004	-3.536E+003	5.777E+003
		871.09	99.89	1.576E+004		-3.315E+003	7.176E+003
	Ag-108m	433.90	90.50	1.637E+004	1.64E+004	-3.678E+003	7.640E+003
		614.30	89.80	2.081E+004		-2.423E+004	9.744E+003
		722.90	90.80	1.738E+004		5.152E+003	7.981E+003
	Cs-134	604.72	97.62	1.910E+004	1.72E+004	1.972E+004✓	8.950E+003
		795.86	85.46	1.716E+004		-8.169E+002	7.789E+003
+	Cs-137	661.66*	85.10	1.300E+004	1.30E+004	6.874E+004	5.775E+003
	Eu-152	121.78	28.67	6.050E+004	5.15E+004	-9.858E+003	2.923E+004
		344.28	26.60	5.149E+004		-2.640E+004	2.412E+004
		1408.01	21.07	6.210E+004		2.066E+004✓	2.674E+004
	Eu-154	123.07	40.40	4.375E+004	3.99E+004	7.444E+003✓	2.115E+004
		723.30	20.06	7.868E+004		6.941E+003	3.613E+004
		1274.43	34.80	3.992E+004		3.594E+003	1.749E+004
	Eu-155	86.55	30.70	6.175E+004	6.17E+004	5.609E+004	2.985E+004
		105.31	21.10	8.063E+004		-1.280E+004	3.890E+004
	Tl-208	583.19	85.00	1.799E+004	1.80E+004	9.152E+002	8.316E+003
	Bi-212	727.33	6.67	2.295E+005	2.30E+005	-2.612E+004	1.051E+005
	Pb-212	238.63	43.60	4.009E+004	4.01E+004	1.926E+004	1.923E+004
+	Bi-214	609.32*	45.49	1.871E+004	1.87E+004	3.687E+004	8.059E+003
		1120.29	14.92	1.293E+005		-4.201E+004	5.928E+004
		1764.49	15.30	1.136E+005		9.112E+004	4.996E+004
	Pb-214	295.22	18.42	9.790E+004	4.44E+004	9.852E+004	4.678E+004
		351.93	35.60	4.442E+004		3.291E+004	2.098E+004
	Ra-226	186.21	3.64	4.454E+005	4.45E+005	2.457E+005	2.140E+005
	Ac-228	338.32	11.27	1.327E+005	6.57E+004	-2.532E+003	6.254E+004
		911.20	25.80	6.574E+004		-2.392E+004	3.007E+004
		968.97	15.80	1.159E+005		-6.814E+003	5.322E+004
+	Am-241	59.54*	35.90	2.294E+004	2.29E+004	5.815E+003	1.017E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
    the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

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*************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S         *****
*************************************************************************
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Filename: C:\GENIE2K\CAMFILES\00002733.CNF

Report Generated On	:	4/5/2018 7:08:39 PM
Sample Title	:	B101100AFSWM031GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	031
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/24/2018 12:44:00 PM
Acquisition Started	:	3/24/2018 12:44:22 PM
Live Time	:	600.0 seconds
Real Time	:	601.1 seconds
Dead Time	:	0.19 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 2155
DRMihalik

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*****************************************************************************
*****            P E A K   A N A L Y S I S   R E P O R T               *****
*****************************************************************************
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Detector Name: 5452A
Sample Title: B101100AFSWM031GD
Peak Analysis Performed on: 4/5/2018 7:08:38 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	284-	307	300.50	75.13	1.24	1.29E+002	49.86	1.23E+002
2	1572-	1583	1577.07	394.27	0.42	1.08E+001	14.12	1.53E+001
3	2429-	2445	2436.34	609.08	0.99	4.92E+001	17.17	7.75E+000
4	2636-	2653	2645.65	661.41	0.41	8.94E+001	23.17	1.36E+001
5	4684-	4701	4692.56	1173.14	1.33	4.80E+001	17.58	9.00E+000
6	5324-	5338	5331.44	1332.86	0.89	3.47E+001	18.76	1.73E+001
7	5835-	5855	5844.66	1461.16	1.81	9.16E+001	22.92	1.14E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM031GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.90351E+005	1.56333E+005
Co-60	1.000	1173.23*	99.85	2.92285E+004	1.09576E+004
		1332.49*	99.98	2.25270E+004	1.23188E+004
Cs-137	1.000	661.66*	85.10	4.77364E+004	1.36421E+004
Bi-214	0.444	609.32*	45.49	4.71236E+004	1.73784E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.903506E+005	1.563327E+005
Co-60	1.000	2.626831E+004✓	8.187301E+003
Cs-137	1.000	4.773645E+004✓	1.364206E+004
Bi-214	0.444	4.712357E+004	1.737837E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

**********   U N I D E N T I F I E D   P E A K S   **********

Peak Locate Performed on: 4/5/2018   7:08:38 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.13	2.1491E-001	38.67		
2	394.27	1.7917E-002	131.39		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM031GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.510E+005	1.51E+005	5.904E+005	6.679E+004
+	Co-60	1173.23*	99.85	1.249E+004	1.25E+004	2.923E+004	5.419E+003
		1332.49*	99.98	1.736E+004		2.253E+004	7.801E+003
	Nb-94	702.65	99.81	1.575E+004	1.58E+004	-2.453E+003	7.242E+003
		871.09	99.89	1.576E+004		3.173E+003	7.176E+003
	Ag-108m	433.90	90.50	1.670E+004	1.66E+004	1.166E+004	7.809E+003
		614.30	89.80	2.171E+004		3.478E+001	1.019E+004
		722.90	90.80	1.662E+004		3.199E+003	7.600E+003
	Cs-134	604.72	97.62	2.177E+004	1.74E+004	-1.737E+003	1.028E+004
		795.86	85.46	1.739E+004	0.00E+00	-2.053E+004	7.906E+003
+	Cs-137	661.66*	85.10	1.322E+004	1.32E+004	4.774E+004	5.887E+003
	Eu-152	121.78	28.67	6.432E+004	5.88E+004	1.087E+004	3.115E+004
		344.28	26.60	5.876E+004		-2.506E+004	2.775E+004
		1408.01	21.07	8.569E+004		1.585E+004	3.853E+004
	Eu-154	123.07	40.40	4.642E+004	3.67E+004	2.531E+004	2.249E+004
		723.30	20.06	7.611E+004		4.940E+004	3.485E+004
		1274.43	34.80	3.668E+004		-4.234E+004	1.587E+004
	Eu-155	86.55	30.70	5.987E+004	5.99E+004	8.007E+004	2.891E+004
		105.31	21.10	8.154E+004		3.709E+004	3.936E+004
	Tl-208	583.19	85.00	1.799E+004	1.80E+004	1.105E+004	8.316E+003
	Bi-212	727.33	6.67	2.160E+005	2.16E+005	-2.629E+005	9.831E+004
	Pb-212	238.63	43.60	4.142E+004	4.14E+004	4.755E+004	1.989E+004
+	Bi-214	609.32*	45.49	1.816E+004	1.82E+004	4.712E+004	7.783E+003
		1120.29	14.92	1.456E+005		6.114E+004	6.740E+004
		1764.49	15.30	1.291E+005		1.215E+005	5.769E+004
	Pb-214	295.22	18.42	8.881E+004	4.87E+004	3.487E+004	4.224E+004
		351.93	35.60	4.870E+004		4.176E+004	2.312E+004
	Ra-226	186.21	3.64	4.678E+005	4.68E+005	1.736E+005	2.252E+005
	Ac-228	338.32	11.27	1.413E+005	7.30E+004	-7.980E+003	6.686E+004
		911.20	25.80	7.301E+004		3.907E+002	3.370E+004
		968.97	15.80	1.159E+005		1.500E+005	5.322E+004
	Am-241	59.54	35.90	5.366E+004	5.37E+004	3.817E+004	2.553E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S          *****
*************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004327.CNF

Report Generated On                : 4/5/2018    6:03:22 PM

Sample Title                       : B101100AFSWM032GD
Sample Description                 : UNIT 1 CONTAINMENT 565'
Sample Identification              : 032
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/22/2018  12:13:00 AM
Acquisition Started                : 3/22/2018  12:34:20 PM

Live Time                          :       600.0 seconds
Real Time                          :       600.2 seconds

Dead Time                          :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0651
DRMihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM032GD
Peak Analysis Performed on: 4/5/2018 6:03:22 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	124-	134	129.68	32.42	0.91	2.85E+001	24.85	5.25E+001
2	296-	306	301.48	75.37	0.86	2.41E+001	34.41	1.13E+002
3	336-	346	340.04	85.01	0.54	3.36E+001	28.33	6.94E+001
4	2430-	2445	2437.79	609.45	0.87	4.20E+001	19.59	1.80E+001
5	2637-	2656	2647.04	661.76	1.33	2.80E+002	37.41	1.99E+001
6	4686-	4704	4694.72	1173.68	0.86	1.15E+002	22.61	4.12E+000
7	5323-	5342	5332.22	1333.06	0.92	1.09E+002	22.50	5.00E+000
8	5626-	5639	5632.16	1408.04	0.31	1.35E+001	10.82	5.46E+000
9	5836-	5856	5846.37	1461.59	1.91	1.11E+002	22.05	2.74E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM032GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	7.10914E+005	1.53852E+005
Co-60	1.000	1173.23*	99.85	6.96899E+004	1.48039E+004
		1332.49*	99.98	7.03671E+004	1.55802E+004
Cs-137	1.000	661.66*	85.10	1.48452E+005	2.66607E+004
Eu-155	0.337	86.55*	30.70	2.58491E+004	2.24034E+004
		105.31	21.10		
Bi-214	0.443	609.32*	45.49	3.99479E+004	1.92194E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	7.109137E+005	1.538523E+005
Co-60	1.000	7.001121E+004✓	1.073190E+004
Cs-137	1.000	1.484517E+005✓	2.666065E+004
Eu-155	0.337	2.584909E+004	2.240340E+004
Bi-214	0.443	3.994791E+004	1.921936E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

**********   U N I D E N T I F I E D   P E A K S   **********

Peak Locate Performed on: 4/5/2018   6:03:22 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.42	4.7433E-002	87.30		
2	75.37	4.0189E-002	142.70		
8	1408.04	2.2566E-002	79.94	Tol.	Eu-152

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM032GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	8.490E+004	8.49E+004	7.109E+005	3.380E+004
+	Co-60	1173.23*	99.85	8.805E+003	8.81E+003	6.969E+004	3.582E+003
		1332.49*	99.98	1.066E+004		7.037E+004	4.456E+003
	Nb-94	702.65	99.81	1.546E+004	1.55E+004	1.101E+004	7.098E+003
		871.09	99.89	1.660E+004		-1.175E+004	7.600E+003
	Ag-108m	433.90	90.50	1.822E+004	1.81E+004	3.863E+003	8.567E+003
		614.30	89.80	2.345E+004		-1.246E+003	1.107E+004
		722.90	90.80	1.812E+004		1.498E+004	8.359E+003
	Cs-134	604.72	97.62	2.203E+004	1.77E+004	-2.466E+003	1.042E+004
		795.86	85.46	1.770E+004	0.0E+00 ✓	-3.424E+004	8.067E+003
+	Cs-137	661.66*	85.10	1.599E+004	1.60E+004	1.485E+005	7.278E+003
	Eu-152	121.78	28.67	6.484E+004	6.48E+004	7.480E+004	3.140E+004
		344.28	26.60	6.890E+004		3.919E+004	3.283E+004
		1408.01	21.07	8.643E+004		6.614E+004	3.894E+004
	Eu-154	123.07	40.40	4.554E+004	3.29E+004	1.065E+004 ✓	2.205E+004
		723.30	20.06	8.127E+004		3.152E+004	3.746E+004
		1274.43	34.80	3.289E+004		1.995E+004	1.399E+004
+	Eu-155	86.55*	30.70	3.480E+004	3.48E+004	2.585E+004	1.636E+004
		105.31	21.10	8.066E+004		1.517E+004	3.891E+004
	Tl-208	583.19	85.00	2.083E+004	2.08E+004	3.227E+003	9.743E+003
	Bi-212	727.33	6.67	2.377E+005	2.38E+005	-2.085E+005	1.093E+005
	Pb-212	238.63	43.60	4.383E+004	4.38E+004	3.228E+004	2.109E+004
+	Bi-214	609.32*	45.49	2.551E+004	2.55E+004	3.995E+004	1.147E+004
		1120.29	14.92	1.422E+005		1.216E+005	6.574E+004
		1764.49	15.30	9.742E+004		6.501E+004	4.194E+004
	Pb-214	295.22	18.42	9.050E+004	4.79E+004	-1.122E+004	4.309E+004
		351.93	35.60	4.795E+004		1.048E+004	2.275E+004
	Ra-226	186.21	3.64	5.051E+005	5.05E+005	1.453E+005	2.438E+005
	Ac-228	338.32	11.27	1.525E+005	6.88E+004	-8.129E+004	7.247E+004
		911.20	25.80	6.881E+004		8.852E+002	3.163E+004
		968.97	15.80	1.264E+005		1.054E+005	5.852E+004
	Am-241	59.54	35.90	5.835E+004	5.83E+004	2.140E+004	2.788E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S          *****
*************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004329.CNF

Report Generated On                : 4/9/2018    7:53:03 AM

Sample Title                       : B101100AFSWM033GD
Sample Description                 : UNIT 1 CONTAINMENT 565'
Sample Identification              : 033
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001

Sample Taken On                    : 3/22/2018  12:43:00 AM
Acquisition Started                : 3/22/2018  12:50:45 PM

Live Time                          :       600.0 seconds
Real Time                          :       600.2 seconds

Dead Time                          :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : OD_0.153CM_LINER
```

Data Validated
4/10/18 0825
DR Mihalik

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM033GD
Peak Analysis Performed on: 4/9/2018 7:53:02 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	124-	135	129.19	32.30	0.69	3.07E+001	26.52	5.73E+001
2	285-	308	301.57	75.39	1.24	1.33E+002	55.02	1.56E+002
3	2429-	2443	2437.00	609.25	1.20	4.01E+001	18.86	1.69E+001
4	2638-	2656	2646.99	661.75	1.52	3.55E+002	43.23	3.33E+001
5	4685-	4705	4693.90	1173.47	1.25	1.09E+002	25.85	1.58E+001
6	5323-	5343	5331.94	1332.99	1.67	1.05E+002	22.27	5.25E+000
7	5836-	5856	5845.78	1461.44	1.45	8.01E+001	19.12	2.87E+000
8	7056-	7071	7063.30	1765.82	0.49	1.71E+001	9.55	1.88E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM033GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	5.11984E+005	1.29976E+005
Co-60	1.000	1173.23*	99.85	6.62696E+004	1.65543E+004
		1332.49*	99.98	6.76211E+004	1.53590E+004
Cs-137	1.000	661.66*	85.10	1.88005E+005	3.21637E+004
Bi-214	0.707	609.32*	45.49	3.80603E+004	1.84951E+004
		1120.29	14.92		
		1764.49*	15.30	8.56374E+004	4.82691E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

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*****************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*****************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/)	Wt mean Activity Uncertainty
K-40	0.999	5.119844E+005	1.299758E+005
Co-60	1.000	6.699590E+004✓	1.125933E+004
Cs-137	1.000	1.880050E+005✓	3.216369E+004
Bi-214	0.707	4.415118E+004	1.727071E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/9/2018   7:53:02 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.30	5.1098E-002	86.49		
2	75.39	2.2209E-001	41.29		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM033GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/)	Nuclide MDA (pCi/)	Activity (pCi/)	Dec. Level (pCi/)
+	K-40	1460.82*	10.66	8.770E+004	8.77E+004	5.120E+005	3.520E+004
+	Co-60	1173.23*	99.85	1.682E+004	1.11E+004	6.627E+004	7.589E+003
		1332.49*	99.98	1.106E+004		6.762E+004	4.654E+003
	Nb-94	702.65	99.81	1.443E+004	1.44E+004	-9.466E+003	6.584E+003
		871.09	99.89	1.456E+004		5.695E+003	6.582E+003
	Ag-108m	433.90	90.50	1.728E+004	1.73E+004	-1.384E+004	8.101E+003
		614.30	89.80	2.379E+004		2.212E+003	1.124E+004
		722.90	90.80	1.759E+004		1.999E+004	8.094E+003
	Cs-134	604.72	97.62	2.099E+004	1.84E+004	-1.208E+004	9.897E+003
		795.86	85.46	1.836E+004		3.090E+003✓	8.396E+003
+	Cs-137	661.66*	85.10	1.992E+004	1.99E+004	1.880E+005	9.242E+003
	Eu-152	121.78	28.67	6.415E+004	4.75E+004	-2.050E+004	3.106E+004
		344.28	26.60	6.239E+004		-8.792E+004	2.957E+004
		1408.01	21.07	4.749E+004		2.214E+004✓	1.947E+004
	Eu-154	123.07	40.40	4.651E+004	3.87E+004	2.025E+004✓	2.253E+004
		723.30	20.06	7.884E+004		7.222E+004	3.624E+004
		1274.43	34.80	3.866E+004		1.360E+003	1.687E+004
	Eu-155	86.55	30.70	6.343E+004	6.34E+004	9.977E+004	3.069E+004
		105.31	21.10	8.262E+004		1.669E+004	3.989E+004
	Tl-208	583.19	85.00	1.834E+004	1.83E+004	1.592E+003	8.497E+003
	Bi-212	727.33	6.67	2.402E+005	2.40E+005	1.612E+005	1.105E+005
	Pb-212	238.63	43.60	4.288E+004	4.29E+004	2.904E+004	2.062E+004
+	Bi-214	609.32*	45.49	2.443E+004	2.44E+004	3.806E+004	1.093E+004
		1120.29	14.92	1.227E+005		-1.148E+005	5.600E+004
		1764.49*	15.30	5.278E+004		8.564E+004	1.962E+004
	Pb-214	295.22	18.42	9.908E+004	4.97E+004	-3.787E+004	4.738E+004
		351.93	35.60	4.968E+004		-9.249E+003	2.361E+004
	Ra-226	186.21	3.64	5.468E+005	5.47E+005	7.569E+005	2.647E+005
	Ac-228	338.32	11.27	1.490E+005	6.81E+004	1.090E+004	7.068E+004
		911.20	25.80	6.809E+004		2.972E+004	3.127E+004
		968.97	15.80	1.160E+005		5.355E+004	5.332E+004
	Am-241	59.54	35.90	5.413E+004	5.41E+004	-4.973E+003	2.577E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002734.CNF

Report Generated On                : 4/5/2018    7:06:29 PM

Sample Title                       : B101100AFSWM034GD
Sample Description                 : U1 CONTAINMENT - 565
Sample Identification              : 034
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.826E+001 M^2

Sample Taken On                    : 3/24/2018  12:58:00 PM
Acquisition Started                : 3/24/2018  12:59:01 PM

Live Time                          :       600.0 seconds
Real Time                          :       601.1 seconds

Dead Time                          :   0.18 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 3M0.153 cm Liner
```

Data Validated
4/5/18 2205
WR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM034GD
Peak Analysis Performed on: 4/5/2018 7:06:28 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	285-	296	291.04	72.76	0.34	7.52E-001	34.91	1.08E+002
2	335-	344	339.94	84.98	0.72	3.57E+001	27.84	6.93E+001
3	1400-	1414	1407.42	351.86	0.65	3.83E+001	22.25	2.97E+001
4	2636-	2655	2645.77	661.44	1.10	1.54E+002	26.81	7.47E+000
5	4476-	4489	4482.35	1120.59	0.28	1.33E+001	13.27	1.08E+001
6	4685-	4702	4692.98	1173.24	0.61	5.35E+001	22.01	2.05E+001
7	5324-	5341	5332.05	1333.01	1.87	5.81E+001	19.34	1.09E+001
8	5836-	5854	5844.76	1461.19	1.52	8.53E+001	20.13	4.75E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM034GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.49406E+005	1.38211E+005
Co-60	1.000	1173.23*	99.85	3.25976E+004	1.36526E+004
		1332.49*	99.98	3.77391E+004	1.29213E+004
Cs-137	1.000	661.66*	85.10	8.20179E+004	1.73812E+004
Eu-155	0.337	86.55*	30.70	2.73420E+004	2.20446E+004
		105.31	21.10		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	3.48439E+004	2.10221E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.494055E+005	1.382111E+005
Co-60	1.000	3.530976E+004✓	9.384630E+003
Cs-137	1.000	8.201794E+004✓	1.738122E+004
Eu-155	0.337	2.734197E+004	2.204457E+004
Pb-214	0.438	3.484393E+004	2.102206E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 7:06:28 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	72.76	1.2538E-003	4641.06		
5	1120.59	2.2083E-002	100.13	Tol.	Bi-214

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

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*****************************************************************************
*****                N U C L I D E   M D A   R E P O R T                *****
*****************************************************************************
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Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM034GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.023E+005	1.02E+005	5.494E+005	4.245E+004
+	Co-60	1173.23*	99.85	1.811E+004	1.45E+004	3.260E+004	8.233E+003
		1332.49*	99.98	1.448E+004		3.774E+004	6.358E+003
	Nb-94	702.65	99.81	1.473E+004	1.47E+004	9.135E+003	6.730E+003
		871.09	99.89	1.636E+004		-5.018E+003	7.477E+003
	Ag-108m	433.90	90.50	1.736E+004	1.74E+004	4.567E+003	8.137E+003
		614.30	89.80	2.120E+004		-1.642E+004	9.940E+003
		722.90	90.80	1.863E+004		8.666E+003	8.606E+003
	Cs-134	604.72	97.62	2.026E+004	1.89E+004	1.510E+004✓	9.528E+003
		795.86	85.46	1.894E+004		1.158E+004	8.682E+003
+	Cs-137	661.66*	85.10	1.043E+004	1.04E+004	8.202E+004	4.492E+003
	Eu-152	121.78	28.67	6.403E+004	5.76E+004	2.528E+004✓	3.100E+004
		344.28	26.60	5.762E+004		-4.941E+004	2.718E+004
		1408.01	21.07	7.819E+004		7.013E+004	3.478E+004
	Eu-154	123.07	40.40	4.594E+004	4.38E+004	1.102E+004✓	2.225E+004
		723.30	20.06	8.434E+004		3.931E+004	3.896E+004
		1274.43	34.80	4.382E+004		3.830E+004	1.944E+004
+	Eu-155	86.55*	30.70	3.381E+004	3.38E+004	2.734E+004	1.587E+004
		105.31	21.10	8.033E+004		1.609E+004	3.875E+004
	Tl-208	583.19	85.00	1.894E+004	1.89E+004	-1.018E+004	8.791E+003
	Bi-212	727.33	6.67	2.373E+005	2.37E+005	-2.753E+004	1.090E+005
	Pb-212	238.63	43.60	4.171E+004	4.17E+004	1.377E+004	2.004E+004
	Bi-214	609.32	45.49	4.292E+004	4.29E+004	4.776E+004	2.016E+004
		1120.29	14.92	1.279E+005		-5.522E+004	5.856E+004
		1764.49	15.30	1.383E+005		1.417E+005	6.231E+004
+	Pb-214	295.22	18.42	9.173E+004	3.02E+004	1.216E+004	4.370E+004
		351.93*	35.60	3.018E+004		3.484E+004	1.386E+004
	Ra-226	186.21	3.64	4.638E+005	4.64E+005	1.771E+004	2.232E+005
	Ac-228	338.32	11.27	1.394E+005	7.50E+004	8.160E+004	6.589E+004
		911.20	25.80	7.504E+004		4.864E+004	3.472E+004
		968.97	15.80	1.183E+005		-4.424E+004	5.444E+004
	Am-241	59.54	35.90	5.188E+004	5.19E+004	-2.158E+004	2.464E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
    the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S         *****
*************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002735.CNF

Report Generated On	:	4/5/2018 7:03:09 PM
Sample Title	:	B101100AFSWM035GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	035
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/24/2018 1:13:00 PM
Acquisition Started	:	3/24/2018 1:13:11 PM
Live Time	:	600.0 seconds
Real Time	:	601.2 seconds
Dead Time	:	0.20 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 2212
DRMikalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM035GD
Peak Analysis Performed on: 4/5/2018 7:03:09 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	308	300.87	75.22	1.00	8.00E+001	37.90	1.00E+002
2	1199-	1209	1204.49	301.12	0.63	4.81E+000	16.34	2.52E+001
3	2429-	2444	2436.12	609.03	0.28	3.80E+001	19.80	2.00E+001
4	2636-	2656	2646.04	661.51	1.29	2.77E+002	38.03	2.35E+001
5	5325-	5340	5332.02	1333.00	1.21	5.50E+001	18.05	9.03E+000
6	5836-	5856	5845.28	1461.32	0.96	9.98E+001	27.39	2.42E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

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*****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*****************************************************************************
```

Sample Title: B101100AFSWM035GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.43097E+005	1.85141E+005
Cs-137	1.000	661.66*	85.10	1.47721E+005	2.69714E+004
Bi-214	0.444	609.32*	45.49	3.63608E+004	1.94426E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T  *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.430969E+005	1.851415E+005
Cs-137	1.000	1.477215E+005✓	2.697143E+004
Bi-214	0.444	3.636085E+004	1.944263E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018   7:03:09 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.22	1.3337E-001	47.36		
2	301.12	8.0139E-003	339.75	Tol.	Pb-214
5	1333.00	9.1621E-002	32.84	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM035GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	2.161E+005	2.16E+005	6.431E+005	9.931E+004
	Co-60	1173.23	99.85	2.823E+004	2.82E+004	4.882E+004	1.329E+004
		1332.49	99.98	2.828E+004		4.064E+004✓	1.326E+004
	Nb-94	702.65	99.81	1.731E+004	1.73E+004	-1.682E+003	8.022E+003
		871.09	99.89	1.750E+004		5.309E+003	8.046E+003
	Ag-108m	433.90	90.50	1.820E+004	1.68E+004	7.905E+003	8.555E+003
		614.30	89.80	2.257E+004		-1.792E+004	1.063E+004
		722.90	90.80	1.681E+004		-1.753E+004	7.697E+003
	Cs-134	604.72	97.62	2.026E+004	1.89E+004	-3.705E+003	9.528E+003
		795.86	85.46	1.894E+004	6.00E+01	-1.199E+004	8.682E+003
+	Cs-137	661.66*	85.10	1.765E+004	1.77E+004	1.477E+005	8.103E+003
	Eu-152	121.78	28.67	6.224E+004	5.90E+004	-2.197E+003	3.010E+004
		344.28	26.60	5.905E+004		-9.060E+004	2.789E+004
		1408.01	21.07	8.278E+004		7.969E+004✓	3.708E+004
	Eu-154	123.07	40.40	4.489E+004	4.29E+004	-1.057E+004	2.173E+004
		723.30	20.06	7.523E+004		-6.984E+002	3.441E+004
		1274.43	34.80	4.288E+004		3.647E+004 ✓	1.897E+004
	Eu-155	86.55	30.70	6.367E+004	6.37E+004	6.456E+004	3.082E+004
		105.31	21.10	8.886E+004		3.565E+004	4.302E+004
	Tl-208	583.19	85.00	2.205E+004	2.21E+004	1.806E+004	1.035E+004
	Bi-212	727.33	6.67	2.321E+005	2.32E+005	1.036E+005	1.064E+005
	Pb-212	238.63	43.60	4.279E+004	4.28E+004	3.384E+004	2.058E+004
+	Bi-214	609.32*	45.49	2.697E+004	2.70E+004	3.636E+004	1.219E+004
		1120.29	14.92	1.377E+005		1.340E+004	6.347E+004
		1764.49	15.30	1.079E+005		8.099E+004	4.710E+004
	Pb-214	295.22	18.42	8.579E+004	5.17E+004	1.009E+005	4.072E+004
		351.93	35.60	5.171E+004		2.543E+004	2.462E+004
	Ra-226	186.21	3.64	5.159E+005	5.16E+005	1.136E+005	2.492E+005
	Ac-228	338.32	11.27	1.394E+005	6.87E+004	-2.519E+004	6.589E+004
		911.20	25.80	6.875E+004		-9.374E+003	3.157E+004
		968.97	15.80	1.287E+005		2.665E+003	5.963E+004
	Am-241	59.54	35.90	5.669E+004	5.67E+004	-3.495E+004	2.705E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************
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Filename: C:\GENIE2K\CAMFILES\00004330.CNF

Report Generated On	:	4/5/2018 5:55:06 PM
Sample Title	:	B101100AFSWM036GD
Sample Description	:	UNIT 1 CONTAINMENT 565'
Sample Identification	:	036
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/22/2018 1:05:00 PM
Acquisition Started	:	3/22/2018 1:05:53 PM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.03 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	OD_0.153CM_LINER

Data Validated
4/6/18 0710
DR Mihalik

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*****************************************************************************
*****           P E A K   A N A L Y S I S   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM036GD
Peak Analysis Performed on: 4/5/2018 5:55:06 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	123-	136	129.94	32.48	0.91	4.75E+001	29.93	6.35E+001
2	155-	167	160.05	40.01	0.90	3.61E+001	25.31	4.69E+001
3	287-	306	301.84	75.46	1.00	1.51E+002	43.99	9.50E+001
4	335-	346	340.43	85.11	0.77	5.82E+001	31.70	7.68E+001
5	1403-	1415	1408.40	352.10	0.65	1.78E+001	21.36	3.62E+001
6	2431-	2442	2436.81	609.20	1.41	2.26E+001	15.06	1.34E+001
7	2637-	2659	2646.92	661.73	1.45	4.42E+002	45.92	2.23E+001
8	4685-	4704	4694.18	1173.54	1.64	1.01E+002	24.96	1.54E+001
9	5322-	5340	5331.41	1332.85	0.32	8.10E+001	18.00	0.00E+000
10	5835-	5855	5844.75	1461.19	1.68	1.04E+002	21.18	2.46E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM036GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.61508E+005	1.46986E+005
Co-60	1.000	1173.23*	99.85	6.10390E+004	1.59063E+004
		1332.49*	99.98	5.22768E+004	1.23469E+004
Cs-137	1.000	661.66*	85.10	2.34096E+005	3.71797E+004
Eu-155	0.337	86.55*	30.70	4.47536E+004	2.59510E+004
		105.31	21.10		
Bi-214	0.443	609.32*	45.49	2.14322E+004	1.45363E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	1.61476E+004	1.95638E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.615083E+005	1.469861E+005
Co-60	1.000	5.557126E+004✓	9.753384E+003
Cs-137	1.000	2.340957E+005✓	3.717973E+004
Eu-155	0.337	4.475361E+004	2.595098E+004
Bi-214	0.443	2.143222E+004	1.453631E+004
Pb-214	0.438	1.614765E+004	1.956383E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 5:55:06 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.48	7.9219E-002	62.97		
2	40.01	6.0136E-002	70.16		
3	75.46	2.5167E-001	29.13		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM036GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	7.885E+004	7.88E+004	6.615E+005	3.078E+004
+	Co-60	1173.23*	99.85	1.645E+004	1.75E+003	6.104E+004	7.406E+003
		1332.49*	99.98	1.746E+003		5.228E+004	0.000E+000
	Nb-94	702.65	99.81	1.443E+004	1.44E+004	1.446E+004	6.584E+003
		871.09	99.89	1.641E+004		1.304E+004	7.504E+003
	Ag-108m	433.90	90.50	1.781E+004	1.63E+004	-6.300E+002	8.363E+003
		614.30	89.80	2.052E+004		-4.927E+003	9.606E+003
		722.90	90.80	1.628E+004		3.491E+003	7.438E+003
	Cs-134	604.72	97.62	1.824E+004	1.75E+004	-7.704E+003	8.521E+003
		795.86	85.46	1.746E+004		5.310E+003✓	7.950E+003
+	Cs-137	661.66*	85.10	1.754E+004	1.75E+004	2.341E+005	8.053E+003
	Eu-152	121.78	28.67	6.695E+004	6.69E+004	3.696E+004✓	3.246E+004
		344.28	26.60	6.721E+004		-3.486E+004	3.198E+004
		1408.01	21.07	7.437E+004		3.862E+004	3.290E+004
	Eu-154	123.07	40.40	4.678E+004	3.76E+004	-4.939E+003	2.267E+004
		723.30	20.06	7.546E+004		1.918E+004✓	3.455E+004
		1274.43	34.80	3.758E+004		-2.659E+003	1.634E+004
+	Eu-155	86.55*	30.70	3.720E+004	3.72E+004	4.475E+004	1.756E+004
		105.31	21.10	8.305E+004		1.935E+004	4.011E+004
	Tl-208	583.19	85.00	1.941E+004	1.94E+004	1.436E+004	9.031E+003
	Bi-212	727.33	6.67	2.276E+005	2.28E+005	4.948E+004	1.042E+005
	Pb-212	238.63	43.60	4.364E+004	4.36E+004	1.077E+004	2.100E+004
+	Bi-214	609.32*	45.49	2.083E+004	2.08E+004	2.143E+004	9.131E+003
		1120.29	14.92	1.435E+005		2.622E+004	6.638E+004
		1764.49	15.30	1.006E+005		7.001E+004	4.353E+004
+	Pb-214	295.22	18.42	9.937E+004	3.18E+004	5.465E+004	4.752E+004
		351.93*	35.60	3.176E+004		1.615E+004	1.465E+004
	Ra-226	186.21	3.64	5.268E+005	5.27E+005	2.290E+005	2.547E+005
	Ac-228	338.32	11.27	1.447E+005	7.50E+004	-1.666E+005	6.854E+004
		911.20	25.80	7.498E+004		-2.294E+004	3.472E+004
		968.97	15.80	1.058E+005		-6.286E+004	4.823E+004
	Am-241	59.54	35.90	5.432E+004	5.43E+004	-9.928E+003	2.587E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S         *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004332.CNF

Report Generated On	:	4/5/2018 5:57:34 PM
Sample Title	:	B101100AFSWM037GD
Sample Description	:	UNIT 1 CONTAINMENT 565'
Sample Identification	:	037
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001
Sample Taken On	:	3/22/2018 1:31:00 PM
Acquisition Started	:	3/22/2018 1:34:12 PM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.03 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	OD_0.153CM_LINER

Data Validated
4/6/18 0358
DRMichalch

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM037GD
Peak Analysis Performed on: 4/5/2018 5:57:34 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	122-	135	129.38	32.34	0.52	2.79E+001	31.88	8.21E+001
2	155-	166	160.70	40.18	0.86	2.27E+001	25.59	5.53E+001
3	288-	308	301.49	75.37	1.41	1.74E+002	50.22	1.26E+002
4	1402-	1414	1407.71	351.93	0.91	2.76E+001	23.61	4.24E+001
5	2638-	2657	2647.13	661.78	1.58	5.13E+002	48.23	1.96E+001
6	4684-	4704	4693.73	1173.43	0.37	8.32E+001	21.11	7.80E+000
7	5324-	5342	5332.29	1333.07	1.28	9.17E+001	21.10	5.29E+000
8	5629-	5642	5635.22	1408.80	0.37	1.15E+001	7.92	1.54E+000
9	5836-	5855	5845.50	1461.38	1.43	1.01E+002	20.87	2.41E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*************************************************************************
*****  N U C L I D E   I D E N T I F I C A T I O N   R E P O R T  *****
*************************************************************************
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Sample Title: B101100AFSWM037GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.42711E+005	1.44541E+005
Co-60	1.000	1173.23*	99.85	5.04600E+004	1.34216E+004
		1332.49*	99.98	5.91922E+004	1.44204E+004
Cs-137	1.000	661.66*	85.10	2.72074E+005	4.14800E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.50755E+004	2.18071E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/)	Wt mean Activity Uncertainty
K-40	1.000	6.427112E+005	1.445411E+005
Co-60	1.000	5.451327E+004✓	9.824648E+003
Cs-137	1.000	2.720735E+005✓	4.147998E+004
Pb-214	0.438	2.507553E+004	2.180714E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018 5:57:34 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.34	4.6572E-002	114.11		
2	40.18	3.7778E-002	112.88		
3	75.37	2.9039E-001	28.82		
8	1408.80	1.9103E-002	69.14	Tol.	Eu-152

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM037GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/)	Nuclide MDA (pCi/)	Activity (pCi/)	Dec. Level (pCi/)
+	K-40	1460.82*	10.66	7.776E+004	7.78E+004	6.427E+005	3.024E+004
+	Co-60	1173.23*	99.85	1.223E+004	1.12E+004	5.046E+004	5.294E+003
		1332.49*	99.98	1.115E+004		5.919E+004	4.703E+003
	Nb-94	702.65	99.81	1.460E+004	1.46E+004	2.951E+003	6.673E+003
		871.09	99.89	1.641E+004		-8.019E+003	7.504E+003
	Ag-108m	433.90	90.50	1.929E+004	1.78E+004	-6.465E+003	9.105E+003
		614.30	89.80	2.204E+004		2.875E+004	1.037E+004
		722.90	90.80	1.777E+004		-4.279E+003	8.183E+003
	Cs-134	604.72	97.62	1.989E+004	1.94E+004	1.260E+004✓	9.346E+003
		795.86	85.46	1.939E+004		9.531E+003	8.914E+003
+	Cs-137	661.66*	85.10	1.582E+004	1.58E+004	2.721E+005	7.192E+003
	Eu-152	121.78	28.67	6.990E+004	6.40E+004	4.586E+004✓	3.393E+004
		344.28	26.60	6.395E+004		2.061E+002	3.035E+004
		1408.01	21.07	7.437E+004		1.344E+004	3.290E+004
	Eu-154	123.07	40.40	4.955E+004	3.53E+004	6.786E+003✓	2.405E+004
		723.30	20.06	8.205E+004		2.062E+004	3.785E+004
		1274.43	34.80	3.533E+004		9.241E+003	1.521E+004
	Eu-155	86.55	30.70	6.281E+004	6.28E+004	2.647E+004	3.038E+004
		105.31	21.10	9.098E+004		2.357E+004	4.407E+004
	Tl-208	583.19	85.00	2.110E+004	2.11E+004	1.727E+004	9.879E+003
	Bi-212	727.33	6.67	2.196E+005	2.20E+005	-5.814E+004	1.002E+005
	Pb-212	238.63	43.60	4.494E+004	4.49E+004	3.252E+004	2.165E+004
	Bi-214	609.32	45.49	4.356E+004	4.36E+004	5.751E+004	2.050E+004
		1120.29	14.92	1.272E+005		-6.025E+004	5.822E+004
		1764.49	15.30	1.122E+005		9.001E+004	4.935E+004
+	Pb-214	295.22	18.42	1.050E+005	3.40E+004	5.069E+004	5.035E+004
		351.93*	35.60	3.403E+004		2.508E+004	1.579E+004
	Ra-226	186.21	3.64	5.602E+005	5.60E+005	3.618E+005	2.714E+005
	Ac-228	338.32	11.27	1.422E+005	7.56E+004	-2.984E+004	6.728E+004
		911.20	25.80	7.563E+004		5.517E+004	3.504E+004
		968.97	15.80	1.172E+005		3.359E+004	5.392E+004
	Am-241	59.54	35.90	5.655E+004	5.66E+004	-1.480E+004	2.699E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S         *****
************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002736.CNF

Report Generated On	:	4/5/2018 7:04:51 PM
Sample Title	:	B101100AFSWM038GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	038
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/24/2018 1:31:00 PM
Acquisition Started	:	3/24/2018 1:31:48 PM
Live Time	:	600.0 seconds
Real Time	:	601.0 seconds
Dead Time	:	0.16 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 2220
WR Mihalik

```
*****************************************************************************
*****           P E A K   A N A L Y S I S   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM038GD
Peak Analysis Performed on: 4/5/2018 7:04:51 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	297-	306	301.50	75.37	0.48	3.25E+001	32.91	1.01E+002
2	2429-	2444	2436.44	609.11	0.45	4.60E+001	19.40	1.60E+001
3	2635-	2658	2646.63	661.66	1.38	2.70E+002	36.40	1.52E+001
4	4685-	4702	4693.44	1173.36	1.72	7.55E+001	18.99	4.50E+000
5	5322-	5338	5330.29	1332.57	0.55	5.02E+001	19.65	1.48E+001
6	5835-	5855	5845.65	1461.41	1.53	9.19E+001	22.07	8.06E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM038GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	5.92594E+005	1.51293E+005
Co-60	1.000	1173.23*	99.85	4.59785E+004	1.21358E+004
		1332.49*	99.98	3.25930E+004	1.30266E+004
Cs-137	1.000	661.66*	85.10	1.44175E+005	2.60380E+004
Bi-214	0.444	609.32*	45.49	4.40188E+004	1.93030E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*****************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	5.925937E+005	1.512930E+005
Co-60	1.000	3.975898E+004✓	8.879547E+003
Cs-137	1.000	1.441748E+005✓	2.603801E+004
Bi-214	0.444	4.401882E+004	1.930299E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 7:04:51 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.37	5.4167E-002	101.25		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                N U C L I D E   M D A   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM038GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.333E+005	1.33E+005	5.926E+005	5.795E+004
+	Co-60	1173.23*	99.85	9.319E+003	9.32E+003	4.598E+004	3.836E+003
		1332.49*	99.98	1.630E+004		3.259E+004	7.274E+003
	Nb-94	702.65	99.81	1.437E+004	1.44E+004	-4.204E+003	6.550E+003
		871.09	99.89	1.636E+004		-5.468E+003	7.477E+003
	Ag-108m	433.90	90.50	1.860E+004	1.81E+004	1.334E+002	8.756E+003
		614.30	89.80	2.352E+004		-1.284E+004	1.110E+004
		722.90	90.80	1.810E+004		1.072E+004	8.344E+003
	Cs-134	604.72	97.62	2.156E+004	1.64E+004	-2.437E+003	1.018E+004
		795.86	85.46	1.643E+004	0.00E+0 ✓	-1.700E+004	7.427E+003
+	Cs-137	661.66*	85.10	1.521E+004	1.52E+004	1.442E+005	6.884E+003
	Eu-152	121.78	28.67	6.294E+004	6.29E+004	-3.483E+004	3.046E+004
		344.28	26.60	6.694E+004	0.0E+0 ✓	-5.534E+004	3.184E+004
		1408.01	21.07	6.607E+004		-4.038E+003	2.872E+004
	Eu-154	123.07	40.40	4.482E+004	4.47E+004	2.297E+004✓	2.169E+004
		723.30	20.06	8.196E+004		1.717E+004	3.778E+004
		1274.43	34.80	4.474E+004		7.171E+003	1.990E+004
	Eu-155	86.55	30.70	6.307E+004	6.31E+004	7.581E+004	3.052E+004
		105.31	21.10	8.789E+004		-4.640E+004	4.253E+004
	Tl-208	583.19	85.00	2.125E+004	2.13E+004	1.457E+004	9.949E+003
	Bi-212	727.33	6.67	2.613E+005	2.61E+005	2.792E+005	1.210E+005
	Pb-212	238.63	43.60	4.365E+004	4.37E+004	1.555E+004	2.101E+004
+	Bi-214	609.32*	45.49	2.442E+004	2.44E+004	4.402E+004	1.092E+004
		1120.29	14.92	1.350E+005		-5.601E+004	6.211E+004
		1764.49	15.30	1.108E+005		8.605E+004	4.855E+004
	Pb-214	295.22	18.42	9.937E+004	5.00E+004	-1.726E+004	4.752E+004
		351.93	35.60	5.004E+004		4.040E+004	2.379E+004
	Ra-226	186.21	3.64	5.132E+005	5.13E+005	3.513E+005	2.479E+005
	Ac-228	338.32	11.27	1.536E+005	7.16E+004	-2.023E+004	7.300E+004
		911.20	25.80	7.162E+004		1.165E+004	3.301E+004
		968.97	15.80	1.134E+005		4.360E+004	5.196E+004
	Am-241	59.54	35.90	6.128E+004	6.13E+004	1.444E+004	2.934E+004

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
\> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002737.CNF

Report Generated On	:	4/5/2018 7:01:26 PM
Sample Title	:	B101100AFSWM039GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	039
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/24/2018 1:48:00 PM
Acquisition Started	:	3/24/2018 1:48:29 PM
Live Time	:	600.0 seconds
Real Time	:	601.0 seconds
Dead Time	:	0.17 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 2228
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM039GD
Peak Analysis Performed on: 4/5/2018 7:01:26 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	309	302.25	75.56	0.78	5.69E+001	39.97	1.20E+002
2	963-	972	967.08	241.77	0.42	2.21E+001	21.54	4.09E+001
3	1402-	1414	1407.99	352.00	0.54	2.27E+001	22.31	3.83E+001
4	2431-	2443	2437.82	609.46	0.76	3.08E+001	17.14	1.62E+001
5	2635-	2655	2646.25	661.56	1.88	2.51E+002	36.22	2.11E+001
6	4685-	4703	4694.30	1173.58	2.00	7.78E+001	20.82	9.16E+000
7	5321-	5341	5331.29	1332.82	0.39	5.45E+001	18.11	7.51E+000
8	5833-	5855	5845.39	1461.35	0.45	1.01E+002	25.03	1.44E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
****

Sample Title: B101100AFSWM039GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.48249E+005	1.70881E+005
Co-60	1.000	1173.23*	99.85	4.74092E+004	1.32362E+004
		1332.49*	99.98	3.54000E+004	1.21026E+004
Cs-137	1.000	661.66*	85.10	1.34030E+005	2.51707E+004
Pb-212	0.984	238.63*	43.60	1.34777E+004	1.33231E+004
Bi-214	0.444	609.32*	45.49	2.95210E+004	1.67818E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.07023E+004	2.05914E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.482493E+005	1.708814E+005
Co-60	1.000	4.086842E+004 ✓	8.931772E+003
Cs-137	1.000	1.340296E+005 ✓	2.517067E+004
Pb-212	0.984	1.347772E+004	1.332315E+004
Bi-214	0.444	2.952095E+004	1.678178E+004
Pb-214	0.438	2.070228E+004	2.059142E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 7:01:26 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.56	9.4835E-002	70.25		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM039GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.762E+005	1.76E+005	6.482E+005	7.940E+004
+	Co-60	1173.23*	99.85	1.272E+004	1.27E+004	4.741E+004	5.537E+003
		1332.49*	99.98	1.297E+004		3.540E+004	5.606E+003
	Nb-94	702.65	99.81	1.437E+004	1.44E+004	4.927E+003	6.550E+003
		871.09	99.89	1.656E+004		-1.935E+004	7.575E+003
	Ag-108m	433.90	90.50	2.012E+004	1.66E+004	1.073E+003	9.519E+003
		614.30	89.80	2.269E+004		-2.232E+003	1.069E+004
		722.90	90.80	1.662E+004		-2.133E+003	7.600E+003
	Cs-134	604.72	97.62	2.187E+004	2.02E+004	2.703E+002	1.033E+004
		795.86	85.46	2.017E+004		1.514E+004	9.296E+003
+	Cs-137	661.66*	85.10	1.688E+004	1.69E+004	1.340E+005	7.718E+003
	Eu-152	121.78	28.67	6.462E+004	6.13E+004	-3.864E+004	3.129E+004
		344.28	26.60	6.126E+004		-2.822E+004	2.900E+004
		1408.01	21.07	8.425E+004		5.934E+004	3.781E+004
	Eu-154	123.07	40.40	4.682E+004	3.43E+004	1.948E+004	2.269E+004
		723.30	20.06	7.434E+004		-5.276E+004	3.397E+004
		1274.43	34.80	3.433E+004		-2.918E+004	1.470E+004
	Eu-155	86.55	30.70	5.868E+004	5.87E+004	-1.501E+004	2.832E+004
		105.31	21.10	8.521E+004		8.821E+003	4.119E+004
	Tl-208	583.19	85.00	2.139E+004	2.14E+004	1.040E+004	1.002E+004
	Bi-212	727.33	6.67	2.347E+005	2.35E+005	-1.379E+005	1.077E+005
+	Pb-212	238.63*	43.60	2.111E+004	2.11E+004	1.348E+004	9.727E+003
+	Bi-214	609.32*	45.49	2.314E+004	2.31E+004	2.952E+004	1.027E+004
		1120.29	14.92	1.336E+005		8.738E+004	6.142E+004
		1764.49	15.30	1.164E+005		1.139E+004	5.133E+004
+	Pb-214	295.22	18.42	9.548E+004	3.27E+004	4.088E+004	4.557E+004
		351.93*	35.60	3.269E+004		2.070E+004	1.511E+004
	Ra-226	186.21	3.64	5.059E+005	5.06E+005	-5.646E+004	2.443E+005
	Ac-228	338.32	11.27	1.407E+005	7.77E+004	-4.237E+004	6.654E+004
		911.20	25.80	7.766E+004		6.117E+004	3.603E+004
		968.97	15.80	1.265E+005		1.028E+005	5.852E+004
	Am-241	59.54	35.90	5.288E+004	5.29E+004	1.131E+004	2.514E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
******************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S              *****
******************************************************************************
```

```
Filename: C:\GENIE2K\CAMFILES\00004334.CNF

Report Generated On                : 4/5/2018    6:01:18 PM

Sample Title                       : B101100AFSWM040GD
Sample Description                 : UNIT 1 CONTAINMENT 565'
Sample Identification              : 040
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -   8192
Peak Area Range (in channels)      :    85 -   8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/22/2018   1:51:00 PM
Acquisition Started                : 3/22/2018   2:02:02 PM

Live Time                          :      600.0 seconds
Real Time                          :      600.2 seconds

Dead Time                          :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : OD_0.153CM_LINER
```

Data Validated
4/6/18 0407
WR Michalk

****
***** P E A K   A N A L Y S I S   R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM040GD
Peak Analysis Performed on: 4/5/2018 6:01:17 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	287-	307	302.11	75.53	1.12	1.54E+002	50.88	1.36E+002
2	1403-	1414	1408.46	352.11	0.64	1.62E+001	19.76	3.18E+001
3	2637-	2657	2647.07	661.77	1.39	4.95E+002	47.31	1.80E+001
4	4683-	4706	4694.55	1173.64	1.05	1.21E+002	26.76	1.45E+001
5	5322-	5342	5332.10	1333.02	0.47	1.23E+002	24.68	7.98E+000
6	5835-	5855	5844.69	1461.17	0.67	1.06E+002	21.38	2.50E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM040GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.74011E+005	1.48630E+005
Co-60	1.000	1173.23*	99.85	7.36733E+004	1.72674E+004
		1332.49*	99.98	7.94018E+004	1.71517E+004
Cs-137	1.000	661.66*	85.10	2.62314E+005	4.02606E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	1.47233E+004	1.81006E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** INTERFERENCE CORRECTED REPORT *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.740106E+005	1.486300E+005
Co-60	1.000	7.655681E+004✓	1.216878E+004
Cs-137	1.000	2.623137E+005✓	4.026059E+004
Pb-214	0.438	1.472333E+004	1.810061E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 4/5/2018 6:01:17 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.53	2.5656E-001	33.05		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                N U C L I D E   M D A   R E P O R T               *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM040GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	7.973E+004	7.97E+004	6.740E+005	3.122E+004
+	Co-60	1173.23*	99.85	1.678E+004	1.32E+004	7.367E+004	7.569E+003
		1332.49*	99.98	1.324E+004		7.940E+004	5.748E+003
	Nb-94	702.65	99.81	1.529E+004	1.48E+004	7.744E+003	7.015E+003
		871.09	99.89	1.478E+004		-9.722E+003	6.690E+003
	Ag-108m	433.90	90.50	2.048E+004	1.81E+004	1.323E+004	9.702E+003
		614.30	89.80	2.204E+004		1.909E+004	1.037E+004
		722.90	90.80	1.812E+004		8.115E+003	8.359E+003
	Cs-134	604.72	97.62	2.161E+004	1.88E+004	1.248E+004	1.021E+004
		795.86	85.46	1.877E+004		1.268E+002	8.605E+003
+	Cs-137	661.66*	85.10	1.546E+004	1.55E+004	2.623E+005	7.011E+003
	Eu-152	121.78	28.67	6.600E+004	6.36E+004	1.513E+004	3.198E+004
		344.28	26.60	6.818E+004		4.161E+004	3.246E+004
		1408.01	21.07	6.362E+004		1.948E+004	2.753E+004
	Eu-154	123.07	40.40	4.685E+004	3.76E+004	2.501E+004	2.270E+004
		723.30	20.06	8.126E+004		1.162E+004	3.745E+004
		1274.43	34.80	3.758E+004		-4.533E+002	1.634E+004
	Eu-155	86.55	30.70	6.158E+004	6.16E+004	3.373E+004	2.976E+004
		105.31	21.10	8.962E+004		5.007E+004	4.339E+004
	Tl-208	583.19	85.00	2.027E+004	2.03E+004	5.031E+003	9.465E+003
	Bi-212	727.33	6.67	2.169E+005	2.17E+005	-9.708E+004	9.885E+004
	Pb-212	238.63	43.60	4.575E+004	4.58E+004	4.315E+003	2.206E+004
	Bi-214	609.32	45.49	4.497E+004	4.50E+004	4.271E+004	2.120E+004
		1120.29	14.92	1.422E+005		1.472E+005	6.574E+004
		1764.49	15.30	1.095E+005		8.501E+004	4.796E+004
+	Pb-214	295.22	18.42	1.034E+005	2.94E+004	-1.334E+004	4.952E+004
		351.93*	35.60	2.942E+004		1.472E+004	1.348E+004
	Ra-226	186.21	3.64	5.277E+005	5.28E+005	-2.929E+005	2.551E+005
	Ac-228	338.32	11.27	1.595E+005	7.63E+004	-2.688E+005	7.593E+004
		911.20	25.80	7.628E+004		-3.662E+003	3.537E+004
		968.97	15.80	1.123E+005		-3.398E+004	5.147E+004
	Am-241	59.54	35.90	6.110E+004	6.11E+004	-8.505E+003	2.926E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S            *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004335.CNF

Report Generated On	:	4/5/2018 6:04:46 PM
Sample Title	:	B101100AFSWM041GD
Sample Description	:	UNIT 1 CONTAINMENT 565'
Sample Identification	:	041
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/22/2018 2:19:00 PM
Acquisition Started	:	3/22/2018 2:19:36 PM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.04 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/6/18 0415
WR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM041GD
Peak Analysis Performed on: 4/5/2018 6:04:45 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	287-	308	301.53	75.38	1.31	2.22E+002	53.02	1.28E+002
2	347-	356	351.24	87.81	0.41	1.44E+001	27.12	7.46E+001
3	952-	961	956.30	239.08	0.62	1.69E+001	24.59	5.91E+001
4	1404-	1415	1409.24	352.31	0.28	2.70E+001	22.33	3.90E+001
5	2432-	2444	2437.44	609.36	0.99	3.11E+001	19.86	2.49E+001
6	2638-	2656	2647.00	661.75	1.46	4.06E+002	43.70	2.12E+001
7	4684-	4704	4694.50	1173.63	1.34	1.62E+002	28.95	1.31E+001
8	5321-	5343	5332.03	1333.01	1.99	1.61E+002	27.03	5.56E+000
9	5836-	5854	5844.87	1461.22	0.87	8.53E+001	20.13	4.75E+000
10	7056-	7071	7063.63	1765.91	1.00	1.20E+001	6.93	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM041GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.44649E+005	1.37018E+005
Co-60	1.000	1173.23*	99.85	9.81706E+004	1.92370E+004
		1332.49*	99.98	1.04201E+005	1.93360E+004
Cs-137	1.000	661.66*	85.10	2.15030E+005	3.46837E+004
Eu-155	0.337	86.55*	30.70	1.07135E+004	2.03537E+004
		105.31	21.10		
Pb-212	1.000	238.63*	43.60	1.02290E+004	1.49719E+004
Bi-214	0.707	609.32*	45.49	2.95103E+004	1.91945E+004
		1120.29	14.92		
		1764.49*	15.30	6.00334E+004	3.49922E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.45258E+004	2.06619E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.446494E+005	1.370178E+005
Co-60	1.000	1.011705E+005✓	1.363749E+004
Cs-137	1.000	2.150297E+005✓	3.468371E+004
Eu-155	0.337	1.071347E+004	2.035367E+004
Pb-212	1.000	1.022898E+004	1.497188E+004
Bi-214	0.707	3.657021E+004	1.682892E+004
Pb-214	0.438	2.452576E+004	2.066190E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 6:04:45 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.38	3.7001E-001	23.88		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM041GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.015E+005	1.01E+005	5.446E+005	4.209E+004
+	Co-60	1173.23*	99.85	1.543E+004	1.15E+004	9.817E+004	6.892E+003
		1332.49*	99.98	1.153E+004		1.042E+005	4.892E+003
	Nb-94	702.65	99.81	1.578E+004	1.58E+004	1.758E+004	7.261E+003
		871.09	99.89	1.954E+004		1.474E+004	9.072E+003
	Ag-108m	433.90	90.50	2.048E+004	1.83E+004	2.254E+004	9.702E+003
		614.30	89.80	2.379E+004		2.416E+002	1.124E+004
		722.90	90.80	1.830E+004		-9.672E+003	8.446E+003
	Cs-134	604.72	97.62	2.212E+004	1.83E+004	-6.173E+003	1.046E+004
		795.86	85.46	1.835E+004	0.00E+0 ✓	-1.080E+004	8.392E+003
+	Cs-137	661.66*	85.10	1.618E+004	1.62E+004	2.150E+005	7.375E+003
	Eu-152	121.78	28.67	7.185E+004	6.91E+004	5.500E+004 ✓	3.491E+004
		344.28	26.60	6.913E+004		-2.856E+004	3.294E+004
		1408.01	21.07	8.502E+004		5.962E+004	3.823E+004
	Eu-154	123.07	40.40	5.095E+004	4.71E+004	-1.789E+004	2.475E+004
		723.30	20.06	8.284E+004		-7.092E+004	3.824E+004
		1274.43	34.80	4.709E+004		1.768E+004 ✓	2.109E+004
+	Eu-155	86.55*	30.70	3.399E+004	3.40E+004	1.071E+004	1.598E+004
		105.31	21.10	9.232E+004		-5.970E+004	4.474E+004
	Tl-208	583.19	85.00	2.013E+004	2.01E+004	1.075E+004	9.394E+003
	Bi-212	727.33	6.67	2.474E+005	2.47E+005	1.078E+005	1.141E+005
+	Pb-212	238.63*	43.60	2.471E+004	2.47E+004	1.023E+004	1.153E+004
+	Bi-214	609.32*	45.49	2.825E+004	1.35E+004	2.951E+004	1.284E+004
		1120.29	14.92	1.409E+005		4.228E+004	6.509E+004
		1764.49*	15.30	1.354E+004		6.003E+004	0.000E+000
+	Pb-214	295.22	18.42	1.025E+005	3.20E+004	1.710E+004	4.910E+004
		351.93*	35.60	3.199E+004		2.453E+004	1.477E+004
	Ra-226	186.21	3.64	5.741E+005	5.74E+005	6.995E+004	2.783E+005
	Ac-228	338.32	11.27	1.566E+005	8.00E+004	-7.686E+004	7.451E+004
		911.20	25.80	8.004E+004		6.848E+004	3.724E+004
		968.97	15.80	1.318E+005		1.260E+005	6.121E+004
	Am-241	59.54	35.90	6.227E+004	6.23E+004	1.250E+003	2.984E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002738.CNF

```
Report Generated On              : 4/5/2018    7:00:09 PM

Sample Title                     : B101100AFSWM042GD
Sample Description               : U1 CONTAINMENT - 565
Sample Identification            : 042
Sample Type                      : GAMMA DIRECT
Sample Geometry                  :

Peak Locate Threshold            :  3.00
Peak Locate Range (in channels)  :    85 -  8192
Peak Area Range (in channels)    :    85 -  8192
Identification Energy Tolerance  :   10.000 keV

Sample Size                      :  2.826E+001 M^2

Sample Taken On                  : 3/24/2018   2:02:00 PM
Acquisition Started              : 3/24/2018   2:02:01 PM

Live Time                        :      600.0 seconds
Real Time                        :      601.0 seconds

Dead Time                        :   0.17 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 2235
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM042GD
Peak Analysis Performed on: 4/5/2018 7:00:08 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	307	300.48	75.12	1.03	2.73E+001	37.88	1.24E+002
2	364-	373	368.89	92.22	0.66	1.29E+001	27.15	7.61E+001
3	2636-	2657	2646.53	661.63	1.79	2.63E+002	36.67	1.94E+001
4	4685-	4703	4693.03	1173.26	0.69	9.17E+001	24.23	1.63E+001
5	5321-	5341	5331.32	1332.83	1.39	1.19E+002	21.82	0.00E+000
6	5835-	5854	5845.39	1461.35	0.63	9.55E+001	22.06	7.48E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM042GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.15646E+005	1.51924E+005
Co-60	1.000	1173.23*	99.85	5.58536E+004	1.54159E+004
		1332.49*	99.98	7.73128E+004	1.54652E+004
Cs-137	1.000	661.66*	85.10	1.40299E+005	2.58390E+004
Eu-155	0.309	86.55*	30.70	9.45126E+003	2.00581E+004
		105.31	21.10		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.156459E+005	1.519239E+005
Co-60	1.000	6.654899E+004✓	1.091806E+004
Cs-137	1.000	1.402987E+005✓	2.583904E+004
Eu-155	0.309	9.451255E+003	2.005807E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

**********   U N I D E N T I F I E D   P E A K S   **********

Peak Locate Performed on: 4/5/2018 7:00:08 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.12	4.5524E-002	138.69		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                N U C L I D E   M D A   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM042GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.260E+005	1.26E+005	6.156E+005	5.426E+004
+	Co-60	1173.23*	99.85	1.651E+004	1.76E+003	5.585E+004	7.431E+003
		1332.49*	99.98	1.758E+003		7.731E+004	0.000E+000
	Nb-94	702.65	99.81	1.282E+004	1.28E+004	1.053E+004	5.777E+003
		871.09	99.89	1.675E+004		3.119E+003	7.671E+003
	Ag-108m	433.90	90.50	1.768E+004	1.74E+004	-8.149E+003	8.296E+003
		614.30	89.80	2.386E+004		2.904E+004	1.127E+004
		722.90	90.80	1.738E+004		1.764E+003	7.981E+003
	Cs-134	604.72	97.62	2.135E+004	1.96E+004	2.346E+004✓	1.007E+004
		795.86	85.46	1.957E+004		-6.709E+003	8.994E+003
+	Cs-137	661.66*	85.10	1.652E+004	1.65E+004	1.403E+005	7.535E+003
	Eu-152	121.78	28.67	6.471E+004	6.31E+004	3.066E+004✓	3.134E+004
		344.28	26.60	6.312E+004		-3.185E+004	2.993E+004
		1408.01	21.07	8.129E+004		2.318E+004	3.633E+004
	Eu-154	123.07	40.40	4.510E+004	4.51E+004	4.295E+003✓	2.183E+004
		723.30	20.06	7.783E+004		-1.122E+004	3.571E+004
		1274.43	34.80	4.820E+004		-1.443E+004	2.163E+004
+	Eu-155	86.55*	30.70	3.367E+004	3.37E+004	9.451E+003	1.584E+004
		105.31	21.10	8.449E+004		-5.352E+004	4.083E+004
	Tl-208	583.19	85.00	1.969E+004	1.97E+004	5.506E+003	9.169E+003
	Bi-212	727.33	6.67	2.373E+005	2.37E+005	1.576E+005	1.090E+005
	Pb-212	238.63	43.60	4.211E+004	4.21E+004	1.106E+004	2.023E+004
	Bi-214	609.32	45.49	4.734E+004	4.73E+004	5.978E+004	2.238E+004
		1120.29	14.92	1.391E+005		-2.425E+004	6.415E+004
		1764.49	15.30	1.448E+005		1.569E+005	6.557E+004
	Pb-214	295.22	18.42	9.819E+004	5.38E+004	1.093E+005	4.693E+004
		351.93	35.60	5.385E+004		2.302E+003	2.569E+004
	Ra-226	186.21	3.64	5.177E+005	5.18E+005	5.123E+004	2.501E+005
	Ac-228	338.32	11.27	1.470E+005	7.96E+004	5.150E+004	6.969E+004
		911.20	25.80	7.957E+004		1.060E+005	3.698E+004
		968.97	15.80	1.159E+005		3.091E+004	5.322E+004
	Am-241	59.54	35.90	5.614E+004	5.61E+004	4.470E+004	2.677E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S          *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004336.CNF

Report Generated On : 4/5/2018 6:06:09 PM

Sample Title : B101100AFSWM043GD
Sample Description : UNIT 1 CONTAINMENT 565'
Sample Identification : 043
Sample Type : GAMMA DIRECT
Sample Geometry :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 85 - 8192
Peak Area Range (in channels) : 85 - 8192
Identification Energy Tolerance : 10.000 keV

Sample Size : 2.830E+001 M^2

Sample Taken On : 3/22/2018 2:35:00 PM
Acquisition Started : 3/22/2018 2:35:18 PM

Live Time : 600.0 seconds
Real Time : 600.2 seconds

Dead Time : 0.04 %

Energy Calibration Used Done On : 3/15/2018
Efficiency Calibration Used Done On : 4/5/2018
Efficiency ID : 0D_0.153CM_LINER

Data Validated
4/6/18 0425
D R'Mihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM043GD
Peak Analysis Performed on: 4/5/2018 6:06:08 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	122-	134	130.35	32.59	1.08	3.95E+001	29.21	6.45E+001
2	286-	309	301.32	75.33	1.16	1.83E+002	57.21	1.59E+002
3	335-	347	342.45	85.61	0.53	7.90E+000	37.47	1.28E+002
4	1372-	1382	1377.12	344.28	1.20	1.05E+001	19.45	3.35E+001
5	1402-	1414	1408.64	352.16	0.75	3.14E+001	22.35	3.56E+001
6	2328-	2339	2333.87	583.47	0.73	1.44E+001	14.31	1.46E+001
7	2432-	2443	2437.72	609.43	1.05	2.90E+001	16.34	1.50E+001
8	2637-	2659	2647.00	661.75	1.49	3.88E+002	43.17	2.11E+001
9	3639-	3652	3645.63	911.41	0.52	1.99E+001	13.82	1.01E+001
10	4685-	4707	4694.62	1173.66	1.91	1.85E+002	30.00	1.06E+001
11	5322-	5343	5332.59	1333.15	1.61	1.83E+002	27.78	2.61E+000
12	5837-	5857	5846.29	1461.57	1.36	9.75E+001	22.87	9.47E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM043GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.23215E+005	1.55833E+005
Co-60	1.000	1173.23*	99.85	1.12448E+005	2.02962E+004
		1332.49*	99.98	1.18371E+005	2.02762E+004
Cs-137	1.000	661.66*	85.10	2.05578E+005	3.36568E+004
Eu-155	0.338	86.55*	30.70	6.04112E+003	2.86618E+004
		105.31	21.10		
Tl-208	1.000	583.19*	85.00	7.14014E+003	7.16552E+003
Bi-214	0.443	609.32*	45.49	2.75526E+004	1.58764E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.85187E+004	2.08075E+004
Ac-228	0.543	338.32*	11.27	2.96365E+004	5.53391E+004
		911.20*	25.80	4.08317E+004	2.85515E+004
		968.97	15.80		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.232152E+005	1.558331E+005
Co-60	1.000	1.154125E+005✓	1.434452E+004
Cs-137	1.000	2.055776E+005✓	3.365675E+004
Eu-155	0.338	6.041124E+003	2.866182E+004
Tl-208	1.000	7.140143E+003	7.165517E+003
Bi-214	0.443	2.755257E+004	1.587638E+004
Pb-214	0.438	2.851870E+004	2.080748E+004
Ac-228	0.543	3.847813E+004	2.537344E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 6:06:08 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.59	6.5833E-002	73.95		
2	75.33	3.0564E-001	31.20		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM043GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.385E+005	1.38E+005	6.232E+005	6.059E+004
+	Co-60	1173.23*	99.85	1.419E+004	8.29E+003	1.124E+005	6.275E+003
		1332.49*	99.98	8.291E+003		1.184E+005	3.272E+003
	Nb-94	702.65	99.81	1.626E+004	1.63E+004	-1.003E+004	7.499E+003
		871.09	99.89	1.697E+004		-7.016E+003	7.788E+003
	Ag-108m	433.90	90.50	1.957E+004	1.91E+004	-4.083E+003	9.246E+003
		614.30	89.80	2.276E+004		-4.936E+003	1.072E+004
		722.90	90.80	1.914E+004		6.349E+003	8.867E+003
	Cs-134	604.72	97.62	2.066E+004	2.07E+004	-1.203E+004	9.732E+003
		795.86	85.46	2.203E+004		1.762E+004 ✓	1.023E+004
+	Cs-137	661.66*	85.10	1.683E+004	1.68E+004	2.056E+005	7.697E+003
	Eu-152	121.78	28.67	6.963E+004	6.96E+004	8.339E+003 ✓	3.380E+004
		344.28	26.60	7.305E+004		-1.016E+004	3.490E+004
		1408.01	21.07	9.309E+004		8.391E+004	4.227E+004
	Eu-154	123.07	40.40	5.088E+004	4.87E+004	5.215E+004 ✓	2.472E+004
		723.30	20.06	8.590E+004		3.111E+004	3.977E+004
		1274.43	34.80	4.874E+004		-1.410E+004	2.192E+004
+	Eu-155	86.55*	30.70	4.864E+004	4.86E+004	6.041E+003	2.329E+004
		105.31	21.10	9.219E+004		6.993E+004	4.467E+004
+	Tl-208	583.19*	85.00	1.127E+004	1.13E+004	7.140E+003	4.963E+003
	Bi-212	727.33	6.67	2.568E+005	2.57E+005	1.789E+005	1.188E+005
	Pb-212	238.63	43.60	4.602E+004	4.60E+004	3.900E+003	2.219E+004
+	Bi-214	609.32*	45.49	2.178E+004	2.18E+004	2.755E+004	9.605E+003
		1120.29	14.92	1.383E+005		-1.111E+005	6.378E+004
		1764.49	15.30	1.275E+005		-4.105E+004	5.699E+004
+	Pb-214	295.22	18.42	1.042E+005	3.14E+004	-3.689E+002	4.994E+004
		351.93*	35.60	3.135E+004		2.852E+004	1.445E+004
	Ra-226	186.21	3.64	5.627E+005	5.63E+005	-8.546E+004	2.726E+005
+	Ac-228	338.32*	11.27	9.319E+004	4.11E+004	2.964E+004	4.276E+004
		911.20*	25.80	4.113E+004		4.083E+004	1.779E+004
		968.97	15.80	1.549E+005		1.805E+004	7.278E+004
	Am-241	59.54	35.90	6.077E+004	6.08E+004	-6.144E+004	2.909E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
******************************************************************************
*****         G A M M A   S P E C T R U M   A N A L Y S I S            *****
******************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002739.CNF

Report Generated On	:	4/5/2018 6:58:41 PM
Sample Title	:	B101100AFSWM044GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	044
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/24/2018 2:18:00 PM
Acquisition Started	:	3/24/2018 2:18:40 PM
Live Time	:	600.0 seconds
Real Time	:	601.1 seconds
Dead Time	:	0.18 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 2253
DR Mihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM044GD
Peak Analysis Performed on: 4/5/2018 6:58:40 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	295-	308	300.73	75.18	1.34	6.24E+001	39.46	1.17E+002
2	334-	344	339.84	84.96	0.98	5.85E+001	30.22	7.15E+001
3	2428-	2443	2436.13	609.03	0.64	4.58E+001	20.12	1.82E+001
4	2637-	2655	2646.61	661.65	1.47	1.64E+002	31.74	2.61E+001
5	4684-	4705	4693.46	1173.37	1.04	1.32E+002	26.70	1.27E+001
6	5319-	5342	5331.10	1332.77	1.79	1.43E+002	24.88	2.95E+000
7	5833-	5857	5845.98	1461.49	0.42	1.00E+002	20.00	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM044GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.44549E+005	1.40536E+005
Co-60	1.000	1173.23*	99.85	8.05786E+004	1.74916E+004
		1332.49*	99.98	9.29352E+004	1.77927E+004
Cs-137	1.000	661.66*	85.10	8.75819E+004	1.99572E+004
Eu-155	0.337	86.55*	30.70	4.48788E+004	2.48608E+004
		105.31	21.10		
Bi-214	0.444	609.32*	45.49	4.38700E+004	1.99642E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
******************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
******************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.445493E+005	1.405361E+005
Co-60	1.000	8.665144E+004✓	1.247349E+004
Cs-137	1.000	8.758190E+004✓	1.995718E+004
Eu-155	0.337	4.487876E+004	2.486075E+004
Bi-214	0.444	4.387002E+004	1.996422E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018   6:58:40 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.18	1.0399E-001	63.25		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                N U C L I D E   M D A   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM044GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.744E+004	1.74E+004	6.445E+005	0.000E+000
+	Co-60	1173.23*	99.85	1.522E+004	9.08E+003	8.058E+004	6.788E+003
		1332.49*	99.98	9.077E+003		9.294E+004	3.659E+003
	Nb-94	702.65	99.81	1.717E+004	1.72E+004	-1.041E+004	7.948E+003
		871.09	99.89	1.839E+004		-2.644E+003	8.491E+003
	Ag-108m	433.90	90.50	1.860E+004	1.86E+004	-1.888E+004	8.756E+003
		614.30	89.80	2.317E+004		-2.495E+004	1.092E+004
		722.90	90.80	1.947E+004		1.841E+004	9.026E+003
	Cs-134	604.72	97.62	2.238E+004	1.92E+004	-3.153E+003	1.059E+004
		795.86	85.46	1.915E+004	0.00E+0 ✓	-1.200E+004	8.788E+003
+	Cs-137	661.66*	85.10	1.794E+004	1.79E+004	8.758E+004	8.245E+003
	Eu-152	121.78	28.67	6.747E+004	6.36E+004	-6.836E+003	3.272E+004
		344.28	26.60	6.365E+004		-3.316E+003	3.019E+004
		1408.01	21.07	7.496E+004		4.343E+004✓	3.316E+004
	Eu-154	123.07	40.40	4.789E+004	3.43E+004	-7.273E+003	2.323E+004
		723.30	20.06	8.739E+004		8.187E+004✓	4.049E+004
		1274.43	34.80	3.433E+004		-4.894E+004	1.470E+004
+	Eu-155	86.55*	30.70	3.497E+004	3.50E+004	4.488E+004	1.645E+004
		105.31	21.10	8.550E+004		3.624E+004	4.133E+004
	Tl-208	583.19	85.00	2.283E+004	2.28E+004	1.979E+004	1.074E+004
	Bi-212	727.33	6.67	2.590E+005	2.59E+005	2.023E+005	1.198E+005
	Pb-212	238.63	43.60	4.152E+004	4.15E+004	-2.610E+003	1.994E+004
+	Bi-214	609.32*	45.49	2.602E+004	2.60E+004	4.387E+004	1.171E+004
		1120.29	14.92	1.518E+005		-4.122E+004	7.051E+004
		1764.49	15.30	1.267E+005		7.511E+004	5.648E+004
	Pb-214	295.22	18.42	9.700E+004	5.23E+004	1.244E+004	4.633E+004
		351.93	35.60	5.225E+004		4.372E+004	2.489E+004
	Ra-226	186.21	3.64	5.300E+005	5.30E+005	3.425E+005	2.563E+005
	Ac-228	338.32	11.27	1.536E+005	8.62E+004	-1.246E+005	7.300E+004
		911.20	25.80	8.617E+004		5.789E+004	4.029E+004
		968.97	15.80	1.352E+005		1.314E+004	6.286E+004
	Am-241	59.54	35.90	5.576E+004	5.58E+004	3.347E+004	2.658E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

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*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S               *****
*****************************************************************************
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```
Filename: C:\GENIE2K\CAMFILES\00002740.CNF

Report Generated On                : 4/5/2018    6:53:19 PM

Sample Title                       : B101100AFSWM045GD
Sample Description                 : U1 CONTAINMENT - 565
Sample Identification              : 045
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.826E+001 M^2

Sample Taken On                    : 3/24/2018    2:33:00 PM
Acquisition Started                : 3/24/2018    2:33:45 PM

Live Time                          :       600.0 seconds
Real Time                          :       601.2 seconds

Dead Time                          :   0.20 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 2303
WR Mihalik

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                  *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM045GD
Peak Analysis Performed on: 4/5/2018 6:53:19 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	306	300.90	75.22	0.54	2.05E+001	36.51	1.24E+002
2	570-	579	574.55	143.64	0.66	2.18E+001	26.52	6.82E+001
3	1402-	1415	1408.57	352.14	0.35	2.74E+001	22.17	3.46E+001
4	2039-	2050	2044.16	511.04	0.81	1.58E+001	15.70	1.73E+001
5	2430-	2442	2435.85	608.96	0.63	3.41E+001	16.53	1.19E+001
6	2638-	2655	2645.64	661.41	1.22	9.91E+001	24.62	1.59E+001
7	4684-	4703	4693.48	1173.37	1.58	7.06E+001	19.65	7.43E+000
8	5322-	5340	5331.71	1332.93	0.75	6.56E+001	17.16	2.35E+000
9	5834-	5855	5844.69	1461.17	1.12	8.85E+001	20.90	5.50E+000
10	7055-	7070	7062.75	1765.69	0.35	1.65E+001	11.68	5.45E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*****************************************************************************
```

Sample Title: B101100AFSWM045GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.70346E+005	1.43479E+005
Co-60	1.000	1173.23*	99.85	4.29767E+004	1.24493E+004
		1332.49*	99.98	4.26519E+004	1.16605E+004
Cs-137	1.000	661.66*	85.10	5.29225E+004	1.46078E+004
Bi-214	0.706	609.32*	45.49	3.25835E+004	1.62938E+004
		1120.29	14.92		
		1764.49*	15.30	8.37885E+004	5.95134E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.49619E+004	2.05959E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.703465E+005	1.434792E+005
Co-60	1.000	4.280369E+004✓	8.510428E+003
Cs-137	1.000	5.292249E+004✓	1.460781E+004
Bi-214	0.706	3.615403E+004	1.571544E+004
Pb-214	0.438	2.496191E+004	2.059588E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 6:53:19 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.22	3.4132E-002	178.29		
2	143.64	3.6366E-002	121.55	D-Esc.	
4	511.04	2.6250E-002	99.70		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****            N U C L I D E   M D A   R E P O R T                    *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM045GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.138E+005	1.14E+005	5.703E+005	4.818E+004
+	Co-60	1173.23*	99.85	1.185E+004	7.80E+003	4.298E+004	5.102E+003
		1332.49*	99.98	7.798E+003		4.265E+004	3.020E+003
	Nb-94	702.65	99.81	1.508E+004	1.51E+004	-1.102E+004	6.905E+003
		871.09	99.89	1.636E+004		-1.818E+004	7.477E+003
	Ag-108m	433.90	90.50	1.637E+004	1.64E+004	7.891E+003	7.640E+003
		614.30	89.80	2.257E+004		-9.446E+003	1.063E+004
		722.90	90.80	1.897E+004		-6.841E+002	8.776E+003
	Cs-134	604.72	97.62	1.957E+004	1.87E+004	8.421E+003✓	9.185E+003
		795.86	85.46	1.873E+004		-2.477E+004	8.576E+003
+	Cs-137	661.66*	85.10	1.418E+004	1.42E+004	5.292E+004	6.366E+003
	Eu-152	121.78	28.67	6.784E+004	6.34E+004	3.448E+004✓	3.290E+004
		344.28	26.60	6.339E+004		-3.337E+003	3.006E+004
		1408.01	21.07	7.976E+004		-2.734E+004	3.557E+004
	Eu-154	123.07	40.40	4.789E+004	4.47E+004	-1.082E+004	2.323E+004
		723.30	20.06	8.664E+004		2.793E+003	4.012E+004
		1274.43	34.80	4.474E+004		1.231E+004✓	1.990E+004
	Eu-155	86.55	30.70	6.236E+004	6.24E+004	3.036E+004	3.016E+004
		105.31	21.10	8.521E+004		-1.686E+005	4.119E+004
	Tl-208	583.19	85.00	2.357E+004	2.36E+004	7.006E+003	1.111E+004
	Bi-212	727.33	6.67	2.398E+005	2.40E+005	-1.645E+005	1.102E+005
	Pb-212	238.63	43.60	4.496E+004	4.50E+004	4.670E+004	2.166E+004
+	Bi-214	609.32*	45.49	2.101E+004	2.10E+004	3.258E+004	9.212E+003
		1120.29	14.92	1.308E+005		-1.707E+005	6.000E+004
		1764.49*	15.30	8.349E+004		8.379E+004	3.489E+004
+	Pb-214	295.22	18.42	8.848E+004	3.18E+004	2.339E+004	4.207E+004
		351.93*	35.60	3.177E+004		2.496E+004	1.465E+004
	Ra-226	186.21	3.64	4.834E+005	4.83E+005	1.363E+005	2.330E+005
	Ac-228	338.32	11.27	1.525E+005	7.96E+004	4.298E+004	7.241E+004
		911.20	25.80	7.957E+004		3.165E+004	3.698E+004
		968.97	15.80	1.183E+005		7.849E+003	5.444E+004
	Am-241	59.54	35.90	5.724E+004	5.72E+004	-3.541E+004	2.732E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S           *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004337.CNF

Report Generated On              : 4/5/2018    6:10:45 PM

Sample Title                     : B101100AFSWM046GD
Sample Description               : UNIT 1 CONTAINMENT 565'
Sample Identification            : 046
Sample Type                      : GAMMA DIRECT
Sample Geometry                  :

Peak Locate Threshold            :  3.00
Peak Locate Range (in channels) :    85 -  8192
Peak Area Range (in channels)   :    85 -  8192
Identification Energy Tolerance :   10.000 keV

Sample Size                      :  2.830E+001 M^2

Sample Taken On                  : 3/22/2018   3:00:00 PM
Acquisition Started              : 3/22/2018   3:00:40 PM

Live Time                        :      600.0 seconds
Real Time                        :      600.2 seconds

Dead Time                        :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0435
WRMuhalk

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM046GD
Peak Analysis Performed on: 4/5/2018 6:10:44 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	298-	310	302.01	75.50	0.68	5.39E+001	35.72	9.61E+001
2	334-	344	339.78	84.94	1.07	1.89E+001	31.68	9.51E+001
3	2431-	2446	2438.34	609.58	0.98	5.20E+001	17.45	8.00E+000
4	2638-	2658	2647.09	661.77	1.53	3.17E+002	38.90	1.64E+001
5	4686-	4705	4695.02	1173.76	1.67	1.05E+002	25.43	1.55E+001
6	5323-	5342	5332.38	1333.10	2.00	8.24E+001	20.94	7.64E+000
7	5836-	5857	5846.86	1461.71	1.54	9.75E+001	21.74	5.50E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM046GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.23043E+005	1.49105E+005
Co-60	0.999	1173.23*	99.85	6.39884E+004	1.62520E+004
		1332.49*	99.98	5.31574E+004	1.41691E+004
Cs-137	1.000	661.66*	85.10	1.67806E+005	2.88258E+004
Eu-155	0.337	86.55*	30.70	1.45519E+004	2.45602E+004
		105.31	21.10		
Bi-214	0.443	609.32*	45.49	4.94110E+004	1.76138E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** INTERFERENCE CORRECTED REPORT *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.230434E+005	1.491047E+005
Co-60	0.999	5.783476E+004✓	1.068008E+004
Cs-137	1.000	1.678064E+005✓	2.882583E+004
Eu-155	0.337	1.455191E+004	2.456019E+004
Bi-214	0.443	4.941105E+004	1.761380E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 4/5/2018 6:10:44 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.50	8.9861E-002	66.25		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM046GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.129E+005	1.13E+005	6.230E+005	4.782E+004
+	Co-60	1173.23*	99.85	1.660E+004	1.28E+004	6.399E+004	7.479E+003
		1332.49*	99.98	1.283E+004		5.316E+004	5.544E+003
	Nb-94	702.65	99.81	1.271E+004	1.27E+004	-4.769E+003	5.728E+003
		871.09	99.89	1.697E+004		7.391E+003	7.788E+003
	Ag-108m	433.90	90.50	1.760E+004	1.74E+004	-1.759E+004	8.260E+003
		614.30	89.80	2.287E+004		-9.329E+003	1.078E+004
		722.90	90.80	1.741E+004		-6.969E+003	8.004E+003
	Cs-134	604.72	97.62	2.000E+004	1.68E+004	-8.996E+003	9.402E+003
		795.86	85.46	1.677E+004	0.0 E+0 ✓	-1.020E+003	7.602E+003
+	Cs-137	661.66*	85.10	1.511E+004	1.51E+004	1.678E+005	6.840E+003
	Eu-152	121.78	28.67	6.676E+004	6.52E+004	2.493E+004✓	3.236E+004
		344.28	26.60	6.523E+004		-4.127E+004	3.099E+004
		1408.01	21.07	7.437E+004		6.325E+004	3.290E+004
	Eu-154	123.07	40.40	4.786E+004	4.07E+004	3.570E+004✓	2.321E+004
		723.30	20.06	7.800E+004		-3.334E+004	3.582E+004
		1274.43	34.80	4.070E+004		1.760E+004	1.790E+004
+	Eu-155	86.55*	30.70	4.066E+004	4.07E+004	1.455E+004	1.929E+004
		105.31	21.10	8.540E+004		-1.533E+004	4.128E+004
	Tl-208	583.19	85.00	1.985E+004	1.98E+004	-5.817E+003	9.250E+003
	Bi-212	727.33	6.67	2.276E+005	2.28E+005	-2.183E+005	1.042E+005
	Pb-212	238.63	43.60	4.141E+004	4.14E+004	-5.801E+003	1.989E+004
+	Bi-214	609.32*	45.49	1.793E+004	1.79E+004	4.941E+004	7.679E+003
		1120.29	14.92	1.272E+005		4.570E+004	5.822E+004
		1764.49	15.30	1.066E+005		8.001E+004	4.653E+004
	Pb-214	295.22	18.42	1.039E+005	5.14E+004	6.235E+004	4.980E+004
		351.93	35.60	5.135E+004		-1.109E+004	2.445E+004
	Ra-226	186.21	3.64	5.451E+005	5.45E+005	1.045E+004	2.638E+005
	Ac-228	338.32	11.27	1.520E+005	6.95E+004	-1.031E+005	7.218E+004
		911.20	25.80	6.953E+004		5.489E+003	3.199E+004
		968.97	15.80	1.110E+005		3.654E+004	5.083E+004
	Am-241	59.54	35.90	5.336E+004	5.34E+004	-5.774E+004	2.539E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S               *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004338.CNF

Report Generated On                : 4/5/2018    6:09:24 PM

Sample Title                       : B101100AFSWM047GD
Sample Description                 : UNIT 1 CONTAINMENT 565'
Sample Identification              : 047
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/22/2018   3:19:00 PM
Acquisition Started                : 3/22/2018   3:18:35 PM

Live Time                          :       600.0 seconds
Real Time                          :       600.2 seconds

Dead Time                          :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0318
DR Mihalll

```
*************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T            *****
*************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM047GD
Peak Analysis Performed on: 4/5/2018 6:09:24 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	288-	310	301.42	75.36	1.09	1.98E+002	49.71	1.07E+002
2	951-	960	955.69	238.92	0.61	2.15E+001	22.79	4.75E+001
3	1402-	1413	1407.25	351.81	0.61	1.80E+001	17.77	2.40E+001
4	2431-	2442	2436.82	609.21	1.03	2.60E+001	14.97	1.20E+001
5	2638-	2656	2646.90	661.72	1.53	2.10E+002	33.41	1.96E+001
6	4478-	4491	4484.12	1121.03	0.30	1.99E+001	10.69	3.11E+000
7	4685-	4704	4694.60	1173.65	1.69	1.03E+002	23.50	1.00E+001
8	5322-	5342	5332.21	1333.05	1.96	1.10E+002	21.74	2.48E+000
9	5837-	5855	5846.25	1461.56	1.58	9.17E+001	19.94	2.31E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM047GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	5.85905E+005	1.37186E+005
Co-60	1.000	1173.23*	99.85	6.24717E+004	1.51027E+004
		1332.49*	99.98	7.06925E+004	1.51314E+004
Cs-137	1.000	661.66*	85.10	1.11499E+005	2.21994E+004
Pb-212	1.000	238.63*	43.60	1.30052E+004	1.39469E+004
Bi-214	0.736	609.32*	45.49	2.46976E+004	1.45263E+004
		1120.29*	14.92	7.87395E+004	4.27880E+004
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	1.63381E+004	1.63409E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*****************************************************************************
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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	5.859050E+005	1.371864E+005
Co-60	1.000	6.657434E+004✓	1.068937E+004
Cs-137	1.000	1.114991E+005✓	2.219940E+004
Pb-212	1.000	1.300524E+004	1.394690E+004
Bi-214	0.736	3.028261E+004	1.375526E+004
Pb-214	0.438	1.633807E+004	1.634088E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 6:09:24 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.36	3.2965E-001	25.13		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                 N U C L I D E   M D A   R E P O R T              *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM047GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	7.560E+004	7.56E+004	5.859E+005	2.915E+004
+	Co-60	1173.23*	99.85	1.345E+004	8.00E+003	6.247E+004	5.906E+003
		1332.49*	99.98	8.002E+003		7.069E+004	3.128E+003
	Nb-94	702.65	99.81	1.657E+004	1.66E+004	-3.594E+003	7.654E+003
		871.09	99.89	1.906E+004		1.001E+004	8.830E+003
	Ag-108m	433.90	90.50	1.760E+004	1.76E+004	4.892E+002	8.260E+003
		614.30	89.80	2.154E+004		-5.083E+003	1.012E+004
		722.90	90.80	1.777E+004		-4.036E+003	8.183E+003
	Cs-134	604.72	97.62	1.943E+004	1.94E+004	-8.828E+003	9.118E+003
		795.86	85.46	1.959E+004		2.201E+004	9.014E+003
+	Cs-137	661.66*	85.10	1.589E+004	1.59E+004	1.115E+005	7.226E+003
	Eu-152	121.78	28.67	6.871E+004	6.21E+004	-4.291E+003	3.334E+004
		344.28	26.60	6.213E+004		-7.052E+003	2.944E+004
		1408.01	21.07	7.099E+004		3.360E+004	3.122E+004
	Eu-154	123.07	40.40	4.917E+004	4.17E+004	1.460E+004	2.386E+004
		723.30	20.06	8.046E+004		-1.634E+003	3.705E+004
		1274.43	34.80	4.168E+004		6.800E+003	1.839E+004
	Eu-155	86.55	30.70	6.676E+004	6.68E+004	6.985E+004	3.236E+004
		105.31	21.10	8.865E+004		2.098E+004	4.291E+004
	Tl-208	583.19	85.00	2.027E+004	2.03E+004	-1.339E+003	9.465E+003
	Bi-212	727.33	6.67	2.402E+005	2.40E+005	-8.262E+004	1.105E+005
+	Pb-212	238.63*	43.60	2.236E+004	2.24E+004	1.301E+004	1.036E+004
+	Bi-214	609.32*	45.49	1.969E+004	1.97E+004	2.470E+004	8.562E+003
		1120.29*	14.92	4.909E+004		7.874E+004	1.919E+004
		1764.49	15.30	1.036E+005		2.959E+004	4.505E+004
+	Pb-214	295.22	18.42	9.761E+004	2.58E+004	5.271E+004	4.664E+004
		351.93*	35.60	2.577E+004		1.634E+004	1.166E+004
	Ra-226	186.21	3.64	5.373E+005	5.37E+005	3.831E+005	2.599E+005
	Ac-228	338.32	11.27	1.376E+005	7.02E+004	-1.969E+005	6.502E+004
		911.20	25.80	7.023E+004		1.468E+004	3.234E+004
		968.97	15.80	1.253E+005		1.304E+005	5.796E+004
	Am-241	59.54	35.90	5.905E+004	5.91E+004	1.626E+004	2.823E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
    the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S           *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002703.CNF

Report Generated On	:	4/5/2018 5:31:53 PM
Sample Title	:	B101100AFSWM048GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	048
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	3.140E+000 M^2
Sample Taken On	:	3/23/2018 10:09:00 AM
Acquisition Started	:	3/23/2018 10:10:59 AM
Live Time	:	600.0 seconds
Real Time	:	601.1 seconds
Dead Time	:	0.19 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 1948
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM048GD
Peak Analysis Performed on: 4/5/2018 5:31:53 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	286-	308	301.82	75.46	1.37	1.81E+002	65.40	2.29E+002
2	331-	346	340.31	85.08	0.83	3.67E+001	48.87	1.85E+002
3	2326-	2337	2331.66	582.91	0.80	1.64E+001	13.14	1.06E+001
4	2431-	2446	2438.05	609.51	0.37	2.80E+001	20.11	2.40E+001
5	2637-	2657	2646.86	661.71	2.40	1.89E+002	34.28	2.74E+001
6	4684-	4706	4694.51	1173.63	1.33	9.58E+001	25.53	1.73E+001
7	5323-	5343	5332.40	1333.10	0.40	9.27E+001	23.34	1.23E+001
8	5837-	5856	5846.83	1461.71	1.39	8.53E+001	20.14	4.71E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
****

Sample Title: B101100AFSWM048GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	4.94834E+006	1.24496E+006
Co-60	1.000	1173.23*	99.85	5.24856E+005	1.46121E+005
		1332.49*	99.98	5.42268E+005	1.43207E+005
Cs-137	1.000	661.66*	85.10	9.06856E+005	1.97575E+005
Eu-155	0.337	86.55*	30.70	2.52720E+005	3.40776E+005
		105.31	21.10		
Tl-208	1.000	583.19*	85.00	7.38928E+004	5.98475E+004
Bi-214	0.444	609.32*	45.49	2.41230E+005	1.75693E+005
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	4.948341E+006	1.244963E+006
Co-60	1.000	5.337377E+005✓	1.022773E+005
Cs-137	1.000	9.068558E+005✓	1.975749E+005
Eu-155	0.337	2.527205E+005	3.407761E+005
Tl-208	1.000	7.389276E+004	5.984745E+004
Bi-214	0.444	2.412302E+005	1.756928E+005

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018   5:31:53 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.46	3.0122E-001	36.18		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****              N U C L I D E   M D A   R E P O R T                  *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM048GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	9.233E+005	9.23E+005	4.948E+006	3.831E+005
+	Co-60	1173.23*	99.85	1.627E+005	1.43E+005	5.249E+005	7.393E+004
		1332.49*	99.98	1.426E+005		5.423E+005	6.340E+004
	Nb-94	702.65	99.81	1.373E+005	1.37E+005	-3.881E+004	6.291E+004
		871.09	99.89	1.592E+005		1.466E+005	7.323E+004
	Ag-108m	433.90	90.50	1.600E+005	1.60E+005	-3.834E+004	7.514E+004
		614.30	89.80	1.919E+005		-2.065E+004	9.004E+004
		722.90	90.80	1.661E+005		5.328E+004	7.667E+004
	Cs-134	604.72	97.62	1.978E+005	1.94E+005	-5.268E+004	9.347E+004
		795.86	85.46	1.935E+005		2.890E+004✓	8.968E+004
+	Cs-137	661.66*	85.10	1.753E+005	1.75E+005	9.069E+005	8.114E+004
	Eu-152	121.78	28.67	6.334E+005	5.80E+005	-1.477E+005	3.076E+005
		344.28	26.60	5.798E+005		-8.420E+005	2.752E+005
		1408.01	21.07	8.208E+005		6.714E+005✓	3.716E+005
	Eu-154	123.07	40.40	4.456E+005	4.46E+005	-3.882E+005	2.163E+005
		723.30	20.06	7.449E+005		5.192E+005	3.436E+005
		1274.43	34.80	4.627E+005		1.376E+005✓	2.091E+005
+	Eu-155	86.55*	30.70	5.558E+005	5.56E+005	2.527E+005	2.685E+005
		105.31	21.10	9.192E+005		9.904E+004	4.469E+005
+	Tl-208	583.19*	85.00	8.884E+004	8.88E+004	7.389E+004	3.833E+004
	Bi-212	727.33	6.67	2.203E+006	2.20E+006	-3.459E+005	1.014E+006
	Pb-212	238.63	43.60	3.988E+005	3.99E+005	-2.862E+005	1.920E+005
+	Bi-214	609.32*	45.49	2.657E+005	2.66E+005	2.412E+005	1.212E+005
		1120.29	14.92	1.227E+006		3.352E+005	5.652E+005
		1764.49	15.30	1.023E+006		-2.025E+004	4.497E+005
	Pb-214	295.22	18.42	9.431E+005	4.96E+005	9.090E+005	4.520E+005
		351.93	35.60	4.955E+005		3.461E+005	2.367E+005
	Ra-226	186.21	3.64	4.545E+006	4.54E+006	-5.881E+006	2.194E+006
	Ac-228	338.32	11.27	1.329E+006	7.10E+005	3.393E+004	6.300E+005
		911.20	25.80	7.105E+005		-2.309E+005	3.300E+005
		968.97	15.80	1.216E+006		-3.532E+005	5.657E+005
	Am-241	59.54	35.90	6.595E+005	6.60E+005	2.042E+005	3.181E+005

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002696.CNF

Report Generated On                 : 4/5/2018    5:00:13 PM

Sample Title                        : B101100AFSWM049GD
Sample Description                  : U1 CONTAINMENT - 565
Sample Identification               : 049
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.826E+001 M^2

Sample Taken On                     : 3/23/2018   8:42:00 AM
Acquisition Started                 : 3/23/2018   8:42:28 AM

Live Time                           :       600.0 seconds
Real Time                           :       601.0 seconds

Dead Time                           :   0.17 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 2013
[signature]

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM049GD
Peak Analysis Performed on: 4/5/2018 5:00:12 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	2636-	2661	2647.18	661.80	2.03	2.76E+002	50.12	8.29E+001
2	4680-	4710	4694.35	1173.59	1.86	3.00E+002	53.73	8.69E+001
3	5318-	5347	5332.57	1333.14	2.14	3.03E+002	51.17	7.44E+001
4	5838-	5853	5846.03	1461.51	0.45	4.81E+001	20.21	1.79E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****  N U C L I D E   I D E N T I F I C A T I O N   R E P O R T  *****
*****************************************************************************
```

Sample Title: B101100AFSWM049GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	3.10264E+005	1.33023E+005
Co-60	1.000	1173.23*	99.85	1.82751E+005	3.58440E+004
		1332.49*	99.98	1.96644E+005	3.67856E+004
Cs-137	1.000	661.66*	85.10	1.47537E+005	3.21121E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****

***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****

****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	3.102643E+005	1.330226E+005
Co-60	1.000	1.895172E+005✓	2.567196E+004
Cs-137	1.000	1.475368E+005✓	3.211212E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 5:00:12 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide

All peaks were identified.

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM049GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.732E+005	1.73E+005	3.103E+005	7.790E+004
+	Co-60	1173.23*	99.85	4.280E+004	4.19E+004	1.828E+005	2.058E+004
		1332.49*	99.98	4.187E+004		1.966E+005	2.006E+004
	Nb-94	702.65	99.81	2.164E+004	2.16E+004	-1.056E+003	1.018E+004
		871.09	99.89	2.481E+004		-1.948E+002	1.170E+004
	Ag-108m	433.90	90.50	2.356E+004	2.28E+004	-5.636E+003	1.124E+004
		614.30	89.80	2.705E+004		1.729E+004	1.287E+004
		722.90	90.80	2.277E+004		-3.992E+003	1.068E+004
	Cs-134	604.72	97.62	2.486E+004	2.49E+004	6.451E+003✓	1.183E+004
		795.86	85.46	2.716E+004		2.783E+004	1.279E+004
+	Cs-137	661.66*	85.10	3.443E+004	3.44E+004	1.475E+005	1.649E+004
	Eu-152	121.78	28.67	7.764E+004	7.55E+004	-2.731E+004	3.781E+004
		344.28	26.60	7.550E+004		-5.098E+004	3.612E+004
		1408.01	21.07	7.976E+004		7.332E+004✓	3.557E+004
	Eu-154	123.07	40.40	5.574E+004	4.47E+004	1.016E+004✓	2.715E+004
		723.30	20.06	1.050E+005		2.351E+004	4.929E+004
		1274.43	34.80	4.474E+004		1.376E+004	1.990E+004
	Eu-155	86.55	30.70	8.449E+004	8.45E+004	1.033E+005	4.123E+004
		105.31	21.10	1.036E+005		-2.456E+004	5.036E+004
	Tl-208	583.19	85.00	2.487E+004	2.49E+004	-3.544E+003	1.176E+004
	Bi-212	727.33	6.67	3.293E+005	3.29E+005	1.926E+005	1.550E+005
	Pb-212	238.63	43.60	4.949E+004	4.95E+004	6.604E+004	2.393E+004
	Bi-214	609.32	45.49	5.547E+004	5.55E+004	4.353E+004	2.644E+004
		1120.29	14.92	1.577E+005		6.737E+004	7.349E+004
		1764.49	15.30	1.242E+005		1.114E+005	5.524E+004
	Pb-214	295.22	18.42	1.131E+005	5.96E+004	-5.765E+004	5.436E+004
		351.93	35.60	5.964E+004		3.786E+004	2.859E+004
	Ra-226	186.21	3.64	5.862E+005	5.86E+005	-1.214E+004	2.844E+005
	Ac-228	338.32	11.27	1.786E+005	1.01E+005	-1.536E+005	8.548E+004
		911.20	25.80	1.014E+005		-1.043E+005	4.791E+004
		968.97	15.80	1.765E+005		6.539E+004	8.355E+004
	Am-241	59.54	35.90	9.693E+004	9.69E+004	-5.252E+004	4.717E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
******************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S            *****
******************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002700.CNF

Report Generated On	:	4/5/2018 5:27:48 PM
Sample Title	:	B101100AFSWM050GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	050
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/23/2018 9:30:00 AM
Acquisition Started	:	3/23/2018 9:30:16 AM
Live Time	:	600.0 seconds
Real Time	:	601.2 seconds
Dead Time	:	0.20 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 2026
WR Nichols

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*****************************************************************************
*****           P E A K   A N A L Y S I S   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM050GD
Peak Analysis Performed on: 4/5/2018 5:27:48 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1402-	1414	1408.25	352.06	1.05	1.81E+001	21.93	3.79E+001
2	2636-	2658	2646.96	661.74	1.43	3.43E+002	44.13	3.72E+001
3	4683-	4705	4694.07	1173.52	1.00	1.30E+002	28.89	2.02E+001
4	5322-	5343	5332.44	1333.11	0.76	1.39E+002	26.01	8.12E+000
5	5838-	5855	5845.77	1461.44	0.63	7.85E+001	19.48	5.47E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM050GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	5.06133E+005	1.32998E+005
Co-60	1.000	1173.23*	99.85	7.90337E+004	1.86943E+004
		1332.49*	99.98	9.02385E+004	1.83762E+004
Cs-137	1.000	661.66*	85.10	1.83155E+005	3.22468E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	1.64805E+004	2.01564E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****

***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****

****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	5.061327E+005	1.329984E+005
Co-60	1.000	8.473225E+004✓	1.310497E+004
Cs-137	1.000	1.831548E+005✓	3.224684E+004
Pb-214	0.438	1.648054E+004	2.015642E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 5:27:48 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide

All peaks were identified.

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*****************************************************************************
*****                 N U C L I D E   M D A   R E P O R T               *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM050GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.030E+005	1.03E+005	5.061E+005	4.280E+004
+	Co-60	1173.23*	99.85	1.944E+004	1.35E+004	7.903E+004	8.895E+003
		1332.49*	99.98	1.351E+004		9.024E+004	5.876E+003
	Nb-94	702.65	99.81	1.608E+004	1.51E+004	6.427E+003	7.404E+003
		871.09	99.89	1.513E+004		-3.674E+003	6.861E+003
	Ag-108m	433.90	90.50	1.966E+004	1.91E+004	-2.662E+003	9.287E+003
		614.30	89.80	2.145E+004		3.051E+004	1.007E+004
		722.90	90.80	1.914E+004		6.791E+003	8.860E+003
	Cs-134	604.72	97.62	1.922E+004	1.92E+004	3.463E+003✓	9.009E+003
		795.86	85.46	2.075E+004		1.823E+004	9.588E+003
+	Cs-137	661.66*	85.10	2.255E+004	2.26E+004	1.832E+005	1.055E+004
	Eu-152	121.78	28.67	7.002E+004	6.39E+004	3.370E+004✓	3.400E+004
		344.28	26.60	6.391E+004		-2.080E+004	3.032E+004
		1408.01	21.07	8.986E+004		7.082E+004	4.062E+004
	Eu-154	123.07	40.40	4.868E+004	3.99E+004	8.953E+003✓	2.362E+004
		723.30	20.06	8.511E+004		-6.247E+003	3.935E+004
		1274.43	34.80	3.992E+004		3.326E+003	1.749E+004
	Eu-155	86.55	30.70	6.838E+004	6.84E+004	5.532E+003	3.317E+004
		105.31	21.10	9.130E+004		-3.694E+004	4.424E+004
	Tl-208	583.19	85.00	1.924E+004	1.92E+004	1.039E+004	8.944E+003
	Bi-212	727.33	6.67	2.520E+005	2.52E+005	6.720E+004	1.163E+005
	Pb-212	238.63	43.60	4.412E+004	4.41E+004	9.961E+003	2.124E+004
	Bi-214	609.32	45.49	4.365E+004	4.36E+004	3.827E+004	2.053E+004
		1120.29	14.92	1.404E+005		3.998E+004	6.481E+004
		1764.49	15.30	1.049E+005		4.539E+004	4.561E+004
+	Pb-214	295.22	18.42	1.008E+005	3.28E+004	8.850E+004	4.824E+004
		351.93*	35.60	3.276E+004		1.648E+004	1.515E+004
	Ra-226	186.21	3.64	5.095E+005	5.10E+005	-3.318E+005	2.461E+005
	Ac-228	338.32	11.27	1.583E+005	7.50E+004	-2.541E+004	7.532E+004
		911.20	25.80	7.504E+004		7.813E+004	3.472E+004
		968.97	15.80	1.287E+005		-3.288E+004	5.963E+004
	Am-241	59.54	35.90	6.877E+004	6.88E+004	3.126E+004	3.309E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S           *****
*****************************************************************************
```

ilename: C:\GENIE2K\CAMFILES\00004302.CNF

Report Generated On	:	4/5/2018 3:25:18 PM
Sample Title	:	B101100AFSWM051GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	051
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/21/2018 1:16:00 PM
Acquisition Started	:	3/21/2018 1:20:59 PM
Live Time	:	600.0 seconds
Real Time	:	600.6 seconds
Dead Time	:	0.10 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/6/18 0338
WR Michalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM051GD
Peak Analysis Performed on: 4/5/2018 3:25:18 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	126-	135	129.54	32.39	0.25	2.48E+001	75.40	6.15E+002
2	297-	307	301.41	75.35	0.64	7.89E+001	51.24	2.40E+002
3	2436-	2448	2442.07	610.52	0.82	4.13E+001	18.75	1.77E+001
4	2641-	2662	2651.30	662.83	1.28	6.61E+002	54.47	2.17E+001
5	4690-	4711	4702.15	1175.54	1.59	1.60E+002	29.60	1.58E+001
6	5330-	5350	5340.99	1335.25	1.76	1.53E+002	26.98	7.92E+000
7	5847-	5865	5855.98	1463.99	0.73	8.53E+001	20.14	4.75E+000
8	7064-	7079	7071.90	1767.97	0.49	1.80E+001	9.87	2.03E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM051GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.984	1460.82*	10.66	5.45287E+005	1.37223E+005
Co-60	0.990	1173.23*	99.85	9.72628E+004	1.95778E+004
		1332.49*	99.98	9.88983E+004	1.91426E+004
Cs-137	0.998	661.66*	85.10	3.50761E+005	5.10509E+004
Bi-214	0.702	609.32*	45.49	3.92475E+004	1.84419E+004
		1120.29	14.92		
		1764.49*	15.30	8.99869E+004	4.99110E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.984	5.452873E+005	1.372227E+005
Co-60	0.990	9.809892E+004✓	1.368714E+004
Cs-137	0.998	3.507605E+005✓	5.105089E+004
Bi-214	0.702	4.534262E+004	1.729880E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 3:25:18 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.39	4.1253E-002	304.64		
2	75.35	1.3157E-001	64.91		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM051GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.018E+005	1.02E+005	5.453E+005	4.223E+004
+	Co-60	1173.23*	99.85	1.695E+004	1.32E+004	9.726E+004	7.653E+003
		1332.49*	99.98	1.318E+004		9.890E+004	5.714E+003
	Nb-94	702.65	99.81	1.529E+004	1.53E+004	-7.694E+003	7.015E+003
		871.09	99.89	1.562E+004		-2.432E+004	7.109E+003
	Ag-108m	433.90	90.50	2.307E+004	1.90E+004	3.026E+004	1.100E+004
		614.30	89.80	2.489E+004		2.459E+004	1.179E+004
		722.90	90.80	1.897E+004		-3.317E+003	8.784E+003
	Cs-134	604.72	97.62	2.077E+004	2.04E+004	-1.725E+004	9.786E+003
		795.86	85.46	2.038E+004		1.242E+004✓	9.407E+003
+	Cs-137	661.66*	85.10	1.709E+004	1.71E+004	3.508E+005	7.829E+003
	Eu-152	121.78	28.67	9.002E+004	7.44E+004	7.201E+004✓	4.399E+004
		344.28	26.60	8.346E+004		5.819E+004	4.010E+004
		1408.01	21.07	7.437E+004		3.428E+004	3.290E+004
	Eu-154	123.07	40.40	6.260E+004	4.87E+004	1.217E+004✓	3.058E+004
		723.30	20.06	8.664E+004		-2.877E+004	4.014E+004
		1274.43	34.80	4.874E+004		3.539E+004	2.192E+004
	Eu-155	86.55	30.70	9.336E+004	9.34E+004	9.103E+004	4.566E+004
		105.31	21.10	1.188E+005		5.519E+004	5.797E+004
	Tl-208	583.19	85.00	2.229E+004	2.23E+004	1.931E+004	1.047E+004
	Bi-212	727.33	6.67	2.474E+005	2.47E+005	-3.246E+004	1.141E+005
	Pb-212	238.63	43.60	5.775E+004	5.77E+004	4.860E+004	2.806E+004
+	Bi-214	609.32*	45.49	2.393E+004	2.39E+004	3.925E+004	1.068E+004
		1120.29	14.92	1.533E+005		-4.584E+003	7.131E+004
		1764.49*	15.30	5.507E+004		8.999E+004	2.076E+004
	Pb-214	295.22	18.42	1.285E+005	6.37E+004	1.560E+004	6.206E+004
		351.93	35.60	6.367E+004		-3.158E+003	3.061E+004
	Ra-226	186.21	3.64	6.798E+005	6.80E+005	-2.281E+005	3.312E+005
	Ac-228	338.32	11.27	1.901E+005	7.43E+004	2.301E+003	9.125E+004
		911.20	25.80	7.432E+004		-2.697E+004	3.439E+004
		968.97	15.80	1.359E+005		6.453E+004	6.329E+004
	Am-241	59.54	35.90	1.325E+005	1.32E+005	-5.367E+004	6.494E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

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*****************************************************************************
*****     G A M M A   S P E C T R U M   A N A L Y S I S                *****
*****************************************************************************
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Filename: C:\GENIE2K\CAMFILES\00002679.CNF

Report Generated On	:	4/5/2018 10:07:00 AM
Sample Title	:	B101100AFSWM052GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	052
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/22/2018 12:32:00 PM
Acquisition Started	:	3/22/2018 12:32:41 PM
Live Time	:	600.0 seconds
Real Time	:	601.2 seconds
Dead Time	:	0.20 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 1630
WR Mihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM052GD
Peak Analysis Performed on: 4/5/2018 10:07:00 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	295-	309	301.04	75.26	1.16	1.12E+002	46.53	1.48E+002
2	333-	345	340.08	85.02	0.46	4.17E+001	37.12	1.15E+002
3	2632-	2660	2646.60	661.65	1.72	7.99E+002	62.74	3.99E+001
4	4680-	4704	4694.10	1173.52	2.07	2.33E+002	38.37	3.20E+001
5	5320-	5343	5331.25	1332.81	1.42	2.45E+002	35.77	1.84E+001
6	5836-	5851	5844.03	1461.01	0.61	4.02E+001	18.83	1.58E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*****************************************************************************
```

Sample Title: B101100AFSWM052GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	2.58816E+005	1.23390E+005
Co-60	1.000	1173.23*	99.85	1.41853E+005	2.59651E+004
		1332.49*	99.98	1.59393E+005	2.65735E+004
Cs-137	1.000	661.66*	85.10	4.26516E+005	6.11970E+004
Eu-155	0.332	86.55*	30.70	3.18355E+004	2.90598E+004
		105.31	21.10		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	2.588159E+005	1.233903E+005
Co-60	1.000	1.504195E+005	1.857146E+004
Cs-137	1.000	4.265159E+005	6.119696E+004
Eu-155	0.332	3.183551E+004	2.905981E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 10:07:00 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.26	1.8715E-001	41.44		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM052GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.650E+005	1.65E+005	2.588E+005	7.379E+004
+	Co-60	1173.23*	99.85	2.491E+004	2.04E+004	1.419E+005	1.163E+004
		1332.49*	99.98	2.038E+004		1.594E+005	9.307E+003
	Nb-94	702.65	99.81	1.686E+004	1.69E+004	6.416E+003	7.794E+003
		871.09	99.89	1.789E+004		-8.961E+003	8.238E+003
	Ag-108m	433.90	90.50	2.469E+004	2.01E+004	1.180E+004	1.180E+004
		614.30	89.80	2.572E+004		1.061E+004	1.220E+004
		722.90	90.80	2.011E+004		1.057E+004	9.348E+003
	Cs-134	604.72	97.62	2.487E+004	2.28E+004	3.052E+004✓	1.183E+004
		795.86	85.46	2.277E+004		1.191E+004	1.060E+004
+	Cs-137	661.66*	85.10	2.533E+004	2.53E+004	4.265E+005	1.194E+004
	Eu-152	121.78	28.67	6.680E+004	6.68E+004	-3.404E+004	3.239E+004
		344.28	26.60	7.153E+004		-9.037E+004	3.413E+004
		1408.01	21.07	8.434E+004		3.271E+004✓	3.785E+004
	Eu-154	123.07	40.40	4.813E+004	3.89E+004	1.105E+004✓	2.335E+004
		723.30	20.06	8.814E+004		-5.572E+004	4.087E+004
		1274.43	34.80	3.893E+004		1.370E+003	1.699E+004
+	Eu-155	86.55*	30.70	4.580E+004	4.58E+004	3.184E+004	2.186E+004
		105.31	21.10	8.494E+004		-5.914E+004	4.109E+004
	Tl-208	583.19	85.00	2.322E+004	2.32E+004	-7.014E+003	1.093E+004
	Bi-212	727.33	6.67	2.725E+005	2.72E+005	-5.943E+004	1.266E+005
	Pb-212	238.63	43.60	5.116E+004	5.12E+004	-4.166E+004	2.476E+004
	Bi-214	609.32	45.49	5.397E+004	5.40E+004	5.967E+004	2.569E+004
		1120.29	14.92	1.375E+005		3.679E+004	6.339E+004
		1764.49	15.30	8.802E+004		5.053E+004	3.717E+004
	Pb-214	295.22	18.42	1.128E+005	6.13E+004	-3.247E+002	5.423E+004
		351.93	35.60	6.127E+004		-1.596E+003	2.940E+004
	Ra-226	186.21	3.64	5.791E+005	5.79E+005	1.950E+005	2.808E+005
	Ac-228	338.32	11.27	1.756E+005	8.89E+004	9.442E+004	8.399E+004
		911.20	25.80	8.891E+004		5.719E+004	4.166E+004
		968.97	15.80	1.411E+005		5.949E+004	6.583E+004
	Am-241	59.54	35.90	6.454E+004	6.45E+004	-2.586E+003	3.098E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
***********************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S       *****
***********************************************************************

Filename: C:\GENIE2K\CAMFILES\00002680.CNF

Report Generated On                 : 4/5/2018   10:17:08 AM

Sample Title                        : B101100AFSWM053GD
Sample Description                  : U1 CONTAINMENT - 565
Sample Identification               : 053
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.826E+001 M^2

Sample Taken On                     : 3/22/2018  12:47:00 PM
Acquisition Started                 : 3/22/2018  12:47:50 PM

Live Time                           :      600.0 seconds
Real Time                           :      601.2 seconds

Dead Time                           :   0.20 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 1636
WR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM053GD
Peak Analysis Performed on: 4/5/2018 10:17:08 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	309	301.64	75.41	1.16	6.09E+001	40.10	1.21E+002
2	336-	347	341.08	85.27	1.10	2.95E+001	34.00	1.02E+002
3	700-	710	705.58	176.39	0.43	1.43E+001	26.48	6.67E+001
4	2430-	2443	2435.76	608.94	0.79	3.59E+001	17.62	1.51E+001
5	2636-	2657	2646.35	661.59	1.20	1.99E+002	37.45	3.95E+001
6	4684-	4704	4693.93	1173.48	1.66	1.02E+002	25.39	1.60E+001
7	5322-	5340	5331.61	1332.90	1.31	9.99E+001	25.70	1.91E+001
8	5837-	5853	5845.85	1461.46	1.83	6.87E+001	18.79	6.29E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM053GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	4.42864E+005	1.27070E+005
Co-60	1.000	1173.23*	99.85	6.21071E+004	1.62415E+004
		1332.49*	99.98	6.48739E+004	1.74844E+004
Cs-137	1.000	661.66*	85.10	1.06078E+005	2.37194E+004
Eu-155	0.337	86.55*	30.70	2.25389E+004	2.63772E+004
		105.31	21.10		
Bi-214	0.444	609.32*	45.49	3.43037E+004	1.73511E+004
		1120.29	14.92		
		1764.49	15.30		
Ra-226	0.857	186.21*	3.64	9.05576E+004	1.67897E+005

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	4.428636E+005	1.270705E+005
Co-60	1.000	6.338867E+004✓	1.189964E+004
Cs-137	1.000	1.060776E+005✓	2.371936E+004
Eu-155	0.337	2.253888E+004	2.637722E+004
Bi-214	0.444	3.430369E+004	1.735109E+004
Ra-226	0.857	9.055761E+004	1.678970E+005

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 10:17:08 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.41	1.0142E-001	65.90		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

***** N U C L I D E M D A R E P O R T *****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM053GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.112E+005	1.11E+005	4.429E+005	4.689E+004
+	Co-60	1173.23*	99.85	1.706E+004	1.71E+004	6.211E+004	7.707E+003
		1332.49*	99.98	1.902E+004		6.487E+004	8.633E+003
	Nb-94	702.65	99.81	1.559E+004	1.56E+004	-8.665E+003	7.159E+003
		871.09	99.89	1.675E+004		1.036E+004	7.671E+003
	Ag-108m	433.90	90.50	1.736E+004	1.74E+004	-2.289E+004	8.137E+003
		614.30	89.80	2.317E+004		-8.757E+003	1.092E+004
		722.90	90.80	1.863E+004		8.757E+003	8.606E+003
	Cs-134	604.72	97.62	2.145E+004	1.92E+004	-6.575E+003	1.013E+004
		795.86	85.46	1.915E+004		4.326E+003 ✓	8.788E+003
+	Cs-137	661.66*	85.10	2.312E+004	2.31E+004	1.061E+005	1.084E+004
	Eu-152	121.78	28.67	6.500E+004	6.50E+004	-1.237E+004	3.149E+004
		344.28	26.60	6.595E+004		-6.864E+004	3.134E+004
		1408.01	21.07	7.496E+004		3.885E+004 ✓	3.316E+004
	Eu-154	123.07	40.40	4.662E+004	3.89E+004	2.503E+003 ✓	2.259E+004
		723.30	20.06	8.511E+004		4.115E+004	3.935E+004
		1274.43	34.80	3.888E+004		1.596E+004	1.697E+004
+	Eu-155	86.55*	30.70	4.258E+004	4.26E+004	2.254E+004	2.026E+004
		105.31	21.10	8.748E+004		7.316E+003	4.232E+004
	Tl-208	583.19	85.00	2.098E+004	2.10E+004	2.309E+002	9.812E+003
	Bi-212	727.33	6.67	2.447E+005	2.45E+005	1.270E+005	1.127E+005
	Pb-212	238.63	43.60	4.298E+004	4.30E+004	2.829E+004	2.067E+004
+	Bi-214	609.32*	45.49	2.292E+004	2.29E+004	3.430E+004	1.017E+004
		1120.29	14.92	1.417E+005		-1.092E+005	6.547E+004
		1764.49	15.30	1.267E+005		1.164E+005	5.648E+004
	Pb-214	295.22	18.42	9.363E+004	4.83E+004	9.353E+004	4.464E+004
		351.93	35.60	4.831E+004		-3.776E+002	2.292E+004
+	Ra-226	186.21*	3.64	2.806E+005	2.81E+005	9.056E+004	1.318E+005
	Ac-228	338.32	11.27	1.507E+005	7.44E+004	-1.250E+005	7.152E+004
		911.20	25.80	7.437E+004		4.403E+003	3.439E+004
		968.97	15.80	1.253E+005		6.778E+004	5.795E+004
	Am-241	59.54	35.90	5.366E+004	5.37E+004	-1.232E+004	2.553E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S          *****
*************************************************************************

ilename: C:\GENIE2K\CAMFILES\00004303.CNF

Report Generated On                : 4/5/2018    3:26:30 PM

Sample Title                       : B101100AFSWM054GD
Sample Description                 : U1 Containment 565'
Sample Identification              : 054
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/21/2018   1:36:00 PM
Acquisition Started                : 3/21/2018   1:36:09 PM

Live Time                          :       600.0 seconds
Real Time                          :       600.3 seconds

Dead Time                          :   0.04 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0348
WR Mihalik

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM054GD
Peak Analysis Performed on: 4/5/2018 3:26:29 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	122-	136	129.03	32.26	0.87	7.39E+001	31.26	5.91E+001
2	152-	166	160.42	40.10	0.87	4.26E+001	31.16	6.94E+001
3	297-	306	301.61	75.40	0.86	4.39E+001	34.92	1.13E+002
4	1375-	1385	1380.30	345.08	0.36	1.30E+001	18.39	2.90E+001
5	2437-	2448	2442.07	610.52	0.33	2.70E+001	15.81	1.40E+001
6	2640-	2661	2651.31	662.83	1.40	5.50E+002	51.09	2.75E+001
7	4692-	4712	4702.22	1175.56	1.51	1.21E+002	25.98	1.32E+001
8	5332-	5351	5341.42	1335.35	1.80	1.16E+002	25.40	1.27E+001
9	5637-	5650	5643.90	1410.97	0.56	1.40E+001	7.48	0.00E+000
10	5847-	5865	5855.61	1463.90	1.35	9.85E+001	21.88	6.49E+000
11	7067-	7082	7074.20	1768.55	0.67	2.20E+001	9.38	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T    *****
****************************************************************************
```

Sample Title: B101100AFSWM054GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.985	1460.82*	10.66	6.30106E+005	1.50245E+005
Co-60	0.989	1173.23*	99.85	7.33454E+004	1.68272E+004
		1332.49*	99.98	7.51683E+004	1.74752E+004
Cs-137	0.998	661.66*	85.10	2.91462E+005	4.42408E+004
Bi-214	0.701	609.32*	45.49	2.56992E+004	1.53451E+004
		1120.29	14.92		
		1764.49*	15.30	1.10158E+005	4.77930E+004
Pb-214	0.389	295.22	18.42		
		351.93*	35.60	1.17180E+004	1.66331E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T  *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.985	6.301056E+005	1.502447E+005
Co-60	0.989	7.422245E+004✓	1.212125E+004
Cs-137	0.998	2.914616E+005✓	4.424078E+004
Bi-214	0.701	3.359226E+004	1.461048E+004
Pb-214	0.389	1.171800E+004	1.663308E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 3:26:29 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.26	1.2319E-001	42.30		
2	40.10	7.0919E-002	73.22		
3	75.40	7.3158E-002	79.56		
9	1410.97	2.3333E-002	53.45		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM054GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.141E+005	1.14E+005	6.301E+005	4.837E+004
+	Co-60	1173.23*	99.85	1.547E+004	1.55E+004	7.335E+004	6.913E+003
		1332.49*	99.98	1.599E+004		7.517E+004	7.121E+003
	Nb-94	702.65	99.81	1.407E+004	1.41E+004	-7.501E+003	6.404E+003
		871.09	99.89	1.856E+004		-1.334E+003	8.581E+003
	Ag-108m	433.90	90.50	2.075E+004	1.90E+004	-1.804E+004	9.834E+003
		614.30	89.80	2.091E+004		5.663E+003	9.801E+003
		722.90	90.80	1.897E+004		2.698E+003	8.784E+003
	Cs-134	604.72	97.62	2.000E+004	1.98E+004	-1.322E+004	9.402E+003
		795.86	85.46	1.979E+004		5.538E+003✓	9.114E+003
+	Cs-137	661.66*	85.10	1.914E+004	1.91E+004	2.915E+005	8.851E+003
	Eu-152	121.78	28.67	6.704E+004	6.70E+004	-5.122E+003	3.250E+004
		344.28	26.60	7.146E+004		5.433E+004✓	3.411E+004
		1408.01	21.07	7.758E+004		4.845E+004	3.451E+004
	Eu-154	123.07	40.40	4.858E+004	4.26E+004	3.622E+004✓	2.357E+004
		723.30	20.06	8.514E+004		2.003E+004	3.939E+004
		1274.43	34.80	4.264E+004		-2.221E+003	1.886E+004
	Eu-155	86.55	30.70	6.560E+004	6.56E+004	5.313E+004	3.178E+004
		105.31	21.10	9.404E+004		7.051E+004	4.560E+004
	Tl-208	583.19	85.00	1.999E+004	2.00E+004	1.389E+004	9.322E+003
	Bi-212	727.33	6.67	2.451E+005	2.45E+005	1.451E+005	1.129E+005
	Pb-212	238.63	43.60	4.475E+004	4.48E+004	1.814E+004	2.156E+004
+	Bi-214	609.32*	45.49	2.120E+004	1.35E+004	2.570E+004	9.312E+003
		1120.29	14.92	1.533E+005		5.091E+004	7.131E+004
		1764.49*	15.30	1.355E+004		1.102E+005	0.000E+000
+	Pb-214	295.22	18.42	1.011E+005	2.74E+004	4.000E+002	4.839E+004
		351.93*	35.60	2.743E+004		1.172E+004	1.250E+004
	Ra-226	186.21	3.64	5.356E+005	5.36E+005	2.446E+005	2.591E+005
	Ac-228	338.32	11.27	1.514E+005	8.24E+004	5.899E+004	7.188E+004
		911.20	25.80	8.244E+004		8.968E+004	3.845E+004
		968.97	15.80	1.196E+005		1.090E+004	5.510E+004
	Am-241	59.54	35.90	5.957E+004	5.96E+004	3.646E+004	2.850E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S             *****
*****************************************************************************

 ilename: C:\GENIE2K\CAMFILES\00004304.CNF

Report Generated On                : 4/5/2018    3:27:16 PM

Sample Title                       : B101100AFSWM055GD
Sample Description                 : U1 Containment 565'
Sample Identification              : 055
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/21/2018   1:46:00 PM
Acquisition Started                : 3/21/2018   1:55:02 PM

Live Time                          :       600.0 seconds
Real Time                          :       600.2 seconds

Dead Time                          :   0.04 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0443
WR Mihalik

```
******************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                  *****
******************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM055GD
Peak Analysis Performed on: 4/5/2018 3:27:16 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	125-	135	129.69	32.42	0.75	4.65E+001	25.91	5.05E+001
2	287-	308	301.84	75.46	0.93	1.41E+002	54.73	1.62E+002
3	799-	808	803.81	200.95	0.60	1.64E+001	25.34	6.36E+001
4	2435-	2450	2442.17	610.54	0.29	3.48E+001	20.25	2.22E+001
5	2640-	2661	2651.56	662.89	1.54	4.38E+002	46.12	2.49E+001
6	4693-	4712	4702.33	1175.58	1.32	1.51E+002	28.45	1.47E+001
7	5330-	5351	5341.33	1335.33	1.81	1.71E+002	27.83	5.74E+000
8	5847-	5867	5856.25	1464.06	1.42	1.07E+002	20.69	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM055GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.983	1460.82*	10.66	6.84427E+005	1.45066E+005
Co-60	0.989	1173.23*	99.85	9.18357E+004	1.87681E+004
		1332.49*	99.98	1.10651E+005	2.00425E+004
Cs-137	0.998	661.66*	85.10	2.32388E+005	3.70932E+004
Bi-214	0.442	609.32*	45.49	3.30759E+004	1.96624E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.983	6.844270E+005	1.450657E+005
Co-60	0.989	1.006260E+005✓	1.369947E+004
Cs-137	0.998	2.323879E+005✓	3.709320E+004
Bi-214	0.442	3.307590E+004	1.966236E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 3:27:16 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.42	7.7418E-002	55.78		
2	75.46	2.3513E-001	38.79		
3	200.95	2.7333E-002	154.49		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*********************************************************************************
*****                    N U C L I D E   M D A   R E P O R T              *****
*********************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM055GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.731E+004	1.73E+004	6.844E+005	0.000E+000
+	Co-60	1173.23*	99.85	1.592E+004	1.18E+004	9.184E+004	7.136E+003
		1332.49*	99.98	1.181E+004		1.107E+005	5.029E+003
	Nb-94	702.65	99.81	1.495E+004	1.50E+004	6.997E+003	6.846E+003
		871.09	99.89	1.697E+004		-2.890E+003	7.788E+003
	Ag-108m	433.90	90.50	2.101E+004	1.95E+004	-9.451E+003	9.965E+003
		614.30	89.80	2.435E+004		3.226E+004	1.152E+004
		722.90	90.80	1.946E+004		3.869E+003	9.029E+003
	Cs-134	604.72	97.62	2.033E+004	2.03E+004	1.567E+003	9.568E+003
		795.86	85.46	2.238E+004		1.022E+004	1.041E+004
+	Cs-137	661.66*	85.10	1.832E+004	1.83E+004	2.324E+005	8.443E+003
	Eu-152	121.78	28.67	6.590E+004	6.59E+004	2.606E+003✓	3.193E+004
		344.28	26.60	6.984E+004		8.407E+003	3.330E+004
		1408.01	21.07	8.065E+004		2.609E+004	3.605E+004
	Eu-154	123.07	40.40	4.766E+004	3.41E+004	-5.572E+003	2.311E+004
		723.30	20.06	8.884E+004		4.051E+004✓	4.124E+004
		1274.43	34.80	3.413E+004		-1.877E+004	1.461E+004
	Eu-155	86.55	30.70	6.472E+004	6.47E+004	6.736E+004	3.134E+004
		105.31	21.10	8.767E+004		-1.124E+004	4.242E+004
	Tl-208	583.19	85.00	2.190E+004	2.19E+004	2.158E+004	1.028E+004
	Bi-212	727.33	6.67	2.451E+005	2.45E+005	1.488E+004	1.129E+005
	Pb-212	238.63	43.60	4.646E+004	4.65E+004	3.936E+004	2.241E+004
+	Bi-214	609.32*	45.49	2.832E+004	2.83E+004	3.308E+004	1.287E+004
		1120.29	14.92	1.485E+005		1.327E+005	6.889E+004
		1764.49	15.30	1.251E+005		1.150E+005	5.579E+004
	Pb-214	295.22	18.42	9.790E+004	5.31E+004	-9.804E+004	4.679E+004
		351.93	35.60	5.314E+004		1.314E+004	2.534E+004
	Ra-226	186.21	3.64	5.451E+005	5.45E+005	-8.183E+004	2.638E+005
	Ac-228	338.32	11.27	1.661E+005	6.88E+004	3.309E+004	7.923E+004
		911.20	25.80	6.881E+004		3.177E+004	3.163E+004
		968.97	15.80	1.318E+005		3.455E+003	6.121E+004
	Am-241	59.54	35.90	5.489E+004	5.49E+004	3.260E+003	2.615E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
  the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S           *****
*************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002692.CNF

Report Generated On	:	4/5/2018 12:29:22 PM
Sample Title	:	B101100AFSWM056GD
Sample Description	:	U1 CONTAINMENT565' El.
Sample Identification	:	056
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/22/2018 12:18:00 PM
Acquisition Started	:	3/22/2018 12:17:53 PM
Live Time	:	600.0 seconds
Real Time	:	601.0 seconds
Dead Time	:	0.17 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 1642
D R Michaels

****
*****   P E A K   A N A L Y S I S   R E P O R T   *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM056GD
Peak Analysis Performed on: 4/5/2018 12:29:21 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	307	301.68	75.42	0.53	4.33E+001	38.83	1.26E+002
2	950-	959	954.92	238.73	0.36	2.34E+001	21.88	4.26E+001
3	991-	1000	995.55	248.89	0.56	1.18E+000	19.20	3.98E+001
4	2431-	2444	2436.95	609.24	0.39	3.66E+001	20.13	2.34E+001
5	2635-	2655	2646.48	661.62	1.49	1.19E+002	27.75	2.03E+001
6	4685-	4704	4694.29	1173.57	1.66	8.30E+001	23.83	1.70E+001
7	5320-	5342	5330.78	1332.69	2.45	1.09E+002	23.93	8.68E+000
8	5835-	5856	5845.44	1461.36	2.18	9.10E+001	22.00	7.97E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM056GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.86701E+005	1.50652E+005
Co-60	1.000	1173.23*	99.85	5.05795E+004	1.50664E+004
		1332.49*	99.98	7.10180E+004	1.65544E+004
Cs-137	1.000	661.66*	85.10	6.34073E+004	1.66667E+004
Pb-212	1.000	238.63*	43.60	1.41709E+004	1.34584E+004
Bi-214	0.444	609.32*	45.49	3.50435E+004	1.97191E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** INTERFERENCE CORRECTED REPORT *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.867009E+005	1.506519E+005
Co-60	1.000	5.983907E+004✓	1.114255E+004
Cs-137	1.000	6.340732E+004✓	1.666668E+004
Pb-212	1.000	1.417093E+004	1.345842E+004
Bi-214	0.444	3.504346E+004	1.971906E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 4/5/2018 12:29:21 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.42	7.2212E-002	89.62		
3	248.89	1.9715E-003	1622.97		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*********************************************************************************
*****            N U C L I D E   M D A   R E P O R T                        *****
*********************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM056GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.335E+005	1.33E+005	5.867E+005	5.801E+004
+	Co-60	1173.23*	99.85	1.703E+004	1.42E+004	5.058E+004	7.689E+003
		1332.49*	99.98	1.420E+004		7.102E+004	6.222E+003
	Nb-94	702.65	99.81	1.473E+004	1.47E+004	-1.208E+004	6.730E+003
		871.09	99.89	1.907E+004		2.632E+002	8.830E+003
	Ag-108m	433.90	90.50	1.714E+004	1.71E+004	-1.536E+003	8.029E+003
		614.30	89.80	2.269E+004		-1.001E+004	1.069E+004
		722.90	90.80	1.863E+004		-2.140E+003	8.606E+003
	Cs-134	604.72	97.62	2.218E+004	2.08E+004	-2.222E+004	1.049E+004
		795.86	85.46	2.075E+004		5.753E+003✓	9.588E+003
+	Cs-137	661.66*	85.10	1.655E+004	1.65E+004	6.341E+004	7.551E+003
	Eu-152	121.78	28.67	6.568E+004	5.90E+004	2.877E+004✓	3.182E+004
		344.28	26.60	5.905E+004		-4.602E+004	2.789E+004
		1408.01	21.07	7.155E+004		5.738E+004	3.146E+004
	Eu-154	123.07	40.40	4.621E+004	4.47E+004	-1.657E+004	2.239E+004
		723.30	20.06	8.355E+004		-5.547E+004	3.857E+004
		1274.43	34.80	4.474E+004	0.00E+0✓	-2.425E+003	1.990E+004
	Eu-155	86.55	30.70	6.287E+004	6.29E+004	4.917E+004	3.042E+004
		105.31	21.10	8.435E+004		3.776E+004	4.076E+004
	Tl-208	583.19	85.00	2.112E+004	2.11E+004	7.153E+003	9.880E+003
	Bi-212	727.33	6.67	2.613E+005	2.61E+005	-7.985E+003	1.210E+005
+	Pb-212	238.63*	43.60	2.121E+004	2.12E+004	1.417E+004	9.785E+003
+	Bi-214	609.32*	45.49	2.791E+004	2.79E+004	3.504E+004	1.266E+004
		1120.29	14.92	1.493E+005		1.034E+005	6.929E+004
		1764.49	15.30	1.136E+005		5.252E+004	4.996E+004
	Pb-214	295.22	18.42	9.487E+004	5.02E+004	-1.826E+004	4.526E+004
		351.93	35.60	5.023E+004		5.971E+004	2.388E+004
	Ra-226	186.21	3.64	4.834E+005	4.83E+005	9.656E+004	2.330E+005
	Ac-228	338.32	11.27	1.368E+005	8.08E+004	-3.074E+004	6.457E+004
		911.20	25.80	8.081E+004		3.936E+004	3.761E+004
		968.97	15.80	1.372E+005		-1.851E+004	6.390E+004
	Am-241	59.54	35.90	5.386E+004	5.39E+004	-2.445E+004	2.563E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002681.CNF

Report Generated On                  : 4/5/2018   10:43:59 AM

Sample Title                         : B101100AFSWM057GD
Sample Description                   : U1 CONTAINMENT - 565
Sample Identification                : 057
Sample Type                          : GAMMA DIRECT
Sample Geometry                      :

Peak Locate Threshold                :  3.00
Peak Locate Range (in channels)      :    85 -  8192
Peak Area Range (in channels)        :    85 -  8192
Identification Energy Tolerance      :   10.000 keV

Sample Size                          :  2.826E+001 M^2

Sample Taken On                      : 3/22/2018   1:05:00 PM
Acquisition Started                  : 3/22/2018   1:04:36 PM

Live Time                            :       600.0 seconds
Real Time                            :       601.1 seconds

Dead Time                            :   0.19 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 1650
WRMihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                  *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM057GD
Peak Analysis Performed on: 4/5/2018 10:43:59 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	311	300.98	75.24	1.00	7.43E+001	43.70	1.32E+002
2	2637-	2654	2646.54	661.63	1.31	9.03E+001	28.27	3.37E+001
3	4683-	4704	4693.87	1173.47	1.27	8.45E+001	24.20	1.65E+001
4	5323-	5339	5330.70	1332.68	1.44	7.28E+001	18.55	4.25E+000
5	5836-	5856	5845.53	1461.38	1.29	9.43E+001	23.27	1.17E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*************************************************************************
```

Sample Title: B101100AFSWM057GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.08091E+005	1.58980E+005
Co-60	1.000	1173.23*	99.85	5.14342E+004	1.52940E+004
		1332.49*	99.98	4.74105E+004	1.26730E+004
Cs-137	1.000	661.66*	85.10	4.82020E+004	1.61624E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** INTERFERENCE CORRECTED REPORT *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.080905E+005	1.589803E+005
Co-60	1.000	4.904856E+004✓	9.758206E+003
Cs-137	1.000	4.820199E+004✓	1.616238E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 4/5/2018 10:43:59 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.24	1.2379E-001	58.84		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****              N U C L I D E   M D A   R E P O R T                  *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM057GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.532E+005	1.53E+005	6.081E+005	6.787E+004
+	Co-60	1173.23*	99.85	1.740E+004	9.59E+003	5.143E+004	7.878E+003
		1332.49*	99.98	9.589E+003		4.741E+004	3.913E+003
	Nb-94	702.65	99.81	1.670E+004	1.67E+004	5.513E+003	7.718E+003
		871.09	99.89	1.697E+004		-1.449E+004	7.778E+003
	Ag-108m	433.90	90.50	1.653E+004	1.65E+004	-5.683E+003	7.719E+003
		614.30	89.80	2.364E+004		1.206E+004	1.116E+004
		722.90	90.80	1.963E+004		1.534E+004	9.107E+003
	Cs-134	604.72	97.62	2.093E+004	1.83E+004	1.020E+004	9.863E+003
		795.86	85.46	1.831E+004		2.748E+003	8.365E+003
+	Cs-137	661.66*	85.10	1.982E+004	1.98E+004	4.820E+004	9.188E+003
	Eu-152	121.78	28.67	6.426E+004	6.43E+004	2.279E+004	3.113E+004
		344.28	26.60	6.724E+004		9.968E+003	3.199E+004
		1408.01	21.07	8.995E+004		7.137E+004	4.066E+004
	Eu-154	123.07	40.40	4.636E+004	4.29E+004	1.388E+004	2.247E+004
		723.30	20.06	8.888E+004		5.379E+004	4.124E+004
		1274.43	34.80	4.294E+004		-2.032E+004	1.900E+004
	Eu-155	86.55	30.70	6.660E+004	6.66E+004	4.603E+004	3.228E+004
		105.31	21.10	8.086E+004		-5.476E+004	3.905E+004
	Tl-208	583.19	85.00	2.181E+004	2.18E+004	2.868E+004	1.023E+004
	Bi-212	727.33	6.67	2.725E+005	2.72E+005	-5.893E+004	1.266E+005
	Pb-212	238.63	43.60	4.082E+004	4.08E+004	6.302E+003	1.959E+004
	Bi-214	609.32	45.49	4.509E+004	4.51E+004	4.382E+004	2.125E+004
		1120.29	14.92	1.402E+005		7.039E+004	6.473E+004
		1764.49	15.30	1.240E+005		1.112E+005	5.514E+004
	Pb-214	295.22	18.42	9.464E+004	5.09E+004	4.461E+004	4.516E+004
		351.93	35.60	5.085E+004		4.145E+004	2.419E+004
	Ra-226	186.21	3.64	5.031E+005	5.03E+005	1.552E+004	2.428E+005
	Ac-228	338.32	11.27	1.566E+005	6.79E+004	-7.876E+004	7.449E+004
		911.20	25.80	6.795E+004		1.120E+004	3.118E+004
		968.97	15.80	1.328E+005		7.951E+004	6.171E+004
	Am-241	59.54	35.90	5.008E+004	5.01E+004	-4.768E+004	2.375E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

ilename: C:\GENIE2K\CAMFILES\00004305.CNF

Report Generated On                 : 4/5/2018     3:51:17 PM

Sample Title                        : B101100AFSWM058GD
Sample Description                  : U1 Containment 565'
Sample Identification               : 058
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.830E+001 M^2

Sample Taken On                     : 3/21/2018    2:08:00 PM
Acquisition Started                 : 3/21/2018    2:08:08 PM

Live Time                           :       600.0 seconds
Real Time                           :       600.2 seconds

Dead Time                           :   0.03 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0450
DR Mihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM058GD
Peak Analysis Performed on: 4/5/2018 3:51:16 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	120-	134	129.86	32.47	0.65	5.28E+001	30.20	5.92E+001
2	154-	167	161.15	40.29	0.47	3.34E+001	30.68	7.16E+001
3	287-	306	301.79	75.45	0.59	1.40E+002	49.62	1.36E+002
4	335-	345	340.07	85.02	0.97	4.64E+001	30.58	7.86E+001
5	1406-	1418	1411.06	352.77	0.45	1.88E+001	23.45	4.42E+001
6	1507-	1518	1512.26	378.07	1.25	1.28E+000	17.40	2.77E+001
7	2641-	2661	2651.50	662.88	1.64	4.27E+002	43.56	1.31E+001
8	4482-	4495	4488.85	1122.21	0.78	1.25E+001	12.89	1.05E+001
9	4693-	4714	4703.13	1175.78	1.74	1.93E+002	30.63	1.10E+001
10	5332-	5353	5342.46	1335.61	1.70	1.53E+002	25.51	2.57E+000
11	5847-	5866	5856.40	1464.10	0.46	9.50E+001	21.21	5.00E+000
12	7069-	7084	7076.61	1769.15	0.63	1.70E+001	8.25	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
****

Sample Title: B101100AFSWM058GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.983	1460.82*	10.66	6.07679E+005	1.45594E+005
Co-60	0.987	1173.23*	99.85	1.17165E+005	2.08220E+004
		1332.49*	99.98	9.91457E+004	1.82908E+004
Cs-137	0.998	661.66*	85.10	2.26422E+005	3.56633E+004
Eu-155	0.337	86.55*	30.70	3.57168E+004	2.45883E+004
		105.31	21.10		
Pb-214	0.437	295.22	18.42		
		351.93*	35.60	1.71267E+004	2.14902E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.983	6.076788E+005	1.455940E+005
Co-60	0.987	1.069939E+005	1.374179E+004
Cs-137	0.998	2.264217E+005	3.566334E+004
Eu-155	0.337	3.571684E+004	2.458832E+004
Pb-214	0.437	1.712673E+004	2.149023E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 3:51:16 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.47	8.8073E-002	57.15		
2	40.29	5.5667E-002	91.85		
3	75.45	2.3368E-001	35.39		
6	378.07	2.1264E-003	1363.86		
8	1122.21	2.0833E-002	103.09	Tol.	Bi-214
12	1769.15	2.8333E-002	48.51	Tol.	Bi-214

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM058GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.054E+005	1.05E+005	6.077E+005	4.402E+004
+	Co-60	1173.23*	99.85	1.451E+004	8.20E+003	1.172E+005	6.434E+003
		1332.49*	99.98	8.200E+003		9.915E+004	3.226E+003
	Nb-94	702.65	99.81	1.641E+004	1.64E+004	2.120E+003	7.577E+003
		871.09	99.89	2.001E+004		-6.457E+003	9.308E+003
	Ag-108m	433.90	90.50	1.900E+004	1.85E+004	4.073E+003	8.962E+003
		614.30	89.80	2.276E+004		8.079E+003	1.072E+004
		722.90	90.80	1.847E+004		1.180E+003	8.532E+003
	Cs-134	604.72	97.62	1.860E+004	1.81E+004	-1.652E+004	8.705E+003
		795.86	85.46	1.813E+004	0.0E+0✓	-1.877E+003	8.284E+003
+	Cs-137	661.66*	85.10	1.346E+004	1.35E+004	2.264E+005	6.011E+003
	Eu-152	121.78	28.67	6.990E+004	6.99E+004	2.506E+004✓	3.393E+004
		344.28	26.60	7.305E+004		7.032E+004	3.490E+004
		1408.01	21.07	7.099E+004		2.820E+004	3.122E+004
	Eu-154	123.07	40.40	5.006E+004	4.45E+004	3.182E+004✓	2.431E+004
		723.30	20.06	8.361E+004		-2.522E+004	3.863E+004
		1274.43	34.80	4.448E+004		3.989E+004	1.979E+004
+	Eu-155	86.55*	30.70	3.673E+004	3.67E+004	3.572E+004	1.732E+004
		105.31	21.10	8.583E+004		1.031E+004	4.149E+004
	Tl-208	583.19	85.00	2.041E+004	2.04E+004	1.161E+004	9.535E+003
	Bi-212	727.33	6.67	2.635E+005	2.64E+005	5.807E+004	1.222E+005
	Pb-212	238.63	43.60	4.699E+004	4.70E+004	3.663E+004	2.268E+004
	Bi-214	609.32	45.49	4.380E+004	4.38E+004	-5.222E+003	2.061E+004
		1120.29	14.92	1.509E+005		-7.600E+004	7.011E+004
		1764.49	15.30	1.176E+005		7.469E+004	5.202E+004
+	Pb-214	295.22	18.42	1.014E+005	3.50E+004	2.875E+004	4.853E+004
		351.93*	35.60	3.503E+004		1.713E+004	1.629E+004
	Ra-226	186.21	3.64	5.434E+005	5.43E+005	3.567E+005	2.629E+005
	Ac-228	338.32	11.27	1.617E+005	7.94E+004	-1.235E+005	7.704E+004
		911.20	25.80	7.942E+004		1.960E+004	3.694E+004
		968.97	15.80	1.399E+005		8.779E+004	6.530E+004
	Am-241	59.54	35.90	5.957E+004	5.96E+004	2.687E+004	2.850E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
***************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S           *****
***************************************************************************

 ilename: C:\GENIE2K\CAMFILES\00004306.CNF

Report Generated On                 : 4/5/2018    3:28:46 PM

Sample Title                        : B101100AFSWM059GD
Sample Description                  : U1 Containment 565'
Sample Identification               : 059
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.830E+001 M^2

Sample Taken On                     : 3/21/2018   2:26:00 PM
Acquisition Started                 : 3/21/2018   2:32:51 PM

Live Time                           :       600.0 seconds
Real Time                           :       600.2 seconds

Dead Time                           :   0.04 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0500
WR Mihalik

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                  *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM059GD
Peak Analysis Performed on: 4/5/2018 3:28:45 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	120-	135	129.64	32.41	0.88	6.67E+001	30.01	5.23E+001
2	296-	308	301.39	75.35	0.83	6.13E+001	39.69	1.22E+002
3	484-	494	489.29	122.32	0.65	3.45E+001	32.08	9.35E+001
4	1180-	1190	1184.82	296.20	0.47	1.63E+001	21.97	4.37E+001
5	2019-	2030	2024.65	506.16	0.38	9.63E+000	14.24	1.64E+001
6	2641-	2661	2651.68	662.92	1.35	4.72E+002	45.59	1.32E+001
7	3879-	3892	3885.26	971.31	0.45	1.83E+001	12.15	6.68E+000
8	4692-	4712	4702.87	1175.72	1.78	1.54E+002	27.78	1.05E+001
9	5332-	5353	5341.97	1335.49	1.90	1.55E+002	26.48	5.50E+000
10	5848-	5866	5857.06	1464.27	0.87	9.58E+001	20.29	2.20E+000
11	7068-	7083	7075.90	1768.98	0.31	1.80E+001	8.49	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM059GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.981	1460.82*	10.66	6.12862E+005	1.40269E+005
Co-60	0.988	1173.23*	99.85	9.37762E+004	1.84549E+004
		1332.49*	99.98	9.98292E+004	1.88807E+004
Cs-137	0.997	661.66*	85.10	2.50268E+005	3.85549E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.981	6.128617E+005	1.402692E+005
Co-60	0.988	9.673364E+004✓	1.319756E+004
Cs-137	0.997	2.502684E+005✓	3.855488E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018   3:28:45 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.41	1.1114E-001	45.00		
2	75.35	1.0216E-001	64.75		
3	122.32	5.7500E-002	92.97		
4	296.20	2.7236E-002	134.45	Tol.	Pb-214
5	506.16	1.6042E-002	147.90		
7	971.31	3.0533E-002	66.31	Tol.	Ac-228
11	1768.98	3.0000E-002	47.14	Tol.	Bi-214

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM059GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	7.337E+004	7.34E+004	6.129E+005	2.803E+004
+	Co-60	1173.23*	99.85	1.402E+004	1.14E+004	9.378E+004	6.187E+003
		1332.49*	99.98	1.144E+004		9.983E+004	4.844E+003
	Nb-94	702.65	99.81	1.425E+004	1.42E+004	-1.208E+004	6.495E+003
		871.09	99.89	1.697E+004		8.301E+002	7.788E+003
	Ag-108m	433.90	90.50	1.891E+004	1.89E+004	-7.989E+002	8.913E+003
		614.30	89.80	2.204E+004		1.027E+004	1.037E+004
		722.90	90.80	1.897E+004		-8.073E+001	8.784E+003
	Cs-134	604.72	97.62	1.836E+004	1.84E+004	-1.519E+004	8.583E+003
		795.86	85.46	1.959E+004		6.322E+003	9.014E+003
+	Cs-137	661.66*	85.10	1.350E+004	1.35E+004	2.503E+005	6.033E+003
	Eu-152	121.78	28.67	6.917E+004	6.52E+004	-4.015E+003	3.357E+004
		344.28	26.60	6.523E+004		3.149E+004	3.099E+004
		1408.01	21.07	8.214E+004		7.907E+004	3.679E+004
	Eu-154	123.07	40.40	4.904E+004	4.17E+004	4.256E+003	2.380E+004
		723.30	20.06	8.514E+004		-1.864E+004	3.939E+004
		1274.43	34.80	4.168E+004		3.445E+004	1.839E+004
	Eu-155	86.55	30.70	6.021E+004	6.02E+004	4.568E+004	2.908E+004
		105.31	21.10	8.837E+004		-3.224E+004	4.277E+004
	Tl-208	583.19	85.00	1.926E+004	1.93E+004	7.743E+003	8.957E+003
	Bi-212	727.33	6.67	2.635E+005	2.64E+005	9.844E+004	1.222E+005
	Pb-212	238.63	43.60	4.181E+004	4.18E+004	-3.717E+003	2.009E+004
	Bi-214	609.32	45.49	4.308E+004	4.31E+004	8.216E+003	2.026E+004
		1120.29	14.92	1.533E+005		1.272E+005	7.131E+004
		1764.49	15.30	1.176E+005		1.000E+005	5.202E+004
	Pb-214	295.22	18.42	1.056E+005	4.85E+004	9.031E+004	5.063E+004
		351.93	35.60	4.853E+004		1.344E+004	2.304E+004
	Ra-226	186.21	3.64	5.569E+005	5.57E+005	3.979E+005	2.697E+005
	Ac-228	338.32	11.27	1.566E+005	7.76E+004	-7.879E+004	7.451E+004
		911.20	25.80	7.755E+004		4.367E+004	3.600E+004
		968.97	15.80	1.429E+005		6.223E+004	6.677E+004
	Am-241	59.54	35.90	5.799E+004	5.80E+004	3.654E+004	2.771E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S               *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002683.CNF

Report Generated On                 : 4/5/2018   10:51:15 AM

Sample Title                        : B101100AFSWM060GD
Sample Description                  : U1 CONTAINMENT - 565
Sample Identification               : 060
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.826E+001 M^2

Sample Taken On                     : 3/22/2018   1:26:00 PM
Acquisition Started                 : 3/22/2018   1:26:32 PM

Live Time                           :       600.0 seconds
Real Time                           :       601.2 seconds

Dead Time                           :   0.20 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 1708
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM060GD
Peak Analysis Performed on: 4/5/2018 10:51:14 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	295-	306	300.54	75.14	0.80	6.40E+001	37.84	1.17E+002
2	1402-	1413	1407.89	351.97	0.55	3.29E+001	22.04	3.51E+001
3	2431-	2445	2437.32	609.33	1.25	4.58E+001	19.20	1.62E+001
4	2636-	2656	2646.47	661.62	1.55	1.69E+002	30.66	1.83E+001
5	4686-	4702	4693.68	1173.42	0.92	5.76E+001	19.60	1.24E+001
6	5325-	5341	5331.90	1332.97	0.28	3.42E+001	19.32	1.88E+001
7	5837-	5856	5845.10	1461.28	0.65	8.67E+001	20.06	4.29E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM060GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.58863E+005	1.38076E+005
Co-60	1.000	1173.23*	99.85	3.50872E+004	1.22646E+004
		1332.49*	99.98	2.22287E+004	1.26809E+004
Cs-137	1.000	661.66*	85.10	9.01246E+004	1.96342E+004
Bi-214	0.444	609.32*	45.49	4.38728E+004	1.91220E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	3.00142E+004	2.06429E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T  *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.588633E+005	1.380763E+005
Co-60	1.000	2.887251E+004✓	8.815872E+003
Cs-137	1.000	9.012458E+004✓	1.963418E+004
Bi-214	0.444	4.387280E+004	1.912201E+004
Pb-214	0.438	3.001420E+004	2.064294E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 10:51:14 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.14	1.0667E-001	59.11		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                   N U C L I D E   M D A   R E P O R T            *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM060GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	9.638E+004	9.64E+004	5.589E+005	3.947E+004
+	Co-60	1173.23*	99.85	1.407E+004	1.41E+004	3.509E+004	6.213E+003
		1332.49*	99.98	1.820E+004		2.223E+004	8.220E+003
	Nb-94	702.65	99.81	1.381E+004	1.38E+004	-8.447E+003	6.271E+003
		871.09	99.89	1.617E+004		8.649E+003	7.378E+003
	Ag-108m	433.90	90.50	1.725E+004	1.73E+004	-7.824E+002	8.083E+003
		614.30	89.80	2.420E+004		-9.483E+003	1.144E+004
		722.90	90.80	1.963E+004		1.877E+004	9.107E+003
	Cs-134	604.72	97.62	2.124E+004	1.72E+004	-2.209E+004	1.002E+004
		795.86	85.46	1.716E+004		6.857E+003✓	7.789E+003
+	Cs-137	661.66*	85.10	1.576E+004	1.58E+004	9.012E+004	7.158E+003
	Eu-152	121.78	28.67	6.214E+004	6.15E+004	3.756E+004✓	3.005E+004
		344.28	26.60	6.153E+004		-6.020E+004	2.913E+004
		1408.01	21.07	8.711E+004		8.926E+004	3.924E+004
	Eu-154	123.07	40.40	4.287E+004	4.09E+004	-5.426E+003	2.071E+004
		723.30	20.06	8.511E+004		-1.940E+004	3.935E+004
		1274.43	34.80	4.094E+004		4.661E+003✓	1.800E+004
	Eu-155	86.55	30.70	6.367E+004	6.37E+004	7.991E+004	3.082E+004
		105.31	21.10	8.677E+004		6.838E+004	4.197E+004
	Tl-208	583.19	85.00	2.056E+004	2.06E+004	5.198E+003	9.602E+003
	Bi-212	727.33	6.67	2.496E+005	2.50E+005	1.939E+005	1.151E+005
	Pb-212	238.63	43.60	4.071E+004	4.07E+004	3.736E+003	1.954E+004
+	Bi-214	609.32*	45.49	2.403E+004	2.40E+004	4.387E+004	1.072E+004
		1120.29	14.92	1.404E+005		1.343E+005	6.481E+004
		1764.49	15.30	1.267E+005		1.164E+005	5.648E+004
+	Pb-214	295.22	18.42	9.300E+004	3.07E+004	3.578E+004	4.433E+004
		351.93*	35.60	3.066E+004		3.001E+004	1.410E+004
	Ra-226	186.21	3.64	4.948E+005	4.95E+005	4.821E+005	2.387E+005
	Ac-228	338.32	11.27	1.407E+005	7.37E+004	1.447E+005	6.654E+004
		911.20	25.80	7.370E+004		1.169E+003	3.405E+004
		968.97	15.80	1.134E+005		1.019E+005	5.196E+004
	Am-241	59.54	35.90	5.669E+004	5.67E+004	7.096E+003	2.705E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
    the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00002684.CNF

Report Generated On                 : 4/5/2018   12:05:43 PM

Sample Title                        : B101100AFSWM061GD
Sample Description                  : U1 CONTAINMENT - 565
Sample Identification               : 061
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.826E+001 M^2

Sample Taken On                     : 3/22/2018   1:39:00 PM
Acquisition Started                 : 3/22/2018   1:39:20 PM

Live Time                           :       600.0 seconds
Real Time                           :       601.2 seconds

Dead Time                           :   0.19 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 1720
DR Mihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM061GD
Peak Analysis Performed on: 4/5/2018 12:05:43 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	286-	311	291.50	72.88	0.51	1.70E+002	55.84	1.43E+002
2	2635-	2655	2647.05	661.76	1.67	2.44E+002	35.69	2.06E+001
3	4686-	4705	4694.81	1173.70	0.79	7.69E+001	23.41	1.71E+001
4	5320-	5342	5331.64	1332.91	1.21	9.84E+001	21.91	5.59E+000
5	5837-	5855	5846.52	1461.63	1.02	8.15E+001	20.93	8.53E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*************************************************************************
*****  N U C L I D E   I D E N T I F I C A T I O N   R E P O R T  *****
*************************************************************************
```

Sample Title: B101100AFSWM061GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	5.25124E+005	1.42423E+005
Co-60	1.000	1173.23*	99.85	4.68488E+004	1.47416E+004
		1332.49*	99.98	6.39403E+004	1.51239E+004
Cs-137	1.000	661.66*	85.10	1.30597E+005	2.46909E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****  I N T E R F E R E N C E   C O R R E C T E D   R E P O R T  *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	5.251241E+005	1.424228E+005
Co-60	1.000	5.517578E+004✓	1.055646E+004
Cs-137	1.000	1.305967E+005✓	2.469087E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********  U N I D E N T I F I E D   P E A K S  **********
```

Peak Locate Performed on: 4/5/2018 12:05:43 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	72.88	2.8305E-001	32.88		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM061GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.298E+005	1.30E+005	5.251E+005	5.618E+004
+	Co-60	1173.23*	99.85	1.718E+004	1.17E+004	4.685E+004	7.765E+003
		1332.49*	99.98	1.168E+004		6.394E+004	4.962E+003
	Nb-94	702.65	99.81	1.686E+004	1.69E+004	8.364E+003	7.796E+003
		871.09	99.89	1.768E+004		1.629E+004	8.137E+003
	Ag-108m	433.90	90.50	1.918E+004	1.74E+004	1.219E+004	9.050E+003
		614.30	89.80	2.317E+004		1.645E+004	1.092E+004
		722.90	90.80	1.738E+004		-1.980E+003	7.981E+003
	Cs-134	604.72	97.62	2.048E+004	2.00E+004	2.494E+003 ✓	9.639E+003
		795.86	85.46	1.997E+004		1.078E+004	9.196E+003
+	Cs-137	661.66*	85.10	1.657E+004	1.66E+004	1.306E+005	7.564E+003
	Eu-152	121.78	28.67	6.681E+004	6.42E+004	-7.000E+003	3.239E+004
		344.28	26.60	6.417E+004		-4.051E+004	3.045E+004
		1408.01	21.07	7.496E+004		1.355E+004 ✓	3.316E+004
	Eu-154	123.07	40.40	4.749E+004	3.89E+004	-8.943E+003	2.303E+004
		723.30	20.06	7.783E+004		-9.432E+003	3.571E+004
		1274.43	34.80	3.888E+004	0.60E+0 ✓	-3.340E+004	1.697E+004
	Eu-155	86.55	30.70	6.113E+004	6.11E+004	1.917E+004	2.954E+004
		105.31	21.10	8.199E+004		-3.397E+003	3.958E+004
	Tl-208	583.19	85.00	2.027E+004	2.03E+004	1.331E+004	9.460E+003
	Bi-212	727.33	6.67	2.295E+005	2.30E+005	5.179E+003	1.051E+005
	Pb-212	238.63	43.60	4.422E+004	4.42E+004	2.647E+004	2.129E+004
	Bi-214	609.32	45.49	4.460E+004	4.46E+004	3.637E+004	2.101E+004
		1120.29	14.92	1.404E+005		7.580E+004	6.481E+004
		1764.49	15.30	1.267E+005		7.015E+004	5.648E+004
	Pb-214	295.22	18.42	9.819E+004	5.06E+004	7.909E+004	4.693E+004
		351.93	35.60	5.060E+004		3.633E+004	2.407E+004
	Ra-226	186.21	3.64	5.185E+005	5.19E+005	-7.736E+004	2.506E+005
	Ac-228	338.32	11.27	1.513E+005	7.64E+004	-1.681E+005	7.182E+004
		911.20	25.80	7.637E+004		3.875E+004	3.538E+004
		968.97	15.80	1.231E+005		2.011E+004	5.681E+004
	Am-241	59.54	35.90	5.903E+004	5.90E+004	-1.900E+003	2.822E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
***************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S            *****
***************************************************************************

 ilename: C:\GENIE2K\CAMFILES\00004307.CNF

Report Generated On                 : 4/5/2018    3:29:49 PM

Sample Title                        : B101100AFSWM062GD
Sample Description                  : U1 Containment 565'
Sample Identification               : 062
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.830E+001 M^2

Sample Taken On                     : 3/21/2018   2:46:00 PM
Acquisition Started                 : 3/21/2018   2:49:50 PM

Live Time                           :       600.0 seconds
Real Time                           :       600.2 seconds

Dead Time                           :   0.04 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0518
WR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM062GD
Peak Analysis Performed on: 4/5/2018 3:29:49 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	104-	111	107.22	26.80	0.38	-2.26E+000	17.88	4.03E+001
2	156-	167	161.15	40.29	0.36	3.08E+001	28.85	6.92E+001
3	288-	309	301.99	75.50	1.18	1.46E+002	53.40	1.51E+002
4	335-	345	340.82	85.20	0.55	3.99E+001	30.42	7.91E+001
5	1406-	1418	1411.45	352.86	0.41	2.96E+001	23.79	4.04E+001
6	2434-	2449	2442.03	610.51	0.48	4.70E+001	20.17	1.80E+001
7	2641-	2661	2651.75	662.94	1.37	4.70E+002	45.53	1.33E+001
8	4692-	4714	4703.17	1175.79	0.95	1.91E+002	33.05	2.06E+001
9	5330-	5352	5341.47	1335.37	1.23	2.32E+002	30.46	0.00E+000
10	5846-	5867	5856.74	1464.18	1.08	1.28E+002	25.17	8.18E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

rrors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM062GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.982	1460.82*	10.66	8.17644E+005	1.75968E+005
Co-60	0.988	1173.23*	99.85	1.16210E+005	2.21113E+004
		1332.49*	99.98	1.49897E+005	2.30478E+004
Cs-137	0.997	661.66*	85.10	2.49162E+005	3.84311E+004
Eu-155	0.337	86.55*	30.70	3.06644E+004	2.41443E+004
		105.31	21.10		
Bi-214	0.442	609.32*	45.49	4.46840E+004	1.99154E+004
		1120.29	14.92		
		1764.49	15.30		
Pb-214	0.437	295.22	18.42		
		351.93*	35.60	2.68779E+004	2.20483E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.982	8.176438E+005	1.759682E+005
Co-60	0.988	1.323549E+005✓	1.595584E+004
Cs-137	0.997	2.491624E+005✓	3.843111E+004
Eu-155	0.337	3.066443E+004	2.414430E+004
Bi-214	0.442	4.468398E+004	1.991544E+004
Pb-214	0.437	2.687794E+004	2.204834E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 3:29:49 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	26.80	-3.7719E-003	-789.99		
2	40.29	5.1333E-002	93.65		
3	75.50	2.4292E-001	36.64		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM062GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.337E+005	1.34E+005	8.176E+005	5.817E+004
+	Co-60	1173.23*	99.85	1.968E+004	1.75E+003	1.162E+005	9.021E+003
		1332.49*	99.98	1.748E+003		1.499E+005	0.000E+000
	Nb-94	702.65	99.81	1.657E+004	1.66E+004	-2.140E+002	7.654E+003
		871.09	99.89	2.047E+004		-3.521E+003	9.538E+003
	Ag-108m	433.90	90.50	2.092E+004	1.93E+004	-5.725E+003	9.922E+003
		614.30	89.80	2.510E+004		3.080E+004	1.190E+004
		722.90	90.80	1.930E+004		4.543E+003	8.948E+003
	Cs-134	604.72	97.62	2.055E+004	2.04E+004	-6.467E+003	9.678E+003
		795.86	85.46	2.038E+004		1.273E+004✓	9.407E+003
+	Cs-137	661.66*	85.10	1.359E+004	1.36E+004	2.492E+005	6.077E+003
	Eu-152	121.78	28.67	7.008E+004	5.27E+004	8.486E+003✓	3.402E+004
		344.28	26.60	7.192E+004		-1.698E+003	3.433E+004
		1408.01	21.07	5.270E+004		1.397E+004	2.207E+004
	Eu-154	123.07	40.40	4.949E+004	4.36E+004	-2.645E+004	2.402E+004
		723.30	20.06	8.664E+004		1.524E+004	4.014E+004
		1274.43	34.80	4.357E+004		1.043E+004✓	1.933E+004
+	Eu-155	86.55*	30.70	3.702E+004	3.70E+004	3.066E+004	1.747E+004
		105.31	21.10	9.351E+004		4.749E+004	4.534E+004
	Tl-208	583.19	85.00	2.304E+004	2.30E+004	9.167E+003	1.085E+004
	Bi-212	727.33	6.67	2.568E+005	2.57E+005	-1.362E+002	1.188E+005
	Pb-212	238.63	43.60	4.811E+004	4.81E+004	1.451E+004	2.324E+004
+	Bi-214	609.32*	45.49	2.571E+004	2.57E+004	4.468E+004	1.157E+004
		1120.29	14.92	1.625E+005		1.170E+005	7.591E+004
		1764.49	15.30	1.227E+005		4.830E+004	5.456E+004
+	Pb-214	295.22	18.42	1.059E+005	3.41E+004	-7.953E+003	5.076E+004
		351.93*	35.60	3.410E+004		2.688E+004	1.582E+004
	Ra-226	186.21	3.64	5.602E+005	5.60E+005	8.852E+004	2.714E+005
	Ac-228	338.32	11.27	1.671E+005	8.59E+004	-1.049E+005	7.977E+004
		911.20	25.80	8.591E+004		2.943E+004	4.018E+004
		968.97	15.80	1.328E+005		-7.008E+004	6.174E+004
	Am-241	59.54	35.90	6.094E+004	6.09E+004	-1.048E+004	2.918E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

 ilename: C:\GENIE2K\CAMFILES\00004308.CNF

Report Generated On               : 4/5/2018    3:32:12 PM

Sample Title                      : B101100AFSWM063GD
Sample Description                : U1 Containment 565'
Sample Identification             : 063
Sample Type                       : GAMMA DIRECT
Sample Geometry                   :

Peak Locate Threshold             :  3.00
Peak Locate Range (in channels)   :    85 -  8192
Peak Area Range (in channels)     :    85 -  8192
Identification Energy Tolerance   :   10.000 keV

Sample Size                       :  2.830E+001 M^2

Sample Taken On                   : 3/21/2018   3:06:00 PM
Acquisition Started               : 3/21/2018   3:05:24 PM

Live Time                         :       600.0 seconds
Real Time                         :       600.3 seconds

Dead Time                         :   0.04 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0579
DR Mihalik

****
***** P E A K   A N A L Y S I S   R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM063GD
Peak Analysis Performed on: 4/5/2018 3:32:12 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	124-	134	129.56	32.39	0.65	5.05E+001	27.79	5.95E+001
2	287-	309	302.08	75.52	1.10	1.80E+002	53.44	1.38E+002
3	334-	345	340.66	85.16	0.34	1.90E+001	34.44	1.11E+002
4	953-	962	957.81	239.45	0.65	3.17E+001	27.38	6.23E+001
5	1405-	1419	1411.26	352.81	0.68	4.96E+001	24.40	3.44E+001
6	2040-	2057	2048.20	512.05	0.39	5.96E+001	23.62	2.44E+001
7	2436-	2451	2442.95	610.74	0.56	3.95E+001	20.78	2.25E+001
8	2641-	2663	2651.63	662.91	1.12	3.73E+002	40.24	8.43E+000
9	4691-	4714	4702.94	1175.74	1.29	3.48E+002	39.19	8.99E+000
10	5330-	5352	5341.36	1335.34	1.69	3.06E+002	36.23	5.66E+000
11	5847-	5866	5856.48	1464.12	1.32	1.08E+002	22.29	4.68E+000
12	7067-	7082	7074.92	1768.73	0.50	1.50E+001	7.75	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM063GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.983	1460.82*	10.66	6.92907E+005	1.54758E+005
Co-60	0.989	1173.23*	99.85	2.11261E+005	2.91836E+004
		1332.49*	99.98	1.97928E+005	2.82597E+004
Cs-137	0.998	661.66*	85.10	1.97612E+005	3.19020E+004
Eu-155	0.337	86.55*	30.70	1.45926E+004	2.66112E+004
		105.31	21.10		
Pb-212	0.999	238.63*	43.60	1.92052E+004	1.68692E+004
Bi-214	0.699	609.32*	45.49	3.75931E+004	2.02750E+004
		1120.29	14.92		
		1764.49*	15.30	7.51122E+004	3.92516E+004
Pb-214	0.437	295.22	18.42		
		351.93*	35.60	4.50719E+004	2.33270E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
******************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
******************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.983	6.929071E+005	1.547579E+005
Co-60	0.989	2.043799E+005✓	2.030137E+004
Cs-137	0.998	1.976116E+005✓	3.190203E+004
Eu-155	0.337	1.459260E+004	2.661125E+004
Pb-212	0.999	1.920523E+004	1.686922E+004
Bi-214	0.699	4.549523E+004	1.801374E+004
Pb-214	0.437	4.507192E+004	2.332699E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 3:32:11 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.39	8.4186E-002	55.02		
2	75.52	3.0059E-001	29.63		
6	512.05	9.9266E-002	39.65		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****              N U C L I D E   M D A   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM063GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.012E+005	1.01E+005	6.929E+005	4.194E+004
+	Co-60	1173.23*	99.85	1.362E+004	1.17E+004	2.113E+005	5.990E+003
		1332.49*	99.98	1.167E+004		1.979E+005	4.960E+003
	Nb-94	702.65	99.81	1.746E+004	1.75E+004	1.396E+003	8.100E+003
		871.09	99.89	2.221E+004		8.208E+003	1.041E+004
	Ag-108m	433.90	90.50	2.031E+004	1.93E+004	-1.608E+004	9.612E+003
		614.30	89.80	2.322E+004		1.284E+004	1.096E+004
		722.90	90.80	1.930E+004		1.141E+004	8.948E+003
	Cs-134	604.72	97.62	2.033E+004	2.03E+004	-1.431E+004	9.568E+003
		795.86	85.46	2.131E+004	0.0E+0 ✓	-6.953E+001	9.875E+003
+	Cs-137	661.66*	85.10	1.135E+004	1.13E+004	1.976E+005	4.955E+003
	Eu-152	121.78	28.67	7.062E+004	6.91E+004	-2.040E+004	3.429E+004
		344.28	26.60	6.913E+004		-4.048E+004	3.294E+004
		1408.01	21.07	7.437E+004		1.344E+004 ✓	3.290E+004
	Eu-154	123.07	40.40	5.101E+004	4.54E+004	2.234E+004 ✓	2.478E+004
		723.30	20.06	8.664E+004		1.608E+004	4.014E+004
		1274.43	34.80	4.537E+004		2.570E+004	2.023E+004
+	Eu-155	86.55*	30.70	4.417E+004	4.42E+004	1.459E+004	2.105E+004
		105.31	21.10	8.879E+004		-1.060E+005	4.298E+004
	Tl-208	583.19	85.00	1.999E+004	2.00E+004	-5.351E+003	9.322E+003
	Bi-212	727.33	6.67	2.635E+005	2.64E+005	-3.486E+004	1.222E+005
+	Pb-212	238.63*	43.60	2.650E+004	2.65E+004	1.921E+004	1.243E+004
+	Bi-214	609.32*	45.49	2.846E+004	1.36E+004	3.759E+004	1.294E+004
		1120.29	14.92	1.591E+005		4.470E+004	7.422E+004
		1764.49*	15.30	1.355E+004		7.511E+004	0.000E+000
+	Pb-214	295.22	18.42	1.109E+005	3.23E+004	1.020E+005	5.329E+004
		351.93*	35.60	3.226E+004		4.507E+004	1.490E+004
	Ra-226	186.21	3.64	5.814E+005	5.81E+005	4.957E+005	2.820E+005
	Ac-228	338.32	11.27	1.750E+005	9.19E+004	6.464E+004	8.368E+004
		911.20	25.80	9.191E+004		6.246E+004	4.318E+004
		968.97	15.80	1.458E+005		-1.253E+005	6.820E+004
	Am-241	59.54	35.90	6.276E+004	6.28E+004	3.387E+004	3.009E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S           *****
*****************************************************************************
```

```
Filename: C:\GENIE2K\CAMFILES\00002685.CNF

Report Generated On                   : 4/5/2018   12:08:00 PM

Sample Title                          : B101100AFSWM064GD
Sample Description                    : U1 CONTAINMENT - 565
Sample Identification                 : 064
Sample Type                           : GAMMA DIRECT
Sample Geometry                       :

Peak Locate Threshold                 :  3.00
Peak Locate Range (in channels)       :    85 -  8192
Peak Area Range (in channels)         :    85 -  8192
Identification Energy Tolerance       :   10.000 keV

Sample Size                           :  2.826E+001 M^2

Sample Taken On                       : 3/22/2018   1:55:00 PM
Acquisition Started                   : 3/22/2018   1:55:49 PM

Live Time                             :      600.0 seconds
Real Time                             :      601.1 seconds

Dead Time                             :   0.18 %

          Energy Calibration Used Done On      : 3/15/2018
          Efficiency Calibration Used Done On  : 4/5/2018
          Efficiency ID                        : 3M0.153 cm Liner
```

Data Validated
4/5/18 1739
DR Mubalik

****
*****   P E A K   A N A L Y S I S   R E P O R T   *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM064GD
Peak Analysis Performed on: 4/5/2018 12:07:59 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	124-	134	129.01	32.25	0.61	2.88E+001	23.71	4.62E+001
2	2430-	2442	2436.78	609.19	1.32	3.89E+001	16.38	1.01E+001
3	2639-	2655	2646.49	661.62	1.44	1.49E+002	30.03	2.45E+001
4	4685-	4705	4694.98	1173.75	0.58	9.51E+001	23.35	1.09E+001
5	5322-	5342	5332.25	1333.06	1.31	1.06E+002	24.68	1.28E+001
6	5835-	5856	5846.06	1461.52	1.32	8.95E+001	24.62	1.65E+001
7	7057-	7072	7064.43	1766.11	0.25	1.63E+001	9.22	1.71E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM064GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	5.76877E+005	1.66412E+005
Co-60	1.000	1173.23*	99.85	5.79095E+004	1.49576E+004
		1332.49*	99.98	6.90284E+004	1.69587E+004
Cs-137	1.000	661.66*	85.10	7.98529E+004	1.86903E+004
Bi-214	0.706	609.32*	45.49	3.72400E+004	1.63021E+004
		1120.29	14.92		
		1764.49*	15.30	8.25152E+004	4.71525E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	5.768771E+005	1.664119E+005
Co-60	1.000	6.277458E+004✓	1.121775E+004
Cs-137	1.000	7.985293E+004✓	1.869029E+004
Bi-214	0.706	4.207391E+004	1.540724E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 12:07:59 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.25	4.7961E-002	82.40		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                N U C L I D E   M D A   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM064GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.845E+005	1.84E+005	5.769E+005	8.352E+004
+	Co-60	1173.23*	99.85	1.451E+004	1.45E+004	5.791E+004	6.433E+003
		1332.49*	99.98	1.626E+004		6.903E+004	7.250E+003
	Nb-94	702.65	99.81	1.508E+004	1.51E+004	-9.104E+003	6.905E+003
		871.09	99.89	1.675E+004		-1.138E+004	7.671E+003
	Ag-108m	433.90	90.50	1.830E+004	1.83E+004	2.683E+004	8.605E+003
		614.30	89.80	2.363E+004		-6.150E+003	1.116E+004
		722.90	90.80	1.979E+004		5.757E+003	9.188E+003
	Cs-134	604.72	97.62	1.969E+004	1.94E+004	1.629E+004✓	9.243E+003
		795.86	85.46	1.936E+004		3.101E+003	8.892E+003
+	Cs-137	661.66*	85.10	1.676E+004	1.68E+004	7.985E+004	7.659E+003
	Eu-152	121.78	28.67	6.672E+004	6.42E+004	6.384E+004✓	3.234E+004
		344.28	26.60	6.417E+004		-2.799E+004	3.045E+004
		1408.01	21.07	7.496E+004		-9.284E+003	3.316E+004
	Eu-154	123.07	40.40	4.703E+004	4.29E+004	1.818E+004✓	2.279E+004
		723.30	20.06	8.961E+004		7.279E+004	4.160E+004
		1274.43	34.80	4.288E+004		2.726E+004	1.897E+004
	Eu-155	86.55	30.70	5.987E+004	5.99E+004	4.976E+004	2.891E+004
		105.31	21.10	8.635E+004		-4.921E+004	4.176E+004
	Tl-208	583.19	85.00	2.027E+004	2.03E+004	-1.816E+003	9.460E+003
	Bi-212	727.33	6.67	2.613E+005	2.61E+005	8.794E+003	1.210E+005
	Pb-212	238.63	43.60	4.240E+004	4.24E+004	3.552E+004	2.038E+004
+	Bi-214	609.32*	45.49	1.930E+004	1.93E+004	3.724E+004	8.354E+003
		1120.29	14.92	1.404E+005		-1.807E+004	6.481E+004
		1764.49*	15.30	5.078E+004		8.252E+004	1.854E+004
	Pb-214	295.22	18.42	9.456E+004	5.31E+004	-1.028E+003	4.511E+004
		351.93	35.60	5.315E+004		3.803E+004	2.534E+004
	Ra-226	186.21	3.64	5.185E+005	5.19E+005	2.032E+005	2.506E+005
	Ac-228	338.32	11.27	1.577E+005	8.73E+004	1.841E+004	7.504E+004
		911.20	25.80	8.731E+004		3.077E+004	4.086E+004
		968.97	15.80	1.320E+005		1.026E+005	6.127E+004
	Am-241	59.54	35.90	5.850E+004	5.85E+004	2.969E+004	2.795E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002686.CNF

Report Generated On	:	4/5/2018 12:10:03 PM
Sample Title	:	B101100AFSWM065GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	065
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/22/2018 2:10:00 PM
Acquisition Started	:	3/22/2018 2:10:11 PM
Live Time	:	600.0 seconds
Real Time	:	601.3 seconds
Dead Time	:	0.21 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 1747
DRMihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5452A
Sample Title: B101100AFSWM065GD
Peak Analysis Performed on: 4/5/2018 12:10:03 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	287-	307	301.28	75.32	0.62	1.07E+002	53.94	1.70E+002
2	334-	346	340.38	85.09	0.73	2.32E+001	34.74	1.05E+002
3	1174-	1185	1180.30	295.08	1.34	2.75E+001	19.12	2.55E+001
4	1403-	1416	1409.58	352.39	1.30	4.05E+001	21.86	2.85E+001
5	2431-	2444	2437.23	609.31	0.40	4.20E+001	19.45	1.90E+001
6	2637-	2655	2646.83	661.71	1.31	8.37E+001	24.94	2.13E+001
7	4475-	4488	4481.81	1120.45	0.83	1.68E+001	13.43	1.02E+001
8	4685-	4703	4694.05	1173.51	0.88	7.14E+001	22.07	1.46E+001
9	5321-	5340	5330.63	1332.66	1.77	7.50E+001	19.24	5.00E+000
10	5836-	5855	5845.69	1461.42	1.08	9.32E+001	22.57	9.80E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM065GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.00726E+005	1.54518E+005
Co-60	1.000	1173.23*	99.85	4.35136E+004	1.38832E+004
		1332.49*	99.98	4.87227E+004	1.30898E+004
Cs-137	1.000	661.66*	85.10	4.47300E+004	1.43674E+004
Eu-155	0.337	86.55*	30.70	1.77825E+004	2.68440E+004
		105.31	21.10		
Bi-214	0.737	609.32*	45.49	4.01823E+004	1.92288E+004
		1120.29*	14.92	6.68519E+004	5.37107E+004
		1764.49	15.30		
Pb-214	1.000	295.22*	18.42	4.40575E+004	3.14809E+004
		351.93*	35.60	3.68841E+004	2.07798E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
****************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T    *****
****************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.007260E+005	1.545184E+005
Co-60	1.000	4.627124E+004	9.524046E+003
Cs-137	1.000	4.472995E+004	1.436742E+004
Eu-155	0.337	1.778254E+004	2.684397E+004
Bi-214	0.737	4.321213E+004	1.810360E+004
Pb-214	1.000	3.906108E+004	1.734244E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 12:10:03 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.32	1.7797E-001	50.51		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM065GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.413E+005	1.41E+005	6.007E+005	6.192E+004
+	Co-60	1173.23*	99.85	1.586E+004	1.07E+004	4.351E+004	7.105E+003
		1332.49*	99.98	1.070E+004		4.872E+004	4.471E+003
	Nb-94	702.65	99.81	1.731E+004	1.73E+004	1.374E+004	8.022E+003
		871.09	99.89	1.890E+004		1.592E+004	8.747E+003
	Ag-108m	433.90	90.50	1.670E+004	1.56E+004	-4.915E+003	7.809E+003
		614.30	89.80	2.453E+004		-6.457E+002	1.161E+004
		722.90	90.80	1.561E+004		-6.032E+003	7.096E+003
	Cs-134	604.72	97.62	2.278E+004	1.96E+004	-1.679E+004	1.079E+004
		795.86	85.46	1.957E+004		7.683E+002✓	8.994E+003
+	Cs-137	661.66*	85.10	1.634E+004	1.63E+004	4.473E+004	7.447E+003
	Eu-152	121.78	28.67	6.529E+004	5.85E+004	2.116E+004	3.163E+004
		344.28	26.60	5.848E+004		-2.576E+004	2.761E+004
		1408.01	21.07	8.986E+004		6.875E+004	4.062E+004
	Eu-154	123.07	40.40	4.614E+004	3.99E+004	-4.131E+003	2.235E+004
		723.30	20.06	7.067E+004		7.297E+003✓	3.213E+004
		1274.43	34.80	3.992E+004		-5.243E+004	1.749E+004
+	Eu-155	86.55*	30.70	4.412E+004	4.41E+004	1.778E+004	2.103E+004
		105.31	21.10	8.550E+004		-7.497E+004	4.133E+004
	Tl-208	583.19	85.00	2.257E+004	2.26E+004	2.235E+004	1.061E+004
	Bi-212	727.33	6.67	2.347E+005	2.35E+005	1.107E+005	1.077E+005
	Pb-212	238.63	43.60	4.260E+004	4.26E+004	2.541E+004	2.048E+004
+	Bi-214	609.32*	45.49	2.542E+004	2.54E+004	4.018E+004	1.141E+004
		1120.29*	14.92	8.040E+004		6.685E+004	3.482E+004
		1764.49	15.30	1.108E+005		4.854E+004	4.855E+004
+	Pb-214	295.22*	18.42	4.656E+004	2.91E+004	4.406E+004	2.111E+004
		351.93*	35.60	2.912E+004		3.688E+004	1.333E+004
	Ra-226	186.21	3.64	5.041E+005	5.04E+005	-2.864E+004	2.433E+005
	Ac-228	338.32	11.27	1.341E+005	8.08E+004	-2.395E+004	6.322E+004
		911.20	25.80	8.081E+004		6.727E+004	3.761E+004
		968.97	15.80	1.207E+005		-1.176E+004	5.564E+004
	Am-241	59.54	35.90	5.706E+004	5.71E+004	2.162E+004	2.723E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S               *****
*****************************************************************************
```

ilename: C:\GENIE2K\CAMFILES\00004309.CNF

Report Generated On	:	4/5/2018 3:34:18 PM
Sample Title	:	B101100AFSWM066GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	066
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/21/2018 3:16:00 PM
Acquisition Started	:	3/21/2018 3:19:59 PM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.04 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/6/18 0529
DRMichalke

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSWM066GD
Peak Analysis Performed on: 4/5/2018 3:34:18 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	124-	133	129.10	32.27	0.52	2.83E+001	22.35	4.27E+001
2	288-	309	301.85	75.46	0.80	1.21E+002	52.07	1.49E+002
3	330-	345	340.17	85.04	1.00	7.25E+001	39.94	1.07E+002
4	952-	962	957.36	239.34	0.82	1.14E+001	26.42	6.86E+001
5	2041-	2052	2046.91	511.73	0.46	1.56E+001	19.52	3.14E+001
6	2434-	2447	2441.19	610.30	0.75	2.87E+001	15.82	1.23E+001
7	2643-	2661	2651.71	662.93	1.44	2.95E+002	36.15	9.50E+000
8	4692-	4713	4702.24	1175.56	1.90	1.95E+002	31.50	1.39E+001
9	5331-	5354	5341.57	1335.39	1.25	2.24E+002	30.86	3.31E+000
10	5846-	5867	5855.75	1463.94	1.25	1.29E+002	22.72	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

rrors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM066GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.985	1460.82*	10.66	8.25107E+005	1.61999E+005
Co-60	0.989	1173.23*	99.85	1.18400E+005	2.13412E+004
		1332.49*	99.98	1.44526E+005	2.30473E+004
Cs-137	0.997	661.66*	85.10	1.56206E+005	2.68127E+004
Eu-155	0.337	86.55*	30.70	5.57211E+004	3.26777E+004
		105.31	21.10		
Pb-212	0.999	238.63*	43.60	6.91727E+003	1.60375E+004
Bi-214	0.443	609.32*	45.49	2.73178E+004	1.53980E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.985	8.251074E+005	1.619992E+005
Co-60	0.989	1.304602E+005✓	1.565893E+004
Cs-137	0.997	1.562059E+005✓	2.681266E+004
Eu-155	0.337	5.572111E+004	3.267768E+004
Pb-212	0.999	6.917266E+003	1.603748E+004
Bi-214	0.443	2.731776E+004	1.539802E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 3:34:18 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.27	4.7218E-002	78.90		
2	75.46	2.0083E-001	43.21		
5	511.73	2.6055E-002	124.84		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM066GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.731E+004	1.73E+004	8.251E+005	0.000E+000
+	Co-60	1173.23*	99.85	1.619E+004	9.80E+003	1.184E+005	7.275E+003
		1332.49*	99.98	9.803E+003		1.445E+005	4.027E+003
	Nb-94	702.65	99.81	1.672E+004	1.67E+004	3.718E+002	7.730E+003
		871.09	99.89	2.077E+004		1.227E+004	9.688E+003
	Ag-108m	433.90	90.50	1.985E+004	1.99E+004	-3.982E+003	9.385E+003
		614.30	89.80	2.216E+004		9.848E+003	1.043E+004
		722.90	90.80	2.086E+004		9.096E+003	9.728E+003
	Cs-134	604.72	97.62	1.977E+004	1.98E+004	-2.572E+003	9.289E+003
		795.86	85.46	2.076E+004	0.0E+0 ✓	-6.513E+003	9.597E+003
+	Cs-137	661.66*	85.10	1.134E+004	1.13E+004	1.562E+005	4.951E+003
	Eu-152	121.78	28.67	6.788E+004	6.79E+004	2.997E+004✓	3.292E+004
		344.28	26.60	6.818E+004		1.297E+004	3.246E+004
		1408.01	21.07	8.065E+004		7.591E+004	3.605E+004
	Eu-154	123.07	40.40	4.812E+004	4.26E+004	-1.454E+004	2.334E+004
		723.30	20.06	9.444E+004		7.672E+004✓	4.404E+004
		1274.43	34.80	4.264E+004		-3.470E+004	1.886E+004
+	Eu-155	86.55*	30.70	4.779E+004	4.78E+004	5.572E+004	2.286E+004
		105.31	21.10	8.583E+004		-5.107E+004	4.149E+004
	Tl-208	583.19	85.00	2.216E+004	2.22E+004	-3.797E+003	1.041E+004
	Bi-212	727.33	6.67	2.828E+005	2.83E+005	2.686E+005	1.318E+005
+	Pb-212	238.63*	43.60	2.708E+004	2.71E+004	6.917E+003	1.272E+004
+	Bi-214	609.32*	45.49	2.077E+004	2.08E+004	2.732E+004	9.101E+003
		1120.29	14.92	1.383E+005		1.296E+005	6.378E+004
		1764.49	15.30	1.149E+005		9.501E+004	5.071E+004
	Pb-214	295.22	18.42	9.879E+004	5.37E+004	-3.040E+004	4.723E+004
		351.93	35.60	5.367E+004		-6.355E+003	2.561E+004
	Ra-226	186.21	3.64	5.224E+005	5.22E+005	-3.116E+005	2.525E+005
	Ac-228	338.32	11.27	1.508E+005	8.53E+004	-1.523E+005	7.158E+004
		911.20	25.80	8.534E+004		2.685E+004	3.990E+004
		968.97	15.80	1.576E+005		9.124E+004	7.410E+004
	Am-241	59.54	35.90	5.922E+004	5.92E+004	-2.705E+004	2.832E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S             *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004320.CNF

Report Generated On              : 4/5/2018    5:23:18 PM

Sample Title                     : B101100AFSWM067GD
Sample Description               : UNIT 1 CONTAINMENT 565'
Sample Identification            : 067
Sample Type                      : GAMMA DIRECT
Sample Geometry                  :

Peak Locate Threshold            :  3.00
Peak Locate Range (in channels)  :    85 -  8192
Peak Area Range (in channels)    :    85 -  8192
Identification Energy Tolerance  :   10.000 keV

Sample Size                      :  2.830E+001 M^2

Sample Taken On                  : 3/22/2018   8:09:00 AM
Acquisition Started              : 3/22/2018   8:10:25 AM

Live Time                        :      600.0 seconds
Real Time                        :      600.2 seconds

Dead Time                        :   0.03 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/6/18 0544
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSWM067GD
Peak Analysis Performed on: 4/5/2018 5:23:18 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	288-	306	300.87	75.22	0.93	1.38E+002	44.34	1.05E+002
2	333-	344	339.05	84.76	0.40	2.58E+001	33.16	9.92E+001
3	1403-	1415	1408.23	352.06	1.35	2.35E+001	18.88	2.45E+001
4	2637-	2655	2646.82	661.70	1.31	2.53E+002	34.25	1.19E+001
5	4683-	4702	4692.81	1173.20	1.02	1.38E+002	26.31	9.98E+000
6	5321-	5342	5331.27	1332.82	1.97	1.12E+002	22.21	2.88E+000
7	5628-	5641	5634.83	1408.71	0.28	1.40E+001	7.48	0.00E+000
8	5836-	5855	5844.78	1461.19	1.57	1.14E+002	24.02	8.98E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSWM067GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.28426E+005	1.65990E+005
Co-60	1.000	1173.23*	99.85	8.36984E+004	1.73033E+004
		1332.49*	99.98	7.23600E+004	1.54616E+004
Cs-137	1.000	661.66*	85.10	1.34142E+005	2.42662E+004
Eu-155	0.336	86.55*	30.70	1.98659E+004	2.58857E+004
		105.31	21.10		
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.13004E+004	1.74797E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.284256E+005	1.659900E+005
Co-60	1.000	7.739391E+004✓	1.152935E+004
Cs-137	1.000	1.341415E+005✓	2.426616E+004
Eu-155	0.336	1.986590E+004	2.588570E+004
Pb-214	0.438	2.130036E+004	1.747970E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 5:23:18 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.22	2.3074E-001	32.03		
7	1408.71	2.3333E-002	53.45	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSWM067GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.329E+005	1.33E+005	7.284E+005	5.779E+004
+	Co-60	1173.23*	99.85	1.345E+004	8.87E+003	8.370E+004	5.905E+003
		1332.49*	99.98	8.870E+003		7.236E+004	3.562E+003
	Nb-94	702.65	99.81	1.672E+004	1.67E+004	-5.933E+003	7.730E+003
		871.09	99.89	1.679E+004		6.863E+003	7.694E+003
	Ag-108m	433.90	90.50	1.920E+004	1.81E+004	-4.294E+003	9.057E+003
		614.30	89.80	2.039E+004		1.422E+004	9.540E+003
		722.90	90.80	1.812E+004		1.081E+004	8.359E+003
	Cs-134	604.72	97.62	1.920E+004	1.92E+004	9.063E+003✓	9.002E+003
		795.86	85.46	1.919E+004		4.618E+003	8.812E+003
+	Cs-137	661.66*	85.10	1.247E+004	1.25E+004	1.341E+005	5.518E+003
	Eu-152	121.78	28.67	6.704E+004	5.54E+004	1.541E+004✓	3.250E+004
		344.28	26.60	5.537E+004		-2.456E+004	2.606E+004
		1408.01	21.07	7.913E+004		4.486E+004	3.529E+004
	Eu-154	123.07	40.40	4.759E+004	3.97E+004	3.586E+004✓	2.307E+004
		723.30	20.06	8.126E+004		1.050E+004	3.745E+004
		1274.43	34.80	3.969E+004		1.883E+004	1.739E+004
+	Eu-155	86.55*	30.70	4.215E+004	4.21E+004	1.987E+004	2.003E+004
		105.31	21.10	8.739E+004		4.197E+003	4.228E+004
	Tl-208	583.19	85.00	2.190E+004	2.19E+004	4.250E+003	1.028E+004
	Bi-212	727.33	6.67	2.327E+005	2.33E+005	-3.228E+005	1.068E+005
	Pb-212	238.63	43.60	4.268E+004	4.27E+004	-1.980E+004	2.052E+004
	Bi-214	609.32	45.49	4.260E+004	4.26E+004	5.329E+004	2.001E+004
		1120.29	14.92	1.300E+005		-1.031E+005	5.966E+004
		1764.49	15.30	1.275E+005		1.200E+005	5.699E+004
+	Pb-214	295.22	18.42	9.966E+004	2.67E+004	7.347E+004	4.767E+004
		351.93*	35.60	2.666E+004		2.130E+004	1.210E+004
	Ra-226	186.21	3.64	5.106E+005	5.11E+005	-2.752E+005	2.466E+005
	Ac-228	338.32	11.27	1.323E+005	7.88E+004	-2.610E+005	6.234E+004
		911.20	25.80	7.880E+004		-2.511E+004	3.663E+004
		968.97	15.80	1.230E+005		-1.669E+004	5.683E+004
	Am-241	59.54	35.90	5.470E+004	5.47E+004	-3.095E+004	2.606E+004

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S           *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00002687.CNF

Report Generated On	:	4/5/2018 12:11:19 PM
Sample Title	:	B101100AFSWM068GD
Sample Description	:	U1 CONTAINMENT - 565
Sample Identification	:	068
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.826E+001 M^2
Sample Taken On	:	3/22/2018 2:25:00 PM
Acquisition Started	:	3/22/2018 2:25:21 PM
Live Time	:	600.0 seconds
Real Time	:	601.1 seconds
Dead Time	:	0.18 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	3M0.153 cm Liner

Data Validated
4/5/18 1757
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5452A
Sample Title: B101100AFSWM068GD
Peak Analysis Performed on: 4/5/2018 12:11:19 PM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	275-	310	300.88	75.22	1.39	1.80E+002	65.12	1.61E+002
2	335-	346	340.21	85.05	0.34	4.65E+001	32.67	8.65E+001
3	2429-	2444	2436.01	609.00	1.29	5.60E+001	20.43	1.60E+001
4	2637-	2654	2646.16	661.54	1.01	8.54E+001	25.73	2.46E+001
5	4686-	4705	4694.30	1173.57	0.84	5.90E+001	19.49	1.00E+001
6	5326-	5341	5332.25	1333.06	0.73	5.61E+001	17.77	7.89E+000
7	5835-	5854	5844.30	1461.07	0.92	8.22E+001	21.57	9.78E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSWM068GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.29835E+005	1.46402E+005
Co-60	1.000	1173.23*	99.85	3.59336E+004	1.22129E+004
		1332.49*	99.98	3.64574E+004	1.19115E+004
Cs-137	1.000	661.66*	85.10	4.56297E+004	1.47964E+004
Eu-155	0.337	86.55*	30.70	3.56060E+004	2.60279E+004
		105.31	21.10		
Bi-214	0.444	609.32*	45.49	5.35831E+004	2.05811E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.298350E+005	1.464023E+005
Co-60	1.000	3.620205E+004√	8.527260E+003
Cs-137	1.000	4.562968E+004✓	1.479635E+004
Eu-155	0.337	3.560598E+004	2.602792E+004
Bi-214	0.444	5.358308E+004	2.058112E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 12:11:19 PM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.22	2.9937E-001	36.25		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****              N U C L I D E   M D A   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5452A
Sample Geometry:
Sample Title: B101100AFSWM068GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.412E+005	1.41E+005	5.298E+005	6.187E+004
+	Co-60	1173.23*	99.85	1.366E+004	1.20E+004	3.593E+004	6.008E+003
		1332.49*	99.98	1.198E+004		3.646E+004	5.112E+003
	Nb-94	702.65	99.81	1.671E+004	1.67E+004	-7.138E+003	7.719E+003
		871.09	99.89	1.804E+004		-4.171E+003	8.315E+003
	Ag-108m	433.90	90.50	1.725E+004	1.73E+004	6.769E+003	8.083E+003
		614.30	89.80	2.464E+004		-9.891E+002	1.166E+004
		722.90	90.80	1.774E+004		3.040E+003	8.164E+003
	Cs-134	604.72	97.62	2.218E+004	1.62E+004	-1.821E+004	1.049E+004
		795.86	85.46	1.618E+004	[illegible] ✓	-6.954E+003	7.302E+003
+	Cs-137	661.66*	85.10	1.717E+004	1.72E+004	4.563E+004	7.863E+003
	Eu-152	121.78	28.67	6.403E+004	6.04E+004	-6.939E+003	3.100E+004
		344.28	26.60	6.044E+004		1.425E+004✓	2.859E+004
		1408.01	21.07	7.976E+004		-2.737E+003	3.557E+004
	Eu-154	123.07	40.40	4.573E+004	4.19E+004	-1.224E+004	2.214E+004
		723.30	20.06	8.115E+004		3.131E+004✓	3.737E+004
		1274.43	34.80	4.192E+004		-9.407E+003	1.849E+004
+	Eu-155	86.55*	30.70	3.950E+004	3.95E+004	3.561E+004	1.871E+004
		105.31	21.10	8.692E+004		-6.507E+003	4.204E+004
	Tl-208	583.19	85.00	2.270E+004	2.27E+004	1.946E+004	1.067E+004
	Bi-212	727.33	6.67	2.347E+005	2.35E+005	7.092E+004	1.077E+005
	Pb-212	238.63	43.60	4.250E+004	4.25E+004	4.030E+004	2.043E+004
+	Bi-214	609.32*	45.49	2.448E+004	2.45E+004	5.358E+004	1.094E+004
		1120.29	14.92	1.391E+005		1.033E+005	6.415E+004
		1764.49	15.30	1.361E+005		1.367E+005	6.119E+004
	Pb-214	295.22	18.42	9.363E+004	4.69E+004	1.642E+004	4.464E+004
		351.93	35.60	4.691E+004		-1.146E+004	2.222E+004
	Ra-226	186.21	3.64	4.910E+005	4.91E+005	6.212E+004	2.368E+005
	Ac-228	338.32	11.27	1.433E+005	7.50E+004	4.813E+004	6.782E+004
		911.20	25.80	7.504E+004		4.983E+004	3.472E+004
		968.97	15.80	1.383E+005		7.099E+004	6.441E+004
	Am-241	59.54	35.90	5.850E+004	5.85E+004	2.904E+004	2.795E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
******************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S            *****
******************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004228.CNF

Report Generated On	:	4/5/2018 8:55:59 AM
Sample Title	:	B101100AFSFM075GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	075
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/15/2018 9:52:00 AM
Acquisition Started	:	3/15/2018 9:52:30 AM
Live Time	:	600.0 seconds
Real Time	:	600.3 seconds
Dead Time	:	0.05 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/5/18 1004
DRMihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM075GD
Peak Analysis Performed on: 4/5/2018 8:55:59 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	123-	137	128.47	32.12	0.56	7.02E+001	35.98	8.68E+001
2	154-	169	161.94	40.49	0.71	8.46E+001	39.76	1.03E+002
3	296-	308	301.43	75.36	0.82	4.26E+001	46.08	1.76E+002
4	332-	345	339.84	84.96	0.37	2.29E+001	40.61	1.39E+002
5	2634-	2658	2646.37	661.59	1.51	7.52E+002	61.08	4.37E+001
6	4681-	4706	4693.19	1173.30	1.50	3.44E+002	43.68	3.16E+001
7	5319-	5342	5330.51	1332.63	1.63	3.10E+002	36.55	6.00E+000
8	5627-	5640	5633.52	1408.38	0.32	2.23E+001	11.56	3.69E+000
9	5833-	5854	5844.61	1461.15	0.78	1.10E+002	23.79	8.38E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSFM075GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.00304E+005	1.63725E+005
Co-60	1.000	1173.23*	99.85	2.08844E+005	3.13166E+004
		1332.49*	99.98	2.00052E+005	2.85057E+004
Cs-137	1.000	661.66*	85.10	3.98623E+005	5.77847E+004
Eu-155	0.337	86.55*	30.70	1.76237E+004	3.14568E+004
		105.31	21.10		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.003043E+005	1.637246E+005
Co-60	1.000	2.040360E+005✓	2.108040E+004
Cs-137	1.000	3.986226E+005✓	5.778472E+004
Eu-155	0.337	1.762369E+004	3.145676E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 8:55:59 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.12	1.1700E-001	51.25		
2	40.49	1.4098E-001	47.01		
3	75.36	7.1050E-002	108.09		
8	1408.38	3.7179E-002	51.82	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM075GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.360E+005	1.36E+005	7.003E+005	5.938E+004
+	Co-60	1173.23*	99.85	2.461E+004	1.22E+004	2.088E+005	1.148E+004
		1332.49*	99.98	1.216E+004		2.001E+005	5.205E+003
	Nb-94	702.65	99.81	1.911E+004	1.91E+004	-6.535E+002	8.926E+003
		871.09	99.89	2.394E+004		1.297E+004	1.127E+004
	Ag-108m	433.90	90.50	2.444E+004	2.12E+004	1.144E+004	1.168E+004
		614.30	89.80	2.117E+004		6.942E+003	9.929E+003
		722.90	90.80	2.116E+004		1.188E+004	9.876E+003
	Cs-134	604.72	97.62	2.098E+004	2.10E+004✓	9.539E+003✓	9.893E+003
		795.86	85.46	2.560E+004		2.058E+004	1.202E+004
+	Cs-137	661.66*	85.10	2.484E+004	2.48E+004	3.986E+005	1.170E+004
	Eu-152	121.78	28.67	7.887E+004	7.89E+004	1.054E+005✓	3.842E+004
		344.28	26.60	8.188E+004		-1.068E+004	3.932E+004
		1408.01	21.07	9.685E+004		4.083E+004	4.415E+004
	Eu-154	123.07	40.40	5.542E+004	5.03E+004	1.397E+004✓	2.699E+004
		723.30	20.06	9.512E+004		-5.871E+002	4.438E+004
		1274.43	34.80	5.034E+004		-1.677E+004	2.272E+004
+	Eu-155	86.55*	30.70	5.206E+004	5.21E+004	1.762E+004	2.499E+004
		105.31	21.10	9.674E+004		-5.365E+003	4.695E+004
	Tl-208	583.19	85.00	2.341E+004	2.34E+004	-1.841E+003	1.103E+004
	Bi-212	727.33	6.67	3.139E+005	3.14E+005	2.876E+005	1.474E+005
	Pb-212	238.63	43.60	5.124E+004	5.12E+004	-4.189E+004	2.480E+004
	Bi-214	609.32	45.49	4.450E+004	4.45E+004	4.916E+004	2.097E+004
		1120.29	14.92	1.647E+005		6.097E+004	7.702E+004
		1764.49	15.30	1.344E+005		1.350E+005	6.045E+004
	Pb-214	295.22	18.42	1.227E+005	6.04E+004	1.168E+003	5.920E+004
		351.93	35.60	6.037E+004		-1.401E+004	2.896E+004
	Ra-226	186.21	3.64	6.079E+005	6.08E+005	4.336E+004	2.952E+005
	Ac-228	338.32	11.27	1.956E+005	8.53E+004	-1.486E+005	9.402E+004
		911.20	25.80	8.534E+004		-8.053E+004	3.990E+004
		968.97	15.80	1.756E+005		5.626E+004	8.314E+004
	Am-241	59.54	35.90	6.957E+004	6.96E+004	-1.556E+004	3.350E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S            *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004238.CNF

Report Generated On               : 4/5/2018    8:51:19 AM

Sample Title                      : B101100AFSFM076GD
Sample Description                : U1 Containment 565'
Sample Identification             : 076
Sample Type                       : GAMMA DIRECT
Sample Geometry                   :

Peak Locate Threshold             :  3.00
Peak Locate Range (in channels)   :    85 -  8192
Peak Area Range (in channels)     :    85 -  8192
Identification Energy Tolerance   :   10.000 keV

Sample Size                       :  2.830E+001 M^2

Sample Taken On                   : 3/15/2018   2:06:00 PM
Acquisition Started               : 3/15/2018   2:06:38 PM

Live Time                         :      600.0 seconds
Real Time                         :      601.2 seconds

Dead Time                         :   0.19 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : OD_0.153CM_LINER
```

Data Validated
4/5/18 10/6
DR Mihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSFM076GD
Peak Analysis Performed on: 4/5/2018 8:51:18 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	156-	167	160.97	40.24	0.68	1.38E+001	16.31	1.92E+001
2	591-	600	595.80	148.95	0.35	-5.73E+000	34.23	1.32E+002
3	2635-	2658	2646.30	661.58	0.58	3.45E+002	83.48	3.47E+002
4	4681-	4704	4692.70	1173.18	1.27	1.73E+002	44.08	7.79E+001
5	5317-	5340	5330.33	1332.58	1.34	1.41E+002	45.28	9.33E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****  N U C L I D E   I D E N T I F I C A T I O N   R E P O R T  *****
*****************************************************************************
```

Sample Title: B101100AFSFM076GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
Co-60	1.000	1173.23*	99.85	1.04965E+005	2.80195E+004
		1332.49*	99.98	9.07992E+004	3.01090E+004
Cs-137	1.000	661.66*	85.10	1.82950E+005	4.93891E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
Co-60	1.000	9.839062E+004✓	2.051173E+004
Cs-137	1.000	1.829499E+005✓	4.938907E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 8:51:18 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	40.24	2.2929E-002	118.52		
2	148.95	-9.5536E-003	-597.11	D-Esc.	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                    N U C L I D E   M D A   R E P O R T           *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM076GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
	K-40	1460.82	10.66	3.070E+005	3.07E+005	3.050E+005	1.448E+005
+	Co-60	1173.23*	99.85	3.692E+004	3.69E+004	1.050E+005	1.764E+004
		1332.49*	99.98	4.269E+004		9.080E+004	2.047E+004
	Nb-94	702.65	99.81	4.615E+004	3.19E+004	-2.437E+003	2.245E+004
		871.09	99.89	3.189E+004		-9.859E+003	1.525E+004
	Ag-108m	433.90	90.50	5.482E+004	4.84E+004	-4.387E+003	2.687E+004
		614.30	89.80	5.792E+004		1.670E+004	2.831E+004
		722.90	90.80	4.838E+004		4.840E+004	2.349E+004
	Cs-134	604.72	97.62	5.330E+004	3.88E+004	-1.052E+004	2.605E+004
		795.86	85.46	3.880E+004		2.115E+004✓	1.862E+004
+	Cs-137	661.66*	85.10	6.659E+004	6.66E+004	1.829E+005	3.258E+004
	Eu-152	121.78	28.67	3.132E+004	3.13E+004	2.533E+003✓	1.464E+004
		344.28	26.60	1.821E+005		-2.663E+004	8.941E+004
		1408.01	21.07	7.270E+004		-1.394E+004	3.207E+004
	Eu-154	123.07	40.40	2.310E+004	2.31E+004	7.043E+002✓	1.083E+004
		723.30	20.06	2.185E+005		2.270E+005	1.061E+005
		1274.43	34.80	5.188E+004		2.856E+004	2.349E+004
	Eu-155	86.55	30.70	2.618E+004	2.62E+004	-3.948E+003	1.207E+004
		105.31	21.10	3.631E+004		5.709E+003	1.673E+004
	Tl-208	583.19	85.00	6.421E+004	6.42E+004	2.286E+003	3.143E+004
	Bi-212	727.33	6.67	6.303E+005	6.30E+005	1.135E+005	3.056E+005
	Pb-212	238.63	43.60	9.142E+004	9.14E+004	-9.739E+003	4.489E+004
	Bi-214	609.32	45.49	1.151E+005	9.07E+004	6.463E+004	5.626E+004
		1120.29	14.92	2.174E+005		-1.273E+004	1.033E+005
		1764.49	15.30	9.070E+004		5.500E+004	3.858E+004
	Pb-214	295.22	18.42	2.390E+005	1.39E+005	4.378E+004	1.174E+005
		351.93	35.60	1.394E+005		-1.265E+004	6.847E+004
	Ra-226	186.21	3.64	9.293E+005	9.29E+005	9.885E+004	4.559E+005
	Ac-228	338.32	11.27	4.215E+005	1.18E+005	-4.676E+004	2.070E+005
		911.20	25.80	1.180E+005		3.626E+004	5.622E+004
		968.97	15.80	2.108E+005		5.285E+004	1.007E+005
	Am-241	59.54	35.90	3.234E+004	3.23E+004	-6.002E+003	1.488E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****     G A M M A   S P E C T R U M   A N A L Y S I S                *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004237.CNF

Report Generated On                : 4/5/2018    9:10:24 AM

Sample Title                       : B101100AFSFM077GD
Sample Description                 : U1 Containment 565'
Sample Identification              : 077
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/15/2018   1:53:00 PM
Acquisition Started                : 3/15/2018   1:53:40 PM

Live Time                          :      600.0 seconds
Real Time                          :      600.3 seconds

Dead Time                          :   0.04 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/5/18 1023
WR Mihalik

****
*****   P E A K   A N A L Y S I S   R E P O R T   *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM077GD
Peak Analysis Performed on: 4/5/2018 9:10:24 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	298-	308	302.14	75.54	1.35	8.11E+001	36.76	1.04E+002
2	949-	959	954.33	238.58	0.74	7.86E+000	28.52	8.21E+001
3	1402-	1414	1408.10	352.02	0.62	4.67E+001	22.51	3.03E+001
4	2634-	2657	2646.12	661.53	1.99	4.49E+002	46.70	2.40E+001
5	4682-	4705	4692.95	1173.24	1.68	2.72E+002	38.16	2.33E+001
6	5318-	5342	5330.41	1332.60	1.98	2.84E+002	34.48	3.20E+000
7	5627-	5640	5633.39	1408.35	0.67	1.71E+001	9.57	1.92E+000
8	5833-	5855	5843.57	1460.89	2.13	1.37E+002	23.41	0.00E+000
9	7053-	7068	7060.90	1765.22	0.38	2.30E+001	9.59	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSFM077GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	8.75152E+005	1.67741E+005
Co-60	1.000	1173.23*	99.85	1.64742E+005	2.66310E+004
		1332.49*	99.98	1.83143E+005	2.66429E+004
Cs-137	1.000	661.66*	85.10	2.37889E+005	3.77958E+004
Pb-212	1.000	238.63*	43.60	4.74826E+003	1.72572E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	4.24031E+004	2.15356E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	8.751522E+005	1.677408E+005
Co-60	1.000	1.739387E+005✓	1.883518E+004
Cs-137	1.000	2.378892E+005✓	3.779583E+004
Pb-212	1.000	4.748260E+003	1.725725E+004
Pb-214	0.438	4.240308E+004	2.153561E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 9:10:24 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.54	1.3520E-001	45.31		
7	1408.35	2.8465E-002	56.05	Sum	
9	1765.22	3.8333E-002	41.70	Tol.	Bi-214

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM077GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.729E+004	1.73E+004	8.752E+005	0.000E+000
+	Co-60	1173.23*	99.85	2.082E+004	9.54E+003	1.647E+005	9.588E+003
		1332.49*	99.98	9.538E+003		1.831E+005	3.896E+003
	Nb-94	702.65	99.81	1.817E+004	1.82E+004	-2.979E+003	8.454E+003
		871.09	99.89	2.276E+004		2.390E+004	1.068E+004
	Ag-108m	433.90	90.50	2.066E+004	2.07E+004	-1.017E+004	9.790E+003
		614.30	89.80	2.625E+004		1.405E+004	1.247E+004
		722.90	90.80	2.216E+004		4.976E+002	1.038E+004
	Cs-134	604.72	97.62	2.413E+004	2.41E+004	2.115E+004✓	1.147E+004
		795.86	85.46	2.515E+004		1.271E+004	1.179E+004
+	Cs-137	661.66*	85.10	1.854E+004	1.85E+004	2.379E+005	8.554E+003
	Eu-152	121.78	28.67	7.578E+004	7.58E+004	2.068E+004✓	3.687E+004
		344.28	26.60	7.885E+004		2.632E+004	3.780E+004
		1408.01	21.07	8.214E+004		7.907E+004	3.679E+004
	Eu-154	123.07	40.40	5.373E+004	4.26E+004	5.149E+004✓	2.614E+004
		723.30	20.06	1.010E+005		5.730E+003	4.731E+004
		1274.43	34.80	4.264E+004		-2.699E+004	1.886E+004
	Eu-155	86.55	30.70	6.695E+004	6.70E+004	7.311E+004	3.245E+004
		105.31	21.10	9.338E+004		-4.191E+004	4.527E+004
	Tl-208	583.19	85.00	2.292E+004	2.29E+004	1.154E+004	1.079E+004
	Bi-212	727.33	6.67	3.045E+005	3.05E+005	-7.863E+004	1.427E+005
+	Pb-212	238.63*	43.60	2.944E+004	2.94E+004	4.748E+003	1.390E+004
	Bi-214	609.32	45.49	5.277E+004	5.28E+004	7.698E+003	2.510E+004
		1120.29	14.92	1.733E+005		1.573E+005	8.130E+004
		1764.49	15.30	1.322E+005		8.746E+004	5.932E+004
+	Pb-214	295.22	18.42	1.104E+005	2.92E+004	9.169E+004	5.303E+004
		351.93*	35.60	2.917E+004		4.240E+004	1.336E+004
	Ra-226	186.21	3.64	5.544E+005	5.54E+005	-4.894E+004	2.685E+005
	Ac-228	338.32	11.27	1.800E+005	8.65E+004	-1.670E+005	8.620E+004
		911.20	25.80	8.647E+004		-2.035E+004	4.046E+004
		968.97	15.80	1.677E+005		7.566E+004	7.916E+004
	Am-241	59.54	35.90	6.227E+004	6.23E+004	-3.418E+004	2.984E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S             *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004239.CNF

Report Generated On                 : 4/5/2018    9:39:12 AM

Sample Title                        : B101100AFSFM078GD
Sample Description                  : U1 Containment 565'
Sample Identification               : 078
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.830E+001 M^2

Sample Taken On                     : 3/15/2018   2:22:00 PM
Acquisition Started                 : 3/15/2018   2:22:26 PM

Live Time                           :      600.0 seconds
Real Time                           :      600.6 seconds

Dead Time                           :   0.10 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/5/18 1030
DR Mihalk

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*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                  *****
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Detector Name: 5456-A
Sample Title: B101100AFSFM078GD
Peak Analysis Performed on: 4/5/2018 9:39:12 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	2638-	2657	2647.87	661.97	0.92	1.06E+002	41.96	9.52E+001
2	4686-	4703	4693.49	1173.37	0.38	4.84E+001	23.28	2.56E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSFM078GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
Cs-137	1.000	661.66*	85.10	5.60755E+004	2.32346E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
Cs-137	1.000	5.607547E+004	2.323461E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 9:39:12 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
2	1173.37	8.0614E-002	48.13	Tol.	Co-60

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM078GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
	K-40	1460.82	10.66	3.789E+005	3.79E+005	9.454E+005	1.808E+005
	Co-60	1173.23	99.85	3.418E+004	3.42E+004	5.278E+004	1.627E+004
		1332.49	99.98	3.777E+004		6.866E+004✓	1.801E+004
	Nb-94	702.65	99.81	1.963E+004	1.95E+004	6.656E+002	9.185E+003
		871.09	99.89	1.954E+004		7.929E+003	9.072E+003
	Ag-108m	433.90	90.50	1.967E+004	1.97E+004	-4.089E+003	9.293E+003
		614.30	89.80	2.287E+004		1.618E+004	1.078E+004
		722.90	90.80	2.040E+004		8.280E+003	9.501E+003
	Cs-134	604.72	97.62	2.140E+004	2.13E+004	-4.643E+003	1.010E+004
		795.86	85.46	2.131E+004		1.531E+004✓	9.875E+003
+	Cs-137	661.66*	85.10	3.332E+004	3.33E+004	5.608E+004	1.594E+004
	Eu-152	121.78	28.67	1.418E+005	7.86E+004	1.124E+005✓	6.986E+004
		344.28	26.60	7.864E+004		2.258E+004	3.769E+004
		1408.01	21.07	8.065E+004		2.069E+004	3.605E+004
	Eu-154	123.07	40.40	9.957E+004	4.54E+004	-8.723E+004	4.906E+004
		723.30	20.06	9.444E+004		7.579E+004✓	4.404E+004
		1274.43	34.80	4.537E+004		-2.891E+004	2.023E+004
	Eu-155	86.55	30.70	1.470E+005	1.47E+005	-2.791E+004	7.248E+004
		105.31	21.10	2.035E+005		7.561E+004	1.003E+005
	Tl-208	583.19	85.00	2.470E+004	2.47E+004	1.275E+004	1.168E+004
	Bi-212	727.33	6.67	2.657E+005	2.66E+005	2.194E+004	1.233E+005
	Pb-212	238.63	43.60	4.708E+004	4.71E+004	-1.603E+003	2.272E+004
	Bi-214	609.32	45.49	4.633E+004	4.63E+004	3.254E+004	2.188E+004
		1120.29	14.92	1.435E+005		8.211E+004	6.638E+004
		1764.49	15.30	1.036E+005		7.501E+004	4.505E+004
	Pb-214	295.22	18.42	1.002E+005	5.82E+004	5.889E+004	4.796E+004
		351.93	35.60	5.817E+004		3.450E+004	2.786E+004
	Ra-226	186.21	3.64	8.899E+005	8.90E+005	5.771E+005	4.362E+005
	Ac-228	338.32	11.27	1.739E+005	7.63E+004	-1.468E+005	8.317E+004
		911.20	25.80	7.628E+004		-5.842E+003	3.537E+004
		968.97	15.80	1.495E+005		6.262E+004	7.007E+004
	Am-241	59.54	35.90	1.333E+005	1.33E+005	1.369E+005	6.536E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004240.CNF

Report Generated On	:	4/5/2018 9:40:19 AM
Sample Title	:	B101100AFSFM079GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	079
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/15/2018 2:41:00 PM
Acquisition Started	:	3/15/2018 2:40:35 PM
Live Time	:	600.0 seconds
Real Time	:	600.6 seconds
Dead Time	:	0.09 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/5/18 1037
DR Michalk

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM079GD
Peak Analysis Performed on: 4/5/2018 9:40:18 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1531-	1542	1536.08	384.02	0.43	6.77E+000	18.80	3.22E+001
2	2632-	2660	2646.52	661.63	1.38	3.22E+002	39.43	1.45E+001
3	4683-	4703	4692.83	1173.21	1.40	1.06E+002	27.77	2.37E+001
4	5321-	5340	5331.08	1332.77	0.43	8.29E+001	27.53	3.01E+001
5	5836-	5854	5844.44	1461.11	1.86	9.57E+001	25.59	2.03E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*****************************************************************************
```

Sample Title: B101100AFSFM079GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.11264E+005	1.71894E+005
Co-60	1.000	1173.23*	99.85	6.44366E+004	1.76118E+004
		1332.49*	99.98	5.35028E+004	1.82741E+004
Cs-137	1.000	661.66*	85.10	1.70363E+005	2.92412E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.112637E+005	1.718936E+005
Co-60	1.000	5.917146E+004✓	1.268110E+004
Cs-137	1.000	1.703633E+005✓	2.924116E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 9:40:18 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	384.02	1.1282E-002	277.72		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                  N U C L I D E   M D A   R E P O R T             *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM079GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.907E+005	1.91E+005	6.113E+005	8.669E+004
+	Co-60	1173.23*	99.85	2.020E+004	2.02E+004	6.444E+004	9.280E+003
		1332.49*	99.98	2.366E+004		5.350E+004	1.096E+004
	Nb-94	702.65	99.81	1.641E+004	1.64E+004	-5.674E+002	7.577E+003
		871.09	99.89	1.734E+004		8.523E+003	7.971E+003
	Ag-108m	433.90	90.50	1.801E+004	1.80E+004	-1.309E+004	8.466E+003
		614.30	89.80	2.368E+004		1.504E+004	1.119E+004
		722.90	90.80	1.847E+004		1.789E+003	8.532E+003
	Cs-134	604.72	97.62	2.191E+004	1.83E+004	1.277E+004√	1.036E+004
		795.86	85.46	1.835E+004		7.446E+003	8.392E+003
+	Cs-137	661.66*	85.10	1.571E+004	1.57E+004	1.704E+005	7.140E+003
	Eu-152	121.78	28.67	6.751E+004	6.75E+004	3.718E+004√	3.274E+004
		344.28	26.60	6.890E+004		5.025E+004	3.282E+004
		1408.01	21.07	8.065E+004		5.294E+004	3.605E+004
	Eu-154	123.07	40.40	4.812E+004	3.97E+004	3.822E+004√	2.334E+004
		723.30	20.06	8.126E+004		1.786E+003	3.745E+004
		1274.43	34.80	3.969E+004		1.512E+004	1.739E+004
	Eu-155	86.55	30.70	8.177E+004	8.18E+004	6.779E+004	3.986E+004
		105.31	21.10	8.640E+004		-4.121E+004	4.178E+004
	Tl-208	583.19	85.00	2.069E+004	2.07E+004	3.106E+003	9.674E+003
	Bi-212	727.33	6.67	2.377E+005	2.38E+005	8.329E+004	1.093E+005
	Pb-212	238.63	43.60	4.429E+004	4.43E+004	3.996E+004	2.133E+004
	Bi-214	609.32	45.49	4.829E+004	4.83E+004	7.154E+004	2.286E+004
		1120.29	14.92	1.356E+005		-4.830E+004	6.244E+004
		1764.49	15.30	1.251E+005		1.150E+005	5.579E+004
	Pb-214	295.22	18.42	9.581E+004	5.28E+004	1.624E+004	4.574E+004
		351.93	35.60	5.279E+004		4.264E+003	2.517E+004
	Ra-226	186.21	3.64	5.197E+005	5.20E+005	2.616E+005	2.511E+005
	Ac-228	338.32	11.27	1.572E+005	7.82E+004	-2.218E+005	7.479E+004
		911.20	25.80	7.818E+004		2.951E+003	3.632E+004
		968.97	15.80	1.318E+005		6.314E+003	6.121E+004
	Am-241	59.54	35.90	1.987E+005	1.99E+005	1.113E+005	9.806E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S             *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004259.CNF

Report Generated On                 : 4/5/2018   10:42:46 AM

Sample Title                        : B101100AFSFM080GD
Sample Description                  : U1 Containment 565'
Sample Identification               : 080
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.830E+001 M^2

Sample Taken On                     : 3/19/2018   2:09:00 PM
Acquisition Started                 : 3/19/2018   2:09:06 PM

Live Time                           :      600.0 seconds
Real Time                           :      600.2 seconds

Dead Time                           :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/5/18 1145
DR Mihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM080GD
Peak Analysis Performed on: 4/5/2018 10:42:46 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	284-	311	301.13	75.28	1.35	2.11E+002	53.88	1.15E+002
2	2634-	2657	2645.40	661.35	1.64	4.35E+002	46.12	2.41E+001
3	4681-	4701	4691.99	1173.00	1.82	1.18E+002	22.61	2.60E+000
4	5319-	5339	5329.08	1332.27	0.42	1.24E+002	26.58	1.36E+001
5	5833-	5854	5842.28	1460.57	1.33	1.28E+002	23.33	2.45E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSFM080GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	8.14665E+005	1.64960E+005
Co-60	1.000	1173.23*	99.85	7.17934E+004	1.48642E+004
		1332.49*	99.98	8.02466E+004	1.83132E+004
Cs-137	1.000	661.66*	85.10	2.30400E+005	3.69132E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	8.146650E+005	1.649596E+005
Co-60	1.000	7.515065E+004✓	1.154102E+004
Cs-137	1.000	2.303997E+005✓	3.691318E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

**********   U N I D E N T I F I E D   P E A K S   **********

Peak Locate Performed on: 4/5/2018 10:42:46 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.28	3.5241E-001	25.48		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM080GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	7.870E+004	7.87E+004	8.147E+005	3.071E+004
+	Co-60	1173.23*	99.85	7.758E+003	7.76E+003	7.179E+004	3.059E+003
		1332.49*	99.98	1.709E+004		8.025E+004	7.674E+003
	Nb-94	702.65	99.81	1.512E+004	1.51E+004	-6.633E+003	6.931E+003
		871.09	99.89	1.856E+004		7.778E+003	8.581E+003
	Ag-108m	433.90	90.50	1.900E+004	1.74E+004	-2.132E+004	8.962E+003
		614.30	89.80	2.117E+004		1.565E+004	9.929E+003
		722.90	90.80	1.741E+004		9.247E+003	8.004E+003
	Cs-134	604.72	97.62	1.943E+004	1.92E+004	4.604E+003✓	9.118E+003
		795.86	85.46	1.919E+004		-6.932E+003	8.812E+003
+	Cs-137	661.66*	85.10	1.859E+004	1.86E+004	2.304E+005	8.577E+003
	Eu-152	121.78	28.67	6.405E+004	6.41E+004	1.406E+004✓	3.101E+004
		344.28	26.60	7.215E+004		-2.907E+004	3.445E+004
		1408.01	21.07	8.214E+004		2.840E+004	3.679E+004
	Eu-154	123.07	40.40	4.554E+004	4.54E+004	-2.496E+004	2.205E+004
		723.30	20.06	7.883E+004		-2.151E+004	3.624E+004
		1274.43	34.80	4.537E+004		1.037E+004✓	2.023E+004
	Eu-155	86.55	30.70	6.312E+004	6.31E+004	1.019E+005	3.054E+004
		105.31	21.10	8.320E+004		-6.002E+004	4.018E+004
	Tl-208	583.19	85.00	1.970E+004	1.97E+004	3.323E+003	9.178E+003
	Bi-212	727.33	6.67	2.568E+005	2.57E+005	-9.397E+003	1.188E+005
	Pb-212	238.63	43.60	4.200E+004	4.20E+004	2.248E+004	2.018E+004
	Bi-214	609.32	45.49	4.427E+004	4.43E+004	5.422E+004	2.085E+004
		1120.29	14.92	1.422E+005		-1.596E+005	6.574E+004
		1764.49	15.30	1.227E+005		1.100E+005	5.456E+004
	Pb-214	295.22	18.42	9.520E+004	5.49E+004	-6.192E+004	4.543E+004
		351.93	35.60	5.487E+004		2.159E+004	2.621E+004
	Ra-226	186.21	3.64	5.224E+005	5.22E+005	-9.192E+004	2.525E+005
	Ac-228	338.32	11.27	1.644E+005	7.69E+004	-6.712E+004	7.842E+004
		911.20	25.80	7.692E+004		4.298E+004	3.569E+004
		968.97	15.80	1.286E+005		1.136E+005	5.961E+004
	Am-241	59.54	35.90	5.545E+004	5.54E+004	5.197E+004	2.643E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S         *****
*************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004260.CNF

```
Report Generated On                : 4/5/2018   11:08:08 AM

Sample Title                       : B101100AFSFM081GD
Sample Description                 : U1 Containment 565'
Sample Identification              : 081
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/19/2018   2:24:00 PM
Acquisition Started                : 3/19/2018   2:24:54 PM

Live Time                          :       600.0 seconds
Real Time                          :       675.5 seconds

Dead Time                          :  11.18 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : OD_0.153CM_LINER
```

Data Validated
4/5/18 1153
DRMihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM081GD
Peak Analysis Performed on: 4/5/2018 11:08:08 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	122-	169	160.18	40.05	0.39	1.57E+002	83.51	2.27E+002
2	284-	308	301.31	75.33	1.06	1.64E+002	54.26	1.39E+002
3	868-	877	872.24	218.06	0.52	3.53E+000	25.05	6.65E+001
4	2430-	2443	2437.06	609.27	0.84	4.53E+001	18.82	1.57E+001
5	2634-	2658	2645.43	661.36	1.50	7.84E+002	62.51	4.66E+001
6	4680-	4702	4691.51	1172.88	0.48	1.86E+002	28.09	2.88E+000
7	5318-	5341	5328.85	1332.21	1.00	1.95E+002	28.91	3.30E+000
8	5833-	5854	5843.48	1460.87	0.88	9.55E+001	20.45	2.54E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSFM081GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.09818E+005	1.40944E+005
Co-60	1.000	1173.23*	99.85	1.12850E+005	1.92784E+004
		1332.49*	99.98	1.25625E+005	2.11884E+004
Cs-137	1.000	661.66*	85.10	4.15547E+005	5.98925E+004
Bi-214	0.443	609.32*	45.49	4.29933E+004	1.86144E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.098176E+005	1.409441E+005
Co-60	1.000	1.186360E+005✓	1.425943E+004
Cs-137	1.000	4.155466E+005✓	5.989254E+004
Bi-214	0.443	4.299331E+004	1.861444E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 11:08:08 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	40.05	2.6190E-001	53.14		
2	75.33	2.7338E-001	33.08		
3	218.06	5.8869E-003	709.07		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                 N U C L I D E   M D A   R E P O R T               *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM081GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	8.055E+004	8.06E+004	6.098E+005	3.163E+004
+	Co-60	1173.23*	99.85	8.314E+003	8.31E+003	1.128E+005	3.337E+003
		1332.49*	99.98	9.757E+003		1.256E+005	4.006E+003
	Nb-94	702.65	99.81	1.731E+004	1.43E+004	-1.100E+003	8.028E+003
		871.09	99.89	1.434E+004		-3.923E+003	6.471E+003
	Ag-108m	433.90	90.50	2.283E+004	2.12E+004	-8.423E+003	1.088E+004
		614.30	89.80	2.402E+004		-2.628E+004	1.135E+004
		722.90	90.80	2.116E+004		8.147E+003	9.876E+003
	Cs-134	604.72	97.62	2.242E+004	1.86E+004	-4.333E+003	1.061E+004
		795.86	85.46	1.856E+004		1.612E+004 ✓	8.499E+003
+	Cs-137	661.66*	85.10	2.562E+004	2.56E+004	4.155E+005	1.209E+004
	Eu-152	121.78	28.67	7.264E+004	6.92E+004	2.077E+004 ✓	3.530E+004
		344.28	26.60	7.481E+004		-3.273E+004	3.578E+004
		1408.01	21.07	6.923E+004		2.879E+004	3.034E+004
	Eu-154	123.07	40.40	5.181E+004	4.36E+004	6.362E+003 ✓	2.518E+004
		723.30	20.06	9.777E+004		7.285E+004	4.571E+004
		1274.43	34.80	4.357E+004		-3.596E+004	1.933E+004
	Eu-155	86.55	30.70	6.230E+004	6.23E+004	4.969E+004	3.013E+004
		105.31	21.10	9.125E+004		-1.027E+004	4.421E+004
	Tl-208	583.19	85.00	2.328E+004	2.33E+004	1.617E+004	1.097E+004
	Bi-212	727.33	6.67	2.868E+005	2.87E+005	1.243E+005	1.338E+005
	Pb-212	238.63	43.60	4.716E+004	4.72E+004	-2.720E+003	2.276E+004
+	Bi-214	609.32*	45.49	2.314E+004	2.31E+004	4.299E+004	1.029E+004
		1120.29	14.92	1.383E+005		-6.317E+004	6.378E+004
		1764.49	15.30	1.036E+005		2.942E+004	4.505E+004
	Pb-214	295.22	18.42	1.008E+005	5.54E+004	4.626E+004	4.824E+004
		351.93	35.60	5.538E+004		-5.511E+003	2.646E+004
	Ra-226	186.21	3.64	5.790E+005	5.79E+005	1.416E+005	2.808E+005
	Ac-228	338.32	11.27	1.628E+005	8.24E+004	-2.051E+005	7.759E+004
		911.20	25.80	8.244E+004		-1.281E+004	3.845E+004
		968.97	15.80	1.184E+005		8.470E+004	5.451E+004
	Am-241	59.54	35.90	5.835E+004	5.83E+004	4.898E+003	2.788E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S          *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004262.CNF

Report Generated On	:	4/5/2018 11:03:12 AM
Sample Title	:	B101100AFSFM082GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	082
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/19/2018 2:59:00 PM
Acquisition Started	:	3/19/2018 3:00:48 PM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.04 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/5/18 1209
DRMihalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM082GD
Peak Analysis Performed on: 4/5/2018 11:03:11 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	123-	134	128.59	32.15	1.31	7.44E+001	30.19	6.06E+001
2	482-	492	487.85	121.96	0.47	3.53E+001	35.92	1.19E+002
3	2431-	2443	2437.39	609.35	0.36	2.83E+001	18.76	2.28E+001
4	2633-	2660	2646.12	661.53	1.97	6.76E+002	58.39	3.88E+001
5	4681-	4704	4692.93	1173.23	1.30	1.88E+002	31.49	1.50E+001
6	5319-	5341	5329.89	1332.47	0.58	1.70E+002	29.59	1.20E+001
7	5834-	5854	5843.27	1460.82	0.63	1.06E+002	22.34	5.25E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*****************************************************************************
```

Sample Title: B101100AFSFM082GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	6.75507E+005	1.54299E+005
Co-60	1.000	1173.23*	99.85	1.14013E+005	2.11652E+004
		1332.49*	99.98	1.09702E+005	2.10116E+004
Cs-137	1.000	661.66*	85.10	3.58272E+005	5.29951E+004
Bi-214	0.443	609.32*	45.49	2.68381E+004	1.81157E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	6.755068E+005	1.542986E+005
Co-60	1.000	1.118417E+005✓	1.491148E+004
Cs-137	1.000	3.582719E+005✓	5.299506E+004
Bi-214	0.443	2.683814E+004	1.811573E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 11:03:11 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	32.15	1.2406E-001	40.56		
2	121.96	5.8902E-002	101.65	Tol.	Eu-152 Eu-154

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*********************************************************************************
*****                N U C L I D E   M D A   R E P O R T                   *****
*********************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM082GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.090E+005	1.09E+005	6.755E+005	4.585E+004
+	Co-60	1173.23*	99.85	1.709E+004	1.66E+004	1.140E+005	7.725E+003
		1332.49*	99.98	1.658E+004		1.097E+005	7.417E+003
	Nb-94	702.65	99.81	1.657E+004	1.66E+004	-3.164E+002	7.654E+003
		871.09	99.89	2.136E+004		1.291E+002	9.982E+003
	Ag-108m	433.90	90.50	2.144E+004	1.91E+004	8.096E+003	1.018E+004
		614.30	89.80	2.424E+004		-1.864E+004	1.147E+004
		722.90	90.80	1.914E+004		-3.587E+003	8.867E+003
	Cs-134	604.72	97.62	2.109E+004	2.11E+004	-6.153E+003	9.946E+003
		795.86	85.46	2.255E+004		8.272E+003	1.050E+004
+	Cs-137	661.66*	85.10	2.458E+004	2.46E+004	3.583E+005	1.157E+004
	Eu-152	121.78	28.67	7.410E+004	7.41E+004	5.815E+004	3.603E+004
		344.28	26.60	7.696E+004		-7.206E+003	3.686E+004
		1408.01	21.07	9.436E+004		8.437E+004	4.290E+004
	Eu-154	123.07	40.40	5.254E+004	4.17E+004	3.030E+004	2.555E+004
		723.30	20.06	8.956E+004		5.739E+004	4.160E+004
		1274.43	34.80	4.168E+004		1.045E+004	1.839E+004
	Eu-155	86.55	30.70	6.362E+004	6.36E+004	8.607E+004	3.079E+004
		105.31	21.10	8.948E+004		2.008E+004	4.332E+004
	Tl-208	583.19	85.00	2.267E+004	2.27E+004	-8.756E+003	1.066E+004
	Bi-212	727.33	6.67	2.498E+005	2.50E+005	-1.635E+005	1.153E+005
	Pb-212	238.63	43.60	4.637E+004	4.64E+004	4.232E+003	2.237E+004
+	Bi-214	609.32*	45.49	2.674E+004	2.67E+004	2.684E+004	1.208E+004
		1120.29	14.92	1.342E+005		-1.982E+005	6.175E+004
		1764.49	15.30	8.710E+004		1.375E+003	3.679E+004
	Pb-214	295.22	18.42	1.077E+005	5.57E+004	1.959E+004	5.171E+004
		351.93	35.60	5.572E+004		-9.621E+002	2.663E+004
	Ra-226	186.21	3.64	5.806E+005	5.81E+005	8.941E+004	2.816E+005
	Ac-228	338.32	11.27	1.765E+005	7.69E+004	-1.810E+005	8.445E+004
		911.20	25.80	7.692E+004		-4.609E+004	3.569E+004
		968.97	15.80	1.286E+005		-3.188E+003	5.961E+004
	Am-241	59.54	35.90	6.341E+004	6.34E+004	-1.142E+004	3.042E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****     G A M M A   S P E C T R U M   A N A L Y S I S                *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\00004261.CNF

Report Generated On                 : 4/5/2018   11:02:01 AM

Sample Title                        : B101100AFSFM083GD
Sample Description                  : U1 Containment 565'
Sample Identification               : 083
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.830E+001 M^2

Sample Taken On                     : 3/19/2018   2:44:00 PM
Acquisition Started                 : 3/19/2018   2:45:58 PM

Live Time                           :      600.0 seconds
Real Time                           :      600.2 seconds

Dead Time                           :   0.03 %

              Energy Calibration Used Done On      : 3/15/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : OD_0.153CM_LINER
```

Data Validated
4/5/18 1218
DR Michael

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM083GD
Peak Analysis Performed on: 4/5/2018 11:02:00 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	297-	311	301.48	75.37	1.13	9.25E+001	39.60	1.01E+002
2	2635-	2658	2646.39	661.60	1.51	4.41E+002	44.80	1.51E+001
3	4681-	4704	4692.81	1173.20	0.64	1.32E+002	23.96	2.91E+000
4	5320-	5338	5329.34	1332.33	0.82	7.87E+001	20.44	7.29E+000
5	5832-	5852	5842.84	1460.71	1.83	1.26E+002	25.51	1.03E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSFM083GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	8.02944E+005	1.77254E+005
Co-60	1.000	1173.23*	99.85	8.01018E+004	1.58804E+004
		1332.49*	99.98	5.07874E+004	1.37977E+004
Cs-137	1.000	661.66*	85.10	2.33615E+005	3.67523E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	8.029436E+005	1.772538E+005
Co-60	1.000	6.339748E+004	1.041549E+004
Cs-137	1.000	2.336145E+005	3.675232E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 11:02:00 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.37	1.5417E-001	42.81		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****             N U C L I D E   M D A   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM083GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.452E+005	1.45E+005	8.029E+005	6.393E+004
+	Co-60	1173.23*	99.85	8.388E+003	8.39E+003	8.010E+004	3.374E+003
		1332.49*	99.98	1.251E+004		5.079E+004	5.380E+003
	Nb-94	702.65	99.81	1.425E+004	1.42E+004	-3.402E+003	6.495E+003
		871.09	99.89	1.499E+004		8.797E+003	6.798E+003
	Ag-108m	433.90	90.50	1.957E+004	1.63E+004	-8.917E+002	9.246E+003
		614.30	89.80	2.287E+004		1.596E+004	1.078E+004
		722.90	90.80	1.628E+004		-6.633E+003	7.438E+003
	Cs-134	604.72	97.62	2.109E+004	1.90E+004	1.506E+004✓	9.946E+003
		795.86	85.46	1.898E+004		4.250E+003	8.709E+003
+	Cs-137	661.66*	85.10	1.505E+004	1.50E+004	2.336E+005	6.806E+003
	Eu-152	121.78	28.67	6.807E+004	6.60E+004	2.386E+004✓	3.302E+004
		344.28	26.60	6.598E+004		-3.496E+003	3.136E+004
		1408.01	21.07	8.502E+004		6.771E+004	3.823E+004
	Eu-154	123.07	40.40	4.799E+004	4.26E+004	-2.728E+004	2.327E+004
		723.30	20.06	7.191E+004		-1.939E+004	3.278E+004
		1274.43	34.80	4.264E+004		3.626E+004✓	1.886E+004
	Eu-155	86.55	30.70	6.332E+004	6.33E+004	8.670E+004	3.064E+004
		105.31	21.10	8.350E+004		4.351E+004	4.033E+004
	Tl-208	583.19	85.00	2.069E+004	2.07E+004	2.564E+004	9.674E+003
	Bi-212	727.33	6.67	2.141E+005	2.14E+005	-2.815E+005	9.747E+004
	Pb-212	238.63	43.60	4.503E+004	4.50E+004	-2.167E+004	2.170E+004
	Bi-214	609.32	45.49	4.655E+004	4.66E+004	4.560E+004	2.199E+004
		1120.29	14.92	1.356E+005		-2.615E+004	6.244E+004
		1764.49	15.30	9.742E+004		6.501E+004	4.194E+004
	Pb-214	295.22	18.42	9.820E+004	4.74E+004	-5.628E+003	4.693E+004
		351.93	35.60	4.736E+004		3.274E+002	2.245E+004
	Ra-226	186.21	3.64	5.485E+005	5.48E+005	1.303E+005	2.655E+005
	Ac-228	338.32	11.27	1.465E+005	8.30E+004	-3.064E+005	6.946E+004
		911.20	25.80	8.303E+004		3.333E+004	3.874E+004
		968.97	15.80	1.296E+005		7.010E+004	6.015E+004
	Am-241	59.54	35.90	5.526E+004	5.53E+004	-2.846E+004	2.634E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S           *****
*************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004254.CNF

Report Generated On	:	4/5/2018 11:04:56 AM
Sample Title	:	B101100AFSFM084GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	084
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/19/2018 12:39:00 PM
Acquisition Started	:	3/19/2018 12:41:20 PM
Live Time	:	600.0 seconds
Real Time	:	600.1 seconds
Dead Time	:	0.02 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/5/18 1246
WR Mubalh

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM084GD
Peak Analysis Performed on: 4/5/2018 11:04:56 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	310	300.70	75.17	0.31	4.74E+001	40.41	1.20E+002
2	2430-	2441	2435.18	608.80	1.03	2.70E+001	15.12	1.20E+001
3	2636-	2653	2644.93	661.23	1.36	1.19E+002	24.35	9.00E+000
4	5321-	5334	5327.01	1331.75	1.06	2.64E+001	13.23	5.65E+000
5	5834-	5851	5841.84	1460.46	1.57	8.51E+001	20.31	5.86E+000
6	7051-	7066	7058.10	1764.52	0.33	1.70E+001	8.25	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
****

Sample Title: B101100AFSFM084GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.43776E+005	1.38059E+005
Cs-137	1.000	661.66*	85.10	6.30386E+004	1.49574E+004
Bi-214	0.707	609.32*	45.49	2.56386E+004	1.46836E+004
		1120.29	14.92		
		1764.49*	15.30	8.50081E+004	4.17933E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.437758E+005	1.380594E+005
Cs-137	1.000	6.303864E+004✓	1.495739E+004
Bi-214	0.707	3.216184E+004	1.385344E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018 11:04:56 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.17	7.8952E-002	85.30		
4	1331.75	4.3919E-002	50.21	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM084GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.065E+005	1.06E+005	5.438E+005	4.459E+004
	Co-60	1173.23	99.85	2.159E+004	2.12E+004	7.541E+003	9.975E+003
		1332.49	99.98	2.120E+004		2.230E+004✓	9.729E+003
	Nb-94	702.65	99.81	1.208E+004	1.21E+004	-3.373E+003	5.412E+003
		871.09	99.89	1.434E+004		-1.728E+003	6.471E+003
	Ag-108m	433.90	90.50	1.560E+004	1.56E+004	5.592E+003	7.258E+003
		614.30	89.80	2.129E+004		-2.652E+001	9.993E+003
		722.90	90.80	1.588E+004		4.495E+003	7.239E+003
	Cs-134	604.72	97.62	1.860E+004	1.30E+004	1.469E+004✓	8.705E+003
		795.86	85.46	1.297E+004		-1.736E+004	5.701E+003
+	Cs-137	661.66*	85.10	1.086E+004	1.09E+004	6.304E+004	4.713E+003
	Eu-152	121.78	28.67	6.018E+004	6.02E+004	-1.190E+004	2.907E+004
		344.28	26.60	6.344E+004		2.328E+004✓	3.009E+004
		1408.01	21.07	8.214E+004		7.907E+004	3.679E+004
	Eu-154	123.07	40.40	4.324E+004	3.97E+004	3.552E+002✓	2.090E+004
		723.30	20.06	7.099E+004		3.620E+004	3.232E+004
		1274.43	34.80	3.969E+004		3.173E+003	1.739E+004
	Eu-155	86.55	30.70	5.748E+004	5.75E+004	3.894E+004	2.772E+004
		105.31	21.10	8.079E+004		-2.098E+002	3.898E+004
	Tl-208	583.19	85.00	1.865E+004	1.87E+004	1.206E+004	8.653E+003
	Bi-212	727.33	6.67	1.966E+005	1.97E+005	-1.983E+005	8.872E+004
	Pb-212	238.63	43.60	3.895E+004	3.89E+004	-3.644E+003	1.866E+004
+	Bi-214	609.32*	45.49	1.972E+004	1.35E+004	2.564E+004	8.576E+003
		1120.29	14.92	9.901E+004		-9.093E+004	4.415E+004
		1764.49*	15.30	1.353E+004		8.501E+004	0.000E+000
	Pb-214	295.22	18.42	8.520E+004	4.85E+004	9.112E+003	4.043E+004
		351.93	35.60	4.853E+004		8.733E+003	2.304E+004
	Ra-226	186.21	3.64	4.785E+005	4.79E+005	-6.451E+004	2.305E+005
	Ac-228	338.32	11.27	1.447E+005	6.59E+004	1.034E+005	6.854E+004
		911.20	25.80	6.587E+004		8.199E+004	3.016E+004
		968.97	15.80	1.071E+005		1.278E+005	4.889E+004
	Am-241	59.54	35.90	4.911E+004	4.91E+004	1.374E+004	2.327E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S               *****
*****************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\00004245.CNF

Report Generated On	:	4/5/2018 10:09:03 AM
Sample Title	:	B101100AFSFM085GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	085
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/19/2018 9:11:00 AM
Acquisition Started	:	3/19/2018 9:11:40 AM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.03 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	OD_0.153CM_LINER

Data Validated
4/5/18 1254
DR Mehalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM085GD
Peak Analysis Performed on: 4/5/2018 10:09:02 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	285-	311	301.01	75.25	0.95	1.54E+002	59.82	1.69E+002
2	950-	960	954.78	238.70	1.00	1.99E+001	25.17	5.71E+001
3	2636-	2655	2645.72	661.43	0.97	2.28E+002	34.09	1.76E+001
4	4681-	4702	4692.04	1173.01	0.40	8.75E+001	24.44	1.65E+001
5	5317-	5337	5328.25	1332.06	1.08	1.21E+002	22.89	2.64E+000
6	5831-	5852	5842.12	1460.53	1.83	1.30E+002	22.80	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: B101100AFSFM085GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	8.30312E+005	1.72785E+005
Co-60	1.000	1173.23*	99.85	5.30558E+004	1.58674E+004
		1332.49*	99.98	7.83005E+004	1.69713E+004
Cs-137	1.000	661.66*	85.10	1.20997E+005	2.47077E+004
Pb-212	1.000	238.63*	43.60	1.20134E+004	1.53656E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	8.303124E+005	1.727851E+005
Co-60	1.000	6.517623E+004✓	1.203329E+004
Cs-137	1.000	1.209967E+005✓	2.470766E+004
Pb-212	1.000	1.201338E+004	1.536564E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 10:09:02 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.25	2.5674E-001	38.83		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                 N U C L I D E   M D A   R E P O R T               *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM085GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.728E+004	1.73E+004	8.303E+005	0.000E+000
+	Co-60	1173.23*	99.85	1.733E+004	8.34E+003	5.306E+004	7.847E+003
		1332.49*	99.98	8.345E+003		7.830E+004	3.299E+003
	Nb-94	702.65	99.81	1.425E+004	1.42E+004	-6.979E+003	6.495E+003
		871.09	99.89	1.660E+004		-9.310E+003	7.600E+003
	Ag-108m	433.90	90.50	1.728E+004	1.73E+004	-5.097E+003	8.101E+003
		614.30	89.80	2.052E+004		2.329E+004	9.606E+003
		722.90	90.80	1.812E+004		4.279E+003	8.359E+003
	Cs-134	604.72	97.62	1.908E+004	1.90E+004	1.819E+004	8.943E+003
		795.86	85.46	1.898E+004		-1.083E+004	8.709E+003
+	Cs-137	661.66*	85.10	1.518E+004	1.52E+004	1.210E+005	6.871E+003
	Eu-152	121.78	28.67	6.685E+004	6.32E+004	2.832E+004	3.241E+004
		344.28	26.60	6.318E+004		1.002E+004	2.996E+004
		1408.01	21.07	7.913E+004		-1.031E+003	3.529E+004
	Eu-154	123.07	40.40	4.685E+004	3.87E+004	5.691E+003	2.270E+004
		723.30	20.06	8.284E+004		2.305E+004	3.824E+004
		1274.43	34.80	3.865E+004		1.748E+004	1.687E+004
	Eu-155	86.55	30.70	6.551E+004	6.55E+004	4.053E+004	3.173E+004
		105.31	21.10	8.976E+004		-6.615E+004	4.346E+004
	Tl-208	583.19	85.00	1.955E+004	1.96E+004	1.030E+004	9.105E+003
	Bi-212	727.33	6.67	2.498E+005	2.50E+005	1.188E+005	1.153E+005
+	Pb-212	238.63*	43.60	2.505E+004	2.50E+004	1.201E+004	1.171E+004
	Bi-214	609.32	45.49	3.982E+004	3.98E+004	-5.700E+003	1.862E+004
		1120.29	14.92	1.383E+005		-1.004E+005	6.378E+004
		1764.49	15.30	9.742E+004		6.501E+004	4.194E+004
	Pb-214	295.22	18.42	9.210E+004	4.87E+004	4.704E+004	4.388E+004
		351.93	35.60	4.873E+004		1.702E+004	2.314E+004
	Ra-226	186.21	3.64	5.134E+005	5.13E+005	-5.951E+004	2.480E+005
	Ac-228	338.32	11.27	1.447E+005	8.00E+004	-2.311E+004	6.854E+004
		911.20	25.80	8.004E+004		8.208E+004	3.724E+004
		968.97	15.80	1.275E+005		2.380E+004	5.906E+004
	Am-241	59.54	35.90	5.489E+004	5.49E+004	-2.374E+004	2.615E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
    the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S              *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180313\00004176.CNF

Report Generated On                 : 4/5/2018    8:15:56 AM

Sample Title                        : B101100AFSFM086GD
Sample Description                  : U1 Containment 565'
Sample Identification               : 086
Sample Type                         : GAMMA DIRECT
Sample Geometry                     :

Peak Locate Threshold               :  3.00
Peak Locate Range (in channels)     :    85 -  8192
Peak Area Range (in channels)       :    85 -  8192
Identification Energy Tolerance     :   10.000 keV

Sample Size                         :  2.830E+001 M^2

Sample Taken On                     : 3/13/2018   9:16:00 AM
Acquisition Started                 : 3/13/2018   9:11:30 AM

Live Time                           :       600.0 seconds
Real Time                           :       600.3 seconds

Dead Time                           :   0.05 %

              Energy Calibration Used Done On      : 3/7/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : OD_0.153CM_LINER
```

Data Validated
4/5/18 1112
DR Mihalik

****
***** P E A K   A N A L Y S I S   R E P O R T *****
****

Detector Name: 5456
Sample Title: B101100AFSFM086GD
Peak Analysis Performed on: 4/5/2018 8:15:55 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	309	302.16	75.33	0.57	5.62E+001	47.10	1.74E+002
2	2428-	2441	2434.91	608.63	1.29	3.61E+001	18.70	1.79E+001
3	2633-	2656	2645.32	661.24	1.54	3.86E+002	42.80	1.80E+001
4	5317-	5335	5325.79	1331.50	1.82	6.13E+001	17.59	4.75E+000
5	5829-	5850	5840.34	1460.16	0.56	1.08E+002	23.45	7.89E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSFM086GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.90412E+005	1.61288E+005
Cs-137	1.000	661.66*	85.10	2.04483E+005	3.34246E+004
Bi-214	0.443	609.32*	45.49	3.42326E+004	1.82297E+004
		1120.29	14.92		
		1764.49	15.30		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.904117E+005	1.612878E+005
Cs-137	1.000	2.044828E+005✓	3.342460E+004
Bi-214	0.443	3.423262E+004	1.822969E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 8:15:55 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.33	9.3638E-002	83.83		
4	1331.50	1.0208E-001	28.73	Sum	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   M D A   R E P O R T *****
****

Detector Name: 5456
Sample Geometry:
Sample Title: B101100AFSFM086GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.311E+005	1.31E+005	6.904E+005	5.689E+004
	Co-60	1173.23	99.85	2.796E+004	2.69E+004	4.416E+004	1.316E+004
		1332.49	99.98	2.687E+004		4.152E+004 ✓	1.256E+004
	Nb-94	702.65	99.81	1.425E+004	1.42E+004	1.047E+003	6.495E+003
		871.09	99.89	1.541E+004		8.451E+003	7.007E+003
	Ag-108m	433.90	90.50	1.985E+004	1.44E+004	1.826E+004	9.385E+003
		614.30	89.80	1.901E+004		-1.214E+004	8.853E+003
		722.90	90.80	1.440E+004		-8.477E+003	6.498E+003
	Cs-134	604.72	97.62	2.011E+004	1.86E+004	-1.576E+004	9.458E+003
		795.86	85.46	1.856E+004		1.632E+004 ✓	8.499E+003
+	Cs-137	661.66*	85.10	1.623E+004	1.62E+004	2.045E+005	7.397E+003
	Eu-152	121.78	28.67	6.474E+004	5.66E+004	-5.976E+004	3.135E+004
		344.28	26.60	5.656E+004	0.00E+0 ✓	-1.813E+004	2.665E+004
		1408.01	21.07	7.913E+004		-1.423E+004	3.529E+004
	Eu-154	123.07	40.40	4.692E+004	3.65E+004	3.153E+004	2.274E+004
		723.30	20.06	6.519E+004		-2.834E+003	2.942E+004
		1274.43	34.80	3.647E+004		1.075E+004	1.578E+004
	Eu-155	86.55	30.70	6.560E+004	6.56E+004	1.473E+004	3.178E+004
		105.31	21.10	9.152E+004		5.756E+004	4.434E+004
	Tl-208	583.19	85.00	1.941E+004	1.94E+004	1.504E+004	9.031E+003
	Bi-212	727.33	6.67	1.935E+005	1.94E+005	6.930E+004	8.718E+004
	Pb-212	238.63	43.60	3.906E+004	3.91E+004	2.778E+004	1.871E+004
+	Bi-214	609.32*	45.49	2.497E+004	2.50E+004	3.423E+004	1.120E+004
		1120.29	14.92	1.165E+005		7.333E+004	5.288E+004
		1764.49	15.30	1.176E+005		6.757E+004	5.202E+004
	Pb-214	295.22	18.42	8.689E+004	4.72E+004	6.400E+004	4.128E+004
		351.93	35.60	4.716E+004		4.692E+004	2.235E+004
	Ra-226	186.21	3.64	4.873E+005	4.87E+005	2.822E+005	2.349E+005
	Ac-228	338.32	11.27	1.434E+005	6.59E+004	1.543E+004	6.791E+004
		911.20	25.80	6.587E+004		1.509E+004	3.016E+004
		968.97	15.80	1.031E+005		6.813E+004	4.687E+004
	Am-241	59.54	35.90	5.835E+004	5.83E+004	-3.863E+003	2.788E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
***************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S        *****
***************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180313\00004175.CNF

Report Generated On : 4/5/2018 8:15:04 AM

Sample Title : B101100AFSFM087GD
Sample Description : U1 Containment 565'
Sample Identification : 087
Sample Type : GAMMA DIRECT
Sample Geometry :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 85 - 8192
Peak Area Range (in channels) : 85 - 8192
Identification Energy Tolerance : 10.000 keV

Sample Size : 2.830E+001 M^2

Sample Taken On : 3/13/2018 8:56:00 AM
Acquisition Started : 3/13/2018 8:58:30 AM

Live Time : 600.0 seconds
Real Time : 600.2 seconds

Dead Time : 0.04 %

Energy Calibration Used Done On : 3/7/2018
Efficiency Calibration Used Done On : 4/5/2018
Efficiency ID : 0D_0.153CM_LINER

Data Validated
4/5/18 1119
DR Mihalik

****
***** P E A K   A N A L Y S I S   R E P O R T *****
****

Detector Name: 5456
Sample Title: B101100AFSFM087GD
Peak Analysis Performed on: 4/5/2018 8:15:04 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	297-	308	301.36	75.13	1.18	7.26E+001	35.28	9.24E+001
2	333-	346	341.42	85.14	0.92	3.12E+001	31.56	7.88E+001
3	2635-	2652	2643.79	660.86	1.15	1.01E+002	22.35	7.01E+000
4	4683-	4698	4688.78	1172.21	1.08	5.00E+001	15.79	4.00E+000
5	5319-	5336	5326.36	1331.64	0.72	5.40E+001	15.50	1.98E+000
6	5829-	5849	5839.39	1459.92	0.41	1.06E+002	20.59	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSFM087GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	6.76859E+005	1.44024E+005
Co-60	0.999	1173.23*	99.85	3.03063E+004	9.87041E+003
		1332.49*	99.98	3.48490E+004	1.03781E+004
Cs-137	0.999	661.66*	85.10	5.34804E+004	1.34673E+004
Eu-155	0.337	86.55*	30.70	2.39368E+004	2.47104E+004
		105.31	21.10		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.999	6.768590E+005	1.440237E+005
Co-60	0.999	3.246382E+004✓	7.152179E+003
Cs-137	0.999	5.348036E+004✓	1.346730E+004
Eu-155	0.337	2.393677E+004	2.471041E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

**********   U N I D E N T I F I E D   P E A K S   **********

Peak Locate Performed on: 4/5/2018   8:15:04 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.13	1.2103E-001	48.59		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
*****   N U C L I D E   M D A   R E P O R T   *****
****

Detector Name: 5456
Sample Geometry:
Sample Title: B101100AFSFM087GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.728E+004	1.73E+004	6.769E+005	0.000E+000
+	Co-60	1173.23*	99.85	8.633E+003	6.95E+003	3.031E+004	3.496E+003
		1332.49*	99.98	6.950E+003		3.485E+004	2.602E+003
	Nb-94	702.65	99.81	1.407E+004	1.32E+004	-5.042E+003	6.404E+003
		871.09	99.89	1.317E+004		2.583E+002	5.887E+003
	Ag-108m	433.90	90.50	1.448E+004	1.45E+004	4.148E+003	6.701E+003
		614.30	89.80	1.872E+004		1.014E+004	8.709E+003
		722.90	90.80	1.505E+004		-7.837E+003	6.825E+003
	Cs-134	604.72	97.62	1.709E+004	1.65E+004	1.714E+003	7.946E+003
		795.86	85.46	1.653E+004		1.025E+004	7.482E+003
+	Cs-137	661.66*	85.10	9.954E+003	9.95E+003	5.348E+004	4.260E+003
	Eu-152	121.78	28.67	5.383E+004	5.38E+004	1.078E+004✓	2.590E+004
		344.28	26.60	5.567E+004		3.129E+004	2.621E+004
		1408.01	21.07	7.437E+004		4.708E+004	3.290E+004
	Eu-154	123.07	40.40	3.804E+004	3.80E+004	-2.227E+004	1.830E+004
		723.30	20.06	6.719E+004	0.00E+0 ✓	-3.820E+004	3.042E+004
		1274.43	34.80	3.969E+004		-6.933E+002	1.739E+004
+	Eu-155	86.55*	30.70	3.938E+004	3.94E+004	2.394E+004	1.865E+004
		105.31	21.10	7.606E+004		-7.726E+004	3.661E+004
	Tl-208	583.19	85.00	1.786E+004	1.79E+004	7.974E+003	8.257E+003
	Bi-212	727.33	6.67	2.276E+005	2.28E+005	1.239E+005	1.042E+005
	Pb-212	238.63	43.60	3.444E+004	3.44E+004	-3.164E+004	1.640E+004
	Bi-214	609.32	45.49	3.821E+004	3.82E+004	4.561E+004	1.782E+004
		1120.29	14.92	1.165E+005		5.906E+004	5.288E+004
		1764.49	15.30	1.006E+005		7.001E+004	4.353E+004
	Pb-214	295.22	18.42	7.573E+004	3.83E+004	-7.487E+003	3.570E+004
		351.93	35.60	3.830E+004		-1.282E+004	1.792E+004
	Ra-226	186.21	3.64	4.301E+005	4.30E+005	9.983E+002	2.063E+005
	Ac-228	338.32	11.27	1.252E+005	7.30E+004	4.250E+004	5.881E+004
		911.20	25.80	7.299E+004		9.290E+004	3.372E+004
		968.97	15.80	1.097E+005		-6.232E+004	5.020E+004
	Am-241	59.54	35.90	4.276E+004	4.28E+004	-2.278E+004	2.009E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
    the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
**************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S            *****
**************************************************************************

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004229.CNF

Report Generated On               : 4/5/2018    8:57:13 AM

Sample Title                      : B101100AFSFM088GD
Sample Description                : U1 Containment 565'
Sample Identification             : 088
Sample Type                       : GAMMA DIRECT
Sample Geometry                   :

Peak Locate Threshold             :  3.00
Peak Locate Range (in channels)   :    85 -  8192
Peak Area Range (in channels)     :    85 -  8192
Identification Energy Tolerance   :   10.000 keV

Sample Size                       :  2.830E+001 M^2

Sample Taken On                   : 3/15/2018  10:04:00 AM
Acquisition Started               : 3/15/2018  10:06:24 AM

Live Time                         :      600.0 seconds
Real Time                         :      600.2 seconds

Dead Time                         :   0.03 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/5/18 1128
DK Mihalik

```
*****************************************************************************
*****          P E A K   A N A L Y S I S   R E P O R T                 *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSFM088GD
Peak Analysis Performed on: 4/5/2018 8:57:12 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	288-	310	301.62	75.41	0.92	1.84E+002	48.35	1.04E+002
2	1327-	1338	1331.99	333.00	0.31	9.75E+000	14.26	1.63E+001
3	1401-	1413	1406.85	351.71	0.51	3.03E+001	19.27	2.38E+001
4	2637-	2655	2646.74	661.69	0.97	1.27E+002	28.21	2.14E+001
5	4685-	4702	4692.95	1173.24	1.11	8.20E+001	20.53	6.96E+000
6	5322-	5339	5330.85	1332.71	0.72	6.98E+001	18.24	4.22E+000
7	5834-	5854	5843.68	1460.92	0.68	1.13E+002	23.75	7.71E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   N U C L I D E   I D E N T I F I C A T I O N   R E P O R T   *****
*****************************************************************************
```

Sample Title: B101100AFSFM088GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.23697E+005	1.64189E+005
Co-60	1.000	1173.23*	99.85	4.97516E+004	1.30681E+004
		1332.49*	99.98	4.50308E+004	1.23109E+004
Cs-137	1.000	661.66*	85.10	6.70935E+004	1.69799E+004
Pb-214	0.438	295.22	18.42		
		351.93*	35.60	2.74530E+004	1.80347E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.236969E+005	1.641889E+005
Co-60	1.000	4.725051E+004✓	8.960868E+003
Cs-137	1.000	6.709354E+004✓	1.697991E+004
Pb-214	0.438	2.745297E+004	1.803471E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 8:57:12 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.41	3.0732E-001	26.22		
2	333.00	1.6250E-002	146.24	Tol.	Ac-228

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM088GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.278E+005	1.28E+005	7.237E+005	5.528E+004
+	Co-60	1173.23*	99.85	1.127E+004	9.52E+003	4.975E+004	4.814E+003
		1332.49*	99.98	9.521E+003		4.503E+004	3.887E+003
	Nb-94	702.65	99.81	1.594E+004	1.59E+004	7.596E+003	7.342E+003
		871.09	99.89	1.602E+004		-5.713E+003	7.309E+003
	Ag-108m	433.90	90.50	1.707E+004	1.70E+004	1.079E+004	7.994E+003
		614.30	89.80	2.142E+004		2.562E+004	1.006E+004
		722.90	90.80	1.704E+004		1.576E+004	7.820E+003
	Cs-134	604.72	97.62	1.848E+004	1.63E+004	2.182E+004✓	8.644E+003
		795.86	85.46	1.628E+004		-2.652E+004	7.360E+003
+	Cs-137	661.66*	85.10	1.626E+004	1.63E+004	6.709E+004	7.411E+003
	Eu-152	121.78	28.67	6.385E+004	5.77E+004	2.188E+004✓	3.091E+004
		344.28	26.60	5.772E+004		-6.076E+004	2.723E+004
		1408.01	21.07	7.099E+004		1.037E+004	3.122E+004
	Eu-154	123.07	40.40	4.497E+004	4.45E+004	8.015E+003✓	2.176E+004
		723.30	20.06	7.631E+004		2.204E+004	3.498E+004
		1274.43	34.80	4.448E+004		1.224E+004	1.979E+004
	Eu-155	86.55	30.70	5.703E+004	5.70E+004	-2.411E+004	2.749E+004
		105.31	21.10	8.568E+004		6.473E+004	4.142E+004
	Tl-208	583.19	85.00	2.083E+004	2.08E+004	1.305E+004	9.743E+003
	Bi-212	727.33	6.67	2.474E+005	2.47E+005	1.523E+005	1.141E+005
	Pb-212	238.63	43.60	4.101E+004	4.10E+004	1.079E+003	1.969E+004
	Bi-214	609.32	45.49	3.929E+004	3.93E+004	1.710E+004	1.836E+004
		1120.29	14.92	1.356E+005		3.176E+004	6.244E+004
		1764.49	15.30	9.070E+004		5.500E+004	3.858E+004
+	Pb-214	295.22	18.42	8.241E+004	2.61E+004	-4.000E+003	3.904E+004
		351.93*	35.60	2.608E+004		2.745E+004	1.181E+004
	Ra-226	186.21	3.64	5.033E+005	5.03E+005	1.446E+005	2.429E+005
	Ac-228	338.32	11.27	1.415E+005	7.09E+004	1.215E+005	6.696E+004
		911.20	25.80	7.093E+004		5.346E+004	3.269E+004
		968.97	15.80	1.253E+005		8.119E+004	5.796E+004
	Am-241	59.54	35.90	5.394E+004	5.39E+004	-9.518E+002	2.568E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*************************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S          *****
*************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004226.CNF

Report Generated On	:	4/5/2018 8:53:50 AM
Sample Title	:	B101100AFSFM089GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	089
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/15/2018 9:25:00 AM
Acquisition Started	:	3/15/2018 9:23:49 AM
Live Time	:	600.0 seconds
Real Time	:	600.2 seconds
Dead Time	:	0.04 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	0D_0.153CM_LINER

Data Validated
4/5/18 0956
DRMichalik

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*****************************************************************************
*****           P E A K   A N A L Y S I S   R E P O R T                *****
*****************************************************************************
```

Detector Name: 5456-A
Sample Title: B101100AFSFM089GD
Peak Analysis Performed on: 4/5/2018 8:53:49 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	297-	311	301.28	75.32	1.03	1.08E+002	42.42	1.12E+002
2	333-	347	339.65	84.91	1.12	6.58E+001	40.32	1.18E+002
3	482-	493	488.47	122.12	0.46	4.41E+001	37.81	1.24E+002
4	1373-	1383	1378.10	344.53	0.40	2.94E+001	20.01	2.96E+001
5	2636-	2657	2646.17	661.54	1.50	5.77E+002	52.02	2.68E+001
6	4683-	4705	4693.13	1173.28	1.66	1.75E+002	30.02	1.35E+001
7	5320-	5341	5330.49	1332.62	1.27	1.71E+002	31.38	1.96E+001
8	5834-	5854	5844.24	1461.06	1.68	1.18E+002	24.27	7.98E+000
9	7054-	7069	7061.75	1765.44	0.67	1.80E+001	8.49	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSFM089GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.53973E+005	1.68329E+005
Co-60	1.000	1173.23*	99.85	1.05823E+005	2.00745E+004
		1332.49*	99.98	1.10625E+005	2.21018E+004
Cs-137	1.000	661.66*	85.10	3.05815E+005	4.59190E+004
Eu-152	0.693	121.78*	28.67	3.31840E+004	2.91950E+004
		344.28*	26.60	3.53069E+004	2.47376E+004
		1408.01	21.07		
Eu-155	0.336	86.55*	30.70	5.06601E+004	3.26652E+004
		105.31	21.10		
Pb-214	0.382	295.22	18.42		
		351.93*	35.60	2.63810E+004	1.84574E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E   C O R R E C T E D   R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.539732E+005	1.683289E+005
Co-60	1.000	1.079935E+005✓	1.485999E+004
Cs-137	1.000	3.058146E+005✓	4.591901E+004
Eu-152	0.693	3.318396E+004✓	2.919294E+004
Eu-155	0.336	5.066011E+004	3.266519E+004
Pb-214	0.382	1.586276E+003	2.857373E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 8:53:49 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.32	1.8082E-001	39.10		
9	1765.44	3.0000E-002	47.14	Tol.	Bi-214

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM089GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.310E+005	1.31E+005	7.540E+005	5.687E+004
+	Co-60	1173.23*	99.85	1.585E+004	1.59E+004	1.058E+005	7.105E+003
		1332.49*	99.98	2.011E+004		1.106E+005	9.182E+003
	Nb-94	702.65	99.81	1.760E+004	1.76E+004	1.188E+004	8.172E+003
		871.09	99.89	1.938E+004		1.089E+004	8.992E+003
	Ag-108m	433.90	90.50	2.211E+004	1.85E+004	1.539E+004	1.051E+004
		614.30	89.80	2.129E+004		4.854E+003	9.993E+003
		722.90	90.80	1.847E+004		-5.039E+003	8.532E+003
	Cs-134	604.72	97.62	1.811E+004	1.81E+004	-2.675E+003	8.459E+003
		795.86	85.46	1.939E+004	0.00 E+0 ✓	-3.379E+004	8.914E+003
+	Cs-137	661.66*	85.10	1.881E+004	1.88E+004	3.058E+005	8.689E+003
+	Eu-152	121.78*	28.67	4.582E+004	3.65E+004	3.318E+004	2.189E+004
		344.28*	26.60	3.650E+004		3.531E+004	1.663E+004
		1408.01	21.07	7.099E+004		5.693E+004	3.122E+004
	Eu-154	123.07	40.40	5.260E+004	4.95E+004	3.108E+004✓	2.558E+004
		723.30	20.06	8.590E+004		6.223E+004	3.977E+004
		1274.43	34.80	4.955E+004		9.455E+003	2.232E+004
+	Eu-155	86.55*	30.70	4.885E+004	4.89E+004	5.066E+004	2.338E+004
		105.31	21.10	8.989E+004		-4.066E+002	4.353E+004
	Tl-208	583.19	85.00	2.190E+004	2.19E+004	4.516E+003	1.028E+004
	Bi-212	727.33	6.67	2.474E+005	2.47E+005	-3.642E+005	1.141E+005
	Pb-212	238.63	43.60	4.845E+004	4.84E+004	-5.916E+003	2.341E+004
	Bi-214	609.32	45.49	4.034E+004	4.03E+004	2.714E+004	1.888E+004
		1120.29	14.92	1.485E+005		1.115E+005	6.889E+004
		1764.49	15.30	1.176E+005		1.000E+005	5.202E+004
+	Pb-214	295.22	18.42	1.114E+005	2.73E+004	-1.775E+004	5.355E+004
		351.93*	35.60	2.727E+004		2.638E+004	1.242E+004
	Ra-226	186.21	3.64	5.468E+005	5.47E+005	5.216E+004	2.647E+005
	Ac-228	338.32	11.27	1.628E+005	8.59E+004	-1.306E+005	7.759E+004
		911.20	25.80	8.591E+004		2.870E+004	4.018E+004
		968.97	15.80	1.419E+005		2.236E+003	6.628E+004
	Am-241	59.54	35.90	6.077E+004	6.08E+004	-1.602E+003	2.909E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*********************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S      *****
*********************************************************************
```

```
Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004230.CNF

Report Generated On              : 4/5/2018    9:37:26 AM

Sample Title                     : B101100AFSFM092GD
Sample Description               : U1 Containment 565'
Sample Identification            : 092
Sample Type                      : GAMMA DIRECT
Sample Geometry                  :

Peak Locate Threshold            :  3.00
Peak Locate Range (in channels)  :    85 -  8192
Peak Area Range (in channels)    :    85 -  8192
Identification Energy Tolerance  :   10.000 keV

Sample Size                      :  2.830E+001 M^2

Sample Taken On                  : 3/15/2018  10:20:00 AM
Acquisition Started              : 3/15/2018  10:22:13 AM

Live Time                        :      600.0 seconds
Real Time                        :      600.3 seconds

Dead Time                        :   0.05 %

              Energy Calibration Used Done On       : 3/15/2018
              Efficiency Calibration Used Done On   : 4/5/2018
              Efficiency ID                         : 0D_0.153CM_LINER
```

Data Validated
4/5/18 1303
DR Mihalik

****
***** P E A K   A N A L Y S I S   R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM092GD
Peak Analysis Performed on: 4/5/2018 9:37:26 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	311	300.93	75.23	1.12	6.58E+001	43.73	1.31E+002
2	2634-	2659	2646.71	661.68	1.41	5.93E+002	59.26	6.75E+001
3	4681-	4707	4693.26	1173.32	1.66	3.02E+002	43.79	4.05E+001
4	5321-	5344	5330.86	1332.72	1.77	2.78E+002	37.47	1.80E+001
5	5834-	5854	5843.85	1460.96	1.43	8.57E+001	21.14	7.33E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSFM092GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	5.47269E+005	1.43174E+005
Co-60	1.000	1173.23*	99.85	1.82840E+005	3.03190E+004
		1332.49*	99.98	1.79408E+005	2.81176E+004
Cs-137	1.000	661.66*	85.10	3.13993E+005	4.90710E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	5.472695E+005	1.431736E+005
Co-60	1.000	1.809953E+005✓	2.061653E+004
Cs-137	1.000	3.139933E+005✓	4.907103E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 4/5/2018 9:37:26 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.23	1.0961E-001	66.50		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM092GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.246E+005	1.25E+005	5.473E+005	5.366E+004
+	Co-60	1173.23*	99.85	2.825E+004	1.99E+004	1.828E+005	1.331E+004
		1332.49*	99.98	1.988E+004		1.794E+005	9.065E+003
	Nb-94	702.65	99.81	1.858E+004	1.86E+004	8.886E+003	8.660E+003
		871.09	99.89	2.303E+004		6.686E+003	1.081E+004
	Ag-108m	433.90	90.50	2.346E+004	2.22E+004	-1.254E+004	1.119E+004
		614.30	89.80	2.216E+004		-6.892E+003	1.043E+004
		722.90	90.80	2.378E+004		2.154E+004	1.119E+004
	Cs-134	604.72	97.62	2.150E+004	2.15E+004	-2.344E+003	1.016E+004
		795.86	85.46	2.468E+004		2.652E+004✓	1.156E+004
+	Cs-137	661.66*	85.10	3.089E+004	3.09E+004	3.140E+005	1.473E+004
	Eu-152	121.78	28.67	7.935E+004	7.93E+004	1.128E+005✓	3.866E+004
		344.28	26.60	8.557E+004		1.802E+004	4.116E+004
		1408.01	21.07	8.214E+004		7.907E+004	3.679E+004
	Eu-154	123.07	40.40	5.616E+004	4.45E+004	2.423E+004✓	2.736E+004
		723.30	20.06	1.029E+005		-7.993E+004	4.825E+004
		1274.43	34.80	4.448E+004		2.701E+004	1.979E+004
	Eu-155	86.55	30.70	6.291E+004	6.29E+004	1.896E+004	3.043E+004
		105.31	21.10	9.800E+004		-5.511E+004	4.758E+004
	Tl-208	583.19	85.00	2.515E+004	2.52E+004	1.437E+004	1.190E+004
	Bi-212	727.33	6.67	3.283E+005	3.28E+005	1.977E+005	1.545E+005
	Pb-212	238.63	43.60	5.456E+004	5.46E+004	1.015E+004	2.646E+004
	Bi-214	609.32	45.49	4.427E+004	4.43E+004	-6.829E+003	2.085E+004
		1120.29	14.92	1.680E+005		-2.227E+005	7.865E+004
		1764.49	15.30	1.122E+005		6.251E+003	4.935E+004
	Pb-214	295.22	18.42	1.264E+005	6.19E+004	-1.686E+004	6.105E+004
		351.93	35.60	6.189E+004		-3.141E+002	2.972E+004
	Ra-226	186.21	3.64	6.259E+005	6.26E+005	4.177E+004	3.042E+005
	Ac-228	338.32	11.27	1.947E+005	1.00E+005	-2.187E+005	9.356E+004
		911.20	25.80	9.996E+004		1.111E+004	4.721E+004
		968.97	15.80	1.701E+005		-2.198E+004	8.038E+004
	Am-241	59.54	35.90	5.764E+004	5.76E+004	2.632E+002	2.753E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
***************************************************************************
*****      G A M M A   S P E C T R U M   A N A L Y S I S            *****
***************************************************************************
```

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180315\00004236.CNF

Report Generated On	:	4/5/2018 9:08:22 AM
Sample Title	:	B101100AFSFM093GD
Sample Description	:	U1 Containment 565'
Sample Identification	:	093
Sample Type	:	GAMMA DIRECT
Sample Geometry	:	
Peak Locate Threshold	:	3.00
Peak Locate Range (in channels)	:	85 - 8192
Peak Area Range (in channels)	:	85 - 8192
Identification Energy Tolerance	:	10.000 keV
Sample Size	:	2.830E+001 M^2
Sample Taken On	:	3/15/2018 1:27:00 PM
Acquisition Started	:	3/15/2018 1:26:48 PM
Live Time	:	600.0 seconds
Real Time	:	600.1 seconds
Dead Time	:	0.02 %

Energy Calibration Used Done On	:	3/15/2018
Efficiency Calibration Used Done On	:	4/5/2018
Efficiency ID	:	OD_0.153CM_LINER

Data Validated
4/5/18 1310
DRMichalik

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: 5456-A
Sample Title: B101100AFSFM093GD
Peak Analysis Performed on: 4/5/2018 9:08:21 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	296-	309	300.16	75.04	0.43	4.62E+001	35.77	9.68E+001
2	2639-	2654	2646.48	661.62	0.98	8.29E+001	25.44	2.61E+001
3	3637-	3650	3643.80	910.95	0.44	7.47E+000	14.20	1.55E+001
4	4684-	4702	4694.15	1173.54	1.24	6.20E+001	20.36	1.20E+001
5	5322-	5338	5330.15	1332.54	0.82	5.35E+001	17.93	8.50E+000
6	5835-	5856	5844.69	1461.17	0.73	1.21E+002	22.00	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*************************************************************************
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
*************************************************************************
```

Sample Title: B101100AFSFM093GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	1.000	1460.82*	10.66	7.73036E+005	1.55759E+005
Co-60	1.000	1173.23*	99.85	3.75984E+004	1.27088E+004
		1332.49*	99.98	3.45237E+004	1.18965E+004
Cs-137	1.000	661.66*	85.10	4.39122E+004	1.44751E+004

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	1.000	7.730359E+005	1.557592E+005
Co-60	1.000	3.595969E+004✓	8.685082E+003
Cs-137	1.000	4.391222E+004✓	1.447511E+004

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D   P E A K S **********

Peak Locate Performed on: 4/5/2018 9:08:21 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	75.04	7.6949E-002	77.47		
3	910.95	1.2446E-002	190.17	Tol.	Ac-228

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: 5456-A
Sample Geometry:
Sample Title: B101100AFSFM093GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.729E+004	1.73E+004	7.730E+005	0.000E+000
+	Co-60	1173.23*	99.85	1.452E+004	1.28E+004	3.760E+004	6.437E+003
		1332.49*	99.98	1.275E+004		3.452E+004	5.504E+003
	Nb-94	702.65	99.81	1.562E+004	1.50E+004	8.608E+003	7.180E+003
		871.09	99.89	1.499E+004		-1.285E+004	6.798E+003
	Ag-108m	433.90	90.50	1.663E+004	1.66E+004	1.611E+004	7.775E+003
		614.30	89.80	2.052E+004		1.063E+004	9.606E+003
		722.90	90.80	1.795E+004		1.785E+004	8.272E+003
	Cs-134	604.72	97.62	1.761E+004	1.76E+004	7.133E+003✓	8.207E+003
		795.86	85.46	1.856E+004		1.128E+004	8.499E+003
+	Cs-137	661.66*	85.10	1.692E+004	1.69E+004	4.391E+004	7.744E+003
	Eu-152	121.78	28.67	6.112E+004	5.89E+004	4.902E+004	2.954E+004
		344.28	26.60	5.885E+004		4.865E+003	2.780E+004
		1408.01	21.07	6.555E+004		2.419E+004	2.850E+004
	Eu-154	123.07	40.40	4.212E+004	3.53E+004	-1.013E+004	2.034E+004
		723.30	20.06	8.046E+004		7.691E+004	3.705E+004
		1274.43	34.80	3.533E+004		9.206E+003✓	1.521E+004
	Eu-155	86.55	30.70	5.967E+004	5.97E+004	4.467E+004	2.881E+004
		105.31	21.10	7.862E+004		-1.899E+004	3.789E+004
	Tl-208	583.19	85.00	1.770E+004	1.77E+004	-6.804E+003	8.176E+003
	Bi-212	727.33	6.67	2.223E+005	2.22E+005	3.098E+004	1.016E+005
	Pb-212	238.63	43.60	3.937E+004	3.94E+004	3.196E+003	1.887E+004
	Bi-214	609.32	45.49	3.955E+004	3.96E+004	2.424E+004	1.849E+004
		1120.29	14.92	1.242E+005		4.040E+004	5.675E+004
		1764.49	15.30	1.095E+005		8.501E+004	4.796E+004
	Pb-214	295.22	18.42	7.914E+004	4.45E+004	-3.640E+004	3.741E+004
		351.93	35.60	4.448E+004		8.707E+003	2.101E+004
	Ra-226	186.21	3.64	4.677E+005	4.68E+005	1.245E+005	2.251E+005
	Ac-228	338.32	11.27	1.302E+005	7.69E+004	-1.171E+005	6.130E+004
		911.20	25.80	7.692E+004		-3.203E+003	3.569E+004
		968.97	15.80	1.071E+005		6.116E+003	4.889E+004
	Am-241	59.54	35.90	5.118E+004	5.12E+004	5.960E+003	2.430E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction

```
*****************************************************************************
*****       G A M M A   S P E C T R U M   A N A L Y S I S          *****
*****************************************************************************

Filename: C:\GENIE2K\CAMFILES\CNF FSS 20180313\00004174.CNF

Report Generated On                : 4/5/2018    8:13:59 AM

Sample Title                       : B101100AFSFM094GD
Sample Description                 : U1 Containment 565'
Sample Identification              : 094
Sample Type                        : GAMMA DIRECT
Sample Geometry                    :

Peak Locate Threshold              :  3.00
Peak Locate Range (in channels)    :    85 -  8192
Peak Area Range (in channels)      :    85 -  8192
Identification Energy Tolerance    :   10.000 keV

Sample Size                        :  2.830E+001 M^2

Sample Taken On                    : 3/13/2018   8:42:00 AM
Acquisition Started                : 3/13/2018   8:43:08 AM

Live Time                          :      600.0 seconds
Real Time                          :      600.2 seconds

Dead Time                          :   0.04 %

              Energy Calibration Used Done On      : 3/7/2018
              Efficiency Calibration Used Done On  : 4/5/2018
              Efficiency ID                        : 0D_0.153CM_LINER
```

Data Validated
4/5/18 1316
DR Mihalik

****
***** P E A K   A N A L Y S I S   R E P O R T *****
****

Detector Name: 5456
Sample Title: B101100AFSFM094GD
Peak Analysis Performed on: 4/5/2018 8:13:59 AM
Peak Analysis From Channel: 85
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	719-	726	722.40	180.41	0.84	3.00E+000	20.02	4.80E+001
2	1015-	1024	1019.74	254.76	0.95	1.48E+001	16.74	2.42E+001
3	2637-	2654	2645.44	661.27	0.63	9.39E+001	23.87	1.51E+001
4	4683-	4696	4688.70	1172.19	0.97	5.00E+001	18.23	1.20E+001
5	5317-	5333	5324.98	1331.30	1.69	5.48E+001	16.50	4.25E+000
6	5829-	5849	5838.81	1459.78	0.47	1.20E+002	23.47	5.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

****
***** N U C L I D E   I D E N T I F I C A T I O N   R E P O R T *****
****

Sample Title: B101100AFSFM094GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

.... IDENTIFIED NUCLIDES ....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/M^2)	Activity Uncertainty
K-40	0.998	1460.82*	10.66	7.66211E+005	1.63991E+005
Co-60	0.998	1173.23*	99.85	3.03085E+004	1.13118E+004
		1332.49*	99.98	3.53138E+004	1.10088E+004
Cs-137	1.000	661.66*	85.10	4.97311E+004	1.39858E+004
Ra-226	0.948	186.21*	3.64	1.91537E+004	1.27847E+005

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 10.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

```
*****************************************************************************
*****   I N T E R F E R E N C E   C O R R E C T E D   R E P O R T   *****
*****************************************************************************
```

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/M^2)	Wt mean Activity Uncertainty
K-40	0.998	7.662106E+005	1.639910E+005
Co-60	0.998	3.287911E+004✓	7.889357E+003
Cs-137	1.000	4.973108E+004✓	1.398582E+004
Ra-226	0.948	1.915369E+004	1.278468E+005

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

```
**********   U N I D E N T I F I E D   P E A K S   **********
```

Peak Locate Performed on: 4/5/2018 8:13:59 AM
Peak Locate From Channel: 85
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
2	254.76	2.4615E-002	113.35		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

```
*****************************************************************************
*****                 N U C L I D E   M D A   R E P O R T              *****
*****************************************************************************
```

Detector Name: 5456
Sample Geometry:
Sample Title: B101100AFSFM094GD
Nuclide Library Used: C:\GENIE2K\CAMFILES\Zion Lib-BNL.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/M^2)	Nuclide MDA (pCi/M^2)	Activity (pCi/M^2)	Dec. Level (pCi/M^2)
+	K-40	1460.82*	10.66	1.058E+005	1.06E+005	7.662E+005	4.427E+004
+	Co-60	1173.23*	99.85	1.311E+004	9.48E+003	3.031E+004	5.734E+003
		1332.49*	99.98	9.479E+003		3.531E+004	3.867E+003
	Nb-94	702.65	99.81	1.460E+004	1.43E+004	-6.315E+003	6.673E+003
		871.09	99.89	1.434E+004		-2.204E+003	6.471E+003
	Ag-108m	433.90	90.50	1.486E+004	1.49E+004	-4.499E+003	6.892E+003
		614.30	89.80	1.915E+004		8.639E+003	8.924E+003
		722.90	90.80	1.704E+004		4.131E+003	7.820E+003
	Cs-134	604.72	97.62	1.872E+004	1.87E+004	1.932E+004	8.765E+003
		795.86	85.46	1.877E+004		-1.347E+004	8.604E+003
+	Cs-137	661.66*	85.10	1.358E+004	1.36E+004	4.973E+004	6.075E+003
	Eu-152	121.78	28.67	5.511E+004	5.16E+004	2.084E+004	2.654E+004
		344.28	26.60	5.165E+004		1.969E+004	2.420E+004
		1408.01	21.07	5.736E+004		3.479E+004	2.440E+004
	Eu-154	123.07	40.40	3.879E+004	3.65E+004	6.234E+003✓	1.867E+004
		723.30	20.06	7.546E+004		-2.936E+001	3.455E+004
		1274.43	34.80	3.647E+004		-3.597E+004	1.578E+004
	Eu-155	86.55	30.70	5.508E+004	5.51E+004	4.851E+004	2.652E+004
		105.31	21.10	7.188E+004		-1.051E+004	3.452E+004
	Tl-208	583.19	85.00	1.802E+004	1.80E+004	-2.218E+003	8.338E+003
	Bi-212	727.33	6.67	2.276E+005	2.28E+005	8.892E+004	1.042E+005
	Pb-212	238.63	43.60	3.456E+004	3.46E+004	1.914E+004	1.646E+004
	Bi-214	609.32	45.49	4.008E+004	4.01E+004	2.565E+004	1.875E+004
		1120.29	14.92	1.149E+005		5.209E+004	5.207E+004
		1764.49	15.30	1.149E+005		6.290E+004	5.071E+004
	Pb-214	295.22	18.42	7.256E+004	3.88E+004	-1.595E+004	3.411E+004
		351.93	35.60	3.879E+004		7.441E+003	1.817E+004
+	Ra-226	186.21*	3.64	2.243E+005	2.24E+005	1.915E+004	1.035E+005
	Ac-228	338.32	11.27	1.185E+005	7.23E+004	9.269E+004	5.545E+004
		911.20	25.80	7.231E+004		8.694E+004	3.338E+004
		968.97	15.80	1.135E+005		1.451E+005	5.209E+004
	Am-241	59.54	35.90	4.324E+004	4.32E+004	-2.714E+004	2.033E+004

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or
the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction