

NRC SURVEY DATA FOR  
ST. MARY'S UNIVERSITY OF MINNESOTA  
WINONA, MN  
NRC INSPECTION REPORT NO. 030-11241/2005-001(DNMS)

Room Number	Surface sample number	Location	NRC Survey Meter used	One minute survey meter reading dpm/100 cm <sup>2</sup> *	ORISE Surface smear sample result dpm/100 cm <sup>2</sup> *
Brother Charles Hall Room 232	1	Floor doorway into room	Ludlum <sup>1</sup> detector 44-9	background 45 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	2	Floor in front of fume hood	Ludlum <sup>1</sup> detector 44-9	background 39 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	3	floor in front of sinks	Ludlum <sup>1</sup> detector 44-9	background 43 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	4	floor in front of cabinets	Ludlum <sup>1</sup> detector 44-9	background 44 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	5	floor in front radioisotope safe	Ludlum <sup>1</sup> detector 44-9	background 48 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	6	laboratory counter top	Ludlum <sup>1</sup> detector 44-9	background 47 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	7	inside fume hood floor of hood	Ludlum <sup>1</sup> detector 44-9	background 35 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	8	upper surface of fume hood	Ludlum <sup>1</sup> detector 44-9	background 29 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	9	bottom shelf of safe	Ludlum <sup>1</sup> detector 44-9	26,266 dpm /100 cm <sup>2</sup> 616 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	10	sink trap No. 3	Ludlum <sup>1</sup> detector 44-9	1012 dpm /100 cm <sup>2</sup> 67 cpm	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	11	sink trap No. 4	Ludlum <sup>1</sup> detector 44-9	background 41 cpm	21 ± 12 dpm

Brother Charles Hall Room 232	1	middle shelf radioisotope safe	Ludlum <sup>2</sup> detector 43-5	216 cpm alpha	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	2	bottom shelf radioisotope safe	Ludlum <sup>2</sup> detector 43-5	155 cpm alpha	<MDC alpha/Beta activities*
Brother Charles Hall Room 232	NA	general floor scan	Ludlum <sup>3</sup> Floor Monitor	1248 cpm background	NA
Hoffman Hall Room 212	1	wall 3 feet from door	Ludlum <sup>1</sup> detector 44-9	56 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	1	counter top by sink A after remediation	Ludlum <sup>1</sup> detector 44-9	24,058 dpm /100 cm <sup>2</sup> 568 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	2	counter top by sink B after remediation	Ludlum <sup>1</sup> detector 44-9	72818 dpm /100 cm <sup>2</sup> 1628 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	3	counter top by sink C after remediation	Ludlum <sup>1</sup> detector 44-9	71530 dpm /100 cm <sup>2</sup> 1600 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	4	floor by sink A	Ludlum <sup>1</sup> detector 44-9	40 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	5	floor by sink C	Ludlum <sup>1</sup> detector 44-9	background 42 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	6	floor by sink D	Ludlum <sup>1</sup> detector 44-9	background 39 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	7	floor by laboratory bench	Ludlum <sup>1</sup> detector 44-9	background 32 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	8	floor by laboratory bench	Ludlum <sup>1</sup> detector 44-9	background 52 dpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	9	floor by bench with contamination	Ludlum <sup>1</sup> detector 44-9	background 67 dpm	<MDC alpha/Beta activities*
Hoffman Hall Room 201	10	floor by bench with contamination	Ludlum <sup>1</sup> detector 44-9	1518 dpm /100 cm <sup>2</sup> 78 cpm	<MDC alpha/Beta activities*

Hoffman Hall Room 201	NA	general floor scan	Ludlum <sup>3</sup> Floor Monitor	1350 cpm background for room	NA
Brother Charles Hall Room 136	1	janitor's closet-old radioisotope storage room middle of closet floor	Ludlum <sup>1</sup> detector 44-9	10350 dpm /100 cm <sup>2</sup> 270 cpm pancake	<MDC alpha/Beta activities*
Brother Charles Hall Room 136		janitor's closet-old radioisotope storage room middle of closet floor	Ludlum <sup>3</sup> Floor Monitor	6645 cpm floor monitor	NA
Brother Charles Hall Room 136	2	janitor's closet-old radioisotope storage room floor by door to closet	Ludlum <sup>1</sup> detector 44-9	1700 dpm/100 cm <sup>2</sup>	<MDC alpha/Beta activities*
Brother Charles Hall Room 136	NA	general floor scan	Ludlum <sup>3</sup> Floor Monitor	2734 cpm floor monitor	NA
Brother Charles Hall Room 136	3	southwest corner of closet on floor	Ludlum <sup>1</sup> detector 44-9	290 dpm/100 cm <sup>2</sup>	<MDC alpha/Beta activities*
Hoffman Hall Room 115	1	floor by sink Animal Room	Ludlum <sup>1</sup> detector 44-9	52 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 115	2	general floor of animal room	Ludlum <sup>1</sup> detector 44-9	46 cpm	<MDC alpha/Beta activities*
Hoffman Hall Room 115	NA	general floor scan of animal room	Ludlum <sup>3</sup> Floor Monitor	1400 cpm	NA
Brother Charles Hall Room 230	NA	instrumentation Lab. floor scans & surveys of desk/counter tops, shelves, upper surfaces	Ludlum <sup>1,2</sup> detector 44-9 & NaI & Ludlum <sup>3</sup> Floor Monitor	40-60 cpm 9-10 kcpm 1300 cpm	NA
Hoffman Hall Room 208	NA	counting Lab. floor scans & surveys of desk/counter tops, shelves, upper surfaces	Ludlum <sup>1,2</sup> detector 44-9 & Ludlum <sup>3</sup> Floor Monitor	40-60 cpm 1400 cpm	NA
Hoffman Hall Room 212	NA	former isotope lab. floor scans & surveys of desk, upper surfaces and walls	Ludlum <sup>1,2</sup> detector 44-9 & Ludlum <sup>3</sup> Floor Monitor	55-60 cpm 1400 cpm 15-20 kcpm 1530 cpm	NA

Brother Charles Hall Room 139	NA	New Physiology Lab. previously used for in-vitro iodine 131 studies. Floor scans & surveys of desk/counter tops, shelves, upper surfaces	Ludlum <sup>1,2</sup> detector 44-9 & udlum <sup>3</sup> Floor Monitor	32 cpm 1350 cpm	NA
Brother Charles Hall Room 140	NA	Research room previously used for in-vitro hydrogen 3 & carbon 14 studies. Floor scans & surveys of desk/counter tops, shelves, upper surfaces	Ludlum <sup>1,2</sup> detector 44-9 & udlum <sup>3</sup> Floor Monitor	38 cpm 1300 cpm	NA
Hoffman Hall Room 110	NA	former research lab, some animal studies, completely renovated 20 years ago	Ludlum <sup>1,2</sup> detector 44-9 & udlum <sup>3</sup> Floor Monitor	50-60 cpm 1600 cpm	NA
Hoffman Hall Room 116	NA	current janitor closet surveyed for background comparison	Ludlum <sup>1,2</sup> detector 44-9 & udlum <sup>3</sup> Floor Monitor	55-65 cpm 1800 cpm GM comp 20 micrR/h @ 1 m	NA
Main Hallway of Hoffman Hall	NA	100% floor scan	udlum <sup>3</sup> Floor Monitor	1500 cpm	NA
Main Hallway of Brother Charles Hall		100% floor scan	Ludlum <sup>3</sup> Floor Monitor	1300 cpm	NA
10 CFR Part 20.304 former burial	NA	One burial on September 16, 1977, 40 feet down-slope from the St. Mary's Grotto behind St. Joseph Hall. strontium 90 & cobalt 60 buried total activities 41 microcuries	Ludlum <sup>1,2</sup> detector 44-10	7-8 Kcpm background	NA
Roof of Brother Charles	NA	exhaust vent from fume hood of the current radioisotope storage room (Room 232)	Ludlum <sup>1,2</sup> detector 44-9	90-110 cpm 9-10 kcpm background	NA
Roof of Hoffman Hall	NA	exhaust vent from fume hood of former radioisotope storage room (Room 212)	Ludlum <sup>1,2</sup> detector 44-9	90-110 cpm 9-10 kcpm background	NA

Hoffman Hall	NA	Main sewer discharge lines from both Brother Charles and Hoffman Hall	Ludlum <sup>1,2</sup> detector 44-10	9-10 kcpm background	NA
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- C The samples were analyzed by the NRC's laboratory contractor using a low background alpha/beta counter. The measured alpha activity for each smear was below the measured alpha Minimum Detectable Concentration (MDC) of 8.9 dpm/swipe. The measured beta activity each smear, except number 11 from Room 232 was below the measured MDC of 15 dpm/smear.
- C Average background during survey of facilities ranged based on materials, that is concrete ceramic tiles, wood, plaster board, from 29 cpm to 67 cpm, resulting in an average of 45 cpm

<b>NRC SURVEY INSTRUMENTATION</b>						
Meters are calibrated annually						
Survey Meter	Instrument Model	Instrument Serial	Detectors Model	Detector Serial	Calibration Date	Calibration Due
1-Ludlum NRC kit #2	2241-2	130052	44-10 (2x2 Sodium Iodide)	PR110264	03/18/05	03/18/06
1-Ludlum NRC kit #2	2241-2	130052	44-9 (GM Pancake)	PR110219	03/18/05	03/18/06
1-Ludlum NRC kit #2	2241-2	130052	43-5 (ZnS alpha detector)	PR110309	03/18/05	03/18/06
1-Ludlum NRC kit #2	2241-2	130052	44-38 (energy compensated gm)	PR110167	03/18/05	03/18/06
2-Ludlum NRC kit #3	2241-2	131397	44-10 (2x2 Sodium Iodide)	PR110264	12/21/04	12/21/05
2-Ludlum NRC kit #3	2241-2	131397	44-9 (GM Pancake)	PR110153	12/21/04	12/21/05
2-Ludlum NRC kit #3	2241-2	131397	44-38 (energy compensated gm)	PR110160	12/21/04	12/21/05
3-Ludlum Floor Monitor	239-1F	105930	43-37 (gas proportional floor monitor)	PR136495 (425 cm <sup>2</sup> )	02/16/05	02/16/06
Ludlum NRC kit #1	2241-2	130055	44-9 (GM Pancake)	PR110210	06/03/05	06/03/06

\* disintegrations per minute per one hundred centimeter squared dpm/100 cm<sup>2</sup>\*