ISU Exposure Report - 4th Quarter of 2008

Table 1. Collective deep, eye, and skin dose by department

Series Code/Location	Number Monitored (Whole Body)	4th Q Dose (mrem)			Comments
		Deep	Eye	Skin	
AIR/Airport	15	31	31	53	4 out of 15 badges were unused
BIO/Biology	8	M	M	M	3 out of 8 badges were unused
BLB/Beam Lab	7	M	M	M	3 out of 7 badges were unused
CEN/Civil Eng.	1	M	M	M	
EML/ Environ. Monitoring Lab.	7	3	3	1	2 out of 7 badges were unused
ENG/Engineering	16	11	12	33	5 out of 16 badges were unused
GEO/Geology	12	12	12	12	8 out of 12 badges were unused
GPH/General Physics	20	14	14	27	3 out of 20 badges were unused
IAC/ IAC and Positron System	67	122	129	93	16 out of 67 badges were unused
ISI/ ISIS workers	8	49	50	55	2 out of 8 badges were unused
PHA/Pharmacy	1	M	M	M	1 of 1 badges were unused
RSC/Rad. Tech	40	625	657	651	
SHC/Student Health	2	M	M	M	
TRK	1	M	M	M	unused
TSO/Tech. Safety Office	9	20	20	43	1 out of 9 badges were unused
TMP/Temporary Dosimeters**	93	M	M	M	All were unused
ISU Total	**310**	**887**	**928**	**968**	**Total of 48 permanent badges were unused**

* Minimal reporting service of 1 mrem.
** Temporary badges, with doses more than minimal reporting service of 1 mrem (M) have merely been reported.

Table 2. Collective extremity dose by department

Series Code/Location	Number Monitored (Ring Badge)	Extremity Dose (mrem)
BIO/Biology	4	M
ENG/Engineering	1	M
GEO/Geology	2	M
IAC/ IAC and Positron System	2	50
PHA/Pharmacy	1	M
TSO/Technical Safety Office	2	M
ISU Total	**12**	**50**

Highest Doses Reported for the 4th Quarter of 2006

Radiographic Science		
Highest deep dose	mrem	photons with medium energy 40 keV to 200 keV
Highest eye dose	mrem	photons with medium energy 40 keV to 200 keV
Highest shallow dose	mrem	photons with medium energy 40 keV to 200 keV
Other Programs		
Highest deep dose	28 mrem	Photons (x or gamma ray)
Highest eye dose	28 mrem	Photons (x or gamma ray)*
Highest shallow dose	36 mrem	Photons (x or gamma ray)

* This dose was received by two different individuals

Doses Exceeded ALARA Alert Levels* / ALARA Goals**

Exceeding ALARA Alert Levels
One student in Radiographic Sciences exceeded the 150 mrem quarterly alert level at 274 mrem, an investigation of this incident is pending..

Exceeding ALARA Goals
No ALARA goals were exceed this year.

* ALARA Alert Levels for ISU are 25 mrem per quarter for the whole body for regular personnel, with the following exceptions:
150 mrem per quarter for Radiological Sciences workers
100 mrem per quarter for IAC (i.e. IAC/ ISIS/ITTRDL/PBL) radiation workers

** ALARA Goal for ISU is 100 mrem per year for the whole body, 600 mrem per year for Radiological Sciences workers, 200 mrem/year for IAC (i.e. IAC/ ISIS/ITTRDL/PBL) radiation workers, and 1000 mrem per year for extremities.

Table 3. Environmental Monitors

Location	4th Q Dose (mrem)			YTD Dose (mrem)			Comment
	Deep	Eye	Skin	Deep	Eye	Skin	
Airport Fence East	1	1	1	4	4	7	
Airport Fence Gate	14	14	14	57	57	56	Photons (x or gamma ray)
Airport Fence South (far)	18	18	17	63	63	60	Photons (x or gamma ray)
Airport Fence West	1	1	2	1	1	4	
Airport Fence W to SW	27	27	25	101	102	100	Photons (x or gamma ray)
Airport fence NW to W	17	17	15	68	68	62	Photons (x or gamma ray)
Grain Office	M	M	5	1	1	7	
Grain Silo	5	5	5	17	17	17	Photons (x or gamma ray)
Grain 1 A	M	M	M	M	M	M	
Grain 2 A	28	28	30	109	109	108	Photons (x or gamma ray)
Grain 3A	M	M	M	M	M	M	
Airport Fence between S and SW	36	36	38	142	143	143	Photons (x or gamma ray)
Airport Fence between NE and E	3	3	6	16	16	16	
Airport Fence North East	11	11	9	46	46	42	Photons (x or gamma ray)
Airport Fence Close to East (OE)	M	M	1	3	3	3	Photons (x or gamma ray)
Airport Fence South East	4	4	4	16	16	16	Photons (x or gamma ray)
Airport Fence between S and SE	38	38	38	153	153	148	
Airport Fence South West	49	49	47	173	173	168	Photons (x or gamma ray)
Buckskin Rd.	M	M	M	3	3	5	
Buckskin & Alvin	M	M	M	4	4	3	
ISIS Roof	13	13	9	141	141	134	Photons (x or gamma ray)
LINAC Roof	M	M	M	5	5	5	
Positron Roof	M	M	M	M	M	M	
White Cell Roof	M	M	M	M	M	M	

* Deployed from 01/15/2006 to 08/08/2006
M = Minimal reporting service of 1mrem.

Table 4. Area Monitors

Location	4th Q Dose (mrem)			YTD Dose (mrem)			Comment
	Deep	Eye	Skin	Deep	Eye	Skin	
Airport 1/ E. end of covered bay	19	19	18	144	144	139	Photons (x or gamma ray)
Airport 2/ S. pillar of covered bay	10	10	9	50	50	51	
Airport 3/ W. end of covered bay	4	4	3	47	47	46	Photons (x or gamma ray)
Airport 4/ N. end of warehouse	3	3	4	30	30	33	Photons (x or gamma ray)
Airport 5/ operator room	2	2	1	10	10	9	Photons (x or gamma ray)
Airport 6/ observation room	3	3	2	31	31	30	Photons (x or gamma ray)
Applied Tech. 1/ storage door	120	120	118	400	400	390	Photons with energy > 200 keV
Applied Tech. 2/ room 126 *	M	M	3	4	4	10	Photons (x or gamma ray)
Beam Lab Console	M	M	M	M	M	M	
Beam Lab Gate	M	M	M	M	M	M	
Beam Lab South Wall *	M	M	M	M	M	M	
Cluster Room	M	M	M	M	M	M	
Dental 1 *	M	M	M	M	M	M	
Dental 2 *	M	M	M	M	M	M	
Dental 3 *	M	M	M	M	M	M	
Dental 4 *	M	M	M	M	M	M	
Dental 5 *	M	M	M	M	M	M	
Dental 6 *	M	M	M	M	M	M	
EAL 1/ sample storage rm, E wall	M	M	M	M	M	M	
EAL 2/ above vacuum	M	M	2	8	8	15	Photons (x or gamma ray)
EAL 3/ sample storage rm, inside door	13	13	17	109	109	116	Photons (x or gamma ray)
EML 1/ wet lab, S wall	4	4	6	19	19	27	Photons (x or gamma ray)
GEO 1/ PSC-350 by X-ray unit	M	M	M	M	M	M	
GEO 2/ PSC-350A by safe	23	23	29	142	155	187	Photons (x or gamma ray)
IAC accelerator room door	388 *238* *130* *20*	388 *238* *130* *20*	398 *248* *130* *20*	2907	2907	2968	Photon Neutron Mixture *High Energy Photon (>200 keV)* *Fast neutrons* *Thermal neutrons*

* Areas of public access.
** Minimal reporting service of 1 mrem.

Table 4. Area Monitors (cont.)

Location	4th Q Dose (mrem)			YTD Dose (mrem)			Comment
	Deep	Eye	Skin	Deep	Eye	Skin	
IAC bay area	M*	M	M	1	1	4	Photons (x or gamma rays)
IAC DC machine	2	2	4	20	20	30	Photons (x or gamma rays)
IAC LINAC cntrl.	M	M	M	M	M	M	
IAC railing	8	8	12	98	98	109	Photons (x or gamma rays)
IAC RF room door	162 *92* *70*	162 *92* *70*	170 *100* *70*	862	864	878	Photon neutron mixture *High Energy Photon (>200 keV)* *Fast neutrons*
IAC secretary's desk **	M	M	M	M	M	M	
IAC storage door	857 *677* *170* *10*	857 *677* *170* *10*	823 *643* *170* *10*	857	857	823	Photon neutron mixture *High Energy Photon (>200 keV)* *Fast neutrons* *Thermal neutrons*
IAC White Cell door	M	M	M	M	M	1	
ISIS Gate 1	15	15	20	124	124	135	Photons (x or gamma rays)
ISIS Gate 2	13	13	12	115	115	109	Photons (x or gamma rays)
LEL observing window	M	M	2	170	170	170	Photons (x or gamma rays)
LEL reactor console	M	M	M	12	13	27	
LEL South wall	36	36	41	805	805	797	Photons (x or gamma rays)
LEL source room	506 *476* *30*	506 *476* *30*	482 *452* *30*	848	848	826	Photon Neutron Mix *High Energy Photon (>200 keV)* *Fast Neutrons*
LEL tank	103	104	122	347	362	559	*High Energy Photon (>200 keV)*
Positron console	M	M	4	M	1	13	Photons (x or gamma ray)
Positron shield door	10	12	20	365	367	400	Photons (x or gamma rays)
PS accelerator cntrl.	M	M	M	4	4	5	
PS accelerator NE wall	M	M	M	12	18	22	Photons (x or gamma rays)

* Minimal reporting service of 1 mrem.
** Areas of public access.

Table 4. Area Monitors (cont.)

Location	4th Q Dose (mrem)			YTD Dose (mrem)			Comment
	Deep	Eye	Skin	Deep	Eye	Skin	
PS roll up door	M*	M	M	M	M	1	
PS vault **	19	19	22	129	129	139	Photons (x or gamma rays)
PS stairwell **	6	6	13	33	33	52	Photons (x or gamma rays)
PS-117C NE wall **	M	M	M	M	M	M	
PS-117C SE wall **	M	M	M	M	M	M	
PS-117D desk **	M	M	M	M	M	M	
Rad Tech 1	M	M	M	M	M	M	
Rad Tech 2	M	M	M	34	34	38	
Shepherd door	33	33	32	146	146	137	Photons (x or gamma rays)
Shielded Cell cntrl.	M	M	M	M	M	M	
Shielded Cell Door	M	M	M	M	M	M	
Shipping & Receiving **	M	M	M	M	M	6	
Student Health 1 **	M	M	M	M	M	M	
Van de Graff	M	M	M	M	M	5	
Waste shed	M	M	M	M	M	M	
White Cell cntrl.	M	M	M	M	M	M	

* Minimal reporting service of 1 mrem.
** Areas of public access.