

## Site (Data) : KRSKO NPP

Stock of waste as at December 2009

Country: SLOVENIA

Reporting Year: 2009

**Site Name: KRSKO NPP**

Full Name: Krsko Nuclear Power Plant

Inventory Reporting Date: December 2009 Waste Matrix Used: IAEA Def.

Comment **# 14747: About KRSKO NPP (<http://www.nek.si>)**

NEK has been in operation for twenty-five years. Projected life-time is until 2023. Over the course of the operational years NEK have witnessed a great many social changes and technological upgrades which have affected their work.

If twenty-five years ago their main aim was adapting to high professional and technical standards of nuclear technology, today the impact of market forces and public acceptability are equally important. If twenty-five years ago they were not yet considering the need to exchange domestic and international operational experience, today this is part of their everyday routine.

All of those changes, and in particular people's increased environmental awareness, are reflected in their everyday operation and in NEK's long-term strategy. They are reflected in the high level of nuclear safety. They guarantee, in the stability and competitiveness of their electricity production in comparison to other energy sources and, last but not least, in their objectives of achieving NEK's public acceptability.

Over the course of twenty-five years they have formed a qualified team which is strongly committed to their goals and to the values of safety culture. On the basis of know-how, continuous training, safe operation and operating efficiency, they are realizing an optimistic vision of the second half of NEK's lifecycle.

Attachment **#1418: Site**

NEK\_Annual\_Report\_2004.pdf

NEK annual report 2004

Attachment **#1419: Site**

NEK\_Annual\_Report\_2005.pdf

NEK annual report 2005

Attachment **#1420: Site**

NEK\_Annual\_Report\_2006.pdf

NEK annual report 2006

Attachment **#1592: Site**

NEK\_Annual\_Report\_2007.pdf

NEK annual report 2007

Attachment **#1798: Site**

NEK\_Annual\_Report\_2008.pdf.pdf

NEK Annual Report 2008

Attachment **#2040: Site**

Annual\_Report\_NEK\_2009.pdf

NEK\_Annual\_Report\_2009.pdf

## Site (Data) : KRSKO NPP

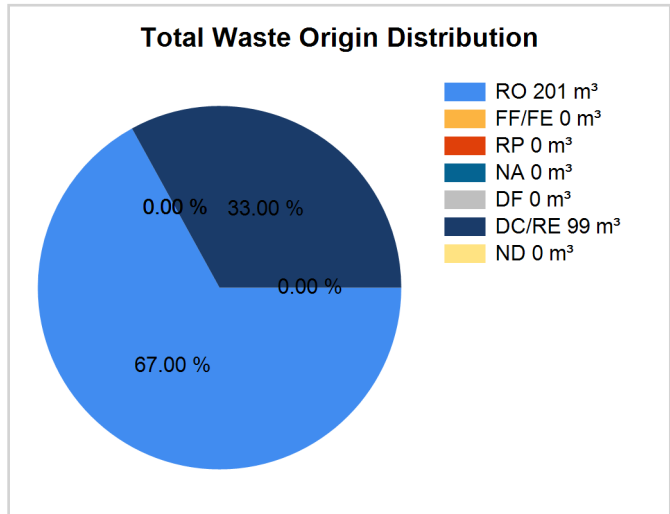
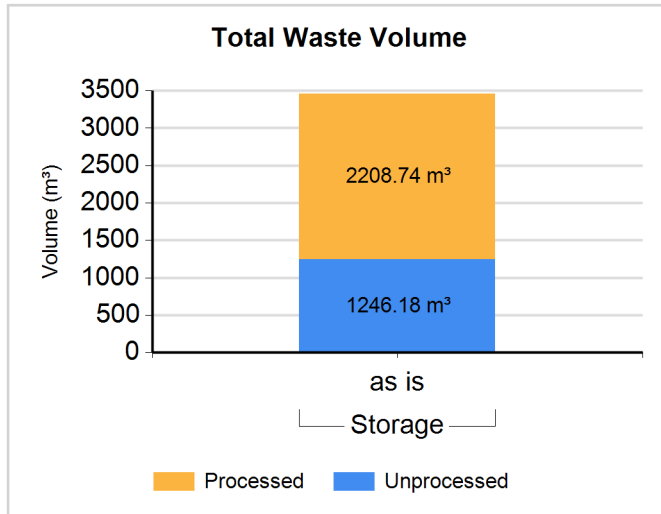
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## Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

## Waste Class: LLW

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
LLW	Storage	N	Y	1114.200	1114.200	1.00	0.00	0.00	0.00	0.00	99.00	0.00
LLW	Storage	Y	N	2208.740	2208.740	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Comment # 23087: LLW explanation

LLW have been stored in two different facilities: - In the Decontamination Building: 1114,2 m3 (two old steam generators 600 m3 and other contaminated metal material, equipment...). - In the Solid Radwaste Storage Facility: 2208,74 m3 of solid radwaste. (Ref: Annual Report 2009 on the Radiation and Nuclear Safety in the Republic of Slovenia)

## Waste Class: HLW

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
HLW	Storage	N	N	131.980	131.980	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Comment # 23088: HLW explanation

In 2004, the Krsko NPP started with a longer fuel cycle, according to which outages take place every 18 months. In 2009, 56 fuel elements were replaced during the regular outage. At the end of 2009, there were 928 fuel elements stored in the spent fuel pool. (Ref: Annual Report 2009 on the Radiation and Nuclear Safety in the Republic of Slovenia)

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**Processing - Treatment method(s)**

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Compaction	N	N	Same	N
Decontamination	N	N	Same	N
Evaporation	N	N	Same	N
Filtration	N	N	Same	N
Incineration	N	N	Increase	N
Ion Exchange	N	N	Same	N
Metal Melting	N	N	Increase	N
Segregation/Sorting	N	N	Same	N
Size Reduction	N	N	Increase	N
Super Compaction	N	N	Increase	N
Thermal Treatment (non incineration)	N	N	Increase	N

**Comment # 7629: Management of low and intermediate level waste**

Krsko NPP have performed periodical volume reductions with compression, supercompaction, incineration, and melting.

From the year 1998 NPP used in-drum drying system (IDDS) for drying of evaporators concentrate and spent ion exchange resins.

Because the working capacity of the existing IDDS system is insufficient for drying backlog sludges and sediments, the Krsko NPP hired a mobile IDDS unit.

In 2006 the Krsko NPP started continuous compression of radioactive waste with their own super-compactor installed in the storage facility.

NPP Krsko does not have own incineration facility. Drums with combustible waste have been sent for incineration in Studsvick. There were three incineration campaigns, the first took place in 1998, the second in 2002 and the third in 2005. The fourth was sent to Studsvick in December 2008 and will be returned in 2009 or 2010.

**Processing - Conditioning method(s)**

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Bituminization	N	N		Y
Cementation	N	N	Decrease	N
Containerization	N	N	Same	N
Solidification	N	N	Increase	N

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**RadioNuclide Inventory in Storage**

Total Alpha Activity (GBq):	20000
Total Beta/Gamma Activity (GBq):	24.8

RadioNuclide	Activity (GBq)
Americium ( Am-241)	0
Antimony ( Sb-125)	0
Antimony ( Sb-124)	0
Cesium ( Cs-134)	0
Cesium ( Cs-137)	0
Cobalt ( Co-58)	0
Cobalt ( Co-60)	0
Curium ( Cm-242)	0
Curium ( Cm-244)	0
Iodine ( I-131)	0
Manganese ( Mn-54)	0
Niobium ( Nb-95)	0
Plutonium ( Pu-239)	0
Plutonium ( Pu-238)	0
Ruthenium ( Ru-106)	0
Ruthenium ( Ru-103)	0
Silver ( Ag-110m)	0
Silver ( Ag-108m)	0
Tellurium ( Te-132)	0
Tin ( Sn-113)	0
Zinc ( Zn-65)	0
Zirconium ( Zr-95)	0