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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_Madu\ALMERA_2019\Sample_#1-B-(170k)_2019

Report Generated On : 27/09/2019 14:37:37

Sample Title : Almera
Sample Description : Sample #1 Water as is
Sample Identification : Almera
Sample Type :
Sample Geometry :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 1 - 65535
Peak Area Range (in channels) : 1 - 8192
Identification Energy Tolerance : 1.500 keV

Sample Size : 1.000E+000 g

Sample Taken On :
Acquisition Started : 10/07/2019 16:49:58

Live Time : 171124.5 seconds
Real Time : 171287.3 seconds

Dead Time : 0.10 %

Energy Calibration Used Done On : 04/03/2013
Efficiency Calibration Used Done On : 08/11/2010
Efficiency ID : F100AI3

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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: DET01
Sample Title: Almera
Peak Analysis Performed on: 27/09/2019 14:37:37
Peak Analysis From Channel: 1
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	105-	115	108.23	21.26	0.89	1.04E+003	68.16	1.23E+003
	2	158-	169	162.91	32.06	0.73	5.16E+002	76.63	2.12E+003
	3	312-	326	320.72	63.23	0.81	5.72E+002	90.22	2.63E+003
M	4	374-	398	379.56	74.85	0.83	9.28E+002	51.55	2.32E+003
m	5	374-	398	390.77	77.06	0.84	1.45E+003	58.50	2.66E+003
M	6	423-	480	426.67	84.15	1.29	1.49E+002	46.27	2.71E+003
m	7	423-	480	441.97	87.17	1.30	5.06E+002	53.03	3.78E+003
m	8	423-	480	455.79	89.91	1.30	1.01E+003	57.90	3.86E+003
m	9	423-	480	471.19	92.95	1.31	2.60E+003	75.15	3.53E+003
	10	495-	509	504.56	99.54	0.84	3.98E+002	85.91	2.43E+003
	11	525-	541	534.83	105.52	1.26	5.20E+002	95.22	2.73E+003
	12	647-	661	653.75	129.01	0.77	5.48E+002	87.73	2.47E+003
M	13	702-	734	709.47	140.01	0.50	1.38E+002	30.94	1.39E+003
m	14	702-	734	727.79	143.63	0.51	1.88E+002	34.67	1.43E+003
	15	775-	784	779.55	153.85	0.31	5.09E+001	59.12	1.52E+003
	16	838-	848	842.23	166.23	0.66	7.72E+001	62.01	1.57E+003
	17	933-	951	941.13	185.77	0.98	1.21E+003	100.60	2.63E+003
	18	1054-	1070	1059.46	209.14	1.01	9.16E+002	85.57	2.02E+003
M	19	1199-	1234	1208.29	238.53	1.01	1.31E+003	52.03	1.69E+003
m	20	1199-	1234	1225.00	241.83	1.01	3.99E+002	37.91	1.67E+003
	21	1362-	1378	1368.23	270.12	0.98	6.28E+002	71.29	1.41E+003
	22	1487-	1502	1494.67	295.10	1.07	8.02E+002	69.45	1.34E+003
	23	1648-	1667	1660.73	327.90	0.75	3.44E+002	74.85	1.50E+003
	24	1700-	1721	1712.52	338.13	1.12	1.60E+003	86.03	1.55E+003
	25	1770-	1793	1781.55	351.76	0.90	1.38E+003	86.31	1.51E+003
	26	2065-	2078	2072.15	409.16	0.48	1.98E+002	47.36	7.41E+002
	27	2332-	2354	2344.29	462.91	1.27	4.47E+002	66.26	1.02E+003
	28	2572-	2599	2586.30	510.71	2.44	2.30E+003	92.68	1.40E+003
M	29	2841-	2894	2850.78	562.95	1.35	3.52E+002	29.73	7.53E+002
m	30	2841-	2894	2882.73	569.26	1.35	5.20E+002	34.29	8.37E+002
	31	2943-	2961	2952.34	583.01	1.42	4.11E+002	51.14	6.53E+002
	32	3010-	3023	3015.74	595.53	0.83	7.09E+001	37.51	4.73E+002
M	33	3047-	3095	3061.64	604.60	1.42	3.29E+003	62.75	7.29E+002
m	34	3047-	3095	3084.75	609.16	1.42	1.09E+003	39.97	7.04E+002
	35	3336-	3363	3349.90	661.53	1.43	2.73E+003	76.40	6.89E+002
	36	3668-	3691	3681.16	726.96	0.98	1.70E+002	45.16	4.67E+002
M	37	4013-	4072	4029.15	795.69	1.66	2.57E+003	54.68	4.29E+002
m	38	4013-	4072	4061.71	802.12	1.67	2.57E+002	23.71	4.27E+002
M	39	4197-	4242	4204.54	830.34	1.65	6.82E+001	17.48	3.11E+002
m	40	4197-	4242	4231.75	835.71	1.66	1.26E+002	21.49	3.85E+002
M	41	4570-	4627	4578.01	904.10	1.58	4.64E+001	17.11	3.26E+002
m	42	4570-	4627	4614.38	911.28	1.58	1.73E+003	45.73	3.75E+002

	Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
M	43	4876	4921	4886.23	964.98	1.63	2.74E+002	23.08	3.37E+002
m	44	4876	4921	4907.29	969.14	1.63	9.66E+002	35.96	3.57E+002
	45	5666	5685	5674.86	1120.75	1.22	2.08E+002	32.40	2.39E+002
	46	7387	7418	7400.73	1461.63	1.66	4.10E+002	37.39	2.00E+002
	47	8029	8057	8047.45	1589.36	0.74	1.38E+002	29.07	1.53E+002

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

Errors quoted at 1.000 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: Almera
Nuclide Library Used: C:\GENIE2K\CAMFILES\ALM18.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (Bq /g)	Activity Uncertainty
NA-22	0.555	511.00*	179.79	3.55712E-002	2.34364E-002
		1274.54	99.94		
K-40	0.947	1460.75*	10.67	-5.29783E-002	3.98156E-001
MN-54	0.946	834.83*	99.97	6.90318E-002	1.18485E-002
CS-134	0.954	475.35	1.46		
		563.23*	8.38	1.66796E+000	1.45038E-001
		569.32*	15.43	1.35199E+000	9.33998E-002
		604.70*	97.60	1.41761E+000	3.91746E-002
		795.84*	85.40	1.57669E+000	4.70306E-002
		801.93*	8.73	9.55879E-001	2.57607E-001
		1038.57	1.00		
		1167.94	1.80		
		1365.15	3.04		
CS-137	0.999	661.66*	85.21	1.44907E+000	5.00155E-002

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 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 (Bq /g)	Wt mean Activity Uncertainty
NA-22	0.555	3.557119E-002	2.343637E-002
K-40	0.947	-5.297834E-002	3.981565E-001
MN-54	0.946	6.903180E-002	1.184849E-002
CS-134	0.954	1.472100E+000	3.018928E-002
CS-137	0.999	1.449072E+000	5.001547E-002

? = 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 1.000 sigma

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

Peak Locate Performed on: 27/09/2019 14:37:37
Peak Locate From Channel: 1
Peak Locate To Channel: 8192

	Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
	1	21.26	2.1965E-003	21.92		
	2	32.06	3.0164E-003	14.85		
	3	63.23	-2.8939E-004	-195.64		
M	4	74.85	5.4201E-003	5.56		
m	5	77.06	7.3718E-003	5.79		
M	6	84.15	8.6829E-004	31.14		
m	7	87.17	2.9578E-003	10.48	Tol.	CS-136
m	8	89.91	5.8776E-003	5.76		
m	9	92.95	6.9903E-003	8.78		
	10	99.54	2.3279E-003	21.57		
	11	105.52	3.0378E-003	18.32		
	12	129.01	3.2042E-003	16.00		
M	13	140.01	2.7274E-004	84.72		
m	14	143.63	4.2240E-004	60.21		
	15	153.85	2.9721E-004	116.24	Tol.	CS-136
	16	166.23	4.5131E-004	80.30		
	17	185.77	2.3357E-003	30.31		
	18	209.14	5.3543E-003	9.34		
M	19	238.53	5.6395E-003	7.49		
m	20	241.83	2.3298E-003	9.51		
	21	270.12	3.6677E-003	11.36		
	22	295.10	4.6883E-003	8.66		
	23	327.90	2.0122E-003	21.74		
	24	338.13	9.3573E-003	5.37		
	25	351.76	7.4375E-003	7.27		
	26	409.16	1.1546E-003	23.97		
	27	462.91	2.6148E-003	14.81		
	31	583.01	1.7472E-003	19.74		
	32	595.53	5.1496E-005	522.66		
m	34	609.16	5.7363E-003	5.23		
	36	726.96	9.9204E-004	26.60		
M	39	830.34	3.9833E-004	25.65		
M	41	904.10	2.7109E-004	36.88		
m	42	911.28	9.7732E-003	3.18		
M	43	964.98	1.6021E-003	8.42		
m	44	969.14	5.4286E-003	4.48		
	45	1120.75	1.1626E-003	19.03		
	47	1589.36	8.0532E-004	21.09		

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

Errors quoted at 1.000 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: DET01
Sample Geometry:
Sample Title: Almera
Nuclide Library Used: C:\GENIE2K\CAMFILES\ALM18.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (Bq /g)	Nuclide MDA (Bq /g)	Activity (Bq /g)
+	NA-22	511.00*	179.79	7.7116E-002	7.71E-002	3.5571E-00
		1274.54	99.94	8.9733E-002		-5.3430E-00
+	K-40	1460.75*	10.67	1.3342E+000	1.33E+000	-5.2978E-00
	CO-58	810.78	99.45	7.7954E-002	7.80E-002	-1.6159E-00
>		1674.73	0.52	0.0000E+000		0.0000E+00
	CO-60	1173.23	99.85	9.1141E-002	9.04E-002	3.5827E-00
		1332.50	99.98	9.0426E-002		-3.1612E-00
	I-131	80.18	2.62	1.7416E+000	9.28E-002	-1.1141E+00
		284.30	6.06	1.1731E+000		6.0267E-00
		364.48	81.20	9.2777E-002		-6.2460E-00
		636.97	7.27	1.1749E+000		4.2210E-00
		722.89	1.80	5.0749E+000		2.6713E+00
	BA-133	53.16	2.20	1.4446E+000	1.17E-001	-1.3915E-00
		79.62	2.62	1.6598E+000		-4.9963E-00
		81.00	34.10	1.1714E-001		-7.5180E-00
		160.61	0.64	8.7183E+000		5.0409E+00
		223.23	0.45	1.4046E+001		-5.7109E+00
		276.40	7.16	9.2755E-001		7.4069E-00
		302.85	18.33	3.5795E-001		-2.1853E-00
		356.02	62.05	1.2958E-001		-8.6892E-00
		383.85	8.94	7.9368E-001		-4.4786E-00
+	CS-134	475.35	1.46	5.2751E+000	5.53E-002	1.4146E+00
		563.23*	8.38	6.1846E-001		1.6680E+00
		569.32*	15.43	3.5690E-001		1.3520E+00
		604.70*	97.60	5.5287E-002		1.4176E+00
		795.84*	85.40	6.0854E-002		1.5767E+00
		801.93*	8.73	9.4811E-001		9.5588E-00
		1038.57	1.00	8.4894E+000		8.8921E-00
		1167.94	1.80	5.0857E+000		8.0030E+00
		1365.15	3.04	3.1125E+000		3.7057E+00
	CS-136	66.88	4.79	7.5452E-001	8.23E-002	-6.0682E-00
		86.36	5.18	8.8747E-001		-3.3740E+00
		153.25	5.75	1.0234E+000		3.3681E-00
		163.92	3.39	1.7560E+000		-3.1557E-00
		176.60	10.00	6.4036E-001		6.1757E-00
		273.65	11.10	6.6108E-001		-2.4567E-00
		340.55	42.20	2.1971E-001		-4.0351E-00
		818.51	99.70	8.2344E-002		-1.0820E-00
		1048.07	80.00	1.1083E-001		-1.7522E-00
		1235.36	20.00	5.0465E-001		3.5835E-00
+	CS-137	661.66*	85.21	9.8548E-002	9.85E-002	1.4491E+00
	PB-210	46.54	4.06	8.0029E-001	8.00E-001	2.0358E-00

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (Bq /g)	Nuclide MDA (Bq /g)	Activity (Bq /g)
AM-241	26.34	2.31	2.6179E+000	9.05E-002	-1.3574E+00
	59.54	35.92	9.0452E-002		-3.2825E-00

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction