

09-0015

11/13/2009 3:05:26 PM  
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Shipment 09-0015 is a Radiative Material, UN 2915 shipment generated 11/13/2009 3:05:26 PM  
using Isotopes in data.mdb for isotope limits.  
Total input activity: 7.17E+02MBq

Shipping to POWER AUTHORITY STATE OF N.Y., BROADWAY & BLEAKLEY AVE. UNIT # 3, BUCHANAN, N.Y.  
POWER AUTHORITY STATE OF N.Y. is using the following isotope information:

Isotope	Pct.	In Amount (MBq)	A2 Lmt (TBq)	RQ Lmt (Ci)	LQ Lmt (TBq)
Co-58	05.0000%	3.51E+01	1.00E+00	1.00E+01	1.00E-03
Co-60	30.0000%	2.11E+02	4.00E-01	1.00E+01	4.00E-04
Cs-134	05.0000%	3.51E+01	7.00E-01	1.00E+00	7.00E-04
Cs-137	20.0000%	1.41E+02	6.00E-01	1.00E+00	6.00E-04
Fe-55	30.0000%	2.11E+02	4.00E+01	1.00E+02	4.00E-02
Mn-54	08.0000%	5.62E+01	1.00E+00	1.00E+01	1.00E-03
Sb-125	02.0000%	1.41E+01	1.00E+00	1.00E+01	1.00E-03

Container 1:

Contact Radiation: 8.00E+00mR/hr  
Weight: 3.40E+05g (750Lbs)  
Total Activity: 1.05E+02 MBq

Isotope	Amount (MBq)	Amount (Ci)	LSA-I ratio	LSA-II ratio	A2 ratio	RQ ratio	LQ ratio
Co-58	5.25E+00	(1.42E-04Ci)	5.15E-02	1.54E-07	5.25E-06	1.42E-05	5.25E-03
Co-60	3.15E+01	(8.52E-04Ci)	3.09E-01	2.32E-06	7.88E-05	8.52E-05	7.88E-02
Cs-134	5.25E+00	(1.42E-04Ci)	5.15E-02	2.21E-07	7.51E-06	1.42E-04	7.51E-03
Cs-137	2.10E+01	(5.68E-04Ci)	2.06E-01	1.03E-06	3.50E-05	5.68E-04	3.50E-02
Fe-55	3.15E+01	(8.52E-04Ci)	3.09E-04	2.32E-08	7.88E-07	8.52E-06	7.88E-04
Mn-54	8.41E+00	(2.27E-04Ci)	8.24E-02	2.47E-07	8.41E-06	2.27E-05	8.41E-03
Sb-125	2.10E+00	(5.68E-05Ci)	2.06E-03	6.18E-08	2.10E-06	5.68E-06	2.10E-03

Totals (none should exceed unity) 7.02E-01 4.05E-06 1.38E-04 8.46E-04 1.38E-01

There are no alerts relevant to this Radiative Material, UN 2915 shipment present.  
No additional limits have been exceeded on this container.

Container 2:

Contact Radiation: 2.00E+00mR/hr  
Weight: 3.40E+05g (750Lbs)  
Total Activity: 2.63E+01 MBq

Isotope	Amount (MBq)	Amount (Ci)	LSA-I ratio	LSA-II ratio	A2 ratio	RQ ratio	LQ ratio
Co-58	1.31E+00	(3.55E-05Ci)	1.29E-02	3.86E-08	1.31E-06	3.55E-06	1.31E-03
Co-60	7.88E+00	(2.13E-04Ci)	7.72E-02	5.79E-07	1.97E-05	2.13E-05	1.97E-02
Cs-134	1.31E+00	(3.55E-05Ci)	1.29E-02	5.52E-08	1.88E-06	3.55E-05	1.88E-03
Cs-137	5.25E+00	(1.42E-04Ci)	5.15E-02	2.57E-07	8.76E-06	1.42E-04	8.76E-03
Fe-55	7.88E+00	(2.13E-04Ci)	7.72E-05	5.79E-09	1.97E-07	2.13E-06	1.97E-04
Mn-54	2.10E+00	(5.68E-05Ci)	2.06E-02	6.18E-08	2.10E-06	5.68E-06	2.10E-03
Sb-125	5.25E-01	(1.42E-05Ci)	5.15E-04	1.54E-08	5.25E-07	1.42E-06	5.25E-04

Totals (none should exceed unity) 1.76E-01 1.01E-06 3.45E-05 2.12E-04 3.45E-02

There are no alerts relevant to this Radiative Material, UN 2915 shipment present.  
No additional limits have been exceeded on this container.

Container 3:

Contact Radiation: 4.00E+01mR/hr

Weight: 3.40E+05g (750Lbs)

Total Activity: 5.25E+02 MBq

Isotope	Amount		LSA-I	LSA-II	A2	RQ	LQ
	(MBq)	(Ci)	ratio	ratio	ratio	ratio	ratio
Co-58	2.63E+01	(7.10E-04Ci)	2.57E-01	7.72E-07	2.63E-05	7.10E-05	2.63E-02
Co-60	1.58E+02	(4.26E-03Ci)	1.54E+00**	1.16E-05	3.94E-04	4.26E-04	3.94E-01
Cs-134	2.63E+01	(7.10E-04Ci)	2.57E-01	1.10E-06	3.75E-05	7.10E-04	3.75E-02
Cs-137	1.05E+02	(2.84E-03Ci)	1.03E+00**	5.15E-06	1.75E-04	2.84E-03	1.75E-01
Fe-55	1.58E+02	(4.26E-03Ci)	1.54E-03	1.16E-07	3.94E-06	4.26E-05	3.94E-03
Mn-54	4.20E+01	(1.14E-03Ci)	4.12E-01	1.24E-06	4.20E-05	1.14E-04	4.20E-02
Sb-125	1.05E+01	(2.84E-04Ci)	1.03E-02	3.09E-07	1.05E-05	2.84E-05	1.05E-02

Totals (none should exceed unity) 3.51E+00\*\* 2.03E-05 6.89E-04 4.23E-03 6.89E-01

There are no alerts relevant to this Radiactive Material, UN 2915 shipment present.

NOTE: However, it should also be noted that this container exceeds LSA-I limit(s).

Container 4:

Contact Radiation: 3.00E+00mR/hr

Weight: 3.40E+05g (750Lbs)

Total Activity: 3.94E+01 MBq

Isotope	Amount		LSA-I	LSA-II	A2	RQ	LQ
	(MBq)	(Ci)	ratio	ratio	ratio	ratio	ratio
Co-58	1.97E+00	(5.32E-05Ci)	1.93E-02	5.79E-08	1.97E-06	5.32E-06	1.97E-03
Co-60	1.18E+01	(3.19E-04Ci)	1.16E-01	8.69E-07	2.96E-05	3.19E-05	2.96E-02
Cs-134	1.97E+00	(5.32E-05Ci)	1.93E-02	8.27E-08	2.81E-06	5.32E-05	2.81E-03
Cs-137	7.88E+00	(2.13E-04Ci)	7.72E-02	3.86E-07	1.31E-05	2.13E-04	1.31E-02
Fe-55	1.18E+01	(3.19E-04Ci)	1.16E-04	8.69E-09	2.96E-07	3.19E-06	2.96E-04
Mn-54	3.15E+00	(8.52E-05Ci)	3.09E-02	9.27E-08	3.15E-06	8.52E-06	3.15E-03
Sb-125	7.88E-01	(2.13E-05Ci)	7.72E-04	2.32E-08	7.88E-07	2.13E-06	7.88E-04

Totals (none should exceed unity) 2.63E-01 1.52E-06 5.17E-05 3.17E-04 5.17E-02

There are no alerts relevant to this Radiactive Material, UN 2915 shipment present.

No additional limits have been exceeded on this container.

Container 5:

Contact Radiation: 5.00E-01mR/hr

Weight: 3.40E+05g (750Lbs)

Total Activity: 6.57E+00 MBq

Isotope	Amount		LSA-I	LSA-II	A2	RQ	LQ
	(MBq)	(Ci)	ratio	ratio	ratio	ratio	ratio
Co-58	3.28E-01	(8.87E-06Ci)	3.22E-03	9.65E-09	3.28E-07	8.87E-07	3.28E-04
Co-60	1.97E+00	(5.32E-05Ci)	1.93E-02	1.45E-07	4.93E-06	5.32E-06	4.93E-03
Cs-134	3.28E-01	(8.87E-06Ci)	3.22E-03	1.38E-08	4.69E-07	8.87E-06	4.69E-04
Cs-137	1.31E+00	(3.55E-05Ci)	1.29E-02	6.43E-08	2.19E-06	3.55E-05	2.19E-03
Fe-55	1.97E+00	(5.32E-05Ci)	1.93E-05	1.45E-09	4.93E-08	5.32E-07	4.93E-05
Mn-54	5.25E-01	(1.42E-05Ci)	5.15E-03	1.54E-08	5.25E-07	1.42E-06	5.25E-04
Sb-125	1.31E-01	(3.55E-06Ci)	1.29E-04	3.86E-09	1.31E-07	3.55E-07	1.31E-04

Totals (none should exceed unity) 4.39E-02 2.53E-07 8.62E-06 5.29E-05 8.62E-03

There are no alerts relevant to this Radiactive Material, UN 2915 shipment present.

No additional limits have been exceeded on this container.

Container 6:

Total activity: 4.00E+00MBq

Container weight: 3.40E+05g (750lbs)

Isotope	Pct.	Amount (MBq)	Cnsn Lmt (MBq)	Cnsn Rto	Conc. Lmt (MBq/g)	Conc. Rto
Co-58	05.0000%	2.00E-01	1.00E+00	2.00E-01	1.00E-05	5.88E-02
Co-60	30.0000%	1.20E+00	1.00E-01	1.20E+01	1.00E-05	3.53E-01
Cs-134	05.0000%	2.00E-01	1.00E-02	2.00E+01	1.00E-05	5.88E-02
Cs-137	20.0000%	8.00E-01	1.00E-02	8.00E+01	1.00E-05	2.35E-01
Fe-55	30.0000%	1.20E+00	1.00E+00	1.20E+00	1.00E-02	3.53E-04
Mn-54	08.0000%	3.20E-01	1.00E+00	3.20E-01	1.00E-05	9.41E-02
Sb-125	02.0000%	8.00E-02	1.00E+00	8.00E-02	1.00E-04	2.35E-03

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Sum of the ratios: 1.14E+02 8.02E-01  
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NR Container Summed Exemption Calculations:

Total Activity: 4.00E+00MBq

Consignment total weight: 3.40E+05g (340200lbs)

Isotope	Pct.	Amount (MBq)	Cnsn Lmt (MBq)	Cnsn Rto	Conc. Lmt (MBq/g)	Conc. Rto
Co-58	05.0000%	2.00E-01	1.00E+00	2.00E-01	1.00E-05	5.88E-02
Co-60	30.0000%	1.20E+00	1.00E-01	1.20E+01	1.00E-05	3.53E-01
Cs-134	05.0000%	2.00E-01	1.00E-02	2.00E+01	1.00E-05	5.88E-02
Cs-137	20.0000%	8.00E-01	1.00E-02	8.00E+01	1.00E-05	2.35E-01
Fe-55	30.0000%	1.20E+00	1.00E+00	1.20E+00	1.00E-02	3.53E-04
Mn-54	08.0000%	3.20E-01	1.00E+00	3.20E-01	1.00E-05	9.41E-02
Sb-125	02.0000%	8.00E-02	1.00E+00	8.00E-02	1.00E-04	2.35E-03

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Sum of the ratios: 1.14E+02 8.02E-01  
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NOTE:

Consignment calculations are calculated using output activity.

A2 limits from 49 CFR 173.435. RQ Limits from 49 CFR 172.101.

Consignment and concentration limits from 49 CFR 173.436.

Shipments are defined as radioactive when the both the Cnsn Rto and Conc Rto SOR are > 1E0.

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End of Compliance Evaluation Log for shipment 09-0015.