

UNSCEAR

Public Exposure Assessment (Nuclear Fuel Cycle)

Lead writers

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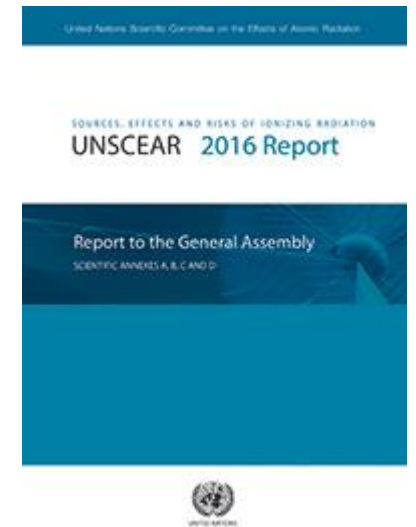


Direktoratet for
strålevern og atomsikkerhet

Norwegian Radiation
and Nuclear Safety Authority

Objectives

- Assessment of worldwide exposure of the public from the nuclear fuel cycle
 - Uranium mining, milling and fuel production,
 - Operation of nuclear power reactors,
 - Reprocessing of spent fuel and
 - Radioactive waste management (incl. decommissioning and facilities for treatment and the disposal of radioactive waste).
- Primarily resulting from discharge of radionuclides to atmosphere, freshwater and marine environments, based on assessment method described in Annex A of UNSCEAR 2016 Report.





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SURVEY ON DISCHARGES FROM THE NUCLEAR FUEL CYCLE FACILITIES (2007-2020)

Instructions for use

- If possible, please report discharges for each facility. If you have only aggregated data (e.g. per site), please indicate in the comments fields which facilities are included at each site. Fill in as much data as you can.
- Please enter data in Giga Becquerels (GBq) per year for individual radionuclides if you can. If you only have aggregated discharge data, please indicate so in the "Facility" column.

Abbreviations of facility types

Mine, mine tailings or mill types

ISL mine	Mine using in-situ leaching to extract uranium ore
Other mine	Mine using other methods to extract uranium ore
Mill	Milling facility
Op tail	Operational mine tailings
Tail	Mine tailings (after closure)

Reactor types

	All nuclear reactors (except research reactors) - including test and demonstration reactors
AGR	Advanced gas-cooled reactor
BWR	Boiling water reactor
FBR	Fast breeder reactor
GCR	Gas cooled reactor
HWR	(Pressurized) heavy water reactor
LWGR	Light water cooled graphite moderated reactor
PWR	Pressurized water reactor

Liquid discharge destinations

Freshwater

Marine water

Groundwater

Comments

General format

Worksheet for each year
2007 - 2020

Allowance for
groups or 'other'
reporting formats

United Nations Scientific Committee
on the Effects of Atomic Radiation

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SURVEY ON DISCHARGES FROM NUCLEAR FUEL CYCLE FACILITIES

Please put any details in the "Comments" and "References" fields below.

YEAR: 2020

Categories, sites and facilities			Liquid discharges (GBq)																																		
Category	Site/Facility	Liquid discharge destination	H-3	C-14	S-35	Mn-54	Co-58	Co-60	Zn-65	Kr-85	Sr-90	Ru-106	I-129	I-131	Xe-133	Xe-135	Xe-138	Cs-134	Cs-137	Pb-210	Po-210	Rn-222	Ra-226	Th-230	Th-232	U-234	U-238	Pu-239	Pu-240	Am-241	Noble gases	Gross alpha	Particulates	Other			
Uranium mining - ISL	Site / Facility 1																																				
	Site / Facility 2																																				
	Site / Facility 3																																				
Uranium mining - non-ISL	Site / Facility 1																																				
	Site / Facility 2																																				
	Site / Facility 3																																				
Uranium milling	Site / Facility 1																																				
	Site / Facility 2																																				
	Site / Facility 3																																				
Uranium conversion	Site / Facility 1																																				
	Site / Facility 2																																				
	Site / Facility 3																																				
Uranium enrichment	Site / Facility 1																																				
	Site / Facility 2																																				
	Site / Facility 3																																				
Fuel fabrication	Site / Facility 1																																				
	Site / Facility 2																																				
	Site / Facility 3																																				
	Site / Facility 4																																				
	Site / Facility 5																																				
	Site / Facility 6																																				

Drop-down list (form of liquid discharges)

Facility-specific information preferred, but site-specific if that is what is readily available

Below main tables: possibility to add additional materials and comments

References to reports and publications (Web links and files as attachments will be appreciated. File attachments can be uploaded as additional material on the platform.)

Comments