



Baltic Marine Environment Protection Commission

Expert Group on Monitoring of Radioactive Substances
in the Baltic Sea

MORS EG 5-2015

Oulu, Finland, 19-21 May 2015

Document title	Inventory of discharge data from 1995-2014 reported until 12 May 2015
Code	4-3
Category	CMNT
Agenda Item	4 – Data collection, databases and ongoing monitoring programme
Submission date	13.05.2015
Submitted by	STUK
Reference	

Action required

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**
INVENTORY OF DISCHARGE DATA FROM 1995-2014 REPORTED UNTIL 12 MAY 2015

		95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
Denmark																					
Risö*	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Estonia																					
Paldiski	aquatic discharges	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Finland																					
Loviisa	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Olkiluoto	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Germany																					
Greifswald**	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-
Latvia																					
Salaspils***	aquatic discharges	+	+	+	+																
	airborne discharges #	+	-	-	-																
Lithuania																					
Ignalina****	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Russia																					
Sosnovyi Bor (Leningrad)	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-
Sweden																					
Forsmark	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Studsvik*****	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Oskarshamn	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Barsebäck*****	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ringhals	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Westinghouse Atom AB	aquatic discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	airborne discharges #	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	+ reported																				
	- not reported																				
	# airborne discharges on voluntary basis																				
	= reported, but omitted from register																				
	* the research reactor was shut down in September 2000																				
	** the power plant was shut down in 1990																				
	*** the research reactor was shut down on 19 June 1998																				
	**** Unit I was shut down on 31 December 2004 and Unit II on 31 December 2009																				
	***** the research reactor at Studsvik was shut down on 16 June 2005																				
	***** 1st unit of the power plant was shut down on 30 November 1999 and 2nd on 31 May 2005																				

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

RISØ - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	3.07E+12	4.17E+12	3.73E+12	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	9.00E+09

The research reactor was shut down in September 2000

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PALDISKI-AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
H3				9.06E+08	3.59E+09	5.77E+08	2.06E+08	1.06E+08	1.83E+05	5.75E+09					1.66E+05	1.20E+05	2.08E+06	2.60E+06		1.10E+06	
CO60					7.06E+03	8.70E+03	1.04E+05	5.92E+04													
SR90				2.23E+06	8.91E+06	1.94E+06	1.24E+06	5.29E+05	3.75E+04	1.75E+07					3.50E+04	1.97E+04	2.60E+06	3.30E+06		3.09E+06	
CS137				2.32E+06	9.29E+06	4.69E+06	2.69E+06	2.95E+06	1.14E+05	1.39E+08					1.13E+05	1.02E+05	2.27E+05	1.50E+05		5.00E+05	
EU152					3.96E+03		5.72E+04														

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DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

LOVIISA - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	1.20E+13	9.45E+12	1.20E+13	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
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		
MN54	1.40E+06	8.21E+05	7.90E+05	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
CO58	3.20E+06	5.05E+05	2.90E+05	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
FE59							3.10E+03			1.90E+06	2.90E+06	4.30E+06		1.99E+06		2.15E+06		2.62E+05		
CO60	7.30E+06	4.22E+06	1.30E+06	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
SR89					2.80E+03															
SR89§															6.65E+06					
SR90							2.70E+03													
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
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
AG108M															6.80E+06				5.40E+06	
AG110M	9.20E+06	1.59E+06	2.60E+05	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
TE123M		5.50E+04		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
SB124	3.20E+07	1.63E+07	3.40E+05	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
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
I131	9.50E+06													4.90E+05	3.70E+06		3.29E+05		1.85E+05	
CS134	4.30E+06	1.55E+07	2.50E+06	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
CS137	5.60E+06	1.61E+07	6.70E+06	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
HF181																	5.50E+05			1.88E+05

§ Sr-89 and Sr-90 together

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12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

LOVIISA - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	1.90E+11	2.23E+11	2.50E+11	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
C14	1.30E+11	9.93E+10	2.30E+11	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
CR51	2.20E+07	2.60E+07	4.20E+06	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
MN54	1.20E+07	1.70E+07	2.90E+06	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	
CO58	2.90E+07	2.97E+07	3.80E+06	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
FE59	9.30E+06	9.88E+06	8.10E+05							2.90E+05		7.90E+04		1.99E+05						
CO60	1.20E+07	2.84E+07	4.50E+06	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
SR89§															3.15E+05					
ZR95	7.90E+06	3.83E+06	6.80E+05	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
NB95	4.50E+06	9.76E+06	1.50E+06	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
RU103			5.40E+04										2.61E+04					3.10E+04	1.31E+05	4.79E+05
AG110M	3.30E+07	1.56E+07	1.90E+06	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
TE123M	5.80E+05		7.80E+04	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
SB124	2.20E+07	2.79E+07	2.80E+06	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
I131	7.70E+08	8.72E+05	7.20E+04	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
CS134					2.50E+04										2.07E+04					
CS137	4.30E+04	2.32E+05		1.40E+05		9.90E+04		3.00E+04	2.90E+04			1.20E+04		1.10E+04	3.70E+06					

§ Sr-89 and Sr-90 together

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12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

OLKILUOTO - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	1.50E+12	2.92E+12	1.30E+12	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
CR51	7.20E+08	8.83E+08	1.80E+08	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
MN54	3.60E+09	1.86E+09	9.10E+08	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
CO58	1.60E+09	1.44E+09	6.80E+08	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
FE59	3.70E+06			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
CO60	8.10E+09	7.40E+09	3.60E+09	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
SR89	2.30E+07	1.04E+08	1.20E+07	2.60E+06	3.40E+06															
SR90	8.40E+06	1.50E+07	8.90E+06																	
ZR95	3.20E+08	9.00E+06		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	5.50E+08	9.50E+06		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	
SN113								7.50E+05		2.40E+05										
SB124		1.25E+07		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	7.10E+07	1.93E+07	1.10E+07	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
SN125						7.80E+06								1.12E+06	6.32E+05	8.58E+06				
I131	6.10E+07	3.76E+08	5.20E+06	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	
CS134	4.40E+09	3.27E+09	1.30E+09	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
CS136						3.60E+05														
CS137	4.90E+09	5.25E+09	2.80E+09	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
CE141		3.34E+08				2.30E+05														
CE144	5.00E+06																			
PU238	7.40E+04		2.30E+04																	
PU239	1.80E+04		1.80E+04																	
AM241	2.70E+04		1.70E+04																	
CM242	1.00E+05	2.43E+04	1.70E+05																	
CM244		1.58E+03																		

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DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

OLKILUOTO - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	1.30E+11	2.12E+11	3.00E+11	4.40E+11	5.20E+11	4.60E+11	3.80E+11	3.90E+11	2.80E+11	3.20E+11	3.20E+11	3.00E+11	2.70E+11	3.24E+11	3.20E+11	2.71E+11	2.43E+11	3.70E+11	6.25E+11	6.93E+11
C14	6.40E+11	6.49E+11	6.70E+11	7.20E+11	7.60E+11	7.60E+11	8.70E+11	9.50E+11	6.80E+11	8.40E+11	6.60E+11	6.80E+11	1.08E+12	8.76E+11	7.79E+11	7.11E+11	8.12E+11	8.78E+11	7.96E+11	8.39E+11
CR51	2.20E+06		2.40E+06	9.90E+06	7.30E+05	9.40E+05	2.60E+06	1.20E+07	6.90E+06	1.60E+06	1.70E+07	1.10E+06	3.71E+06		2.61E+06			1.29E+06		
MN54	6.80E+06	2.52E+06	2.70E+06	1.40E+06	2.10E+05		2.00E+06	1.70E+06	4.00E+06	2.60E+06	2.10E+06	2.90E+06	4.59E+06	2.98E+06	5.67E+06	3.46E+06	1.89E+06	3.97E+06	5.25E+06	1.79E+06
CO58	4.10E+06	1.39E+06	1.40E+06	3.80E+06	1.10E+06	1.10E+06	5.40E+06	3.00E+06	4.40E+06	2.90E+06	5.00E+06	1.90E+06	5.38E+06	3.27E+05	6.25E+06	3.51E+05	4.75E+05	1.50E+06	2.45E+06	6.57E+05
FE59	1.30E+06							2.80E+05	3.20E+05				8.73E+05	2.17E+05	2.66E+06	1.03E+06	1.21E+06	4.68E+05	1.33E+06	5.90E+05
CO60	1.20E+07	8.04E+06	1.30E+07	1.50E+07	3.40E+06	8.70E+06	2.10E+07	1.10E+07	1.60E+07	1.40E+07	1.40E+07	2.00E+07	1.27E+07	1.28E+07	1.08E+07	6.65E+06	7.12E+06	9.06E+06	1.01E+07	4.16E+06
SR89	2.50E+06	1.60E+06	1.00E+06	1.00E+06	1.00E+06	1.80E+06		4.50E+05								5.30E+05	4.05E+06	2.51E+06		
SR90					7.70E+04															
ZR95	1.20E+06					3.70E+05	1.70E+05	3.00E+05					1.21E+07							
NB95	1.30E+06					1.80E+05	1.70E+05	3.70E+05		1.90E+05			2.36E+05							
SB124	5.20E+05			2.30E+05			4.50E+05	9.90E+05	5.60E+05		1.70E+05		3.75E+05	1.41E+05	1.21E+06	2.12E+05				
SB125				5.10E+05																
I131	3.90E+07	2.61E+07	1.70E+07	2.70E+06	1.40E+07	7.90E+07		9.80E+06	1.70E+07		6.90E+07	1.50E+08	1.47E+07	1.49E+06	1.06E+05	9.39E+07	1.74E+06	1.70E+07	9.08E+07	2.49E+05
CS134	2.00E+05																			
CS137	2.30E+05											2.80E+05	8.75E+05							
PU238		6.57E+03																		
PU239&		7.53E+03																		
AM241		6.09E+03																		
CM242											3.00E+03									

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DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

GREIFSWALD - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2007	2008	2009	2010	2011	2012	2013	2014
H3	4.56E+10	2.62E+10	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	
MN54	2.00E+04																		
FE55												4.90E+07							
CO60	1.21E+07	2.91E+07	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							
SR90	1.01E+06	9.00E+05	1.10E+06	7.50E+05	2.40E+06				1.90E+06										
AG110M		2.00E+04																	
CS134		1.01E+07	7.00E+06	2.90E+06	4.00E+06														
CS137	2.51E+07	1.24E+08	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

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DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

SALASPILS - AQUATIC DISCHARGES

No reported discharges after 1993

SALASPILS - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	4.3E+09																			

The research reactor was shut down on 19 June 1998

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

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DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

IGNALINA - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
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
CR51	1.40E+08		6.20E+07				8.00E+07		9.00E+05											
MN54	1.10E+09	6.00E+08	2.30E+07		4.80E+07	3.00E+05		4.00E+05	6.80E+07	2.40E+06	5.80E+05	9.00E+04		2.07E+07	4.23E+04		1.64E+04			
CO58	6.60E+08		2.60E+06				1.50E+07		4.00E+05											
FE59	6.70E+07		3.60E+07		3.70E+06			9.20E+07	1.90E+06					3.07E+07						
CO60	3.90E+09	3.00E+08	6.10E+08	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
SR89	1.70E+08	3.60E+08		6.40E+08	6.40E+08	4.60E+08	1.40E+08													
SR90	3.10E+08	2.90E+08	7.00E+08	6.00E+08	6.00E+08	3.50E+08	9.10E+07													
ZR95	6.60E+07		7.10E+07				8.40E+07		4.00E+05	2.10E+05										
NB95	3.80E+07		8.70E+07				1.30E+08		7.00E+05	2.10E+05		4.79E+07								
I131	9.10E+08									3.10E+05										
CS134	2.70E+09	4.10E+06	1.90E+06				1.20E+06		2.00E+05				5.87E+07	6.86E+06						
CS137	6.50E+09	1.60E+09	4.50E+09	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

IGNALINA - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3																	6.23E+09	4.82E+09	4.14E+09	3.94E+09
C14																	3.52E+09	2.07E+09	4.39E+09	2.20E+09
CR51	1.96E+07	1.10E+07	2.20E+06	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	4.60E+08	3.90E+07	2.40E+08	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	1.20E+05	3.10E+06	5.80E+05	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	5.90E+07	3.44E+07	1.90E+06	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+09	1.10E+09	4.20E+08	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
ZN65							2.70E+06	4.70E+05	1.90E+06	1.92E+05	1.60E+07	2.34E+07		2.78E+05						
SR89	3.90E+08	1.50E+07	1.20E+07	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	1.50E+07	1.10E+07	1.00E+07	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
NB94																	5.55E+05			6.71E+02
ZR95	7.80E+07	8.20E+07	8.30E+07	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	2.60E+08	1.30E+08	1.10E+08	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	7.22E+09	1.20E+10	6.30E+09	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	8.49E+09	4.75E+07	9.38E+08	1.63E+05				
CS134	1.00E+07	2.10E+07	7.60E+06	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		
CS136									4.00E+04	2.50E+04	5.00E+03			3.18E+05	3.70E+04					
CS137	5.30E+08	9.10E+07	2.20E+08	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

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

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DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

LENINGRAD (SOSNOVY BOR) - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CR51																1.85E+06				
MN54	3.60E+04	5.90E+04														3.45E+05				
CO58																7.50E+04				
CO60	5.90E+05	1.60E+06	1.60E+06	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				
NB95	5.20E+04	1.60E+05																		
CS134	1.40E+05	1.20E+05																		
CS137	5.60E+05	1.20E+06	1.36E+06	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				
CE144	8.50E+05																			

LENINGRAD (SOSNOVY BOR) - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CR51	5.90E+09	1.10E+10	4.10E+09	9.25E+09	5.18E+08	8.36E+08	7.54E+08													
MN54	9.60E+07	1.70E+08	1.70E+08	2.11E+08	1.30E+08	1.15E+08	1.02E+08													
CO60	1.40E+08	7.40E+07	1.40E+08	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	
SR89	7.80E+07	7.80E+07	6.70E+07	5.18E+07	2.81E+07	2.85E+07	1.96E+07													
SR90	2.00E+06	3.10E+07	7.40E+06	1.63E+07	6.66E+06	5.18E+06	4.07E+06	3.85E+06												
I131	2.00E+10	2.90E+10	1.70E+10	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		
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	
CS137	1.20E+09	1.30E+09	5.20E+08	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	

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DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

FORSMARK - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	2.34E+12	1.99E+12	2.00E+12	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
CR51	2.36E+09	1.62E+09	4.80E+09	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	2.12E+09	1.84E+09	2.90E+09	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				
CO58	7.62E+09	4.12E+09	7.60E+09	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
FE59	5.41E+06	4.60E+06			2.27E+08	1.08E+08	7.11E+07													
CO60	2.47E+10	3.21E+10	4.91E+10	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
Ni63																	1.24E+06	3.60E+05	1.45E+05	1.48E+05
ZN65	7.24E+09	7.77E+09	1.10E+10	1.90E+09	1.53E+09	5.50E+08	7.10E+07	7.30E+07	7.20E+07	1.01E+07										
SR90	4.40E+07	1.10E+07						1.52E+08								3.36E+05				
ZR95	8.92E+06	2.02E+08	1.20E+08							3.97E+06			1.92E+05				2.40E+06			
NB95	3.65E+08	7.33E+08	7.45E+07	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			
RU103	1.50E+06	2.10E+06																		
AG110M	1.30E+09	2.71E+09	8.20E+09	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						
SN113	2.70E+05																			
SB124	2.06E+09	1.04E+09	1.40E+09	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
SB125	6.72E+08	7.30E+07	3.10E+08		3.18E+08		8.37E+08	3.50E+08	1.10E+08	1.77E+08				5.29E+05			8.50E+06			
I131	6.14E+09	4.03E+09	1.34E+09	3.70E+08	4.16E+07	2.21E+08	2.86E+08	3.36E+08	6.39E+07					1.61E+06						
CS134	1.68E+09	7.71E+09	1.30E+10	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	
CS137	3.72E+09	8.49E+09	1.50E+10	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
BA140	3.30E+08																			
CE141	1.89E+07	3.99E+06	5.70E+04					1.80E+06	7.70E+06								5.80E+04	1.20E+05	3.50E+05	1.44E+04
CE144		1.35E+06																		
PO210					5.70E+05															
U235																	8.20E+02	2.92E+04	2.30E+04	1.03E+05
U238																	2.60E+03			
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	
PU238*		8.40E+05		4.13E+05	1.01E+06		7.20E+04	6.20E+04												
PU239																	2.40E+04			
PU239&						5.51E+05												3.09E+04		
AM241										5.46E+05							3.70E+04	7.30E+04	2.09E+04	
CM242		2.70E+05			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
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
CM243																	1.36E+03	2.13E+03	4.10E+02	
CM244		1.80E+05			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	

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

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

FORSMARK - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
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	
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	
CR51	1.48E+08	6.17E+07	2.52E+08	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	
MN54	5.65E+07	3.41E+07	3.53E+07	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	
CO58	1.50E+08	5.95E+07	1.06E+08	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	
FE59						6.47E+06															
CO60	5.33E+08	2.79E+08	7.17E+08	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	
ZN65	2.45E+08	1.42E+08	2.33E+08	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	
SR90	1.30E+07							9.90E+06													
ZR95		4.96E+05	8.10E+06																	6.10E+05	
NB95	1.13E+06	1.50E+06	9.00E+06		5.65E+05			7.50E+05							1.11E+06			6.00E+05	7.10E+05	1.23E+06	
RU103	1.50E+06																				
AG110M	8.82E+06		3.00E+07					3.60E+06												1.64E+07	
SN113																				3.30E+05	
SN117M																5.80E+05					
TE123M																				2.60E+05	
SB124	4.96E+06	4.62E+06	2.90E+07			1.05E+07				5.53E+05	1.15E+04				3.10E+06	1.69E+06			2.33E+06		
I131	6.01E+08	4.46E+08	2.32E+08	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	
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	
CS134	1.30E+05	2.43E+05							2.18E+05						6.56E+05						
CS137	1.09E+07	1.59E+06	1.90E+06		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	
BA140	3.22E+07																				
CE141	7.30E+05		5.60E+05																		
PO210		2.49E+05		8.04E+04	1.85E+05																
U235																		2.19E+03	2.00E+03	8.90E+02	9.71E+02
U238																		2.30E+02	3.50E+02		
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		
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	
AM241																		4.60E+02	8.00E+02	7.10E+02	
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	
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		
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		

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

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

STUDSVIK- AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	5.74E+13	3.65E+13	5.91E+13	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
CR51	1.50E+08	3.43E+10			2.90E+07	7.24E+09	1.85E+08	7.10E+06	8.00E+07	5.10E+07										
MN54	1.51E+08	1.01E+09	1.21E+08	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
CO57						2.20E+05		1.00E+06	3.36E+06	1.20E+07										
CO58	1.35E+07	1.52E+09	4.54E+07	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		4.62E+08				7.86E+08	1.52E+07			1.56E+08										
CO60	4.94E+09	1.63E+10	3.25E+09	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
ZN65		5.16E+07				8.72E+07	3.40E+08	4.60E+07	8.10E+06	4.80E+07	5.60E+05									
SR90	2.33E+10	1.10E+11	7.00E+10	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
NB94					2.90E+06															
ZR95	1.30E+07	1.90E+08	1.40E+08	1.80E+08	2.10E+07	1.30E+08	1.60E+07				3.60E+07									
NB95	6.40E+07	2.90E+08	3.20E+08	4.40E+08	8.13E+07	3.00E+08	9.50E+07	2.31E+07	1.23E+07	6.20E+07	8.10E+07	2.40E+06	2.30E+06							
RU103		6.60E+06									3.30E+06									
RU106	1.60E+09	4.20E+09	5.10E+09	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			5.60E+06	6.10E+07	2.90E+06				6.80E+07	7.00E+06						5.10E+07				
SN113						2.60E+07														
SB124	9.50E+08	4.60E+08	1.80E+08	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	8.00E+08	1.30E+09	1.90E+09	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		3.70E+07	2.70E+09	1.60E+09	2.80E+09		2.30E+10		4.40E+06											
CS134	7.73E+09	7.44E+09	8.30E+09	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
CS137	2.42E+10	2.41E+10	1.90E+10	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
BA140									2.10E+06											
CE141	2.80E+06																			
CE144	3.50E+09	5.10E+09	1.10E+10	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	6.77E+09	1.31E+10	2.15E+09	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		
EU154	2.96E+09	5.82E+09	1.82E+09	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	8.02E+08	1.30E+09	6.21E+08	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			6.80E+08	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
U238																	6.10E+04	2.00E+04	4.40E+04	1.13E+05
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
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
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
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

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

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

STUDSVIK - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	2.50E+11	3.70E+12	3.10E+12	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
BE7								2.97E+04												
C14									7.20E+07											
CR51					7.10E+05	1.40E+06														
CO58																		1.70E+04	3.80E+04	
CO60	1.40E+05				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
ZN65												9.40E+03				2.10E+04	1.10E+04			1.80E+03
KR85												6.50E+11				3.60E+11	1.00E+12	1.10E+11	6.00E+10	3.00E+11
SR90	1.83E+04	1.67E+03	2.89E+04	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		
AG108M																				1.10E+03
AG110M												1.30E+03				3.90E+03			4.10E+03	
SB125	3.00E+05		5.20E+04	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
I125	1.80E+06	1.60E+06	3.70E+07	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	6.78E+07	3.81E+07	5.48E+06	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
BA133																				7.30E+02
CS134	1.80E+05					3.50E+05	6.70E+05		2.60E+04		2.50E+04	0.00E+00				1.10E+03				3.30E+03
CS137	2.70E+05		6.60E+03	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
CE144							1.90E+05													
EU152																				7.70E+02
EU154																				2.80E+03
HF181						2.60E+04														
IR192									1.10E+04	5.99E+04										
HG203					9.80E+05															
PO210		1.42E+05	1.51E+05	7.20E+04	3.79E+05	2.15E+05	2.64E+05	6.95E+04	2.92E+04	8.09E+03										
U238		7.70E+01																		
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															

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

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

OSKARSHAMN - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	1.19E+12	1.38E+12	1.36E+12	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
NA22		8.80E+04		1.80E+05									1.47E+06							
SC46	4.00E+05	1.00E+06	1.40E+05																	
CR51	2.45E+10	5.94E+10	2.13E+10	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
MN54	5.26E+09	4.50E+09	1.99E+09	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
FE55																	1.57E+08	2.77E+08	1.52E+08	1.36E+08
CO57	5.17E+07	5.95E+07	1.21E+07	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	9.52E+09	8.83E+09	2.51E+09	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
FE59	9.04E+08	6.28E+08	2.03E+08	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	4.28E+10	4.34E+10	1.70E+10	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
NI63																	3.45E+07	6.01E+07	2.76E+07	8.07E+07
ZN65	3.35E+09	2.86E+09	1.45E+09	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
SR89																	1.24E+06		3.47E+06	2.39E+06
SR90	5.37E+07	1.63E+07	7.04E+06	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						
ZR95	4.17E+08	2.92E+08	5.20E+07	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	6.69E+08	6.44E+08	1.68E+08	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	7.57E+05	2.90E+08	6.60E+06	2.90E+06		2.10E+08			6.15E+05	5.30E+05										
RU106	1.30E+07	6.60E+05									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
AG110M	1.20E+08	1.42E+09	1.52E+09	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
SN113	8.70E+06	3.06E+07	3.98E+06	9.00E+06	3.93E+06			1.53E+06		9.71E+05										
SN117M	3.70E+04	6.42E+07		2.10E+07	5.40E+06				1.56E+06											
SB124	5.63E+08	1.66E+09	5.16E+08	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
SB125	3.85E+09	3.51E+09	1.19E+09	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
I131	1.50E+08	5.98E+07	7.23E+08	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+07	1.50E+06																
CS134	4.05E+08	9.02E+07	1.28E+09	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
CS136		1.20E+08	3.40E+07	1.70E+06		6.80E+06				6.26E+05										
CS137	4.92E+09	2.41E+09	2.38E+09	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
BA140	7.40E+06	2.83E+07	3.47E+07					8.83E+07												
CE141	1.52E+07	2.01E+07	4.90E+06			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	6.60E+06	1.60E+06	1.15E+07	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
PU238*	3.08E+06	3.47E+06	1.79E+06	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&	8.10E+05	1.60E+06	6.30E+03	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
AM241																	7.40E+02		1.09E+04	3.16E+04
CM242	8.04E+05	6.48E+05	1.53E+04	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
AM243	1.40E+02	3.60E+03		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^	5.96E+05	1.44E+05	6.35E+04	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	
CM244																	2.14E+04	1.30E+04		7.01E+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

12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

OSKARSHAMN - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
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	
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	
CR51	2.20E+08	3.23E+08	3.16E+08	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	
MN54	7.01E+07	5.29E+07	9.75E+06	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	
CO57	2.00E+05										2.79E+03	2.08E+04	2.61E+04		4.33E+04					6.54E+04	
CO58	5.39E+07	8.83E+07	3.45E+07	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	
FE59	7.81E+05	6.04E+05	3.65E+06	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		
CO60	1.69E+08	1.67E+08	1.18E+08	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	
ZN65	2.60E+06	4.95E+06	7.40E+06	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	
KR85	1.20E+09	9.14E+08	2.60E+13	3.00E+13	3.70E+10		1.20E+11					1.00E+10				1.70E+12			8.00E+10	1.76E+12	
SR90	2.50E+05	5.98E+05	7.40E+04	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					
Y91			5.80E+07																		
ZR95	1.22E+05	1.50E+04	7.90E+05		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	
NB95	1.14E+06	1.63E+06	1.33E+06	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	
RU103	6.97E+05	2.60E+05									6.07E+04	2.93E+04	2.99E+03								
RU106			6.30E+05																		
AG108M																				9.52E+04	
AG110M		5.50E+06	8.96E+06	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	
SN113	1.30E+05									3.82E+04		9.92E+03									
SN117M		3.30E+04	5.00E+04						9.81E+03												
SB124	3.30E+05	1.61E+06	1.90E+06	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	
SB125	8.30E+05	1.54E+06	2.60E+06												4.58E+05	1.24E+05	2.99E+05	1.60E+05	7.76E+04		
I129	1.74E-01	2.24E-01	2.37E-01																		
I131	3.39E+08	4.51E+08	4.61E+08	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	
XE131M	1.80E+11	2.10E+11	3.03E+12	4.10E+12	2.71E+12	9.88E+11	6.50E+09			1.42E+10		1.19E+10									
CS134	1.20E+05	1.20E+05	1.10E+05	3.70E+06	8.10E+04				3.62E+04	5.98E+04	8.06E+05	1.70E+04									
CS136	2.10E+05										1.38E+05										
CS137	1.98E+06	1.27E+06	1.10E+06	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	
BA140	1.76E+07	7.70E+07					2.40E+06	2.28E+07	1.76E+07		8.89E+05	5.27E+05	1.32E+06				7.19E+05		4.34E+05		
CE141	1.70E+06	5.64E+06					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		
CE144		8.20E+05	2.50E+05																		
HF181		5.60E+04																			
PU238																			9.20E+02	4.26E+03	8.00E+03
PU238*		7.80E+04	8.50E+04	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&		2.30E+03	5.00E+03	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	
AM241																			4.80E+01	4.67E+03	6.18E+03
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	
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^		2.80E+04	2.30E+04	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	
CM244																				9.40E+01	

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

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

BARSEBÄCK - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	5.54E+11	1.10E+12	7.60E+11	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
CR51	1.08E+10	1.30E+10	2.50E+10	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	5.66E+09	6.00E+10	5.20E+09	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	6.16E+09	6.50E+10	5.80E+09	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	3.39E+08	4.40E+08	2.80E+08	7.50E+08	4.50E+07		1.04E+08	3.37E+08	2.39E+08	2.73E+07	3.22E+06									
CO60	2.97E+10	5.20E+10	2.00E+10	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
ZN65	2.93E+08	4.20E+08	1.90E+08	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	1.75E+06	1.80E+06	8.80E+05	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
ZR95	1.93E+08	1.30E+08	9.50E+07	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	3.54E+08	2.40E+08	9.20E+07	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	4.41E+07	8.40E+08	2.60E+07	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	7.02E+06			8.30E+06			8.31E+06				6.40E+05									
SB124	3.29E+08	3.80E+08	4.90E+08	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	7.74E+08	3.50E+08	2.60E+08	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
I131	3.15E+08	1.60E+08	1.60E+07	4.50E+07	6.60E+07				7.56E+06	1.81E+09										
CS134	3.12E+08	3.10E+07		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	2.48E+09	7.40E+08	8.30E+08	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
BA140		2.30E+07		4.50E+06																
PU238		9.78E+04	1.30E+04	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
PU239		8.50E+03	2.90E+04	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
AM241		2.11E+04	1.80E+04	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
CM242		3.58E+04	1.60E+04		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
CM244		2.48E+04	1.60E+04	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

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
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

BARSEBÄCK - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
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	1.90E+08	2.58E+07	2.56E+07	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	9.68E+07	3.10E+07	1.91E+07	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	1.74E+08	9.50E+07	2.10E+07	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	5.40E+06	7.40E+05	2.40E+06	4.40E+06	1.33E+06	1.61E+06	5.73E+06	3.17E+06	8.06E+05	2.24E+05										
CO60	2.80E+08	3.10E+08	9.70E+07	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
ZN65	3.30E+06	5.20E+06	8.30E+05	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			4.40E+07	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	4.16E+05	8.60E+05					8.04E+04		1.05E+05		2.46E+04							2.90E+04		
ZR95	2.27E+07	3.56E+07	1.16E+07	5.00E+06	1.90E+06	9.86E+06	1.11E+06	1.29E+06	5.79E+05			8.49E+04								
NB95	4.60E+06	5.30E+05	7.30E+06	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	6.10E+05		1.20E+06	5.90E+06	6.52E+06	1.69E+06	7.05E+05	2.30E+06	9.56E+05			1.14E+05								
SB125		7.40E+06			9.40E+05															
I129			4.01E-03	3.76E-03	1.10E-03	4.00E-03	2.80E-04	2.48E-04	3.09E-04	2.48E-02										
I131	2.08E+07	2.68E+06	7.93E+06	7.42E+06	2.20E+06	7.90E+06	5.59E+05	4.96E+05	6.18E+05	4.94E+07										
XE131M	8.10E+11														3.82E+12					
CS134		2.00E+06				9.90E+04				1.20E+05										
CS137	2.00E+05	1.70E+07			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	
PU238													2.83E+03	1.48E+03	8.61E+03		5.80E+03	1.03E+03		
PU239		7.00E+02												8.91E+02						
AM241																	1.16E+03	3.99E+03		
CM242														1.73E+04						
CM244														3.51E+03				3.01E+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
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

RINGHALS - AQUATIC DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
H3	2.18E+13	2.54E+13	2.30E+13	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
BE7										1.80E+06										
NA22									4.51E+03				3.30E+04			1.30E+05				
CR51	1.20E+10	9.69E+09	7.82E+09	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
MN54	2.55E+09	3.38E+09	1.05E+10	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
CO57	2.25E+08	1.36E+08	1.50E+08	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
CO58	4.35E+10	2.31E+10	3.07E+10	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
FE59	8.95E+08	5.43E+08	2.61E+08	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
CO60	5.20E+10	3.53E+10	1.17E+11	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
NI63																	9.40E+08	5.32E+07	1.60E+08	1.34E+08
ZN65	5.32E+08	2.53E+08	9.53E+08	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
SR89		4.24E+08	1.51E+09	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
SR90		6.04E+07	6.66E+07	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
ZR95	2.32E+09	7.28E+08	2.80E+08	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
NB95	4.52E+09	1.41E+09	8.70E+08	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
RU103	1.17E+08	2.89E+07	2.51E+08	1.90E+07	5.08E+05															
RU106	6.47E+08	7.67E+08	3.72E+08	7.32E+08	2.76E+08	3.16E+07		1.14E+06												
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	2.84E+09	3.29E+09	2.68E+09	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
SN113	2.14E+08	5.19E+07	3.30E+07	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
SN117M																				8.37E+05
TE123M																	2.82E+07	4.38E+07	2.88E+07	3.02E+07
SB124	1.99E+09	1.71E+09	1.28E+10	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
SB125	1.48E+09	2.39E+09	4.19E+09	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
I131	5.74E+08	6.23E+08	8.90E+08	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
BA131	4.66E+08	7.60E+07	5.42E+08		1.07E+06															
CS134	3.71E+09	8.82E+08	5.58E+08	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							
CS136		7.83E+06	2.40E+06		1.50E+06		2.66E+06				1.90E+06									
CS137	7.00E+09	2.32E+09	5.48E+09	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
BA140	4.35E+08	6.63E+08	4.60E+08	6.20E+08	4.17E+07		3.27E+06	3.33E+06												
CE141	2.69E+08	9.61E+07	4.95E+07	2.40E+07	2.29E+05	4.03E+04			3.40E+05											
CE144	1.45E+08	6.07E+07	4.14E+07	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		9.00E+05	2.99E+05	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
PU238*							2.40E+05													
PU239								1.84E+04	7.64E+05	1.42E+05	8.47E+04	1.82E+04								
PU239&		6.46E+05	7.08E+05	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
AM241		1.48E+06	7.30E+05	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
CM242		3.33E+06	4.12E+05	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
CM244		3.41E+06	7.91E+05	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

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

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

RINGHALS - AIRBORNE DISCHARGES

NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
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
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
NA22													5.10E+04							
CR51	4.06E+06	4.85E+06	6.80E+05	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
MN54	3.48E+06	3.65E+06	7.90E+07	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
CO57		2.41E+04	4.10E+04															1.30E+04		
CO58	2.32E+07	1.88E+07	6.98E+07	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
FE59		2.90E+05		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
CO60	4.47E+07	5.33E+07	1.71E+08	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
ZN65	2.43E+05								6.55E+05		1.70E+05			3.00E+05			2.80E+05			4.05E+05
KR85	2.43E+11	2.89E+11	1.93E+10	1.20E+08	1.33E+10	9.90E+10	1.70E+11	1.17E+08	2.70E+11	7.70E+10	2.20E+11									
SR89		4.86E+07	5.34E+07	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
SR90		6.22E+05	3.02E+06	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
ZR95	1.02E+06	1.59E+07	7.90E+04	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
NB95	7.24E+06	2.75E+07	1.80E+05	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
RU103	3.28E+05		5.20E+04																	
RU106	1.10E+04																			
AG110M									4.93E+04	1.10E+05										
SN113	4.62E+04	4.61E+05				5.94E+04		1.61E+05	1.01E+05	2.80E+05						3.40E+03				
SB124		2.16E+05	1.50E+08	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
SB125		2.02E+06	6.80E+04						4.80E+05	2.90E+06										1.46E+06
I131	1.24E+10	7.52E+09	4.22E+09	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
XE131M	5.10E+14	5.14E+12	3.88E+10	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				
CS134	1.15E+06			7.30E+05																
CS137	5.70E+07	3.35E+06	6.50E+05	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
BA140	2.98E+09	7.63E+07	1.30E+07	3.20E+08	3.66E+06	1.81E+07					3.70E+05									
CE141	6.35E+05	3.64E+05		4.00E+04	7.39E+04	6.88E+05			5.42E+04	3.20E+05	6.50E+04									
CE144	3.90E+07	4.42E+05		1.60E+06															3.10E+05	
PU238			7.85E+05	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
PU239									5.82E+04	1.80E+03	1.73E+04	2.44E+03	1.56E+03							
PU239&			3.52E+05	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
AM241			5.74E+04	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
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
CM244			3.94E+04	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

& Pu-239,Pu-240

STUK - RADIATION AND NUCLEAR SAFETY AUTHORITY

DISCHARGE REGISTER OF HELCOM/MORS
12.5.2015

DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES

WESTINGHOUSE ATOM AB - AQUATIC DISCHARGES

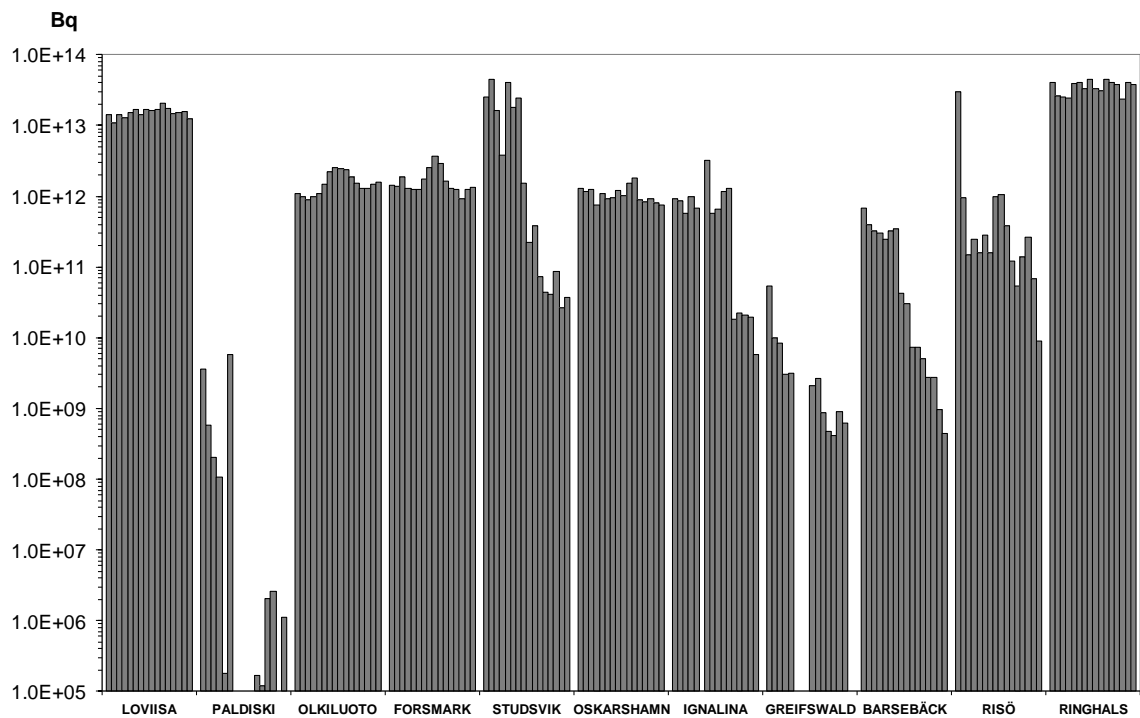
NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CR51														4.16E+06	2.84E+06	4.02E+05	8.19E+05	9.48E+05	3.86E+05	1.87E+05
MN54														1.66E+06	1.67E+06	1.86E+05	6.32E+05	6.68E+05	4.21E+05	2.47E+05
CO58														1.44E+06	1.15E+06	2.46E+05	4.41E+05	3.76E+05	1.01E+05	6.84E+04
CO60	9.90E+06	1.03E+07	2.00E+07	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
AG110M															6.66E+05	1.08E+05	1.43E+05	8.40E+04	1.14E+05	7.43E+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
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
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
TH234	1.60E+08	1.35E+08	7.01E+07	7.67E+07	5.35E+07	3.85E+07	4.76E+07													
U234	1.95E+08	2.29E+08	1.71E+08	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
U235	8.71E+06	1.15E+07	7.65E+06	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
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
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
U238	4.35E+07	3.43E+07	3.78E+07	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

WESTINGHOUSE ATOM AB - AIRBORNE DISCHARGES

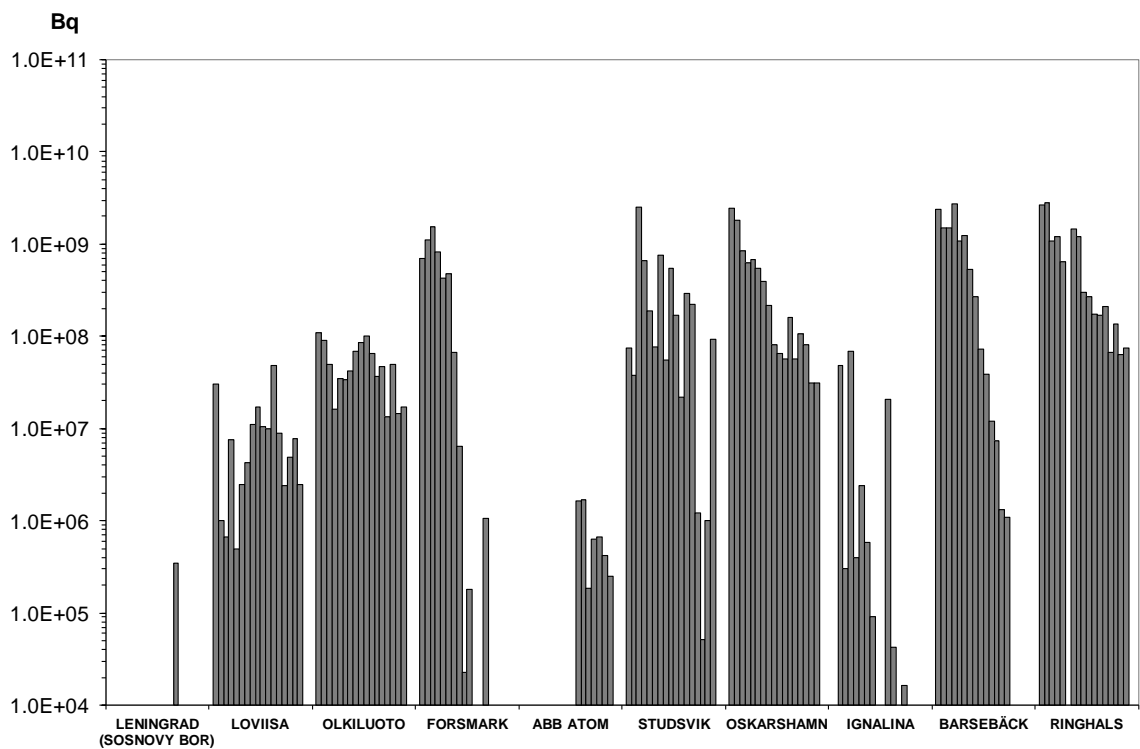
NUCLIDE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CO60	1.63E+06	1.68E+06			1.79E+06	1.64E+06	2.06E+06													
TH232									4.50E+01	1.20E+02	2.10E+03	4.70E+02	2.80E+02	2.06E+02	5.78E+02	7.46E+02	1.42E+03	2.99E+02	2.27E+02	4.12E+02
U234	1.74E+06	1.70E+06	2.76E+06	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
U235	7.80E+04	8.48E+04	1.19E+05	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
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
NP237								1.55E+02	2.01E+03	6.45E+02			3.92E+02			5.23E+03	8.33E+03			2.40E+02
U238	3.85E+05	2.46E+05	5.94E+05	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

AQUATIC DISCHARGES OF SELECTED NUCLIDES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES IN THE BALTIC SEA AREA IN 1998 - 2014

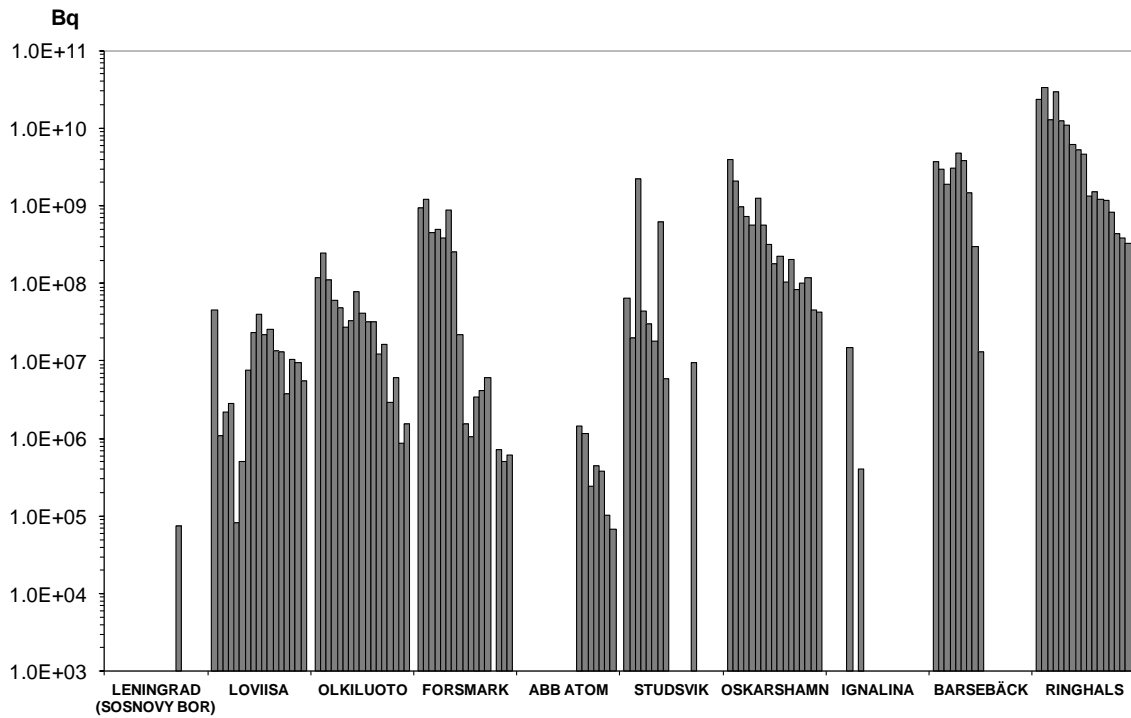
H-3



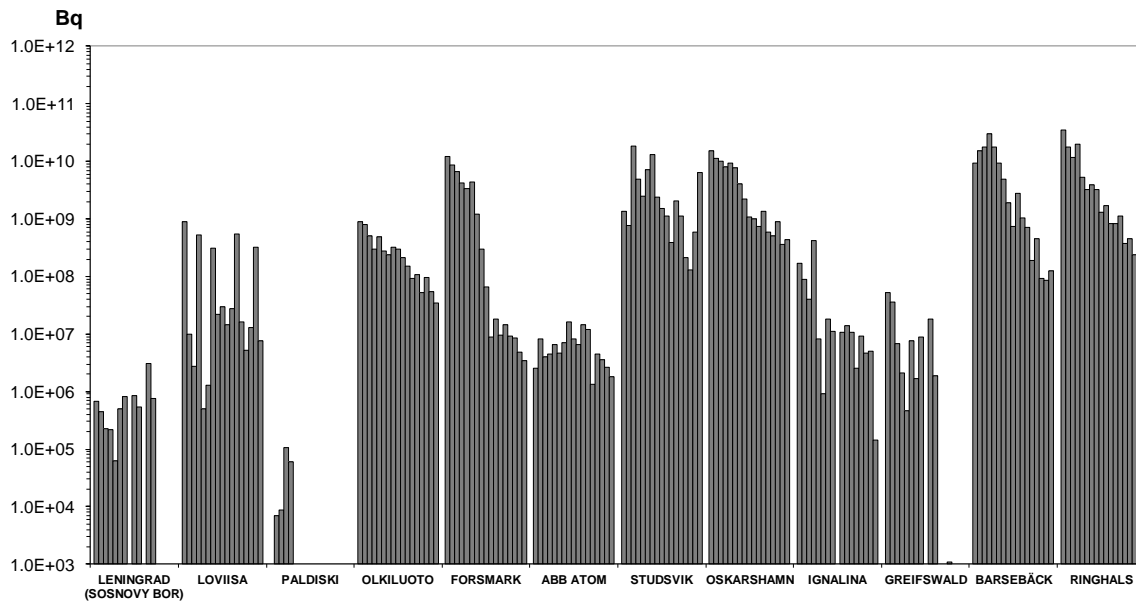
Mn-54



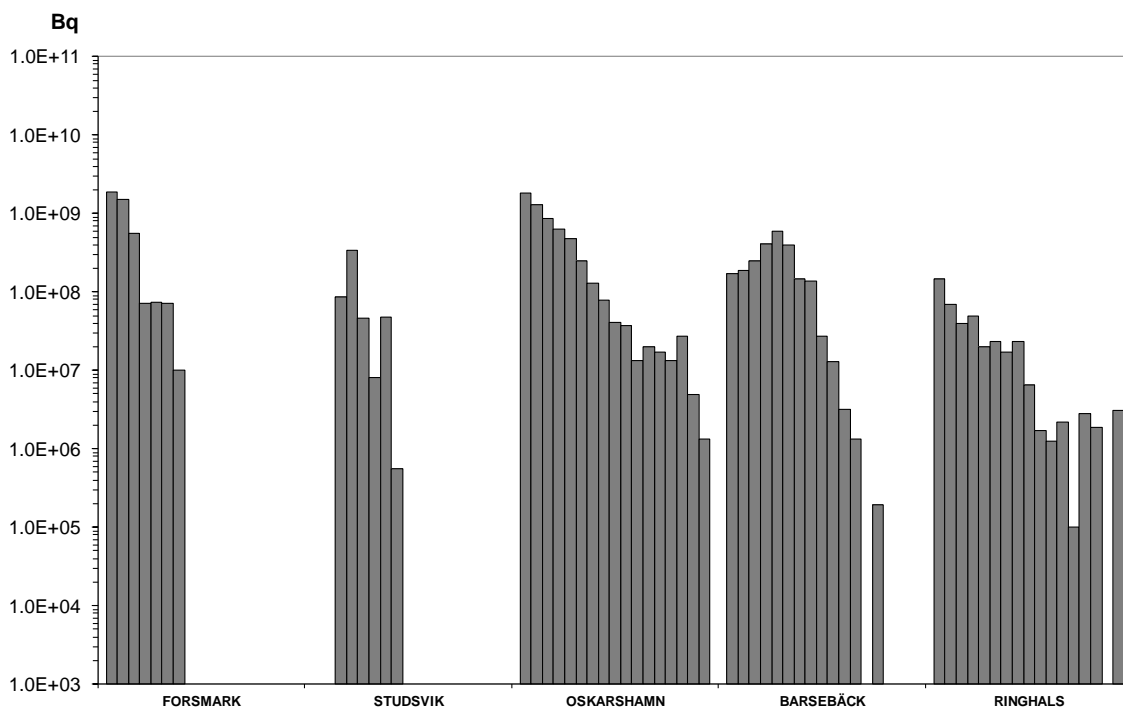
Co-58



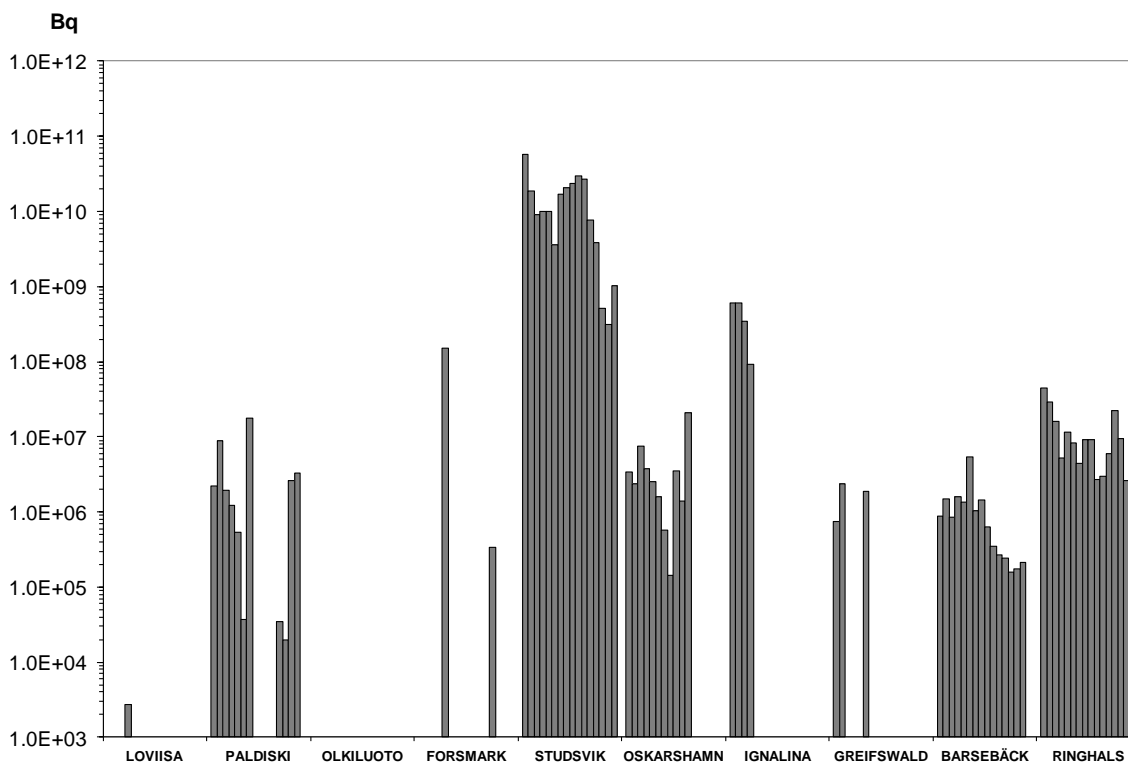
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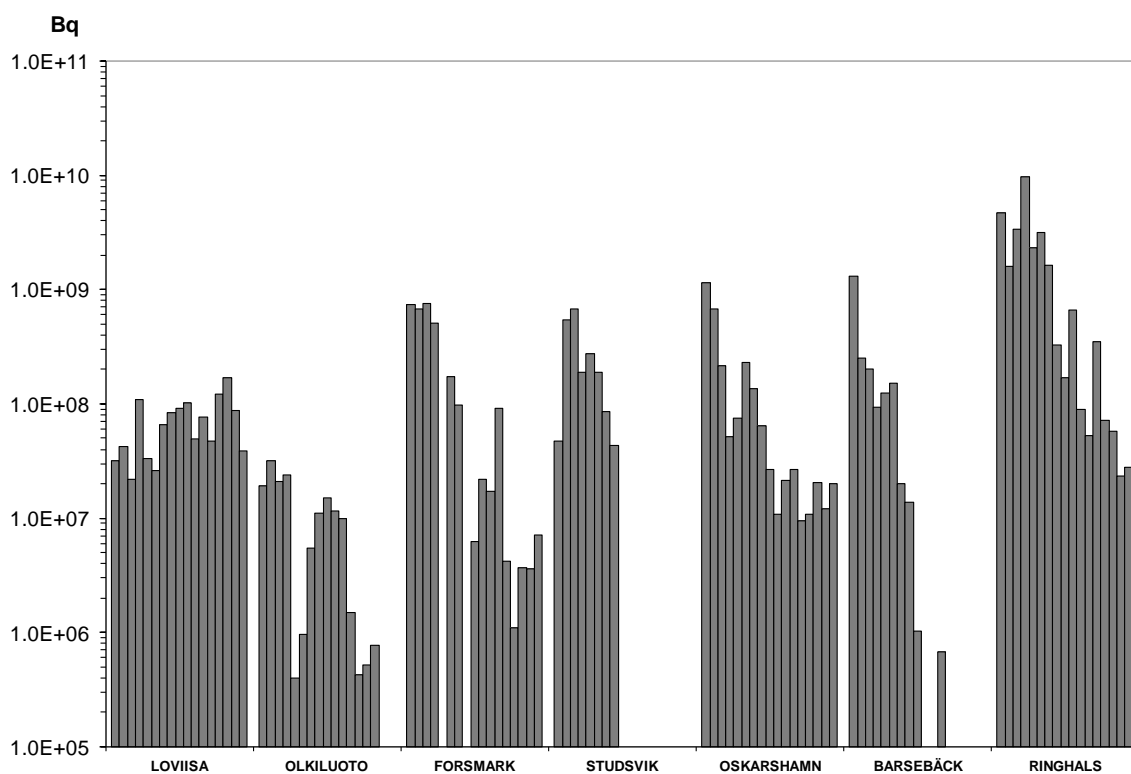
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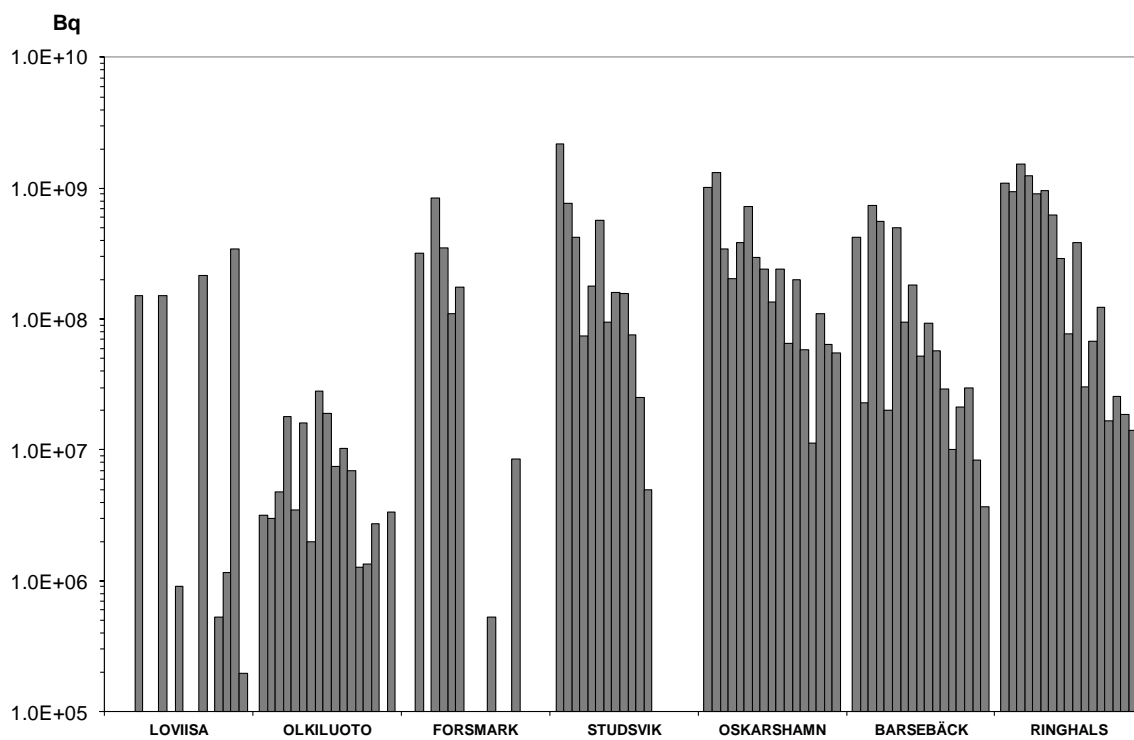
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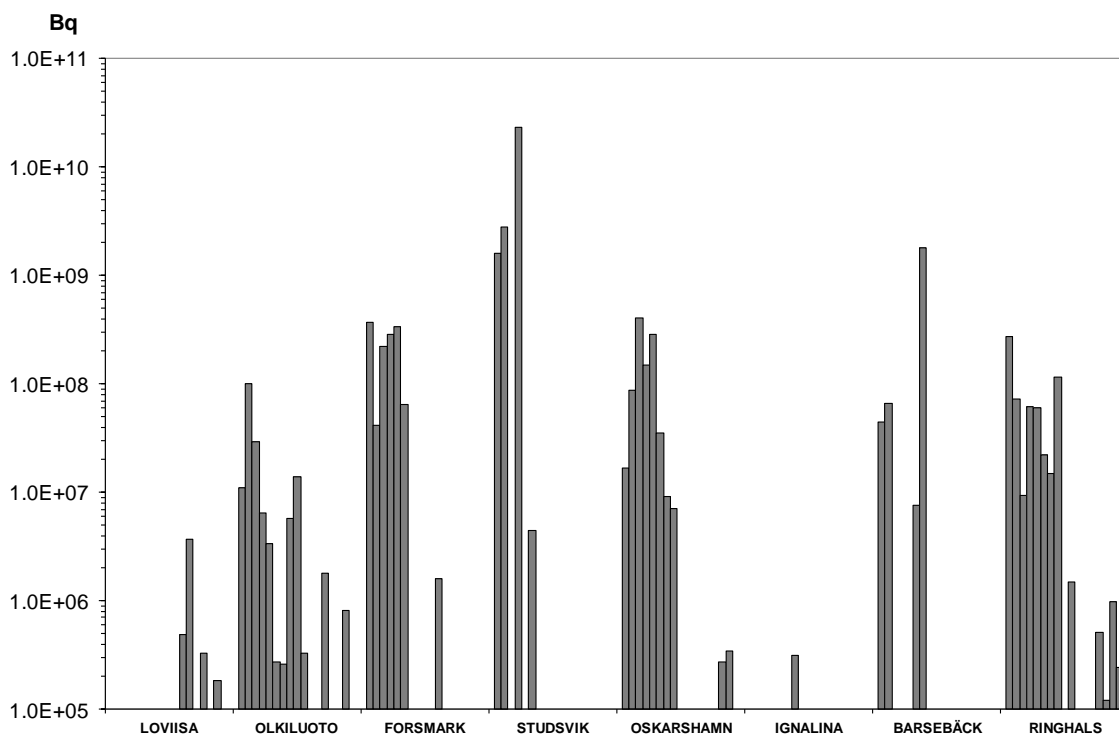
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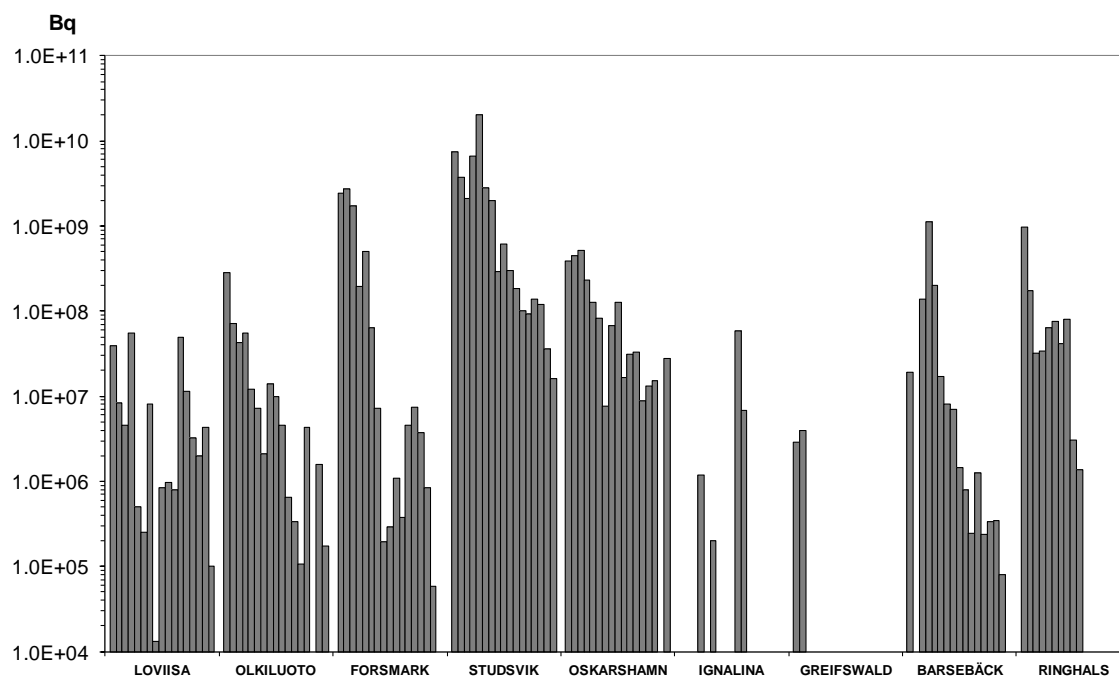
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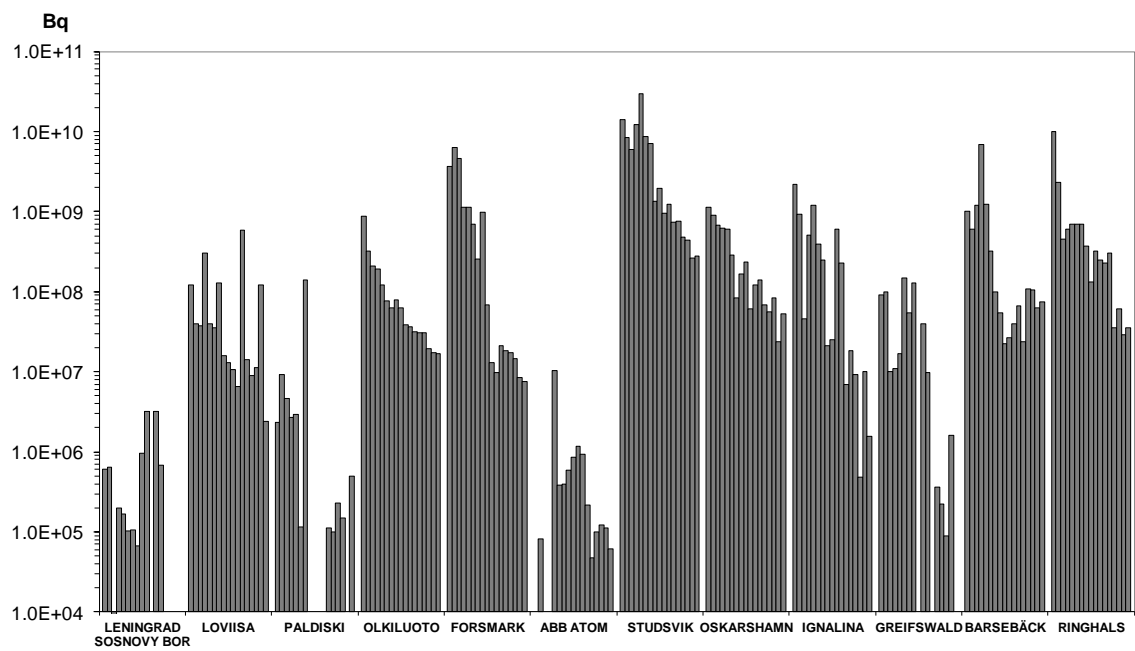
I-131



Cs-134



Cs-137



CUMULATIVE AQUATIC DISCHARGES OF SELECTED NUCLIDES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES IN THE BALTIC SEA AREA IN 1989 - 2014

