

**APPENDIX D**

**RADIOLOGICAL BENCHMARKS  
FOR NON-HUMAN BIOTA**

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## APPENDIX D - RADIOLOGICAL BENCHMARKS FOR NON-HUMAN BIOTA

The following table provides the ENEVs for each type of biota from the various literature sources. These ENEVs were used to derive a range for ENEVs for each type of biota and subsequently determine a recommended nominal value.

**Table D1-1  
Summary of ENEVs for Non-Human Biota  
from Various Literature Sources**

Class of Biota	Reference (Author, Year)	ENEV Value or Range (mGy/d)	Derived Range (mGy/d)	Nominal ENEV Value (mGy/d)
Fish and Aquatic Biota	Knowles, 2003	7.2 to 24 (gamma) 0.23 to 5.1 (alpha)	0.55 to 50 (gamma) 0.23 to 5.1 (alpha)*	5
	Thompson <i>et al.</i> , 2003	0.6		
	Bird <i>et al.</i> (2002)	0.55		
	Le Francois <i>et al.</i> , 1999 (citing Konno, 1980)	40 and 50		
	Jones <i>et al.</i> , 2003	10		
	NCRP, 1991	10		
	IAEA, 1992	10		
	UNSCEAR, 1996	10		
	Higley <i>et al.</i> , 2003 (citing DOE, 2002)	10		
	Thompson <i>et al.</i> , 2003 (citing IAEA, 1992 and UNSCEAR, 1996)	10		
Rose <i>et al.</i> , 1992 (citing Trabalka <i>et al.</i> , 1977)	0.6			
Rose <i>et al.</i> , 1992 (citing Marshall, 1962, 1967)	5476 to 10,951			
Aquatic Plants (Algae and Macrophytes)	Thompson <i>et al.</i> , 2003	2.4	2.4 to 10	2.7
	NCRP, 1991	10		
	UNSCEAR, 1996	10		
	Bird <i>et al.</i> (2002)	2.7		
Amphibians and Reptiles	Thompson <i>et al.</i> , 2003	2	2 to 2.7	2.7
	Bird <i>et al.</i> (2002)	2.7		
Benthic Invertebrates	Thompson <i>et al.</i> , 2003	4.6	1.1 to 5.5	5
	Harrison and Anderson, 1994	4.6		
	Bird <i>et al.</i> (2002)	5.5		
	ACRP, 2002 (citing EC, 2001)	1.1		
Small Mammals	Mihok, 2003	3 (H-3)	1 to 81	2.7
	Mihok, 2003	44		
	Mihok, 2003 (Submitted to Publication)	81		
	UNSCEAR, 1996 (reproduction)	1		
	UNSCEAR, 1996 (mortality)	10		
	Bird <i>et al.</i> (2002)	2.7		

**Table D1-1 (Cont'd)**  
**Summary of ENEVs for Non-Human Biota from Various Literature Sources**

<b>Class of Biota</b>	<b>Reference (Author, Year)</b>	<b>ENEV Value or Range (mGy/d)</b>	<b>Derived Range (mGy/d)</b>	<b>Nominal ENEV Value (mGy/d)</b>
Terrestrial Plants	Jones <i>et al.</i> , 2003	10	2.7 to 10	2.7
	ECOMatters, Inc., 1999	2.4		
	Higley <i>et al.</i> , 2003 (citing DOE, 2002)	10		
	Bird <i>et al.</i> (2002)	2.7		
	IAEA, 1992	10		
	UNSCEAR, 1996	10		
Rose, 1992 (Terrestrial vegetation cited in Sparrow <i>et al.</i> , 1963 )	7.4			
Terrestrial Animals	Jones <i>et al.</i> , 2003	1	1 to 10	1
	Higley <i>et al.</i> , 2003 (citing DOE, 2002)	1		
	IAEA, 1992	1		
	UNSCEAR, 1996	10		
	UNSCEAR, 1996	1		
	Rose <i>et al.</i> , 1992 (citing Childs <i>et al.</i> , 1966)	4.9		
Rose <i>et al.</i> , 1992 (citing French <i>et al.</i> , 1966)	9.6			
Terrestrial Invertebrates	ACRP, 2002 (terrestrial invertebrates cited in EC, 2001)	1.1	1.1 to 5.5	5.5
	Bird <i>et al.</i> (2002)	5.5		
Birds	Zach <i>et al.</i> , 1993	0.14	0.14 to 5	5
	Zach and Mayoh, 1982	5		
Fungi	Rose <i>et al.</i> , 1992 (citing UT-AEC, 1969)	4928	4928	-
Short-Lived Prolific species	Mihok, 2003	up to 100	100	100

\* ENEV up to 10,951 according to Rose *et al.*, 1992.

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