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**Dose assessments for Greifswald and Cadarache with new source
terms from ITER NSSR-1**

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Abstract

Probabilistic dose assessments for accidental atmospheric releases of various ITER source terms which contain tritium and/or activation products were performed for the sites of Greifswald, Germany, and Cadarache, France. No country specific rules were applied and the input parameters were adapted as far as possible to those used within former ITER studies to achieve a better comparability with site independent dose assessments performed in the frame of ITER. The calculations were based on source terms which, at the first time, contain a combination of tritium and activation products. This allowed a better judgement of the contribution of the individual fusion relevant materials to the total dose. The results were compared to site independent dose limits defined in the frame of ITER. Source terms for two different categories, representing 'extremely unlikely events' (CAT-IV) and 'hypothetical sequences' (CAT-V), were investigated. In no cases, the release scenarios of category CAT-IV exceeded the ITER limits. In addition, early doses from the hypothetical scenarios of type CAT-V were still below 50 mSv or 100 mSv, values which are commonly used as lower reference values for evacuation in many potential home countries of ITER. Only the banning of food products was found to be a potential countermeasure which may affect larger areas.

Dosisabschätzungen für Greifswald und Cadarache mit neuen Quelltermen aus dem ITER NSSR-1 Bericht

Zusammenfassung

Im Rahmen von Fusionsstudien wurden Dosisabschätzungen für unfallbedingte ITER-Freisetzen von Tritium und/oder Aktivierungsprodukten für die beiden Standorte Greifswald, Deutschland, und Cadarache, Frankreich, durchgeführt. Dabei wurden keine länderspezifischen Vorschriften angewendet. Die Eingabeparameter wurden soweit wie möglich an diejenigen früherer ITER Studien angepaßt. Die Ergebnisse wurden mit ITER internen Grenzwerten und Dosen, die im Rahmen von ITER für standortunabhängige Freisetzungen berechnet wurden, verglichen. Die jetzigen Quellterme sind die ersten, in denen Tritium und Aktivierungsprodukte zusammen vorkommen. Somit ist auch eine Zuordnung des Dosisbeitrags von Tritium oder von Aktivierungsprodukten zur Gesamtdosis möglich. Es wurden Freisetzungsszenarien der Kategorie IV (sehr unwahrscheinlich) und V (hypothetisch) untersucht. In keinem Fall überschreiten die Ergebnisse der Szenarien der Kategorie IV die Kriterien zur Evakuierung, wie sie im ITER Umfeld definiert sind (10 mSv für die Siebentagesdosis). Auch liegen die Dosen aus den Freisetzungen der Kategorie V im allgemeinen unterhalb 50 mSv oder auch 100 mSv, Werte, die in mehreren potentiellen ITER Gastländern oft den unteren Eingreifwert für die Evakuierung darstellen. Als einzige nennenswerte Schutz- und Gegenmaßnahme wurde alleine das Verwerfen von Nahrungsmitteln identifiziert.

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1. Introduction

The International Thermonuclear Experimental Reactor ITER is in its late engineering phase. One of the most important safety aspects - in particular for achieving public acceptance - is to assure that the releases of hazardous material are minimal during normal operation and for accidental events, even if very unlikely. To this purpose detailed Safety and Environmental Design Criteria /GSE96/ were defined. Therein dose limits were defined which are close to national regulatory dose limits to allow for a licensing procedure in any of the countries which are part of the ITER project. Additionally, within the ITER programme, site independent dose assessments have been performed to derive the release limits associated with the proposed dose limits. These release limits will also serve as guidance for the designer in minimising the potentially mobilised and released material and thus the radiological hazard. Since a specific site for ITER has still to be defined, generic calculations have to be compared with site specific ones to complete the environmental data base. To this purpose, the two potential sites Greifswald and Cadarache- despite not being candidates at present - were selected for the assessments. Greifswald is located in North Germany at the coast of the Baltic Sea. The area around the site is mostly flat, thus, the prevailing meteorological conditions were influenced from the zonal western winds. Cadarache, in contrast, is located in southern France some 50 kilometres from the coast of the Mediterranean Sea. The weather at this site is quite different from Greifswald and more influenced from high pressure areas centred at the Azores or the Mediterranean Sea itself.

Probabilistic dose assessments, based on hourly meteorological data, have been performed. Mostly potential individual doses and, if appropriate, also the need to initiate protective measures have been investigated for four types of accidents, all of them placed in the event sequence categories IV ('extremely unlikely events') and V ('hypothetical sequences').

The present calculations for activation products have been performed with the updated foodchain data base and dose conversion factors /GSF94/, implemented into the computer system COSYMA /COS90/. Therefore, these new calculations cannot be simply compared with those performed in previous studies (see e.g. /RAS92/). However, as demonstrated in /RAS96/, the difference between the 'old' and the 'new' version of the foodchain calculations in general does not exceed a factor of two, however, strongly depends on the nuclide considered. As the extended foodchain information in the new COSYMA version 95/1 is now based on a more sophisticated model, the new results should be considered as more reliable as the ones achieved in earlier studies, which were based on rather simple assumptions from the German Regulatory Guidelines /STO94/.

2. Model description

Calculations for tritium and activation products have been performed with separate computer programs, also in those cases in which the source term contained both materials. But the results of both were added before the evaluation of the consequences started. This was possible as both codes have been used in their probabilistic versions using the identical meteorological data base as well as the same probabilistic sampling scheme. A description of the probabilistic sampling scheme can be found in Appendix A.

2.1 Tritium

The computer program UFOTRI /RAS90/ and /RAS93/ for assessing the consequences of accidental tritium releases has been used for the dose assessments. Processes such as the conversion of tritium gas (HT) into tritiated water (HTO) in the soil, reemission after deposition and the conversion of HTO into organically bound tritium (OBT) are considered. For atmospheric dispersion and deposition calculations (dry and wet) the trajectory model MUSEMET /STR81/ implemented in UFOTRI was used. During the time period of the first few days, all the relevant transfer processes between the compartments of the biosphere (atmosphere, soil, plants, animals) are described dynamically. A first order compartment model calculates the longer term pathways of tritium in the foodchains. In its newest version all the exchange processes (atmosphere-soil; atmosphere-plant) are based on resistance approaches and will be re-evaluated dependent on the prevailing environmental conditions. A simple photosynthetic submodule, which calculates the actual transfer rate of HTO in plant water into organically bound tritium, improved the results for the ingestion pathways.

2.2 Activation products

Calculations for accidentally released activation products were performed with the version NL/95 of the program system COSYMA /COS90/ (subsystem NL), including extended data sets for activation products /GSF94/. For atmospheric dispersion and deposition calculations (dry and wet) the trajectory model MUSEMET implemented in COSYMA and UFOTRI was used. It was assumed, that the nuclides which appear in aerosol form have a mean diameter of 1 μm AMAD, and the corresponding dry deposition velocity is set to be 1.0 E-3 m/s (see also Table 2). The doses by ingestion of contaminated foodstuffs are calculated assuming the local production and consumption method; that means, all foodstuffs are consumed in the grid element where they are harvested / produced. The foodchain information from the German model ECOSYS has been used in the calculations / GSF94/.

3. Release scenarios

3.1 Meteorological data for Greifswald and Cadarache

The Energiewerke Nord, maintaining the site of Greifswald, have provided meteorological data for one year covering the period from 20.03.1994 - 19.03.95 on an hourly basis. The 'Centre d'etudes de Cadarache', part of the CEA, provided meteorological data for Cadarache for the three years 1991, 1992 and 1993. The meteorological values were recorded every 3 hours for most of the parameters, except the rain intensity (daily basis). In contrary to the request, the stability class was not included and the solar irradiation was provided for the year 1994 only. Furthermore, the irradiation measurements were performed on a daily basis only. As the year 1991 was most complete it was selected for the calculations.

The conversion into formats appropriate for the two computer codes has been described in /RAS96/. Again it has to be mentioned that interpolated meteorological data cannot be used for deterministic assessments, as the meteorological data set was not complete for both stations. However, the main sources for misinterpretations were removed and probabilistic assessments seemed to be possible (see also for more information / RAS96/).

3.2 Source terms and model input

Calculations were performed for various source terms of two categories out of 5 as defined in /NSSR/. These two categories CAT IV and CAT V represent the most unlikely and thus those events which might result in the highest consequences for the population (see Table 1).

EVENT SEQUENCE CATEGORY	I	II	III	IV	V
	OPERATIONAL EVENTS	LIKELY SEQUENCES	UNLIKELY SEQUENCES	EXTREMELY UNLIKELY SEQUENCES	HYPOTHETICAL SEQUENCES
Category Description	Events and plant conditions planned and required for ITER normal operation, including some faults and events which can occur as a result of the ITER experimental nature.	Event sequences not planned but likely to occur one or more times during the life of the plant but not including category I events.	Event sequences not likely to occur during the life of the plant.	Event sequences not likely to occur during the life of the plant with a very large margin; limiting events for "design basis"	Event sequences with extremely low frequency postulated with the goal of limiting the associated risk; outside the "design basis."
Typical Annual Expected Frequency	list of operational events to be defined explicitly	$f > \sim 10^{-2}/a$	$10^{-2}/a > f > 10^{-4}/a$	$10^{-4}/a > f > 10^{-6}/a$	$f < \sim 10^{-6}/a$
ITER Objectives	Meet appropriate national criteria for "design basis" events				No "edge" effects
	ALARA	Minimise releases to extent practical			
	Avoid any potential need for any public counter-measures			Avoid any potential need for public evacuation	
Type of dose	Annual chronic dose including ingestion	Chronic dose without ingestion		Early dose	

Table 1: Event Categories and Objectives (according to /PIE97/)

3.2.1 Model input

Probabilistic calculations for accidental release conditions were performed for two different release heights - 10 m with building wake effects and 100 m without any influence from the building were considered. One year of hourly meteorological data from the sites of Greifswald and Cadarache was used as the basis of the dose assessments. However, calculations were performed only for the vegetation period, which is in fact the worst case for calculations with ingestion doses. This shortening of the potential range of weather sequences for the sampling scheme was also used for the calculations of the early dose without ingestion pathways as the early dose appears to differ not dramatically from summer to winter (see /RAS92/). The sampling scheme for obtaining the representative weather sequences of the desired period is shortly described in Appendix A. The same weather sequences have been used within UFOTRI and COSYMA. The main input parameters for the accidental release scenarios are shown in Table 2. The 'MOL' set of dispersion parameters was applied /BUL72/ for all calculations.

Two different sets of simulation were performed. The assessment of the potential dose of an individual located at the fence of the installation is based on the assumption that the person stays permanently outside the house on the meadow and the food is produced and consumed locally (if ingestion is considered). This results in the application of a shielding factor of 1 for all the exposure pathways. The second set investigated the potential need for protective measures. Here, the normal

living habits of the population, as default included in COSYMA, were assumed. However, all the countermeasures considered were based on potential dose calculations thus the shielding factors do not differ from 1 (see Table 2). Results of these calculations are the area and/or the number of people affected by an individual measure.

parameter	value
source term	variable
individual dose for the	Most Exposed Individual
population density	100 people / km**2
release height	10 m or 100 m
building dimensions (h x w)	40m x 100m
release duration	1 hr
washout coefficient (w)	w = A*I**B (1/s)
with rain intensity I	in mm/hr
coefficient A (nobel gas)	0.0 (hr s/mm)
coefficient B (nobel gas)	0.0
coefficient A (aerosol)	8.0 E-05 (hr s/mm)
coefficient B (aerosol)	0.8
coefficient A (HT)	0.0 (hr s/mm)
coefficient B (HT)	0.0
coefficient A (HTO)	9.0 E-05 (hr s/mm)
coefficient B (HTO)	0.6
deposition velocity (nobel gas)	0.0 m/s
deposition velocity (aerosol)	0.001 m/s
deposition velocity (HT)	0.0005 m/s
deposition velocity (HTO)	variable
dose conversion factors act. prod.	nuclide dependent
dose conversion factor inhalation HT	6.8 E-16 Sv/Bq
dose conversion factor inhalation HTO	1.6 E-11 Sv/Bq
dose conversion factor ingestion HTO	4.0 E-11 Sv/Bq
dose conversion factor ingestion OBT	1.6 E-11 Sv/Bq
breathing rate	2.66 E-4 m**3/s
skin absorption rate (HTO)	1.60 E-4 m**3/s
ingestion rate vegeta. (root + grain)	180 kg/year
ingestion rate leafy vegetables	45 kg/year
ingestion rate meat	75 kg/year
ingestion rate milk	110 kg/year
shielding factor	1.0 (potential doses)
shielding factor	1.0 (protective measures)

Table 2: Input parameters for the accidental release scenarios

3.2.2 Source terms

Various source terms out of five ITER categories were selected for the calculations. As there is no final information available about the ‘real’ composition of the activated dust, it is assumed that the dust contains either 100% of tungsten, copper or steel. This allows to identify the worst case composition of the dust, even if the composition may change in real operation mode. The following source terms were investigated:

1. **Type one:** ‘New Release Limits for CAT IV’, as proposed in /PIE97/

scenario	composition	amount	release height
CAT-IV-HTO-el	HTO	100 g	elevated
CAT-IV-HTO-gr	HTO	10 g	ground
CAT-IV-HT-el	HT	3000 g	elevated
CAT-IV-HT-gr	HT	300 g	ground
CAT-IV-W-el	Dust- W	2000 g	elevated
CAT-IV-W-gr	Dust- W	200 g	ground
CAT-IV-Cu-el	Dust- Cu	2000 g	elevated
CAT-IV-Cu-gr	Dust- Cu	200 g	ground
CAT-IV-St-el	Dust- Steel	2000 g	elevated
CAT-IV-St-gr	Dust- Steel	200 g	ground
CAT-IV-ACP-el	ACP	5000 g	elevated
CAT-IV-ACP-gr	ACP	500 g	ground

Table 3: Source terms for the ‘New Release Limits for CAT IV’ (type one)

2. **Type two:** Two CAT IV accident sequences from the NSSR-1 report /NSSR/. ‘In-vessel Break with Bypass’ and ‘Stuck DV Cassette’

scenario	composition dust	composition ACP	composition tritium	release height
CAT-IV-bypass-W-el	W (0.001 g)	ACP (0.0024 g)	HTO (0.004 g)	elevated
CAT-IV-bypass-W-gr	W (11 g)	ACP (0.84 g)	HTO (0.38 g)	ground
CAT-IV-bypass-Cu-el	Cu (0.001 g)	ACP (0.0024 g)	HTO (0.004 g)	elevated
CAT-IV-bypass-Cu-gr	Cu (11 g)	ACP (0.84 g)	HTO (0.38 g)	ground
CAT-IV-bypass-St-el	Steel (0.001 g)	ACP (0.0024 g)	HTO (0.004 g)	elevated
CAT-IV-bypass-St-gr	Steel (11 g)	ACP (0.84 g)	HTO (0.38 g)	ground
CAT-IV-DV-W-el	W (2 g)	-	HTO (10 g)	elevated
CAT-IV-DV-Cu-el	Cu (2 g)	-	HTO (10 g)	elevated
CAT-IV-DV-St-el	Steel (2 g)	-	HTO (10 g)	elevated

Table 4: Source terms for CAT IV ‘bypass and DV events’ (type two)

3. **Type three:** Highest source term (1 first wall tube leak, 1.0 m², 1500 g dust, 6.4 g ACP and 60 g tritium) from different ‘In-vessel Water Ingression/Penetration Bypass Events’ (CAT-V) /NSS95/.

scenario	composition dust	composition ACP	composition tritium	release height
CAT-V-VVbypass-W-el	W (1500 g)	ACP (6.4 g)	HTO (60 g)	elevated
CAT-V-VVbypass-W-gr	W (1500 g)	ACP (6.4 g)	HTO (60 g)	ground
CAT-V-VVbypass-Cu-el	Cu (1500 g)	ACP (6.4 g)	HTO (60 g)	elevated
CAT-V-VVbypass-Cu-gr	Cu (1500 g)	ACP (6.4 g)	HTO (60 g)	ground
CAT-V-VVbypass-St-el	Steel (1500 g)	ACP (6.4 g)	HTO (60 g)	elevated
CAT-V-VVbypass-St-gr	Steel (1500 g)	ACP (6.4 g)	HTO (60 g)	ground

Table 5: Source terms for ‘In-vessel Water Ingress/Penetration Bypass Event’, CAT V, 1 first wall tube leak, 1.0 m² (type three)

4. **Type four:** CAT V, ‘Loss of Vacuum’ (with no generic bypass room), horizontal orientation, hypothetical fraction of 30% of mobilised dust, contribution of tritium still open /NSS95/.

scenario	composition dust (3300 g)	release height
LOVA-Cu-el	copper	elevated
LOVA-Cu-gr	copper	ground
LOVA-W-el	tungsten	elevated
LOVA-W-gr	tungsten	ground
LOVA-St-el	steel	elevated
LOVA-St-gr	steel	ground

Table 6: Source terms for LOVA, CAT-V (type four), contribution of tritium not yet defined

As mentioned above, information about the final composition of the dust is not yet available. Therefore, three individual materials (steel, copper and tungsten) have been selected for the investigation. As more information about the ACPs (Activated Corrosion Products) are available, only the location (First Wall Outboard or Limiter) influences the final specific composition. The nuclide specific composition of the three types of dust and two types of ACPs is listed in the following five Tables (Table 7 to Table 11). Since the composition of the two types of ACP does not differ very much (see also results in /PIE97/), only the L/OBB values were used in the calculations.

Copper (Cu outboard, BPP)					
isotope	half life [y]	activity [GBq/m3]	activity Bq/g	COSYMA	COSYMA Ing
na-24	1.67E-3	2.94E6	3.41E+08	4	4
al-26	7.20E5	3.41E-1		-	-
sc-46	2.30E-1	7.03E5	8.16E+07	11	9
co-60	5.27E0	6.23E6	7.23E+08	31	25
co-60m	1.99E-5	1.02E8	1.18E+10	30	-
co-62	2.85E-6	2.50E7		-	-
co-62m	2.65E-5	4.12E6		-	-
ni-63	1.00E2	8.36E5	9.70E+07	34	27
cu-62	1.85E-5	1.70E9	1.97E+11	36	-
cu-64	1.45E-3	3.13E9	3.63E+11	37	28
cu-66	9.70E-6	1.07E9	1.24E+11	38	-
tal-182	3.15E-1	3.30E6	3.83E+08	158	70
bi-208	3.68E5	1.65E-1		-	-

Table 7: Unit source term for copper (as dust), with the nuclide number of COSYMA

Steel, (SS316 outboard, EPP)					
isotope	half life [y]	activity [GBq/m3]	activity [Bq/g]	COSYMA	COSYMA Ing
al-28	4.26E-06	1.57E+07		-	
v-52	7.13E-06	9.41E+07		-	
cr-51	7.59E-02	1.48E+08	2.03E+10	16	14
mn-54	8.55E-01	4.81E+07	6.59E+09	20	17
mn-56	2.94E-04	5.13E+08	7.03E+10	21	18
fe-55	2.73E+00	2.60E+08	3.56E+10	23	19
co-57	7.44E-01	5.96E+07	8.17E+09	27	23
co-58	1.94E-01	6.47E+07	8.86E+09	29	24
co-58m	1.04E-03	9.40E+07	1.28E+10	28	-
co-60	5.27E+00	7.55E+06	1.03E+09	31	25
co-60m	1.99E-05	3.60E+07	4.93E+09	30	-
co-62m	2.65E-05	3.47E+05		-	-
ni-57	4.07E-03	5.03E+06		-	-
nb-91	6.80E+02	1.20E+04		-	-
nb-94	2.03E+04	5.64E+01	7.72E+03	70	40
mo-99	7.52E-03	2.70E+07	3.70E+09	75	43
tc-99	2.11E+05	1.69E+02	2.31E+04	81	47
tc-99m	6.86E-04	2.36E+07	3.23E+09	80	-
ir-192m	2.41E+02	1.12E+03		-	-

Table 8: Unit source term for steel (as dust), with the nuclide number of COSYMA

Tungsten (W inboard, EPP)					
isotope	half life [y]	activity [GBq/m ³]	activity Bq/g	COSYMA	COSYMA Ing
ta-182	3.15E-01	2.76E+07	1.44E+09	157	70
w-181	3.32E-01	4.87E+08	2.54E+10	159	72
w-183m	1.65E-07	5.22E+09	2.72E+11	160	-
w-185	2.06E-01	1.55E+09	2.48E+11	161	73
w-185m	3.18E-06	3.22E+09	to W-185	-	-
w-187	2.73E-03	3.03E+09	1.58E+11	162	74
re-186	1.03E-02	4.30E+08	2.24E+10	166	77
re-186m	2.00E+05	6.74E+02	3.51E+04	165	78
re-188	1.94E-03	1.82E+08	9.48E+09	168	79

Table 9: Unit source term for Tungsten (as dust), with the nuclide number of COSYMA

Activated Corrosion Products for a PFW/IBB loop					
isotope	half life [y]	activity [GBq/t]	activity [Bq/g]	COSYMA	COSYMA Ing
cr-51	7.59E-02	1.42E-04	1.13E+06	16	14
mn-54	8.55E-01	7.18E-02	5.71E+08	20	17
mn-56	2.94E-04	2.76E+00	2.15E+10	21	-
fe-55	2.73E+00	9.63E-02	7.66E+08	23	19
co-57	7.44E-01	1.38E-01	1.10E+09	27	23
co-58	1.94E-01	2.83E-01	2.25E+09	29	24
co-60	5.27E+00	1.19E-02	9.47E+07	31	25
ni-57	4.07E-03	4.17E-02	3.32E+08	-	-

Table 10: Unit source term for ACP (PFW/IBB), with the nuclide number of COSYMA

Activated Corrosion Products for a L/OBB loop					
isotope	half life [y]	activity [GBq/t]	activity [Bq/g]	COSYMA	COSYMA Ing
cr-51	7.59E-02	2.02E-04	1.58E+06	16	14
mn-54	8.55E-01	8.26E-02	6.50E+08	20	17
mn-56	2.94E-04	4.99E+00	3.93E+10	21	-
fe-55	2.73E+00	1.10E-01	8.66E+08	23	19
co-57	7.44E-01	1.01E-01	7.95E+08	27	23
co-58	1.94E-01	2.34E-01	1.84E+09	29	24
co-60	5.27E+00	7.54E-03	5.93E+07	31	25
ni-57	4.07E-03	4.08E-02	3.21E+08	-	-

Table 11: Unit source term for ACP (L/OBB), with the nuclide number of COSYMA

Based on the unit source terms as presented in the Tables 7 to 11, the nuclide specific release rates for the individual source terms were derived. These values are presented in detail in the Appendices B and C for the four source term categories 1 - 4 and the two sites, respectively.

4. Results of the potential dose calculations

Probabilistic individual potential dose values (no shielding, no protective actions) for the most exposed individual (MEI) were calculated at 12 distances (ranging from 145 m up to 10 km).

However, only the results for 1000 m are evaluated in detail as this distance may represent the proposed site boundaries for ITER. All further results are presented in the various Appendices.

The dose values are presented together with their probability expressed in percentiles. The probability of occurrence for the highest dose obtained in one individual distance band is given by the probability of the corresponding weather sequence. To explain this further, the assumption may be made that 1 mSv is correlated with the 95 % percentile. This means that in 5 % of all calculations 1 mSv may be exceeded and in 95 % of all cases the dose values remain below this value. As described in /RAS96/ and also later on various percentiles can be compared with dose values obtained in the ITER study for a generic site /ESECS/ and /NSSR/. These percentiles are the maximum dose or the 95% percentile for worst case conditions (CAT-IV) and the mean or 50 % percentile for average conditions (CAT-V).

From previous investigations it was concluded, that the selection of only the vegetation period does not alter the results when compared with that of one complete year. Therefore, to reduce the computational effort, only weather sequences from the vegetation period (4800 hours of the year) were selected.

Two different types of doses have been obtained. The individual early dose is defined as the result from the first week exposure and a 70 years integration time (50 years for tritium). The exposure pathways are the external exposure from the passing cloud (CL), the first week external exposure from the ground (GR), the internal exposure from inhalation + skin absorption (IH) from the passing cloud and the internal exposure from inhalation + skin absorption from the reemitted tritium (IHR) during the first week; the ingestion pathways (IG) are not considered. The individual effective dose equivalent (EDE) is defined as the result from chronic exposure and a 70 years integration time (50 years for tritium). The exposure pathways are the external exposure from the passing cloud and the ground, the internal exposure from inhalation + skin absorption from the passing cloud, the internal exposure from inhalation + skin absorption from reemitted tritium and the internal exposure from the ingestion of contaminated foodstuffs.

4.1 Greifswald

4.1.1 Potential doses of the MEI at 1 km (source terms of type one)

Various scenarios with release heights of 10 and 100 m have been investigated. Since the released material differs with the release height, no direct comparison of the two release levels is possible. However, it was demonstrated in previous investigations that the ground level release always results in higher doses than a comparable stack release. This is reflected in the release limits for the various material which is in all cases 10 times higher for the stack release than for the near ground release including building wake effects. This dependency is also valid for the site specific calculations as the results (Table 12), particularly the percentiles, show no significant difference between elevated and ground level releases. The lower intervention level for evacuation of 50 mSv as defined within the generic ITER safety study /GESECS/ is never reached by the early doses of any of the materials. The 95% percentile which is often used in various countries in licensing guidelines only partly exceeds 1 mSv for dust and ACPs. Tritium releases as well show early doses which are below 10 mSv. Doses calculated under due consideration of the ingestion pathways, however, were significantly higher; but not evaluated with respect to the initiation of countermeasures.

scenario (Greifswald)	characteristic quantities of the dose distribution (Sv)							
	max. value		95%-fractile		50%-fractile		mean value	
	early	EDE	early	EDE	early	EDE	early	EDE
CAT-IV-HTO-el	6.9E-03	1.1E-01	1.4E-03	1.9E-02	6.2E-04	5.0E-03	7.2E-04	7.6E-03
CAT-IV-HTO-gr	5.3E-03	2.0E-02	2.9E-03	1.3E-02	3.5E-04	3.6E-03	7.2E-04	5.0E-03
CAT-IV-HT-el	5.8E-04	8.5E-02	1.0E-04	1.4E-02	3.8E-05	6.2E-03	4.5E-05	6.6E-03
CAT-IV-HT-gr	4.2E-04	6.1E-02	1.7E-04	3.7E-02	3.0E-05	2.9E-03	5.1E-05	7.3E-03
CAT-IV-Cu-el	6.6E-03	2.6E-01	5.2E-04	8.5E-03	1.4E-04	1.1E-03	2.0E-04	2.8E-03
CAT-IV-Cu-gr	9.9E-04	3.4E-02	5.4E-04	6.3E-03	6.5E-05	6.0E-04	1.4E-04	1.6E-03
CAT-IV-St-el	1.2E-02	9.9E-01	8.1E-04	3.2E-02	1.9E-04	4.1E-03	2.9E-04	1.0E-02
CAT-IV-St-gr	1.7E-03	1.3E-01	8.9E-04	2.3E-02	9.5E-05	2.2E-03	2.3E-04	5.8E-03
CAT-IV-W-el	1.1E-02	6.1E-01	7.1E-04	2.0E-02	1.3E-04	2.5E-03	2.2E-04	6.3E-03
CAT-IV-W-gr	1.6E-03	8.1E-02	6.3E-04	1.4E-02	6.6E-05	1.3E-03	1.6E-04	3.6E-03
CAT-IV-ACP-el	5.5E-03	2.2E-01	3.6E-04	7.1E-03	7.6E-05	9.1E-04	1.2E-04	2.3E-03
CAT-IV-ACP-gr	7.6E-04	2.9E-02	3.2E-04	5.1E-03	3.5E-05	4.8E-04	8.4E-05	1.3E-03

Table 12: Characteristic quantities of the individual dose distribution (Sv) for the MEI at the distance of 1000 m for various source terms (type one) under accidental release conditions, vegetation period

scenario (Greifswald)	characteristic quantities of the dose distribution (Sv)							
	max. value		95%-fractile		50%-fractile		mean value	
	early	EDE	early	EDE	early	EDE	early	EDE
CAT-IV-bypass-W-el	2.8E-07	4.8E-06	5.6E-08	7.8E-07	2.5E-08	2.0E-07	2.9E-08	3.1E-07
CAT-IV-bypass-W-gr	2.6E-04	4.9E-03	1.4E-04	1.3E-03	1.7E-05	2.1E-04	3.7E-05	3.9E-04
CAT-IV-bypass-Cu-el	2.8E-07	4.6E-06	5.6E-08	7.6E-07	2.5E-08	2.0E-07	2.9E-08	3.1E-07
CAT-IV-bypass-Cu-gr	2.0E-04	7.5E-04	1.1E-04	5.1E-04	1.3E-05	1.4E-04	2.8E-05	1.9E-04
CAT-IV-bypass-St-el	2.8E-07	5.0E-06	5.6E-08	7.9E-07	2.5E-08	2.0E-07	2.9E-08	3.1E-07
CAT-IV-bypass-St-gr	2.9E-04	7.6E-03	1.6E-04	1.9E-03	1.9E-05	2.8E-04	4.0E-05	5.1E-04
CAT-IV-DV-W-el	6.9E-04	1.2E-02	1.4E-04	1.9E-03	6.2E-05	5.1E-04	7.3E-05	7.7E-04
CAT-IV-DV-Cu-el	6.9E-04	1.1E-02	1.4E-04	1.9E-03	6.2E-05	5.0E-04	7.3E-05	7.7E-04
CAT-IV-DV-St-el	6.9E-04	1.2E-02	1.4E-04	1.9E-03	6.2E-05	5.1E-04	7.3E-05	7.8E-04

Table 13: Characteristic quantities of the individual dose distribution (Sv) for the MEI at the distance of 1000 m for various source terms (type two) under accidental release conditions, vegetation period

The investigated CAT-IV source terms show in no case early doses higher than 1 mSv. Also the ingestion dose is rather low and no protective actions seem to be necessary at all (see Table 13). The contribution of tritium in the DV scenario dominates the final dose, which is expressed in dose

values which are nearly identical for the three different dust materials. This is opposite for the CAT-IV bypass scenario, where tritium only plays a significant role for the elevated release.

According to the ITER guidelines, CAT-V releases, which are of hypothetical nature, should be evaluated by using average weather conditions. These average weather conditions fit best to the mean values and the 50% percentiles of the probabilistic calculations. When comparing these percentiles with the generic intervention level of evacuation of 50 mSv defined in ITER, it comes out that neither the LOVA (see Table 15) nor the bypass events (see Table 14) reach the 50 mSv value. When looking for the higher percentiles (max. and 95 %), 50 mSv or 100 mSv, which are often the lower intervention level for evacuation are not exceeded. The CAT-V bypass scenarios are dominated by the contribution of tritium which is reflected by similar early doses and identical EDEs (ground level) for the 95 % percentile. The various dust materials alone show higher variability in the EDEs as demonstrated in Tables 12 and 15. The maximum case differs as this weather sequence might be dominated by heavy rain which affects activation products much more than tritium (higher deposition causes higher doses from external radiation from ground surface and from ingestion).

The EDE is in general much higher than the early dose. In particular for the higher percentiles, CAT-V releases exceed 50 mSv, which is a target in the German Regulatory limits. However, as CAT-V sequences are 'hypothetical', they may never be part of the licensing procedure, i.e. they may not play any role with respect to governmental decisions. The EDE resulting from CAT-IV scenarios and the CAT-IV release limits never reach 50 mSv for the 95% percentile, which is the upper percentile which will be used for example in Germany.

scenario (Greifswald)	characteristic quantities of the dose distribution (Sv)							
	max. value		95%-fractile		50%-fractile		mean value	
	early	EDE	early	EDE	early	EDE	early	EDE
CAT-V-VVbypass-Cu-el	7.0E-03	2.6E-01	1.3E-03	1.6E-02	4.9E-04	4.2E-03	5.8E-04	6.7E-03
CAT-V-VVbypass-Cu-gr	3.9E-02	3.3E-01	2.1E-02	1.0E-01	2.6E-03	2.6E-02	5.4E-03	4.2E-02
CAT-V-VVbypass-St-el	1.1E-02	8.1E-01	1.6E-03	2.9E-02	5.2E-04	6.9E-03	6.6E-04	1.2E-02
CAT-V-VVbypass-St-gr	4.3E-02	1.0E+00	2.4E-02	1.0E-01	2.9E-03	4.0E-02	6.1E-03	7.3E-02
CAT-V-VVbypass-W-el	1.1E-02	5.2E-01	1.5E-03	2.2E-02	4.8E-04	5.4E-03	6.0E-04	9.3E-03
CAT-V-VVbypass-W-gr	4.0E-02	6.6E-01	2.2E-02	1.0E-01	2.6E-03	3.1E-02	5.6E-03	5.7E-02

Table 14: Characteristic quantities of the individual dose distribution (Sv) for the MEI at the distance of 1000 m for various source terms (type three - CAT-V, bypass) under accidental release conditions, vegetation period

scenario (Greifswald)	characteristic quantities of the dose distribution (Sv)							
	max. value		95%-fractile		50%-fractile		mean value	
	early	EDE	early	EDE	early	EDE	early	EDE
LOVA-Cu-el	1.1E-02	4.3E-01	8.7E-04	1.4E-02	2.3E-04	1.9E-03	3.3E-04	4.6E-03
LOVA-Cu-gr	1.6E-02	5.7E-01	8.9E-03	1.0E-01	1.0E-03	1.0E-02	2.3E-03	2.6E-02
LOVA-St-el	2.0E-02	1.6E+00	1.3E-03	5.2E-02	3.2E-04	6.6E-03	4.9E-04	1.7E-02
LOVA-St-gr	2.9E-02	2.2E+00	1.4E-02	1.0E-01	1.6E-03	3.5E-02	3.7E-03	9.5E-02
LOVA-W-el	1.9E-02	1.0E+00	1.2E-03	3.2E-02	2.2E-04	4.1E-03	3.6E-04	1.0E-02
LOVA-W-gr	2.6E-02	1.3E+00	1.0E-02	1.0E-01	1.1E-03	2.2E-02	2.6E-03	5.9E-02

Table 15: Characteristic quantities of the individual dose distribution (Sv) for the MEI at the distance of 1000 m for various source terms (type four - LOVA) under accidental release conditions, vegetation period

4.2 Cadarache

4.2.1 Potential dose to the MEI at 1 km (source terms of type one)

As for Greifswald, different scenarios with release heights of 10 and 100 m have been investigated for Cadarache. The general shape of the results does not differ significantly from those of Greifswald. The higher release limits for stack releases were based on the fact that stack releases result in lower doses close to the source. And in fact, the early doses are similar for 10 m and 100 m release heights (Table 16). The intervention level for evacuation of 50 mSv as defined within the generic ITER safety study /GESECS/ is not reached by any of the release materials. The 95% percentile, however, is slightly higher than those obtained for Greifswald and exceeds 1 mSv for dust, but not for ACPs. Also the early doses for tritium are always below the intervention level.

The investigated CAT-IV source terms are as low as for Greifswald and the early doses are all below 1 mSv, even for the worst case conditions (see Table 17). The EDE with ingestion too is rather low and never exceeds 10 mSv at 1 km distance. Again, the contribution of tritium in the DV scenario dominates the final dose, which can be seen in dose values which are the same for the three different dust materials. As for Greifswald this is opposite for the CAT-IV bypass scenario of Cadarache, where tritium only plays a significant role for the elevated release.

The hypothetical CAT-V releases, which will be evaluated by using the mean and the 50% percentile of the probabilistic calculations show similar results for Cadarache as before for Greifswald. Again, neither the LOVA (see Table 18) nor the bypass event (see Table 19) reach the 50 mSv generic intervention level for evacuation of ITER when comparing with the lower percentiles. Also the higher percentiles (max and 95 %) do not exceed the 50 mSv. Tungsten, however, shows lower early dose values as the other dust compositions. As for Greifswald, the CAT-V bypass scenarios are dominated by the contribution of tritium which is reflected by similar early doses and identical EDEs (ground level) for the 95 % percentile. The various dust materials alone show higher variability in the EDEs as demonstrated in Tables 12 and 16.

scenario (Cadarache)	characteristic quantities of the dose distribution (Sv)			
	max. value	95%-fractile	50%-fractile	mean value

	early	EDE	early	EDE	early	EDE	early	EDE
CAT-IV-HTO-el	3.8E-03	9.6E-02	3.5E-03	6.5E-02	1.0E-03	1.2E-02	1.4E-03	2.1E-02
CAT-IV-HTO-gr	5.6E-03	2.9E-02	5.0E-03	2.2E-02	5.4E-04	5.2E-03	1.2E-03	9.2E-03
CAT-IV-HT-el	5.3E-06	5.7E-02	4.8E-06	5.1E-02	1.3E-06	1.1E-02	1.9E-06	1.7E-02
CAT-IV-HT-gr	7.9E-06	7.0E-02	6.9E-06	6.1E-02	6.8E-07	4.8E-03	1.8E-06	1.5E-02
CAT-IV-Cu-el	8.8E-03	3.5E-01	6.5E-04	6.2E-03	2.1E-04	1.7E-03	2.9E-04	3.7E-03
CAT-IV-Cu-gr	1.1E-03	4.2E-02	9.5E-04	1.0E-02	6.9E-05	6.3E-04	3.0E-04	3.3E-03
CAT-IV-St-el	1.6E-02	1.3E+00	1.1E-03	2.2E-02	2.9E-04	6.0E-03	4.4E-04	1.4E-02
CAT-IV-St-gr	2.1E-03	1.6E-01	1.6E-03	3.7E-02	1.0E-04	2.3E-03	5.0E-04	1.2E-02
CAT-IV-W-el	1.5E-02	8.2E-01	7.2E-04	1.4E-02	1.9E-04	3.7E-03	3.2E-04	8.3E-03
CAT-IV-W-gr	1.9E-03	9.8E-02	1.1E-03	2.3E-02	7.2E-05	1.4E-03	3.5E-04	7.4E-03
CAT-IV-ACP-el	7.3E-03	2.9E-01	4.1E-04	5.0E-03	1.1E-04	1.3E-03	1.8E-04	3.0E-03
CAT-IV-ACP-gr	8.9E-04	3.5E-02	5.8E-04	8.1E-03	3.9E-05	5.0E-04	1.8E-04	2.6E-03

Table 16: Characteristic quantities of the individual dose distribution (Sv) for the MEI at the distance of 1000 m for various source terms (type one) under accidental release conditions, vegetation period

scenario (Cadarache)	characteristic quantities of the dose distribution (Sv)							
	max. value		95%-fractile		50%-fractile		mean value	
	early	EDE	early	EDE	early	EDE	early	EDE
CAT-IV-bypass-Cu-el	1.8E-07	4.1E-06	1.0E-07	1.2E-06	4.1E-08	3.0E-07	4.7E-08	4.5E-07
CAT-IV-bypass-Cu-gr	2.2E-04	1.1E-03	2.0E-04	7.9E-04	1.2E-05	1.3E-04	6.1E-05	3.0E-04
CAT-IV-bypass-St-el	1.9E-07	4.6E-06	1.0E-07	1.2E-06	4.1E-08	3.0E-07	4.7E-08	4.5E-07
CAT-IV-bypass-St-gr	3.1E-04	9.4E-03	3.0E-04	2.8E-03	1.9E-05	2.5E-04	8.9E-05	9.6E-04
CAT-IV-bypass-W-el	1.9E-07	4.4E-06	1.0E-07	1.2E-06	4.1E-08	3.0E-07	4.7E-08	4.5E-07
CAT-IV-bypass-W-gr	2.8E-04	6.1E-03	2.6E-04	2.0E-03	1.7E-05	1.9E-04	8.1E-05	7.1E-04
CAT-IV-DV-Cu-el	4.6E-04	9.9E-03	2.5E-04	3.1E-03	1.0E-04	7.4E-04	1.2E-04	1.1E-03
CAT-IV-DV-St-el	4.6E-04	1.1E-02	2.5E-04	3.1E-03	1.0E-04	7.6E-04	1.2E-04	1.1E-03
CAT-IV-DV-W-el	4.6E-04	1.0E-02	2.5E-04	3.1E-03	1.0E-04	7.6E-04	1.2E-04	1.1E-03

Table 17: Characteristic quantities of the individual dose distribution (Sv) for the MEI at the distance of 1000 m for various source terms (type two) under accidental release conditions, vegetation period

The EDE, however, is always higher than the early dose and can reach values of more than 1 Sv under worst case weather conditions. But the mean and the 50 % percentiles remain in all cases below 50 mSv.

scenario (Cadarache)	characteristic quantities of the dose distribution (Sv)							
	max. value		95%-fractile		50%-fractile		mean value	
	early	EDE	early	EDE	early	EDE	early	EDE
CAT-V-VVbypass-Cu-el	8.5E-03	3.2E-01	2.2E-03	2.3E-02	7.6E-04	6.2E-03	9.2E-04	9.4E-03
CAT-V-VVbypass-Cu-gr	4.2E-02	4.1E-01	3.9E-02	1.0E-01	2.5E-03	2.5E-02	1.2E-02	7.2E-02
CAT-V-VVbypass-St-el	1.4E-02	1.1E+00	2.9E-03	3.6E-02	8.1E-04	1.1E-02	1.0E-03	1.7E-02
CAT-V-VVbypass-St-gr	4.7E-02	1.3E+00	4.4E-02	1.0E-01	2.9E-03	3.5E-02	1.3E-02	1.4E-01
CAT-V-VVbypass-W-el	1.3E-02	6.7E-01	2.6E-03	2.9E-02	7.6E-04	8.3E-03	9.4E-04	1.3E-02
CAT-V-VVbypass-W-gr	4.3E-02	8.3E-01	4.1E-02	1.0E-01	2.6E-03	3.0E-02	1.2E-02	1.0E-01

Table 18: Characteristic quantities of the individual dose distribution (Sv) for the MEI at the distance of 1000 m for various source terms (type three - CAT-V, bypass) under accidental release conditions, vegetation period

scenario (Cadarache)	characteristic quantities of the dose distribution (Sv)							
	max. value		95%-fractile		50%-fractile		mean value	
	early	EDE	early	EDE	early	EDE	early	EDE
LOVA-Cu-el	1.4E-02	5.7E-01	1.1E-03	1.0E-02	3.5E-04	2.8E-03	4.9E-04	6.1E-03
LOVA-Cu-gr	1.8E-02	6.9E-01	1.6E-02	1.0E-01	1.1E-03	1.0E-02	4.9E-03	5.4E-02
LOVA-St-el	2.7E-02	2.2E+00	1.7E-03	3.7E-02	4.8E-04	1.0E-02	7.3E-04	2.2E-02
LOVA-St-gr	3.4E-02	2.6E+00	2.7E-02	1.0E-01	1.7E-03	3.7E-02	8.3E-03	2.0E-01
LOVA-W-el	2.5E-02	1.3E+00	1.2E-03	2.3E-02	3.2E-04	6.2E-03	5.2E-04	1.4E-02
LOVA-W-gr	2.1E-02	1.6E+00	4.0E-03	1.0E-01	5.0E-04	2.3E-02	1.4E-03	1.2E-01

Table 19: Characteristic quantities of the individual dose distribution (Sv) for the MEI at the distance of 1000 m for various source terms (type four - LOVA) under accidental release conditions, vegetation period

5. Assessment of protective measures

Whenever the potential dose calculation indicated the need for measures, calculations with countermeasures were performed to evaluate the areas and the amount of people affected by the protective actions. But as the overall dose patterns did not differ considerably neither for the source terms within one release category nor for Cadarache and Greifswald, only a few assessments with countermeasures have been performed for the site of Greifswald. This included source terms from the new release limits of CAT-IV (HTO-ground and steel-ground) as well as one CAT-V event (steel-LOVA-ground).

The following countermeasures were considered:

- 1) Short term

- Evacuation: early dose (cloudshine, 7 days integration time for groundshine, 70 years committed dose from inhalation) > 50 mSv
- Sheltering: early dose (cloudshine, 7 days integration time for groundshine, 70 years committed dose from inhalation) > 5 mSv and < 50 mSv

2) Long term

- Relocation: effective dose equivalent (groundshine, 1 year integration time) > 50 mSv
- Foodban: concentration levels in the foodstuff, exceeding EU criteria (total area where food bans are initiated)

scenario (Greifswald)	areas (km ²) and persons affected by evacuation and sheltering for various characteristic quantities of the dose distribution							
	max. value		95%-fractile		50%-fractile		mean value	
	evac	shelt	evac	shelt	evac	shelt	evac	shelt
CAT-IV-HTO-gr	-	-	-	-	-	-	-	-
CAT-IV-St-gr	-	-	-	-	-	-	-	-
LOVA-St-gr	-	10.4 (1097)	-	1.6 (170)	-	0.2 (12)	-	0.4 (35)

Table 20: Areas (persons) affected by evacuation and sheltering for characteristic quantities of the dose distribution, accidental release conditions, vegetation period, ('evac' = evacuation, 'shelt' = sheltering, '-' means: areas < 0.01 km²)

The assessments for the short term countermeasures show that evacuation according to the 50 mSv criteria was not initiated for any of the investigated source terms (see Table 20). Sheltering, however, occurred, but only areas of less than 2 km² were affected (see Table 20). Relocation as a long-term countermeasure was only observed in a considerable quantity for worst case weather conditions and the CAT-V scenario (see Table 21). Banning of food products however, was calculated for all scenarios and considerable large areas were found for all the percentiles (see Table 21).

scenario (Greifswald)	areas (km ²) affected by relocation and food bans for characteristic quantities of the dose/concentration distribution							
	max. value		95%-fractile		50%-fractile		mean value	
	reloc	food	reloc	food	reloc	food	reloc	food
CAT-IV-HTO-gr	-	3090	-	1850	-	883	-	935
CAT-IV-St-gr	0.07	1190	-	375	-	214	-	89
LOVA-St-gr	2.1	3240	-	585	-	227	0.04	284

Table 21: Areas affected by relocation and food bans for characteristic quantities of the dose/concentration distribution, accidental release conditions, vegetation period, total area where food bans are initiated ('reloc' = relocation, 'food' = food ban, '-' means: areas < 0.01 km²)

6. Discussion of the site specific calculations

Reference dose limits from dose assessments for a generic site were published as a draft in /ESECS/. Dependent on the event sequence category, ranging from CAT-1 to CAT-5, various dose limits and types of doses were applied. For the calculations performed within the present work, only events of type CAT-IV ('extremely unlikely events') and CAT-V (hypothetical sequences) have been investigated. The following dose criteria were applied in the ITER study for these categories:

- CAT-IV: Design basis accident: early dose, worst weather conditions and
- CAT-V: Beyond design basis accident: early dose, average weather conditions.

Based on the generic assessment, all releases of the category CAT-IV should result in doses at the fence of the site which are lower than a certain intervention level for evacuation. As it differs from country to country, within ITER the intervention level was set to an early dose value of 50 mSv. Therefore, the main objective of the site specific calculation was to investigate whether this value is reached for CAT-IV events and to what extent CAT-V events as defined at present may exceed the ITER intervention level for evacuation. In a further step, protective measures based on national or international criteria were evaluated.

From the potential dose calculations it could be concluded, that CAT-IV release scenarios do not exceed the intervention limit of 50 mSv for evacuation at 1 km distance, when compared with the 95 % percentile of the probabilistic calculations. This was the fact for all new release limits independent if Cadarache or Greifswald was chosen as ITER site, however, the dose values from Cadarache are slightly higher than for Greifswald. As observed in earlier investigations /RAS96/, this fact indicates that weather conditions in Southern France may contain more worst cases - with respect to radiation dose calculations - than weather in Northern Germany. Weather conditions which may appear only once a year can result in higher early doses, however these values are normally not used in licensing procedures.

CAT-V releases showed dose values up to some 10 mSv at 1 km distance, in particular when the release occurred at ground level. But in no cases 50 mSv or 100 mSv, two lower intervention limits for evacuation often used in national Regulatory Guidelines, were exceeded at this distance. This implies that protective measures such as evacuation should never be initiated neither for CAT-IV nor for CAT-V scenarios.

Other protective actions such as sheltering, relocation and food banning were investigated only for three source terms which showed highest doses in the potential calculations. Only banning of agricultural products was found to be important; it affects initially areas of several hundreds of square kilometres - more than 1000 km² for HTO - when evaluating the 95 % percentile of the concentration distribution.

The presented investigations are of probabilistic nature, which takes into consideration the variation of the weather. There are, however, more factors which may modify the results and which are still not yet finally defined at present. This includes :

- Material composition of the release
- Duration of the release
- Choice of dispersion parameters
- Variability in the weather over a longer period (about 10 years required for German licensing) and the adequacy of the sampling scheme for 144 weather sequences
- Choice of input parameters and targets (child or adult)
- Uncertainties of the mathematical models (parameters and approaches)

Most of these parameters can cause an increase as well as a decrease of the expected dose values. Prolonging the release for example reduces the doses for the MEI considerably but shortening of the release will increase it. There exist site specific dispersion parameters other than those used in this study, which also result in higher (/KLU69/) or in lower (/STO94/) activity concentrations in the near range. The selected data set used in these investigations is limited to one vegetation period and a larger set covering for example 10 years may affect the results too. The choice of input parameter values such as breathing and ingestion rates, which differ from country to country, also affect the final result. Comparative calculations with various tritium models, performed in the frame of the BIOMOVs II study (BIOSheric MOdel Validation Study - phase II) highlighted a large variability in the predictions in particular for the concentration in contaminated foodstuffs at the time of harvest. Preliminary uncertainty analysis also performed in the frame of this study resulted in uncertainty bands of about a factor of 10 around the predicted mean. This factor might be lower for probabilistic investigations /RAS97/, however model uncertainties were only included in a very simplistic way in both studies.

Many of the above mentioned influencing parameters are still open for discussion and, in particular, the final composition of the release material and the duration of the release have to be defined before 'final' dose assessments can be performed. One has also to include the uncertainties of the assessment models when decisions about the release limits have to be taken.

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APPENDIX A

Probabilistic sampling scheme

The consequences of a postulated release of radioactive material will vary considerably with the conditions pertaining at the time of the accidental release, in particular with the prevailing meteorological conditions, the season, the location and habits of population. For any given release, therefore, there will be a spectrum of possible consequences, each having different probabilities of occurrence determined by the environmental characteristics of the release location and its surroundings. To estimate the full spectrum of consequences of an accidental release a computer code should calculate all possible sequences of weather (a weather sequence is defined by its starting time in the weather record) which may occur during this period. Thus several thousands of different weather sequences had to be considered. In practice, time and computer effort prevent such an action. Therefore, a reduced number of weather sequences representing the full spectrum of atmospheric conditions at the site under consideration had to be selected.

The meteorological record includes (among others) wind speed, wind direction, rainfall and atmospheric stability category in hourly values for a given period (in our example for the whole vegetation period, 4800 hours). For each of the 4800 possible weather sequences the trajectory of the plume will be calculated and evaluated according to the following criteria:

- initial wind direction (12 classes)
 - 12 30° sectors
- travel time T up to the 20 km radius from the release point (3 classes)
 - $0 < T \leq 2\text{h}$
 - $2\text{ h} < T \leq 5\text{ h}$
 - $T > 5\text{ h}$
- precipitation I, found during the travel time to reach 20 km (4 classes)
 - $I = 0\text{ mm}$
 - $0\text{ mm} < I \leq 1\text{ mm}$
 - $1\text{ mm} < I \leq 3\text{ mm}$
 - $I > 3\text{ mm}$

In this way 144 different classes of weather conditions are obtained together with their probability of occurrence which will be determined from the number of weather sequences sorted in each class divided by the total number of weather sequences. For the calculations one weather sequence of each class will be chosen randomly. Thus 144 weather sequences with their probability of occurrence may represent the vegetation period, however uncertain due to the chosen sampling scheme.

APPENDIX B

Probabilistic potential doses from source terms of case 1

CAT-IV-HTO-elevated, early dose (Greifswald)

NO. NUCLIDE	SUM					
1 HTO	3.70000E+16					
RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	1.1E-02	1.1E-02	1.1E-02	7.7E-03	8.3E-03	6.9E-03
FRACTILE 99.0	9.8E-04	7.9E-04	2.1E-03	2.3E-03	2.1E-03	4.1E-03
FRACTILE 95.0	6.3E-05	1.0E-04	5.5E-04	1.0E-03	1.2E-03	1.4E-03
FRACTILE 90.0	2.0E-05	6.6E-05	4.2E-04	8.7E-04	1.0E-03	9.8E-04
FRACTILE 50.0	2.3E-07	4.6E-07	5.9E-05	3.0E-04	5.0E-04	6.2E-04
MEAN DOSES	3.2E-05	5.3E-05	1.7E-04	3.8E-04	5.5E-04	7.2E-04
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	7.5E-03	8.1E-03	5.2E-03	3.3E-03	2.2E-03	1.2E-03
FRACTILE 99	7.5E-03	7.6E-03	4.0E-03	1.9E-03	1.5E-03	8.7E-04
FRACTILE 95	1.6E-03	1.7E-03	1.4E-03	9.5E-04	6.0E-04	3.4E-04
FRACTILE 90	1.4E-03	1.5E-03	1.2E-03	7.2E-04	4.6E-04	2.6E-04
FRACTILE 50	5.4E-04	4.3E-04	2.5E-04	1.6E-04	9.5E-05	5.5E-05
MEAN DOSES	7.9E-04	6.9E-04	4.3E-04	2.7E-04	1.7E-04	1.0E-04

CAT-IV-HTO-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	5.9E-01	4.9E-01	3.2E-01	2.2E-01	1.7E-01	1.1E-01
FRACTILE 99	5.6E-02	4.9E-02	5.5E-02	4.1E-02	3.3E-02	2.8E-02
FRACTILE 95	1.3E-02	1.1E-02	1.4E-02	2.1E-02	2.3E-02	1.9E-02
FRACTILE 90	3.9E-03	5.4E-03	8.7E-03	1.5E-02	1.7E-02	1.6E-02
FRACTILE 50	2.3E-06	6.3E-06	4.8E-04	2.6E-03	4.3E-03	5.0E-03
MEAN DOSES	3.2E-03	3.0E-03	3.8E-03	5.9E-03	7.2E-03	7.6E-03
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	6.5E-02	4.3E-02	3.6E-02	1.0E-02	7.0E-03	5.2E-03
FRACTILE 99	2.1E-02	1.6E-02	1.0E-02	6.6E-03	4.6E-03	3.6E-03
FRACTILE 95	1.5E-02	1.2E-02	8.5E-03	5.4E-03	3.1E-03	2.1E-03
FRACTILE 90	1.3E-02	1.1E-02	6.5E-03	4.4E-03	2.7E-03	1.7E-03
FRACTILE 50	6.3E-03	4.9E-03	3.0E-03	1.9E-03	1.1E-03	6.0E-04
MEAN DOSES	6.7E-03	5.5E-03	3.4E-03	2.2E-03	1.3E-03	7.8E-04

CAT-IV-HTO-ground, early dose (Greifswald)

NO. NUCLIDE	SUM					
1 HTO	3.70000E+15					
RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	2.5E-02	2.4E-02	1.7E-02	1.2E-02	8.5E-03	5.3E-03
FRACTILE 99.0	2.5E-02	2.4E-02	1.7E-02	1.2E-02	8.5E-03	5.3E-03
FRACTILE 95.0	1.4E-02	1.3E-02	9.5E-03	6.5E-03	4.7E-03	2.9E-03
FRACTILE 90.0	1.3E-02	1.2E-02	8.5E-03	5.8E-03	4.2E-03	2.6E-03
FRACTILE 50.0	2.8E-03	2.5E-03	1.5E-03	8.9E-04	5.9E-04	3.5E-04
MEAN DOSES	4.5E-03	4.0E-03	2.6E-03	1.7E-03	1.2E-03	7.2E-04
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	3.1E-03	2.0E-03	9.1E-04	5.2E-04	3.5E-04	2.1E-04
FRACTILE 99.0	3.1E-03	1.9E-03	6.9E-04	5.2E-04	2.6E-04	7.4E-05
FRACTILE 95.0	1.7E-03	1.1E-03	5.0E-04	2.4E-04	1.0E-04	4.7E-05
FRACTILE 90.0	1.5E-03	9.1E-04	4.0E-04	1.4E-04	6.5E-05	2.6E-05
FRACTILE 50.0	1.9E-04	1.2E-04	5.9E-05	3.2E-05	1.7E-05	9.3E-06
MEAN DOSES	4.1E-04	2.5E-04	1.2E-04	6.1E-05	3.1E-05	1.5E-05

CAT-IV-HTO-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	1.3E-01	1.1E-01	6.8E-02	4.5E-02	3.2E-02	2.0E-02
FRACTILE 99.0	9.8E-02	8.3E-02	5.9E-02	4.1E-02	3.0E-02	1.8E-02
FRACTILE 95.0	7.4E-02	6.6E-02	4.6E-02	3.1E-02	2.2E-02	1.3E-02
FRACTILE 90.0	6.8E-02	6.2E-02	4.1E-02	2.8E-02	1.9E-02	1.2E-02
FRACTILE 50.0	3.5E-02	3.0E-02	1.7E-02	9.3E-03	6.3E-03	3.6E-03
MEAN DOSES	3.5E-02	3.1E-02	1.9E-02	1.2E-02	8.3E-03	5.0E-03
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	1.5E-02	7.4E-03	4.3E-03	2.2E-03	2.1E-03	6.2E-04
FRACTILE 99.0	1.0E-02	6.8E-03	3.5E-03	2.2E-03	9.3E-04	4.1E-04
FRACTILE 95.0	7.6E-03	4.9E-03	2.3E-03	1.1E-03	5.6E-04	3.3E-04
FRACTILE 90.0	6.8E-03	4.2E-03	1.9E-03	9.5E-04	5.2E-04	2.9E-04
FRACTILE 50.0	2.0E-03	1.3E-03	6.5E-04	3.7E-04	1.9E-04	1.0E-04
MEAN DOSES	2.8E-03	1.8E-03	8.6E-04	4.7E-04	2.5E-04	1.3E-04

CAT-IV-HT-elevated, early dose (Greifswald)

NO. NUCLIDE	SUM					
1 HTO	1.11000E+18					
RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	8.0E-04	9.1E-04	9.6E-04	9.4E-04	7.2E-04	5.8E-04
FRACTILE 99.0	8.1E-05	8.7E-05	1.4E-04	2.1E-04	2.3E-04	2.2E-04
FRACTILE 95.0	1.2E-05	1.3E-05	2.6E-05	6.2E-05	1.0E-04	1.0E-04
FRACTILE 90.0	8.5E-06	9.8E-06	2.0E-05	5.8E-05	8.1E-05	7.8E-05
FRACTILE 50.0	5.0E-07	6.0E-07	2.0E-06	1.1E-05	2.5E-05	3.8E-05
MEAN DOSES	4.1E-06	4.8E-06	1.0E-05	2.4E-05	3.9E-05	4.5E-05
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	5.2E-04	4.5E-04	3.7E-04	2.4E-04	2.4E-04	1.5E-04
FRACTILE 99.0	3.7E-04	3.9E-04	2.4E-04	1.4E-04	1.1E-04	6.8E-05
FRACTILE 95.0	1.3E-04	1.1E-04	7.6E-05	6.9E-05	3.9E-05	2.4E-05
FRACTILE 90.0	8.5E-05	8.7E-05	5.0E-05	4.3E-05	2.3E-05	1.4E-05
FRACTILE 50.0	4.5E-05	4.3E-05	2.6E-05	1.9E-05	1.1E-05	6.0E-06
MEAN DOSES	5.3E-05	5.3E-05	3.2E-05	2.4E-05	1.5E-05	8.6E-06

CAT-IV-HT-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	6.5E-02	8.7E-02	9.5E-02	9.4E-02	1.0E-01	8.5E-02
FRACTILE 99.0	2.7E-03	6.8E-03	2.0E-02	2.4E-02	1.9E-02	3.9E-02
FRACTILE 95.0	2.1E-04	4.2E-04	4.7E-03	9.5E-03	1.1E-02	1.4E-02
FRACTILE 90.0	1.6E-04	3.0E-04	3.7E-03	7.4E-03	7.9E-03	9.5E-03
FRACTILE 50.0	4.6E-06	6.3E-06	5.5E-04	2.5E-03	4.0E-03	6.2E-03
MEAN DOSES	2.2E-04	3.8E-04	1.5E-03	3.4E-03	5.0E-03	6.6E-03
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	8.4E-02	7.7E-02	5.4E-02	3.0E-02	2.2E-02	1.2E-02
FRACTILE 99.0	7.1E-02	7.1E-02	4.0E-02	1.6E-02	1.8E-02	1.1E-02
FRACTILE 95.0	1.8E-02	2.0E-02	1.5E-02	9.3E-03	6.2E-03	3.7E-03
FRACTILE 90.0	1.3E-02	1.4E-02	1.1E-02	7.8E-03	4.9E-03	2.7E-03
FRACTILE 50.0	4.7E-03	3.5E-03	2.3E-03	1.5E-03	8.7E-04	5.0E-04
MEAN DOSES	7.4E-03	6.5E-03	4.1E-03	2.6E-03	1.6E-03	9.8E-04

CAT-IV-HT-ground, early dose (Greifswald)

1 HTO 1.11000E+17

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	1.5E-03	1.2E-03	9.7E-04	8.0E-04	6.6E-04	4.2E-04
FRACTILE 99.0	5.6E-04	1.0E-03	7.8E-04	6.3E-04	5.5E-04	3.4E-04
FRACTILE 95.0	2.5E-04	4.2E-04	3.8E-04	3.7E-04	2.8E-04	1.7E-04
FRACTILE 90.0	1.6E-04	2.5E-04	2.3E-04	2.1E-04	1.7E-04	1.1E-04
FRACTILE 50.0	4.8E-05	1.2E-04	8.5E-05	6.5E-05	5.0E-05	3.0E-05
MEAN DOSES	7.6E-05	1.4E-04	1.3E-04	1.0E-04	8.2E-05	5.1E-05

RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	2.7E-04	1.6E-04	8.8E-05	5.0E-05	3.5E-05	2.2E-05
FRACTILE 99.0	2.2E-04	1.4E-04	6.0E-05	3.6E-05	2.6E-05	1.1E-05
FRACTILE 95.0	1.3E-04	9.3E-05	3.7E-05	2.8E-05	1.4E-05	6.6E-06
FRACTILE 90.0	6.8E-05	4.9E-05	2.6E-05	1.3E-05	6.9E-06	3.6E-06
FRACTILE 50.0	1.9E-05	1.4E-05	7.1E-06	4.8E-06	2.8E-06	1.4E-06
MEAN DOSES	3.3E-05	2.3E-05	1.1E-05	6.9E-06	3.9E-06	2.0E-06

CAT-IV-HT-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	2.8E-01	2.6E-01	1.9E-01	1.3E-01	9.8E-02	6.1E-02
FRACTILE 99.0	2.6E-01	2.4E-01	1.8E-01	1.2E-01	8.9E-02	5.6E-02
FRACTILE 95.0	1.7E-01	1.5E-01	1.1E-01	7.9E-02	5.9E-02	3.7E-02
FRACTILE 90.0	1.2E-01	1.1E-01	7.9E-02	5.5E-02	4.0E-02	2.6E-02
FRACTILE 50.0	2.6E-02	2.1E-02	1.2E-02	7.2E-03	4.9E-03	2.9E-03
MEAN DOSES	4.2E-02	3.8E-02	2.5E-02	1.7E-02	1.2E-02	7.3E-03

RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	3.6E-02	2.0E-02	1.0E-02	7.6E-03	4.2E-03	2.5E-03
FRACTILE 99.0	3.3E-02	1.7E-02	9.3E-03	7.6E-03	2.6E-03	1.0E-03
FRACTILE 95.0	2.2E-02	1.3E-02	5.8E-03	3.2E-03	1.3E-03	5.5E-04
FRACTILE 90.0	1.5E-02	1.0E-02	4.1E-03	1.5E-03	9.5E-04	4.9E-04
FRACTILE 50.0	1.7E-03	1.1E-03	5.5E-04	3.2E-04	1.8E-04	9.3E-05
MEAN DOSES	4.2E-03	2.6E-03	1.2E-03	6.7E-04	3.4E-04	1.7E-04

CAT-IV-N-C-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
4	NA- 24	0.68200E+12
11	SC- 46	0.16300E+12
31	CO- 60	0.14500E+13
30	CO- 60M	0.23600E+14
34	NI- 63	0.19400E+12
36	CU- 62	0.39400E+15
37	CU- 64	0.72600E+15
38	CU- 66	0.24800E+15
157	TA-182	0.76600E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.6E-02	3.8E-02	2.3E-02	1.5E-02	1.1E-02	6.6E-03
FRACTILE 99.0	2.9E-03	2.5E-03	2.4E-03	1.8E-03	1.4E-03	1.1E-03
FRACTILE 95.0	5.6E-04	5.1E-04	6.0E-04	5.0E-04	4.3E-04	5.2E-04
FRACTILE 90.0	2.2E-04	1.9E-04	3.5E-04	3.0E-04	3.2E-04	2.6E-04
FRACTILE 50.0	3.9E-05	4.0E-05	6.3E-05	1.0E-04	1.3E-04	1.4E-04
MEAN DOSES	1.9E-04	1.6E-04	1.9E-04	1.8E-04	1.9E-04	2.0E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.6E-03	2.2E-03	1.9E-03	7.1E-04	4.6E-04	4.4E-04
FRACTILE 99.0	1.4E-03	1.3E-03	6.6E-04	4.8E-04	3.2E-04	2.1E-04
FRACTILE 95.0	5.6E-04	3.9E-04	2.7E-04	1.7E-04	1.3E-04	9.5E-05
FRACTILE 90.0	3.2E-04	3.3E-04	2.4E-04	1.4E-04	1.1E-04	6.2E-05
FRACTILE 50.0	1.1E-04	8.5E-05	4.9E-05	2.8E-05	1.7E-05	1.0E-05
MEAN DOSES	1.8E-04	1.5E-04	9.2E-05	5.3E-05	3.7E-05	2.3E-05

CAT-IV-N-C-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.8E+00	1.5E+00	9.0E-01	5.8E-01	4.1E-01	2.6E-01
FRACTILE 99.0	1.0E-01	9.5E-02	9.5E-02	6.8E-02	5.2E-02	3.9E-02
FRACTILE 95.0	1.9E-02	1.7E-02	1.6E-02	1.3E-02	1.1E-02	8.5E-03
FRACTILE 90.0	4.0E-03	5.4E-03	4.3E-03	3.7E-03	3.1E-03	4.5E-03
FRACTILE 50.0	4.0E-05	4.0E-05	1.5E-04	5.8E-04	9.1E-04	1.1E-03
MEAN DOSES	5.9E-03	5.0E-03	4.3E-03	3.4E-03	3.1E-03	2.8E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.4E-01	8.9E-02	7.2E-02	2.8E-02	1.8E-02	1.5E-02
FRACTILE 99.0	2.8E-02	2.1E-02	1.1E-02	1.1E-02	6.3E-03	5.1E-03
FRACTILE 95.0	1.0E-02	8.3E-03	5.2E-03	2.8E-03	2.1E-03	1.9E-03
FRACTILE 90.0	3.9E-03	3.1E-03	2.5E-03	1.5E-03	1.1E-03	8.5E-04
FRACTILE 50.0	9.5E-04	7.4E-04	4.4E-04	2.5E-04	1.6E-04	9.1E-05
MEAN DOSES	2.4E-03	1.9E-03	1.2E-03	7.6E-04	5.1E-04	3.6E-04

CAT-IV-N-C-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
4	NA- 24	0.68200E+11
11	SC- 46	0.16300E+11
31	CO- 60	0.14500E+12
30	CO- 60M	0.23600E+13
34	NI- 63	0.19400E+11
36	CU- 62	0.39400E+14
37	CU- 64	0.72600E+14
38	CU- 66	0.24800E+14
157	TA-182	0.76600E+11

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.5E-03	6.3E-03	3.6E-03	2.2E-03	1.6E-03	9.9E-04
FRACTILE 99.0	4.5E-03	4.2E-03	3.0E-03	2.0E-03	1.5E-03	9.1E-04
FRACTILE 95.0	2.6E-03	2.3E-03	1.7E-03	1.2E-03	8.5E-04	5.4E-04
FRACTILE 90.0	2.3E-03	2.1E-03	1.6E-03	1.1E-03	7.8E-04	4.9E-04
FRACTILE 50.0	5.0E-04	4.4E-04	2.6E-04	1.6E-04	1.1E-04	6.5E-05
MEAN DOSES	8.3E-04	7.4E-04	4.9E-04	3.2E-04	2.3E-04	1.4E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	8.3E-04	3.9E-04	2.5E-04	8.3E-05	1.1E-04	8.9E-05
FRACTILE 99.0	5.2E-04	3.3E-04	1.3E-04	7.4E-05	4.6E-05	3.2E-05
FRACTILE 95.0	3.1E-04	2.0E-04	9.8E-05	4.9E-05	2.9E-05	1.3E-05
FRACTILE 90.0	2.8E-04	1.9E-04	7.6E-05	2.5E-05	1.7E-05	9.3E-06
FRACTILE 50.0	3.6E-05	2.3E-05	1.1E-05	5.8E-06	3.5E-06	1.9E-06
MEAN DOSES	8.1E-05	5.0E-05	2.4E-05	1.1E-05	7.1E-06	3.9E-06

CAT-IV-N-C-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.4E-01	2.1E-01	1.2E-01	7.7E-02	5.2E-02	3.4E-02
FRACTILE 99.0	4.6E-02	4.3E-02	3.1E-02	2.1E-02	1.5E-02	9.5E-03
FRACTILE 95.0	2.8E-02	2.5E-02	1.8E-02	1.3E-02	9.8E-03	6.3E-03
FRACTILE 90.0	2.3E-02	2.1E-02	1.6E-02	1.1E-02	7.9E-03	5.2E-03
FRACTILE 50.0	5.0E-03	4.3E-03	2.5E-03	1.4E-03	9.8E-04	6.0E-04
MEAN DOSES	9.1E-03	8.1E-03	5.3E-03	3.5E-03	2.5E-03	1.6E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.0E-02	1.5E-02	7.4E-03	3.1E-03	4.1E-03	2.0E-03
FRACTILE 99.0	6.0E-03	4.0E-03	2.5E-03	1.3E-03	1.1E-03	7.6E-04
FRACTILE 95.0	3.6E-03	2.3E-03	1.3E-03	7.2E-04	5.0E-04	3.1E-04
FRACTILE 90.0	3.0E-03	2.0E-03	9.8E-04	4.6E-04	2.7E-04	1.4E-04
FRACTILE 50.0	3.5E-04	2.3E-04	1.1E-04	5.6E-05	3.5E-05	1.9E-05
MEAN DOSES	9.4E-04	5.9E-04	3.1E-04	1.5E-04	1.1E-04	6.7E-05

CAT-IV-N-S-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
16	CR- 51	0.40600E+14
20	MN- 54	0.13200E+14
21	MN- 56	0.14100E+15
23	FE- 55	0.71200E+14
27	CO- 57	0.16300E+14
29	CO- 58	0.17700E+14
28	CO- 58M	0.25600E+14
31	CO- 60	0.20600E+13
30	CO- 60M	0.98600E+13
70	NB- 94	0.15400E+08
75	MO- 99	0.74000E+13
81	TC- 99	0.46200E+08
80	TC- 99M	0.64600E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	8.5E-02	7.0E-02	4.2E-02	2.7E-02	2.0E-02	1.2E-02
FRACTILE 99.0	5.4E-03	4.5E-03	4.5E-03	3.2E-03	2.6E-03	1.9E-03
FRACTILE 95.0	9.3E-04	8.7E-04	1.0E-03	7.6E-04	6.5E-04	8.1E-04
FRACTILE 90.0	3.7E-04	3.2E-04	4.6E-04	4.2E-04	4.9E-04	4.3E-04
FRACTILE 50.0	2.1E-05	2.1E-05	5.6E-05	1.1E-04	1.6E-04	1.9E-04
MEAN DOSES	3.0E-04	2.6E-04	2.7E-04	2.6E-04	2.8E-04	2.9E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.9E-03	4.2E-03	3.5E-03	1.3E-03	8.6E-04	8.0E-04
FRACTILE 99.0	2.3E-03	2.2E-03	1.1E-03	8.5E-04	5.4E-04	3.5E-04
FRACTILE 95.0	9.5E-04	6.3E-04	4.5E-04	2.8E-04	2.2E-04	1.6E-04
FRACTILE 90.0	4.8E-04	5.1E-04	3.8E-04	2.5E-04	1.9E-04	1.0E-04
FRACTILE 50.0	1.6E-04	1.3E-04	7.6E-05	4.3E-05	2.8E-05	1.6E-05
MEAN DOSES	2.9E-04	2.4E-04	1.5E-04	8.8E-05	6.1E-05	4.0E-05

CAT-IV-N-S-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.0E+00	5.8E+00	3.4E+00	2.2E+00	1.6E+00	9.9E-01
FRACTILE 99.0	4.4E-01	3.7E-01	3.6E-01	2.6E-01	2.0E-01	1.5E-01
FRACTILE 95.0	7.4E-02	6.3E-02	6.0E-02	5.0E-02	4.2E-02	3.2E-02
FRACTILE 90.0	1.4E-02	1.9E-02	1.6E-02	1.3E-02	1.1E-02	1.7E-02
FRACTILE 50.0	2.1E-05	2.2E-05	3.8E-04	2.0E-03	3.2E-03	4.1E-03
MEAN DOSES	2.3E-02	1.9E-02	1.6E-02	1.3E-02	1.1E-02	1.0E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.5E-01	3.4E-01	2.8E-01	1.1E-01	7.0E-02	5.6E-02
FRACTILE 99.0	1.0E-01	8.3E-02	4.1E-02	4.3E-02	2.4E-02	1.9E-02
FRACTILE 95.0	4.0E-02	3.2E-02	2.0E-02	1.0E-02	7.8E-03	7.1E-03
FRACTILE 90.0	1.5E-02	1.1E-02	8.9E-03	5.6E-03	4.2E-03	3.2E-03
FRACTILE 50.0	3.4E-03	2.7E-03	1.6E-03	8.7E-04	5.8E-04	3.3E-04
MEAN DOSES	8.9E-03	7.1E-03	4.4E-03	2.8E-03	1.9E-03	1.3E-03

CAT-IV-N-S-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
16	CR- 51	0.40600E+13
20	MN- 54	0.13200E+13
21	MN- 56	0.14100E+14
23	FE- 55	0.71200E+13
27	CO- 57	0.16300E+13
29	CO- 58	0.17700E+13
28	CO- 58M	0.25600E+13
31	CO- 60	0.20600E+12
30	CO- 60M	0.98600E+12
70	NB- 94	0.15400E+07
75	MO- 99	0.74000E+12
81	TC- 99	0.46200E+07
80	TC- 99M	0.64600E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.3E-01	1.1E-01	6.6E-02	4.0E-02	2.7E-02	1.7E-02
FRACTILE 99.0	7.2E-02	6.8E-02	4.9E-02	3.4E-02	2.5E-02	1.5E-02
FRACTILE 95.0	4.3E-02	3.9E-02	2.8E-02	1.9E-02	1.4E-02	8.9E-03
FRACTILE 90.0	3.7E-02	3.5E-02	2.5E-02	1.7E-02	1.3E-02	8.1E-03
FRACTILE 50.0	7.9E-03	6.8E-03	4.0E-03	2.4E-03	1.6E-03	9.5E-04
MEAN DOSES	1.3E-02	1.2E-02	7.8E-03	5.1E-03	3.6E-03	2.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.6E-02	7.4E-03	4.5E-03	1.5E-03	2.0E-03	1.7E-03
FRACTILE 99.0	8.9E-03	5.6E-03	2.3E-03	1.3E-03	8.3E-04	5.5E-04
FRACTILE 95.0	5.1E-03	3.5E-03	1.7E-03	8.5E-04	4.9E-04	2.2E-04
FRACTILE 90.0	4.8E-03	3.2E-03	1.3E-03	4.2E-04	2.9E-04	1.6E-04
FRACTILE 50.0	5.4E-04	3.6E-04	1.8E-04	9.5E-05	5.9E-05	3.3E-05
MEAN DOSES	1.3E-03	8.3E-04	4.1E-04	1.8E-04	1.2E-04	6.8E-05

CAT-IV-N-S-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	9.1E-01	7.8E-01	4.8E-01	2.9E-01	2.0E-01	1.3E-01
FRACTILE 99.0	1.7E-01	1.5E-01	1.1E-01	7.6E-02	5.5E-02	3.5E-02
FRACTILE 95.0	1.0E-01	9.5E-02	6.8E-02	4.9E-02	3.6E-02	2.3E-02
FRACTILE 90.0	8.9E-02	7.9E-02	5.8E-02	4.0E-02	3.0E-02	1.9E-02
FRACTILE 50.0	1.8E-02	1.5E-02	8.9E-03	5.2E-03	3.5E-03	2.2E-03
MEAN DOSES	3.3E-02	2.9E-02	1.9E-02	1.3E-02	9.1E-03	5.8E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.1E-01	5.8E-02	2.8E-02	1.2E-02	1.6E-02	7.6E-03
FRACTILE 99.0	2.3E-02	1.5E-02	9.5E-03	4.9E-03	4.4E-03	2.9E-03
FRACTILE 95.0	1.3E-02	8.5E-03	4.7E-03	2.8E-03	1.9E-03	1.2E-03
FRACTILE 90.0	1.1E-02	7.4E-03	3.5E-03	1.7E-03	1.0E-03	5.0E-04
FRACTILE 50.0	1.3E-03	8.1E-04	4.1E-04	2.0E-04	1.3E-04	7.1E-05
MEAN DOSES	3.4E-03	2.2E-03	1.1E-03	5.5E-04	4.1E-04	2.5E-04

CAT-IV-N-W-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
157	TA-182	0.28800E+13
159	W -181	0.50800E+14
160	W -183M	0.54400E+15
161	W -185	0.49600E+15
162	W -187	0.31600E+15
166	RE-186	0.44800E+14
165	RE-186M	0.70200E+08
168	RE-188	0.19000E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.9E-02	6.6E-02	3.9E-02	2.5E-02	1.8E-02	1.1E-02
FRACTILE 99.0	5.0E-03	4.2E-03	4.2E-03	3.0E-03	2.3E-03	1.7E-03
FRACTILE 95.0	8.5E-04	7.2E-04	8.1E-04	6.3E-04	5.6E-04	7.1E-04
FRACTILE 90.0	3.5E-04	2.9E-04	4.0E-04	3.5E-04	3.6E-04	3.2E-04
FRACTILE 50.0	1.1E-05	1.1E-05	3.3E-05	7.1E-05	1.1E-04	1.3E-04
MEAN DOSES	2.7E-04	2.3E-04	2.2E-04	2.1E-04	2.1E-04	2.2E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.4E-03	3.9E-03	3.2E-03	1.2E-03	8.0E-04	6.5E-04
FRACTILE 99.0	1.7E-03	1.6E-03	9.3E-04	6.0E-04	4.2E-04	2.6E-04
FRACTILE 95.0	7.4E-04	5.0E-04	3.3E-04	1.9E-04	1.5E-04	1.1E-04
FRACTILE 90.0	3.3E-04	3.5E-04	2.8E-04	1.7E-04	1.3E-04	7.4E-05
FRACTILE 50.0	1.1E-04	8.7E-05	5.2E-05	3.0E-05	1.9E-05	1.1E-05
MEAN DOSES	2.1E-04	1.7E-04	1.1E-04	6.5E-05	4.5E-05	3.0E-05

CAT-IV-N-W-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.3E+00	3.6E+00	2.1E+00	1.4E+00	9.7E-01	6.1E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	9.1E-02
FRACTILE 95.0	4.6E-02	3.9E-02	3.7E-02	3.1E-02	2.6E-02	2.0E-02
FRACTILE 90.0	8.5E-03	1.2E-02	1.0E-02	8.3E-03	6.9E-03	1.0E-02
FRACTILE 50.0	1.1E-05	1.2E-05	2.3E-04	1.2E-03	2.0E-03	2.5E-03
MEAN DOSES	1.4E-02	1.2E-02	9.9E-03	7.9E-03	7.0E-03	6.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.4E-01	2.1E-01	1.7E-01	6.7E-02	4.3E-02	3.4E-02
FRACTILE 99.0	6.5E-02	5.1E-02	2.5E-02	2.6E-02	1.5E-02	1.2E-02
FRACTILE 95.0	2.5E-02	1.9E-02	1.2E-02	6.3E-03	4.8E-03	4.4E-03
FRACTILE 90.0	8.9E-03	7.1E-03	5.5E-03	3.5E-03	2.6E-03	1.9E-03
FRACTILE 50.0	2.1E-03	1.7E-03	9.8E-04	5.4E-04	3.5E-04	2.0E-04
MEAN DOSES	5.5E-03	4.4E-03	2.7E-03	1.7E-03	1.2E-03	8.3E-04

CAT-IV-N-W-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
157	TA-182	0.28800E+12
159	W -181	0.50800E+13
160	W -183M	0.54400E+14
161	W -185	0.49600E+14
162	W -187	0.31600E+14
166	RE-186	0.44800E+13
165	RE-186M	0.70200E+07
168	RE-188	0.19000E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.2E-02	1.0E-02	5.9E-03	3.6E-03	2.4E-03	1.6E-03
FRACTILE 99.0	5.1E-03	4.7E-03	3.4E-03	2.3E-03	1.7E-03	1.1E-03
FRACTILE 95.0	3.0E-03	2.8E-03	2.0E-03	1.3E-03	9.8E-04	6.3E-04
FRACTILE 90.0	2.6E-03	2.4E-03	1.7E-03	1.2E-03	8.9E-04	5.6E-04
FRACTILE 50.0	5.5E-04	4.8E-04	2.8E-04	1.7E-04	1.1E-04	6.6E-05
MEAN DOSES	9.4E-04	8.4E-04	5.5E-04	3.6E-04	2.6E-04	1.6E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.4E-03	6.8E-04	3.8E-04	1.4E-04	1.8E-04	1.3E-04
FRACTILE 99.0	6.3E-04	4.0E-04	1.7E-04	9.1E-05	6.9E-05	4.0E-05
FRACTILE 95.0	3.9E-04	2.4E-04	1.2E-04	6.0E-05	3.6E-05	1.8E-05
FRACTILE 90.0	3.3E-04	2.2E-04	9.3E-05	3.0E-05	2.2E-05	1.1E-05
FRACTILE 50.0	3.7E-05	2.5E-05	1.3E-05	6.8E-06	4.1E-06	2.3E-06
MEAN DOSES	9.4E-05	5.9E-05	2.9E-05	1.3E-05	9.2E-06	5.2E-06

CAT-IV-N-W-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.6E-01	4.8E-01	2.9E-01	1.8E-01	1.2E-01	8.1E-02
FRACTILE 99.0	1.0E-01	9.5E-02	6.9E-02	4.7E-02	3.4E-02	2.1E-02
FRACTILE 95.0	6.5E-02	5.9E-02	4.2E-02	3.0E-02	2.2E-02	1.4E-02
FRACTILE 90.0	5.5E-02	4.9E-02	3.5E-02	2.4E-02	1.9E-02	1.2E-02
FRACTILE 50.0	1.1E-02	9.5E-03	5.5E-03	3.2E-03	2.2E-03	1.3E-03
MEAN DOSES	2.0E-02	1.8E-02	1.2E-02	7.9E-03	5.6E-03	3.6E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.1E-02	3.6E-02	1.7E-02	7.4E-03	9.7E-03	4.7E-03
FRACTILE 99.0	1.4E-02	9.3E-03	5.9E-03	3.0E-03	2.7E-03	1.8E-03
FRACTILE 95.0	8.1E-03	5.2E-03	2.9E-03	1.7E-03	1.1E-03	7.2E-04
FRACTILE 90.0	6.9E-03	4.6E-03	2.2E-03	1.1E-03	6.3E-04	3.1E-04
FRACTILE 50.0	7.8E-04	5.0E-04	2.5E-04	1.3E-04	8.1E-05	4.4E-05
MEAN DOSES	2.1E-03	1.3E-03	7.1E-04	3.4E-04	2.5E-04	1.6E-04

CAT-IV-N-ACP-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
16	CR- 51	0.56500E+10
20	MN- 54	0.28600E+13
21	MN- 56	0.10800E+15
23	FE- 55	0.38300E+13
27	CO- 57	0.55000E+13
29	CO- 58	0.11300E+14
31	CO- 60	0.47400E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.8E-02	3.1E-02	1.9E-02	1.2E-02	8.8E-03	5.5E-03
FRACTILE 99.0	2.4E-03	2.0E-03	2.0E-03	1.4E-03	1.1E-03	8.3E-04
FRACTILE 95.0	4.2E-04	3.5E-04	4.0E-04	3.2E-04	3.2E-04	3.6E-04
FRACTILE 90.0	1.7E-04	1.4E-04	2.3E-04	2.2E-04	2.0E-04	1.8E-04
FRACTILE 50.0	1.5E-05	1.5E-05	2.6E-05	4.7E-05	6.8E-05	7.6E-05
MEAN DOSES	1.4E-04	1.2E-04	1.3E-04	1.2E-04	1.2E-04	1.2E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.0E-03	1.8E-03	1.5E-03	5.9E-04	3.8E-04	3.1E-04
FRACTILE 99.0	9.1E-04	8.1E-04	4.5E-04	3.1E-04	2.2E-04	1.3E-04
FRACTILE 95.0	4.2E-04	2.6E-04	1.8E-04	1.0E-04	8.7E-05	6.3E-05
FRACTILE 90.0	1.9E-04	1.9E-04	1.5E-04	9.5E-05	7.2E-05	4.3E-05
FRACTILE 50.0	6.2E-05	5.0E-05	3.0E-05	1.7E-05	1.1E-05	6.3E-06
MEAN DOSES	1.1E-04	9.4E-05	5.8E-05	3.4E-05	2.5E-05	1.6E-05

CAT-IV-N-ACP-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.5E+00	1.3E+00	7.5E-01	4.8E-01	3.4E-01	2.2E-01
FRACTILE 99.0	9.5E-02	7.9E-02	7.9E-02	5.6E-02	4.4E-02	3.2E-02
FRACTILE 95.0	1.6E-02	1.4E-02	1.3E-02	1.1E-02	9.1E-03	7.1E-03
FRACTILE 90.0	3.1E-03	4.3E-03	3.5E-03	3.0E-03	2.5E-03	3.7E-03
FRACTILE 50.0	1.5E-05	1.5E-05	1.0E-04	4.6E-04	7.2E-04	9.1E-04
MEAN DOSES	4.9E-03	4.2E-03	3.5E-03	2.8E-03	2.5E-03	2.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.2E-01	7.4E-02	6.0E-02	2.4E-02	1.5E-02	1.2E-02
FRACTILE 99.0	2.3E-02	1.8E-02	8.9E-03	9.3E-03	5.2E-03	4.3E-03
FRACTILE 95.0	8.7E-03	6.9E-03	4.3E-03	2.2E-03	1.7E-03	1.5E-03
FRACTILE 90.0	3.2E-03	2.5E-03	2.0E-03	1.3E-03	9.3E-04	7.1E-04
FRACTILE 50.0	7.6E-04	6.0E-04	3.5E-04	1.9E-04	1.3E-04	7.4E-05
MEAN DOSES	2.0E-03	1.6E-03	9.7E-04	6.2E-04	4.2E-04	3.0E-04

CAT-IV-N-ACP-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
16	CR- 51	0.56500E+09
20	MN- 54	0.28600E+12
21	MN- 56	0.10800E+14
23	FE- 55	0.38300E+12
27	CO- 57	0.55000E+12
29	CO- 58	0.11300E+13
31	CO- 60	0.47400E+11

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.7E-03	4.9E-03	2.9E-03	1.7E-03	1.1E-03	7.6E-04
FRACTILE 99.0	2.6E-03	2.3E-03	1.7E-03	1.2E-03	8.7E-04	5.5E-04
FRACTILE 95.0	1.5E-03	1.4E-03	1.0E-03	6.8E-04	5.0E-04	3.2E-04
FRACTILE 90.0	1.3E-03	1.2E-03	8.9E-04	6.2E-04	4.6E-04	2.9E-04
FRACTILE 50.0	2.8E-04	2.4E-04	1.4E-04	8.7E-05	5.9E-05	3.5E-05
MEAN DOSES	4.8E-04	4.2E-04	2.8E-04	1.9E-04	1.3E-04	8.4E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.6E-04	3.2E-04	1.9E-04	6.4E-05	8.6E-05	6.0E-05
FRACTILE 99.0	3.2E-04	2.0E-04	8.7E-05	4.6E-05	3.2E-05	1.9E-05
FRACTILE 95.0	2.0E-04	1.3E-04	6.2E-05	3.1E-05	1.8E-05	8.5E-06
FRACTILE 90.0	1.7E-04	1.2E-04	4.7E-05	1.5E-05	1.1E-05	5.9E-06
FRACTILE 50.0	2.0E-05	1.4E-05	6.9E-06	3.6E-06	2.3E-06	1.3E-06
MEAN DOSES	4.9E-05	3.1E-05	1.5E-05	7.0E-06	4.7E-06	2.6E-06

CAT-IV-N-ACP-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.0E-01	1.7E-01	1.0E-01	6.4E-02	4.3E-02	2.9E-02
FRACTILE 99.0	3.7E-02	3.4E-02	2.5E-02	1.7E-02	1.2E-02	7.6E-03
FRACTILE 95.0	2.3E-02	2.1E-02	1.5E-02	1.1E-02	7.9E-03	5.1E-03
FRACTILE 90.0	1.9E-02	1.7E-02	1.3E-02	8.7E-03	6.6E-03	4.3E-03
FRACTILE 50.0	4.0E-03	3.4E-03	2.0E-03	1.2E-03	7.8E-04	4.8E-04
MEAN DOSES	7.3E-03	6.5E-03	4.3E-03	2.8E-03	2.0E-03	1.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.5E-02	1.3E-02	6.1E-03	2.6E-03	3.4E-03	1.7E-03
FRACTILE 99.0	5.0E-03	3.3E-03	2.1E-03	1.1E-03	9.5E-04	6.3E-04
FRACTILE 95.0	3.0E-03	1.9E-03	1.0E-03	6.0E-04	4.1E-04	2.6E-04
FRACTILE 90.0	2.5E-03	1.7E-03	7.9E-04	3.8E-04	2.2E-04	1.1E-04
FRACTILE 50.0	2.8E-04	1.8E-04	9.1E-05	4.6E-05	2.9E-05	1.6E-05
MEAN DOSES	7.6E-04	4.8E-04	2.5E-04	1.2E-04	9.1E-05	5.6E-05

Probabilistic potential doses from source terms of case 2

CAT-IV-bypass-C-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	1.48000E+12
4	NA- 24	0.34100E+06
11	SC- 46	0.81600E+05
16	CR- 51	0.27100E+04
20	MN- 54	0.13700E+07
21	MN- 56	0.51600E+08
23	FE- 55	0.18400E+07
27	CO- 57	0.26400E+07
29	CO- 58	0.54000E+07
31	CO- 60	0.95000E+06
30	CO- 60M	0.11800E+08
34	NI- 63	0.97000E+05
36	CU- 62	0.19700E+09
37	CU- 64	0.36300E+09
38	CU- 66	0.12400E+09
157	TA-182	0.38300E+06

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.5E-07	4.5E-07	4.3E-07	3.1E-07	3.3E-07	2.8E-07
FRACTILE 99.0	1.6E-08	3.2E-08	8.3E-08	9.5E-08	8.5E-08	1.6E-07
FRACTILE 95.0	2.6E-09	4.5E-09	2.2E-08	4.2E-08	4.7E-08	5.6E-08
FRACTILE 90.0	1.1E-09	2.4E-09	1.7E-08	3.8E-08	4.1E-08	3.9E-08
FRACTILE 50.0	-1.0E+00	-1.0E+00	2.4E-09	1.2E-08	2.1E-08	2.5E-08
MEAN DOSES	1.3E-09	2.1E-09	7.0E-09	1.6E-08	2.2E-08	2.9E-08

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.0E-07	3.3E-07	2.1E-07	1.3E-07	8.7E-08	4.9E-08
FRACTILE 99.0	3.0E-07	3.1E-07	1.6E-07	7.4E-08	6.2E-08	3.5E-08
FRACTILE 95.0	6.6E-08	6.8E-08	5.5E-08	3.8E-08	2.4E-08	1.3E-08
FRACTILE 90.0	5.6E-08	6.0E-08	4.9E-08	3.0E-08	1.8E-08	1.1E-08
FRACTILE 50.0	2.1E-08	1.7E-08	1.0E-08	6.5E-09	3.8E-09	2.2E-09
MEAN DOSES	3.2E-08	2.8E-08	1.7E-08	1.1E-08	6.7E-09	4.0E-09

CAT-IV-bypass-C-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.5E-05	2.1E-05	1.3E-05	9.4E-06	7.0E-06	4.6E-06
FRACTILE 99.0	1.7E-06	1.9E-06	2.2E-06	1.7E-06	1.3E-06	1.1E-06
FRACTILE 95.0	5.4E-07	4.7E-07	5.9E-07	8.3E-07	9.3E-07	7.6E-07
FRACTILE 90.0	1.5E-07	1.3E-07	3.5E-07	6.2E-07	6.9E-07	6.3E-07
FRACTILE 50.0	-1.0E+00	1.6E-10	2.1E-08	1.1E-07	1.7E-07	2.0E-07
MEAN DOSES	1.0E-07	1.0E-07	1.6E-07	2.4E-07	2.9E-07	3.1E-07

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.7E-06	1.8E-06	1.5E-06	4.2E-07	2.9E-07	2.1E-07

FRACTILE 99.0	8.7E-07	6.6E-07	4.1E-07	2.7E-07	1.8E-07	1.4E-07
FRACTILE 95.0	6.2E-07	4.9E-07	3.5E-07	2.1E-07	1.3E-07	8.7E-08
FRACTILE 90.0	5.4E-07	4.4E-07	2.6E-07	1.7E-07	1.1E-07	7.1E-08
FRACTILE 50.0	2.5E-07	2.0E-07	1.2E-07	7.9E-08	4.5E-08	2.5E-08
MEAN DOSES	2.7E-07	2.2E-07	1.4E-07	8.9E-08	5.3E-08	3.2E-08

CAT-IV-bypass-C-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	1.40600E+14
4	NA- 24	0.34100E+06
11	SC- 46	0.81600E+05
16	CR- 51	0.27100E+04
20	MN- 54	0.13700E+07
21	MN- 56	0.51600E+08
23	FE- 55	0.18400E+07
27	CO- 57	0.26400E+07
29	CO- 58	0.54000E+07
31	CO- 60	0.95000E+06
30	CO- 60M	0.11800E+08
34	NI- 63	0.97000E+05
36	CU- 62	0.19700E+09
37	CU- 64	0.36300E+09
38	CU- 66	0.12400E+09
157	TA-182	0.38300E+06

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	9.7E-04	9.0E-04	6.5E-04	4.5E-04	3.2E-04	2.0E-04
FRACTILE 99.0	9.7E-04	9.0E-04	6.5E-04	4.5E-04	3.2E-04	2.0E-04
FRACTILE 95.0	5.4E-04	5.0E-04	3.6E-04	2.5E-04	1.8E-04	1.1E-04
FRACTILE 90.0	4.9E-04	4.6E-04	3.3E-04	2.2E-04	1.6E-04	1.0E-04
FRACTILE 50.0	1.1E-04	9.5E-05	5.6E-05	3.4E-05	2.2E-05	1.3E-05
MEAN DOSES	1.7E-04	1.5E-04	1.0E-04	6.5E-05	4.6E-05	2.8E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.2E-04	7.7E-05	3.5E-05	2.0E-05	1.3E-05	8.1E-06
FRACTILE 99.0	1.2E-04	7.2E-05	2.6E-05	2.0E-05	9.8E-06	2.8E-06
FRACTILE 95.0	6.3E-05	4.1E-05	1.9E-05	9.1E-06	4.0E-06	1.8E-06
FRACTILE 90.0	5.6E-05	3.6E-05	1.5E-05	5.5E-06	2.5E-06	8.9E-07
FRACTILE 50.0	7.2E-06	4.7E-06	2.2E-06	1.2E-06	6.6E-07	3.5E-07
MEAN DOSES	1.6E-05	9.6E-06	4.4E-06	2.3E-06	1.2E-06	5.5E-07

CAT-IV-bypass-C-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.0E-03	4.3E-03	2.6E-03	1.7E-03	1.2E-03	7.5E-04
FRACTILE 99.0	3.7E-03	3.2E-03	2.2E-03	1.5E-03	1.1E-03	6.8E-04
FRACTILE 95.0	2.8E-03	2.5E-03	1.7E-03	1.2E-03	8.3E-04	5.1E-04
FRACTILE 90.0	2.6E-03	2.3E-03	1.5E-03	1.0E-03	7.2E-04	4.4E-04
FRACTILE 50.0	1.3E-03	1.1E-03	6.5E-04	3.7E-04	2.4E-04	1.4E-04
MEAN DOSES	1.3E-03	1.2E-03	7.4E-04	4.6E-04	3.2E-04	1.9E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.6E-04	2.8E-04	1.6E-04	8.2E-05	8.2E-05	2.4E-05
FRACTILE 99.0	3.9E-04	2.6E-04	1.3E-04	8.2E-05	3.5E-05	1.5E-05
FRACTILE 95.0	2.9E-04	1.9E-04	8.9E-05	4.3E-05	2.1E-05	1.3E-05

FRACTILE 90.0	2.6E-04	1.6E-04	7.2E-05	3.6E-05	1.9E-05	1.1E-05
FRACTILE 50.0	7.6E-05	4.9E-05	2.5E-05	1.3E-05	7.2E-06	3.8E-06
MEAN DOSES	1.1E-04	7.0E-05	3.3E-05	1.8E-05	9.4E-06	4.9E-06

CAT-IV-bypass-S-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	1.48000E+12
16	CR- 51	0.20300E+08
20	MN- 54	0.79600E+07
21	MN- 56	0.12200E+09
23	FE- 55	0.37400E+08
27	CO- 57	0.10800E+08
29	CO- 58	0.14300E+08
28	CO- 58M	0.12800E+08
31	CO- 60	0.12600E+07
30	CO- 60M	0.49300E+07
70	NB- 94	0.77200E+01
75	MO- 99	0.37000E+07
81	TC- 99	0.23100E+02
80	TC- 99M	0.32300E+07

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.6E-07	4.6E-07	4.4E-07	3.1E-07	3.3E-07	2.8E-07
FRACTILE 99.0	1.6E-08	3.2E-08	8.5E-08	9.8E-08	8.5E-08	1.7E-07
FRACTILE 95.0	2.8E-09	4.6E-09	2.2E-08	4.2E-08	4.7E-08	5.6E-08
FRACTILE 90.0	1.2E-09	2.5E-09	1.7E-08	3.8E-08	4.1E-08	3.9E-08
FRACTILE 50.0	-1.0E+00	-1.0E+00	2.4E-09	1.2E-08	2.1E-08	2.5E-08
MEAN DOSES	1.3E-09	2.2E-09	7.0E-09	1.6E-08	2.2E-08	2.9E-08

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.0E-07	3.3E-07	2.1E-07	1.3E-07	8.7E-08	4.9E-08
FRACTILE 99.0	3.0E-07	3.1E-07	1.6E-07	7.4E-08	6.2E-08	3.5E-08
FRACTILE 95.0	6.6E-08	6.8E-08	5.5E-08	3.8E-08	2.4E-08	1.3E-08
FRACTILE 90.0	5.6E-08	6.0E-08	4.9E-08	3.0E-08	1.8E-08	1.1E-08
FRACTILE 50.0	2.1E-08	1.7E-08	1.0E-08	6.5E-09	3.8E-09	2.2E-09
MEAN DOSES	3.2E-08	2.8E-08	1.7E-08	1.1E-08	6.7E-09	4.1E-09

CAT-IV-bypass-S-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.8E-05	2.3E-05	1.5E-05	1.0E-05	7.6E-06	5.0E-06
FRACTILE 99.0	1.9E-06	1.9E-06	2.2E-06	1.7E-06	1.4E-06	1.1E-06
FRACTILE 95.0	5.8E-07	4.9E-07	6.5E-07	8.3E-07	9.3E-07	7.9E-07
FRACTILE 90.0	1.6E-07	1.4E-07	3.5E-07	6.2E-07	6.9E-07	6.3E-07
FRACTILE 50.0	-1.0E+00	1.5E-10	2.1E-08	1.1E-07	1.7E-07	2.0E-07
MEAN DOSES	1.1E-07	1.1E-07	1.6E-07	2.5E-07	3.0E-07	3.1E-07

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.9E-06	1.9E-06	1.6E-06	4.4E-07	3.1E-07	2.1E-07
FRACTILE 99.0	8.9E-07	6.9E-07	4.2E-07	2.8E-07	1.9E-07	1.5E-07
FRACTILE 95.0	6.2E-07	5.0E-07	3.5E-07	2.2E-07	1.3E-07	8.9E-08
FRACTILE 90.0	5.4E-07	4.4E-07	2.6E-07	1.8E-07	1.1E-07	7.2E-08
FRACTILE 50.0	2.6E-07	2.1E-07	1.3E-07	8.1E-08	4.6E-08	2.5E-08

MEAN DOSES 2.8E-07 2.3E-07 1.4E-07 9.0E-08 5.4E-08 3.2E-08

CAT-IV-bypass-S-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	1.40600E+14
16	CR- 51	0.22300E+12
20	MN- 54	0.73000E+11
21	MN- 56	0.79100E+12
23	FE- 55	0.39200E+12
27	CO- 57	0.90800E+11
29	CO- 58	0.99400E+11
28	CO- 58M	0.14100E+12
31	CO- 60	0.11400E+11
30	CO- 60M	0.54200E+11
70	NB- 94	0.84900E+05
75	MO- 99	0.40700E+11
81	TC- 99	0.25400E+06
80	TC- 99M	0.35500E+11

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.4E-03	1.3E-03	9.3E-04	6.4E-04	4.6E-04	2.9E-04
FRACTILE 99.0	1.4E-03	1.3E-03	9.3E-04	6.4E-04	4.6E-04	2.9E-04
FRACTILE 95.0	7.6E-04	7.1E-04	5.1E-04	3.5E-04	2.6E-04	1.6E-04
FRACTILE 90.0	6.9E-04	6.6E-04	4.7E-04	3.2E-04	2.3E-04	1.4E-04
FRACTILE 50.0	1.5E-04	1.3E-04	7.9E-05	4.8E-05	3.2E-05	1.9E-05
MEAN DOSES	2.5E-04	2.2E-04	1.4E-04	9.3E-05	6.6E-05	4.0E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.7E-04	1.1E-04	5.4E-05	2.8E-05	1.8E-05	1.5E-05
FRACTILE 99.0	1.7E-04	1.0E-04	4.0E-05	2.7E-05	1.5E-05	7.9E-06
FRACTILE 95.0	9.1E-05	6.0E-05	2.8E-05	1.3E-05	5.4E-06	2.6E-06
FRACTILE 90.0	8.3E-05	5.4E-05	2.2E-05	7.2E-06	3.7E-06	1.8E-06
FRACTILE 50.0	1.1E-05	7.1E-06	3.5E-06	2.0E-06	1.1E-06	5.9E-07
MEAN DOSES	2.3E-05	1.4E-05	6.7E-06	3.3E-06	1.8E-06	9.0E-07

CAT-IV-bypass-S-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.6E-02	4.8E-02	2.9E-02	1.8E-02	1.2E-02	7.6E-03
FRACTILE 99.0	1.2E-02	1.1E-02	7.9E-03	5.5E-03	3.9E-03	2.5E-03
FRACTILE 95.0	8.5E-03	7.9E-03	5.8E-03	3.9E-03	2.8E-03	1.9E-03
FRACTILE 90.0	7.1E-03	6.5E-03	4.7E-03	3.2E-03	2.3E-03	1.4E-03
FRACTILE 50.0	2.3E-03	2.0E-03	1.2E-03	6.9E-04	4.7E-04	2.8E-04
MEAN DOSES	3.2E-03	2.8E-03	1.8E-03	1.2E-03	8.2E-04	5.1E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.9E-03	3.3E-03	1.6E-03	7.0E-04	9.5E-04	4.2E-04
FRACTILE 99.0	1.5E-03	9.3E-04	5.8E-04	3.0E-04	2.6E-04	1.7E-04
FRACTILE 95.0	1.1E-03	6.5E-04	3.2E-04	1.8E-04	1.2E-04	7.2E-05

FRACTILE 90.0	8.5E-04	5.6E-04	2.8E-04	1.2E-04	6.8E-05	3.2E-05
FRACTILE 50.0	1.5E-04	1.0E-04	5.0E-05	2.7E-05	1.6E-05	7.8E-06
MEAN DOSES	3.0E-04	1.9E-04	9.6E-05	4.8E-05	3.2E-05	1.9E-05

CAT-IV-bypass-W-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	1.48000E+12
16	CR- 51	0.27100E+04
20	MN- 54	0.13700E+07
21	MN- 56	0.51600E+08
23	FE- 55	0.18400E+07
27	CO- 57	0.26400E+07
29	CO- 58	0.54000E+07
31	CO- 60	0.22700E+06
157	TA-182	0.14400E+07
159	W -181	0.25400E+08
160	W -183M	0.27200E+09
161	W -185	0.24800E+09
162	W -187	0.15800E+09
166	RE-186	0.22400E+08
165	RE-186M	0.35100E+02
168	RE-188	0.94800E+07

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.6E-07	4.6E-07	4.4E-07	3.1E-07	3.3E-07	2.8E-07
FRACTILE 99.0	1.6E-08	3.2E-08	8.3E-08	9.8E-08	8.5E-08	1.6E-07
FRACTILE 95.0	2.8E-09	4.6E-09	2.2E-08	4.2E-08	4.7E-08	5.6E-08
FRACTILE 90.0	1.2E-09	2.5E-09	1.7E-08	3.8E-08	4.1E-08	3.9E-08
FRACTILE 50.0	-1.0E+00	-1.0E+00	2.4E-09	1.2E-08	2.1E-08	2.5E-08
MEAN DOSES	1.3E-09	2.2E-09	7.0E-09	1.6E-08	2.2E-08	2.9E-08

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.0E-07	3.3E-07	2.1E-07	1.3E-07	8.7E-08	4.9E-08
FRACTILE 99.0	3.0E-07	3.1E-07	1.6E-07	7.4E-08	6.2E-08	3.5E-08
FRACTILE 95.0	6.6E-08	6.8E-08	5.5E-08	3.8E-08	2.4E-08	1.3E-08
FRACTILE 90.0	5.6E-08	6.0E-08	4.9E-08	3.0E-08	1.8E-08	1.1E-08
FRACTILE 50.0	2.1E-08	1.7E-08	1.0E-08	6.5E-09	3.8E-09	2.2E-09
MEAN DOSES	3.2E-08	2.8E-08	1.7E-08	1.1E-08	6.7E-09	4.1E-09

CAT-IV-bypass-W-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.6E-05	2.2E-05	1.4E-05	9.8E-06	7.3E-06	4.8E-06
FRACTILE 99.0	1.7E-06	1.9E-06	2.2E-06	1.7E-06	1.3E-06	1.1E-06
FRACTILE 95.0	5.5E-07	4.8E-07	6.2E-07	8.3E-07	9.3E-07	7.8E-07
FRACTILE 90.0	1.5E-07	1.3E-07	3.5E-07	6.2E-07	6.9E-07	6.3E-07
FRACTILE 50.0	-1.0E+00	1.4E-10	2.1E-08	1.1E-07	1.7E-07	2.0E-07
MEAN DOSES	1.1E-07	1.0E-07	1.6E-07	2.4E-07	2.9E-07	3.1E-07

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.8E-06	1.8E-06	1.5E-06	4.3E-07	3.0E-07	2.1E-07
FRACTILE 99.0	8.9E-07	6.8E-07	4.2E-07	2.8E-07	1.9E-07	1.5E-07
FRACTILE 95.0	6.2E-07	4.9E-07	3.5E-07	2.1E-07	1.3E-07	8.7E-08

FRACTILE 90.0	5.4E-07	4.4E-07	2.6E-07	1.7E-07	1.1E-07	7.2E-08
FRACTILE 50.0	2.6E-07	2.0E-07	1.3E-07	7.9E-08	4.5E-08	2.5E-08
MEAN DOSES	2.7E-07	2.3E-07	1.4E-07	9.0E-08	5.3E-08	3.2E-08

CAT-IV-bypass-W-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	1.40600E+14
16	CR- 51	0.94900E+06
20	MN- 54	0.48000E+09
21	MN- 56	0.18100E+11
23	FE- 55	0.64300E+09
27	CO- 57	0.92400E+09
29	CO- 58	0.18900E+10
31	CO- 60	0.79500E+08
157	TA-182	0.15800E+11
159	W -181	0.27900E+12
160	W -183M	0.29900E+13
161	W -185	0.27300E+13
162	W -187	0.17400E+13
166	RE-186	0.24600E+12
165	RE-186M	0.38600E+06
168	RE-188	0.10400E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.3E-03	1.2E-03	8.5E-04	5.8E-04	4.2E-04	2.6E-04
FRACTILE 99.0	1.3E-03	1.2E-03	8.5E-04	5.8E-04	4.2E-04	2.6E-04
FRACTILE 95.0	6.9E-04	6.5E-04	4.7E-04	3.2E-04	2.3E-04	1.4E-04
FRACTILE 90.0	6.3E-04	6.0E-04	4.3E-04	2.9E-04	2.1E-04	1.3E-04
FRACTILE 50.0	1.4E-04	1.2E-04	7.2E-05	4.4E-05	3.0E-05	1.7E-05
MEAN DOSES	2.2E-04	2.0E-04	1.3E-04	8.5E-05	6.0E-05	3.7E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.5E-04	1.0E-04	4.9E-05	2.5E-05	1.6E-05	1.3E-05
FRACTILE 99.0	1.5E-04	9.5E-05	3.6E-05	2.5E-05	1.3E-05	7.2E-06
FRACTILE 95.0	8.3E-05	5.5E-05	2.6E-05	1.3E-05	4.9E-06	2.4E-06
FRACTILE 90.0	7.6E-05	4.9E-05	2.0E-05	6.8E-06	3.5E-06	1.8E-06
FRACTILE 50.0	9.8E-06	6.5E-06	3.2E-06	1.8E-06	1.0E-06	5.5E-07
MEAN DOSES	2.1E-05	1.3E-05	6.0E-06	3.0E-06	1.6E-06	8.2E-07

CAT-IV-bypass-W-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.6E-02	3.1E-02	1.9E-02	1.1E-02	7.8E-03	4.9E-03
FRACTILE 99.0	8.3E-03	7.8E-03	5.6E-03	3.8E-03	2.8E-03	1.7E-03
FRACTILE 95.0	6.6E-03	6.0E-03	4.4E-03	3.0E-03	2.2E-03	1.3E-03
FRACTILE 90.0	5.4E-03	4.9E-03	3.4E-03	2.3E-03	1.7E-03	1.0E-03
FRACTILE 50.0	2.0E-03	1.7E-03	9.1E-04	5.4E-04	3.5E-04	2.1E-04
MEAN DOSES	2.5E-03	2.2E-03	1.4E-03	9.0E-04	6.3E-04	3.9E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	4.5E-03	2.1E-03	1.0E-03	4.5E-04	6.2E-04	2.6E-04
FRACTILE 99.0	1.1E-03	6.5E-04	3.8E-04	1.9E-04	1.7E-04	1.1E-04

FRACTILE 95.0	7.9E-04	4.7E-04	2.2E-04	1.3E-04	8.5E-05	4.8E-05
FRACTILE 90.0	6.2E-04	4.1E-04	2.0E-04	8.3E-05	4.9E-05	2.4E-05
FRACTILE 50.0	1.2E-04	7.8E-05	3.9E-05	2.1E-05	1.2E-05	6.2E-06
MEAN DOSES	2.3E-04	1.4E-04	7.2E-05	3.6E-05	2.3E-05	1.3E-05

CAT-IV-DV-C-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	3.70000E+15
4	NA- 24	0.68200E+09
11	SC- 46	0.16300E+09
31	CO- 60	0.14500E+10
30	CO- 60M	0.23600E+11
34	NI- 63	0.19400E+09
36	CU- 62	0.39400E+12
37	CU- 64	0.72600E+12
38	CU- 66	0.24800E+12
157	TA-182	0.76600E+09

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.1E-03	1.1E-03	1.1E-03	7.7E-04	8.3E-04	6.9E-04
FRACTILE 99.0	4.0E-05	7.9E-05	2.1E-04	2.3E-04	2.1E-04	4.1E-04
FRACTILE 95.0	5.0E-06	1.1E-05	5.5E-05	1.0E-04	1.2E-04	1.4E-04
FRACTILE 90.0	2.2E-06	6.0E-06	4.2E-05	9.5E-05	1.0E-04	9.8E-05
FRACTILE 50.0	5.8E-08	8.1E-08	6.0E-06	3.0E-05	5.2E-05	6.2E-05
MEAN DOSES	3.0E-06	5.2E-06	1.7E-05	3.9E-05	5.5E-05	7.3E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.5E-04	8.1E-04	5.2E-04	3.3E-04	2.2E-04	1.2E-04
FRACTILE 99.0	7.5E-04	7.6E-04	4.0E-04	1.9E-04	1.5E-04	8.9E-05
FRACTILE 95.0	1.6E-04	1.7E-04	1.4E-04	9.5E-05	6.0E-05	3.4E-05
FRACTILE 90.0	1.4E-04	1.5E-04	1.2E-04	7.2E-05	4.6E-05	2.6E-05
FRACTILE 50.0	5.4E-05	4.3E-05	2.5E-05	1.6E-05	9.5E-06	5.5E-06
MEAN DOSES	7.9E-05	6.9E-05	4.3E-05	2.7E-05	1.7E-05	1.0E-05

CAT-IV-DV-C-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	6.1E-02	5.1E-02	3.3E-02	2.3E-02	1.7E-02	1.1E-02
FRACTILE 99.0	3.9E-03	4.8E-03	5.5E-03	4.1E-03	3.4E-03	2.8E-03
FRACTILE 95.0	1.3E-03	1.1E-03	1.4E-03	2.1E-03	2.3E-03	1.9E-03
FRACTILE 90.0	3.7E-04	3.1E-04	8.7E-04	1.5E-03	1.7E-03	1.6E-03
FRACTILE 50.0	7.8E-08	3.7E-07	5.2E-05	2.6E-04	4.3E-04	5.0E-04
MEAN DOSES	2.5E-04	2.4E-04	3.9E-04	6.0E-04	7.3E-04	7.7E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.6E-03	4.3E-03	3.6E-03	1.0E-03	7.1E-04	5.2E-04
FRACTILE 99.0	2.1E-03	1.7E-03	1.0E-03	6.6E-04	4.6E-04	3.6E-04
FRACTILE 95.0	1.5E-03	1.2E-03	8.5E-04	5.4E-04	3.1E-04	2.1E-04
FRACTILE 90.0	1.3E-03	1.1E-03	6.6E-04	4.4E-04	2.7E-04	1.7E-04
FRACTILE 50.0	6.3E-04	4.9E-04	3.1E-04	2.0E-04	1.1E-04	6.0E-05
MEAN DOSES	6.8E-04	5.6E-04	3.4E-04	2.2E-04	1.3E-04	7.9E-05

CAT-IV-DV-S-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	3.70000E+15
16	CR- 51	0.40600E+11
20	MN- 54	0.13200E+11
21	MN- 56	0.14100E+12
23	FE- 55	0.71200E+11
27	CO- 57	0.16300E+11
29	CO- 58	0.17700E+11
28	CO- 58M	0.25600E+11
31	CO- 60	0.20600E+10
30	CO- 60M	0.98600E+10
70	NB- 94	0.15400E+05
75	MO- 99	0.74000E+10
81	TC- 99	0.46200E+05
80	TC- 99M	0.64600E+10

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.1E-03	1.1E-03	1.1E-03	7.8E-04	8.3E-04	6.9E-04
FRACTILE 99.0	4.0E-05	7.9E-05	2.1E-04	2.3E-04	2.1E-04	4.1E-04
FRACTILE 95.0	6.3E-06	1.1E-05	5.5E-05	1.0E-04	1.2E-04	1.4E-04
FRACTILE 90.0	2.5E-06	6.0E-06	4.2E-05	9.5E-05	1.0E-04	9.8E-05
FRACTILE 50.0	3.1E-08	5.9E-08	5.9E-06	3.0E-05	5.2E-05	6.2E-05
MEAN DOSES	3.1E-06	5.3E-06	1.7E-05	3.9E-05	5.6E-05	7.3E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.5E-04	8.1E-04	5.2E-04	3.3E-04	2.2E-04	1.2E-04
FRACTILE 99.0	7.5E-04	7.6E-04	4.0E-04	1.9E-04	1.5E-04	8.9E-05
FRACTILE 95.0	1.6E-04	1.7E-04	1.4E-04	9.5E-05	6.0E-05	3.4E-05
FRACTILE 90.0	1.4E-04	1.5E-04	1.2E-04	7.4E-05	4.6E-05	2.6E-05
FRACTILE 50.0	5.4E-05	4.3E-05	2.5E-05	1.6E-05	9.5E-06	5.5E-06
MEAN DOSES	7.9E-05	6.9E-05	4.3E-05	2.7E-05	1.7E-05	1.0E-05

CAT-IV-DV-S-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	6.6E-02	5.5E-02	3.5E-02	2.4E-02	1.8E-02	1.2E-02
FRACTILE 99.0	4.4E-03	4.9E-03	5.5E-03	4.2E-03	3.4E-03	2.8E-03
FRACTILE 95.0	1.4E-03	1.2E-03	1.5E-03	2.1E-03	2.3E-03	1.9E-03
FRACTILE 90.0	3.9E-04	3.3E-04	8.7E-04	1.5E-03	1.7E-03	1.6E-03
FRACTILE 50.0	5.9E-08	3.5E-07	5.4E-05	2.6E-04	4.3E-04	5.1E-04
MEAN DOSES	2.7E-04	2.6E-04	4.0E-04	6.1E-04	7.4E-04	7.8E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.0E-03	4.5E-03	3.8E-03	1.1E-03	7.4E-04	5.2E-04
FRACTILE 99.0	2.2E-03	1.7E-03	1.0E-03	6.8E-04	4.6E-04	3.6E-04
FRACTILE 95.0	1.5E-03	1.2E-03	8.7E-04	5.4E-04	3.2E-04	2.2E-04
FRACTILE 90.0	1.3E-03	1.1E-03	6.6E-04	4.4E-04	2.7E-04	1.8E-04
FRACTILE 50.0	6.3E-04	5.1E-04	3.2E-04	2.0E-04	1.1E-04	6.2E-05

MEAN DOSES 6.9E-04 5.6E-04 3.5E-04 2.2E-04 1.3E-04 7.9E-05

CAT-IV-DV-W-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	3.70000E+15
157	TA-182	0.28800E+10
159	W -181	0.50800E+11
160	W -183M	0.54400E+12
161	W -185	0.49600E+12
162	W -187	0.31600E+12
166	RE-186	0.44800E+11
165	RE-186M	0.70200E+05
168	RE-188	0.19000E+11

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.1E-03	1.1E-03	1.1E-03	7.8E-04	8.3E-04	6.9E-04
FRACTILE 99.0	4.0E-05	7.9E-05	2.1E-04	2.3E-04	2.1E-04	4.1E-04
FRACTILE 95.0	6.2E-06	1.1E-05	5.5E-05	1.0E-04	1.2E-04	1.4E-04
FRACTILE 90.0	2.4E-06	5.9E-06	4.2E-05	9.5E-05	1.0E-04	9.8E-05
FRACTILE 50.0	2.0E-08	4.6E-08	5.9E-06	3.0E-05	5.2E-05	6.2E-05
MEAN DOSES	3.1E-06	5.2E-06	1.7E-05	3.9E-05	5.5E-05	7.3E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.5E-04	8.1E-04	5.2E-04	3.3E-04	2.2E-04	1.2E-04
FRACTILE 99.0	7.5E-04	7.6E-04	4.0E-04	1.9E-04	1.5E-04	8.9E-05
FRACTILE 95.0	1.6E-04	1.7E-04	1.4E-04	9.5E-05	6.0E-05	3.4E-05
FRACTILE 90.0	1.4E-04	1.5E-04	1.2E-04	7.2E-05	4.6E-05	2.6E-05
FRACTILE 50.0	5.4E-05	4.3E-05	2.5E-05	1.6E-05	9.5E-06	5.5E-06
MEAN DOSES	7.9E-05	6.9E-05	4.3E-05	2.7E-05	1.7E-05	1.0E-05

CAT-IV-DV-W-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	6.3E-02	5.3E-02	3.4E-02	2.4E-02	1.8E-02	1.2E-02
FRACTILE 99.0	4.1E-03	4.8E-03	5.5E-03	4.1E-03	3.4E-03	2.8E-03
FRACTILE 95.0	1.3E-03	1.2E-03	1.5E-03	2.1E-03	2.3E-03	1.9E-03
FRACTILE 90.0	3.8E-04	3.2E-04	8.7E-04	1.5E-03	1.7E-03	1.6E-03
FRACTILE 50.0	4.9E-08	3.4E-07	5.2E-05	2.6E-04	4.3E-04	5.1E-04
MEAN DOSES	2.6E-04	2.5E-04	3.9E-04	6.1E-04	7.3E-04	7.7E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.8E-03	4.4E-03	3.7E-03	1.1E-03	7.2E-04	5.2E-04
FRACTILE 99.0	2.2E-03	1.7E-03	1.0E-03	6.8E-04	4.6E-04	3.6E-04
FRACTILE 95.0	1.5E-03	1.2E-03	8.7E-04	5.4E-04	3.2E-04	2.2E-04
FRACTILE 90.0	1.3E-03	1.1E-03	6.6E-04	4.4E-04	2.7E-04	1.8E-04
FRACTILE 50.0	6.3E-04	5.0E-04	3.1E-04	2.0E-04	1.1E-04	6.2E-05
MEAN DOSES	6.8E-04	5.6E-04	3.5E-04	2.2E-04	1.3E-04	7.9E-05

Probabilistic potential doses from source terms of case 3

CAT-V-VVbypass-C-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
4	NA- 24	0.51200E+12
11	SC- 46	0.12200E+12
16	CR- 51	0.72300E+07
20	MN- 54	0.36500E+10
21	MN- 56	0.13800E+12
23	FE- 55	0.49000E+10
27	CO- 57	0.70400E+10
29	CO- 58	0.14400E+11
31	CO- 60	0.10900E+13
30	CO- 60M	0.17700E+14
34	NI- 63	0.14600E+12
36	CU- 62	0.29600E+15
37	CU- 64	0.54500E+15
38	CU- 66	0.18600E+15
157	TA-182	0.57500E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.5E-02	2.9E-02	1.9E-02	1.4E-02	1.1E-02	7.0E-03
FRACTILE 99.0	2.4E-03	2.5E-03	2.8E-03	2.1E-03	1.7E-03	3.1E-03
FRACTILE 95.0	4.8E-04	6.2E-04	7.6E-04	8.9E-04	1.0E-03	1.3E-03
FRACTILE 90.0	1.7E-04	1.4E-04	4.2E-04	7.4E-04	8.3E-04	7.9E-04
FRACTILE 50.0	3.0E-05	3.0E-05	8.5E-05	2.5E-04	4.1E-04	4.9E-04
MEAN DOSES	1.6E-04	1.5E-04	2.5E-04	3.7E-04	4.8E-04	5.8E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.0E-03	5.9E-03	3.8E-03	2.4E-03	1.6E-03	8.7E-04
FRACTILE 99.0	5.6E-03	5.6E-03	2.9E-03	1.3E-03	1.2E-03	6.9E-04
FRACTILE 95.0	1.2E-03	1.3E-03	1.0E-03	6.9E-04	4.5E-04	2.8E-04
FRACTILE 90.0	1.1E-03	1.2E-03	9.1E-04	5.6E-04	3.6E-04	1.9E-04
FRACTILE 50.0	4.1E-04	3.2E-04	1.9E-04	1.2E-04	6.9E-05	4.0E-05
MEAN DOSES	6.1E-04	5.3E-04	3.3E-04	2.0E-04	1.3E-04	7.7E-05

CAT-V-bypass-C-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.7E+00	1.4E+00	8.6E-01	5.7E-01	4.1E-01	2.6E-01
FRACTILE 99.0	1.0E-01	9.8E-02	8.7E-02	6.3E-02	5.1E-02	4.0E-02
FRACTILE 95.0	2.4E-02	2.0E-02	2.0E-02	2.1E-02	1.9E-02	1.6E-02
FRACTILE 90.0	8.1E-03	6.8E-03	1.0E-02	1.4E-02	1.3E-02	1.2E-02
FRACTILE 50.0	3.0E-05	3.4E-05	4.4E-04	2.2E-03	3.1E-03	4.2E-03
MEAN DOSES	5.9E-03	5.2E-03	5.5E-03	6.2E-03	6.7E-03	6.7E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
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MAX. DOSES	1.5E-01	9.2E-02	7.6E-02	2.6E-02	1.6E-02	1.3E-02
FRACTILE 99.0	2.9E-02	2.3E-02	1.3E-02	1.0E-02	6.8E-03	4.0E-03
FRACTILE 95.0	1.6E-02	1.4E-02	8.3E-03	4.9E-03	3.2E-03	2.6E-03
FRACTILE 90.0	9.8E-03	8.1E-03	5.8E-03	4.0E-03	2.5E-03	1.6E-03
FRACTILE 50.0	4.9E-03	3.9E-03	2.3E-03	1.4E-03	8.3E-04	4.7E-04
MEAN DOSES	5.9E-03	4.8E-03	3.0E-03	1.9E-03	1.2E-03	7.3E-04

CAT-V-bypass-C-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
4	NA- 24	0.51200E+12
11	SC- 46	0.12200E+12
16	CR- 51	0.72300E+07
20	MN- 54	0.36500E+10
21	MN- 56	0.13800E+12
23	FE- 55	0.49000E+10
27	CO- 57	0.70400E+10
29	CO- 58	0.14400E+11
31	CO- 60	0.10900E+13
30	CO- 60M	0.17700E+14
34	NI- 63	0.14600E+12
36	CU- 62	0.29600E+15
37	CU- 64	0.54500E+15
38	CU- 66	0.18600E+15
157	TA-182	0.57500E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.2E-01	1.7E-01	1.2E-01	8.6E-02	6.2E-02	3.9E-02
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	8.6E-02	6.2E-02	3.9E-02
FRACTILE 95.0	1.0E-01	9.5E-02	6.9E-02	4.8E-02	3.5E-02	2.1E-02
FRACTILE 90.0	9.5E-02	8.7E-02	6.3E-02	4.4E-02	3.2E-02	1.9E-02
FRACTILE 50.0	2.0E-02	1.8E-02	1.1E-02	6.6E-03	4.5E-03	2.6E-03
MEAN DOSES	3.4E-02	3.0E-02	2.0E-02	1.3E-02	8.9E-03	5.4E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.3E-02	1.5E-02	6.8E-03	3.7E-03	2.4E-03	1.8E-03
FRACTILE 99.0	2.3E-02	1.4E-02	5.4E-03	3.7E-03	1.9E-03	8.5E-04
FRACTILE 95.0	1.2E-02	7.9E-03	3.7E-03	1.9E-03	6.9E-04	3.5E-04
FRACTILE 90.0	1.1E-02	7.2E-03	3.0E-03	1.0E-03	4.8E-04	1.8E-04
FRACTILE 50.0	1.4E-03	9.5E-04	4.8E-04	2.6E-04	1.4E-04	7.6E-05
MEAN DOSES	3.1E-03	1.9E-03	8.8E-04	4.4E-04	2.3E-04	1.1E-04

CAT-V-bypass-C-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.5E+00	2.2E+00	1.3E+00	8.0E-01	5.4E-01	3.3E-01
FRACTILE 99.0	7.9E-01	7.2E-01	5.1E-01	3.5E-01	2.5E-01	1.5E-01
FRACTILE 95.0	6.8E-01	6.2E-01	4.4E-01	3.0E-01	2.2E-01	1.4E-01
FRACTILE 90.0	5.8E-01	5.4E-01	3.7E-01	2.3E-01	1.7E-01	1.0E-01
FRACTILE 50.0	2.6E-01	2.2E-01	1.2E-01	6.5E-02	4.4E-02	2.6E-02
MEAN DOSES	2.8E-01	2.5E-01	1.6E-01	9.9E-02	6.9E-02	4.2E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.2E-01	1.4E-01	7.5E-02	3.0E-02	4.4E-02	1.5E-02
FRACTILE 99.0	9.3E-02	5.6E-02	3.1E-02	1.9E-02	1.2E-02	7.9E-03
FRACTILE 95.0	8.1E-02	4.7E-02	2.3E-02	1.2E-02	7.6E-03	3.6E-03

FRACTILE 90.0	6.0E-02	4.0E-02	2.0E-02	7.1E-03	4.6E-03	2.7E-03
FRACTILE 50.0	1.4E-02	9.5E-03	4.7E-03	2.7E-03	1.5E-03	7.2E-04
MEAN DOSES	2.4E-02	1.5E-02	7.5E-03	3.9E-03	2.3E-03	1.3E-03

CAT-V-VVbypass-S-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
16	CR- 51	0.30500E+14
20	MN- 54	0.98900E+13
21	MN- 56	0.10600E+15
23	FE- 55	0.53400E+14
27	CO- 57	0.12300E+14
29	CO- 58	0.13300E+14
28	CO- 58M	0.19200E+14
31	CO- 60	0.15500E+13
30	CO- 60M	0.74000E+13
70	NB- 94	0.11600E+08
75	MO- 99	0.55500E+13
81	TC- 99	0.34700E+08
80	TC- 99M	0.48500E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	6.4E-02	5.4E-02	3.4E-02	2.4E-02	1.8E-02	1.1E-02
FRACTILE 99.0	4.1E-03	3.6E-03	3.5E-03	2.9E-03	2.5E-03	3.5E-03
FRACTILE 95.0	8.1E-04	6.9E-04	1.3E-03	1.1E-03	1.2E-03	1.6E-03
FRACTILE 90.0	2.9E-04	2.4E-04	5.0E-04	7.9E-04	9.5E-04	9.5E-04
FRACTILE 50.0	1.6E-05	1.6E-05	6.9E-05	2.7E-04	4.4E-04	5.2E-04
MEAN DOSES	2.4E-04	2.2E-04	3.0E-04	4.3E-04	5.4E-04	6.6E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.4E-03	6.7E-03	4.3E-03	2.6E-03	1.8E-03	9.8E-04
FRACTILE 99.0	6.3E-03	6.3E-03	3.2E-03	1.4E-03	1.3E-03	7.9E-04
FRACTILE 95.0	1.4E-03	1.4E-03	1.1E-03	7.8E-04	5.1E-04	3.2E-04
FRACTILE 90.0	1.2E-03	1.3E-03	1.0E-03	6.6E-04	4.2E-04	2.2E-04
FRACTILE 50.0	4.5E-04	3.5E-04	2.1E-04	1.3E-04	7.6E-05	4.4E-05
MEAN DOSES	6.9E-04	5.9E-04	3.7E-04	2.2E-04	1.5E-04	8.9E-05

CAT-V-bypass-S-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.6E+00	4.6E+00	2.8E+00	1.8E+00	1.3E+00	8.1E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	6.0E-02	5.0E-02	5.6E-02	4.3E-02	3.6E-02	2.9E-02
FRACTILE 90.0	2.5E-02	2.1E-02	2.7E-02	2.5E-02	2.1E-02	1.7E-02
FRACTILE 50.0	1.7E-05	1.9E-05	6.9E-04	3.5E-03	5.0E-03	6.9E-03
MEAN DOSES	1.8E-02	1.6E-02	1.4E-02	1.3E-02	1.3E-02	1.2E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	4.5E-01	2.8E-01	2.3E-01	8.6E-02	5.5E-02	4.4E-02
FRACTILE 99.0	8.7E-02	6.8E-02	3.6E-02	3.5E-02	1.9E-02	1.5E-02
FRACTILE 95.0	3.8E-02	3.2E-02	2.0E-02	9.3E-03	6.9E-03	6.6E-03
FRACTILE 90.0	1.7E-02	1.4E-02	1.1E-02	6.9E-03	4.9E-03	3.3E-03
FRACTILE 50.0	6.6E-03	5.2E-03	3.1E-03	1.9E-03	1.1E-03	6.5E-04

MEAN DOSES 1.1E-02 8.7E-03 5.3E-03 3.4E-03 2.2E-03 1.5E-03

CAT-V-bypass-S-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
16	CR- 51	0.30500E+14
20	MN- 54	0.98900E+13
21	MN- 56	0.10600E+15
23	FE- 55	0.53400E+14
27	CO- 57	0.12300E+14
29	CO- 58	0.13300E+14
28	CO- 58M	0.19200E+14
31	CO- 60	0.15500E+13
30	CO- 60M	0.74000E+13
70	NB- 94	0.11600E+08
75	MO- 99	0.55500E+13
81	TC- 99	0.34700E+08
80	TC- 99M	0.48500E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.4E-01	1.9E-01	1.4E-01	9.6E-02	6.9E-02	4.3E-02
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	9.5E-02	6.9E-02	4.3E-02
FRACTILE 95.0	1.0E-01	1.0E-01	7.8E-02	5.4E-02	3.9E-02	2.4E-02
FRACTILE 90.0	1.0E-01	9.8E-02	7.1E-02	4.8E-02	3.5E-02	2.2E-02
FRACTILE 50.0	2.3E-02	2.0E-02	1.2E-02	7.2E-03	4.9E-03	2.9E-03
MEAN DOSES	3.7E-02	3.3E-02	2.2E-02	1.4E-02	9.9E-03	6.1E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.5E-02	1.7E-02	8.0E-03	4.2E-03	2.7E-03	2.2E-03
FRACTILE 99.0	2.5E-02	1.6E-02	6.0E-03	4.2E-03	2.2E-03	1.2E-03
FRACTILE 95.0	1.4E-02	9.1E-03	4.3E-03	2.0E-03	8.1E-04	4.0E-04
FRACTILE 90.0	1.3E-02	8.1E-03	3.3E-03	1.1E-03	5.5E-04	2.8E-04
FRACTILE 50.0	1.6E-03	1.1E-03	5.2E-04	3.0E-04	1.7E-04	8.7E-05
MEAN DOSES	3.5E-03	2.1E-03	1.0E-03	5.0E-04	2.7E-04	1.3E-04

CAT-V-bypass-S-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.7E+00	6.6E+00	4.0E+00	2.4E+00	1.6E+00	1.0E+00
FRACTILE 99.0	1.7E+00	1.5E+00	1.1E+00	7.6E-01	5.5E-01	3.5E-01
FRACTILE 95.0	1.2E+00	1.1E+00	8.3E-01	5.6E-01	4.1E-01	2.8E-01
FRACTILE 90.0	1.0E+00	9.1E-01	6.6E-01	4.6E-01	3.3E-01	2.0E-01
FRACTILE 50.0	3.5E-01	2.9E-01	1.7E-01	1.0E-01	6.8E-02	4.0E-02
MEAN DOSES	4.6E-01	4.1E-01	2.6E-01	1.7E-01	1.2E-01	7.3E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	9.5E-01	4.6E-01	2.2E-01	9.6E-02	1.3E-01	5.7E-02
FRACTILE 99.0	1.0E-01	1.0E-01	7.9E-02	4.2E-02	3.5E-02	2.4E-02
FRACTILE 95.0	1.0E-01	9.3E-02	4.5E-02	2.5E-02	1.7E-02	1.0E-02
FRACTILE 90.0	1.0E-01	7.9E-02	3.9E-02	1.7E-02	9.8E-03	4.5E-03
FRACTILE 50.0	2.2E-02	1.4E-02	7.2E-03	3.9E-03	2.3E-03	1.1E-03

MEAN DOSES 4.3E-02 2.7E-02 1.4E-02 6.9E-03 4.5E-03 2.7E-03

CAT-V-bypass-W-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
16	CR- 51	0.72300E+07
20	MN- 54	0.36500E+10
21	MN- 56	0.13800E+12
23	FE- 55	0.49000E+10
27	CO- 57	0.70400E+10
29	CO- 58	0.14400E+11
31	CO- 60	0.60600E+09
157	TA-182	0.21600E+13
159	W -181	0.38100E+14
160	W -183M	0.40800E+15
161	W -185	0.37200E+15
162	W -187	0.23700E+15
166	RE-186	0.33600E+14
165	RE-186M	0.52700E+08
168	RE-188	0.14200E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	6.0E-02	5.0E-02	3.2E-02	2.2E-02	1.7E-02	1.1E-02
FRACTILE 99.0	3.8E-03	3.5E-03	3.3E-03	2.7E-03	2.3E-03	3.2E-03
FRACTILE 95.0	7.4E-04	6.5E-04	1.2E-03	1.0E-03	1.1E-03	1.5E-03
FRACTILE 90.0	2.6E-04	2.2E-04	4.5E-04	7.2E-04	8.5E-04	8.9E-04
FRACTILE 50.0	8.3E-06	9.1E-06	5.6E-05	2.5E-04	4.0E-04	4.8E-04
MEAN DOSES	2.2E-04	2.0E-04	2.7E-04	3.9E-04	4.9E-04	6.0E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.8E-03	6.1E-03	3.9E-03	2.4E-03	1.7E-03	9.1E-04
FRACTILE 99.0	5.8E-03	5.8E-03	3.0E-03	1.3E-03	1.2E-03	7.2E-04
FRACTILE 95.0	1.3E-03	1.3E-03	1.0E-03	7.1E-04	4.7E-04	2.9E-04
FRACTILE 90.0	1.1E-03	1.2E-03	9.5E-04	6.2E-04	3.8E-04	2.0E-04
FRACTILE 50.0	4.1E-04	3.2E-04	1.9E-04	1.2E-04	7.1E-05	4.1E-05
MEAN DOSES	6.3E-04	5.4E-04	3.4E-04	2.1E-04	1.3E-04	8.1E-05

CAT-V-bypass-W-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.6E+00	3.0E+00	1.8E+00	1.2E+00	8.3E-01	5.2E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	7.9E-02
FRACTILE 95.0	3.8E-02	3.8E-02	3.7E-02	3.2E-02	2.4E-02	2.2E-02
FRACTILE 90.0	1.6E-02	1.3E-02	2.1E-02	1.6E-02	1.7E-02	1.5E-02
FRACTILE 50.0	9.1E-06	1.1E-05	5.2E-04	2.9E-03	4.0E-03	5.4E-03
MEAN DOSES	1.2E-02	1.0E-02	9.8E-03	9.5E-03	9.6E-03	9.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.0E-01	1.8E-01	1.5E-01	5.5E-02	3.5E-02	2.8E-02
FRACTILE 99.0	5.8E-02	4.4E-02	2.5E-02	2.3E-02	1.3E-02	9.3E-03
FRACTILE 95.0	2.5E-02	2.2E-02	1.3E-02	6.8E-03	4.7E-03	4.6E-03

FRACTILE 90.0	1.3E-02	1.1E-02	8.3E-03	5.4E-03	3.6E-03	2.3E-03
FRACTILE 50.0	5.8E-03	4.6E-03	2.7E-03	1.6E-03	9.5E-04	5.5E-04
MEAN DOSES	8.2E-03	6.6E-03	4.1E-03	2.6E-03	1.7E-03	1.1E-03

CAT-V-bypass-W-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
16	CR- 51	0.72300E+07
20	MN- 54	0.36500E+10
21	MN- 56	0.13800E+12
23	FE- 55	0.49000E+10
27	CO- 57	0.70400E+10
29	CO- 58	0.14400E+11
31	CO- 60	0.60600E+09
157	TA-182	0.21600E+13
159	W -181	0.38100E+14
160	W -183M	0.40800E+15
161	W -185	0.37200E+15
162	W -187	0.23700E+15
166	RE-186	0.33600E+14
165	RE-186M	0.52700E+08
168	RE-188	0.14200E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.3E-01	1.8E-01	1.3E-01	8.8E-02	6.4E-02	4.0E-02
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	8.8E-02	6.4E-02	4.0E-02
FRACTILE 95.0	1.0E-01	9.8E-02	7.1E-02	4.9E-02	3.5E-02	2.2E-02
FRACTILE 90.0	9.8E-02	9.1E-02	6.5E-02	4.5E-02	3.2E-02	2.0E-02
FRACTILE 50.0	2.1E-02	1.9E-02	1.1E-02	6.6E-03	4.5E-03	2.6E-03
MEAN DOSES	3.4E-02	3.1E-02	2.0E-02	1.3E-02	9.1E-03	5.6E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.3E-02	1.5E-02	7.4E-03	3.9E-03	2.5E-03	2.0E-03
FRACTILE 99.0	2.3E-02	1.4E-02	5.6E-03	3.9E-03	2.0E-03	1.1E-03
FRACTILE 95.0	1.3E-02	8.3E-03	3.9E-03	1.9E-03	7.4E-04	3.6E-04
FRACTILE 90.0	1.1E-02	7.4E-03	3.0E-03	1.0E-03	5.0E-04	2.8E-04
FRACTILE 50.0	1.5E-03	1.0E-03	4.9E-04	2.8E-04	1.5E-04	8.1E-05
MEAN DOSES	3.2E-03	2.0E-03	9.2E-04	4.6E-04	2.5E-04	1.2E-04

CAT-V-bypass-W-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.0E+00	4.3E+00	2.6E+00	1.6E+00	1.1E+00	6.6E-01
FRACTILE 99.0	1.2E+00	1.1E+00	7.9E-01	5.5E-01	3.9E-01	2.5E-01
FRACTILE 95.0	9.5E-01	8.9E-01	6.5E-01	4.5E-01	3.2E-01	2.0E-01
FRACTILE 90.0	7.8E-01	7.1E-01	4.9E-01	3.4E-01	2.5E-01	1.5E-01
FRACTILE 50.0	3.1E-01	2.5E-01	1.3E-01	7.9E-02	5.2E-02	3.1E-02
MEAN DOSES	3.7E-01	3.2E-01	2.1E-01	1.3E-01	9.2E-02	5.7E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.2E-01	2.9E-01	1.4E-01	6.2E-02	8.6E-02	3.5E-02

FRACTILE 99.0	1.0E-01	8.9E-02	5.2E-02	2.7E-02	2.3E-02	1.6E-02
FRACTILE 95.0	1.0E-01	6.9E-02	3.2E-02	1.8E-02	1.2E-02	6.5E-03
FRACTILE 90.0	8.7E-02	5.8E-02	2.9E-02	1.1E-02	7.1E-03	3.5E-03
FRACTILE 50.0	1.7E-02	1.1E-02	5.8E-03	3.1E-03	1.8E-03	9.1E-04
MEAN DOSES	3.3E-02	2.1E-02	1.0E-02	5.3E-03	3.4E-03	1.9E-03

Probabilistic potential doses from source terms of case 4

CAT-V-LOVA-C-elevated, early dose (Greifswald)

NO. NUCLIDE	SUM					
4 NA- 24	0.11300E+13					
11 SC- 46	0.26900E+12					
31 CO- 60	0.23900E+13					
30 CO- 60M	0.38900E+14					
34 NI- 63	0.32000E+12					
36 CU- 62	0.65000E+15					
37 CU- 64	0.12000E+16					
38 CU- 66	0.40900E+15					
157 TA-182	0.12600E+13					

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.5E-02	6.2E-02	3.7E-02	2.4E-02	1.8E-02	1.1E-02
FRACTILE 99.0	4.8E-03	4.0E-03	4.0E-03	2.9E-03	2.3E-03	1.8E-03
FRACTILE 95.0	9.3E-04	8.5E-04	9.8E-04	8.1E-04	7.1E-04	8.7E-04
FRACTILE 90.0	3.6E-04	3.1E-04	5.6E-04	5.0E-04	5.2E-04	4.3E-04
FRACTILE 50.0	6.3E-05	6.5E-05	1.0E-04	1.7E-04	2.2E-04	2.3E-04
MEAN DOSES	3.1E-04	2.7E-04	3.2E-04	3.1E-04	3.2E-04	3.3E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.0E-03	3.6E-03	3.1E-03	1.2E-03	7.5E-04	7.3E-04
FRACTILE 99.0	2.3E-03	2.1E-03	1.1E-03	7.9E-04	5.2E-04	3.5E-04
FRACTILE 95.0	9.1E-04	6.3E-04	4.5E-04	2.8E-04	2.2E-04	1.6E-04
FRACTILE 90.0	5.2E-04	5.5E-04	3.9E-04	2.3E-04	1.8E-04	1.0E-04
FRACTILE 50.0	1.9E-04	1.4E-04	8.1E-05	4.5E-05	2.8E-05	1.7E-05
MEAN DOSES	3.0E-04	2.5E-04	1.5E-04	8.8E-05	6.1E-05	3.8E-05

CAT-V-LOVA-C-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.0E+00	2.5E+00	1.5E+00	9.5E-01	6.8E-01	4.3E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	8.7E-02	6.3E-02
FRACTILE 95.0	3.2E-02	2.7E-02	2.6E-02	2.2E-02	1.8E-02	1.4E-02
FRACTILE 90.0	6.5E-03	8.7E-03	6.9E-03	6.2E-03	5.1E-03	7.4E-03
FRACTILE 50.0	6.6E-05	6.6E-05	2.6E-04	9.5E-04	1.5E-03	1.9E-03
MEAN DOSES	9.8E-03	8.3E-03	7.1E-03	5.6E-03	5.1E-03	4.6E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.4E-01	1.5E-01	1.2E-01	4.7E-02	3.0E-02	2.4E-02
FRACTILE 99.0	4.6E-02	3.5E-02	1.8E-02	1.8E-02	1.0E-02	8.5E-03
FRACTILE 95.0	1.7E-02	1.4E-02	8.5E-03	4.6E-03	3.4E-03	3.0E-03
FRACTILE 90.0	6.5E-03	5.0E-03	4.1E-03	2.6E-03	1.9E-03	1.4E-03
FRACTILE 50.0	1.6E-03	1.2E-03	7.2E-04	4.1E-04	2.6E-04	1.5E-04
MEAN DOSES	4.0E-03	3.2E-03	2.0E-03	1.3E-03	8.4E-04	5.9E-04

CAT-V-LOVA-C-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
4	NA- 24	0.11300E+13
11	SC- 46	0.26900E+12
31	CO- 60	0.23900E+13
30	CO- 60M	0.38900E+14
34	NI- 63	0.32000E+12
36	CU- 62	0.65000E+15
37	CU- 64	0.12000E+16
38	CU- 66	0.40900E+15
157	TA-182	0.12600E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.2E-01	1.0E-01	6.0E-02	3.6E-02	2.6E-02	1.6E-02
FRACTILE 99.0	7.4E-02	6.8E-02	4.9E-02	3.4E-02	2.4E-02	1.5E-02
FRACTILE 95.0	4.3E-02	3.9E-02	2.8E-02	1.9E-02	1.4E-02	8.9E-03
FRACTILE 90.0	3.8E-02	3.5E-02	2.6E-02	1.8E-02	1.3E-02	8.1E-03
FRACTILE 50.0	8.3E-03	7.2E-03	4.3E-03	2.6E-03	1.8E-03	1.0E-03
MEAN DOSES	1.4E-02	1.2E-02	8.1E-03	5.3E-03	3.7E-03	2.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.4E-02	6.5E-03	4.1E-03	1.4E-03	1.7E-03	1.5E-03
FRACTILE 99.0	8.7E-03	5.5E-03	2.2E-03	1.2E-03	7.6E-04	5.2E-04
FRACTILE 95.0	5.1E-03	3.4E-03	1.6E-03	8.1E-04	4.8E-04	2.2E-04
FRACTILE 90.0	4.7E-03	3.1E-03	1.3E-03	4.1E-04	2.8E-04	1.5E-04
FRACTILE 50.0	5.9E-04	3.9E-04	1.9E-04	9.5E-05	5.9E-05	3.2E-05
MEAN DOSES	1.3E-03	8.3E-04	4.0E-04	1.8E-04	1.2E-04	6.4E-05

CAT-V-LOVA-C-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.0E+00	3.4E+00	2.1E+00	1.3E+00	8.6E-01	5.7E-01
FRACTILE 99.0	7.6E-01	6.9E-01	5.0E-01	3.5E-01	2.5E-01	1.5E-01
FRACTILE 95.0	4.6E-01	4.2E-01	3.0E-01	2.1E-01	1.6E-01	1.0E-01
FRACTILE 90.0	3.9E-01	3.5E-01	2.6E-01	1.8E-01	1.3E-01	8.7E-02
FRACTILE 50.0	8.1E-02	6.9E-02	4.1E-02	2.4E-02	1.6E-02	1.0E-02
MEAN DOSES	1.5E-01	1.3E-01	8.8E-02	5.7E-02	4.1E-02	2.6E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.0E-01	2.5E-01	1.2E-01	5.2E-02	6.8E-02	3.3E-02
FRACTILE 99.0	1.0E-01	6.6E-02	4.2E-02	2.1E-02	1.9E-02	1.3E-02
FRACTILE 95.0	6.0E-02	3.8E-02	2.1E-02	1.2E-02	8.3E-03	5.1E-03
FRACTILE 90.0	5.0E-02	3.3E-02	1.6E-02	7.4E-03	4.5E-03	2.2E-03
FRACTILE 50.0	5.8E-03	3.7E-03	1.9E-03	9.3E-04	5.8E-04	3.2E-04
MEAN DOSES	1.5E-02	9.7E-03	5.1E-03	2.4E-03	1.8E-03	1.1E-03

CAT-V-LOVA-S-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
16	CR- 51	0.67000E+14
20	MN- 54	0.21700E+14
21	MN- 56	0.23200E+15
23	FE- 55	0.11700E+15
27	CO- 57	0.27000E+14
29	CO- 58	0.29200E+14
28	CO- 58M	0.42200E+14
31	CO- 60	0.34000E+13
30	CO- 60M	0.16300E+14
70	NB- 94	0.25500E+08
75	MO- 99	0.12200E+14
81	TC- 99	0.76200E+08
80	TC- 99M	0.10700E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.4E-01	1.2E-01	6.9E-02	4.5E-02	3.3E-02	2.0E-02
FRACTILE 99.0	8.7E-03	7.4E-03	7.4E-03	5.2E-03	4.2E-03	3.2E-03
FRACTILE 95.0	1.5E-03	1.4E-03	1.7E-03	1.3E-03	1.1E-03	1.3E-03
FRACTILE 90.0	6.2E-04	5.2E-04	7.6E-04	6.9E-04	8.1E-04	7.1E-04
FRACTILE 50.0	3.5E-05	3.5E-05	9.1E-05	1.8E-04	2.7E-04	3.2E-04
MEAN DOSES	4.9E-04	4.2E-04	4.4E-04	4.3E-04	4.6E-04	4.9E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.1E-02	6.9E-03	5.8E-03	2.2E-03	1.4E-03	1.3E-03
FRACTILE 99.0	3.9E-03	3.7E-03	1.9E-03	1.4E-03	8.9E-04	5.9E-04
FRACTILE 95.0	1.6E-03	1.0E-03	7.2E-04	4.6E-04	3.6E-04	2.7E-04
FRACTILE 90.0	7.8E-04	8.3E-04	6.3E-04	4.1E-04	3.1E-04	1.7E-04
FRACTILE 50.0	2.7E-04	2.0E-04	1.3E-04	7.1E-05	4.7E-05	2.7E-05
MEAN DOSES	4.7E-04	3.9E-04	2.4E-04	1.4E-04	1.0E-04	6.5E-05

CAT-V-LOVA-S-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.2E+01	9.5E+00	5.6E+00	3.6E+00	2.6E+00	1.6E+00
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	1.0E-01	1.0E-01	1.0E-01	8.3E-02	6.9E-02	5.2E-02
FRACTILE 90.0	2.3E-02	3.1E-02	2.6E-02	2.2E-02	1.9E-02	2.8E-02
FRACTILE 50.0	3.5E-05	3.6E-05	6.3E-04	3.3E-03	5.4E-03	6.6E-03
MEAN DOSES	3.7E-02	3.1E-02	2.7E-02	2.1E-02	1.9E-02	1.7E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	9.1E-01	5.6E-01	4.5E-01	1.8E-01	1.2E-01	9.2E-02
FRACTILE 99.0	1.0E-01	1.0E-01	6.8E-02	7.1E-02	4.0E-02	3.2E-02
FRACTILE 95.0	6.6E-02	5.2E-02	3.2E-02	1.7E-02	1.3E-02	1.1E-02
FRACTILE 90.0	2.4E-02	1.9E-02	1.5E-02	9.3E-03	6.9E-03	5.2E-03
FRACTILE 50.0	5.6E-03	4.4E-03	2.6E-03	1.4E-03	9.5E-04	5.4E-04
MEAN DOSES	1.5E-02	1.2E-02	7.2E-03	4.7E-03	3.1E-03	2.2E-03

CAT-V-LOVA-S-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
16	CR- 51	0.67000E+14
20	MN- 54	0.21700E+14
21	MN- 56	0.23200E+15
23	FE- 55	0.11700E+15
27	CO- 57	0.27000E+14
29	CO- 58	0.29200E+14
28	CO- 58M	0.42200E+14
31	CO- 60	0.34000E+13
30	CO- 60M	0.16300E+14
70	NB- 94	0.25500E+08
75	MO- 99	0.12200E+14
81	TC- 99	0.76200E+08
80	TC- 99M	0.10700E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.2E-01	1.9E-01	1.1E-01	6.5E-02	4.4E-02	2.9E-02
FRACTILE 99.0	1.0E-01	1.0E-01	8.1E-02	5.5E-02	4.1E-02	2.5E-02
FRACTILE 95.0	7.1E-02	6.3E-02	4.6E-02	3.2E-02	2.3E-02	1.4E-02
FRACTILE 90.0	6.2E-02	5.6E-02	4.2E-02	2.9E-02	2.1E-02	1.3E-02
FRACTILE 50.0	1.3E-02	1.1E-02	6.6E-03	3.9E-03	2.6E-03	1.6E-03
MEAN DOSES	2.2E-02	2.0E-02	1.3E-02	8.4E-03	6.0E-03	3.7E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.6E-02	1.2E-02	7.5E-03	2.4E-03	3.3E-03	2.7E-03
FRACTILE 99.0	1.5E-02	9.3E-03	3.9E-03	2.1E-03	1.4E-03	9.1E-04
FRACTILE 95.0	8.5E-03	5.8E-03	2.8E-03	1.4E-03	8.1E-04	3.7E-04
FRACTILE 90.0	7.8E-03	5.2E-03	2.1E-03	6.9E-04	4.8E-04	2.6E-04
FRACTILE 50.0	8.9E-04	5.9E-04	3.0E-04	1.6E-04	9.8E-05	5.4E-05
MEAN DOSES	2.2E-03	1.4E-03	6.7E-04	3.0E-04	2.0E-04	1.1E-04

CAT-V-LOVA-S-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.5E+01	1.3E+01	7.8E+00	4.8E+00	3.3E+00	2.2E+00
FRACTILE 99.0	2.8E+00	2.6E+00	1.9E+00	1.3E+00	9.1E-01	5.8E-01
FRACTILE 95.0	1.7E+00	1.6E+00	1.1E+00	7.9E-01	5.9E-01	3.8E-01
FRACTILE 90.0	1.4E+00	1.3E+00	9.3E-01	6.5E-01	4.9E-01	3.2E-01
FRACTILE 50.0	3.0E-01	2.5E-01	1.5E-01	8.7E-02	5.9E-02	3.5E-02
MEAN DOSES	5.5E-01	4.9E-01	3.2E-01	2.1E-01	1.5E-01	9.5E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.9E+00	9.5E-01	4.6E-01	2.0E-01	2.6E-01	1.3E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	8.1E-02	7.2E-02	4.8E-02
FRACTILE 95.0	1.0E-01	1.0E-01	7.8E-02	4.6E-02	3.0E-02	1.9E-02
FRACTILE 90.0	1.0E-01	1.0E-01	5.9E-02	2.8E-02	1.7E-02	8.3E-03
FRACTILE 50.0	2.0E-02	1.3E-02	6.8E-03	3.4E-03	2.2E-03	1.2E-03
MEAN DOSES	5.7E-02	3.6E-02	1.9E-02	9.1E-03	6.8E-03	4.2E-03

CAT-V-LOVA-W-elevated, early dose (Greifswald)

NO.	NUCLIDE	SUM
157	TA-182	0.47500E+13
159	W -181	0.83800E+14
160	W -183M	0.89800E+15
161	W -185	0.81800E+15
162	W -187	0.52100E+15
166	RE-186	0.73900E+14
165	RE-186M	0.11600E+09
168	RE-188	0.31300E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.3E-01	1.1E-01	6.4E-02	4.2E-02	3.0E-02	1.9E-02
FRACTILE 99.0	8.1E-03	6.9E-03	6.9E-03	4.9E-03	3.9E-03	2.9E-03
FRACTILE 95.0	1.4E-03	1.2E-03	1.3E-03	1.0E-03	9.1E-04	1.2E-03
FRACTILE 90.0	5.8E-04	4.8E-04	6.6E-04	5.8E-04	6.0E-04	5.4E-04
FRACTILE 50.0	1.8E-05	1.8E-05	5.5E-05	1.2E-04	1.8E-04	2.2E-04
MEAN DOSES	4.4E-04	3.8E-04	3.7E-04	3.4E-04	3.5E-04	3.6E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.1E-02	6.4E-03	5.3E-03	2.1E-03	1.3E-03	1.1E-03
FRACTILE 99.0	2.7E-03	2.6E-03	1.5E-03	1.0E-03	6.9E-04	4.4E-04
FRACTILE 95.0	1.2E-03	8.3E-04	5.5E-04	3.2E-04	2.6E-04	1.9E-04
FRACTILE 90.0	5.5E-04	5.8E-04	4.7E-04	2.9E-04	2.1E-04	1.2E-04
FRACTILE 50.0	1.8E-04	1.4E-04	8.5E-05	4.8E-05	3.2E-05	1.8E-05
MEAN DOSES	3.4E-04	2.8E-04	1.8E-04	1.1E-04	7.4E-05	4.9E-05

CAT-V-LOVA-W-elevated, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.1E+00	5.9E+00	3.5E+00	2.2E+00	1.6E+00	1.0E+00
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	7.6E-02	6.3E-02	6.2E-02	5.1E-02	4.3E-02	3.2E-02
FRACTILE 90.0	1.4E-02	1.9E-02	1.6E-02	1.3E-02	1.1E-02	1.7E-02
FRACTILE 50.0	1.8E-05	1.9E-05	3.9E-04	2.0E-03	3.3E-03	4.1E-03
MEAN DOSES	2.3E-02	1.9E-02	1.6E-02	1.3E-02	1.2E-02	1.0E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.6E-01	3.5E-01	2.8E-01	1.1E-01	7.1E-02	5.7E-02
FRACTILE 99.0	1.0E-01	8.3E-02	4.2E-02	4.4E-02	2.5E-02	2.0E-02
FRACTILE 95.0	4.1E-02	3.2E-02	2.0E-02	1.0E-02	7.8E-03	7.1E-03
FRACTILE 90.0	1.5E-02	1.2E-02	9.1E-03	5.8E-03	4.3E-03	3.2E-03
FRACTILE 50.0	3.5E-03	2.7E-03	1.6E-03	8.9E-04	5.9E-04	3.3E-04
MEAN DOSES	9.0E-03	7.2E-03	4.4E-03	2.9E-03	1.9E-03	1.4E-03

CAT-V-LOVA-W-ground, early dose (Greifswald)

NO.	NUCLIDE	SUM
157	TA-182	0.47500E+13
159	W -181	0.83800E+14
160	W -183M	0.89800E+15
161	W -185	0.81800E+15
162	W -187	0.52100E+15
166	RE-186	0.73900E+14
165	RE-186M	0.11600E+09
168	RE-188	0.31300E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.9E-01	1.7E-01	9.7E-02	5.9E-02	3.9E-02	2.6E-02
FRACTILE 99.0	8.3E-02	7.8E-02	5.6E-02	3.9E-02	2.8E-02	1.8E-02
FRACTILE 95.0	5.0E-02	4.6E-02	3.3E-02	2.2E-02	1.6E-02	1.0E-02
FRACTILE 90.0	4.3E-02	4.0E-02	2.9E-02	2.0E-02	1.4E-02	9.3E-03
FRACTILE 50.0	9.1E-03	7.8E-03	4.6E-03	2.7E-03	1.8E-03	1.1E-03
MEAN DOSES	1.6E-02	1.4E-02	9.1E-03	5.9E-03	4.2E-03	2.6E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.3E-02	1.1E-02	6.2E-03	2.3E-03	3.0E-03	2.2E-03
FRACTILE 99.0	1.0E-02	6.5E-03	2.9E-03	1.5E-03	1.1E-03	6.6E-04
FRACTILE 95.0	6.5E-03	4.0E-03	1.9E-03	9.8E-04	6.0E-04	3.0E-04
FRACTILE 90.0	5.5E-03	3.6E-03	1.5E-03	4.9E-04	3.6E-04	1.9E-04
FRACTILE 50.0	6.2E-04	4.1E-04	2.2E-04	1.1E-04	6.8E-05	3.8E-05
MEAN DOSES	1.5E-03	9.7E-04	4.8E-04	2.2E-04	1.5E-04	8.6E-05

CAT-V-LOVA-W-ground, EDE, with ingestion (Greifswald)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	9.3E+00	8.0E+00	4.8E+00	3.0E+00	2.0E+00	1.3E+00
FRACTILE 99.0	1.7E+00	1.6E+00	1.1E+00	7.8E-01	5.6E-01	3.5E-01
FRACTILE 95.0	1.1E+00	9.8E-01	6.9E-01	4.9E-01	3.6E-01	2.3E-01
FRACTILE 90.0	8.9E-01	8.1E-01	5.9E-01	4.0E-01	3.1E-01	1.9E-01
FRACTILE 50.0	1.8E-01	1.6E-01	9.1E-02	5.4E-02	3.6E-02	2.2E-02
MEAN DOSES	3.4E-01	3.0E-01	2.0E-01	1.3E-01	9.3E-02	5.9E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.2E+00	5.9E-01	2.9E-01	1.2E-01	1.6E-01	7.7E-02
FRACTILE 99.0	1.0E-01	1.0E-01	9.8E-02	5.0E-02	4.5E-02	3.0E-02
FRACTILE 95.0	1.0E-01	8.7E-02	4.8E-02	2.8E-02	1.9E-02	1.2E-02
FRACTILE 90.0	1.0E-01	7.6E-02	3.6E-02	1.7E-02	1.0E-02	5.1E-03
FRACTILE 50.0	1.3E-02	8.3E-03	4.2E-03	2.1E-03	1.3E-03	7.2E-04
MEAN DOSES	3.5E-02	2.2E-02	1.2E-02	5.6E-03	4.2E-03	2.6E-03

APPENDIX C -Cadarache

Probabilistic potential doses from source terms of case 1

CAT-IV-HTO-elevated, early dose (Cadache)

NO. NUCLIDE	SUM					
1 HTO	3.70000E+16					
RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	3.2E-03	3.9E-03	5.8E-03	6.1E-03	5.8E-03	4.5E-03
FRACTILE 99.0	2.9E-03	3.8E-03	5.8E-03	6.0E-03	5.1E-03	3.6E-03
FRACTILE 95.0	1.9E-03	2.5E-03	3.4E-03	3.1E-03	2.6E-03	2.5E-03
FRACTILE 90.0	8.1E-04	2.0E-03	2.5E-03	2.2E-03	2.0E-03	1.8E-03
FRACTILE 50.0	4.2E-06	1.3E-05	1.7E-04	3.6E-04	6.5E-04	1.0E-03
MEAN DOSES	2.5E-04	4.1E-04	8.1E-04	9.2E-04	9.8E-04	1.2E-03
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	3.3E-03	3.7E-03	3.1E-03	3.1E-03	1.6E-03	8.3E-04
FRACTILE 99.0	3.2E-03	3.7E-03	2.9E-03	2.7E-03	1.6E-03	8.3E-04
FRACTILE 95.0	3.1E-03	3.4E-03	2.5E-03	2.6E-03	9.3E-04	4.4E-04
FRACTILE 90.0	2.9E-03	3.0E-03	2.5E-03	1.9E-03	6.5E-04	3.0E-04
FRACTILE 50.0	7.1E-04	5.1E-04	2.9E-04	1.6E-04	9.1E-05	4.0E-05
MEAN DOSES	1.3E-03	1.2E-03	8.7E-04	6.5E-04	2.6E-04	1.2E-04

CAT-IV-HTO-elevated, EDE, with ingestion (Cadache)

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	4.6E-01	3.9E-01	2.4E-01	1.7E-01	1.3E-01	9.6E-02
FRACTILE 99.0	8.1E-02	8.3E-02	9.5E-02	7.1E-02	5.4E-02	4.6E-02
FRACTILE 95.0	2.5E-02	3.5E-02	4.5E-02	4.7E-02	4.4E-02	3.0E-02
FRACTILE 90.0	1.6E-02	1.9E-02	3.2E-02	3.2E-02	2.7E-02	1.9E-02
FRACTILE 50.0	4.9E-05	1.9E-04	2.6E-03	3.4E-03	5.5E-03	7.4E-03
MEAN DOSES	6.0E-03	7.6E-03	1.2E-02	1.3E-02	1.2E-02	1.1E-02
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	6.1E-02	4.0E-02	2.2E-02	2.6E-02	1.2E-02	5.2E-03
FRACTILE 99.0	3.7E-02	2.8E-02	1.7E-02	1.1E-02	6.8E-03	5.2E-03
FRACTILE 95.0	2.0E-02	1.5E-02	1.1E-02	9.5E-03	4.9E-03	2.7E-03
FRACTILE 90.0	1.7E-02	1.3E-02	1.1E-02	8.3E-03	3.7E-03	2.1E-03
FRACTILE 50.0	9.1E-03	8.1E-03	4.3E-03	2.5E-03	1.4E-03	5.6E-04
MEAN DOSES	9.5E-03	7.9E-03	5.1E-03	3.6E-03	1.8E-03	8.7E-04

CAT-IV-HTO-ground, early dose (Cadarache)

NO.	NUCLIDE	SUM					
1	HTO	3.70000E+15					
RADIUS (KM)							
		0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES							
		2.6E-02	2.4E-02	1.7E-02	1.2E-02	8.7E-03	5.7E-03
	FRACTILE 99.0	2.6E-02	2.4E-02	1.7E-02	1.2E-02	8.7E-03	5.4E-03
	FRACTILE 95.0	2.6E-02	2.3E-02	1.7E-02	1.2E-02	8.5E-03	5.4E-03
	FRACTILE 90.0	2.5E-02	2.3E-02	1.7E-02	1.1E-02	8.3E-03	5.1E-03
	FRACTILE 50.0	3.2E-03	2.6E-03	1.5E-03	8.3E-04	5.2E-04	2.9E-04
MEAN DOSES							
		9.3E-03	8.3E-03	5.6E-03	3.7E-03	2.6E-03	1.6E-03
RADIUS (KM)							
		1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES							
		4.4E-03	2.7E-03	9.9E-04	3.7E-04	2.0E-04	7.7E-05
	FRACTILE 99.0	3.4E-03	1.9E-03	6.6E-04	3.7E-04	1.8E-04	5.1E-05
	FRACTILE 95.0	3.4E-03	1.8E-03	4.7E-04	3.0E-04	1.2E-04	4.1E-05
	FRACTILE 90.0	3.0E-03	1.0E-03	4.3E-04	2.1E-04	7.6E-05	3.2E-05
	FRACTILE 50.0	1.5E-04	1.0E-04	3.4E-05	1.7E-05	9.1E-06	4.6E-06
MEAN DOSES							
		9.3E-04	3.8E-04	1.3E-04	6.7E-05	2.7E-05	8.7E-06

CAT-IV-HTO-ground, EDE, with ingestion (Cadarache)

RADIUS (KM)							
		0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES							
		1.7E-01	1.5E-01	9.2E-02	6.3E-02	4.6E-02	2.9E-02
	FRACTILE 99.0	1.3E-01	1.2E-01	7.9E-02	5.1E-02	3.7E-02	2.2E-02
	FRACTILE 95.0	1.1E-01	1.0E-01	7.1E-02	4.7E-02	3.3E-02	2.1E-02
	FRACTILE 90.0	9.8E-02	8.9E-02	6.5E-02	4.3E-02	3.1E-02	1.9E-02
	FRACTILE 50.0	4.4E-02	3.5E-02	1.7E-02	9.1E-03	5.9E-03	3.3E-03
MEAN DOSES							
		5.3E-02	4.7E-02	3.0E-02	1.9E-02	1.3E-02	7.8E-03
RADIUS (KM)							
		1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES							
		2.6E-02	1.1E-02	4.5E-03	2.4E-03	1.4E-03	1.7E-03
	FRACTILE 99.0	1.3E-02	9.8E-03	3.7E-03	1.8E-03	1.3E-03	3.9E-04
	FRACTILE 95.0	1.3E-02	6.9E-03	3.0E-03	1.3E-03	6.8E-04	2.6E-04
	FRACTILE 90.0	1.1E-02	5.9E-03	2.2E-03	1.2E-03	5.6E-04	1.8E-04
	FRACTILE 50.0	1.8E-03	1.2E-03	5.8E-04	3.2E-04	1.7E-04	7.2E-05
MEAN DOSES							
		4.6E-03	2.4E-03	9.4E-04	4.8E-04	2.4E-04	9.5E-05

CAT-IV-HT-elevated, early dose (Cadarache)

NO. NUCLIDE	SUM
1 HTO	1.11000E+18

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	2.3E-04	2.6E-04	4.8E-04	6.7E-04	7.4E-04	5.2E-04
FRACTILE 99.0	2.3E-04	2.5E-04	4.6E-04	6.7E-04	6.9E-04	5.0E-04
FRACTILE 95.0	1.3E-04	2.3E-04	2.8E-04	3.2E-04	3.3E-04	2.9E-04
FRACTILE 90.0	9.3E-05	1.7E-04	2.1E-04	2.4E-04	2.3E-04	1.7E-04
FRACTILE 50.0	7.9E-06	8.3E-06	1.3E-05	2.5E-05	4.4E-05	7.4E-05
MEAN DOSES	2.5E-05	3.6E-05	6.0E-05	9.0E-05	1.0E-04	9.4E-05
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	4.6E-04	3.7E-04	2.4E-04	2.4E-04	1.2E-04	5.0E-05
FRACTILE 99.0	3.7E-04	3.5E-04	2.4E-04	2.1E-04	1.1E-04	4.9E-05
FRACTILE 95.0	3.4E-04	2.8E-04	2.0E-04	2.0E-04	1.1E-04	4.8E-05
FRACTILE 90.0	3.0E-04	2.5E-04	1.4E-04	1.3E-04	8.3E-05	4.0E-05
FRACTILE 50.0	7.6E-05	6.2E-05	3.6E-05	2.5E-05	1.4E-05	7.2E-06
MEAN DOSES	1.0E-04	9.4E-05	5.7E-05	4.8E-05	2.7E-05	1.3E-05

CAT-IV-HT-elevated, EDE, with ingestion (Cadarache)

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	3.9E-02	5.3E-02	6.1E-02	6.7E-02	6.1E-02	5.7E-02
FRACTILE 99.0	2.7E-02	3.6E-02	6.0E-02	6.3E-02	5.2E-02	3.7E-02
FRACTILE 95.0	1.7E-02	2.3E-02	3.2E-02	3.2E-02	2.9E-02	2.7E-02
FRACTILE 90.0	7.8E-03	1.8E-02	2.0E-02	2.0E-02	1.9E-02	2.0E-02
FRACTILE 50.0	7.8E-05	1.4E-04	1.4E-03	3.7E-03	6.0E-03	9.5E-03
MEAN DOSES	2.4E-03	3.8E-03	7.7E-03	9.0E-03	9.7E-03	1.1E-02
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	4.9E-02	3.9E-02	3.7E-02	3.3E-02	1.5E-02	9.7E-03
FRACTILE 99.0	3.4E-02	3.9E-02	2.8E-02	2.8E-02	1.5E-02	9.7E-03
FRACTILE 95.0	3.0E-02	3.4E-02	2.8E-02	2.6E-02	1.1E-02	4.0E-03
FRACTILE 90.0	3.0E-02	3.3E-02	2.7E-02	2.0E-02	7.4E-03	3.5E-03
FRACTILE 50.0	6.9E-03	4.7E-03	2.8E-03	1.7E-03	9.3E-04	4.4E-04
MEAN DOSES	1.3E-02	1.2E-02	8.6E-03	6.5E-03	2.7E-03	1.2E-03

CAT-IV-HT-ground, early dose (Cadarahe)

NO. NUCLIDE	SUM
1 HTO	1.11000E+17

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	1.1E-03	1.1E-03	9.4E-04	7.9E-04	6.8E-04	4.7E-04
FRACTILE 99.0	6.5E-04	1.1E-03	7.9E-04	7.1E-04	6.2E-04	4.2E-04
FRACTILE 95.0	6.2E-04	9.1E-04	7.8E-04	6.8E-04	5.8E-04	3.5E-04
FRACTILE 90.0	5.2E-04	8.9E-04	6.6E-04	6.2E-04	5.4E-04	3.3E-04
FRACTILE 50.0	8.3E-05	1.4E-04	8.9E-05	6.5E-05	4.9E-05	3.1E-05
MEAN DOSES	1.9E-04	2.8E-04	2.3E-04	1.8E-04	1.5E-04	9.5E-05
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	3.8E-04	2.8E-04	9.8E-05	5.4E-05	3.0E-05	1.9E-05
FRACTILE 99.0	3.8E-04	2.2E-04	6.9E-05	3.2E-05	2.6E-05	8.9E-06
FRACTILE 95.0	3.1E-04	1.8E-04	6.9E-05	3.0E-05	1.3E-05	7.6E-06
FRACTILE 90.0	2.2E-04	1.7E-04	4.4E-05	2.8E-05	1.2E-05	7.6E-06
FRACTILE 50.0	1.9E-05	1.4E-05	6.9E-06	4.5E-06	2.5E-06	1.3E-06
MEAN DOSES	7.0E-05	4.6E-05	1.7E-05	9.6E-06	4.8E-06	2.3E-06

CAT-IV-HT-ground, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.210	0.320	0.500	0.680	1.000
MAX. DOSES	3.0E-01	2.8E-01	2.1E-01	1.4E-01	1.1E-01	7.0E-02
FRACTILE 99.0	2.8E-01	2.6E-01	1.9E-01	1.3E-01	9.8E-02	6.2E-02
FRACTILE 95.0	2.8E-01	2.6E-01	1.9E-01	1.3E-01	9.5E-02	6.0E-02
FRACTILE 90.0	2.5E-01	2.3E-01	1.7E-01	1.2E-01	9.3E-02	5.9E-02
FRACTILE 50.0	3.0E-02	2.5E-02	1.4E-02	8.3E-03	5.6E-03	3.3E-03
MEAN DOSES	9.0E-02	8.2E-02	5.6E-02	3.8E-02	2.7E-02	1.7E-02
RADIUS (KM)	1.500	2.000	3.200	4.600	6.800	10.000
MAX. DOSES	4.9E-02	3.1E-02	1.2E-02	4.3E-03	3.2E-03	1.5E-03
FRACTILE 99.0	3.8E-02	2.4E-02	9.1E-03	4.3E-03	2.1E-03	6.2E-04
FRACTILE 95.0	3.7E-02	1.8E-02	5.6E-03	4.1E-03	1.6E-03	4.4E-04
FRACTILE 90.0	3.6E-02	1.3E-02	4.9E-03	3.1E-03	1.2E-03	3.4E-04
FRACTILE 50.0	1.9E-03	1.2E-03	4.6E-04	2.5E-04	1.2E-04	5.5E-05
MEAN DOSES	1.0E-02	4.3E-03	1.6E-03	8.4E-04	3.6E-04	1.1E-04

CAT-IV-N-C-elevated, early dose (Cadache)

NO.	NUCLIDE	SUM
4	NA- 24	0.68200E+12
11	SC- 46	0.16300E+12
31	CO- 60	0.14500E+13
30	CO- 60M	0.23600E+14
34	NI- 63	0.19400E+12
36	CU- 62	0.39400E+15
37	CU- 64	0.72600E+15
38	CU- 66	0.24800E+15
157	TA-182	0.76600E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.9E-02	4.9E-02	2.9E-02	1.9E-02	1.4E-02	8.8E-03
FRACTILE 99.0	5.1E-03	4.4E-03	2.9E-03	2.2E-03	2.0E-03	1.6E-03
FRACTILE 95.0	5.6E-04	6.8E-04	1.3E-03	1.2E-03	9.5E-04	6.5E-04
FRACTILE 90.0	5.1E-04	6.3E-04	6.9E-04	5.2E-04	4.3E-04	4.4E-04
FRACTILE 50.0	4.2E-05	4.4E-05	2.0E-04	1.7E-04	2.2E-04	2.1E-04
MEAN DOSES	3.3E-04	3.1E-04	3.6E-04	3.2E-04	3.0E-04	2.9E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.0E-03	3.1E-03	1.4E-03	7.7E-04	4.8E-04	3.0E-04
FRACTILE 99.0	1.1E-03	8.9E-04	5.8E-04	3.6E-04	3.0E-04	1.5E-04
FRACTILE 95.0	6.3E-04	6.8E-04	5.2E-04	2.9E-04	2.1E-04	1.2E-04
FRACTILE 90.0	5.9E-04	5.8E-04	4.5E-04	2.3E-04	1.3E-04	6.6E-05
FRACTILE 50.0	1.4E-04	1.1E-04	5.2E-05	2.3E-05	1.5E-05	6.6E-06
MEAN DOSES	2.8E-04	2.5E-04	1.7E-04	9.2E-05	5.4E-05	2.6E-05

CAT-IV-N-C-elevated, EDE, with ingestion (Cadache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.4E+00	2.0E+00	1.2E+00	7.5E-01	5.4E-01	3.5E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	7.6E-02	6.0E-02	4.5E-02
FRACTILE 95.0	3.9E-03	5.2E-03	1.0E-02	1.1E-02	8.9E-03	6.2E-03
FRACTILE 90.0	2.8E-03	3.8E-03	5.9E-03	4.4E-03	3.5E-03	3.2E-03
FRACTILE 50.0	4.6E-05	5.2E-05	3.2E-04	7.6E-04	1.2E-03	1.7E-03
MEAN DOSES	9.5E-03	8.3E-03	6.1E-03	4.8E-03	4.1E-03	3.7E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.0E-01	1.2E-01	5.8E-02	3.0E-02	2.0E-02	1.2E-02
FRACTILE 99.0	3.2E-02	2.5E-02	1.7E-02	8.7E-03	6.3E-03	3.9E-03
FRACTILE 95.0	5.6E-03	6.6E-03	5.1E-03	3.5E-03	3.0E-03	2.3E-03
FRACTILE 90.0	5.5E-03	6.0E-03	4.5E-03	2.9E-03	1.7E-03	1.5E-03
FRACTILE 50.0	1.2E-03	9.1E-04	4.6E-04	2.3E-04	1.5E-04	6.5E-05
MEAN DOSES	3.4E-03	3.0E-03	2.0E-03	1.1E-03	7.0E-04	4.4E-04

CAT-IV-N-C-ground, early dose (Cadache)

NO.	NUCLIDE	SUM
4	NA- 24	0.68200E+11
11	SC- 46	0.16300E+11
31	CO- 60	0.14500E+12
30	CO- 60M	0.23600E+13
34	NI- 63	0.19400E+11
36	CU- 62	0.39400E+14
37	CU- 64	0.72600E+14
38	CU- 66	0.24800E+14
157	TA-182	0.76600E+11

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.1E-02	9.4E-03	5.6E-03	3.3E-03	2.1E-03	1.1E-03
FRACTILE 99.0	4.6E-03	4.2E-03	3.0E-03	2.1E-03	1.5E-03	9.8E-04
FRACTILE 95.0	4.6E-03	4.2E-03	3.0E-03	2.1E-03	1.5E-03	9.5E-04
FRACTILE 90.0	4.5E-03	4.2E-03	3.0E-03	2.0E-03	1.5E-03	9.1E-04
FRACTILE 50.0	6.2E-04	4.8E-04	2.8E-04	1.7E-04	1.2E-04	6.9E-05
MEAN DOSES	1.7E-03	1.5E-03	1.0E-03	6.8E-04	4.9E-04	3.0E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	8.9E-04	5.0E-04	1.9E-04	1.8E-04	1.1E-04	1.3E-04
FRACTILE 99.0	6.2E-04	3.4E-04	1.3E-04	6.3E-05	4.7E-05	4.2E-05
FRACTILE 95.0	6.2E-04	3.3E-04	1.0E-04	4.0E-05	3.2E-05	1.6E-05
FRACTILE 90.0	5.2E-04	2.0E-04	8.3E-05	3.3E-05	1.6E-05	1.0E-05
FRACTILE 50.0	3.8E-05	2.0E-05	6.3E-06	2.7E-06	1.7E-06	8.5E-07
MEAN DOSES	1.8E-04	7.7E-05	2.8E-05	1.2E-05	7.1E-06	4.0E-06

CAT-IV-N-C-ground, EDE, with ingestion (Cadache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.5E-01	3.1E-01	1.9E-01	1.2E-01	7.8E-02	4.2E-02
FRACTILE 99.0	5.2E-02	4.7E-02	3.2E-02	2.2E-02	1.6E-02	1.1E-02
FRACTILE 95.0	4.6E-02	4.3E-02	3.1E-02	2.1E-02	1.5E-02	1.0E-02
FRACTILE 90.0	4.6E-02	4.3E-02	3.1E-02	2.1E-02	1.5E-02	9.5E-03
FRACTILE 50.0	5.9E-03	4.7E-03	2.7E-03	1.6E-03	1.1E-03	6.3E-04
MEAN DOSES	1.8E-02	1.6E-02	1.1E-02	7.3E-03	5.2E-03	3.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.2E-02	1.6E-02	7.3E-03	6.6E-03	4.2E-03	4.7E-03
FRACTILE 99.0	8.5E-03	4.9E-03	2.6E-03	1.5E-03	1.4E-03	1.1E-03
FRACTILE 95.0	6.3E-03	3.5E-03	1.9E-03	8.1E-04	7.4E-04	5.9E-04
FRACTILE 90.0	6.2E-03	2.6E-03	9.5E-04	6.8E-04	4.2E-04	3.2E-04
FRACTILE 50.0	3.5E-04	2.0E-04	6.2E-05	2.5E-05	1.5E-05	8.3E-06
MEAN DOSES	2.0E-03	9.0E-04	3.8E-04	2.0E-04	1.5E-04	1.0E-04

CAT-IV-N-S-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
16	CR- 51	0.40600E+14
20	MN- 54	0.13200E+14
21	MN- 56	0.14100E+15
23	FE- 55	0.71200E+14
27	CO- 57	0.16300E+14
29	CO- 58	0.17700E+14
28	CO- 58M	0.25600E+14
31	CO- 60	0.20600E+13
30	CO- 60M	0.98600E+13
70	NB- 94	0.15400E+08
75	MO- 99	0.74000E+13
81	TC- 99	0.46200E+08
80	TC- 99M	0.64600E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.1E-01	9.1E-02	5.4E-02	3.5E-02	2.6E-02	1.6E-02
FRACTILE 99.0	9.3E-03	7.9E-03	5.1E-03	3.9E-03	3.5E-03	2.9E-03
FRACTILE 95.0	7.1E-04	9.1E-04	1.8E-03	1.8E-03	1.5E-03	1.1E-03
FRACTILE 90.0	5.1E-04	7.8E-04	1.0E-03	7.6E-04	6.2E-04	6.2E-04
FRACTILE 50.0	2.3E-05	2.7E-05	1.3E-04	1.4E-04	2.5E-04	2.9E-04
MEAN DOSES	5.2E-04	4.9E-04	5.0E-04	4.5E-04	4.3E-04	4.4E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	9.4E-03	5.9E-03	2.7E-03	1.5E-03	9.2E-04	5.7E-04
FRACTILE 99.0	2.1E-03	1.6E-03	1.0E-03	6.2E-04	5.0E-04	2.6E-04
FRACTILE 95.0	1.0E-03	1.1E-03	8.7E-04	4.9E-04	3.5E-04	2.0E-04
FRACTILE 90.0	9.3E-04	1.0E-03	7.6E-04	4.0E-04	2.4E-04	1.3E-04
FRACTILE 50.0	2.0E-04	1.6E-04	7.9E-05	3.9E-05	2.5E-05	1.1E-05
MEAN DOSES	4.5E-04	4.1E-04	2.9E-04	1.6E-04	9.2E-05	4.6E-05

CAT-IV-N-S-elevated, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	9.1E+00	7.5E+00	4.5E+00	2.9E+00	2.1E+00	1.3E+00
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	1.4E-02	1.9E-02	3.7E-02	3.8E-02	3.2E-02	2.2E-02
FRACTILE 90.0	1.0E-02	1.3E-02	2.1E-02	1.6E-02	1.3E-02	1.1E-02
FRACTILE 50.0	3.2E-05	8.7E-05	1.1E-03	2.6E-03	4.2E-03	6.0E-03
MEAN DOSES	3.6E-02	3.1E-02	2.3E-02	1.8E-02	1.5E-02	1.4E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.6E-01	4.8E-01	2.2E-01	1.2E-01	7.5E-02	4.8E-02
FRACTILE 99.0	1.0E-01	9.3E-02	6.5E-02	3.3E-02	2.4E-02	1.5E-02
FRACTILE 95.0	2.0E-02	2.4E-02	1.9E-02	1.3E-02	1.1E-02	9.1E-03
FRACTILE 90.0	2.0E-02	2.2E-02	1.6E-02	1.0E-02	6.2E-03	5.8E-03
FRACTILE 50.0	4.2E-03	3.2E-03	1.7E-03	8.3E-04	5.4E-04	2.3E-04
MEAN DOSES	1.2E-02	1.1E-02	7.5E-03	4.2E-03	2.6E-03	1.7E-03

CAT-IV-N-S-ground, early dose (Cadarahe)

NO.	NUCLIDE	SUM
16	CR- 51	0.40600E+13
20	MN- 54	0.13200E+13
21	MN- 56	0.14100E+14
23	FE- 55	0.71200E+13
27	CO- 57	0.16300E+13
29	CO- 58	0.17700E+13
28	CO- 58M	0.25600E+13
31	CO- 60	0.20600E+12
30	CO- 60M	0.98600E+12
70	NB- 94	0.15400E+07
75	MO- 99	0.74000E+12
81	TC- 99	0.46200E+07
80	TC- 99M	0.64600E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.0E-01	1.7E-01	1.0E-01	6.1E-02	4.0E-02	2.1E-02
FRACTILE 99.0	7.4E-02	6.9E-02	5.0E-02	3.5E-02	2.6E-02	1.7E-02
FRACTILE 95.0	7.4E-02	6.8E-02	4.9E-02	3.5E-02	2.5E-02	1.6E-02
FRACTILE 90.0	7.2E-02	6.8E-02	4.9E-02	3.4E-02	2.5E-02	1.5E-02
FRACTILE 50.0	9.5E-03	7.4E-03	4.4E-03	2.6E-03	1.8E-03	1.0E-03
MEAN DOSES	2.7E-02	2.5E-02	1.7E-02	1.1E-02	8.0E-03	5.0E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.6E-02	8.5E-03	3.6E-03	3.4E-03	2.1E-03	2.4E-03
FRACTILE 99.0	1.0E-02	5.9E-03	2.1E-03	1.1E-03	8.5E-04	7.6E-04
FRACTILE 95.0	1.0E-02	5.8E-03	1.8E-03	7.4E-04	6.2E-04	3.4E-04
FRACTILE 90.0	8.9E-03	3.5E-03	1.4E-03	5.8E-04	3.0E-04	1.8E-04
FRACTILE 50.0	6.0E-04	3.5E-04	1.0E-04	4.4E-05	2.6E-05	1.4E-05
MEAN DOSES	3.0E-03	1.3E-03	4.9E-04	2.1E-04	1.3E-04	7.4E-05

CAT-IV-N-S-ground, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.4E+00	1.2E+00	7.4E-01	4.5E-01	3.0E-01	1.6E-01
FRACTILE 99.0	2.0E-01	1.7E-01	1.2E-01	8.3E-02	6.0E-02	4.1E-02
FRACTILE 95.0	1.7E-01	1.5E-01	1.1E-01	7.8E-02	5.8E-02	3.7E-02
FRACTILE 90.0	1.7E-01	1.5E-01	1.1E-01	7.6E-02	5.5E-02	3.5E-02
FRACTILE 50.0	2.1E-02	1.7E-02	9.8E-03	5.8E-03	3.9E-03	2.3E-03
MEAN DOSES	6.6E-02	5.9E-02	4.0E-02	2.7E-02	1.9E-02	1.2E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	8.5E-02	6.0E-02	2.8E-02	2.5E-02	1.6E-02	1.8E-02
FRACTILE 99.0	3.2E-02	1.9E-02	1.0E-02	5.8E-03	5.5E-03	4.4E-03
FRACTILE 95.0	2.3E-02	1.3E-02	7.4E-03	3.2E-03	2.8E-03	2.3E-03
FRACTILE 90.0	2.2E-02	9.5E-03	3.5E-03	2.5E-03	1.6E-03	1.2E-03
FRACTILE 50.0	1.3E-03	7.4E-04	2.2E-04	8.9E-05	5.5E-05	3.0E-05
MEAN DOSES	7.2E-03	3.3E-03	1.4E-03	7.4E-04	5.6E-04	4.0E-04

CAT-IV-N-W-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
157	TA-182	0.28800E+13
159	W -181	0.50800E+14
160	W -183M	0.54400E+15
161	W -185	0.49600E+15
162	W -187	0.31600E+15
166	RE-186	0.44800E+14
165	RE-186M	0.70200E+08
168	RE-188	0.19000E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.0E-01	8.5E-02	5.1E-02	3.3E-02	2.4E-02	1.5E-02
FRACTILE 99.0	8.7E-03	7.4E-03	4.7E-03	3.5E-03	3.0E-03	2.4E-03
FRACTILE 95.0	4.7E-04	6.2E-04	1.2E-03	1.3E-03	1.0E-03	7.2E-04
FRACTILE 90.0	3.4E-04	5.0E-04	6.9E-04	5.1E-04	4.2E-04	4.2E-04
FRACTILE 50.0	2.2E-05	2.2E-05	6.6E-05	9.3E-05	1.6E-04	1.9E-04
MEAN DOSES	4.6E-04	4.3E-04	3.9E-04	3.4E-04	3.2E-04	3.2E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	8.7E-03	5.5E-03	2.5E-03	1.3E-03	8.5E-04	5.4E-04
FRACTILE 99.0	1.8E-03	1.4E-03	8.7E-04	4.4E-04	3.6E-04	2.1E-04
FRACTILE 95.0	6.8E-04	7.9E-04	6.2E-04	3.7E-04	2.9E-04	1.6E-04
FRACTILE 90.0	6.5E-04	7.1E-04	5.2E-04	2.9E-04	1.8E-04	1.0E-04
FRACTILE 50.0	1.4E-04	1.1E-04	5.5E-05	2.8E-05	1.8E-05	7.8E-06
MEAN DOSES	3.2E-04	2.9E-04	2.0E-04	1.1E-04	6.7E-05	3.5E-05

CAT-IV-N-W-elevated, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.6E+00	4.6E+00	2.7E+00	1.8E+00	1.3E+00	8.2E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	8.5E-03	1.1E-02	2.3E-02	2.3E-02	2.0E-02	1.4E-02
FRACTILE 90.0	6.2E-03	8.3E-03	1.3E-02	9.8E-03	7.8E-03	7.1E-03
FRACTILE 50.0	2.5E-05	5.8E-05	6.8E-04	1.6E-03	2.6E-03	3.7E-03
MEAN DOSES	2.2E-02	1.9E-02	1.4E-02	1.1E-02	9.3E-03	8.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	4.7E-01	2.9E-01	1.4E-01	7.1E-02	4.6E-02	2.9E-02
FRACTILE 99.0	7.6E-02	5.8E-02	4.0E-02	2.0E-02	1.5E-02	9.1E-03
FRACTILE 95.0	1.3E-02	1.5E-02	1.1E-02	7.9E-03	6.6E-03	5.6E-03
FRACTILE 90.0	1.2E-02	1.3E-02	1.0E-02	6.5E-03	3.8E-03	3.5E-03
FRACTILE 50.0	2.6E-03	2.0E-03	1.0E-03	5.1E-04	3.3E-04	1.4E-04
MEAN DOSES	7.6E-03	6.7E-03	4.6E-03	2.6E-03	1.6E-03	1.0E-03

CAT-IV-N-W-ground, early dose (Cadarahe)

NO.	NUCLIDE	SUM
157	TA-182	0.28800E+12
159	W -181	0.50800E+13
160	W -183M	0.54400E+14
161	W -185	0.49600E+14
162	W -187	0.31600E+14
166	RE-186	0.44800E+13
165	RE-186M	0.70200E+07
168	RE-188	0.19000E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.7E-02	1.5E-02	9.2E-03	5.5E-03	3.6E-03	1.9E-03
FRACTILE 99.0	5.1E-03	4.8E-03	3.5E-03	2.4E-03	1.8E-03	1.1E-03
FRACTILE 95.0	5.1E-03	4.8E-03	3.5E-03	2.4E-03	1.8E-03	1.1E-03
FRACTILE 90.0	5.1E-03	4.7E-03	3.4E-03	2.3E-03	1.7E-03	1.1E-03
FRACTILE 50.0	6.6E-04	5.2E-04	3.0E-04	1.8E-04	1.2E-04	7.2E-05
MEAN DOSES	1.9E-03	1.7E-03	1.2E-03	7.8E-04	5.6E-04	3.5E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.2E-03	7.3E-04	3.3E-04	3.1E-04	1.9E-04	2.2E-04
FRACTILE 99.0	7.4E-04	4.1E-04	1.7E-04	7.8E-05	7.1E-05	6.3E-05
FRACTILE 95.0	7.2E-04	4.0E-04	1.4E-04	5.9E-05	4.8E-05	2.6E-05
FRACTILE 90.0	6.3E-04	2.4E-04	1.0E-04	4.1E-05	2.5E-05	1.6E-05
FRACTILE 50.0	4.1E-05	2.4E-05	7.4E-06	3.0E-06	1.8E-06	1.0E-06
MEAN DOSES	2.1E-04	9.3E-05	3.6E-05	1.6E-05	1.0E-05	6.0E-06

CAT-IV-N-W-ground, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	8.3E-01	7.3E-01	4.6E-01	2.8E-01	1.8E-01	9.8E-02
FRACTILE 99.0	1.2E-01	1.1E-01	7.4E-02	5.1E-02	3.7E-02	2.5E-02
FRACTILE 95.0	1.0E-01	9.5E-02	6.9E-02	4.8E-02	3.5E-02	2.3E-02
FRACTILE 90.0	1.0E-01	9.5E-02	6.9E-02	4.7E-02	3.4E-02	2.1E-02
FRACTILE 50.0	1.3E-02	1.0E-02	6.0E-03	3.5E-03	2.4E-03	1.4E-03
MEAN DOSES	4.1E-02	3.7E-02	2.5E-02	1.6E-02	1.2E-02	7.4E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.2E-02	3.7E-02	1.7E-02	1.6E-02	1.0E-02	1.1E-02
FRACTILE 99.0	2.0E-02	1.1E-02	6.2E-03	3.5E-03	3.4E-03	2.7E-03
FRACTILE 95.0	1.4E-02	7.8E-03	4.6E-03	1.9E-03	1.7E-03	1.4E-03
FRACTILE 90.0	1.4E-02	5.9E-03	2.1E-03	1.5E-03	9.8E-04	7.4E-04
FRACTILE 50.0	7.9E-04	4.6E-04	1.4E-04	5.5E-05	3.4E-05	1.9E-05
MEAN DOSES	4.5E-03	2.0E-03	8.8E-04	4.5E-04	3.4E-04	2.4E-04

CAT-IV-N-ACP-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
16	CR- 51	0.56500E+10
20	MN- 54	0.28600E+13
21	MN- 56	0.10800E+15
23	FE- 55	0.38300E+13
27	CO- 57	0.55000E+13
29	CO- 58	0.11300E+14
31	CO- 60	0.47400E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.9E-02	4.1E-02	2.4E-02	1.6E-02	1.1E-02	7.3E-03
FRACTILE 99.0	4.2E-03	3.5E-03	2.3E-03	1.7E-03	1.5E-03	1.2E-03
FRACTILE 95.0	2.9E-04	3.5E-04	7.1E-04	7.1E-04	5.8E-04	4.1E-04
FRACTILE 90.0	2.5E-04	3.5E-04	3.8E-04	2.9E-04	2.3E-04	2.6E-04
FRACTILE 50.0	1.6E-05	1.7E-05	9.1E-05	8.5E-05	1.3E-04	1.1E-04
MEAN DOSES	2.4E-04	2.2E-04	2.2E-04	2.0E-04	1.8E-04	1.8E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	4.2E-03	2.6E-03	1.2E-03	6.3E-04	3.9E-04	2.5E-04
FRACTILE 99.0	8.9E-04	6.9E-04	4.2E-04	2.4E-04	1.9E-04	1.0E-04
FRACTILE 95.0	4.0E-04	4.5E-04	3.3E-04	1.9E-04	1.4E-04	7.9E-05
FRACTILE 90.0	3.7E-04	3.9E-04	2.9E-04	1.5E-04	9.5E-05	4.9E-05
FRACTILE 50.0	7.9E-05	6.0E-05	3.2E-05	1.5E-05	9.8E-06	4.4E-06
MEAN DOSES	1.8E-04	1.6E-04	1.1E-04	6.0E-05	3.5E-05	1.8E-05

CAT-IV-N-ACP-elevated, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.0E+00	1.6E+00	9.7E-01	6.3E-01	4.5E-01	2.9E-01
FRACTILE 99.0	1.0E-01	1.0E-01	8.9E-02	6.3E-02	5.0E-02	3.7E-02
FRACTILE 95.0	3.1E-03	4.2E-03	8.3E-03	8.5E-03	7.1E-03	5.0E-03
FRACTILE 90.0	2.2E-03	3.0E-03	4.8E-03	3.5E-03	2.8E-03	2.6E-03
FRACTILE 50.0	2.0E-05	3.4E-05	2.5E-04	6.0E-04	9.5E-04	1.3E-03
MEAN DOSES	7.9E-03	6.9E-03	5.0E-03	3.9E-03	3.3E-03	3.0E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.7E-01	1.0E-01	4.8E-02	2.5E-02	1.6E-02	1.0E-02
FRACTILE 99.0	2.7E-02	2.0E-02	1.4E-02	7.2E-03	5.2E-03	3.2E-03
FRACTILE 95.0	4.6E-03	5.4E-03	4.2E-03	2.9E-03	2.4E-03	1.9E-03
FRACTILE 90.0	4.5E-03	4.9E-03	3.6E-03	2.3E-03	1.4E-03	1.3E-03
FRACTILE 50.0	9.3E-04	7.2E-04	3.7E-04	1.9E-04	1.2E-04	5.2E-05
MEAN DOSES	2.8E-03	2.4E-03	1.7E-03	9.3E-04	5.7E-04	3.7E-04

CAT-IV-N-ACP-ground, early dose (Cadarahe)

NO.	NUCLIDE	SUM
16	CR- 51	0.56500E+09
20	MN- 54	0.28600E+12
21	MN- 56	0.10800E+14
23	FE- 55	0.38300E+12
27	CO- 57	0.55000E+12
29	CO- 58	0.11300E+13
31	CO- 60	0.47400E+11

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	8.3E-03	7.2E-03	4.4E-03	2.6E-03	1.7E-03	8.9E-04
FRACTILE 99.0	2.6E-03	2.4E-03	1.8E-03	1.2E-03	9.3E-04	5.9E-04
FRACTILE 95.0	2.6E-03	2.4E-03	1.7E-03	1.2E-03	9.1E-04	5.8E-04
FRACTILE 90.0	2.6E-03	2.3E-03	1.7E-03	1.2E-03	8.7E-04	5.5E-04
FRACTILE 50.0	3.4E-04	2.7E-04	1.6E-04	9.5E-05	6.5E-05	3.9E-05
MEAN DOSES	9.7E-04	8.7E-04	6.0E-04	4.0E-04	2.9E-04	1.8E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.9E-04	3.5E-04	1.5E-04	1.5E-04	8.7E-05	1.0E-04
FRACTILE 99.0	3.8E-04	2.1E-04	8.1E-05	4.0E-05	3.3E-05	3.2E-05
FRACTILE 95.0	3.8E-04	2.0E-04	7.2E-05	2.7E-05	2.1E-05	1.2E-05
FRACTILE 90.0	3.2E-04	1.3E-04	5.1E-05	2.0E-05	1.1E-05	7.8E-06
FRACTILE 50.0	2.2E-05	1.3E-05	4.1E-06	1.7E-06	1.0E-06	5.5E-07
MEAN DOSES	1.1E-04	4.8E-05	1.8E-05	7.7E-06	4.9E-06	2.9E-06

CAT-IV-N-ACP-ground, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.9E-01	2.6E-01	1.6E-01	9.9E-02	6.5E-02	3.5E-02
FRACTILE 99.0	4.4E-02	3.8E-02	2.6E-02	1.8E-02	1.3E-02	8.9E-03
FRACTILE 95.0	3.7E-02	3.5E-02	2.5E-02	1.7E-02	1.3E-02	8.1E-03
FRACTILE 90.0	3.7E-02	3.4E-02	2.5E-02	1.7E-02	1.2E-02	7.8E-03
FRACTILE 50.0	4.7E-03	3.7E-03	2.2E-03	1.3E-03	8.7E-04	5.0E-04
MEAN DOSES	1.5E-02	1.3E-02	8.9E-03	5.9E-03	4.2E-03	2.6E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.8E-02	1.3E-02	6.0E-03	5.5E-03	3.5E-03	3.9E-03
FRACTILE 99.0	7.1E-03	4.1E-03	2.2E-03	1.3E-03	1.2E-03	9.5E-04
FRACTILE 95.0	5.1E-03	2.8E-03	1.6E-03	6.9E-04	6.2E-04	5.0E-04
FRACTILE 90.0	5.0E-03	2.1E-03	7.8E-04	5.5E-04	3.5E-04	2.6E-04
FRACTILE 50.0	2.8E-04	1.7E-04	5.0E-05	2.0E-05	1.2E-05	6.8E-06
MEAN DOSES	1.6E-03	7.3E-04	3.1E-04	1.6E-04	1.2E-04	8.7E-05

Probabilistic potential doses from source terms of case 2

CAT-IV-bypass-C-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
1	HTO	1.48000E+12
4	NA- 24	0.34100E+06
11	SC- 46	0.81600E+05
16	CR- 51	0.27100E+04
20	MN- 54	0.13700E+07
21	MN- 56	0.51600E+08
23	FE- 55	0.18400E+07
27	CO- 57	0.26400E+07
29	CO- 58	0.54000E+07
31	CO- 60	0.95000E+06
30	CO- 60M	0.11800E+08
34	NI- 63	0.97000E+05
36	CU- 62	0.19700E+09
37	CU- 64	0.36300E+09
38	CU- 66	0.12400E+09
157	TA-182	0.38300E+06

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.5E-07	1.6E-07	2.3E-07	2.5E-07	2.4E-07	1.8E-07
FRACTILE 99.0	1.1E-07	1.5E-07	2.3E-07	2.4E-07	2.0E-07	1.5E-07
FRACTILE 95.0	7.4E-08	1.0E-07	1.4E-07	1.2E-07	1.0E-07	1.0E-07
FRACTILE 90.0	3.3E-08	8.1E-08	1.0E-07	8.7E-08	7.8E-08	7.2E-08
FRACTILE 50.0	1.7E-10	5.2E-10	6.9E-09	1.6E-08	2.6E-08	4.1E-08
MEAN DOSES	1.0E-08	1.7E-08	3.3E-08	3.8E-08	4.0E-08	4.7E-08

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.3E-07	1.5E-07	1.2E-07	1.3E-07	6.5E-08	3.3E-08
FRACTILE 99.0	1.3E-07	1.5E-07	1.1E-07	1.1E-07	6.5E-08	3.3E-08
FRACTILE 95.0	1.2E-07	1.3E-07	1.0E-07	1.0E-07	3.7E-08	1.7E-08
FRACTILE 90.0	1.2E-07	1.2E-07	1.0E-07	7.6E-08	2.6E-08	1.2E-08
FRACTILE 50.0	3.0E-08	2.0E-08	1.2E-08	6.5E-09	3.6E-09	1.6E-09
MEAN DOSES	5.2E-08	4.9E-08	3.5E-08	2.6E-08	1.1E-08	4.7E-09

CAT-IV-bypass-C-elevated, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.1E-05	1.7E-05	1.1E-05	7.6E-06	5.9E-06	4.1E-06
FRACTILE 99.0	3.5E-06	3.3E-06	3.8E-06	2.8E-06	2.1E-06	1.9E-06
FRACTILE 95.0	1.0E-06	1.4E-06	1.8E-06	1.9E-06	1.8E-06	1.2E-06
FRACTILE 90.0	6.6E-07	7.4E-07	1.3E-06	1.3E-06	1.1E-06	7.6E-07
FRACTILE 50.0	1.9E-09	7.4E-09	1.1E-07	1.5E-07	2.2E-07	3.0E-07
MEAN DOSES	2.5E-07	3.1E-07	5.0E-07	5.3E-07	5.0E-07	4.5E-07

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
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MAX. DOSES	2.6E-06	1.7E-06	9.3E-07	1.0E-06	4.9E-07	2.1E-07
FRACTILE 99.0	1.5E-06	1.1E-06	6.6E-07	4.5E-07	2.7E-07	2.1E-07
FRACTILE 95.0	7.9E-07	6.2E-07	4.7E-07	3.8E-07	1.9E-07	1.1E-07
FRACTILE 90.0	6.9E-07	5.4E-07	4.4E-07	3.6E-07	1.5E-07	8.5E-08
FRACTILE 50.0	3.7E-07	3.2E-07	1.7E-07	1.0E-07	5.6E-08	2.3E-08
MEAN DOSES	3.8E-07	3.2E-07	2.1E-07	1.4E-07	7.2E-08	3.5E-08

CAT-IV-bypass-C-ground, early dose (Cadarahe)

NO.	NUCLIDE	SUM
1	HTO	1.40600E+14
4	NA- 24	0.34100E+06
11	SC- 46	0.81600E+05
16	CR- 51	0.27100E+04
20	MN- 54	0.13700E+07
21	MN- 56	0.51600E+08
23	FE- 55	0.18400E+07
27	CO- 57	0.26400E+07
29	CO- 58	0.54000E+07
31	CO- 60	0.95000E+06
30	CO- 60M	0.11800E+08
34	NI- 63	0.97000E+05
36	CU- 62	0.19700E+09
37	CU- 64	0.36300E+09
38	CU- 66	0.12400E+09
157	TA-182	0.38300E+06

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	9.8E-04	9.1E-04	6.5E-04	4.5E-04	3.3E-04	2.2E-04
FRACTILE 99.0	9.8E-04	9.1E-04	6.5E-04	4.5E-04	3.3E-04	2.0E-04
FRACTILE 95.0	9.8E-04	8.9E-04	6.5E-04	4.5E-04	3.2E-04	2.0E-04
FRACTILE 90.0	9.5E-04	8.9E-04	6.5E-04	4.4E-04	3.2E-04	1.9E-04
FRACTILE 50.0	1.2E-04	1.0E-04	5.8E-05	3.2E-05	2.1E-05	1.2E-05
MEAN DOSES	3.5E-04	3.2E-04	2.2E-04	1.4E-04	1.0E-04	6.1E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.7E-04	1.0E-04	3.8E-05	1.4E-05	7.6E-06	2.9E-06
FRACTILE 99.0	1.3E-04	7.1E-05	2.5E-05	1.4E-05	6.8E-06	1.9E-06
FRACTILE 95.0	1.3E-04	6.8E-05	1.8E-05	1.1E-05	4.5E-06	1.5E-06
FRACTILE 90.0	1.1E-04	4.0E-05	1.6E-05	8.1E-06	2.9E-06	1.2E-06
FRACTILE 50.0	6.8E-06	4.1E-06	1.3E-06	6.6E-07	3.4E-07	1.7E-07
MEAN DOSES	3.6E-05	1.5E-05	5.1E-06	2.6E-06	1.0E-06	3.3E-07

CAT-IV-bypass-C-ground, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	6.4E-03	5.5E-03	3.5E-03	2.4E-03	1.8E-03	1.1E-03
FRACTILE 99.0	5.1E-03	4.6E-03	3.0E-03	1.9E-03	1.4E-03	8.5E-04
FRACTILE 95.0	4.3E-03	3.9E-03	2.7E-03	1.8E-03	1.3E-03	7.9E-04
FRACTILE 90.0	3.7E-03	3.4E-03	2.5E-03	1.6E-03	1.2E-03	7.1E-04
FRACTILE 50.0	1.7E-03	1.3E-03	6.5E-04	3.5E-04	2.2E-04	1.3E-04
MEAN DOSES	2.0E-03	1.8E-03	1.1E-03	7.2E-04	5.0E-04	3.0E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	9.9E-04	4.3E-04	1.7E-04	9.1E-05	5.3E-05	6.6E-05
FRACTILE 99.0	5.1E-04	3.7E-04	1.4E-04	6.8E-05	5.0E-05	1.5E-05
FRACTILE 95.0	4.9E-04	2.6E-04	1.1E-04	5.1E-05	2.6E-05	1.0E-05

FRACTILE 90.0	4.4E-04	2.2E-04	8.3E-05	4.6E-05	2.1E-05	6.9E-06
FRACTILE 50.0	7.2E-05	4.5E-05	2.2E-05	1.2E-05	6.6E-06	2.8E-06
MEAN DOSES	1.7E-04	9.1E-05	3.6E-05	1.8E-05	8.9E-06	3.5E-06

CAT-IV-bypass-S-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
1	HTO	1.48000E+12
16	CR- 51	0.20300E+08
20	MN- 54	0.79600E+07
21	MN- 56	0.12200E+09
23	FE- 55	0.37400E+08
27	CO- 57	0.10800E+08
29	CO- 58	0.14300E+08
28	CO- 58M	0.12800E+08
31	CO- 60	0.12600E+07
30	CO- 60M	0.49300E+07
70	NB- 94	0.77200E+01
75	MO- 99	0.37000E+07
81	TC- 99	0.23100E+02
80	TC- 99M	0.32300E+07

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.5E-07	1.6E-07	2.3E-07	2.5E-07	2.4E-07	1.9E-07
FRACTILE 99.0	1.1E-07	1.6E-07	2.3E-07	2.5E-07	2.0E-07	1.5E-07
FRACTILE 95.0	7.4E-08	1.0E-07	1.4E-07	1.2E-07	1.0E-07	1.0E-07
FRACTILE 90.0	3.3E-08	8.1E-08	1.0E-07	8.7E-08	7.9E-08	7.2E-08
FRACTILE 50.0	1.6E-10	5.2E-10	6.9E-09	1.6E-08	2.6E-08	4.1E-08
MEAN DOSES	1.0E-08	1.7E-08	3.3E-08	3.8E-08	4.0E-08	4.7E-08

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.3E-07	1.5E-07	1.2E-07	1.3E-07	6.5E-08	3.3E-08
FRACTILE 99.0	1.3E-07	1.5E-07	1.2E-07	1.1E-07	6.5E-08	3.3E-08
FRACTILE 95.0	1.3E-07	1.3E-07	1.0E-07	1.0E-07	3.7E-08	1.8E-08
FRACTILE 90.0	1.2E-07	1.2E-07	1.0E-07	7.6E-08	2.6E-08	1.2E-08
FRACTILE 50.0	3.0E-08	2.0E-08	1.2E-08	6.5E-09	3.6E-09	1.6E-09
MEAN DOSES	5.2E-08	5.0E-08	3.5E-08	2.6E-08	1.1E-08	4.7E-09

CAT-IV-bypass-S-elevated, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.4E-05	2.0E-05	1.2E-05	8.6E-06	6.7E-06	4.6E-06
FRACTILE 99.0	3.7E-06	3.3E-06	3.8E-06	2.8E-06	2.2E-06	1.9E-06
FRACTILE 95.0	1.0E-06	1.4E-06	1.9E-06	1.9E-06	1.8E-06	1.2E-06
FRACTILE 90.0	6.6E-07	7.6E-07	1.3E-06	1.3E-06	1.1E-06	7.6E-07
FRACTILE 50.0	1.9E-09	7.4E-09	1.1E-07	1.5E-07	2.2E-07	3.0E-07
MEAN DOSES	2.6E-07	3.2E-07	5.1E-07	5.3E-07	5.0E-07	4.5E-07

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.9E-06	1.9E-06	9.7E-07	1.1E-06	5.1E-07	2.2E-07
FRACTILE 99.0	1.5E-06	1.1E-06	6.8E-07	4.6E-07	2.8E-07	2.1E-07
FRACTILE 95.0	7.9E-07	6.2E-07	4.8E-07	3.9E-07	2.0E-07	1.1E-07
FRACTILE 90.0	7.1E-07	5.5E-07	4.5E-07	3.7E-07	1.6E-07	8.5E-08
FRACTILE 50.0	3.7E-07	3.2E-07	1.7E-07	1.0E-07	5.6E-08	2.3E-08

MEAN DOSES	3.9E-07	3.3E-07	2.1E-07	1.5E-07	7.3E-08	3.6E-08
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CAT-IV-bypass-S-ground, early dose (Cadache)

NO.	NUCLIDE	SUM
1	HTO	1.40600E+14
16	CR- 51	0.22300E+12
20	MN- 54	0.73000E+11
21	MN- 56	0.79100E+12
23	FE- 55	0.39200E+12
27	CO- 57	0.90800E+11
29	CO- 58	0.99400E+11
28	CO- 58M	0.14100E+12
31	CO- 60	0.11400E+11
30	CO- 60M	0.54200E+11
70	NB- 94	0.84900E+05
75	MO- 99	0.40700E+11
81	TC- 99	0.25400E+06
80	TC- 99M	0.35500E+11

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.7E-03	1.5E-03	9.2E-04	6.4E-04	4.8E-04	3.1E-04
FRACTILE 99.0	1.4E-03	1.3E-03	9.2E-04	6.4E-04	4.8E-04	3.0E-04
FRACTILE 95.0	1.4E-03	1.3E-03	9.2E-04	6.4E-04	4.7E-04	3.0E-04
FRACTILE 90.0	1.4E-03	1.3E-03	9.1E-04	6.3E-04	4.6E-04	2.8E-04
FRACTILE 50.0	1.7E-04	1.4E-04	8.3E-05	4.8E-05	3.2E-05	1.9E-05
MEAN DOSES	5.1E-04	4.6E-04	3.1E-04	2.0E-04	1.5E-04	8.9E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.4E-04	1.5E-04	5.6E-05	2.5E-05	1.4E-05	1.6E-05
FRACTILE 99.0	1.9E-04	1.0E-04	3.7E-05	1.9E-05	7.4E-06	4.5E-06
FRACTILE 95.0	1.9E-04	1.0E-04	2.7E-05	1.5E-05	6.3E-06	2.2E-06
FRACTILE 90.0	1.6E-04	5.9E-05	2.4E-05	1.1E-05	4.4E-06	2.0E-06
FRACTILE 50.0	1.1E-05	6.3E-06	1.9E-06	9.1E-07	5.2E-07	2.6E-07
MEAN DOSES	5.2E-05	2.2E-05	7.7E-06	3.6E-06	1.6E-06	6.7E-07

CAT-IV-bypass-S-ground, EDE, with ingestion (Cadache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	8.1E-02	7.1E-02	4.4E-02	2.7E-02	1.8E-02	9.4E-03
FRACTILE 99.0	1.5E-02	1.3E-02	9.1E-03	6.2E-03	4.5E-03	3.0E-03
FRACTILE 95.0	1.3E-02	1.2E-02	8.7E-03	6.0E-03	4.5E-03	2.8E-03
FRACTILE 90.0	1.3E-02	1.2E-02	8.5E-03	5.9E-03	4.4E-03	2.7E-03
FRACTILE 50.0	2.5E-03	2.1E-03	1.2E-03	6.3E-04	4.2E-04	2.5E-04
MEAN DOSES	5.7E-03	5.1E-03	3.4E-03	2.2E-03	1.6E-03	9.6E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.0E-03	3.7E-03	1.7E-03	1.5E-03	9.5E-04	1.1E-03
FRACTILE 99.0	2.1E-03	1.2E-03	6.3E-04	3.8E-04	3.3E-04	2.6E-04
FRACTILE 95.0	1.8E-03	9.5E-04	4.6E-04	1.8E-04	1.8E-04	1.3E-04
FRACTILE 90.0	1.7E-03	6.9E-04	2.7E-04	1.6E-04	8.7E-05	6.8E-05
FRACTILE 50.0	1.4E-04	8.9E-05	3.2E-05	1.7E-05	9.5E-06	5.1E-06

MEAN DOSES 5.7E-04 2.7E-04 1.1E-04 5.6E-05 3.9E-05 2.5E-05

CAT-IV-bypass-W-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
1	HTO	1.48000E+12
16	CR- 51	0.27100E+04
20	MN- 54	0.13700E+07
21	MN- 56	0.51600E+08
23	FE- 55	0.18400E+07
27	CO- 57	0.26400E+07
29	CO- 58	0.54000E+07
31	CO- 60	0.22700E+06
157	TA-182	0.14400E+07
159	W -181	0.25400E+08
160	W -183M	0.27200E+09
161	W -185	0.24800E+09
162	W -187	0.15800E+09
166	RE-186	0.22400E+08
165	RE-186M	0.35100E+02
168	RE-188	0.94800E+07

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.5E-07	1.6E-07	2.3E-07	2.5E-07	2.4E-07	1.9E-07
FRACTILE 99.0	1.1E-07	1.6E-07	2.3E-07	2.4E-07	2.0E-07	1.5E-07
FRACTILE 95.0	7.4E-08	1.0E-07	1.4E-07	1.2E-07	1.0E-07	1.0E-07
FRACTILE 90.0	3.3E-08	8.1E-08	1.0E-07	8.7E-08	7.9E-08	7.2E-08
FRACTILE 50.0	1.7E-10	5.1E-10	6.9E-09	1.6E-08	2.6E-08	4.1E-08
MEAN DOSES	1.0E-08	1.7E-08	3.3E-08	3.8E-08	4.0E-08	4.7E-08

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.3E-07	1.5E-07	1.2E-07	1.3E-07	6.5E-08	3.3E-08
FRACTILE 99.0	1.3E-07	1.5E-07	1.2E-07	1.1E-07	6.5E-08	3.3E-08
FRACTILE 95.0	1.3E-07	1.3E-07	1.0E-07	1.0E-07	3.7E-08	1.8E-08
FRACTILE 90.0	1.2E-07	1.2E-07	1.0E-07	7.6E-08	2.6E-08	1.2E-08
FRACTILE 50.0	3.0E-08	2.0E-08	1.2E-08	6.5E-09	3.6E-09	1.6E-09
MEAN DOSES	5.2E-08	5.0E-08	3.5E-08	2.6E-08	1.1E-08	4.7E-09

CAT-IV-bypass-W-elevated, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.2E-05	1.9E-05	1.1E-05	8.1E-06	6.3E-06	4.4E-06
FRACTILE 99.0	3.5E-06	3.3E-06	3.8E-06	2.8E-06	2.2E-06	1.9E-06
FRACTILE 95.0	1.0E-06	1.4E-06	1.8E-06	1.9E-06	1.8E-06	1.2E-06
FRACTILE 90.0	6.6E-07	7.6E-07	1.3E-06	1.3E-06	1.1E-06	7.6E-07
FRACTILE 50.0	1.9E-09	7.4E-09	1.1E-07	1.5E-07	2.2E-07	3.0E-07
MEAN DOSES	2.6E-07	3.2E-07	5.0E-07	5.3E-07	5.0E-07	4.5E-07

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.7E-06	1.8E-06	9.5E-07	1.1E-06	5.0E-07	2.1E-07
FRACTILE 99.0	1.5E-06	1.1E-06	6.8E-07	4.6E-07	2.8E-07	2.1E-07
FRACTILE 95.0	7.9E-07	6.2E-07	4.7E-07	3.9E-07	2.0E-07	1.1E-07

FRACTILE 90.0	7.1E-07	5.5E-07	4.5E-07	3.7E-07	1.6E-07	8.5E-08
FRACTILE 50.0	3.7E-07	3.2E-07	1.7E-07	1.0E-07	5.6E-08	2.3E-08
MEAN DOSES	3.9E-07	3.3E-07	2.1E-07	1.5E-07	7.3E-08	3.6E-08

CAT-IV-bypass-W-ground, early dose (Cadarache)

NO.	NUCLIDE	SUM
1	HTO	1.40600E+14
16	CR- 51	0.94900E+06
20	MN- 54	0.48000E+09
21	MN- 56	0.18100E+11
23	FE- 55	0.64300E+09
27	CO- 57	0.92400E+09
29	CO- 58	0.18900E+10
31	CO- 60	0.79500E+08
157	TA-182	0.15800E+11
159	W -181	0.27900E+12
160	W -183M	0.29900E+13
161	W -185	0.27300E+13
162	W -187	0.17400E+13
166	RE-186	0.24600E+12
165	RE-186M	0.38600E+06
168	RE-188	0.10400E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.6E-03	1.4E-03	8.4E-04	5.8E-04	4.3E-04	2.8E-04
FRACTILE 99.0	1.3E-03	1.2E-03	8.4E-04	5.8E-04	4.3E-04	2.7E-04
FRACTILE 95.0	1.3E-03	1.2E-03	8.4E-04	5.8E-04	4.3E-04	2.6E-04
FRACTILE 90.0	1.3E-03	1.1E-03	8.3E-04	5.8E-04	4.2E-04	2.6E-04
FRACTILE 50.0	1.6E-04	1.3E-04	7.6E-05	4.4E-05	3.0E-05	1.7E-05
MEAN DOSES	4.6E-04	4.2E-04	2.8E-04	1.9E-04	1.3E-04	8.1E-05

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.2E-04	1.3E-04	5.1E-05	2.3E-05	1.3E-05	1.5E-05
FRACTILE 99.0	1.7E-04	9.3E-05	3.4E-05	1.8E-05	6.8E-06	3.7E-06
FRACTILE 95.0	1.7E-04	8.9E-05	2.4E-05	1.5E-05	5.5E-06	1.9E-06
FRACTILE 90.0	1.4E-04	5.2E-05	2.2E-05	1.0E-05	4.0E-06	1.8E-06
FRACTILE 50.0	9.5E-06	5.6E-06	1.7E-06	8.5E-07	4.9E-07	2.3E-07
MEAN DOSES	4.7E-05	2.0E-05	7.0E-06	3.3E-06	1.5E-06	6.0E-07

CAT-IV-bypass-W-ground, EDE, with ingestion (Cadarache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.3E-02	4.6E-02	2.9E-02	1.7E-02	1.1E-02	6.1E-03
FRACTILE 99.0	1.1E-02	9.3E-03	6.8E-03	4.6E-03	3.3E-03	2.1E-03
FRACTILE 95.0	1.0E-02	9.1E-03	6.3E-03	4.4E-03	3.2E-03	2.0E-03
FRACTILE 90.0	9.3E-03	8.7E-03	6.2E-03	4.3E-03	3.2E-03	1.9E-03
FRACTILE 50.0	2.1E-03	1.7E-03	9.8E-04	5.5E-04	3.5E-04	1.9E-04
MEAN DOSES	4.3E-03	3.8E-03	2.5E-03	1.6E-03	1.2E-03	7.1E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.2E-03	2.4E-03	1.1E-03	9.5E-04	6.1E-04	6.8E-04
FRACTILE 99.0	1.5E-03	8.1E-04	4.2E-04	2.6E-04	2.2E-04	1.6E-04
FRACTILE 95.0	1.3E-03	6.9E-04	3.0E-04	1.3E-04	1.1E-04	8.3E-05

FRACTILE 90.0	1.2E-03	4.9E-04	2.0E-04	1.1E-04	5.9E-05	4.2E-05
FRACTILE 50.0	1.1E-04	7.1E-05	2.8E-05	1.5E-05	8.5E-06	4.4E-06
MEAN DOSES	4.2E-04	2.0E-04	8.3E-05	4.0E-05	2.7E-05	1.6E-05

CAT-IV-DV-C-elevated, early dose (Cadarache)

NO.	NUCLIDE	SUM
1	HTO	3.70000E+15
4	NA- 24	0.68200E+09
11	SC- 46	0.16300E+09
31	CO- 60	0.14500E+10
30	CO- 60M	0.23600E+11
34	NI- 63	0.19400E+09
36	CU- 62	0.39400E+12
37	CU- 64	0.72600E+12
38	CU- 66	0.24800E+12
157	TA-182	0.76600E+09

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.4E-04	3.9E-04	5.8E-04	6.1E-04	5.9E-04	4.6E-04
FRACTILE 99.0	2.9E-04	3.8E-04	5.8E-04	6.0E-04	5.1E-04	3.6E-04
FRACTILE 95.0	1.9E-04	2.5E-04	3.4E-04	3.1E-04	2.6E-04	2.5E-04
FRACTILE 90.0	8.3E-05	2.0E-04	2.5E-04	2.2E-04	1.9E-04	1.8E-04
FRACTILE 50.0	4.0E-07	1.3E-06	1.7E-05	4.1E-05	6.6E-05	1.0E-04
MEAN DOSES	2.6E-05	4.1E-05	8.2E-05	9.4E-05	9.9E-05	1.2E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.3E-04	3.7E-04	3.1E-04	3.1E-04	1.6E-04	8.3E-05
FRACTILE 99.0	3.2E-04	3.7E-04	2.9E-04	2.7E-04	1.6E-04	8.3E-05
FRACTILE 95.0	3.1E-04	3.4E-04	2.5E-04	2.6E-04	9.3E-05	4.4E-05
FRACTILE 90.0	3.0E-04	3.0E-04	2.5E-04	1.9E-04	6.5E-05	3.0E-05
FRACTILE 50.0	7.4E-05	5.1E-05	3.0E-05	1.6E-05	9.1E-06	4.0E-06
MEAN DOSES	1.3E-04	1.2E-04	8.8E-05	6.5E-05	2.7E-05	1.2E-05

CAT-IV-DV-C-elevated, EDE, with ingestion (Cadarache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.8E-02	4.1E-02	2.5E-02	1.8E-02	1.4E-02	9.9E-03
FRACTILE 99.0	8.3E-03	8.3E-03	9.5E-03	7.1E-03	5.4E-03	4.6E-03
FRACTILE 95.0	2.5E-03	3.5E-03	4.5E-03	4.7E-03	4.4E-03	3.1E-03
FRACTILE 90.0	1.6E-03	1.9E-03	3.2E-03	3.2E-03	2.7E-03	1.9E-03
FRACTILE 50.0	4.7E-06	1.9E-05	2.7E-04	3.8E-04	5.5E-04	7.4E-04
MEAN DOSES	6.1E-04	7.7E-04	1.2E-03	1.3E-03	1.2E-03	1.1E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.3E-03	4.1E-03	2.3E-03	2.6E-03	1.2E-03	5.2E-04
FRACTILE 99.0	3.7E-03	2.8E-03	1.7E-03	1.1E-03	6.8E-04	5.2E-04
FRACTILE 95.0	2.0E-03	1.5E-03	1.1E-03	9.5E-04	4.9E-04	2.7E-04
FRACTILE 90.0	1.7E-03	1.3E-03	1.1E-03	9.1E-04	3.8E-04	2.1E-04
FRACTILE 50.0	9.1E-04	8.1E-04	4.3E-04	2.5E-04	1.4E-04	5.6E-05
MEAN DOSES	9.6E-04	8.0E-04	5.2E-04	3.6E-04	1.8E-04	8.8E-05

CAT-IV-DV-S-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
1	HTO	3.70000E+15
16	CR- 51	0.40600E+11
20	MN- 54	0.13200E+11
21	MN- 56	0.14100E+12
23	FE- 55	0.71200E+11
27	CO- 57	0.16300E+11
29	CO- 58	0.17700E+11
28	CO- 58M	0.25600E+11
31	CO- 60	0.20600E+10
30	CO- 60M	0.98600E+10
70	NB- 94	0.15400E+05
75	MO- 99	0.74000E+10
81	TC- 99	0.46200E+05
80	TC- 99M	0.64600E+10

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.6E-04	3.9E-04	5.8E-04	6.1E-04	5.9E-04	4.6E-04
FRACTILE 99.0	2.9E-04	3.8E-04	5.8E-04	6.0E-04	5.1E-04	3.7E-04
FRACTILE 95.0	1.9E-04	2.5E-04	3.4E-04	3.1E-04	2.6E-04	2.5E-04
FRACTILE 90.0	8.3E-05	2.0E-04	2.5E-04	2.2E-04	1.9E-04	1.8E-04
FRACTILE 50.0	3.9E-07	1.3E-06	1.7E-05	4.1E-05	6.6E-05	1.0E-04
MEAN DOSES	2.6E-05	4.1E-05	8.2E-05	9.4E-05	9.9E-05	1.2E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.3E-04	3.7E-04	3.1E-04	3.1E-04	1.6E-04	8.3E-05
FRACTILE 99.0	3.2E-04	3.7E-04	2.9E-04	2.7E-04	1.6E-04	8.3E-05
FRACTILE 95.0	3.1E-04	3.4E-04	2.5E-04	2.6E-04	9.3E-05	4.4E-05
FRACTILE 90.0	3.0E-04	3.0E-04	2.5E-04	1.9E-04	6.5E-05	3.0E-05
FRACTILE 50.0	7.4E-05	5.1E-05	3.0E-05	1.6E-05	9.1E-06	4.0E-06
MEAN DOSES	1.3E-04	1.2E-04	8.8E-05	6.5E-05	2.7E-05	1.2E-05

CAT-IV-DV-S-elevated, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.5E-02	4.6E-02	2.8E-02	2.0E-02	1.6E-02	1.1E-02
FRACTILE 99.0	8.9E-03	8.3E-03	9.5E-03	7.1E-03	5.4E-03	4.7E-03
FRACTILE 95.0	2.6E-03	3.5E-03	4.6E-03	4.7E-03	4.5E-03	3.1E-03
FRACTILE 90.0	1.7E-03	1.9E-03	3.2E-03	3.2E-03	2.7E-03	1.9E-03
FRACTILE 50.0	4.7E-06	1.9E-05	2.7E-04	3.8E-04	5.5E-04	7.6E-04
MEAN DOSES	6.4E-04	7.9E-04	1.3E-03	1.3E-03	1.2E-03	1.1E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.8E-03	4.5E-03	2.4E-03	2.6E-03	1.2E-03	5.3E-04
FRACTILE 99.0	3.8E-03	2.9E-03	1.7E-03	1.1E-03	6.8E-04	5.2E-04
FRACTILE 95.0	2.0E-03	1.5E-03	1.2E-03	9.5E-04	4.9E-04	2.7E-04
FRACTILE 90.0	1.8E-03	1.3E-03	1.1E-03	9.1E-04	4.0E-04	2.1E-04
FRACTILE 50.0	9.3E-04	8.1E-04	4.3E-04	2.5E-04	1.4E-04	5.8E-05

MEAN DOSES 9.7E-04 8.1E-04 5.3E-04 3.6E-04 1.8E-04 8.9E-05

CAT-IV-DV-W-elevated, early dose (Cadache)

NO.	NUCLIDE	SUM
1	HTO	3.70000E+15
157	TA-182	0.28800E+10
159	W -181	0.50800E+11
160	W -183M	0.54400E+12
161	W -185	0.49600E+12
162	W -187	0.31600E+12
166	RE-186	0.44800E+11
165	RE-186M	0.70200E+05
168	RE-188	0.19000E+11

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.5E-04	3.9E-04	5.8E-04	6.1E-04	5.9E-04	4.6E-04
FRACTILE 99.0	2.9E-04	3.8E-04	5.8E-04	6.0E-04	5.1E-04	3.6E-04
FRACTILE 95.0	1.9E-04	2.5E-04	3.4E-04	3.1E-04	2.6E-04	2.5E-04
FRACTILE 90.0	8.1E-05	2.0E-04	2.5E-04	2.2E-04	1.9E-04	1.8E-04
FRACTILE 50.0	4.1E-07	1.3E-06	1.7E-05	4.1E-05	6.6E-05	1.0E-04
MEAN DOSES	2.6E-05	4.1E-05	8.2E-05	9.4E-05	9.9E-05	1.2E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.3E-04	3.7E-04	3.1E-04	3.1E-04	1.6E-04	8.3E-05
FRACTILE 99.0	3.2E-04	3.7E-04	2.9E-04	2.7E-04	1.6E-04	8.3E-05
FRACTILE 95.0	3.1E-04	3.4E-04	2.5E-04	2.6E-04	9.3E-05	4.4E-05
FRACTILE 90.0	3.0E-04	3.0E-04	2.5E-04	1.9E-04	6.5E-05	3.0E-05
FRACTILE 50.0	7.4E-05	5.1E-05	3.0E-05	1.6E-05	9.1E-06	4.0E-06
MEAN DOSES	1.3E-04	1.2E-04	8.8E-05	6.5E-05	2.7E-05	1.2E-05

CAT-IV-DV-W-elevated, EDE, with ingestion (Cadache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.2E-02	4.3E-02	2.7E-02	1.9E-02	1.5E-02	1.0E-02
FRACTILE 99.0	8.5E-03	8.3E-03	9.5E-03	7.1E-03	5.4E-03	4.7E-03
FRACTILE 95.0	2.5E-03	3.5E-03	4.5E-03	4.7E-03	4.5E-03	3.1E-03
FRACTILE 90.0	1.7E-03	1.9E-03	3.2E-03	3.2E-03	2.7E-03	1.9E-03
FRACTILE 50.0	4.7E-06	1.9E-05	2.7E-04	3.8E-04	5.5E-04	7.6E-04
MEAN DOSES	6.2E-04	7.8E-04	1.3E-03	1.3E-03	1.2E-03	1.1E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.5E-03	4.3E-03	2.3E-03	2.6E-03	1.2E-03	5.2E-04
FRACTILE 99.0	3.8E-03	2.8E-03	1.7E-03	1.1E-03	6.8E-04	5.2E-04
FRACTILE 95.0	2.0E-03	1.5E-03	1.2E-03	9.5E-04	4.9E-04	2.7E-04
FRACTILE 90.0	1.7E-03	1.3E-03	1.1E-03	9.1E-04	3.9E-04	2.1E-04
FRACTILE 50.0	9.1E-04	8.1E-04	4.3E-04	2.5E-04	1.4E-04	5.8E-05
MEAN DOSES	9.6E-04	8.1E-04	5.2E-04	3.6E-04	1.8E-04	8.9E-05

Probabilistic potential doses from source terms of case 3

CAT-V-VVbypass-C-elevated, early dose (Cadarache)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
4	NA- 24	0.51200E+12
11	SC- 46	0.12200E+12
16	CR- 51	0.72300E+07
20	MN- 54	0.36500E+10
21	MN- 56	0.13800E+12
23	FE- 55	0.49000E+10
27	CO- 57	0.70400E+10
29	CO- 58	0.14400E+11
31	CO- 60	0.10900E+13
30	CO- 60M	0.17700E+14
34	NI- 63	0.14600E+12
36	CU- 62	0.29600E+15
37	CU- 64	0.54500E+15
38	CU- 66	0.18600E+15
157	TA-182	0.57500E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.5E-02	3.8E-02	2.3E-02	1.6E-02	1.2E-02	8.5E-03
FRACTILE 99.0	4.1E-03	3.4E-03	4.5E-03	4.6E-03	3.8E-03	3.2E-03
FRACTILE 95.0	1.7E-03	2.3E-03	3.2E-03	2.5E-03	2.5E-03	2.2E-03
FRACTILE 90.0	1.3E-03	1.7E-03	2.1E-03	1.8E-03	1.5E-03	1.4E-03
FRACTILE 50.0	3.5E-05	4.1E-05	1.6E-04	3.4E-04	5.5E-04	7.6E-04
MEAN DOSES	4.1E-04	4.8E-04	7.6E-04	8.0E-04	8.2E-04	9.2E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	5.1E-03	3.2E-03	2.3E-03	2.1E-03	1.2E-03	6.1E-04
FRACTILE 99.0	2.6E-03	2.8E-03	2.1E-03	1.8E-03	1.2E-03	6.1E-04
FRACTILE 95.0	2.3E-03	2.5E-03	1.9E-03	1.7E-03	6.9E-04	3.2E-04
FRACTILE 90.0	2.2E-03	2.2E-03	1.8E-03	1.3E-03	4.7E-04	2.2E-04
FRACTILE 50.0	5.4E-04	3.9E-04	2.1E-04	1.1E-04	6.8E-05	2.9E-05
MEAN DOSES	9.9E-04	9.3E-04	6.5E-04	4.6E-04	2.0E-04	8.9E-05

CAT-V-VVbypass-C-elevated, EDE, with ingestion (Cadarache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.1E+00	1.7E+00	1.0E+00	6.7E-01	4.9E-01	3.2E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	8.9E-02	7.8E-02	6.2E-02
FRACTILE 95.0	1.8E-02	2.5E-02	4.0E-02	4.1E-02	3.4E-02	2.3E-02
FRACTILE 90.0	1.2E-02	1.6E-02	2.8E-02	2.2E-02	2.0E-02	1.5E-02
FRACTILE 50.0	5.5E-05	1.4E-04	1.8E-03	3.0E-03	4.2E-03	6.2E-03
MEAN DOSES	1.1E-02	1.1E-02	1.2E-02	1.1E-02	1.0E-02	9.4E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
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MAX. DOSES	1.9E-01	1.2E-01	5.5E-02	3.6E-02	2.2E-02	1.1E-02
FRACTILE 99.0	4.6E-02	3.5E-02	2.1E-02	1.2E-02	7.6E-03	4.4E-03
FRACTILE 95.0	1.5E-02	1.3E-02	1.1E-02	7.9E-03	6.3E-03	3.0E-03
FRACTILE 90.0	1.2E-02	1.3E-02	9.3E-03	7.1E-03	3.2E-03	2.1E-03
FRACTILE 50.0	7.8E-03	5.4E-03	2.8E-03	1.6E-03	9.3E-04	4.6E-04
MEAN DOSES	8.3E-03	7.0E-03	4.6E-03	3.0E-03	1.6E-03	8.1E-04

CAT-V-VVbypass-C-ground, early dose (Cadache)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
4	NA- 24	0.51200E+12
11	SC- 46	0.12200E+12
16	CR- 51	0.72300E+07
20	MN- 54	0.36500E+10
21	MN- 56	0.13800E+12
23	FE- 55	0.49000E+10
27	CO- 57	0.70400E+10
29	CO- 58	0.14400E+11
31	CO- 60	0.10900E+13
30	CO- 60M	0.17700E+14
34	NI- 63	0.14600E+12
36	CU- 62	0.29600E+15
37	CU- 64	0.54500E+15
38	CU- 66	0.18600E+15
157	TA-182	0.57500E+12

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.8E-01	1.7E-01	1.3E-01	8.6E-02	6.4E-02	4.2E-02
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	8.6E-02	6.4E-02	4.0E-02
FRACTILE 95.0	1.0E-01	1.0E-01	1.0E-01	8.6E-02	6.3E-02	3.9E-02
FRACTILE 90.0	1.0E-01	1.0E-01	1.0E-01	8.5E-02	6.2E-02	3.7E-02
FRACTILE 50.0	2.4E-02	1.9E-02	1.1E-02	6.2E-03	4.2E-03	2.5E-03
MEAN DOSES	7.8E-02	6.2E-02	4.2E-02	2.8E-02	2.0E-02	1.2E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.2E-02	2.0E-02	7.4E-03	2.6E-03	1.5E-03	1.4E-03
FRACTILE 99.0	2.5E-02	1.4E-02	4.9E-03	2.6E-03	1.1E-03	4.6E-04
FRACTILE 95.0	2.5E-02	1.3E-02	3.5E-03	2.2E-03	7.1E-04	3.0E-04
FRACTILE 90.0	2.1E-02	7.8E-03	3.2E-03	1.5E-03	5.8E-04	2.5E-04
FRACTILE 50.0	1.4E-03	8.3E-04	2.5E-04	1.3E-04	7.1E-05	3.4E-05
MEAN DOSES	6.9E-03	2.9E-03	1.0E-03	4.8E-04	2.1E-04	7.6E-05

CAT-V-VVbypass-C-ground, EDE, with ingestion (Cadache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.7E+00	3.2E+00	2.0E+00	1.2E+00	7.7E-01	4.1E-01
FRACTILE 99.0	2.2E+00	1.1E+00	6.8E-01	4.7E-01	3.4E-01	2.1E-01
FRACTILE 95.0	1.1E+00	9.1E-01	6.5E-01	4.3E-01	3.2E-01	2.0E-01
FRACTILE 90.0	9.1E-01	8.5E-01	5.9E-01	4.1E-01	3.1E-01	1.9E-01
FRACTILE 50.0	2.9E-01	2.3E-01	1.1E-01	6.8E-02	4.4E-02	2.5E-02
MEAN DOSES	5.1E-01	4.0E-01	2.6E-01	1.7E-01	1.2E-01	7.2E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.7E-01	1.8E-01	8.1E-02	6.4E-02	4.0E-02	4.6E-02
FRACTILE 99.0	1.0E-01	8.5E-02	3.6E-02	2.1E-02	1.6E-02	1.1E-02
FRACTILE 95.0	1.0E-01	6.8E-02	2.5E-02	1.2E-02	8.1E-03	5.0E-03

FRACTILE 90.0	1.0E-01	5.1E-02	2.1E-02	1.0E-02	5.5E-03	2.4E-03
FRACTILE 50.0	1.3E-02	8.5E-03	3.8E-03	2.1E-03	1.1E-03	5.9E-04
MEAN DOSES	4.2E-02	2.1E-02	8.3E-03	4.1E-03	2.3E-03	1.2E-03

CAT-V-VVbypass-S-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
16	CR- 51	0.30500E+14
20	MN- 54	0.98900E+13
21	MN- 56	0.10600E+15
23	FE- 55	0.53400E+14
27	CO- 57	0.12300E+14
29	CO- 58	0.13300E+14
28	CO- 58M	0.19200E+14
31	CO- 60	0.15500E+13
30	CO- 60M	0.74000E+13
70	NB- 94	0.11600E+08
75	MO- 99	0.55500E+13
81	TC- 99	0.34700E+08
80	TC- 99M	0.48500E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	8.4E-02	6.9E-02	4.2E-02	2.8E-02	2.1E-02	1.4E-02
FRACTILE 99.0	7.2E-03	6.2E-03	4.8E-03	5.0E-03	4.3E-03	3.9E-03
FRACTILE 95.0	1.8E-03	2.5E-03	3.7E-03	3.0E-03	3.5E-03	2.9E-03
FRACTILE 90.0	1.5E-03	1.8E-03	2.3E-03	2.1E-03	1.7E-03	1.5E-03
FRACTILE 50.0	2.1E-05	2.6E-05	1.5E-04	3.5E-04	5.6E-04	8.1E-04
MEAN DOSES	5.5E-04	6.1E-04	8.6E-04	9.0E-04	9.1E-04	1.0E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	8.4E-03	5.3E-03	2.6E-03	2.4E-03	1.4E-03	6.9E-04
FRACTILE 99.0	3.0E-03	3.1E-03	2.4E-03	1.9E-03	1.4E-03	6.9E-04
FRACTILE 95.0	2.6E-03	2.8E-03	2.1E-03	1.8E-03	7.8E-04	3.7E-04
FRACTILE 90.0	2.5E-03	2.6E-03	2.0E-03	1.4E-03	5.4E-04	2.5E-04
FRACTILE 50.0	5.9E-04	4.3E-04	2.4E-04	1.3E-04	7.6E-05	3.2E-05
MEAN DOSES	1.1E-03	1.0E-03	7.4E-04	5.0E-04	2.3E-04	1.0E-04

CAT-V-VVbypass-S-elevated, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.1E+00	5.9E+00	3.5E+00	2.3E+00	1.6E+00	1.1E+00
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	2.6E-02	3.5E-02	6.0E-02	6.2E-02	5.2E-02	3.6E-02
FRACTILE 90.0	1.7E-02	2.3E-02	4.0E-02	3.0E-02	3.1E-02	2.1E-02
FRACTILE 50.0	5.1E-05	1.8E-04	2.4E-03	4.6E-03	6.5E-03	1.1E-02
MEAN DOSES	3.1E-02	2.8E-02	2.5E-02	2.1E-02	1.9E-02	1.7E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.1E-01	3.8E-01	1.8E-01	1.0E-01	6.3E-02	3.7E-02
FRACTILE 99.0	1.0E-01	8.9E-02	5.6E-02	3.0E-02	2.1E-02	1.1E-02
FRACTILE 95.0	2.6E-02	2.6E-02	2.1E-02	1.4E-02	1.2E-02	7.4E-03
FRACTILE 90.0	2.2E-02	2.5E-02	1.7E-02	1.2E-02	7.1E-03	4.6E-03
FRACTILE 50.0	9.8E-03	6.6E-03	3.5E-03	2.0E-03	1.1E-03	6.5E-04

MEAN DOSES 1.5E-02 1.3E-02 8.8E-03 5.1E-03 3.0E-03 1.7E-03

CAT-V-VVbypass-S-ground, early dose (Cadarahe)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
16	CR- 51	0.30500E+14
20	MN- 54	0.98900E+13
21	MN- 56	0.10600E+15
23	FE- 55	0.53400E+14
27	CO- 57	0.12300E+14
29	CO- 58	0.13300E+14
28	CO- 58M	0.19200E+14
31	CO- 60	0.15500E+13
30	CO- 60M	0.74000E+13
70	NB- 94	0.11600E+08
75	MO- 99	0.55500E+13
81	TC- 99	0.34700E+08
80	TC- 99M	0.48500E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.8E-01	2.1E-01	1.4E-01	9.6E-02	7.2E-02	4.7E-02
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	9.6E-02	7.2E-02	4.5E-02
FRACTILE 95.0	1.0E-01	1.0E-01	1.0E-01	9.6E-02	7.1E-02	4.4E-02
FRACTILE 90.0	1.0E-01	1.0E-01	1.0E-01	9.5E-02	6.9E-02	4.3E-02
FRACTILE 50.0	2.6E-02	2.1E-02	1.3E-02	7.2E-03	4.9E-03	2.9E-03
MEAN DOSES	8.5E-02	6.9E-02	4.7E-02	3.1E-02	2.2E-02	1.3E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.7E-02	2.2E-02	8.4E-03	3.5E-03	1.9E-03	2.3E-03
FRACTILE 99.0	2.8E-02	1.5E-02	5.6E-03	3.0E-03	1.1E-03	6.3E-04
FRACTILE 95.0	2.8E-02	1.5E-02	4.0E-03	2.4E-03	9.1E-04	3.2E-04
FRACTILE 90.0	2.4E-02	8.9E-03	3.6E-03	1.6E-03	6.6E-04	3.0E-04
FRACTILE 50.0	1.6E-03	9.3E-04	2.8E-04	1.4E-04	8.1E-05	3.9E-05
MEAN DOSES	7.9E-03	3.3E-03	1.2E-03	5.5E-04	2.4E-04	9.7E-05

CAT-V-VVbypass-S-ground, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.1E+01	9.8E+00	6.1E+00	3.7E+00	2.4E+00	1.3E+00
FRACTILE 99.0	2.3E+00	1.9E+00	1.3E+00	8.9E-01	6.3E-01	4.3E-01
FRACTILE 95.0	1.9E+00	1.7E+00	1.2E+00	8.5E-01	6.3E-01	4.0E-01
FRACTILE 90.0	1.8E+00	1.7E+00	1.2E+00	8.3E-01	6.2E-01	3.9E-01
FRACTILE 50.0	3.6E-01	3.1E-01	1.8E-01	9.3E-02	6.2E-02	3.5E-02
MEAN DOSES	8.6E-01	7.3E-01	4.8E-01	3.1E-01	2.2E-01	1.4E-01

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	6.8E-01	5.1E-01	2.4E-01	2.0E-01	1.3E-01	1.5E-01
FRACTILE 99.0	1.0E-01	1.0E-01	8.7E-02	5.2E-02	4.6E-02	3.5E-02
FRACTILE 95.0	1.0E-01	1.0E-01	6.3E-02	2.6E-02	2.4E-02	1.8E-02
FRACTILE 90.0	1.0E-01	9.8E-02	3.8E-02	2.2E-02	1.2E-02	9.1E-03
FRACTILE 50.0	2.0E-02	1.3E-02	4.8E-03	2.6E-03	1.4E-03	7.6E-04

MEAN DOSES 8.2E-02 3.9E-02 1.6E-02 7.9E-03 5.4E-03 3.4E-03

CAT-V-VVbypass-W-elevated, early dose (Cadarahe)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
16	CR- 51	0.72300E+07
20	MN- 54	0.36500E+10
21	MN- 56	0.13800E+12
23	FE- 55	0.49000E+10
27	CO- 57	0.70400E+10
29	CO- 58	0.14400E+11
31	CO- 60	0.60600E+09
157	TA-182	0.21600E+13
159	W -181	0.38100E+14
160	W -183M	0.40800E+15
161	W -185	0.37200E+15
162	W -187	0.23700E+15
166	RE-186	0.33600E+14
165	RE-186M	0.52700E+08
168	RE-188	0.14200E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.8E-02	6.5E-02	3.9E-02	2.6E-02	2.0E-02	1.3E-02
FRACTILE 99.0	6.8E-03	5.8E-03	4.4E-03	4.6E-03	3.9E-03	3.5E-03
FRACTILE 95.0	1.7E-03	2.2E-03	3.4E-03	2.8E-03	3.3E-03	2.6E-03
FRACTILE 90.0	1.4E-03	1.6E-03	2.1E-03	1.9E-03	1.5E-03	1.4E-03
FRACTILE 50.0	1.8E-05	2.6E-05	1.3E-04	3.2E-04	5.0E-04	7.6E-04
MEAN DOSES	5.0E-04	5.6E-04	7.8E-04	8.1E-04	8.3E-04	9.4E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.9E-03	5.0E-03	2.3E-03	2.3E-03	1.2E-03	6.4E-04
FRACTILE 99.0	2.8E-03	2.8E-03	2.2E-03	1.8E-03	1.2E-03	6.4E-04
FRACTILE 95.0	2.3E-03	2.6E-03	1.9E-03	1.7E-03	7.2E-04	3.4E-04
FRACTILE 90.0	2.3E-03	2.3E-03	1.9E-03	1.3E-03	4.9E-04	2.3E-04
FRACTILE 50.0	5.5E-04	3.9E-04	2.2E-04	1.2E-04	6.9E-05	3.0E-05
MEAN DOSES	1.0E-03	9.6E-04	6.8E-04	4.7E-04	2.1E-04	9.4E-05

CAT-V-VVbypass-W-elevated, EDE, with ingestion(Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.5E+00	3.7E+00	2.2E+00	1.4E+00	1.0E+00	6.7E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	2.1E-02	3.0E-02	4.9E-02	5.1E-02	4.2E-02	2.9E-02
FRACTILE 90.0	1.4E-02	1.9E-02	3.4E-02	2.6E-02	2.5E-02	1.8E-02
FRACTILE 50.0	5.0E-05	1.5E-04	2.1E-03	3.7E-03	5.2E-03	8.3E-03
MEAN DOSES	2.0E-02	1.9E-02	1.8E-02	1.6E-02	1.4E-02	1.3E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.9E-01	2.4E-01	1.1E-01	6.6E-02	4.2E-02	2.4E-02
FRACTILE 99.0	7.9E-02	6.0E-02	3.8E-02	2.1E-02	1.4E-02	6.9E-03
FRACTILE 95.0	2.0E-02	1.9E-02	1.5E-02	1.1E-02	8.9E-03	5.8E-03

FRACTILE 90.0	1.7E-02	1.8E-02	1.3E-02	9.3E-03	4.7E-03	3.2E-03
FRACTILE 50.0	8.7E-03	6.0E-03	3.1E-03	1.8E-03	1.0E-03	5.8E-04
MEAN DOSES	1.1E-02	9.9E-03	6.6E-03	4.0E-03	2.3E-03	1.2E-03

CAT-V-VVbypass-W-ground, early dose (Cadarache)

NO.	NUCLIDE	SUM
1	HTO	2.22000E+16
16	CR- 51	0.72300E+07
20	MN- 54	0.36500E+10
21	MN- 56	0.13800E+12
23	FE- 55	0.49000E+10
27	CO- 57	0.70400E+10
29	CO- 58	0.14400E+11
31	CO- 60	0.60600E+09
157	TA-182	0.21600E+13
159	W -181	0.38100E+14
160	W -183M	0.40800E+15
161	W -185	0.37200E+15
162	W -187	0.23700E+15
166	RE-186	0.33600E+14
165	RE-186M	0.52700E+08
168	RE-188	0.14200E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	4.8E-01	1.9E-01	1.3E-01	8.8E-02	6.6E-02	4.3E-02
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	8.8E-02	6.6E-02	4.1E-02
FRACTILE 95.0	1.0E-01	1.0E-01	1.0E-01	8.8E-02	6.5E-02	4.1E-02
FRACTILE 90.0	1.0E-01	1.0E-01	1.0E-01	8.7E-02	6.3E-02	3.9E-02
FRACTILE 50.0	2.5E-02	1.9E-02	1.1E-02	6.8E-03	4.5E-03	2.6E-03
MEAN DOSES	7.9E-02	6.3E-02	4.3E-02	2.8E-02	2.0E-02	1.2E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.4E-02	2.0E-02	7.7E-03	3.3E-03	1.8E-03	2.1E-03
FRACTILE 99.0	2.6E-02	1.4E-02	5.1E-03	2.8E-03	1.1E-03	5.4E-04
FRACTILE 95.0	2.6E-02	1.4E-02	3.6E-03	2.3E-03	8.3E-04	3.0E-04
FRACTILE 90.0	2.2E-02	8.1E-03	3.3E-03	1.5E-03	6.0E-04	2.7E-04
FRACTILE 50.0	1.4E-03	8.7E-04	2.6E-04	1.3E-04	7.4E-05	3.5E-05
MEAN DOSES	7.2E-03	3.0E-03	1.1E-03	5.1E-04	2.2E-04	8.8E-05

CAT-V-VVbypass-W-ground, EDE, with ingestion (Cadarache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	7.3E+00	6.3E+00	3.9E+00	2.4E+00	1.6E+00	8.3E-01
FRACTILE 99.0	2.2E+00	1.3E+00	9.8E-01	6.6E-01	4.8E-01	3.0E-01
FRACTILE 95.0	1.5E+00	1.3E+00	9.1E-01	6.3E-01	4.6E-01	3.0E-01
FRACTILE 90.0	1.3E+00	1.3E+00	8.9E-01	6.2E-01	4.6E-01	2.8E-01
FRACTILE 50.0	3.2E-01	2.6E-01	1.4E-01	8.5E-02	5.4E-02	3.0E-02
MEAN DOSES	6.7E-01	5.6E-01	3.6E-01	2.4E-01	1.7E-01	1.0E-01

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	4.4E-01	3.3E-01	1.6E-01	1.3E-01	8.3E-02	9.4E-02
FRACTILE 99.0	1.0E-01	1.0E-01	5.8E-02	3.6E-02	3.0E-02	2.2E-02
FRACTILE 95.0	1.0E-01	1.0E-01	4.2E-02	1.9E-02	1.5E-02	1.1E-02

FRACTILE 90.0	1.0E-01	7.2E-02	3.1E-02	1.4E-02	8.5E-03	5.6E-03
FRACTILE 50.0	1.6E-02	1.0E-02	4.3E-03	2.3E-03	1.3E-03	6.8E-04
MEAN DOSES	6.1E-02	3.0E-02	1.2E-02	5.8E-03	3.8E-03	2.3E-03

Probabilistic potential doses from source terms of case 4

CAT-V-LOVA-C-elevated, early dose (Cadarache)

NO.	NUCLIDE	SUM
4	NA- 24	0.11300E+13
11	SC- 46	0.26900E+12
31	CO- 60	0.23900E+13
30	CO- 60M	0.38900E+14
34	NI- 63	0.32000E+12
36	CU- 62	0.65000E+15
37	CU- 64	0.12000E+16
38	CU- 66	0.40900E+15
157	TA-182	0.12600E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	9.8E-02	8.1E-02	4.8E-02	3.1E-02	2.3E-02	1.4E-02
FRACTILE 99.0	8.5E-03	7.1E-03	4.7E-03	3.6E-03	3.2E-03	2.7E-03
FRACTILE 95.0	9.3E-04	1.1E-03	2.0E-03	2.0E-03	1.6E-03	1.1E-03
FRACTILE 90.0	8.5E-04	1.0E-03	1.1E-03	8.5E-04	7.1E-04	7.2E-04
FRACTILE 50.0	6.9E-05	7.2E-05	3.3E-04	2.8E-04	3.7E-04	3.5E-04
MEAN DOSES	5.5E-04	5.2E-04	6.0E-04	5.3E-04	5.0E-04	4.9E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	8.2E-03	5.1E-03	2.3E-03	1.3E-03	7.9E-04	4.9E-04
FRACTILE 99.0	1.9E-03	1.5E-03	9.3E-04	6.0E-04	4.9E-04	2.6E-04
FRACTILE 95.0	1.0E-03	1.1E-03	8.7E-04	4.7E-04	3.5E-04	1.9E-04
FRACTILE 90.0	9.8E-04	9.5E-04	7.4E-04	3.8E-04	2.1E-04	1.1E-04
FRACTILE 50.0	2.3E-04	1.8E-04	8.7E-05	3.8E-05	2.5E-05	1.1E-05
MEAN DOSES	4.7E-04	4.2E-04	2.8E-04	1.5E-04	8.8E-05	4.3E-05

CAT-V-LOVA-C-elevated, EDE, with ingestion (Cadarache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.9E+00	3.2E+00	1.9E+00	1.2E+00	9.0E-01	5.7E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	7.4E-02
FRACTILE 95.0	6.5E-03	8.7E-03	1.7E-02	1.7E-02	1.4E-02	1.0E-02
FRACTILE 90.0	4.7E-03	6.3E-03	9.8E-03	7.2E-03	5.9E-03	5.4E-03
FRACTILE 50.0	7.6E-05	8.5E-05	5.4E-04	1.3E-03	2.0E-03	2.8E-03
MEAN DOSES	1.6E-02	1.4E-02	1.0E-02	7.9E-03	6.7E-03	6.1E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.3E-01	2.1E-01	9.5E-02	5.0E-02	3.2E-02	2.1E-02
FRACTILE 99.0	5.2E-02	4.1E-02	2.8E-02	1.4E-02	1.0E-02	6.5E-03
FRACTILE 95.0	9.3E-03	1.1E-02	8.5E-03	5.9E-03	4.9E-03	3.9E-03
FRACTILE 90.0	9.1E-03	9.8E-03	7.2E-03	4.7E-03	2.8E-03	2.6E-03
FRACTILE 50.0	1.9E-03	1.5E-03	7.6E-04	3.8E-04	2.4E-04	1.0E-04
MEAN DOSES	5.6E-03	4.9E-03	3.4E-03	1.9E-03	1.2E-03	7.3E-04

CAT-V-LOVA-C-ground, early dose (Cadarahe)

NO.	NUCLIDE	SUM
4	NA- 24	0.11300E+13
11	SC- 46	0.26900E+12
31	CO- 60	0.23900E+13
30	CO- 60M	0.38900E+14
34	NI- 63	0.32000E+12
36	CU- 62	0.65000E+15
37	CU- 64	0.12000E+16
38	CU- 66	0.40900E+15
157	TA-182	0.12600E+13

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.8E-01	1.5E-01	9.3E-02	5.4E-02	3.5E-02	1.8E-02
FRACTILE 99.0	7.6E-02	6.9E-02	5.0E-02	3.5E-02	2.6E-02	1.6E-02
FRACTILE 95.0	7.4E-02	6.9E-02	5.0E-02	3.5E-02	2.5E-02	1.6E-02
FRACTILE 90.0	7.4E-02	6.8E-02	4.9E-02	3.4E-02	2.4E-02	1.5E-02
FRACTILE 50.0	1.0E-02	7.9E-03	4.7E-03	2.8E-03	1.9E-03	1.1E-03
MEAN DOSES	2.8E-02	2.5E-02	1.7E-02	1.1E-02	8.0E-03	4.9E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.5E-02	8.2E-03	3.2E-03	3.0E-03	1.8E-03	2.1E-03
FRACTILE 99.0	1.0E-02	5.6E-03	2.1E-03	1.0E-03	7.6E-04	6.9E-04
FRACTILE 95.0	1.0E-02	5.5E-03	1.7E-03	6.6E-04	5.1E-04	2.7E-04
FRACTILE 90.0	8.7E-03	3.3E-03	1.3E-03	5.5E-04	2.6E-04	1.7E-04
FRACTILE 50.0	6.3E-04	3.3E-04	1.0E-04	4.5E-05	2.8E-05	1.4E-05
MEAN DOSES	2.9E-03	1.3E-03	4.7E-04	2.0E-04	1.2E-04	6.6E-05

CAT-V-LOVA-C-ground, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	5.8E+00	5.1E+00	3.2E+00	2.0E+00	1.3E+00	6.9E-01
FRACTILE 99.0	8.7E-01	7.8E-01	5.1E-01	3.6E-01	2.6E-01	1.8E-01
FRACTILE 95.0	7.6E-01	7.1E-01	5.1E-01	3.5E-01	2.6E-01	1.7E-01
FRACTILE 90.0	7.6E-01	6.9E-01	5.0E-01	3.5E-01	2.5E-01	1.5E-01
FRACTILE 50.0	9.5E-02	7.8E-02	4.5E-02	2.6E-02	1.8E-02	1.0E-02
MEAN DOSES	3.0E-01	2.7E-01	1.8E-01	1.2E-01	8.6E-02	5.4E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	3.6E-01	2.6E-01	1.2E-01	1.1E-01	7.0E-02	7.8E-02
FRACTILE 99.0	1.0E-01	7.9E-02	4.4E-02	2.5E-02	2.3E-02	1.9E-02
FRACTILE 95.0	1.0E-01	5.8E-02	3.2E-02	1.3E-02	1.2E-02	9.8E-03
FRACTILE 90.0	1.0E-01	4.3E-02	1.6E-02	1.1E-02	6.8E-03	5.2E-03
FRACTILE 50.0	5.9E-03	3.3E-03	1.0E-03	4.1E-04	2.5E-04	1.4E-04
MEAN DOSES	3.2E-02	1.5E-02	6.3E-03	3.2E-03	2.4E-03	1.7E-03

CAT-V-LOVA-S-elevated, early dose (Cadarache)

NO.	NUCLIDE	SUM
16	CR- 51	0.67000E+14
20	MN- 54	0.21700E+14
21	MN- 56	0.23200E+15
23	FE- 55	0.11700E+15
27	CO- 57	0.27000E+14
29	CO- 58	0.29200E+14
28	CO- 58M	0.42200E+14
31	CO- 60	0.34000E+13
30	CO- 60M	0.16300E+14
70	NB- 94	0.25500E+08
75	MO- 99	0.12200E+14
81	TC- 99	0.76200E+08
80	TC- 99M	0.10700E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.8E-01	1.5E-01	8.9E-02	5.8E-02	4.2E-02	2.7E-02
FRACTILE 99.0	1.5E-02	1.3E-02	8.3E-03	6.5E-03	5.6E-03	4.8E-03
FRACTILE 95.0	1.1E-03	1.5E-03	3.0E-03	3.0E-03	2.5E-03	1.7E-03
FRACTILE 90.0	8.3E-04	1.3E-03	1.7E-03	1.2E-03	1.0E-03	1.0E-03
FRACTILE 50.0	3.7E-05	4.4E-05	2.1E-04	2.3E-04	4.0E-04	4.8E-04
MEAN DOSES	8.6E-04	8.1E-04	8.3E-04	7.4E-04	7.1E-04	7.3E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.6E-02	9.7E-03	4.4E-03	2.4E-03	1.5E-03	9.5E-04
FRACTILE 99.0	3.5E-03	2.7E-03	1.6E-03	1.0E-03	8.3E-04	4.4E-04
FRACTILE 95.0	1.7E-03	1.9E-03	1.4E-03	7.9E-04	5.9E-04	3.3E-04
FRACTILE 90.0	1.5E-03	1.6E-03	1.2E-03	6.6E-04	4.0E-04	2.1E-04
FRACTILE 50.0	3.3E-04	2.6E-04	1.3E-04	6.5E-05	4.1E-05	1.9E-05
MEAN DOSES	7.4E-04	6.8E-04	4.7E-04	2.6E-04	1.5E-04	7.6E-05

CAT-V-LOVA-S-elevated, EDE, with ingestion (Cadarache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.5E+01	1.2E+01	7.3E+00	4.8E+00	3.4E+00	2.2E+00
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	2.3E-02	3.1E-02	6.2E-02	6.3E-02	5.2E-02	3.7E-02
FRACTILE 90.0	1.6E-02	2.2E-02	3.5E-02	2.6E-02	2.1E-02	1.9E-02
FRACTILE 50.0	5.2E-05	1.4E-04	1.8E-03	4.4E-03	6.9E-03	1.0E-02
MEAN DOSES	6.0E-02	5.2E-02	3.8E-02	2.9E-02	2.5E-02	2.2E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.3E+00	7.9E-01	3.6E-01	1.9E-01	1.2E-01	7.9E-02
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	5.5E-02	4.0E-02	2.5E-02
FRACTILE 95.0	3.3E-02	4.0E-02	3.1E-02	2.1E-02	1.8E-02	1.5E-02
FRACTILE 90.0	3.2E-02	3.5E-02	2.7E-02	1.7E-02	1.0E-02	9.3E-03
FRACTILE 50.0	6.9E-03	5.4E-03	2.8E-03	1.4E-03	8.9E-04	3.9E-04
MEAN DOSES	2.0E-02	1.8E-02	1.2E-02	6.9E-03	4.3E-03	2.7E-03

CAT-V-LOVA-S-ground, early dose (Cadarahe)

NO.	NUCLIDE	SUM
16	CR- 51	0.67000E+14
20	MN- 54	0.21700E+14
21	MN- 56	0.23200E+15
23	FE- 55	0.11700E+15
27	CO- 57	0.27000E+14
29	CO- 58	0.29200E+14
28	CO- 58M	0.42200E+14
31	CO- 60	0.34000E+13
30	CO- 60M	0.16300E+14
70	NB- 94	0.25500E+08
75	MO- 99	0.12200E+14
81	TC- 99	0.76200E+08
80	TC- 99M	0.10700E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	3.2E-01	2.8E-01	1.7E-01	1.0E-01	6.5E-02	3.4E-02
FRACTILE 99.0	1.0E-01	1.0E-01	8.3E-02	5.8E-02	4.3E-02	2.7E-02
FRACTILE 95.0	1.0E-01	1.0E-01	8.1E-02	5.8E-02	4.2E-02	2.7E-02
FRACTILE 90.0	1.0E-01	1.0E-01	8.1E-02	5.6E-02	4.1E-02	2.5E-02
FRACTILE 50.0	1.5E-02	1.2E-02	7.2E-03	4.4E-03	2.9E-03	1.7E-03
MEAN DOSES	4.5E-02	4.1E-02	2.8E-02	1.8E-02	1.3E-02	8.3E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	2.6E-02	1.4E-02	5.9E-03	5.7E-03	3.4E-03	4.0E-03
FRACTILE 99.0	1.7E-02	9.8E-03	3.5E-03	1.8E-03	1.4E-03	1.2E-03
FRACTILE 95.0	1.7E-02	9.3E-03	3.0E-03	1.2E-03	1.0E-03	5.6E-04
FRACTILE 90.0	1.5E-02	5.6E-03	2.3E-03	9.3E-04	5.0E-04	3.0E-04
FRACTILE 50.0	9.8E-04	5.6E-04	1.7E-04	7.2E-05	4.4E-05	2.4E-05
MEAN DOSES	5.0E-03	2.2E-03	8.0E-04	3.4E-04	2.1E-04	1.2E-04

CAT-V-LOVA-S-ground, EDE, with ingestion (Cadarahe)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	2.2E+01	2.0E+01	1.2E+01	7.5E+00	4.9E+00	2.6E+00
FRACTILE 99.0	3.2E+00	2.9E+00	1.9E+00	1.3E+00	1.0E+00	6.8E-01
FRACTILE 95.0	2.8E+00	2.6E+00	1.9E+00	1.3E+00	9.3E-01	6.0E-01
FRACTILE 90.0	2.8E+00	2.6E+00	1.9E+00	1.3E+00	9.1E-01	5.8E-01
FRACTILE 50.0	3.5E-01	2.8E-01	1.6E-01	9.5E-02	6.5E-02	3.7E-02
MEAN DOSES	1.1E+00	9.8E-01	6.6E-01	4.4E-01	3.2E-01	2.0E-01

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.4E+00	9.8E-01	4.6E-01	4.1E-01	2.7E-01	3.0E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	9.5E-02	9.1E-02	7.2E-02
FRACTILE 95.0	1.0E-01	1.0E-01	1.0E-01	5.1E-02	4.6E-02	3.8E-02
FRACTILE 90.0	1.0E-01	1.0E-01	5.8E-02	4.1E-02	2.6E-02	2.0E-02
FRACTILE 50.0	2.1E-02	1.2E-02	3.6E-03	1.5E-03	9.1E-04	5.0E-04
MEAN DOSES	1.2E-01	5.5E-02	2.3E-02	1.2E-02	9.2E-03	6.5E-03

CAT-V-LOVA-W-elevated, early dose (Cadache)

NO.	NUCLIDE	SUM
157	TA-182	0.47500E+13
159	W -181	0.83800E+14
160	W -183M	0.89800E+15
161	W -185	0.81800E+15
162	W -187	0.52100E+15
166	RE-186	0.73900E+14
165	RE-186M	0.11600E+09
168	RE-188	0.31300E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.7E-01	1.4E-01	8.3E-02	5.4E-02	3.9E-02	2.5E-02
FRACTILE 99.0	1.4E-02	1.2E-02	7.8E-03	5.9E-03	4.9E-03	4.0E-03
FRACTILE 95.0	7.8E-04	1.0E-03	2.0E-03	2.1E-03	1.7E-03	1.2E-03
FRACTILE 90.0	5.6E-04	8.3E-04	1.1E-03	8.5E-04	6.9E-04	6.9E-04
FRACTILE 50.0	3.6E-05	3.5E-05	1.1E-04	1.5E-04	2.6E-04	3.2E-04
MEAN DOSES	7.6E-04	7.0E-04	6.4E-04	5.6E-04	5.2E-04	5.2E-04

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.4E-02	9.0E-03	4.1E-03	2.2E-03	1.4E-03	8.8E-04
FRACTILE 99.0	3.0E-03	2.2E-03	1.4E-03	7.1E-04	6.0E-04	3.5E-04
FRACTILE 95.0	1.1E-03	1.3E-03	1.0E-03	6.2E-04	4.8E-04	2.7E-04
FRACTILE 90.0	1.1E-03	1.2E-03	8.7E-04	4.8E-04	3.0E-04	1.7E-04
FRACTILE 50.0	2.3E-04	1.8E-04	9.1E-05	4.6E-05	3.0E-05	1.3E-05
MEAN DOSES	5.3E-04	4.8E-04	3.4E-04	1.8E-04	1.1E-04	5.8E-05

CAT-V-LOVA-W-elevated, EDE, with ingestion (Cadache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	9.2E+00	7.7E+00	4.5E+00	2.9E+00	2.1E+00	1.3E+00
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01	1.0E-01
FRACTILE 95.0	1.4E-02	1.9E-02	3.7E-02	3.9E-02	3.2E-02	2.3E-02
FRACTILE 90.0	1.0E-02	1.4E-02	2.2E-02	1.6E-02	1.3E-02	1.2E-02
FRACTILE 50.0	4.1E-05	9.3E-05	1.1E-03	2.7E-03	4.2E-03	6.2E-03
MEAN DOSES	3.7E-02	3.2E-02	2.3E-02	1.8E-02	1.5E-02	1.4E-02

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	7.7E-01	4.8E-01	2.2E-01	1.2E-01	7.6E-02	4.8E-02
FRACTILE 99.0	1.0E-01	9.5E-02	6.6E-02	3.4E-02	2.5E-02	1.5E-02
FRACTILE 95.0	2.0E-02	2.5E-02	1.9E-02	1.3E-02	1.1E-02	9.1E-03
FRACTILE 90.0	2.0E-02	2.2E-02	1.7E-02	1.1E-02	6.3E-03	5.8E-03
FRACTILE 50.0	4.3E-03	3.3E-03	1.7E-03	8.5E-04	5.5E-04	2.4E-04
MEAN DOSES	1.3E-02	1.1E-02	7.7E-03	4.3E-03	2.6E-03	1.7E-03

CAT-V-LOVA-W-ground, early dose (Cadache)

NO.	NUCLIDE	SUM
157	TA-182	0.47500E+13
159	W -181	0.83800E+14
160	W -183M	0.89800E+15
161	W -185	0.81800E+15
162	W -187	0.52100E+15
166	RE-186	0.73900E+14
165	RE-186M	0.11600E+09
168	RE-188	0.31300E+14

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.3E-01	1.1E-01	6.8E-02	4.4E-02	3.2E-02	2.1E-02
FRACTILE 99.0	8.3E-02	7.8E-02	5.6E-02	3.9E-02	2.8E-02	1.8E-02
FRACTILE 95.0	1.8E-02	1.7E-02	1.2E-02	8.3E-03	6.2E-03	4.0E-03
FRACTILE 90.0	1.5E-02	1.4E-02	1.0E-02	7.2E-03	5.4E-03	3.4E-03
FRACTILE 50.0	4.5E-03	3.9E-03	2.2E-03	1.3E-03	8.3E-04	5.0E-04
MEAN DOSES	7.9E-03	7.0E-03	4.6E-03	3.0E-03	2.2E-03	1.4E-03

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	1.3E-02	7.1E-03	5.3E-03	2.0E-03	1.3E-03	1.1E-03
FRACTILE 99.0	1.0E-02	4.6E-03	1.7E-03	1.2E-03	6.9E-04	4.8E-04
FRACTILE 95.0	2.3E-03	1.6E-03	8.1E-04	4.0E-04	2.8E-04	2.1E-04
FRACTILE 90.0	2.0E-03	1.4E-03	7.1E-04	3.6E-04	2.4E-04	1.4E-04
FRACTILE 50.0	3.0E-04	2.0E-04	1.0E-04	5.2E-05	3.3E-05	1.9E-05
MEAN DOSES	8.0E-04	4.9E-04	2.3E-04	1.2E-04	8.0E-05	5.2E-05

CAT-V-LOVA-W-ground, EDE, with ingestion (Cadache)

RADIUS (KM)	0.145	0.180	0.320	0.500	0.680	1.000
MAX. DOSES	1.4E+01	1.2E+01	7.5E+00	4.6E+00	3.0E+00	1.6E+00
FRACTILE 99.0	2.0E+00	1.8E+00	1.2E+00	8.3E-01	6.2E-01	4.2E-01
FRACTILE 95.0	1.7E+00	1.6E+00	1.1E+00	7.9E-01	5.8E-01	3.7E-01
FRACTILE 90.0	1.7E+00	1.6E+00	1.1E+00	7.8E-01	5.6E-01	3.5E-01
FRACTILE 50.0	2.1E-01	1.7E-01	1.0E-01	5.9E-02	4.0E-02	2.3E-02
MEAN DOSES	6.7E-01	6.0E-01	4.1E-01	2.7E-01	1.9E-01	1.2E-01

RADIUS (KM)	1.500	2.000	3.200	5.000	6.800	10.000
MAX. DOSES	8.6E-01	6.1E-01	2.8E-01	2.6E-01	1.6E-01	1.8E-01
FRACTILE 99.0	1.0E-01	1.0E-01	1.0E-01	5.9E-02	5.5E-02	4.4E-02
FRACTILE 95.0	1.0E-01	1.0E-01	7.4E-02	3.2E-02	2.8E-02	2.3E-02
FRACTILE 90.0	1.0E-01	9.8E-02	3.5E-02	2.5E-02	1.6E-02	1.2E-02
FRACTILE 50.0	1.3E-02	7.6E-03	2.2E-03	9.1E-04	5.6E-04	3.1E-04
MEAN DOSES	7.3E-02	3.4E-02	1.4E-02	7.5E-03	5.7E-03	4.0E-03