

International Experts' Meeting on Assessment and Prognosis in Response to a Nuclear or Radiological Emergency (IEM-9), 20 to 24 April 2015 at IAEA Headquarters in Vienna, Austria

Environmental Radiation Monitoring Plan for Jordan Research and Training Reactor (JRTR)



1-Environmental sampling points around the (JRTR) 2- Towns within 10km radius 3- Meteorological Tower (60m height with three levels, 1.5m, 10m,58m).

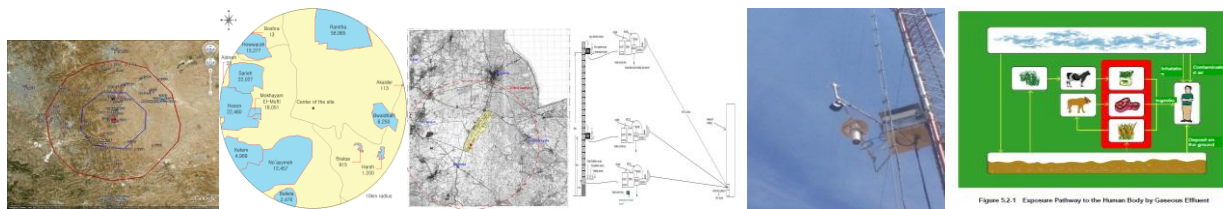


Table:(1) Nuclide for Environmental Radioactivity to be Analyzed around JRTR Environmental Monitoring Surveillance

table:(2) Measurement Method of Environmental Radiation

Table3. Environmental Radioactivity Sampling and Analysis Methods

Table :(4) Environmental Radioactivity Specimen Sampling and Analysis Methods

Sample type	Nuclides to be analyzed	Purpose of analysis	Object of survey	Instrument	Measuring method	Method of survey	Sampling frequency	Analysis method	Object of survey	Sampling method	Analysis method	Class	Sample	Frequency	Number of samples per year													
Air	^{222}Rn , ^{220}Rn , ^{222}Rn , ^{220}Rn	Measurement of dose by inhalation	Gamma dose rate	Environmental radiation monitor (ERM)	The survey gas compressed chamber is used for measuring gamma dose rate at height of 1 m above the ground to give the monthly average data in the career, and to use one-hour's average (GB)	Photo-cathode	Continuous	Scintillation counter	Gamma dose rate	Gamma dose rate	Scintillation counter	Dose rate	Dose rate	Dose rate	Dose rate													
Water	^{222}Rn , ^{220}Rn , ^{222}Rn , ^{220}Rn	Assessment of dose by ingestion														Collective gamma dose rate (TLD)	Thermoluminescence (TLD) device	These TLD devices are installed on each TLD housing at a height of 1 m above the ground, and read-out and measured every three months.	Thermoluminescence	Continuous	Thermoluminescence	Thermoluminescence	Thermoluminescence	Thermoluminescence	Thermoluminescence	Thermoluminescence	Thermoluminescence	Thermoluminescence



Table 2.1: Sites of Gamma Dose Rate by Sub-division within a 10km Radius

Table 2.2: Gross Production of Milk by Sub-division and Species of Cattle within a 10km Radius

Table 2.3: Area and Gross Production of Milk by Sub-division within a 10km Radius

Table 2.4: Sites of Gamma Dose Rate by Sector within a 10km Radius



Table 2.5: Environmental Radioactivity by Sub-division

Sub-division	Area (km ²)	Gross Production (kg)	Gamma Dose Rate (μSv/h)
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Table 2.6: Environmental Radioactivity by Sector

Sector	Area (km ²)	Gross Production (kg)	Gamma Dose Rate (μSv/h)
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Table 2.7: Annual Gross Production of Milk by Sub-division within a 10km Radius

Sub-division	Area (km ²)	Gross Production (kg)
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Table 2.8: Collection Data for Milk Doses from JRTR

Object	Exposure (μSv)	Frequency	Total
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Table 2.9: Annual Gross Production of Milk by Sub-division within a 10km Radius

Table 2.10: Annual Gross Production of Milk by Sub-division within a 10km Radius

Category	Nuclide	Annually Filtered Activity (Bq)
Fission	^{137}Cs	4.20E+12
	^{134}Cs	1.47E+10
	^{135}Cs	1.05E+10
	^{138}Cs	2.64E+10
	^{139}Cs	1.32E+10
	^{140}Cs	1.32E+10
	^{141}Cs	6.38E+09
	^{142}Cs	2.64E+10
	^{143}Cs	2.64E+10
	^{144}Cs	1.32E+10
Fusion	^{3}H	1.05E+11
	^{14}C	1.05E+11
	^{15}C	1.05E+11
	^{16}C	1.05E+11
	^{17}C	1.05E+11
	^{18}C	1.05E+11
	^{19}C	1.05E+11
	^{20}C	1.05E+11
	^{21}C	1.05E+11
	^{22}C	1.05E+11
Neutron gas	^{10}B	1.05E+11
	^{11}B	1.05E+11
	^{12}B	1.05E+11
	^{13}B	1.05E+11
	^{14}B	1.05E+11
	^{15}B	1.05E+11
	^{16}B	1.05E+11
	^{17}B	1.05E+11
	^{18}B	1.05E+11
	^{19}B	1.05E+11
Others	^{238}U	1.05E+11
	^{235}U	1.05E+11
	$^{234\text{m}}\text{Pa}$	1.05E+11
	$^{234\text{Th}}$	1.05E+11
	$^{234\text{m}}\text{Pa}$	1.05E+11
	$^{234\text{Th}}$	1.05E+11
	$^{234\text{m}}\text{Pa}$	1.05E+11
	$^{234\text{Th}}$	1.05E+11
	$^{234\text{m}}\text{Pa}$	1.05E+11
	$^{234\text{Th}}$	1.05E+11