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data such as the name of the person in control, the name of the individual, and the individual's social security number; include the individual's exposure information; and contain the following statement: "This report is furnished to you under the provisions of Wisconsin Administrative Code Section HSS 157.19. You should preserve this report for further reference."

(b) Annual notification. At the request of any worker, each person in control shall advise such worker annually of the worker's exposure to radiation or radioactive material as shown in records maintained by the person in control pursuant to s. HSS 157.12 (5) (a) 1. and 3.

(c) Notification to former workers. At the request of a worker formerly engaged in work controlled by the person in control, each person in control shall furnish to the worker a report of the worker's exposure to radiation or radioactive material. Such report shall be furnished within 30 days from the time the request is made, or within 30 days after the exposure of the individual has been determined by the person in control, whichever is later; shall cover, within the period of time specified in the request, each calendar quarter in which the worker's activities involved exposure to radiation from radioactive material licensed by or radiation machines registered with the department; and shall include the dates and locations of work under the registration in which the worker participated during this period.

(d) Notification to over-exposed individuals. When a person in control is required pursuant to s. HSS 157.12 (5) (d), to report to the department any exposure of an individual to radiation or radioactive material, the person in control shall also provide the individual a report on his [or her] exposure data included therein. Such reports shall be transmitted at a time not later than the transmittal to the department.

History: Cr. Register, September, 1982, No. 321, eff. 10-1-82.

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APPENDIX A

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WUT ^b in	mA min			Dis	fance	in mete	rs from	source	to occu	pied a	rea		
40,00 20,00 10,00 5,00 2,50 1,20)0)0)0)0 50	1.5	2.1 1.5	3.0 2.1 1.5	4.2 3.0 2.1 1.5	6.1 4.2 3.0 2.1 1.5	8.4 6.1 4.2 3.0 2.1 1.5	12.2 8.4 6.1 4.1 3.0 2.1 1.5	12,2 8,4 6,2 4,2 3,0 2,1	12.2 8.4 6.1 4.2 3.0	12.2 8.4 6.1 4.2	12.2 8.4 6.1	12.2 8,4
Type of Area	Material				Prin	nary pro	lective	barrier	thickne	ss <u>°.</u>			
Controlled Noncontrolled Controlled Noncontrolled	Lead, mm ^d Lead, mm ^d Concrete,cm ^e Concrete,cm ^e	6.6 8,4 43.5 52	6,1 7.6 40.5 50	5.5 7.2 37.5 46.5	5.0 6.8 35 44	4.5 6.2 32.5 41.5	4.0 5.8 29.5 39	3.6 5.2 27 36	3.1 4.7 24.5 33.5	2.7 4.2 21.5 30.5	2.3 3.7 19.5 28	1,9 3.2 17 25.5	1.6 2.8 14.5 23
					Seco	adary pr	otectiv	e barrie	er (bickr	iess c			
Controlled Noncontrolled Controlled Noncontrolled	Lead, mm ^d Lead, mm ^d Concrete,cm ^e Concrete,cm ^e	4.25 6.0 27 35.5	8,7 5,45 24,5 33	3.2 4.95 22 30.5	2.7 4.4 19.5 28	2.15 3.9 17 25.5	1.7 3.4 14 23	1.4 2.85 11.5 20	1.15 2.35 9.5 17.5	0.9 1.8 7 15	0.75 1.5 5 12.5	0.6 1.25 3.5 10	0.05 1.0 0.5 8

Table 11 - Minimum shielding requirements for 200 kV^{*} therapy installations

^a Peak pulsating x-ray tube potential.

^b W-weekly workload in mA min, U-use factor, T-occupancy factor.

^c Constant potential requires about 20 percent larger thicknesses of lead and about 10 percent larger thicknesses of concrete than those given here for pulsating potential.

^d See Table 26 for conversion of thickness in millimeters to inches or to surface density.

* Thickness based on concrete density of 2.35 g cm⁻³ (147 lb ft⁻³),

Table 12 —	Minimum shieldin	g requirements	for 250 kV ³ therapy	y installations

						-							
WUT ^b in	1 mA min	"•		Di	stance	in mete	rs from	source	to occi	upied ar	ea		
40,00 20,00 10,00 5,00 2,50 1,22 62)0)0)0 }0 50	1.5	2.1 1.5	3.0 2.1 1.5	4.2 3.0 2.1 1.5	6.1 4.2 3.0 2.1 1.5	8.4 6.1 4.2 3.0 2.1 1.5	12.2 8.4 6.1 4.2 3.0 2.1 1.5	12.2 8.4 6.1 4.2 3.0 2.1	12.2 8.4 6.1 4.2 3.0	12.2 8.4 6.1 4.2	12.2 8.4 6.1	12.2 8.4
Type of Area	Material				Prin	iary pro	otective	barrier	thickn	ess <			
Controlled Noncontrolled Controlled Noncontrolled	Lead, mm ^d Lead, mm ^d Concrete,cm ^e Concrete,cm ^e	11.45 14.55 49 58	10.6 13.2 46.5 55.5	9.65 12.15 42.5 52.5	8.8 11.8 40 49.5	7.9 10.85 37 46.5	7.05 9.95 34.5 43.5	6.2 9.05 31.5 41	5.4 8,2 29 38	4.6 7.35 26 34	3.9 6.5 23.5 32.5	3.2 5.65 20.5 29.5	2.5 4.9 18 27
					Secor	ndary p	rotectiv	e barrie	er thick	ness ^c		8.4 6.1 3.2 5.65 20.5	
Controlled Noncontrolled Controlled Noncontrolled	Lead, mm ^d Lead, mm ^d Concrete,cm ^e Concrete,cm ^e	7.2 10.1 31.5 41	6.3 9.25 28.5 38	5.4 8.35 26.5 36	4.5 7.5 23.5 83	3.65 6,6 20.5 30	2.8 5.7 18 27	2.3 4.85 15 24	1.9 3.95 12.5 22	1,55 3,1 9,5 19	1.25 2.5 7.5 16	2.05 4.5	0.05 1.65 0.5 10

^a Peak pulsating x-ray tube potential.

) W--weekly workload in mA min, U-use factor, T--occupancy factor.

 $^{\ell}$ Constant potential requires about 20 percent larger thicknesses of lead and about 10 percent larger thicknesses of concrete than those given here for pulsating potential.

^d See Table 26 for conversion of thickness in millimeters to inches or to surface density.

^e Thickness based on concrete density of 2.35 g cm⁻³ (147 lb ft⁻³).

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WUT ^b in	mA min			Di	stance	in mete	rs from	source	to occi	pied a	ea		
40,00 20,00 10,00 5,00 2,50 1,24 62	10 10 10 10 50	1.5	2.1 1.5	3.0 2.1 1.5	4.2 3.0 2.1 1.5	6,1 4.2 3.0 2.1 1.5	8.4 6.1 4.2 3.0 2.1 1.5	12.2 8.4 6.1 4.2 3.0 2.1 1.5	12.2 8.4 6.1 4.2 3.0 2.1	12.2 8.4 6.1 4.2 3.0	12.2 8.4 6.1 4.2	12.2 8.4 6.1	12.2 8.4 (
Type of Area	Material				Prin	ary pro	otective	barrier	thickn	ess c			-17
Controlled Noncontrolled Controlled Noncontrolled	Lead, mm ^d Lead, mm ^d Concrete,cm ^e Concrete,cm ^e	17.65 22.5 55 64.5	$16.25 \\ 21.1 \\ 51.5 \\ 62$	14,85 19,6 48,5 59	13.45 18.15 45 56	12.05 16.7 42 58	10.75 15.3 39 49.5	9,4 13,85 36 46,5	8.2 12.55 33.5 43.5	6.9 11.2 30 40	5.8 9.85 27 37	4.7 8.55 24 34	3.75 7.85 21 31
					Secor	adary p	rotectiv	e barrie	er thick	ness c			
Controlled Noncontrolled Controlled Noncontrolled	Lead, mm ^d Lead, mm ^d Concrete,cm ^e Concrete,cm ^e	12.0 16.9 33 43	10.55 15.45 30 40	9.05 13.95 27 37	7.6 12.5 24 34	6.1 11.05 21 31	4.65 9.55 18 28	3.55 8.1 14.5 25	2.95 6.6 11.5 22.5	2.5 5.15 9 19	2.1 3.75 6 15.5	1.8 3,1 3.5 12.5	1.6 2.65 1.5 10

Table 13 — Minimum shielding requirements for 300 kV¹ therapy installations

^a Peak pulsating x-ray tube potential.

^b W-weekly workload in mA min, U-use factor, T-occupancy factor.

Constant potential requires about 20 percent larger thicknesses of lead and about 10 percent larger thicknesses of concrete than those given here for pulsating potential.

^d See Table 26 for conversion of thickness in millimeters to inches or to surface density.

* Thickness based on concrete density of 2.35 g cm⁻³ (147 lb ft⁻³).

Table 14	Minimum	chieldina	requirements.	for 1 1	MV i	horany	inotallations
TOWNER	THE ALAALIS COLLS	onrowing	requiremento.	J VI I I	11 X Y I	HOI UPY	*//01444444///00

				· ·	-				-	•			
WUT ^b Ir	mA min			Di	stance i	n meter	s from	source	to occu	pied ar	ea		v_
8	00	1.5	2.1 1.5	8.0 2.1 1.5	4.2 3.0 2.1 1.5	6.1 4.2 3.0 2.1 1.5	8.4 6.1 4.2 3.0 2.1 1.5	12.2 8.4 6.1 4.2 3.0 2.1 1.5	12.2 8.4 6.1 4.2 3.0 2,1	12.2 8.4 6.1 4.2 3.0	12.2 8.4 6.1 4.2	12.2 8.4 6.1	12.2
Type of Area	Material				Prio	aary pro	tective	barrie	thicku	ess			
Controlled Noncontrolled Controlled Noncontrolled	Lead, cm ⁵ Lead, cm ⁵ Concrete,cm ^c Concrete,cm ^c	11 14 70 85	10.5 18 66 81	10 12.5 62 77	9 11.5 57 72	9 11 53 68	7 10 48 63	6.5 9 43 59	6 8.5 39 54	5 7.5 35 50	4 7 30 45	3.5 6 26 40	3 5 21 36
					Secon	dary pro	tective	e barrie	r (hickı	iess d			
Controlled Noncontrolled Controlled Noncontrolled	Lead, cm ^b Lead, cm ^b Concrete,cm ^c Concrete,cm ^c	6 9 46 61	5.5 8 42 57	5.5 7 37 52	4.5 6.5 33 48	4 5.5 28.5 43	3 5 24 89	2.5 4.5 19 35	2 4 15 30	1.5 3.5 10.5 25	1 2.5 6 20.5	0.5 2 1.5 16.5	0 1.5 0 12

* W-weekly workload in mA min, U-use factor, T-occupancy factor.

^b See Table 26 for conversion of thickness in millimeters to inches or to surface density.

 $^{\rm c}$ Thickness based on concrete density of 2.35 g cm $^{-3}$ (147 lb ft $^{-3}),$

^d Shielding for tube housing leakage based on a weekly workload (WUT) of 5,000 mA min corresponding to a weekly workload (WUT) of 100,000 R at 1 meter ($X_n = 20$ R per mA min at 1 meter).

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