



Baltic Marine Environment Protection Commission

Expert Group on Monitoring of Radioactive Substances
in the Baltic Sea

MORS EG 9-2019

Roskilde, Denmark, 21-23 May 2019

Document title	Inventory of discharge data from 1998-2017 reported until 14 May 2019
Code	4-5
Category	CMNT
Agenda Item	4 – Data collection, databases and ongoing monitoring programme
Submission date	15.05.2019
Submitted by	STUK
Reference	

Action

The Meeting is invited to consider the inventory of reported discharge data and check and validate the data.

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
14.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

RISØ - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	4.30E+12	3.01E+13	9.60E+11	1.50E+11	2.50E+11	1.60E+11	2.80E+11	1.60E+11	9.80E+11	1.04E+12	3.87E+11	1.21E+11	5.40E+10	1.39E+11	2.65E+11	6.90E+10	9.60E+09	5.00E+10	3.00E+09	8.80E+09

The research reactor was shut down in September 2000

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
14.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

LOVIISA - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	9.30E+12	1.40E+13	1.10E+13	1.40E+13	1.30E+13	1.50E+13	1.70E+13	1.40E+13	1.70E+13	1.63E+13	1.71E+13	2.07E+13	1.73E+13	1.49E+13	1.51E+13	1.59E+13	1.26E+13	1.64E+13	1.34E+13	1.47E+13
BE7										4.37E+04		1.80E+05								
CR51				6.60E+05				4.70E+06	2.00E+07	3.97E+06	3.07E+07	1.05E+06	9.03E+05		2.95E+05			3.33E+06	3.65E+06	2.38E+07
MN54	3.00E+07	1.00E+06	6.60E+05	7.50E+06	5.00E+05	2.50E+06	4.30E+06	1.10E+07	1.70E+07	1.05E+07	1.00E+07	4.80E+07	8.98E+06	2.40E+06	4.88E+06	7.76E+06	2.50E+06	1.52E+06	2.21E+06	6.41E+06
CO58	4.50E+07	1.10E+06	2.20E+06	2.80E+06	8.10E+04	5.00E+05	7.50E+06	2.30E+07	4.00E+07	2.15E+07	2.57E+07	1.35E+07	1.31E+07	3.76E+06	1.03E+07	9.37E+06	5.51E+06	4.74E+06	5.81E+06	9.32E+06
FE59				3.10E+03			1.90E+06	2.90E+06	4.30E+06		1.99E+06		2.15E+06		2.62E+05					2.08E+05
CO60	8.90E+08	1.00E+07	2.70E+06	5.20E+08	4.90E+05	1.30E+06	3.10E+08	2.20E+07	3.00E+07	1.43E+07	2.80E+07	5.37E+08	1.62E+07	5.20E+06	1.29E+07	3.26E+08	7.50E+06	2.71E+06	6.61E+06	1.90E+08
SR89		2.80E+03														2.39E+05				
SR89§												6.65E+06								
SR90				2.70E+03												3.09E+06				
ZR95	7.50E+03			1.70E+04		1.00E+06		4.60E+06	7.40E+06	2.40E+06	4.24E+06	2.84E+05	2.15E+06	1.03E+06	1.04E+07	5.83E+05	5.06E+05	1.85E+05	1.10E+06	2.36E+05
NB95				2.70E+04				6.50E+06	1.30E+07	1.76E+06	5.93E+06	7.21E+05	5.69E+06	1.11E+06	3.39E+06	2.17E+06	2.91E+06			1.58E+06
RU103																				1.85E+05
AG108M												6.80E+06				5.40E+06				3.35E+06
AG110M	8.20E+07	1.40E+07	2.90E+07	1.20E+08	9.80E+06	9.10E+06	1.90E+08	4.80E+07	6.60E+07	4.09E+07	6.06E+07	2.09E+08	5.05E+07	3.46E+07	7.26E+07	2.77E+08	2.77E+07	2.44E+07	5.93E+07	2.10E+08
TE123M	1.30E+05		5.10E+05			1.10E+04		1.20E+06	2.60E+06	1.33E+06	3.73E+06	1.10E+06	1.70E+06	8.64E+05	3.49E+06	8.11E+05	2.82E+06	6.70E+05	1.48E+06	1.28E+06
SB124	3.20E+07	4.20E+07	2.20E+07	1.10E+08	3.30E+07	2.60E+07	6.50E+07	8.30E+07	9.20E+07	1.03E+08	4.92E+07	7.70E+07	4.73E+07	1.22E+08	1.69E+08	8.65E+07	3.85E+07	4.70E+07	5.24E+07	6.63E+07
SB125				1.50E+08			1.50E+08		9.10E+05			2.17E+08		5.28E+05	1.16E+06	3.41E+08	1.96E+05			6.35E+08
I131										4.90E+05	3.70E+06		3.29E+05		1.85E+05					
CS134	3.90E+07	8.40E+06	4.60E+06	5.60E+07	5.00E+05	2.50E+05	8.00E+06	1.30E+04	8.30E+05	9.62E+05	8.05E+05	5.00E+07	1.15E+07	3.20E+06	2.01E+06	4.37E+06	1.02E+05			1.15E+07
CS137	1.20E+08	4.00E+07	3.80E+07	3.00E+08	4.00E+07	3.50E+07	1.30E+08	1.60E+07	1.30E+07	1.07E+07	6.62E+06	5.79E+08	1.44E+07	8.89E+06	1.11E+07	1.23E+08	2.40E+06	2.84E+06	4.31E+06	4.53E+08
HF181														5.50E+05			1.88E+05		2.20E+05	

§ Sr-89 and Sr-90 together

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
14.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

LOVIISA - AIRBORNE DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	2.00E+11	1.90E+11	2.00E+11	1.80E+11	2.20E+11	2.20E+11	2.20E+11	1.90E+11	1.80E+11	1.69E+11	7.51E+10	4.38E+11	2.79E+11	1.86E+11	2.13E+11	1.87E+11	1.33E+11	1.47E+11	1.65E+11	1.86E+11
C14	3.40E+11	3.30E+11	2.80E+11	3.00E+11	3.70E+11	3.20E+11	3.20E+11	2.70E+11	1.50E+11	2.42E+11	3.29E+11	3.35E+11	3.23E+11	3.24E+11	3.39E+11	4.63E+11	4.00E+11	4.15E+11	3.93E+11	3.55E+11
CR51	3.30E+06		5.80E+06		9.60E+05	1.90E+06	3.20E+06	9.60E+05	7.10E+06	2.80E+05	7.88E+06	2.70E+06	2.06E+06	2.23E+06	2.02E+05	2.12E+06	4.29E+05	4.66E+05	2.25E+06	
MN54	9.40E+06	1.20E+05	2.30E+06	5.80E+05	1.60E+06	7.60E+05	1.20E+06	7.70E+05	6.80E+05	3.16E+05	1.00E+06	5.62E+05	3.56E+05	3.26E+05	4.63E+04	1.56E+05			1.76E+05	
CO58	2.50E+07	7.20E+04	5.50E+06	1.10E+06	4.90E+06	5.90E+06	1.00E+07	8.00E+06	6.20E+06	4.10E+06	4.19E+06	5.01E+06	1.00E+06	2.29E+06	3.84E+05	1.02E+06	9.51E+05	1.37E+06	9.67E+05	8.65E+05
FE59							2.90E+05		7.90E+04		1.99E+05									
CO60	1.50E+07	7.60E+05	6.00E+06	1.00E+06	5.50E+06	2.50E+06	3.60E+06	2.10E+06	1.60E+06	1.12E+06	1.60E+06	6.89E+05	7.66E+05	3.26E+05	1.15E+05	4.66E+05	5.98E+05	2.82E+05	3.85E+05	8.72E+04
SR89§												3.15E+05								
ZR95	8.10E+05		7.70E+05		5.70E+05	1.60E+05	9.50E+05	2.50E+05	1.30E+05	2.52E+04	4.74E+05		1.98E+05		2.34E+05	1.59E+05			1.90E+05	
NB95	3.00E+06		2.20E+06	8.10E+04	1.60E+06	2.00E+05	1.80E+06	5.90E+05	6.20E+05		1.15E+06	5.20E+04	4.29E+05		2.94E+04	6.50E+05			1.47E+05	9.48E+04
RU103										2.61E+04					3.10E+04	1.31E+05	4.79E+05		1.05E+05	
AG110M	2.00E+06	4.00E+06	1.90E+07	1.70E+07	1.20E+07	8.10E+06	1.40E+07	4.60E+06	7.80E+06	3.55E+06	4.30E+06	1.31E+07	3.26E+06	5.95E+06	1.92E+06	2.90E+06	4.00E+06	3.98E+06	7.90E+06	8.38E+06
TE123M	9.40E+04		7.60E+04		4.10E+04		1.90E+05			1.16E+04	3.12E+05	3.19E+05	4.31E+04	4.19E+05	3.18E+05	3.95E+05	5.70E+05	1.54E+05	1.95E+05	2.92E+05
SB124	9.60E+06	3.80E+06	7.80E+06	3.90E+06	8.00E+06	6.20E+06	1.40E+07	8.90E+06	7.60E+06	4.92E+06	4.60E+06	1.77E+06	1.37E+06	5.69E+06	1.96E+06	2.21E+06	2.83E+06	1.75E+06	1.67E+06	1.15E+06
I131	3.30E+06	4.50E+07			9.80E+05	3.50E+06	1.10E+07	6.80E+06		7.34E+05	1.59E+06	2.62E+07	4.84E+07	8.00E+05	2.11E+05	2.42E+07	2.88E+06	3.74E+06	8.86E+05	5.24E+05
CS134		2.50E+04										2.07E+04								
CS137	1.40E+05		9.90E+04		3.00E+04	2.90E+04			1.20E+04		1.10E+04	3.70E+06							4.85E+04	
HF181																			8.25E+04	

§ Sr-89 and Sr-90 together

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DISCHARGE REGISTER OF HELCOM/MORS

14.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

OLKILUOTO - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	1.20E+12	1.10E+12	1.00E+12	9.00E+11	1.00E+12	1.10E+12	1.50E+12	2.20E+12	2.50E+12	2.41E+12	2.39E+12	1.85E+12	1.50E+12	1.31E+12	1.31E+12	1.46E+12	1.56E+12	2.05E+12	2.33E+12	2.46E+12
CR51	1.10E+08	1.20E+08	7.70E+07	1.50E+08	3.40E+07	1.50E+08	7.80E+07	7.00E+07	6.50E+07	3.83E+07	2.26E+07	1.14E+07	2.64E+07	3.09E+06	1.65E+07		2.81E+06	1.14E+06	1.07E+07	2.67E+07
MN54	1.10E+08	9.00E+07	4.90E+07	1.60E+07	3.50E+07	3.40E+07	4.20E+07	6.80E+07	8.60E+07	1.00E+08	6.51E+07	3.65E+07	4.68E+07	1.35E+07	4.93E+07	1.43E+07	1.73E+07	2.28E+07	4.17E+07	6.26E+07
CO58	1.20E+08	2.50E+08	1.10E+08	6.10E+07	4.80E+07	2.70E+07	3.30E+07	7.90E+07	4.10E+07	3.24E+07	3.20E+07	1.23E+07	1.64E+07	2.91E+06	6.17E+06	8.57E+05	1.53E+06	5.80E+06	5.06E+05	2.21E+07
FE59	4.00E+06	2.60E+06	2.90E+06	2.60E+06			4.70E+06	6.30E+06	5.50E+06	1.07E+07	1.01E+07	1.30E+06	9.59E+05	1.72E+06	5.06E+06	1.14E+06	5.80E+05		6.21E+06	1.16E+07
CO60	9.00E+08	7.90E+08	5.00E+08	3.00E+08	4.80E+08	2.80E+08	2.40E+08	3.20E+08	3.00E+08	2.12E+08	1.49E+08	9.07E+07	1.06E+08	5.27E+07	9.59E+07	5.47E+07	3.51E+07	5.68E+07	6.93E+07	8.06E+07
SR89	2.60E+06	3.40E+06																		2.02E+06
SR90																				3.40E+06
ZR95	2.30E+07	3.80E+06	6.80E+06	1.50E+07	7.30E+06	8.20E+05	4.10E+06	6.60E+06	2.40E+06	4.31E+07	1.79E+06	2.83E+06			1.91E+06	2.50E+05				
NB95	3.40E+07	7.10E+06	1.40E+07	2.60E+07	1.30E+07	5.00E+05	6.70E+06	1.20E+07	3.60E+06	6.49E+07	2.33E+06	5.45E+06			3.52E+06	1.53E+05			1.64E+05	2.45E+05
RU103																				1.28E+05
SN113					7.50E+05		2.40E+05													
SB124	1.90E+07	3.20E+07	2.10E+07	2.40E+07	4.00E+05	9.50E+05	5.50E+06	1.10E+07	1.50E+07	1.15E+07	9.81E+06	1.51E+06	4.25E+05	5.17E+05	7.62E+05					
SB125	3.20E+06	3.00E+06	4.80E+06	1.80E+07	3.50E+06	1.60E+07	2.00E+06	2.80E+07	1.90E+07	7.55E+06	1.03E+07	6.97E+06	1.28E+06	1.35E+06	2.72E+06		3.34E+06	8.38E+05		5.65E+05
SN125			7.80E+06								1.12E+06	6.32E+05	8.58E+06							
I131	1.10E+07	1.00E+08	2.90E+07	6.50E+06	3.40E+06	2.70E+05	2.60E+05	5.70E+06	1.40E+07	3.32E+05			1.78E+06			8.15E+05			5.31E+06	2.80E+06
CS134	2.80E+08	7.10E+07	4.30E+07	5.50E+07	1.20E+07	7.30E+06	2.10E+06	1.40E+07	1.00E+07	4.54E+06	6.58E+05	3.37E+05	1.08E+05	4.26E+06		1.60E+06	1.75E+05	3.01E+05	6.58E+05	3.87E+06
CS136			3.60E+05																	
CS137	8.80E+08	3.20E+08	2.10E+08	1.90E+08	1.20E+08	7.60E+07	6.20E+07	7.80E+07	6.20E+07	3.85E+07	3.61E+07	3.13E+07	3.05E+07	3.07E+07	1.93E+07	1.73E+07	1.67E+07	1.50E+07	1.54E+07	4.27E+07
CE141			2.30E+05																1.75E+06	7.32E+05

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14.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

GREIFSWALD - AQUATIC DISCHARGES

NUCLIDE	1997	1998	1999	2000	2001	2002	2003	2004	2005	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	2.40E+10		5.40E+10	1.00E+10	8.40E+09	3.00E+09	3.10E+09			2.10E+09	2.70E+09	8.70E+08	4.70E+08	4.20E+08	9.10E+08	6.30E+08	1.10E+08	1.50E+07		4.60E+07
FE55										4.90E+07										
CO60	3.20E+07	5.30E+07	3.60E+07	6.70E+06	2.10E+06	4.60E+05	7.70E+06	1.70E+06	9.00E+06	1.80E+07	1.90E+06			1.10E+03						
NI63										7.20E+07							4.00E+06	2.60E+05		
SR90	1.10E+06	7.50E+05	2.40E+06				1.90E+06													
CS134	7.00E+06	2.90E+06	4.00E+06																	
CS137	1.20E+08	9.20E+07	1.00E+08	1.00E+07	1.10E+07	1.70E+07	1.50E+08	5.40E+07	1.30E+08	4.00E+07	9.80E+06		3.60E+05	2.20E+05	8.90E+04	1.60E+06				

The power plant was shut down in 1990

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
14.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

IGNALINA - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3		9.10E+11	8.70E+11	5.70E+11	9.70E+11	6.80E+11		3.24E+12	5.76E+11	6.48E+11	1.17E+12	1.30E+12	1.81E+10	2.24E+10	2.11E+10	1.92E+10	5.69E+09	1.85E+10	6.14E+10	4.61E+10
CR51				8.00E+07		9.00E+05														
MN54		4.80E+07	3.00E+05		4.00E+05	6.80E+07	5.80E+05	9.00E+04			2.07E+07	4.23E+04		1.64E+04						
CO58				1.50E+07		4.00E+05														
FE59		3.70E+06		9.20E+07		1.90E+06					3.07E+07									
CO60	1.70E+08	8.90E+07	4.00E+07	4.20E+08	8.10E+06	9.00E+05	1.79E+07	1.10E+07		1.07E+07	1.41E+07	1.06E+07	2.54E+06	9.06E+06	4.65E+06	5.08E+06	1.45E+05	1.83E+06	5.10E+05	9.62E+05
SR89	6.40E+08	6.40E+08	4.60E+08	1.40E+08																
SR90	6.00E+08	6.00E+08	3.50E+08	9.10E+07																
ZR95				8.40E+07		4.00E+05	2.10E+05													
NB95				1.30E+08		7.00E+05	2.10E+05		4.79E+07											
I131							3.10E+05													
CS134				1.20E+06		2.00E+05				5.87E+07	6.86E+06							1.44E+05		
CS137	2.20E+09	9.30E+08	4.60E+07	5.10E+08	1.20E+09	3.90E+08	2.45E+08	2.10E+07	2.49E+07	6.11E+08	2.27E+08	6.91E+06	1.84E+07	9.12E+06	4.90E+05	1.01E+07	1.56E+06	2.25E+07	3.59E+07	2.80E+07

IGNALINA - AIRBORNE DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
H3														6.23E+09	4.82E+09	4.14E+09	3.94E+09	3.11E+09	3.86E+09	1.72E+09	
C14														3.52E+09	2.07E+09	4.39E+09	2.20E+09	4.07E+09	1.25E+09	1.15E+09	
CR51	2.70E+07	7.10E+06		3.10E+07	1.20E+07	1.90E+07	8.62E+06	2.00E+03	3.65E+07	2.15E+07	3.36E+07	1.52E+07	1.22E+05								
MN54	6.00E+07	1.60E+08	3.10E+08	1.80E+08	9.50E+07	1.40E+08	1.09E+08	3.33E+07	5.60E+07	2.57E+07	4.44E+07	1.99E+07	9.18E+05	2.52E+05	4.00E+03	1.31E+04					
CO58	9.70E+06	4.00E+06	5.60E+06	9.90E+06	4.20E+06	1.10E+07	6.44E+06	2.80E+06	3.97E+06	1.74E+06	2.63E+06	3.21E+05	5.30E+04								
FE59	7.20E+05	1.16E+07	4.40E+07	6.00E+07	2.40E+07	3.20E+07	5.25E+06	1.05E+07	2.26E+07	1.04E+07	2.11E+07	2.40E+06									
CO60	2.10E+08	2.30E+08	4.70E+08	3.00E+08	1.90E+08	2.30E+08	2.32E+08	1.03E+08	1.02E+08	8.89E+07	9.01E+07	3.99E+07	1.70E+07	2.09E+07	3.32E+07	1.37E+07	7.31E+06	2.75E+07	7.11E+06	1.16E+07	
ZN65				2.70E+06	4.70E+05	1.90E+06	1.92E+05	1.60E+07	2.34E+07		2.78E+05										
SR89	3.20E+07	3.00E+07	4.40E+07	3.30E+07	4.80E+07	5.90E+07	6.18E+07	5.50E+07	2.87E+07	5.43E+07	8.14E+07	5.07E+07	4.90E+06	3.15E+06	2.19E+06	1.71E+06					
SR90	5.00E+07	4.00E+07	4.50E+07	4.20E+07	5.90E+07	4.50E+07	5.97E+07	5.60E+07	5.92E+07	6.15E+07	5.89E+07	6.35E+07	7.50E+06	3.22E+06	2.82E+06	3.69E+06	5.22E+06	3.85E+06	3.91E+06	2.66E+06	
NB94														5.55E+05			6.71E+02			6.94E+04	
ZR95	9.10E+07	2.10E+07	4.90E+07	3.30E+07	8.80E+06	1.20E+07	9.12E+06	9.12E+06	2.62E+06	1.54E+06	6.99E+06	1.04E+06	2.13E+05	4.80E+04							
NB95	1.30E+08	4.50E+07	9.00E+07	1.40E+08	4.20E+07	4.60E+07	4.31E+07	1.30E+06	1.40E+07	6.32E+06	9.84E+06	6.72E+06	3.73E+05								
I131	6.90E+09	2.70E+09	2.60E+09	2.00E+09	2.50E+09	1.40E+09	1.06E+10	6.80E+09	7.80E+09	4.75E+07	9.38E+08	1.63E+05									
CS134	1.60E+06	1.00E+06	1.30E+07	1.80E+07	2.80E+07	1.50E+07	1.33E+07	1.22E+06	2.27E+06	3.57E+06	1.10E+07	1.40E+06	2.64E+05	7.60E+04	1.70E+05			9.13E+04			
CS136						4.00E+04	2.50E+04	5.00E+03			3.18E+05	3.70E+04									
CS137	9.90E+07	8.00E+07	1.30E+08	1.80E+08	1.20E+08	9.30E+07	6.61E+07	1.27E+08	1.02E+08	3.16E+07	4.47E+07	1.72E+07	8.08E+06	2.93E+06	7.39E+06	9.37E+06	1.20E+07	1.81E+07	4.62E+07	3.98E+07	
EU152																				7.46E+04	
EU154																				5.85E+04	

Unit I of the power plant was shut down on 31 December 2004

Unit II of the power plant was shut down on 31 December 2009

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

LENINGRAD (SOSNOVY BOR) - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3																				2.33E+10
CR51													1.85E+06							
MN54													3.45E+05							
CO58													7.50E+04							
CO60	6.66E+05	4.44E+05	2.25E+05	2.15E+05	6.22E+04	4.97E+05	8.05E+05		8.45E+05	5.33E+05		3.06E+06	7.43E+05							
CS137	6.03E+05	6.40E+05	7.22E+03	1.98E+05	1.66E+05	1.03E+05	1.05E+05	6.66E+04	9.73E+05	3.21E+06		3.21E+06	6.75E+05							3.13E+06

LENINGRAD (SOSNOVY BOR) - AIRBORNE DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
CR51	9.25E+09	5.18E+08	8.36E+08	7.54E+08																
MN54	2.11E+08	1.30E+08	1.15E+08	1.02E+08																
CO60	1.70E+08	2.00E+08	2.18E+08	1.88E+08	1.89E+08	1.51E+08	1.59E+08	1.90E+08	1.96E+08	1.25E+08	1.62E+08	8.37E+07	2.50E+08	2.66E+08	1.01E+08	7.50E+07	1.52E+08	1.45E+08	2.12E+08	2.52E+08
SR89	5.18E+07	2.81E+07	2.85E+07	1.96E+07																
SR90	1.63E+07	6.66E+06	5.18E+06	4.07E+06	3.85E+06															
I131	1.74E+10	2.08E+09	1.65E+09	1.12E+09	1.06E+09	1.15E+09	9.04E+08	9.85E+08	8.89E+08	1.70E+09	1.70E+08	8.19E+08		4.48E+07	2.27E+07		1.31E+08	5.14E+08	2.47E+08	2.46E+08
CS134					7.10E+07	5.89E+07	5.18E+07	5.00E+07	3.72E+07	1.46E+07	5.67E+06	3.50E+07	1.79E+07	3.74E+06	3.74E+05	3.13E+06	8.10E+06	3.06E+07	2.25E+07	1.36E+08
CS137	7.40E+08	3.40E+08	6.22E+08	4.90E+08	4.90E+08	1.56E+08	2.17E+08	1.55E+08	1.70E+08	1.53E+08	7.85E+07	1.32E+08	4.40E+07	6.04E+07	3.29E+07	8.13E+06	2.54E+07	5.46E+07	3.49E+07	2.03E+08

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

FORSMARK - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	1.53E+12	1.42E+12	1.40E+12	1.85E+12	1.28E+12	1.26E+12	1.27E+12	1.75E+12	2.51E+12	3.67E+12	2.93E+12	1.62E+12	1.31E+12	1.24E+12	9.20E+11	1.23E+12	1.36E+12	1.94E+12	8.10E+11	1.28E+12
SC46																				4.91E+04
CR51	1.30E+09	1.67E+09	3.68E+08	3.84E+08	8.50E+07	2.39E+08	6.10E+07	2.24E+07												
MN54	7.00E+08	1.12E+09	1.55E+09	8.20E+08	4.24E+08	4.81E+08	6.65E+07	6.37E+06	2.28E+04	1.82E+05			1.07E+06						7.90E+05	
FE55																				4.60E+05
CO58	9.40E+08	1.20E+09	4.53E+08	5.05E+08	3.89E+08	8.77E+08	2.57E+08	2.21E+07	1.55E+06	1.07E+06	3.42E+06	4.14E+06	6.00E+06		7.10E+05	4.98E+05	6.11E+05	1.40E+06	1.50E+07	1.03E+06
FE59		2.27E+08	1.08E+08	7.11E+07																
CO60	1.20E+10	8.70E+09	6.65E+09	4.27E+09	3.41E+09	4.41E+09	1.19E+09	3.01E+08	6.62E+07	9.00E+06	1.80E+07	9.50E+06	1.45E+07	9.30E+06	8.40E+06	4.90E+06	3.50E+06	7.70E+06	6.55E+07	1.95E+07
NI63														1.24E+06	3.60E+05	1.45E+05	1.48E+05	1.37E+05	1.21E+06	4.07E+05
ZN65	1.90E+09	1.53E+09	5.50E+08	7.10E+07	7.30E+07	7.20E+07	1.01E+07													
SR90					1.52E+08								3.36E+05							
ZR95							3.97E+06			1.92E+05				2.40E+06						
NB95	1.20E+08	3.80E+07	2.14E+07	2.24E+07		2.18E+06	3.91E+06		4.58E+05	1.20E+05	3.51E+04		2.46E+05	4.80E+06						
AG110M	1.30E+09	6.19E+08	2.12E+08	2.34E+05	2.80E+07	1.63E+08	1.18E+07	2.20E+06	3.79E+05	2.58E+06	5.65E+05								1.40E+05	
SB124	7.40E+08	6.71E+08	7.61E+08	5.10E+08		1.72E+08	9.77E+07		6.26E+06	2.17E+07	1.72E+07	9.05E+07	4.20E+06	1.10E+06	3.70E+06	3.60E+06	7.08E+06	2.30E+06		2.86E+06
SB125		3.18E+08		8.37E+08	3.50E+08	1.10E+08	1.77E+08				5.29E+05			8.50E+06					9.30E+04	1.29E+05
I131	3.70E+08	4.16E+07	2.21E+08	2.86E+08	3.36E+08	6.39E+07					1.61E+06									6.38E+05
CS134	2.40E+09	2.75E+09	1.73E+09	1.98E+08	5.07E+08	6.41E+07	7.18E+06	1.94E+05	2.95E+05	1.10E+06	3.73E+05	4.57E+06	7.43E+06	3.70E+06	8.40E+05	5.90E+04		1.10E+05	8.70E+04	2.00E+05
CS137	3.72E+09	6.35E+09	4.66E+09	1.12E+09	1.14E+09	6.96E+08	2.57E+08	9.94E+08	6.76E+07	1.32E+07	9.66E+06	2.14E+07	1.84E+07	1.71E+07	1.47E+07	8.40E+06	7.66E+06	5.16E+06	5.50E+06	1.11E+07
CE141					1.80E+06	7.70E+06								5.80E+04	1.20E+05	3.50E+05	1.44E+04			
PO210		5.70E+05																		
U235														8.20E+02	2.92E+04	2.30E+04	1.03E+05	4.50E+05	1.50E+05	3.52E+04
U238														2.60E+03				1.80E+05	5.80E+04	
PU238								1.11E+03	1.16E+05	3.98E+03	9.50E+04	7.40E+05	6.20E+05	3.02E+05	1.02E+06	2.90E+05		1.50E+04	7.00E+04	
PU238*	4.13E+05	1.01E+06		7.20E+04	6.20E+04															
PU239														2.40E+04						
PU239&			5.51E+05												3.09E+04			2.40E+04		
AM241							5.46E+05							3.70E+04	7.30E+04	2.09E+04		9.20E+02	9.30E+02	
CM242		1.30E+05	6.75E+04		3.90E+04		1.04E+06	1.75E+02	2.15E+04		2.05E+05	9.85E+04	2.61E+05	6.07E+05	1.21E+06	1.32E+05	6.45E+04	1.16E+05	9.60E+04	8.02E+04
AM243						4.11E+05	8.32E+05	1.44E+03	8.43E+05	2.35E+05	6.46E+05	1.05E+06	1.46E+06	3.44E+05	7.80E+05	1.49E+06	3.35E+05	3.30E+05	5.00E+05	6.07E+05
CM243														1.36E+03	2.13E+03	4.10E+02		5.70E+01		
CM244		3.10E+04	1.26E+05		8.70E+04	5.44E+05	9.67E+05	6.43E+02	2.46E+05	4.37E+04	3.62E+05	4.59E+04	5.26E+04	3.37E+05	5.02E+05	9.70E+04		1.40E+04		

* Pu-238,Am-241
& Pu-239,Pu-240

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

FORSMARK - AIRBORNE DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
H3					5.80E+11	6.90E+11	5.19E+11	7.10E+11	1.41E+12	1.30E+12	1.01E+12	8.11E+11	5.53E+11	7.60E+11	1.02E+12	6.20E+11	5.28E+11	5.20E+11	4.70E+11	5.21E+11	
C14					2.65E+12	2.25E+12	2.22E+12	2.74E+12	2.22E+12	2.49E+12	2.08E+12	1.96E+12	1.96E+12	2.11E+12	1.77E+12	1.73E+12	1.91E+12	1.63E+12	1.62E+12	1.72E+12	
CR51	6.36E+07	3.50E+07	4.03E+07	1.18E+08	6.43E+07	3.71E+07	1.83E+07	7.00E+06	1.52E+07	4.05E+07	6.73E+07	1.94E+08	1.78E+08	1.36E+07	6.90E+05	5.70E+06	2.07E+07	1.32E+07	2.30E+07	5.48E+07	
MN54	4.40E+06	1.52E+07	3.24E+07	3.30E+07	2.09E+07	1.24E+07	4.84E+06	5.53E+05	9.46E+05	2.22E+06	2.79E+06	2.29E+06	7.51E+06	1.77E+06	1.30E+06	6.00E+05	2.69E+06	1.08E+07	1.04E+06	1.88E+06	
CO58	2.58E+07	2.56E+07	2.10E+07	4.82E+07	4.90E+07	2.91E+07	2.62E+07	9.37E+06	1.56E+07	1.33E+07	4.38E+07	1.45E+08	1.65E+08	1.63E+07	8.41E+06	6.84E+06	1.95E+07	1.82E+07	2.54E+07	4.23E+07	
FE59			6.47E+06																		
CO60	1.54E+08	7.57E+07	1.36E+08	1.15E+08	1.13E+08	1.05E+08	3.88E+07	3.81E+07	8.32E+07	5.38E+07	6.54E+07	1.37E+08	9.68E+07	1.25E+08	5.96E+07	3.05E+07	5.98E+07	6.92E+07	5.57E+07	5.25E+07	
ZN65	1.80E+07	6.73E+06	1.95E+07	5.91E+06	1.10E+07	6.15E+06		6.09E+06	7.39E+06					2.40E+06							
KR85															1.72E+11	2.48E+11	1.24E+11	1.24E+11	1.30E+11	3.16E+11	
SR90					9.90E+06																
ZR95																6.10E+05					
NB95		5.65E+05			7.50E+05							1.11E+06			6.00E+05	7.10E+05	1.23E+06	1.40E+06			
AG110M					3.60E+06										1.64E+07						
SN113															3.30E+05						
SN117M													5.80E+05								
TE123M															2.60E+05						
SB124			1.05E+07				5.53E+05	1.15E+04							3.10E+06	1.69E+06				8.30E+04	
SB125																				5.80E+04	1.70E+05
I131	6.48E+07	4.88E+07	4.46E+07	1.09E+08	3.82E+08	4.47E+07	2.09E+07	1.28E+07	1.60E+08	1.81E+07	3.45E+07	1.43E+06	2.41E+08	5.36E+08	3.21E+08	2.75E+08	2.85E+08	5.70E+08	7.11E+07	1.13E+09	
XE131M		6.60E+10	3.66E+11	3.34E+12	4.25E+13	1.50E+11	1.04E+11	1.44E+11	2.64E+11	2.92E+12	6.56E+10	9.32E+11	5.57E+11		5.80E+11		6.28E+11	3.10E+11	4.40E+11	3.21E+11	
CS134						2.18E+05								6.56E+05							
CS137		1.53E+05	9.14E+05		1.09E+06	3.11E+06			1.09E+05	1.13E+06	6.17E+04	5.23E+05			6.96E+06		1.59E+06	1.90E+05	9.60E+04	3.01E+05	
PO210	8.04E+04	1.85E+05																			
U235															2.19E+03	2.00E+03	8.90E+02	9.71E+02	2.17E+03	1.30E+03	3.84E+02
U238															2.30E+02	3.50E+02			1.30E+03		
PU238						3.03E+03		1.05E+04	4.47E+03	1.22E+03	7.16E+03	1.80E+03	4.04E+03	6.60E+03	1.18E+04	9.90E+03			3.50E+03	8.60E+03	1.57E+03
PU238*	4.22E+03	1.67E+03		1.77E+03	3.00E+03																
PU239													3.60E+03	1.20E+04							
PU239&			1.18E+03													1.03E+04	7.50E+03	1.17E+04	5.40E+03	9.00E+03	5.09E+03
AM241														4.60E+02	8.00E+02	7.10E+02		2.20E+02	5.40E+02	9.27E+01	
CM242		1.30E+03			2.87E+04	6.44E+03			1.80E+03					1.62E+03	4.81E+03	2.35E+03	2.61E+04	1.08E+03	7.50E+03	3.03E+03	1.97E+03
AM243						2.44E+05	5.11E+04	1.88E+05	3.99E+05	2.04E+05	1.87E+05	1.78E+05	1.61E+05	4.90E+05	3.90E+05						
CM243														7.70E+00	5.80E+00	2.83E+01		8.90E+00	1.40E+01		
CM244	1.60E+03	1.20E+03				3.87E+03			2.12E+04					1.75E+02	1.86E+03	1.36E+03	6.52E+03	2.20E+03	3.10E+03		

* Pu-238,Am-241
& Pu-239,Pu-240

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS

15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

STUDSVIK- AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	7.21E+13	2.50E+13	4.55E+13	1.60E+13	3.84E+12	4.00E+13	1.81E+13	2.41E+13	1.51E+12	2.22E+11	3.83E+11	7.34E+10	4.41E+10	4.10E+10	8.52E+10	2.61E+10	3.76E+10	4.90E+10	1.71E+12	6.27E+10
CR51		2.90E+07	7.24E+09	1.85E+08	7.10E+06	8.00E+07	5.10E+07													
MN54	7.52E+07	3.82E+07	2.51E+09	6.54E+08	1.89E+08	7.63E+07	7.63E+08	5.52E+07	5.40E+08	1.70E+08	2.20E+07	2.90E+08	2.21E+08	1.20E+06	5.10E+04	1.00E+06	9.41E+07	1.40E+05	1.50E+06	5.10E+07
CO57			2.20E+05		1.00E+06	3.36E+06	1.20E+07													
CO58	6.55E+07	2.00E+07	2.22E+09	4.34E+07	3.01E+07	1.81E+07	6.12E+08	5.90E+06					9.40E+06							
FE59			7.86E+08	1.52E+07			1.56E+08													
CO60	1.34E+09	7.69E+08	1.81E+10	4.87E+09	2.46E+09	7.09E+09	1.31E+10	2.42E+09	1.49E+09	1.10E+09	3.86E+08	2.04E+09	1.11E+09	2.13E+08	1.31E+08	5.91E+08	6.30E+09	3.45E+09	3.64E+09	4.51E+09
ZN65			8.72E+07	3.40E+08	4.60E+07	8.10E+06	4.80E+07	5.60E+05												
SR90	5.80E+10	1.89E+10	9.13E+09	1.00E+10	1.00E+10	3.60E+09	1.67E+10	2.10E+10	2.39E+10	2.97E+10	2.73E+10	7.72E+09	3.80E+09	5.21E+08	3.10E+08	1.04E+09	4.40E+09	5.92E+08	1.67E+08	4.72E+07
NB94		2.90E+06																		
ZR95	1.80E+08	2.10E+07	1.30E+08	1.60E+07				3.60E+07												
NB95	4.40E+08	8.13E+07	3.00E+08	9.50E+07	2.31E+07	1.23E+07	6.20E+07	2.40E+06	2.30E+06											
RU103								3.30E+06												
RU106	1.70E+10	1.90E+09	3.00E+08	5.80E+08	2.80E+08	3.50E+07	3.90E+08	7.30E+08	5.40E+08	3.84E+08	1.60E+08	3.30E+07				2.70E+06				
AG108M													1.60E+06	3.15E+06	6.10E+05	2.17E+06	1.10E+05			
AG110M	6.10E+07	2.90E+06				6.80E+07	7.00E+06						5.10E+07							
SN113			2.60E+07																	
SB124	4.70E+07	5.40E+08	6.80E+08	1.90E+08	2.72E+08	1.90E+08	8.60E+07	4.30E+07												
SB125	2.20E+09	7.60E+08	4.20E+08	7.40E+07	1.80E+08	5.70E+08	9.50E+07	1.60E+08	1.56E+08	7.53E+07	2.50E+07	5.00E+06								
I131	1.60E+09	2.80E+09		2.30E+10	4.40E+06															
CS134	7.52E+09	3.70E+09	2.12E+09	6.71E+09	2.02E+10	2.81E+09	2.00E+09	2.91E+08	6.22E+08	3.00E+08	1.85E+08	1.02E+08	9.20E+07	1.40E+08	1.20E+08	3.60E+07	1.62E+07	1.02E+07	1.80E+07	3.90E+04
CS137	1.40E+10	8.41E+09	6.04E+09	1.20E+10	3.00E+10	8.57E+09	7.03E+09	1.33E+09	1.97E+09	9.68E+08	1.23E+09	7.31E+08	7.65E+08	4.84E+08	4.43E+08	2.62E+08	2.82E+08	8.90E+07	2.22E+08	1.63E+08
BA140						2.10E+06														
CE144	9.50E+09	2.60E+09	8.70E+08	1.30E+09	4.90E+08	1.10E+08	1.00E+09	9.80E+08	3.80E+08	8.70E+07	1.50E+07									
EU152	9.15E+08	2.82E+08	1.72E+09	2.50E+08	1.49E+08	2.30E+07	3.90E+08	3.60E+06	1.40E+06		3.80E+05				1.90E+05				5.40E+05	
EU154	9.72E+08	2.90E+08	6.27E+08	1.34E+08	7.14E+07	1.84E+07	1.67E+08	4.70E+07	3.40E+07	4.30E+06	1.20E+06									
EU155	1.91E+08	9.50E+07	1.20E+08	1.80E+07	1.40E+07		3.20E+07	2.80E+07	1.94E+07	2.20E+06										
IR192	2.30E+09	4.00E+09	8.32E+09	4.80E+09	7.94E+09	1.00E+09	1.47E+09	2.13E+08	1.70E+05											
U234														2.62E+05	8.20E+04	2.64E+05	3.88E+05	3.08E+05	8.90E+04	3.13E+05
U238														6.10E+04	2.00E+04	4.40E+04	1.13E+05	4.80E+04	4.20E+04	3.90E+04
PU238					2.15E+07	9.52E+06	6.60E+06	1.10E+07	1.51E+06	9.59E+05	6.10E+05	1.67E+06	1.57E+06	2.42E+05	1.50E+04	9.90E+04	1.77E+05	3.20E+04	2.50E+04	2.63E+04
PU239					5.63E+06	1.80E+06	1.32E+06	2.60E+06	2.80E+05	1.50E+05		1.15E+06	1.04E+06	7.70E+04	8.90E+03	3.80E+04	8.30E+04			1.84E+04
AM241	1.70E+08	3.60E+06			8.30E+06	7.76E+06	1.01E+07	8.70E+07	1.62E+07	2.51E+06	2.18E+06	1.89E+06	9.40E+05	6.09E+05	2.11E+05	3.10E+05	2.01E+05	8.50E+04	2.65E+05	6.23E+04
CM242					1.53E+07	5.10E+06	2.84E+06	9.50E+06	4.47E+06	1.81E+06	2.80E+05									
CM244					4.54E+07	3.62E+07	3.91E+07	3.00E+07	3.00E+07	1.25E+07	6.10E+06	3.12E+06	1.73E+06	1.04E+06	4.00E+05	1.26E+06	3.38E+05	1.16E+05	3.50E+05	7.50E+04

The research reactor at Studsvik was shut down on 16 June 2005

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

STUDSVIK - AIRBORNE DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
H3	5.30E+11	2.10E+11	1.20E+10	2.70E+09	2.99E+09	6.40E+09	2.60E+12	3.20E+09	3.00E+11	5.40E+09	1.30E+10	5.50E+09	8.60E+09	7.30E+11	8.80E+10	6.50E+10	1.00E+11	1.50E+10	1.40E+11	1.50E+10	
BE7					2.97E+04																
C14						7.20E+07															
CR51		7.10E+05	1.40E+06																		
CO58															1.70E+04	3.80E+04					
CO60		2.90E+05	9.00E+05		1.11E+05	9.80E+04	2.30E+05	4.90E+04	5.05E+05	9.50E+04	1.66E+05	1.10E+05	3.80E+05	4.20E+05	1.60E+06	5.31E+06	5.00E+06	1.70E+05	1.10E+05	4.43E+04	
ZN65									9.40E+03				2.10E+04	1.10E+04			1.80E+03	5.00E+02			
KR85									6.50E+11				3.60E+11	1.00E+12	1.10E+11	6.00E+10	3.00E+11	1.90E+11	5.10E+10	2.30E+11	
SR90	1.29E+03	5.45E+02	6.85E+03	2.85E+04	5.78E+03	1.68E+04	8.43E+03	6.03E+04	3.38E+03	1.30E+03	2.26E+04	3.75E+03	8.70E+03	3.90E+03	1.80E+04			4.00E+02	3.30E+04	2.50E+04	
NB95																		2.60E+02			
AG108M																	1.10E+03				
AG110M									1.30E+03				3.90E+03			4.10E+03			6.40E+03		
SB125	9.50E+04			9.30E+02	4.10E+02	2.00E+04			1.16E+05			5.74E+02		5.20E+02	1.10E+04	1.62E+04	2.68E+03	2.99E+04			
I125	1.60E+08	5.88E+08	6.95E+08	6.99E+08	1.73E+09	4.40E+09	1.37E+09	3.50E+08	1.50E+06			2.20E+02									
I131	1.13E+07	6.21E+06	1.23E+07	2.68E+08	1.94E+07	2.20E+07	4.30E+07	1.46E+08	4.51E+07	9.55E+07	3.66E+07	1.08E+07	1.26E+06	1.00E+06	5.90E+06	2.04E+07	1.50E+05	6.70E+05			
BA133																	7.30E+02				
CS134			3.50E+05	6.70E+05		2.60E+04		2.50E+04	0.00E+00				1.10E+03				3.30E+03	2.30E+03	1.20E+03	9.40E+03	
CS137	4.20E+03	3.40E+04	6.70E+04	2.50E+06	7.59E+04	1.59E+05	7.80E+03	8.40E+04	1.64E+05	1.51E+05	4.70E+04	8.47E+04	3.39E+04	1.58E+05	1.64E+05	9.90E+04	2.96E+05	8.69E+05	3.25E+06	4.05E+05	
CE144				1.90E+05																	
EU152																	7.70E+02			9.70E+01	
EU154																	2.80E+03	1.40E+02			
HF181			2.60E+04																		
IR192						1.10E+04	5.99E+04														
HG203		9.80E+05																			
PO210	7.20E+04	3.79E+05	2.15E+05	2.64E+05	6.95E+04	2.92E+04	8.09E+03														
PU238			9.00E+03	1.90E+02	3.90E+02	4.50E+02	4.00E+02														
PU239				8.40E+02	2.80E+02	3.30E+02	2.90E+02														
AM241		2.60E+03																		2.20E+03	4.30E+03

The research reactor at Studsvik was shut down on 16 June 2005

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

OSKARSHAMN - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	1.11E+12	1.29E+12	1.18E+12	1.23E+12	7.41E+11	1.07E+12	9.14E+11	9.53E+11	1.20E+12	1.04E+12	1.51E+12	1.80E+12	8.78E+11	8.39E+11	9.12E+11	8.09E+11	7.58E+11	5.36E+11	5.51E+11	7.49E+11
NA22	1.80E+05									1.47E+06										
CR51	5.32E+10	6.17E+09	4.83E+09	1.94E+09	7.56E+08	2.13E+09	3.49E+08	4.74E+08	3.58E+08	3.68E+08	1.01E+08	1.89E+08	1.07E+08	1.87E+08	1.94E+08	3.29E+07	2.46E+07	2.86E+07	1.14E+07	
MN54	2.44E+09	1.82E+09	8.53E+08	6.32E+08	6.82E+08	5.53E+08	3.98E+08	2.14E+08	8.12E+07	6.52E+07	5.65E+07	1.62E+08	5.62E+07	1.07E+08	8.08E+07	3.16E+07	3.12E+07	3.50E+07	5.99E+07	3.42E+07
FE55														1.57E+08	2.77E+08	1.52E+08	1.36E+08	1.22E+08	9.85E+07	9.82E+07
CO57	1.92E+07	9.40E+06	5.70E+07	7.00E+05	7.78E+05	2.93E+06	1.21E+06	2.91E+05		1.66E+05	7.58E+04	1.04E+05	3.91E+04	5.93E+05	7.53E+05	2.64E+05				
CO58	3.94E+09	2.08E+09	9.71E+08	7.40E+08	5.72E+08	1.27E+09	5.61E+08	3.19E+08	1.80E+08	2.21E+08	1.04E+08	2.06E+08	8.43E+07	1.01E+08	1.17E+08	4.57E+07	4.25E+07	3.96E+07	3.42E+07	1.12E+07
FE59	1.53E+08	3.40E+07	1.39E+07	7.30E+07	2.49E+07	1.53E+07	1.47E+07		2.62E+06	7.35E+06	8.10E+05	1.71E+06	1.64E+06	6.71E+05	5.73E+06					
CO60	1.50E+10	1.15E+10	9.94E+09	8.03E+09	9.20E+09	7.84E+09	4.11E+09	2.19E+09	1.10E+09	1.00E+09	7.41E+08	1.36E+09	5.84E+08	5.03E+08	9.00E+08	3.56E+08	4.27E+08	3.54E+08	2.39E+08	1.89E+08
NI63														3.45E+07	6.01E+07	2.76E+07	8.07E+07	6.79E+07	8.69E+07	2.81E+07
ZN65	1.84E+09	1.31E+09	8.64E+08	6.24E+08	4.79E+08	2.50E+08	1.28E+08	7.95E+07	4.10E+07	3.71E+07	1.34E+07	1.99E+07	1.72E+07	1.35E+07	2.75E+07	4.99E+06	1.34E+06	1.26E+07	8.06E+05	
SR89														1.24E+06		3.47E+06	2.39E+06	5.91E+05	1.68E+07	2.05E+06
SR90	3.42E+06	2.34E+06	7.45E+06	3.78E+06	2.53E+06	1.61E+06	5.78E+05	1.41E+05	3.49E+06	1.41E+06	2.10E+07							2.11E+04	6.61E+05	1.34E+05
ZR95	1.31E+08	5.20E+07	1.70E+07	6.50E+06	1.41E+07	2.10E+06	8.51E+06					1.47E+06			1.94E+06					
NB95	3.06E+08	7.10E+07	2.70E+06	1.60E+06	1.20E+07	2.38E+07	2.29E+07	3.90E+06	1.21E+06	9.36E+05	3.13E+06	3.26E+06	4.40E+05	1.76E+06	2.84E+06					
RU103	2.90E+06		2.10E+08			6.15E+05	5.30E+05													
RU106							5.55E+06	4.36E+06												
AG108M						7.68E+06	2.50E+07		2.21E+07		4.14E+04	1.43E+06	6.68E+07	5.01E+05	4.57E+04	1.61E+05	1.13E+06	3.54E+06	4.77E+05	7.33E+05
AG110M	1.45E+09	9.07E+08	8.83E+08	9.62E+08	9.85E+08	8.77E+08	4.37E+08	3.56E+08	1.62E+08	1.62E+08	7.35E+07	6.08E+07	3.71E+07	2.59E+07	2.38E+07	4.27E+07	3.46E+07	7.03E+06	1.29E+08	5.89E+07
SN113	9.00E+06	3.93E+06			1.53E+06		9.71E+05													
SN117M	2.10E+07	5.40E+06				1.56E+06														
SB124	1.14E+09	6.74E+08	2.14E+08	5.18E+07	7.49E+07	2.28E+08	1.35E+08	6.46E+07	2.64E+07	1.08E+07	2.12E+07	2.66E+07	9.49E+06	1.08E+07	2.06E+07	1.22E+07	2.01E+07	8.56E+06	1.78E+07	1.30E+06
SB125	1.02E+09	1.32E+09	3.46E+08	2.05E+08	3.86E+08	7.30E+08	2.97E+08	2.40E+08	1.35E+08	2.42E+08	6.54E+07	1.99E+08	5.82E+07	1.13E+07	1.10E+08	6.42E+07	5.49E+07	9.07E+07	3.71E+07	3.02E+07
I131	1.67E+07	8.70E+07	4.10E+08	1.50E+08	2.89E+08	3.50E+07	9.06E+06	7.02E+06							2.70E+05	3.43E+05				
BA131	1.50E+06																			
CS134	3.90E+08	4.53E+08	5.22E+08	2.32E+08	1.28E+08	8.25E+07	7.75E+06	6.72E+07	1.26E+08	1.68E+07	3.10E+07	3.33E+07	8.93E+06	1.33E+07	1.51E+07		2.74E+07	9.55E+06	5.14E+06	6.83E+05
CS136	1.70E+06		6.80E+06				6.26E+05													
CS137	1.12E+09	8.97E+08	6.75E+08	6.30E+08	6.04E+08	2.88E+08	8.38E+07	1.66E+08	2.35E+08	6.19E+07	1.22E+08	1.40E+08	6.81E+07	5.54E+07	8.46E+07	2.38E+07	5.24E+07	3.73E+07	2.86E+07	7.58E+06
BA140					8.83E+07															
CE141			2.20E+07	7.70E+06	2.50E+07	2.48E+06	8.02E+06	5.22E+05	1.51E+06	1.70E+05	7.69E+05	7.67E+05	6.52E+04	5.34E+05	1.37E+06	1.59E+06				
CE144	2.50E+07		1.00E+07	6.40E+06	2.90E+06	9.36E+05		6.63E+05												
PU238														1.59E+04		7.56E+02	2.03E+03	5.28E+03	2.46E+03	3.58E+03
PU238*	1.76E+06	5.85E+05	6.38E+05	9.85E+05	1.46E+06	9.28E+05	3.69E+05	2.07E+05	1.67E+05	2.80E+05	2.22E+05	4.60E+05	1.87E+05			2.12E+03	8.46E+03			
PU239&	9.23E+04	4.14E+04	4.67E+04	1.67E+05	2.29E+05	1.12E+05	3.91E+05	1.17E+05	1.02E+04		2.65E+04	2.00E+04	4.15E+03		5.92E+03	1.13E+04	2.12E+04	1.21E+04	9.75E+03	5.33E+03
AM241														7.40E+02		1.09E+04	3.16E+04	2.48E+04	2.45E+04	1.74E+04
CM242	7.04E+05	8.90E+05	1.33E+06	7.91E+05	1.24E+06	8.36E+05	3.23E+05	1.65E+05	2.51E+05	3.22E+05	2.06E+05	1.54E+05	9.81E+04	1.54E+05	9.50E+04	5.72E+03	4.53E+04	4.20E+02	1.72E+03	2.58E+03
AM243	2.43E+03	9.07E+03		2.57E+04	4.98E+04	3.62E+04	8.81E+04	7.64E+04	5.27E+04	5.39E+04	1.08E+05	8.06E+04	2.79E+04	5.18E+04	2.72E+04	2.29E+03	1.56E+04			
CM243^	1.93E+05	6.73E+04	1.21E+05	1.25E+05	1.42E+05	1.94E+05	1.88E+05	1.46E+05	1.18E+05	4.49E+04	3.50E+04	7.94E+04	9.23E+04			4.68E+02	4.34E+03	1.05E+03	1.97E+03	1.17E+03
CM244														2.14E+04	1.30E+04		7.01E+03	1.56E+03	1.24E+03	1.59E+03

* Pu-238,Am-241
Pu-239,Am-240
& Pu-239,Pu-240
^ Cm-243,Cm-244

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

OSKARSHAMN - AIRBORNE DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3					4.33E+11	9.74E+11	1.21E+12	5.37E+11	1.19E+12	8.43E+11	9.02E+11	5.91E+11	5.57E+11	7.32E+11	5.44E+11	5.15E+11	4.46E+11	3.75E+11	3.89E+11	2.80E+11
C14					9.12E+11	6.80E+11	8.24E+11	6.69E+11	5.80E+11	6.28E+11	7.71E+11	5.02E+11	6.54E+11	7.35E+11	5.03E+11	4.98E+11	8.75E+11	8.58E+11	9.05E+11	7.36E+11
CR51	2.36E+08	3.07E+08	1.70E+08	2.25E+08	4.51E+07	1.14E+08	5.94E+07	1.31E+08	4.99E+07	3.35E+07	2.53E+07	4.76E+07	3.61E+07	2.61E+07	1.48E+07	1.93E+07	3.46E+07	1.12E+07	5.83E+06	3.06E+06
MN54	7.93E+06	3.18E+06	1.45E+06	2.04E+06	6.05E+06	8.11E+06	5.86E+06	1.73E+07	1.55E+07	3.75E+06	4.07E+06	1.52E+07	7.70E+06	1.25E+07	4.81E+06	4.51E+06	3.82E+06	3.19E+06	4.10E+06	2.13E+06
CO57								2.79E+03	2.08E+04	2.61E+04		4.33E+04				6.54E+04				
CO58	1.94E+07	4.00E+07	1.35E+07	1.82E+07	9.60E+06	2.78E+07	3.10E+07	7.41E+07	2.47E+07	2.13E+07	3.88E+07	4.91E+07	3.17E+07	7.24E+07	3.52E+07	7.96E+06	1.01E+07	6.11E+06	7.22E+06	2.42E+06
FE59	1.25E+06					5.29E+05	2.66E+04		4.71E+04	4.88E+05	9.26E+05		3.06E+06	1.53E+06	5.57E+05	1.04E+06		6.37E+05	1.07E+06	5.88E+05
CO60	9.55E+07	8.37E+07	7.32E+07	1.60E+08	1.58E+08	9.06E+07	8.65E+07	9.10E+07	6.60E+07	5.84E+07	4.60E+07	1.04E+08	8.12E+07	1.04E+08	4.86E+07	4.64E+07	4.36E+07	2.29E+07	3.36E+07	2.14E+07
ZN65	7.70E+06	7.20E+06	1.30E+07	6.30E+06	3.94E+06	2.27E+06	5.44E+06	1.28E+07	3.97E+06	2.21E+06	3.70E+06	3.86E+06	3.30E+06	3.77E+06	1.39E+06	1.71E+05	2.48E+05	2.70E+05	9.28E+05	8.41E+05
KR85	3.00E+13	3.70E+10		1.20E+11					1.00E+10				1.70E+12		8.00E+10	1.76E+12	1.60E+11	8.00E+10	3.36E+11	
SR90	1.18E+05	7.60E+04	1.58E+05	6.40E+05	1.83E+05	2.72E+05	3.43E+05	4.96E+05	1.20E+06	1.52E+05	2.20E+05	1.28E+05	3.82E+04							6.29E+04
ZR95		5.30E+05		2.50E+05				1.09E+06	2.10E+05	5.95E+05	6.55E+05	4.98E+05		6.08E+05	4.20E+05	5.10E+05	3.09E+05	1.70E+05	3.34E+05	5.05E+05
NB95	2.50E+05	5.35E+05	8.70E+04	6.82E+05		9.22E+05	1.69E+06	9.15E+05	1.12E+06	1.22E+06	1.34E+06	3.45E+05	1.72E+06	8.77E+05	7.45E+05	4.41E+05	3.46E+05	2.41E+05	5.51E+05	1.03E+06
RU103								6.07E+04	2.93E+04	2.99E+03										
AG108M																	9.52E+04			
AG110M	7.58E+06	8.80E+06	6.14E+06	3.17E+06	1.40E+06	3.87E+06	2.80E+07	4.21E+07	1.13E+07	1.99E+07	1.39E+07	8.86E+06	6.04E+06	9.39E+06	9.45E+06	4.48E+07	1.58E+07	4.83E+07	3.28E+07	3.09E+07
SN113							3.82E+04		9.92E+03											
SN117M						9.81E+03														
SB124	1.20E+06	7.50E+04	1.24E+06		1.06E+05	7.37E+05	5.68E+05	1.21E+06	2.25E+05	2.70E+05	1.09E+05	5.74E+04	9.69E+05	8.20E+05	5.88E+05	4.63E+05	5.96E+05	3.34E+05	4.28E+05	1.63E+05
SB125												4.58E+05	1.24E+05	2.99E+05	1.60E+05	7.76E+04		7.33E+04		
I131	9.20E+08	2.24E+08	2.31E+09	1.29E+09	3.37E+08	2.11E+08	8.13E+07	6.78E+08	1.54E+08	6.39E+08	1.92E+08	2.30E+07	4.70E+07	4.98E+07	4.57E+07	8.92E+06	9.44E+07	3.96E+08	8.96E+06	2.98E+08
XE131M	4.10E+12	2.71E+12	9.88E+11	6.50E+09			1.42E+10		1.19E+10											
CS134	3.70E+06	8.10E+04				3.62E+04	5.98E+04	8.06E+05	1.70E+04											
CS136								1.38E+05												
CS137	4.32E+06	8.80E+04	4.40E+04	7.20E+04	8.94E+04	1.50E+05	2.05E+06	1.06E+06	7.89E+05	1.49E+06	5.33E+05	9.05E+05	1.85E+05	1.74E+05	3.98E+04	4.29E+05	3.33E+05		1.39E+05	3.15E+04
BA140				2.40E+06	2.28E+07	1.76E+07		8.89E+05	5.27E+05	1.32E+06				7.19E+05		4.34E+05		2.86E+05		
CE141				6.30E+04	9.49E+04		2.91E+04	1.48E+05	3.93E+04	4.29E+04		3.45E+04			4.49E+04	5.66E+04				
PU238															9.20E+02	4.26E+03	8.00E+03	5.79E+04	2.53E+04	2.80E+04
PU238*	2.33E+04	4.59E+04	7.48E+04	2.62E+05	3.90E+04	1.88E+05	2.28E+05	7.96E+04	6.32E+04	1.66E+05	1.19E+05	8.79E+04	3.53E+04		1.68E+03	1.53E+04	1.10E+04			
PU239&	1.81E+04	3.29E+03		2.54E+04	1.30E+04	3.32E+04	1.02E+05	2.17E+03	4.22E+03	1.75E+04	1.19E+04	3.43E+03				3.42E+03	4.88E+03	1.87E+04	9.72E+03	1.08E+04
AM241															4.80E+01	4.67E+03	6.18E+03	7.84E+04	1.03E+05	4.25E+04
CM242	3.38E+03	7.40E+02	5.99E+03	9.20E+02	5.63E+03	4.84E+03		4.71E+03	1.66E+03	8.78E+03	5.01E+03	8.10E+02		6.37E+03		1.57E+04	1.59E+04	3.03E+03	6.62E+03	2.01E+04
AM243	1.00E+04	7.50E+03	3.20E+03	7.20E+03	8.16E+03	4.22E+04	2.83E+04	5.43E+04	1.51E+04	2.55E+04	1.82E+04	1.81E+04	1.06E+04	8.99E+03	1.41E+04	5.19E+03	1.02E+04			
CM243^	5.20E+03	3.24E+02		2.73E+04	4.29E+03	7.92E+04	4.61E+04	2.71E+04	7.52E+03	2.16E+04	1.59E+04	1.44E+03	2.58E+03		1.90E+03	6.08E+03	2.35E+04	1.80E+03	5.66E+03	
CM244															9.40E+01					2.31E+02

* Pu-238,Am-241
& Pu-239,Pu-240
^ Cm-243,Cm-244

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS

15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

BARSEBÄCK - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	4.90E+11	6.90E+11	4.00E+11	3.19E+11	3.02E+11	2.45E+11	3.22E+11	3.51E+11	4.24E+10	3.02E+10	7.39E+09	7.26E+09	4.99E+09	2.71E+09	2.74E+09	9.58E+08	4.43E+08	1.66E+09	3.15E+08	1.15E+09
CR51	1.60E+10	5.30E+09	4.50E+08	2.20E+09	1.37E+10	4.86E+09	1.16E+09	1.04E+08												
MN54	2.40E+09	1.50E+09	1.50E+09	2.77E+09	1.07E+09	1.23E+09	5.32E+08	2.71E+08	7.24E+07	3.92E+07	1.20E+07	7.44E+06	1.32E+06	1.09E+06						
CO58	3.70E+09	3.00E+09	1.90E+09	3.09E+09	4.79E+09	3.79E+09	1.45E+09	2.97E+08	1.30E+07											
FE59	7.50E+08	4.50E+07		1.04E+08	3.37E+08	2.39E+08	2.73E+07	3.22E+06												
CO60	9.20E+09	1.50E+10	1.80E+10	3.07E+10	1.76E+10	9.50E+09	4.96E+09	1.93E+09	7.44E+08	2.74E+09	1.03E+09	7.06E+08	1.90E+08	4.49E+08	9.07E+07	8.67E+07	1.27E+08	3.71E+07	2.20E+07	1.70E+07
ZN65	1.70E+08	1.90E+08	2.50E+08	4.09E+08	5.95E+08	4.00E+08	1.48E+08	1.36E+08	2.70E+07	1.29E+07	3.14E+06	1.35E+06		1.94E+05						
SR90	8.80E+05	1.50E+06	8.57E+05	1.59E+06	1.34E+06	5.43E+06	1.05E+06	1.42E+06	6.37E+05	3.54E+05	2.64E+05	2.43E+05	1.59E+05	1.76E+05	2.16E+05		5.33E+03		9.27E+03	
ZR95	2.00E+08	6.40E+07	2.20E+07	2.25E+08	1.12E+08	1.04E+08	4.87E+07	7.94E+05												
NB95	3.40E+08	1.80E+08	5.60E+07	2.14E+08	2.09E+08	1.46E+09	9.43E+07	4.47E+06												
AG110M	9.50E+07	1.80E+08	1.10E+08	1.68E+08	4.46E+08	1.71E+07	9.65E+06	4.40E+06		3.11E+07										
SN113	8.30E+06			8.31E+06				6.40E+05												
SB124	1.30E+09	2.50E+08	2.00E+08	9.28E+07	1.24E+08	1.51E+08	2.00E+07	1.38E+07	1.03E+06			6.72E+05								
SB125	4.20E+08	2.30E+07	7.40E+08	5.62E+08	2.03E+07	4.98E+08	9.42E+07	1.81E+08	5.23E+07	9.23E+07	5.71E+07	2.95E+07	1.01E+07	2.11E+07	3.00E+07	8.31E+06	3.71E+06	1.15E+07	9.52E+05	4.44E+06
I131	4.50E+07	6.60E+07				7.56E+06	1.81E+09													
CS134	1.90E+07		1.40E+08	1.12E+09	2.03E+08	1.73E+07	8.10E+06	7.08E+06	1.45E+06	8.02E+05	2.44E+05	1.26E+06	2.38E+05	3.33E+05	3.50E+05	8.09E+04				
CS137	1.00E+09	6.10E+08	1.20E+09	6.97E+09	1.22E+09	3.26E+08	9.98E+07	5.41E+07	2.23E+07	2.66E+07	4.00E+07	6.68E+07	2.36E+07	1.07E+08	1.06E+08	6.32E+07	7.46E+07	3.24E+07	3.28E+07	3.63E+07
BA140	4.50E+06																			
PU238	5.30E+03		9.47E+03		6.91E+03	2.76E+03		1.13E+03	1.81E+05	1.16E+06	4.02E+05	6.54E+05	1.88E+05	2.23E+05	5.63E+05	1.01E+05	2.51E+04	1.56E+05	4.11E+04	3.03E+04
PU239	1.10E+04	2.44E+04	1.53E+04	5.08E+03	2.84E+04	1.10E+04		3.16E+03	2.52E+03	7.85E+03	3.96E+03	4.81E+03	5.49E+02	1.49E+03	1.46E+03	4.44E+02	1.29E+02	6.48E+02	1.89E+02	1.51E+02
AM241	5.60E+03	1.34E+04	5.98E+03	2.96E+04	1.62E+04	3.24E+03			1.39E+04	9.57E+04	3.07E+04	4.40E+04	2.76E+04	2.68E+04	3.03E+04	7.46E+03	2.56E+03	2.00E+04	3.33E+03	5.03E+03
CM242		1.78E+04	4.48E+03			2.08E+03			1.58E+04	6.84E+03	2.07E+04	1.22E+04	2.27E+04	1.13E+04	3.64E+03	7.94E+02	5.10E+01	7.61E+03	3.89E+02	7.88E+02
CM244	6.70E+03	3.05E+04	5.38E+03	9.52E+03	4.56E+03	2.01E+03			1.19E+03	5.99E+04	2.11E+03	3.82E+04	9.38E+03	1.18E+04	3.45E+04	6.66E+03	2.17E+03	1.18E+04	2.19E+03	3.36E+03

Unit I of the power plant was shut down on 30 November 1999

Unit II of the power plant was shut down on 31 May 2005

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

BARSEBÄCK - AIRBORNE DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3					2.85E+11	5.87E+10	1.04E+11	8.83E+10	3.20E+10											
C14					4.40E+11	1.59E+11	4.10E+11	1.84E+11												
CR51	5.62E+08	2.61E+08	1.10E+07	5.30E+07	6.98E+07	4.98E+07	3.74E+07	2.48E+06												
MN54	4.40E+07	5.59E+07	1.38E+07	1.19E+07	7.52E+06	9.64E+06	4.84E+06		3.92E+05	1.04E+05										
CO58	7.40E+07	1.75E+08	1.29E+07	1.61E+07	4.32E+07	2.22E+07	6.20E+06	8.48E+05	1.41E+05											
FE59	4.40E+06	1.33E+06	1.61E+06	5.73E+06	3.17E+06	8.06E+05	2.24E+05													
CO60	1.49E+08	2.88E+08	5.70E+07	7.75E+07	1.02E+08	9.77E+07	6.24E+07	2.21E+07	2.20E+07	1.07E+07	9.18E+06	7.33E+06	3.85E+06	1.48E+07	9.34E+06	2.08E+07	7.23E+05	4.40E+06	3.81E+06	8.76E+06
ZN65	2.18E+06	1.53E+06	1.39E+06	1.95E+06	2.66E+06	4.36E+06	6.85E+05	3.09E+05												
KR85	4.80E+07	1.05E+08	1.10E+09	3.75E+07	2.15E+07	7.75E+06	1.07E+09	4.75E+06												
SR90				8.04E+04		1.05E+05		2.46E+04							2.90E+04					5.55E+04
ZR95	5.00E+06	1.90E+06	9.86E+06	1.11E+06	1.29E+06	5.79E+05			8.49E+04											
NB95	1.05E+07	8.00E+06	1.29E+07	2.99E+07	4.49E+06	2.60E+06	1.26E+06													
SN113	3.80E+05	1.90E+05		1.91E+05	1.66E+05			7.38E+04												
SB124	5.90E+06	6.52E+06	1.69E+06	7.05E+05	2.30E+06	9.56E+05			1.14E+05											
SB125		9.40E+05																		
I129	3.76E-03	1.10E-03	4.00E-03	2.80E-04	2.48E-04	3.09E-04	2.48E-02													
I131	7.42E+06	2.20E+06	7.90E+06	5.59E+05	4.96E+05	6.18E+05	4.94E+07													
XE131M																				
CS134			9.90E+04				1.20E+05													
CS137		1.00E+06	3.14E+05	3.00E+05	9.87E+04	7.92E+04	2.14E+05	9.30E+04							3.33E+04	6.72E+03			1.81E+04	1.09E+04
PU238										2.83E+03	1.48E+03	8.61E+03		5.80E+03	1.03E+03					2.10E+03
PU239										8.91E+02										6.40E+02
AM241										1.88E+04				1.16E+03	3.99E+03			9.05E+02	1.69E+02	1.97E+03
CM242										1.73E+04										9.56E+02
CM244										3.51E+03					3.01E+03			9.52E+02	8.94E+01	

Unit I of the power plant was shut down on 30 November 1999

Unit II of the power plant was shut down on 31 May 2005

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS

15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

RINGHALS - AQUATIC DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3	2.59E+13	4.06E+13	2.64E+13	2.49E+13	2.44E+13	3.87E+13	4.07E+13	3.27E+13	4.52E+13	3.31E+13	3.08E+13	4.54E+13	4.06E+13	3.75E+13	2.35E+13	4.11E+13	3.74E+13	3.44E+13	3.34E+13	4.82E+13
BE7							1.80E+06													
NA22						4.51E+03				3.30E+04			1.30E+05							
CR51	5.00E+09	4.58E+09	2.02E+09	2.98E+09	1.54E+09	1.63E+09	5.91E+09	1.72E+09	5.37E+08	4.93E+08	3.24E+08	1.89E+08	8.20E+08	1.09E+08	9.56E+07	6.63E+07	1.32E+08	6.40E+07	4.11E+07	2.82E+07
MN54	2.68E+09	2.80E+09	1.07E+09	1.20E+09	6.50E+08	5.14E+08	1.48E+09	1.20E+09	3.00E+08	2.66E+08	1.75E+08	1.70E+08	2.12E+08	6.65E+07	1.37E+08	6.34E+07	7.56E+07	4.93E+07	3.82E+07	1.98E+07
CO57	9.15E+07	1.17E+08	8.06E+07	1.00E+08	3.77E+07	3.74E+07	2.26E+07	1.90E+07	1.23E+07	3.43E+06	4.30E+06	3.00E+06	2.39E+06	3.49E+06	2.54E+06	1.19E+06	1.06E+06	9.50E+05	7.40E+05	5.60E+04
CO58	2.35E+10	3.34E+10	1.30E+10	2.98E+10	1.24E+10	1.09E+10	6.15E+09	5.24E+09	4.64E+09	1.33E+09	1.51E+09	1.20E+09	1.18E+09	8.22E+08	4.41E+08	3.86E+08	3.27E+08	4.73E+08	2.30E+08	1.11E+08
FE59	1.49E+08	2.22E+08	2.25E+08	1.42E+08	9.02E+07	7.17E+07	8.82E+07	6.36E+07	2.35E+07	2.20E+07	2.26E+07	4.50E+06	3.59E+06	1.03E+07	1.26E+07	1.90E+06	2.97E+06	1.87E+06	3.77E+06	1.22E+06
CO60	3.53E+10	1.77E+10	1.17E+10	1.96E+10	5.20E+09	3.21E+09	3.91E+09	3.28E+09	1.31E+09	1.69E+09	8.22E+08	8.21E+08	1.11E+09	3.70E+08	4.49E+08	2.36E+08	2.13E+08	1.94E+08	1.39E+08	4.87E+07
Ni63													9.40E+08	5.32E+07	1.60E+08	1.34E+08	3.51E+08	1.23E+09	1.80E+08	
ZN65	1.44E+08	6.99E+07	3.93E+07	4.91E+07	2.00E+07	2.36E+07	1.71E+07	2.36E+07	6.59E+06	1.73E+06	1.27E+06	2.20E+06	1.00E+05	2.80E+06	1.90E+06		3.10E+06	4.60E+06	2.60E+06	
SR89	9.03E+07	6.68E+07	1.16E+07	4.23E+06	1.78E+07	3.34E+06	7.23E+06	9.55E+06	5.80E+05		1.06E+05	8.23E+06		1.21E+07	5.50E+04		1.36E+07	1.27E+07		7.42E+04
SR90	4.51E+07	2.88E+07	1.58E+07	5.25E+06	1.15E+07	8.38E+06	4.38E+06	9.14E+06	9.03E+06	2.67E+06	3.02E+06	5.99E+06	2.25E+07	9.50E+06	2.61E+06	6.70E+06	8.64E+06	2.02E+06	2.99E+06	1.99E+06
ZR95	1.98E+08	1.28E+09	3.14E+08	4.29E+08	1.15E+08	1.98E+08	1.55E+08	2.26E+08	1.13E+08	5.44E+07	7.46E+07	3.58E+07	2.96E+07	1.73E+07	6.14E+06	3.61E+06	5.90E+06	9.30E+06	7.85E+06	3.08E+06
NB95	1.06E+09	2.65E+09	7.10E+08	8.22E+08	2.56E+08	3.87E+08	2.99E+08	4.15E+08	2.12E+08	9.49E+07	1.21E+08	6.99E+07	5.30E+07	3.58E+07	1.75E+07	9.09E+06	1.03E+07	1.58E+07	1.25E+07	5.49E+06
RU103	1.90E+07	5.08E+05																		
RU106	7.32E+08	2.76E+08	3.16E+07		1.14E+06															3.92E+05
AG108M							1.97E+06	1.94E+06	1.80E+05	5.50E+05	2.30E+04	2.70E+05	5.80E+03	1.40E+05	4.10E+04	4.40E+04				
AG110M	5.68E+09	2.80E+09	1.25E+09	1.32E+09	1.11E+09	6.48E+08	1.17E+09	3.57E+08	2.70E+08	1.59E+08	2.00E+08	1.69E+08	9.87E+07	6.42E+07	9.58E+07	8.89E+07	6.62E+07	8.21E+07	1.62E+08	4.03E+07
SN113	2.02E+07	3.90E+07	3.08E+07	2.79E+07	8.98E+06	1.07E+07	6.35E+06	7.07E+06	3.20E+06	9.33E+05	2.25E+06	2.60E+05	1.40E+05	2.20E+05		1.30E+05	7.90E+04	2.40E+05		
SN117M																8.37E+05				
TE123M														2.82E+07	4.38E+07	2.88E+07	3.02E+07	6.85E+07	8.76E+07	4.64E+07
SB124	4.66E+09	1.59E+09	3.38E+09	9.63E+09	2.33E+09	3.14E+09	1.64E+09	3.26E+08	1.68E+08	6.60E+08	8.90E+07	5.24E+07	3.51E+08	7.21E+07	5.75E+07	2.31E+07	2.81E+07	4.62E+07	1.49E+07	3.49E+07
SB125	1.10E+09	9.46E+08	1.54E+09	1.25E+09	9.10E+08	9.61E+08	6.24E+08	2.91E+08	7.66E+07	3.85E+08	3.04E+07	6.76E+07	1.24E+08	1.67E+07	2.57E+07	1.88E+07	1.42E+07	3.66E+07	6.50E+06	1.84E+07
I131	2.72E+08	7.20E+07	9.38E+06	6.21E+07	6.04E+07	2.21E+07	1.49E+07	1.16E+08		1.50E+06				5.10E+05	1.20E+05	9.70E+05	2.40E+05	1.20E+06		
BA131		1.07E+06																		
CS134	9.75E+08	1.72E+08	3.21E+07	3.40E+07	6.30E+07	7.60E+07	4.11E+07	8.09E+07	3.10E+06	1.37E+06								7.70E+06	1.50E+06	8.19E+05
CS136		1.50E+06		2.66E+06				1.90E+06												
CS137	1.01E+10	2.31E+09	4.50E+08	5.95E+08	6.90E+08	6.98E+08	6.99E+08	3.73E+08	1.32E+08	3.24E+08	2.49E+08	2.27E+08	2.99E+08	3.52E+07	6.18E+07	2.92E+07	3.58E+07	9.22E+07	6.76E+07	1.17E+07
BA140	6.20E+08	4.17E+07		3.27E+06	3.33E+06															
CE141	2.40E+07	2.29E+05	4.03E+04			3.40E+05														
CE144	1.10E+07	4.06E+07	3.06E+06	9.68E+06	1.34E+05		1.40E+06		4.30E+05		1.20E+06									
PU238	2.55E+05	2.08E+06	7.28E+05		8.32E+05	3.46E+05	5.98E+05	6.62E+05	4.55E+05	2.81E+05	1.23E+06	7.44E+05	1.41E+06	1.07E+06	1.18E+06	2.97E+05	8.08E+05	8.10E+05	4.15E+05	4.05E+05
PU238*				2.40E+05																
PU239						1.84E+04	7.64E+05	1.42E+05	8.47E+04	1.82E+04										
PU239&	1.39E+05	1.81E+05	2.73E+05	1.67E+05	1.51E+05	4.29E+04					3.62E+05	1.97E+05	1.62E+05	1.90E+05	2.58E+05	8.44E+04	4.74E+04	1.11E+05	8.40E+04	6.76E+04
AM241	8.67E+05	5.16E+05	1.52E+06	2.74E+06	2.59E+05	3.25E+05	5.91E+06	3.06E+05	1.57E+05	2.95E+05	1.43E+07	9.13E+05	4.12E+06	1.93E+06	2.16E+06	3.12E+05	5.53E+05	8.60E+05	1.76E+05	1.79E+05
CM242	7.51E+05	5.31E+05	2.57E+05	1.35E+05	2.05E+04	2.86E+04	2.74E+05	1.38E+05	1.13E+04	2.43E+04	1.35E+04	2.77E+04	7.00E+03	2.43E+04	4.67E+04	1.70E+03	4.02E+04	1.32E+05	5.80E+03	1.82E+02
CM244	1.26E+06	6.07E+05	1.93E+06	6.88E+05	2.12E+05	2.61E+05	3.84E+05	1.92E+05	6.77E+04	1.00E+05	8.17E+04	1.39E+05	1.54E+05	2.39E+05	1.94E+05	3.17E+04	2.15E+04	1.63E+05	3.74E+04	7.93E+03

* Pu-238,Am-241

& Pu-239,Pu-240

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

RINGHALS - AIRBORNE DISCHARGES

NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
H3					9.80E+11	1.40E+12	1.24E+12	1.72E+12	2.24E+12	1.90E+12	2.25E+12	1.82E+12	1.93E+12	2.01E+12	1.94E+12	2.89E+12	2.30E+12	2.28E+12	2.34E+12	1.49E+12
BE7			7.40E+05		1.06E+06	1.38E+06	4.70E+07	7.50E+05	8.20E+05						9.60E+04		3.41E+06			
C14					1.23E+12	9.39E+11	1.21E+12	1.39E+12	1.23E+12	1.16E+12	8.56E+11	6.85E+11	8.39E+11	9.43E+11	7.62E+11	1.60E+12	9.89E+11	9.72E+11	9.53E+11	7.93E+11
NA22										5.10E+04										
CR51	1.30E+07	2.59E+06	4.82E+05	1.30E+07	3.04E+07	5.94E+07	4.92E+07	3.20E+07	7.50E+06	1.50E+07	7.70E+06	3.50E+06	1.50E+06	1.70E+07	8.80E+06	1.00E+07	9.51E+06	7.80E+06	6.50E+06	9.50E+06
MN54	2.90E+06	2.22E+06	8.37E+05	3.09E+06	6.34E+06	1.89E+07	6.30E+06	1.70E+07	2.30E+06	3.80E+06	3.80E+06	2.40E+06	1.30E+06	3.50E+06	6.50E+06	1.50E+07	7.51E+06	5.20E+06	2.80E+06	6.30E+06
CO57															1.30E+04					
CO58	5.58E+06	6.47E+06	5.81E+06	4.66E+06	1.56E+07	1.66E+07	2.63E+07	1.40E+07	2.58E+06	3.70E+06	6.70E+06	1.91E+07	2.04E+06	8.17E+06	6.82E+06	1.00E+07	5.79E+06	4.64E+06	1.80E+06	3.90E+06
FE59	1.70E+05			7.61E+05	2.96E+06	3.63E+06	3.40E+06	1.40E+06	1.20E+06	1.60E+06	1.10E+06	2.40E+05		3.00E+06	2.10E+06	1.70E+06	1.24E+06	1.90E+06	1.30E+06	1.80E+06
CO60	1.71E+07	2.04E+07	9.25E+06	2.36E+07	5.68E+07	8.56E+07	4.42E+07	4.51E+07	1.40E+07	2.10E+07	2.40E+07	1.90E+07	1.50E+07	1.42E+07	1.60E+07	1.80E+07	2.48E+07	1.50E+07	7.90E+06	1.70E+07
ZN65						6.55E+05		1.70E+05			3.00E+05			2.80E+05			4.05E+05	7.60E+05	6.90E+05	7.90E+05
KR85	1.20E+08	1.33E+10	9.90E+10	1.70E+11	1.17E+08	2.70E+11	7.70E+10	2.20E+11										1.00E+11		
SR89	2.00E+08	2.85E+07	8.37E+06	2.89E+06	4.09E+06	3.63E+06	4.30E+05	5.49E+05	8.62E+05	3.23E+05	8.60E+03	4.46E+05	2.10E+04		4.30E+04		8.26E+05	1.91E+05		1.90E+05
SR90	3.46E+06	6.18E+05	3.56E+04	1.00E+05	1.53E+06	7.59E+04	2.30E+04	9.70E+04	6.76E+05		5.03E+05	5.40E+04	3.70E+04	5.40E+04	1.40E+01		4.79E+06	4.00E+01	3.45E+05	3.41E+05
ZR95	2.50E+05		9.54E+05	6.13E+05	4.29E+06	3.36E+06	7.50E+06	7.50E+05	6.70E+05	1.20E+06	3.70E+05	3.40E+05	1.00E+05	8.00E+05	6.80E+05	4.70E+05	3.21E+05	5.90E+05	3.90E+05	5.20E+04
NB95	8.71E+05	1.20E+05	1.43E+06	1.85E+06	6.72E+06	6.19E+06	1.60E+07	1.50E+06	1.10E+06	2.30E+06	7.20E+05	6.90E+05	4.63E+05	1.20E+06	1.82E+06	8.60E+05	7.92E+05	7.50E+05	5.80E+05	9.94E+03
AG110M						4.93E+04	1.10E+05													6.20E+05
SN113			5.94E+04		1.61E+05	1.01E+05	2.80E+05						3.40E+03							
SB124	2.40E+05		5.97E+04	2.29E+05	7.46E+05	1.78E+06	7.30E+05	4.70E+05	2.50E+05	5.70E+05	5.80E+05	1.70E+05	1.78E+05	1.10E+06	1.60E+06	6.80E+05	3.40E+06	5.30E+05		1.40E+05
SB125						4.80E+05	2.90E+06										1.46E+06			
I131	2.02E+09	5.49E+08	2.37E+08	3.67E+08	3.86E+08	1.97E+08	1.58E+09	2.63E+09	3.27E+07	2.61E+07	2.52E+07	1.19E+07	1.00E+07	1.46E+07	2.11E+07	2.60E+07	1.42E+07	4.96E+07	8.21E+06	7.24E+06
XE131M	3.75E+11	1.87E+11	1.40E+11	1.14E+12	3.60E+10	1.17E+11	3.03E+10	2.60E+11		2.80E+09	2.50E+09		1.10E+09					3.10E+10		
CS134	7.30E+05																			
CS137	1.11E+07	5.62E+05	3.44E+05	3.94E+05	3.58E+05	5.57E+05	1.00E+06				3.00E+05	2.80E+05	3.00E+05	2.30E+05	7.40E+04	8.30E+04	1.88E+05		1.50E+05	1.70E+05
BA140	3.20E+08	3.66E+06	1.81E+07					3.70E+05												
CE141	4.00E+04	7.39E+04	6.88E+05			5.42E+04	3.20E+05	6.50E+04												
CE144	1.60E+06														3.10E+05					
PU238	6.69E+04	6.62E+04	4.17E+03	4.66E+04	2.28E+04	3.33E+03	2.57E+04	8.92E+03	8.45E+03	2.71E+03	4.39E+04	4.47E+04	2.62E+05	1.51E+05	6.11E+04	2.15E+05	1.31E+06	2.14E+05	4.78E+04	4.06E+04
PU239						5.82E+04	1.80E+03	1.73E+04	2.44E+03	1.56E+03										
PU239&	6.26E+04	6.35E+04	1.33E+04	1.58E+04	2.77E+03	1.13E+02					5.68E+03	5.94E+03	1.44E+04	8.95E+03	6.46E+03	2.04E+04	3.81E+04	1.70E+04	1.76E+04	6.73E+03
AM241	4.51E+05	7.19E+04	5.76E+04	2.21E+04	1.17E+04	5.13E+03	5.56E+03	1.85E+04	6.21E+03	7.64E+03	4.97E+04	2.28E+04	5.75E+04	9.03E+04	1.28E+05	1.21E+05	6.35E+04	9.38E+04	2.06E+04	7.37E+03
CM242	7.00E+03	2.73E+03	4.42E+02	1.84E+02	7.30E+02	6.83E+02	7.70E+02	3.64E+03	1.77E+03	1.78E+02	2.40E+02			2.20E+03	2.54E+03	4.40E+03	5.20E+03	1.01E+04	2.27E+03	4.95E+02
CM244	3.48E+04	5.92E+03	8.29E+02	1.55E+03	2.88E+03	4.91E+03	8.60E+02	6.71E+02	8.49E+03	6.47E+03	5.47E+02	6.18E+02	2.03E+03	1.70E+03	1.29E+03	1.38E+03	1.62E+03	6.80E+03	2.53E+03	

& Pu-239, Pu-240

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
15.5.2019

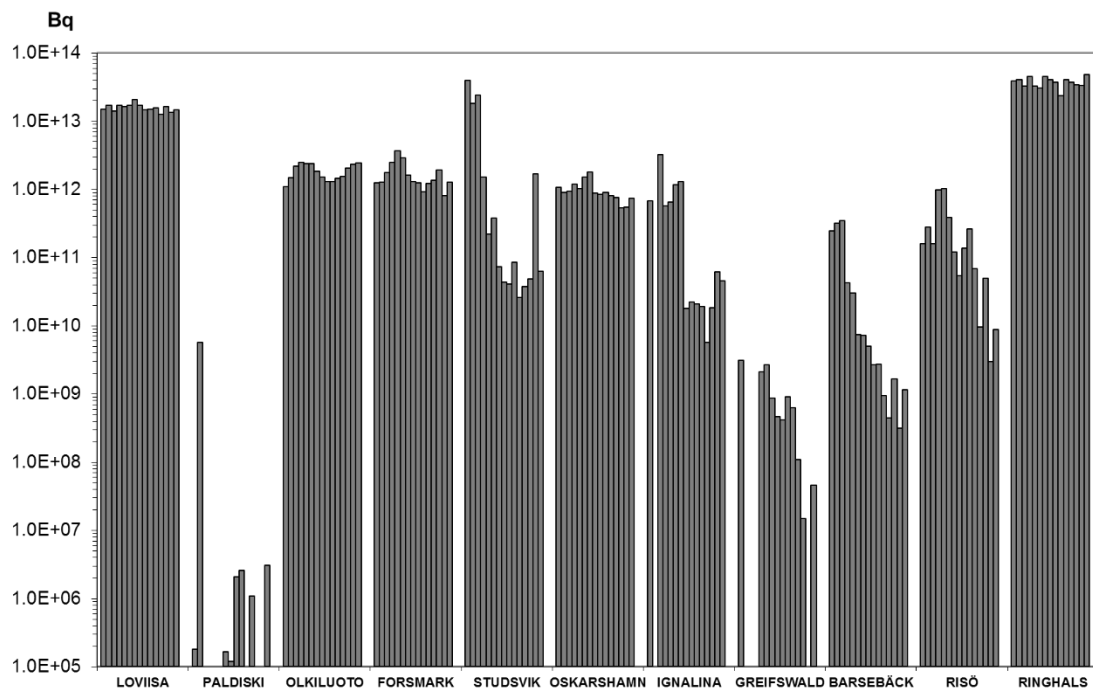
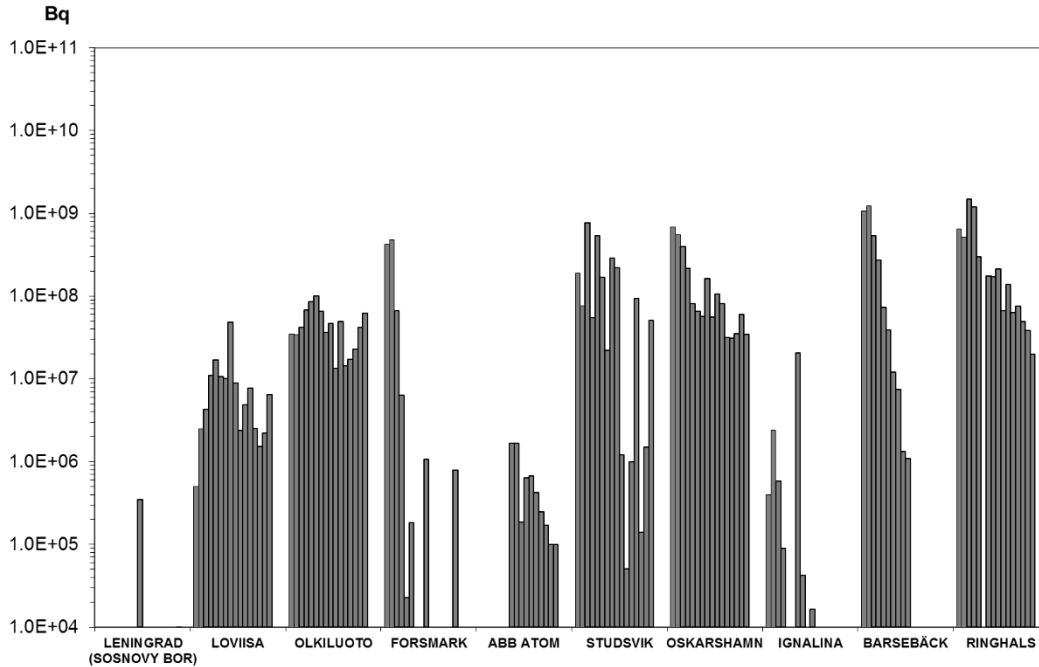
DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

WESTINGHOUSE ATOM AB - AQUATIC DISCHARGES

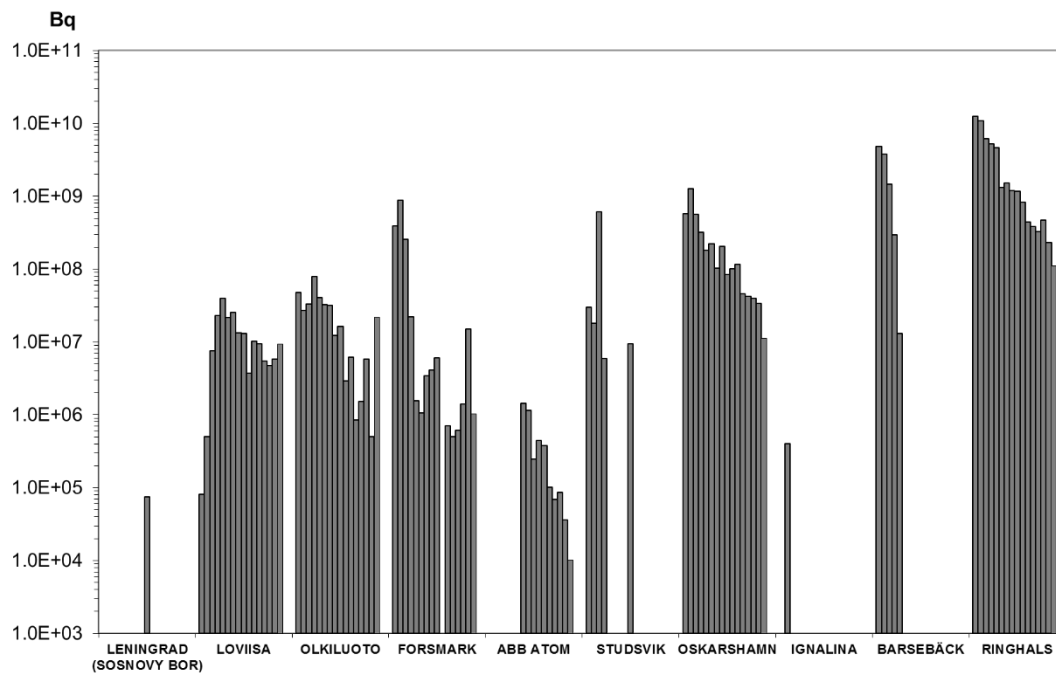
NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
CR51											4.16E+06	2.84E+06	4.02E+05	8.19E+05	9.48E+05	3.86E+05	1.87E+05	1.89E+05	5.78E+04	2.46E+04
MN54											1.66E+06	1.67E+06	1.86E+05	6.32E+05	6.68E+05	4.21E+05	2.47E+05	1.71E+05	1.00E+05	1.00E+05
CO58											1.44E+06	1.15E+06	2.46E+05	4.41E+05	3.76E+05	1.01E+05	6.84E+04	8.66E+04	3.64E+04	1.02E+04
CO60	2.50E+06	8.10E+06	3.98E+06	4.40E+06	6.56E+06	4.60E+06	7.07E+06	1.64E+07	8.35E+06	6.66E+06	1.44E+07	1.18E+07	1.33E+06	4.50E+06	3.57E+06	2.60E+06	1.78E+06	1.06E+06	7.71E+05	1.15E+06
AG110M												6.66E+05	1.08E+05	1.43E+05	8.40E+04	1.14E+05	7.43E+04	5.20E+04	1.98E+04	2.70E+04
CS137		8.10E+04			1.03E+07	3.86E+05	3.99E+05	5.94E+05	8.53E+05	1.17E+06	9.22E+05	2.19E+05	4.80E+04	1.01E+05	1.22E+05	1.11E+05	6.12E+04	4.06E+04	1.52E+04	1.44E+04
U233					1.57E+06	6.08E+05	2.24E+06	3.59E+06	7.24E+05	1.32E+06	3.61E+05	3.20E+05	2.12E+05	4.48E+05	4.31E+05	2.01E+05	1.90E+04	3.26E+04	1.42E+04	5.16E+04
TH232						3.24E+02	2.24E+02	6.07E+02	1.09E+04	1.01E+04	8.05E+02	5.76E+02	3.15E+02	8.49E+02	8.71E+02	1.13E+03	1.05E+03	1.16E+03	1.10E+03	2.08E+03
TH234	7.67E+07	5.35E+07	3.85E+07	4.76E+07																
U234	1.92E+08	1.32E+08	9.66E+07	1.20E+08	5.27E+07	8.06E+07	3.93E+07	1.16E+08	1.66E+07	2.65E+07	3.46E+07	4.79E+07	1.21E+07	1.67E+07	2.82E+07	1.73E+07	1.30E+07	2.43E+07	2.60E+07	1.62E+07
U235	8.35E+06	5.73E+06	4.15E+06	5.26E+06	2.64E+06	3.85E+06	1.77E+06	5.52E+06	8.88E+05	1.27E+06	1.50E+06	1.90E+06	4.97E+05	6.95E+05	1.16E+06	7.23E+05	5.56E+05	1.04E+06	1.11E+06	7.12E+05
U236					1.77E+04	2.10E+05	1.22E+05	3.47E+05	4.92E+04	6.09E+04	5.92E+04	6.29E+04	2.34E+04	2.15E+04	3.29E+04	1.84E+04	6.94E+03	1.09E+04	1.10E+04	4.55E+03
NP237					1.60E+04	1.30E+04	1.85E+04	6.97E+03	1.44E+04	3.37E+04		2.47E+04	1.95E+05	1.00E+05	9.40E+04	9.00E+03	3.67E+03	9.66E+02	1.78E+03	7.82E+03
U238	4.24E+07	2.86E+07	2.08E+07	2.63E+07	1.21E+07	1.67E+07	8.23E+06	2.47E+07	3.64E+06	5.37E+06	6.13E+06	7.71E+06	1.99E+06	2.74E+06	4.35E+06	2.79E+06	2.21E+06	4.01E+06	4.25E+06	2.76E+06

WESTINGHOUSE ATOM AB - AIRBORNE DISCHARGES

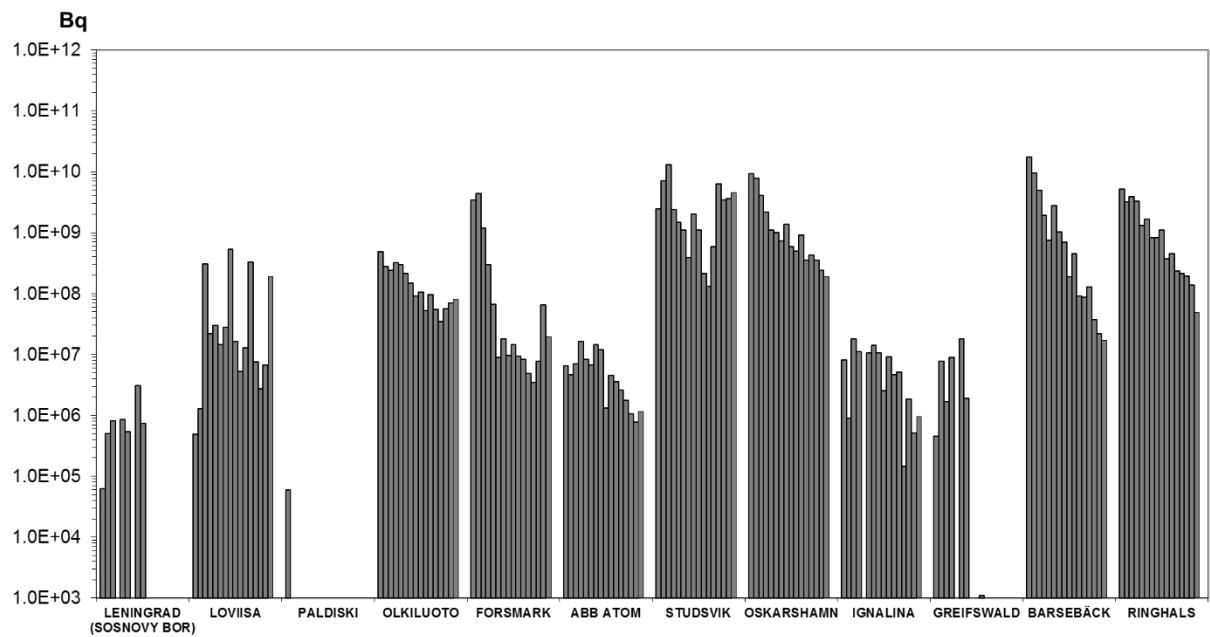
NUCLIDE	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
CO60		1.79E+06	1.64E+06	2.06E+06																
TH232						4.50E+01	1.20E+02	2.10E+03	4.70E+02	2.80E+02	2.06E+02	5.78E+02	7.46E+02	1.42E+03	2.99E+02	2.27E+02	4.12E+02	2.24E+02	8.99E+02	3.95E+02
U234	3.17E+06	2.06E+06	7.16E+05	9.11E+05	1.10E+06	1.73E+06	7.04E+05	3.16E+06	8.84E+05	2.01E+06	2.28E+06	2.16E+06	1.42E+06	1.57E+06	1.29E+06	1.97E+06	9.19E+05	1.18E+06	1.41E+06	1.87E+06
U235	1.38E+05	8.80E+04	3.18E+04	3.94E+04	5.54E+04	7.71E+04	3.35E+04	1.49E+05	4.97E+04	9.83E+04	9.16E+04	8.89E+04	5.94E+04	6.44E+04	5.48E+04	8.65E+04	3.99E+04	5.19E+04	6.05E+04	8.05E+04
U236					2.26E+03	3.50E+03	1.30E+03	5.10E+03	3.04E+03	3.45E+03	1.98E+03	3.54E+03	2.15E+03	3.09E+03	1.72E+03	1.87E+03	8.76E+02	1.15E+03	1.03E+03	1.38E+03
NP237					1.55E+02	2.01E+03	6.45E+02			3.92E+02			5.23E+03	8.33E+03			2.40E+02			1.07E+03
U238	6.98E+05	4.45E+05	1.58E+05	1.96E+05	2.64E+05	3.48E+05	1.47E+05	6.91E+05	2.12E+05	4.01E+05	3.76E+05	3.72E+05	2.58E+05	2.83E+05	2.12E+05	3.34E+05	1.64E+05	2.10E+05	2.90E+05	3.50E+05

**AQUATIC DISCHARGES OF SELECTED NUCLIDES FROM NUCLEAR POWER PLANTS
AND OTHER NUCLEAR FACILITIES IN THE BALTIC SEA AREA IN 2002 - 2017****H-3****Mn-54**

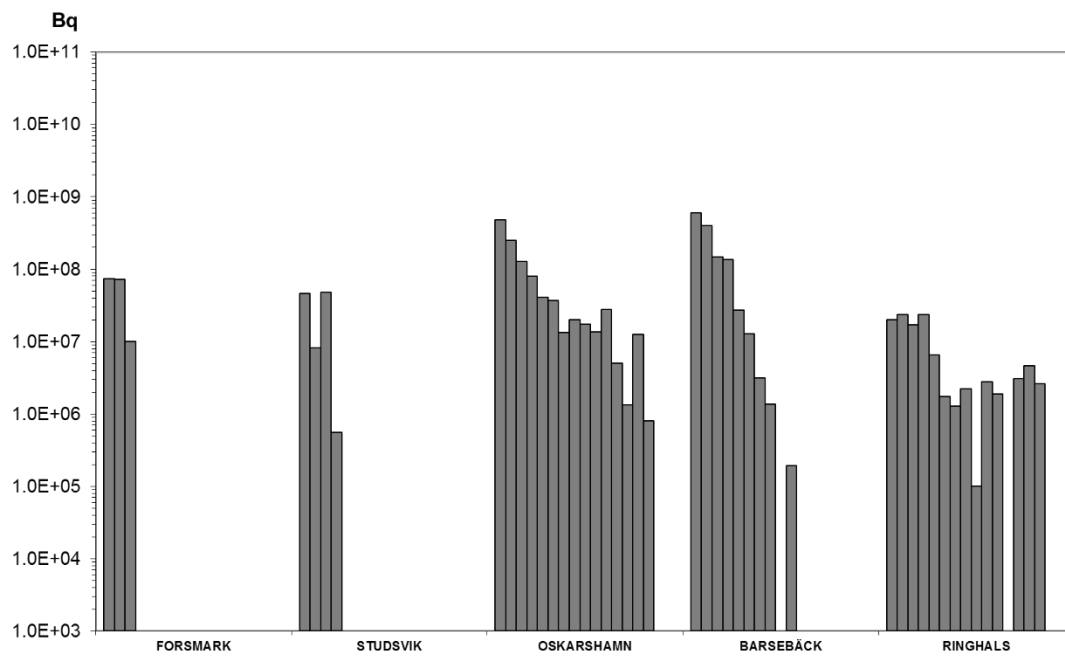
Co-58



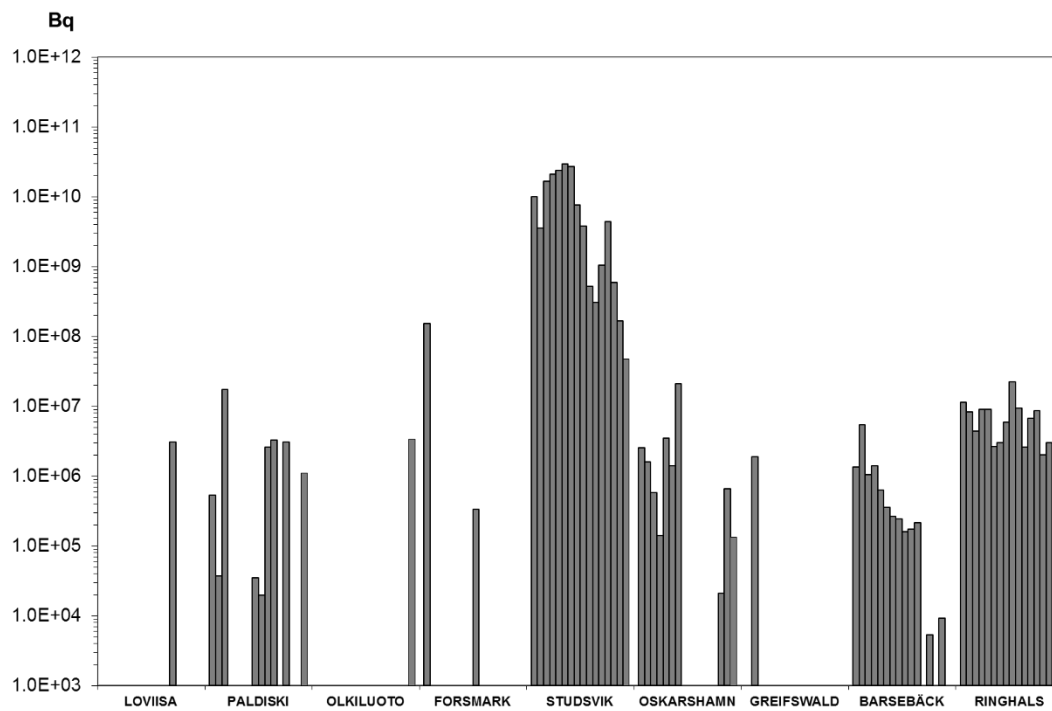
Co-60



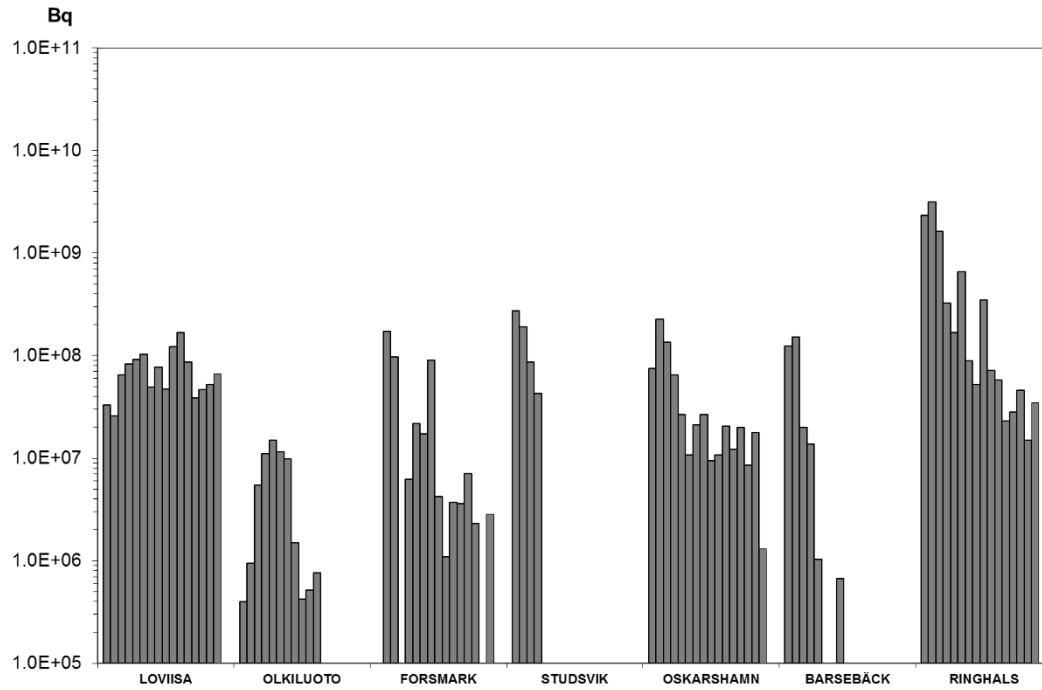
Zn-65



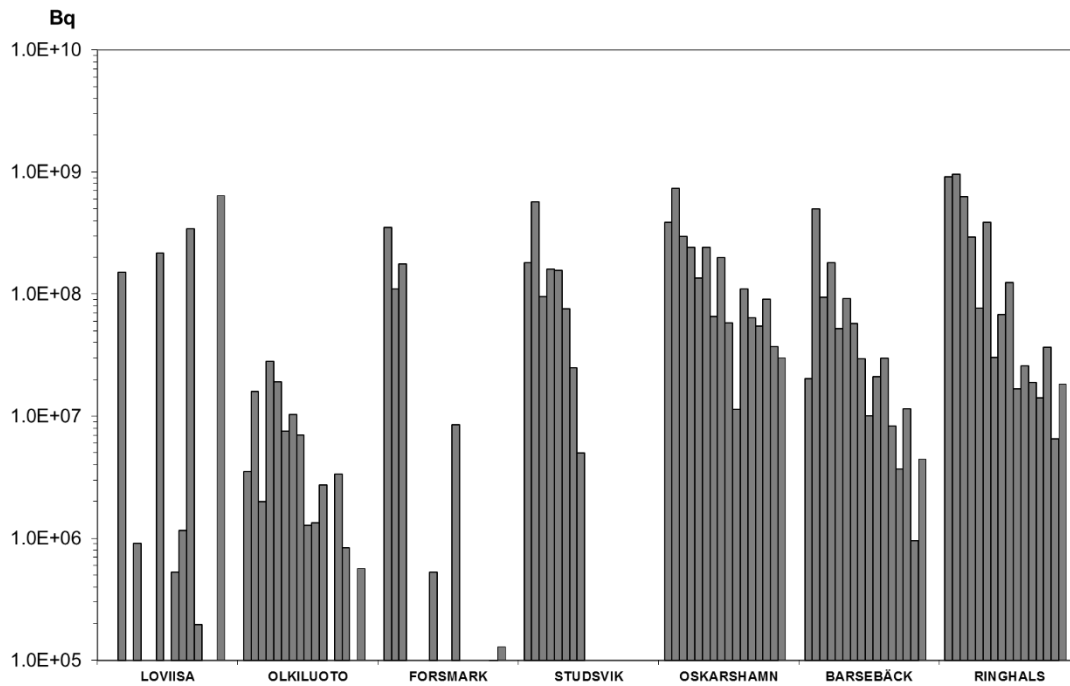
Sr-90

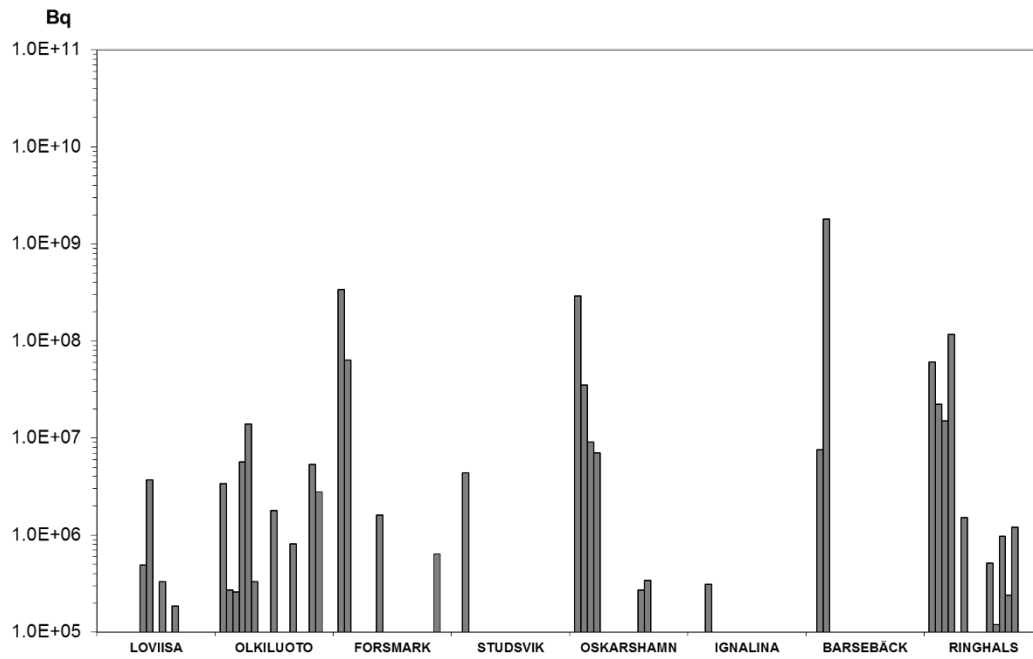
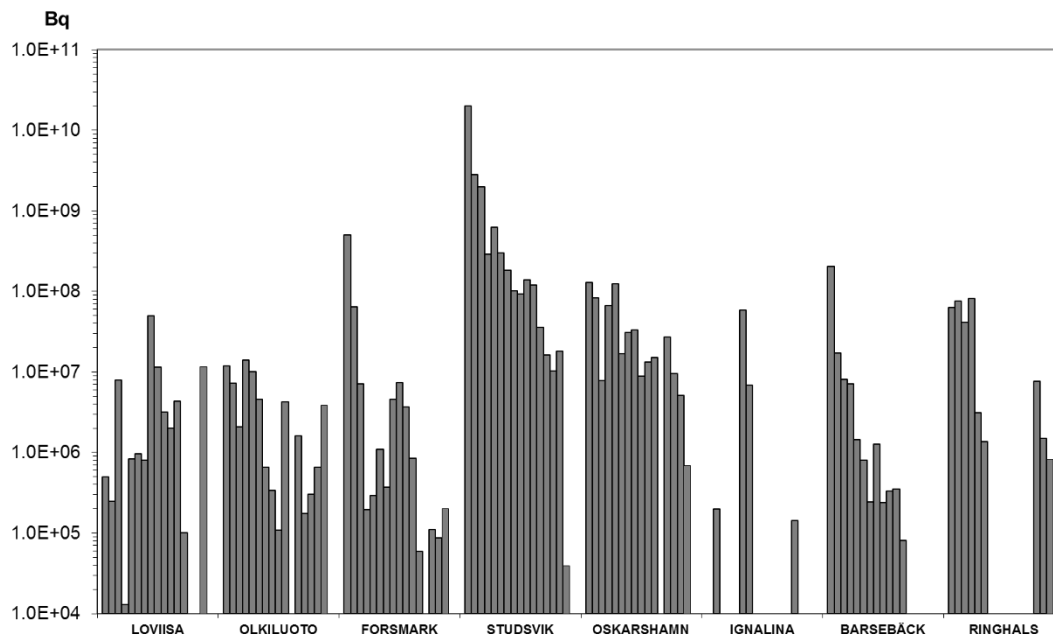


Sb-124



Sb-125



I-131**Cs-134**

Cs-137

