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U.S. Department of Energy
Assistant Secretary for Intergovernmental
and Institutional Relations
Division of Labor Affairs
and Manpower Assessment

Radiation Protection Enrollments and Degrees, 1977

Enrollments/Fall 1977

Degrees Granted —
July 1966-June 1977

240
9-5-78

MASTER

MASTER

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Washington, DC 20545

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FOREWORD

Public concern for the effects of low-level radiation and other aspects of the use of nuclear energy has grown in recent years, and many changes are being made in the use and control of radiation. Persons trained in monitoring and assessing radiation exposure are becoming more and more in demand. These surveys of the nation's new supply of radiation protection personnel assist state and Federal governments as well as others in their search for such personnel. The surveys also chart trends in the supply of trained persons for these necessary tasks.

Special recognition is due Roger Alford of Oak Ridge Associated Universities for the preparation of this report.

Norman Seltzer
Deputy Director for Manpower
Assessment
Division of Labor Affairs and
Manpower Assessment

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INTRODUCTION

This report presents the results of the seventh annual survey of Radiation Protection Enrollments and Degrees. Each year the survey is sent to institutions offering degrees in radiation protection and in other closely-related fields (health physics, radiation health, radiological physics, radiobiology and similar programs) whose graduates would be prepared to conduct, coordinate, direct, or plan a program for the evaluation and control of radiation hazards in various settings. The number of institutions that are surveyed may change from year to year as new programs are identified and other programs are discontinued. For this year's survey, one institution (University of Puerto Rico) reported that its program had been deactivated, another (University of St. Louis) has a new program and three institutions reported continuing programs but no students.

The number of enrollments and degrees granted by state and by region are reported for the first time in this survey report.

Chart 1. DEGREES GRANTED IN RADIATION PROTECTION 1966-77

HIGHLIGHTS

SURVEY UNIVERSE:

The 1977 survey included 51 institutions that reported degrees and enrollments. One school has discontinued its program since the previous survey; three others have continuing programs, but reported no students this past year; and another school has initiated a new program.

ENROLLMENT:

Enrollment increased by 49 percent at the undergraduate level and rose by two percent at the master's level. At the doctoral level, however, there were 49 fewer candidates (a 13 percent drop).

DEGREES AWARDED:

The number of degrees awarded at the three levels presented a varied picture when compared to the prior year: bachelor's degrees increased by 16 percent, master's degrees fell by 13 percent, and doctoral degrees rose by 20 percent.

PLACEMENT:

Industrial hiring of bachelor's and master's degree recipients dropped 27 percent and 36 percent, respectively, from the prior year. But at the doctoral level, industry hirings more than doubled (from three to seven) for 1977 graduates. Placements in medical facilities increased considerably at all three degree levels and was the largest growth area in placements.

MINORITIES AND WOMEN:

The number of Blacks increased significantly at the undergraduate level, while representation of other minority groups remained low. Undergraduate females increased numerically and as a percentage of total enrollment. Also, women students received a larger proportion of bachelor's degrees in 1977 than in 1976.

FOREIGN NATIONALS:

While foreign national enrollments remained relatively stable, twice as many doctorates were awarded to foreign nationals (from four in 1976 to eight in 1977, representing twelve percent of all doctorates granted in 1977).

REGIONAL DISTRIBUTION:

Undergraduate enrollment was highest in the Middle Atlantic region, which had 32 percent of the total enrolled. However, the Pacific region contained the largest proportion of graduate students (25 percent of the total). By state, Indiana awarded the largest number of bachelor's and master's degrees, but California granted the largest number of doctorates.

TABLE 1

TOTAL ENROLLMENT OF FULL-TIME AND PART-TIME STUDENTS
IN RADIATION PROTECTION, BY EDUCATIONAL LEVEL
FALL 1973 THROUGH FALL 1977

ENROLLMENT					
<u>YEAR</u>	<u>JUNIORS</u>	<u>SENIORS</u>	<u>MASTER'S CANDIDATES</u>	<u>DOCTORAL CANDIDATES</u>	<u>TOTAL ENROLLMENT</u>
1973	110	95	307	351	863
1974	114	121	308	343	886
1975	214	206	411	348	1179
1976	168	129	399	378	1074
1977	244	198	407	329	1178

SOURCE: DEPARTMENT OF ENERGY

ENROLLMENTS AND DEGREES

DOCTORATES

In Fall 1977, 288 full-time and 41 part-time doctoral candidates matriculated. These numbers represent a ten percent decrease in full-time and a 28 percent decline in part-time students. However, the number of doctorate degrees granted was 20 percent higher than the previous year (from 55 in 1976 to 66 in 1977). But the number of doctorates granted is still below the peak years of 1972-73 and 1974-75, each of which registered 76 doctorates granted (see Chart 1 and Appendix A-1). Several reporting institutions (e.g., University of Lowell, Rutgers University, New York University Medical Center) indicated that a loss of federally sponsored fellowship funds has largely contributed to general enrollment decline.

As presented in Table 2, the largest two subfields in enrollment were Radiobiology or Biophysics (39 percent of total) and Medical Radiation Physics or Radiological Physics (28 percent of total). But the two largest subfields for those who recently received doctorates were Health Physics, Radiation Health or Radiation Protection (36 percent of total) and Radiobiology or Biophysics (29 percent of total).

MASTERS

There were a total of 407 master's degree candidates (304 full-time and 103 part-time) enrolled in the fall of 1977. Although full-time enrollment decreased by two percent, the 16 percent increase in part-time enrollment was responsible for an overall increase of two percent in total enrollment (see Table 2).

During academic year 1976-77, there were 147 master's degrees granted. For the fourth straight year, the number of master's degrees

TABLE 2

FULL-TIME AND PART-TIME GRADUATE ENROLLMENT (FALL 1977) AND DEGREES GRANTED (1976-77)
IN RADIATION PROTECTION BY SUBFIELD

SUBFIELDS	ENROLLMENT (FALL 1977)												DEGREES (1976-77)			
	MASTER'S CANDIDATES						DOCTORAL CANDIDATES						MASTER'S		DOCTORATES	
	FULL-TIME		PART-TIME		TOTAL		FULL-TIME		PART-TIME		TOTAL					
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Health Physics, Radiation Health, or Radiation Protection	144	47	85	83	229	56	55	19	21	51	76	23	79	54	24	36
Radiobiology or Biophysics	31	10	1	1	32	8	128	44	1	2	129	39	14	10	19	29
Medical Radiation Physics or Radiological Physics	91	30	6	6	97	24	79	27	14	34	93	28	38	26	11	17
Engineering or Basic Sciences, Health Physics Option	5	2	3	3	8	2	2	1	2	5	4	1	2	1	0	0
Other (those listed separately by respondents)	33	11	8	8	41	10	24	8	3	7	27	8	14	10	12	18
TOTALS	304		103		407		288		41		329		147		66	

NOTE: Percentages may not add to 100 because of rounding.

Source: Department of Energy

granted has declined from the record 180 degrees awarded in 1972-73 (see Chart 1). Of all reporting institutions, 34 (or 67 percent) awarded master's degrees. However, there were five schools that accounted for one-third of the total number of master's degrees awarded.

The largest number of degrees, 79 (or 54 percent), were granted in the Health Physics, Radiation Protection or Radiation Health subfield (see Table 2). The next biggest subfield, in terms of degrees granted, was Medical Radiation Physics or Radiological Physics with 38 master's graduates (or 26 percent of total). These same two subfields represented the largest proportion of master's degrees granted in 1975-76.

BACHELORS

A large increase was reported in undergraduate enrollment at both the junior and senior levels. The 163 full-time and 81 part-time juniors who registered represent a 45 percent increase over the previous year. At the senior level, 198 (163 full-time and 35 part-time) students were reported, a 53 percent increase (see Table 3).

There were 133 bachelor's degrees granted during 1976-77, a 16 percent increase over 1975-76, and the second largest number recorded since the initial survey; 1974-75 remains the peak year (with 159 bachelor's degrees).

When comparing subfields within the radiation protection area, enrollment at the undergraduate level appears to be moving away from the Health Physics, Radiation Health or Radiation Protection subfield toward more institutionally specific subfields listed separately by respondents. This same movement is evident when the subfields for bachelor's degrees are examined. Sixty-two out of 133 (or 47 percent) bachelor's degrees were awarded in subfields listed separately by respondents.

TABLE 3

FULL-TIME AND PART-TIME UNDERGRADUATE ENROLLMENT (FALL 1977) AND BACHELOR'S DEGREES GRANTED (1976-77)
IN RADIATION PROTECTION BY SUBFIELD

SUBFIELDS	ENROLLMENT (FALL 1977)										BACHELOR'S DEGREES 1976-77			
	JUNIORS						SENIORS				TOTAL			
	FULL-TIME		PART-TIME		TOTAL		FULL-TIME		PART-TIME		TOTAL		TOTAL	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Health Physics, Radiation Health, or Radiation Protection	77	47	1	1	78	32	79	48	2	6	81	41	39	29
Radiobiology or Biophysics	40	25	0	0	40	16	33	20	0	0	33	17	25	19
Medical Radiation Physics or Radiological Physics	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Engineering or Basic Sciences, Health Physics Option	8	5	0	0	8	3	7	4	0	0	7	4	7	5
Other (those listed separately by respondents)	38	23	80	99	118	48	44	27	33	94	77	39	62	47
TOTALS	163		81		244		163		35		198		133	

NOTE: Percentages may not add to 100 because of rounding.

Source: Department of Energy

PLACEMENT OF GRADUATES

New doctorate holders most often found employment in two categories: academic or Government-owned contractor-operated installations which absorbed 20 percent each of these graduates. However, academic placement experienced the first decline in five years, from 23 positions in 1975-76 to 13 positions in 1976-77, a decline of 43 percent (see Chart 2). Most other placement categories reflected increases over the previous year's figures. No recent doctoral graduates were reported as seeking employment, a sign of a strong occupational demand for doctorates in radiation protection.

As shown in Table 4, the largest group of master's graduates elected to continue their studies (24 percent of the total). Two other categories which took sizable proportions of master's degree recipients were medical facilities and private industry which took 18 percent each. While this was a considerable increase for medical facilities (13 more master's graduates in 1976-77 than in 1975-76; an increase of 93 percent), it was a decline of 36 percent in industrial hiring, from 42 to 27. As depicted in Chart 2, placements in medical facilities and private industry were both reversals of three year trends. Only one master's degree recipient was reported still seeking employment, which would also indicate a strong market demand.

Placement of new bachelor's degree holders was similar to that of master's graduates. The largest group 26 percent, chose to further their studies. The second largest group, 22 percent were hired by industry, and 20 percent went to work in medical facilities.

The largest growth area for 1976-77 was in the number of graduates going to medical facilities (an increase of 19 degree recipients over 1975-76 placements). Only three recent bachelor's degree holders were reported to be still seeking employment.

Chart 2. MAJOR PLACEMENT TRENDS BY DEGREE LEVEL IN RADIATION PROTECTION

Based on percent of known placement 1972-77*

Source: Department of Energy

TABLE 4

PLACEMENT OF 1976-77
RADIATION PROTECTION GRADUATES
BY DEGREE LEVELS

	<u>BACHELORS</u>	<u>MASTERS</u>	<u>DOCTORATES</u>
Further Study	35	36	4
Academic, U.S.	4	12	13
Federal Employment	6	17	8
GOCO (Government-Owned Contractor-Operated)	7	9	13
State and Local Government	8	4	1
Industry, U.S.	29	27	7
Medical Facilities	26	27	6
Foreign	-	4	4
Military	3	2	4
Other	5	2	4
Seeking Employment	3	1	0
Unknown	<u>7</u>	<u>6</u>	<u>2</u>
TOTALS	133	147	66

Source: Department of Energy

WOMEN AND MINORITIES

At the undergraduate level, enrollment of women increased significantly. The number of female juniors increased from 34 in 1975-76 to 70 in 1976-77 (from 20 to 29 percent of the total, respectively); the number of women seniors rose from 23 to 45, or from 18 percent to 23 percent. Enrollment of women at the master's level remained relatively stable. The survey results indicated a tremendous decline in the number of female doctoral candidates (from 116 to 36) and doctoral degrees awarded (from 11 to 4). This is a synthetic decline, however, caused by a number of factors. The figures for 1975-76 were inflated by a now obvious over-reporting of white females by one large institution; this discrepancy is compounded by the fact that the same institution was unable to provide any minority/female break-out in 1976-77. It is assumed that the true picture of female participation is one of gradual increase at the doctoral level. As shown in Table 5, the highest number of women since this survey was initiated received bachelor's degrees (up from ten percent of total in 1975-76 to a current 17 percent). About the same number of women received master's degrees both years.

Enrollment of Blacks is up at both undergraduate levels to a current nine percent of total. Also, the proportion of Blacks receiving bachelor's degrees climbed from three percent of total (in 1975-76) to seven percent (in 1976-77).

Enrollment of Spanish-surnamed students increased at the undergraduate junior level, but remained extremely low at all other levels. The number of Asian Americans fell in enrollment at all levels and is still low.

FOREIGN NATIONALS

Enrollment of foreign nationals declined at both undergraduate levels and is presently very small (3 juniors and 1 senior). The number of master's students rose only marginally and declined at

the doctoral level, but still represented twelve percent of all doctoral candidates.

When the numbers of degrees granted to foreign nationals were examined, there were no bachelor's degrees, sixteen master's degree recipients (11 percent of total) and eight doctorates (12 percent of total) during 1976-77. As illustrated in Table 5, although the percentage of foreign nationals receiving bachelor's degrees has been negligible, the proportion of graduate degrees (both masters and doctorates) has risen to approximately eleven percent of the total number of graduate degrees awarded in radiation protection.

REGIONAL DISTRIBUTION

The Middle Atlantic region, with 142 juniors and seniors (or 32 percent of total), contained the largest proportion of enrolled undergraduates (see Appendix A-5). New York alone accounted for 29 percent of the total number of undergraduates enrolled in radiation protection. However, most of the undergraduate enrollment in New York was part-time and located at one institution, Manhattan College. If only full-time undergraduates were compared, Indiana contained the largest proportion. Three states (Indiana with 28, New York with 27, California with 25) produced 60 percent of the total number of bachelor's degrees awarded in 1976-77.

In contrast, the two largest regions for graduate student enrollment were the Pacific region (with 183 students, or 25 percent of total) and the East North-Central region (with 143 students, or 19 percent of total). California, with 22 percent of the total, was the state with the largest number of graduate students enrolled. Not surprisingly, when comparing graduate degrees granted in 1976-77, the pattern remained essentially the same. The two states that produced the most master's degrees were Indiana (with 18) and California (with 17). At the doctorate level, California was the leading state (with 12 degrees granted) and New York was second (with 11 degrees awarded).

TABLE 5

PARTICIPATION BY FOREIGN NATIONALS, WOMEN, AND MINORITIES
IN RADIATION PROTECTION PROGRAMS
1973-1977

	ENROLLMENTS (FALL TERM)								DEGREES GRANTED (YEAR ENDING JUNE 30)					
	Junior		Senior		Master's Candidates		Doctorate Candidates		Bachelor's		Master's		Doctorate	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
FOREIGN NATIONALS														
1973	3	3	6	6	29	9	33	9	1	2	8	5	4	6
1974	-	-	5	4	21	7	32	9	-	-	9	6	3	5
1975	4	2	2	1	33	8	31	9	4	2	12	7	8	10
1976	6	4	4	3	26	7	47	12	1	1	19	11	4	7
1977	3	1	1	*	28	7	39	12	-	-	16	11	8	12
WOMEN														
1973	24	22	8	8	24	8	23	7	5	8	9	6	3	4
1974	5	4	14	12	41	13	21	6	7	12	9	7	4	7
1975	42	20	27	13	49	12	22	6	15	9	12	7	5	7
1976	34	20	23	18	70	18	116	31	12	10	18	11	11	20
1977	70	29	45	23	68	17	36	11	22	17	19	13	4	6
BLACKS														
1973	18	16	3	3	4	1	2	1	-	-	1	1	2	3
1974	-	-	1	1	2	1	-	-	-	-	1	1	1	2
1975	18	8	17	9	1	1	-	-	-	-	2	1	1	1
1976	8	5	2	2	5	1	4	1	3	3	2	1	-	-
1977	21	9	17	9	5	1	3	1	9	7	1	1	-	-
SPANISH SURNAMED														
1973	6	5	1	1	5	2	2	1	-	-	-	-	1	1
1974	-	-	-	-	8	3	2	1	1	2	4	3	1	2
1975	5	2	4	2	5	1	2	1	-	-	1	1	-	-
1976	-	-	2	2	4	1	4	1	-	-	1	1	2	4
1977	11	4	2	1	2	*	4	1	2	1	1	1	1	2
ASIAN AMERICANS														
1973	-	-	4	4	7	2	4	1	1	2	4	3	2	3
1974	-	-	-	-	3	1	2	1	-	-	2	1	-	-
1975	9	4	3	1	2	*	3	1	3	2	6	4	2	3
1976	13	8	8	6	5	1	14	4	1	1	1	1	2	4
1977	4	2	3	2	4	1	6	2	3	2	-	-	1	2
AMERICAN INDIANS														
1976	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1977	1	*	-	-	3	1	-	-	-	-	1	1	-	-

* Less than ½ of 1 percent.

NOTE: Percentages of enrollment and degrees granted are based on total enrollment and degrees granted by all institutions reporting in that respective year.

Source: Department of Energy

Appendices:

Appendix A. Statistical Tables

Appendix B. Addresses of Institutions in Survey Universe

Appendix C. Survey Materials

APPENDIX A.1

RADIATION PROTECTION
DEGREES GRANTED 1967-1977
By Institution

B = Bachelors
M = Masters
D = Doctorate

July - June -	1967 1968			1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			
State and Institution	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	E	M	D	B	M	D	
<u>ALABAMA</u>																															
University of Alabama, Birmingham	Program Started 1968						2	-	-	2	-	-	3	1	-	-	-	-	-	4	-	1	3	-	-	-	-	-	-	-	
<u>ARKANSAS</u>																															
University of Arkansas .	-	5	-	-	4	-	-	2	-	-	4	-	-	5	-	-	3	-	-	1	-	Program Discontinued									
<u>ARIZONA</u>																															
Arizona State University	Program Started 1974																					1	1	-	3	-	-				
<u>CALIFORNIA</u>																															
California State Univ., Los Angeles	Program Started 1972												1			-	-	1	-	-	-	-	-	-	-	1	-				
University of California, Berkeley	-	5	2	-	3	-	-	1	-	-	4	3	-	5	-	25	4	9	20	4	5	10	8	12	-	4	7	25	3	11	
University of California, Los Angeles	-	1	3	-	2	3	-	2	1	-	6	2	-	6	-	-	8	2	-	9	1	-	11	6	-	10	3	-	5	1	
San Diego State Univ. .	-	2	-	-	2	-	-	1	-	-	-	-	-	1	-	-	3	-	-	3	-	-	3	-	-	9	-	-	8	-	
<u>COLORADO</u>																															
Colorado State University	-	2	3	-	10	4	-	8	4	-	5	3	-	6	6	-	7	10	-	8	7	-	14	6	-	9	2	-	9	7	
University of Colorado Medical Center	First Degree 1974												-			2	-	-	2	-	-	1	-	-	3	-					
<u>CONNECTICUT</u>																															
Yale University	-	4	-	-	3	-	-	4	-	-	1	-	Program Discontinued																		

APPENDIX A.1 (Continued)

RADIATION PROTECTION
DEGREES GRANTED 1967-1977
By InstitutionB = Bachelors
M = Masters
D = Doctorate

July June	1967 1968			1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977		
State and Institution	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D
<u>FLORIDA</u>																														
University of Florida . .	-	2	1	-	5	1	-	2	1	-	11	2	-	12	3	-	10	2	-	4	1	-	6	2	2	8	-	2	10	1
University of Miami, School of Medicine . .	-	7	-	-	4	-	-	5	-	-	-	-	-	1	-	-	7	-	-	-	-	-	4	-	-	6	-	Program Discontinued		
<u>GEORGIA</u>																														
Emory University School of Medicine . .	-	2	-	-	-	-	-	2	-	-	-	-	-	5	-	-	3	-	-	4	-	-	4	-	2	5	-	-	5	-
Georgia Institute of Technology	-	3	-	-	6	-	-	4	1	-	4	4	1	12	1	5	10	3	-	9	1	-	10	-	-	9	2	-	6	3
<u>ILLINOIS</u>																														
University of Chicago . .	-	-	-	-	1	-	-	1	1	-	2	-	-	2	1	-	1	-	-	1	-	-	-	1	-	-	-	-	1	2
De Paul University . . .	First Degree 1969			-	2	-	-	-	-	-	1	-	-	-	-	2	1	-	2	1	-	10	-	-	Program Discontinued					
University of Illinois, Urbana	-	1	3	-	1	-	-	-	1	-	5	1	-	5	1	-	2	1	-	5	1	-	8	3	1	16	4	-	6	2
Northwestern University .	-	1	-	-	1	-	-	3	1	-	2	1	-	3	1	1	4	2	1	1	2	-	1	-	4	2	-	2	4	-
<u>INDIANA</u>																														
Butler University	15	1	-	15	2	-	18	2	-	20	3	-	20	2	-	20	3	-	25	3	-	30	4	-	8	4	-	12	3	-
Purdue University	-	3	4	-	5	11	-	6	10	-	5	6	2	4	8	6	11	12	6	12	10	13	3	7	13	6	13	16	15	9
<u>IOWA</u>																														
University of Iowa . . .	-	3	-	-	1	1	-	2	2	-	-	1	-	1	1	-	1	3	-	2	3	-	2	3	-	1	2	-	5	1

APPENDIX A.1 (Continued)

RADIATION PROTECTION
DEGREES GRANTED 1967-1977
By Institution

B = Bachelors

M = Masters

D = Doctorate

19

July - June -	1967 1968			1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977		
	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D
State and Institution																														
<u>KANSAS</u>																														
University of Kansas . .	1	5	3	1	2	3	3	4	8	-	2	3	1	4	5	2	3	5	1	4	4	2	1	5	-	-	2	1	1	1
<u>KENTUCKY</u>																														
University of Kentucky Medical Center	Program at Graduate Level Started January 1968						-	1	-	-	1	-	-	1	-	-	4	-	-	2	-	-	6	-	-	4	-	-	1	-
<u>MARYLAND</u>																														
Johns Hopkins Medical Institutions	-	-	-	-	1	3	-	-	1	-	2	1	-	-	1	-	-	2	-	-	-	-	1	1	-	2	2	-	2	3
<u>MASSACHUSETTS</u>																														
Harvard School of Public Health	-	6	-	-	2	1	-	5	1	-	4	1	-	4	2	-	2	1	-	5	-	-	4	2	-	1	1	-	3	3
University of Lowell . .	Program Started 1971						-	-	-	-	-	-	-	-	-	9	1	-	21	-	-	17	1	-	13	4	-	6	5	-
<u>MICHIGAN</u>																														
Michigan State University	-	2	-	-	2	2	-	-	4	-	2	2	-	2	3	-	1	3	-	5	4	-	2	1	-	-	-	-	-	-
University of Michigan .	-	2	1	-	10	1	-	5	1	-	5	3	-	8	3	-	5	3	-	6	2	-	7	1	-	14	-	-	6	-
<u>MINNESOTA</u>																														
University of Minnesota	-	1	-	-	4	-	-	3	-	-	4	-	-	3	-	-	8	-	-	3	1	-	4	1	-	-	-	-	-	-
<u>MISSOURI</u>																														
University of Missouri, Columbia	Program Started 1971						-	-	-	-	-	-	-	-	-	-	4	-	-	2	-	-	-	1	-	1	-	-	4	3
St. Louis University . .	Program Started 1976						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX A.1 (Continued)

RADIATION PROTECTION
DEGREES GRANTED 1967-1977
By Institution

S = Bachelors
M = Masters
D = Doctorate

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July - June -	1967 1968			1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977		
State and Institution	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D
<u>NEW JERSEY</u>																														
Rutgers University . . .	-	12	-	-	6	-	-	10	3	-	8	4	-	4	2	-	9	2	-	15	4	-	12	1	-	7	1	5	1	3
<u>NEW YORK</u>																														
Clarkson College of Technology													Program Started 1972			-	-	2	1	2	1	4	2	-	-	-	-	-	-	-
Manhattan College													Program Started 1972			-	-	-	17	-	-	10	-	-	27	-	-	-	-	-
New York University Medical School	-	2	4	-	5	-	-	6	3	-	4	3	1	6	1	-	7	3	-	5	4	-	-	3	-	-	4	-	-	3
Rensselaer Polytechnic Institute	-	-	-	-	2	3	-	-	-	-	1	1	-	2	-	-	2	-	-	2	-	-	2	-	-	3	-	-	1	-
University of Rochester. Sloan-Kettering Division, Cornell University . . .	-	4	-	-	2	-	-	6	-	-	1	10	-	4	4	-	4	3	-	5	4	-	3	6	-	2	2	-	6	7
	-	-	1	-	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	-	1	1	-	-	1
<u>NORTH CAROLINA</u>																														
North Carolina State University	-	1	-	-	1	-	-	1	-	-	1	-	Cooperative Program with University of North Carolina. Students and Graduates Reported by University of North Carolina.																	
University of North Carolina, Chapel Hill.	-	6	1	-	8	-	-	7	3	-	7	-	-	5	-	-	4	-	-	4	3	-	4	-	-	2	-	-	3	-
<u>NORTH DAKOTA</u>																														
North Dakota State University	-	5	-	-	3	-	-	1	-	-	-	-	-	1	-	-	1	-	-	2	-	-	2	-	-	-	-	-	-	-
<u>OHIO</u>																														
University of Cincinnati Ohio State University . .	-	2	-	-	4	-	-	6	-	-	10	-	-	9	-	-	9	-	-	6	1	-	-	-	-	5	-	-	4	-
													First Degree 1974			-	-	-	-	1	-	-	-	1	-	2	2	-	-	-

APPENDIX A.1 (Continued)

RADIATION PROTECTION
DEGREES GRANTED 1967-1977
By Institution

B = Bachelors
M = Masters
D = Doctorate

July - June -	1967 1968			1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977		
State and Institution	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D
<u>OKLAHOMA</u>																														
Oklahoma State University				Program Started 1969						3	-	-	5	-	-	8	-	-	11	-	-	10	-	-	12	-	-	12	-	-
School of Technology .																														
University of Oklahoma .	-	10	3	-	2	2	-	6	-	-	12	2	-	9	-	-	2	1	-	-	1	-	1	1	-	1	-	-	-	1
<u>OREGON</u>																														
Oregon State University										Program Started 1971						3	-	-	18	-	-	9	-	-	12	1	-	14	-	-
<u>PENNSYLVANIA</u>																														
Carnegie-Mellon																Program Started 1973						-	2	-	-	-	-	-	4	-
University													Program Started 1972						1	-	-	1	-	-	1	-	-	-	-	-
Duquesne University . .																Program Started 1973						1	-	-	Program Discontinued					
Pennsylvania State																														
University																														
University of																														
Pennsylvania, Hospital	-	-	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2	Program Discontinued					
University of Pittsburgh,																														
Graduate School of																														
Public Health.	-	8	-	-	3	1	-	6	1	-	5	-	-	5	2	-	12	-	-	10	-	-	11	-	-	7	-	-	7	-
Temple University School																														
of Pharmacy.	-	3	-	-	1	-	-	2	-	-	8	1	8	2	-	8	2	1	-	4	1	5	1	1	-	-	1	-	-	-
<u>PUERTO RICO</u>																														
University of Puerto Rico	-	-	-	-	5	-	-	5	-	-	5	-	-	10	-	-	4	-	-	7	-	-	5	-	-	1	-	-	-	-

APPENDIX A.1 (Continued)

RADIATION PROTECTION
DEGREES GRANTED 1967-1977
By Institution

B = Bachelors

M = Masters

D = Doctorate

22

July - June -	1967 1968			1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977		
State and Institution	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D
TENNESSEE																														
Middle Tennessee State University	-	-	-	1	-	-	4	-	-	3	-	-	3	-	-	3	-	-	3	-	-	1	-	-	3	-	-	2	-	-
University of Tennessee, Chattanooga	1	-	-	2	-	-	2	1	-	3	-	-	1	-	-	-	1	-	1	-	-	2	-	-	1	-	-	3	-	-
University of Tennessee, Knoxville	-	2	7	-	2	3	1	1	3	3	5	5	-	3	3	-	2	-	-	2	-	-	3	2	-	-	-	-	-	-
vanderbilt University	4	2	3	1	2	7	1	3	3	1	4	2	1	3	10	-	1	5	-	-	1	5	-	1	3	3	3	1	2	1
TEXAS																														
Texas A&M University	-	1	-	-	3	-	-	4	1	-	8	-	-	4	-	5	5	-	6	4	-	4	4	-	4	3	-	2	1	1
University of Texas, Austin	-	4	2	-	-	-	-	1	1	-	1	2	Program Discontinued																	
University of Texas, Health Science Center, Dallas	-	-	-	-	-	-	-	1	-	-	1	-	-	2	-	-	3	-	-	2	-	-	1	-	-	2	-	-	3	1
University of Texas, Health Science Center, San Antonio										First Degree 1973						-	1	-	-	-	1	-	-	-	-	1	-	-	1	
VIRGINIA																														
Virginia Polytechnical Institute																Program Started 1973						19	-	-	21	-	-	-	-	-
University of Virginia																						Program Started 1976								

APPENDIX A.1 (Continued)

RADIATION PROTECTION
DEGREES GRANTED 1967-1977
By Institution

B = Bachelors

M = Masters

D = Doctorate

State and Institution	1967 1968			1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977		
	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D
<u>WASHINGTON</u>																														
University of Washington	-	5	-	-	2	-	-	4	-	-	-	-	5	-	-	1	1	-	3	-	-	3	-	-	3	-	-	4	-	-
<u>WISCONSIN</u>																														
University of Wisconsin, Madison	-	-	-	-	1	1	-	-	2	-	2	2	-	3	5	-	4	2	-	4	1	-	6	4	-	6	2	-	5	-
TOTALS	21	125	43	20	125	48	31	135	57	35	156	65	46	171	64	97	180	76	118	176	67	159	171	76	115	168	55	133	147	66

APPENDIX A-2

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD.
	FT	PT	FT	PT	FT	PT	FT	PT			
ARIZONA											
ARIZONA STATE UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	1		1						1		
ENG. OR BASIC SCI., HEALTH PHYS. OPTION	2		1		1				2		
CALIFORNIA											
CALIF. STATE UNIV., LOS ANGELES											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	3	1	3							1	
ENG. OR BASIC SCI., HEALTH PHYS. OPTION											
UNIVERSITY OF CALIFORNIA, BERKLEY											
RADIOBIOLOGY OR BIOPHYSICS	31		25		15		89		25	3	11
UNIVERSITY OF CALIFORNIA, LOS ANGELES											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					16	1	20	3		5	1
SAN DIEGO STATE UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					12	8				8	
COLORADO											
COLORADO STATE UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					6	1	2			7	2
RADIOBIOLOGY OR BIOPHYSICS					5		10			1	3
RADIOECOLOGY					5		4			1	2
UNIV. OF COLORADO MEDICAL CENTER											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					9					3	

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
FLORIDA											
UNIVERSITY OF FLORIDA											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	1		2		9	4	2	1	2	4	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					3	1	9	3		6	1
GEORGIA											
EMORY UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					12	1				5	
GEORGIA INSTITUTE OF TECHNOLOGY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					15	1	5	1		6	3
ILLINOIS											
UNIVERSITY OF CHICAGO											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					5		7			1	2
UNIVERSITY OF ILLINOIS											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.							2	1		6	2
NORTHWESTERN UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.			2		4		1	5	2	3	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1					1	

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
INDIANA											
BUTLER UNIVERSITY											
RADIOPHARMECEUTICAL	18		20		10	7			12	3	
PURDUE UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	6		7		8	1	8	2	8	7	5
RADIOBIOLOGY OR BIOPHYSICS					1		1			1	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1		6			2	2
NUCLEAR PHARMACY					8	1	4		8	5	2
ENVIRONMENTAL HEALTH	14		12								
IOWA											
UNIVERSITY OF IOWA											
RADIOBIOLOGY OR BIOPHYSICS					5		9			5	1
KANSAS											
UNIVERSITY OF KANSAS											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	2		1		6				1	1	1
RADIOBIOLOGY OR BIOPHYSICS	1		1		2		7				
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1		6	2			
KENTUCKY											
UNIVERSITY OF KENTUCKY											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					11					1	

APPENDIX A-2 (CONTINUED)
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION
RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
MARYLAND											
JOHNS HOPKINS UN. SCH. PUB. HEALTH RADIOBIOLOGY OR BIOPHYSICS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					3	3	1 6	1 5		2	3
MASSACHUSETTS											
HARVARD SCHOOL OF PUBLIC HEALTH HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					2 4 7			1 3 3		1 2	1 2
UNIVERSITY OF LOWELL HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	6		12	2	8	7			6	5	
MICHIGAN											
UNIVERSITY OF MICHIGAN HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					8		8			6	
MINNESOTA											
UNIVERSITY OF MINNESOTA HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					3						

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
MISSOURI											
UNIVERSITY OF MISSOURI-COLUMBIA											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					10		5	1		3	
BIOENVIRONMENTAL					7		6	2		1	3
SAINT LOUIS UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	2			1							
NEW JERSEY											
RUTGERS UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	5			5	7	29		1	5	1	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.											1
RADIATION CHEMISTRY											1
ENVIRONMENTAL RADIOACTIVITY											1
AEROSOL PHYSICS								1			
NEW YORK											
CLARKSON COLLEGE											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					1						
RADIOBIOLOGY OR BIOPHYSICS	8			7							
MANHATTAN COLLEGE											
RADIOLOGICAL HEALTH PHYSICS		80		33					27		
NEW YORK UNIV. MEDICAL CENTER											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					2	2	9	6			3

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

 FT = FULL TIME
 PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
NEW YORK (CONTINUED)											
RENSSELAER POLYTECHNIC INSTITUTE HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					2	1				1	
UNIVERSITY OF ROCHESTER HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS					3		7	7		2	6
										4	1
SLOAN-KETTERING, CORNELL GRAD SCH. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							2				1
NORTH CAROLINA											
UNIV. OF NORTH CAROLINA, CHAPEL HILL HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					3	1	2			2	
					4	1				1	
NORTH DAKOTA											
NDSU COLLEGE OF PHARMACY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.							1				
OHIO											
UNIVERSITY OF CINCINNATI MED. RAD. PHYSICS OR RADIOLOGICAL PHYS. RADIOLOGY ADMINISTRATION					2					3	
					2					1	

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL-TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
OKLAHOMA											
OKLAHOMA STATE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	15		10						12		
UNIVERSITY OF OKLAHOMA HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					1						1
OREGON											
OREGON STATE UNIVERSITY NUCLEAR ENGINEERING	6		12						14		
PENNSYLVANIA											
CARNEGIE MELLON UNIVERSITY MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.										4	
DUQUESNE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	3		1								
UNIV. OF PITTSBURGH GRAD. SCH. OF PUB. HLTH. HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					13	20	3	1		7	
TEMPLE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.								1			

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
TENNESSEE											
MIDDLE TENNESSEE STATE UNIV. ENG. OR BASIC SCI., HEALTH PHYS. OPTION	3		2						2		
UNIVERSITY OF TENNESSEE, CHATTANOOGA ENG. OR BASIC SCI., HEALTH PHYS. OPTION	3		4						3		
VANDERBILT UNIVERSITY MED. RAD. PHYSICS OR RADIOLOGICAL PHYS. ENG. OR BASIC SCI., HEALTH PHYS. OPTION NUCLEAR PHARMACY							2			1	
							4	1	1	1	1
TEXAS											
TEXAS A&M UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS ENG. OR BASIC SCI., HEALTH PHYS. OPTION	4		9			1			2	1	1
					4	3	2	1			
U. OF TX. HEALTH SCI. CNTR., DALLAS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					4		3	1		3	1
U. OF TX. HEALTH SCI. CNTR., SAN ANTONIO MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1		5				1
VIRGINIA											
VIRGINIA POLYTECHNIC INSTITUTE HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	29		25								

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
WASHINGTON											
UNIVERSITY OF WASHINGTON											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					8	9				3	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1		1			1	
WISCONSIN											
UNIVERSITY OF WISCONSIN											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					1					1	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					22		14			4	
TOTALS	163	81	163	35	304	103	288	41	133	147	66
	244		198		407		329				

APPENDIX A-3

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
ARIZONA											
ARIZONA STATE UNIVERSITY											
WHITE FEMALES, U. S. CITIZENS			1								
CALIFORNIA											
CALIF. STATE UNIV., LOS ANGELES											
BLACK MALES, U. S. CITIZENS				1						1	
ASIAN AMERICAN MALES, U. S. CITIZENS				1							
UNIVERSITY OF CALIFORNIA, LOS ANGELES											
FOREIGN NATIONAL MALES					1		2			3	
FOREIGN NATIONAL FEMALES					1						
WHITE FEMALES, U. S. CITIZENS					3		2				
BLACK FEMALES, U. S. CITIZENS							1				
ASIAN AMERICAN MALES, U. S. CITIZENS					1		1	1			
ASIAN AMERICAN FEMALES, U. S. CITIZENS							1				
SAN DIEGO STATE UNIVERSITY											
FOREIGN NATIONAL FEMALES					1						
WHITE FEMALES, U. S. CITIZENS					4	2				1	
COLORADO											
COLORADO STATE UNIVERSITY											
FOREIGN NATIONAL MALES					1		1				1
FOREIGN NATIONAL FEMALES							1				
WHITE FEMALES, U. S. CITIZENS					4	1	3			1	1

APPENDIX A-3 (CONTINUED)
 MINORITIES, WOMEN AND FOREIGN NATIONALS
 ENROLLMENTS AND DEGREES BY INSTITUTION
 RADIATION PROTECTION

FT = FULL TIME
 PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
COLORADO (CONTINUED)											
UNIV. OF COLORADO MEDICAL CENTER WHITE FEMALES, U. S. CITIZENS					2						
FLORIDA											
UNIVERSITY OF FLORIDA											
FOREIGN NATIONAL MALES							1				
WHITE FEMALES, U. S. CITIZENS					2		1			2	
BLACK FEMALES, U. S. CITIZENS							1				
SPANISH-SURNAMED MALES, U. S. CITIZENS					1						
GEORGIA											
EMORY UNIVERSITY											
FOREIGN NATIONAL MALES										1	
WHITE FEMALES, U. S. CITIZENS					2					1	
BLACK MALES, U. S. CITIZENS					1						
GEORGIA INSTITUTE OF TECHNOLOGY											
FOREIGN NATIONAL MALES							1				1
FOREIGN NATIONAL FEMALES										1	
WHITE FEMALES, U. S. CITIZENS					1						
ILLINOIS											
UNIVERSITY OF CHICAGO											
FOREIGN NATIONAL MALES					1		3				
FOREIGN NATIONAL FEMALES							1				
BLACK MALES, U. S. CITIZENS					1						

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
ILLINOIS (CONTINUED)											
UNIVERSITY OF ILLINOIS FOREIGN NATIONAL MALES								1		1	
NORTHWESTERN UNIVERSITY WHITE FEMALES, U. S. CITIZENS SPANISH-SURNAMED MALES, U. S. CITIZENS				1				1			
INDIANA											
BUTLER UNIVERSITY WHITE FEMALES, U. S. CITIZENS BLACK FEMALES, U. S. CITIZENS	6		10				1				
PURDUE UNIVERSITY FOREIGN NATIONAL MALES FOREIGN NATIONAL FEMALES WHITE FEMALES, U. S. CITIZENS BLACK MALES, U. S. CITIZENS BLACK FEMALES, U. S. CITIZENS SPANISH-SURNAMED MALES, U. S. CITIZENS ASIAN AMERICAN FEMALES, U. S. CITIZENS						1		2		1	3
							1	1		2	1
	7		7		6		2		5	1	
	2										
									1		
											1
					1		1				
IOWA											
UNIVERSITY OF IOWA FOREIGN NATIONAL MALES FOREIGN NATIONAL FEMALES WHITE FEMALES, U. S. CITIZENS SPANISH-SURNAMED MALES, U. S. CITIZENS								1		1	1
								2			
					2					1	
								1		1	

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
KANSAS											
UNIVERSITY OF KANSAS											
FOREIGN NATIONAL MALES					1		1				
FOREIGN NATIONAL FEMALES					1						
WHITE FEMALES, U. S. CITIZENS					1		2				
KENTUCKY											
UNIVERSITY OF KENTUCKY											
FOREIGN NATIONAL MALES					1						
FOREIGN NATIONAL FEMALES					2						
WHITE FEMALES, U. S. CITIZENS					2						
MARYLAND											
JOHNS HOPKINS UN. SCH. PUB. HEALTH											
FOREIGN NATIONAL MALES						1	3				
WHITE FEMALES, U. S. CITIZENS					1		1				
SPANISH-SURNAMED MALES, U. S. CITIZENS							1				
ASIAN AMERICAN MALES, U. S. CITIZENS								1			
MASSACHUSETTS											
HARVARD SCHOOL OF PUBLIC HEALTH											
FOREIGN NATIONAL MALES					1						
WHITE FEMALES, U. S. CITIZENS					3		2			1	
SPANISH-SURNAMED MALES, U. S. CITIZENS					1						
ASIAN AMERICAN MALES, U. S. CITIZENS					1		1				

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
MICHIGAN											
UNIVERSITY OF MICHIGAN											
FOREIGN NATIONAL FEMALES					1					1	
WHITE FEMALES, U. S. CITIZENS					1		2			1	
BLACK MALES, U. S. CITIZENS							1				
MISSOURI											
UNIVERSITY OF MISSOURI-COLUMBIA											
FOREIGN NATIONAL MALES					3		4	3		1	1
WHITE FEMALES, U. S. CITIZENS					2						
SAINT LOUIS UNIVERSITY											
SPANISH-SURNAMED MALES, U. S. CITIZENS				1							
NEW JERSEY											
RUTGERS UNIVERSITY											
FOREIGN NATIONAL FEMALES					1					1	
WHITE FEMALES, U. S. CITIZENS						5		1			1
ASIAN AMERICAN MALES, U. S. CITIZENS					1						
NEW YORK											
MANHATTAN COLLEGE											
FOREIGN NATIONAL FEMALES											1
WHITE FEMALES, U. S. CITIZENS				24						6	
BLACK MALES, U. S. CITIZENS				8						4	
BLACK FEMALES, U. S. CITIZENS				10						4	
SPANISH-SURNAMED MALES, U. S. CITIZENS				7						1	
SPANISH-SURNAMED FEMALES, U. S. CITIZENS				4						1	
ASIAN AMERICAN MALES, U. S. CITIZENS				3						3	
ASIAN AMERICAN FEMALES, U. S. CITIZENS				1							

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
NEW YORK (CONTINUED)											
NEW YORK UNIV. MEDICAL CENTER											
FOREIGN NATIONAL FEMALES								2			
WHITE FEMALES, U. S. CITIZENS								2	2		
RENSSELAER POLYTECHNIC INSTITUTE											
AMERICAN INDIAN MALES, U. S. CITIZENS						2	1				1
UNIVERSITY OF ROCHESTER											
FOREIGN NATIONAL MALES						1			2		
FOREIGN NATIONAL FEMALES						1					
WHITE FEMALES, U. S. CITIZENS						1			2		1
SPANISH-SURNAMED MALES, U. S. CITIZENS									1		
SLOAN-KETTERING, CORNELL GRAD SCH.											
ASIAN AMERICAN MALES, U. S. CITIZENS											1
NORTH CAROLINA											
UNIV. OF NORTH CAROLINA, CHAPEL HILL											
WHITE FEMALES, U. S. CITIZENS							1				1
BLACK MALES, U. S. CITIZENS						1					
OHIO											
UNIVERSITY OF CINCINNATI											
WHITE FEMALES, U. S. CITIZENS											
BLACK MALES, U. S. CITIZENS						1					

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
OKLAHOMA											
OKLAHOMA STATE UNIVERSITY											
FOREIGN NATIONAL MALES	2										
WHITE FEMALES, U. S. CITIZENS	3		1								
BLACK MALES, U. S. CITIZENS	1										
AMERICAN INDIAN MALES, U. S. CITIZENS	1										
UNIVERSITY OF OKLAHOMA											
WHITE FEMALES, U. S. CITIZENS					1						
OREGON											
OREGON STATE UNIVERSITY											
FOREIGN NATIONAL MALES	1								2		
WHITE FEMALES, U. S. CITIZENS			1								
PENNSYLVANIA											
DUQUESNE UNIVERSITY											
WHITE FEMALES, U. S. CITIZENS	2										
UNIV. OF PITTSBURGH GRAD. SCH. OF PUB. HLTH.											
FOREIGN NATIONAL MALES					1		1			1	
FOREIGN NATIONAL FEMALES							1				
WHITE FEMALES, U. S. CITIZENS					3	3					

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
TENNESSEE											
UNIVERSITY OF TENNESSEE, CHATTANOOGA											
WHITE FEMALES, U. S. CITIZENS	1		1						2		
BLACK MALES, U. S. CITIZENS			1								
BLACK FEMALES, U. S. CITIZENS			1								
VANDERBILT UNIVERSITY											
FOREIGN NATIONAL FEMALES										1	
TEXAS											
TEXAS A&M UNIVERSITY											
FOREIGN NATIONAL MALES							1				
WHITE FEMALES, U. S. CITIZENS	2										
U. OF TX. HEALTH SCI. CNTR., DALLAS											
FOREIGN NATIONAL FEMALES					1					1	
WHITE FEMALES, U. S. CITIZENS					1						
U. OF TX. HEALTH SCI. CNTR., SAN ANTONIO											
FOREIGN NATIONAL MALES							1				
VIRGINIA											
VIRGINIA POLYTECHNIC INSTITUTE											
WHITE FEMALES, U. S. CITIZENS	9		8								
BLACK FEMALES, U. S. CITIZENS			1								

APPENDIX A-3 (CONTINUED)
MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
WASHINGTON											
UNIVERSITY OF WASHINGTON											
FOREIGN NATIONAL MALES					1						
FOREIGN NATIONAL FEMALES							1				
WISCONSIN											
UNIVERSITY OF WISCONSIN											
FOREIGN NATIONAL MALES					4		1				
FOREIGN NATIONAL FEMALES					1		1				
WHITE FEMALES, U. S. CITIZENS					1					1	
TOTALS	38	57	35	24	83	15	65	9	30	31	13
	95		59		98		74				

APPENDIX A-4

RADIATION PROTECTION CURRICULUM

OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION

FALL 1977

UNDERGRADUATE

GRADUATE

HEALTH PHYSICS, RADIATION HEALTH OR RADIATION PROTECTION

Arizona State University
California State University

University of Florida

Northwestern University

Purdue University
University of Kansas

University of Lowell

Saint Louis University
Rutgers University

Manhattan College

Oklahoma State University

San Diego State University
Colorado State University
University of Florida
Emory University
Georgia Institute of Technology
University of Illinois
Northwestern University
Butler University
Purdue University
University of Kansas
Harvard School of Public Health
University of Lowell
University of Michigan
University of Minnesota
University of Missouri, Columbia

Rutgers University
Clarkson College

New York University, Medical Center
Rensselaer Polytechnic Institute
University of Rochester
University of North Carolina, Chapel Hill
North Dakota State University College of
Pharmacy

University of Oklahoma

APPENDIX A-4 (Continued)

RADIATION PROTECTION CURRICULUM

BY OPTIONS OR UNDERGRADUATE OR GRADUATE INSTITUTION

FALL 1977

UNDERGRADUATE

GRADUATE

HEALTH PHYSICS, RADIATION HEALTH OR RADIATION PROTECTION (Continued)

Duquesne University

*University of Pittsburgh, Graduate School
of Public Health
Temple University*

*Texas A&M University
Virginia Polytechnic Institute*

*University of Washington
University of Wisconsin*

RADIOBIOLOGY OR BIOPHYSICS

43 *University of California, Berkeley*

*University of California, Berkeley
Colorado State University
Purdue University
University of Iowa
University of Kansas
Johns Hopkins University School of
Public Health
Harvard School of Public Health*

University of Kansas

Clarkson College

*University of Rochester
Texas A&M University*

APPENDIX A-4 (Continued)

RADIATION PROTECTION CURRICULUM

OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION

FALL 1977

UNDERGRADUATE

GRADUATE

MEDICAL RADIATION PHYSICS OR RADIOLOGICAL PHYSICS

University of California, Los Angeles
University of Colorado Medical Center
University of Florida
University of Chicago
Northwestern University
Purdue University
• University of Kansas
University of Kentucky
Johns Hopkins University School of Public Health
Harvard School of Public Health
Rutgers University
Sloan-Kettering, Cornell Graduate School
of Medical Sciences
University of North Carolina, Chapel Hill
University of Cincinnati
• Carnegie-Mellon University
Vanderbilt University
University of Texas Health Science Center, Dallas
University of Texas Health Science Center,
San Antonio
University of Washington
University of Wisconsin

ENGINEERING OR BASIC SCIENCES, HEALTH PHYSICS OPTION

Arizona State University

Middle Tennessee State University
University of Tennessee, Chattanooga

Arizona State University
California State University, Los Angeles
Purdue University

Vanderbilt University
Texas A&M University

APPENDIX A-4 (Continued)
RADIATION PROTECTION CURRICULUM

OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION

FALL 1977

UNDERGRADUATE

GRADUATE

NUCLEAR ENGINEERING

Oregon State University

RADIOECOLOGY

Colorado State University

NUCLEAR PHYSICS

Vanderbilt University

Vanderbilt University

RADIOPHARMECEUTICAL

Butler University

Butler University

ENVIRONMENTAL HEALTH

Purdue University

Purdue University

NUCLEAR PHARMACY

Purdue University

BIOENVIRONMENTAL

University of Missouri, Columbia

RADIATION CHEMISTRY

Rutgers University

APPENDIX A-4 (Continued)

RADIATION PROTECTION CURRICULUM

OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION

FALL 1977

UNDERGRADUATE

GRADUATE

ENVIRONMENTAL RADIOACTIVITY

Rutgers University

AEROSOL PHYSICS

Rutgers University

RADIOLOGY ADMINISTRATION

University of Cincinnati

APPENDIX A-5

ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGION
RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION I - NEW ENGLAND											
MASSACHUSETTS	6		12	2	21	7	6	1	6	8	3
TOTAL	6	0	12	2	21	7	6	1	6	8	3
REGION II - MIDDLE ATLANTIC											
NEW JERSEY	5		5		7	29		2	5	1	3
NEW YORK	8	80	7	33	8	3	25	6	27	7	11
PENNSYLVANIA	3		1		13	20	3	2		11	
TOTAL	16	80	13	33	28	52	28	10	32	19	14
REGION III - EAST NORTH-CENTRAL											
ILLINOIS			2		10		10	6	2	11	4
INDIANA	38		39		28	9	21	2	28	18	9
MICHIGAN					8		8			6	
OHIO					4					4	
WISCONSIN					23		14			5	
TOTAL	38	0	41	0	73	9	53	8	30	44	13
REGION IV - WEST NORTH-CENTRAL											
IOWA					5		9			5	1

APPENDIX A-5 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION IV - WEST NORTH-CENTRAL (CONTINUED)											
KANSAS	3		2		9		13	2	1	1	1
MINNESOTA					3						
MISSOURI	2		1		17		11	3		4	3
NORTH DAKOTA							1				
TOTAL	5	0	3	0	34	0	34	5	1	10	5
REGION V - SOUTH ATLANTIC											
FLORIDA	1		2		12	5	11	4	2	10	1
GEORGIA					27	2	5	1		11	3
MARYLAND					3	3	7	6		2	3
NORTH CAROLINA					7	2	2			3	
VIRGINIA	29		25								
TOTAL	30	0	27	0	49	12	25	11	2	26	7
REGION VI - EAST SOUTH-CENTRAL											
KENTUCKY					11					1	
TENNESSEE	6		6				6	1	6	2	1
TOTAL	6	0	6	0	11	0	6	1	6	3	1

APPENDIX A-5 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGION
RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1977								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1976 - JUNE 1977		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION VII - WEST SOUTH-CENTRAL											
OKLAHOMA	15		10		1				12		1
TEXAS	4		9		9	4	10	2	2	4	3
TOTAL	19	0	19	0	10	4	10	2	14	4	4
REGION VIII - MOUNTAIN											
ARIZONA	3		2		1				3		
COLORADO					25	1	16			12	7
TOTAL	3	0	2	0	26	1	16	0	3	12	7
REGION IX - PACIFIC											
CALIFORNIA	34	1	28		43	9	109	3	25	17	12
OREGON	6		12						14		
WASHINGTON					9	9	1			4	
TOTAL	40	1	40	0	52	18	110	3	39	21	12

APPENDIX B

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERS RADIATION PROTECTION

University of Alabama, Birmingham
Department of Physics
Birmingham, Alabama 35294

Arizona State University
Department of Engineering
Tempe, Arizona 85281

California State University, Los Angeles
Department of Physics
Los Angeles, California 90032

University of California, Berkeley
Group in Biophysics and Medical Physics
Berkeley, California 94720

University of California, Los Angeles
Department of Radiological Sciences
Los Angeles, California 90024

San Diego State University
Department of Physics
San Diego, California 92182

Colorado State University
Department of Radiology and
Radiation Biology
Fort Collins, Colorado 80523

University of Colorado Medical Center
Department of Radiology
Denver, Colorado 80262

University of Florida
Department of Nuclear Engineering Sciences
Gainesville, Florida 32611

Emory University
Department of Radiological Sciences
Decatur, Georgia 30322

Georgia Institute of Technology
School of Nuclear Engineering
Atlanta, Georgia 30332

University of Chicago
Department of Radiology
Chicago, Illinois 60637

University of Illinois, Urbana
Nuclear Engineering Program
Urbana, Illinois 61801

Northwestern University
Department of Civil Engineering
Evanston, Illinois 60201

Butler University
Department of Bionucleonics
Indianapolis, Indiana 46208

Purdue University
Department of Bionucleonics
West Lafayette, Indiana 47907

University of Iowa
Department of Radiation Biology
Iowa City, Iowa 52242

University of Kansas
Department of Radiation Biophysics
Lawrence, Kansas 66045

APPENDIX B (Continued)

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE
RADIATION PROTECTION

University of Kentucky
Department of Health Radiation Sciences
Lexington, Kentucky 40506

Johns Hopkins University
Department of Environmental Health Sciences
Baltimore, Maryland 21205

Harvard School of Public Health
Department of Environmental Health Sciences
Boston, Massachusetts 02115

University of Lowell
Department of Radiological Sciences
Lowell, Massachusetts 01854

Michigan State University
Department of Biophysics
East Lansing, Michigan 48824

University of Michigan
Department of Radiation Health
Ann Arbor, Michigan 48109

University of Minnesota
Department of Environmental Health
Minneapolis, Minnesota 55455

University of Missouri - Columbia
Department of Nuclear Engineering
Columbia, Missouri 65201

St. Louis University
Department of Physics
St. Louis, Missouri 63103

Rutgers University
Department of Radiation Sciences
P. O. Box 1179, Doolittle Building
Piscataway, New Jersey 08854

Clarkson College of Technology
Department of Physics
Potsdam, New York 13676

Manhattan College
Department of Radiological and Health Sciences
Riverdale, New York 10471

New York University Medical Center
550-560 First Avenue
New York, New York 10016

Rensselaer Polytechnic Institute
Department of Environmental Engineering
Troy, New York 12181

University of Rochester
Department of Radiation Biology and Biophysics
Rochester, New York 14642

Sloan-Kettering Division, Cornell Graduate
School of Medical Sciences
Biophysics Unit
New York, New York 10021

University of North Carolina, Chapel Hill
Department of Environmental Sciences and
Engineering
Chapel Hill, North Carolina 27514

APPENDIX B (Continued)

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE
RADIATION PROTECTION

North Dakota State University
School of Pharmacy
Department of Pharmaceutical Chemistry
and Bionucleonics
Fargo, North Dakota 58102

University of Cincinnati
Department of Radiology
Cincinnati, Ohio 45267

Ohio State University
Department of Biophysics
Columbus, Ohio 43210

Oklahoma State University
Department of Radiation and Nuclear Technology
Stillwater, Oklahoma 74074

University of Oklahoma
School of Civil Engineering and
Environmental Sciences
Norman, Oklahoma 73069

Oregon State University
Department of Nuclear Engineering
Corvallis, Oregon 97331

Carnegie-Mellon University
Department of Radiation Oncology
Pittsburgh, Pennsylvania 15219

Duquesne University
Department of Radiological Health
Pittsburgh, Pennsylvania 15219

University of Pittsburgh, Graduate School
of Public Health
Department of Radiation Health
Pittsburgh, Pennsylvania 15261

Temple University School of Pharmacy
Department of Pharmaceutical Chemistry
Philadelphia, Pennsylvania 19140

University of Puerto Rico
Department of Environmental Health
San Juan, Puerto Rico 00936

Middle Tennessee State University
Department of Physics and Chemistry
Murfreesboro, Tennessee 37132

University of Tennessee, Chattanooga
Department of Physics
Chattanooga, Tennessee 37401

University of Tennessee, Knoxville
Department of Physics
Knoxville, Tennessee 37916

Vanderbilt University
Department of Physics-Astronomy
Nashville, Tennessee 37235

Texas A&M University
Department of Radiological Safety
College Station, Texas 77843

APPENDIX B (Continued)

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE
RADIATION PROTECTION

University of Texas Health Science
Center, Dallas
Department of Radiology
Dallas, Texas 75325

University of Texas Health Science
Center, San Antonio
Department of Radiology
San Antonio, Texas 78284

University of Virginia
Department of Nuclear Engineering
and Engineering Physics
Charlottesville, Virginia 22901

Virginia Polytechnical Institute
Department of Nuclear Science and
Engineering
Blacksburg, Virginia 24061

University of Washington
Department of Radiological Sciences
Seattle, Washington 98195

University of Wisconsin, Madison
Departments of Medical Physics/Radiology
Madison, Wisconsin 53706

APPENDIX C
UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

September 30, 1977

Dear Professor:

You were recently sent a copy of Radiation Protection Enrollments and Degrees, 1976 (ERDA 77-101), which reported the results of the sixth survey of colleges offering degrees in this field so important to the safe development and utilization of nuclear power. We are enclosing the forms for recording current (1977) data covering the same subject items.

Because of a growing concern and awareness regarding the development of nuclear energy, there has been increased interest in reliable data on the supply of persons trained in the field of radiation protection. Information of this type is of particular interest to policy makers, planners, employers, educators, and students, many of whom have used the results of past surveys.

The survey is being conducted by the Manpower Research Program of Oak Ridge Associated Universities under the sponsorship of the Energy Research and Development Administration (ERDA).

In completing the forms, please include all persons in degree programs which prepare the students to participate in conducting, coordinating, directing, or planning a program for the evaluation and control of radiation hazards for an installation, community, or state agency. A duplicate set of forms for your records and a self-addressed, postage-paid envelope are included for your convenience. We would greatly appreciate receiving your completed questionnaire by October 30, 1977. Please enclose with the questionnaire the latest literature describing your program so that ERDA staff can keep current on your program content.

APPENDIX C (Continued)

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If you have any questions about the questionnaire, please call collect to Dr. Roger Alford, Oak Ridge Associated Universities, (615)483-8411, extension 371.

We appreciate your continuing cooperation in this project and would be pleased to receive any comments you have on the survey content or form. Thank you again for your time and interest.

Sincerely,

A handwritten signature in dark ink, appearing to read "Norman Seltzer", with a long horizontal stroke extending to the right.

Norman Seltzer, Chief
Manpower Assessment Office
Office of University Programs

Enclosure:
As stated

APPENDIX C (Continued)

Form ERDA-617

U.S. Energy Research and Development Administration

FORM APPROVED
OMB NO. 38-R0176

IMPORTANT: Please see instructions on reverse side before completing this form.

RADIATION PROTECTION ENROLLMENT AND DEGREE SURVEY: 1977

Name of Institution				1 City				28 State				31 32 Zip Code 36			
37 Department(s) Reporting				61 62 67				79 80 1 - 6 7				Name of Official Supplying Data 36			
37 Title of Official Supplying Data				66 67 Area Code 69 70				Telephone Number 76 79 80				A1			
												A2			

SCHOOL NUMBER	Curriculum or Option (See Instruction a.) (Write in those not listed.)	CODE	ENROLLMENT FALL 1977												DEGREES GRANTED						CARD						
			UNDERGRADUATES								MASTER CANDIDATES		DOCTORATE CANDIDATES		July 1976-June 1977												
			Junior Year				Senior Year				Full-Time	Part-Time	Full-Time	Part-Time	Bachelor	Master	Doctorate										
			Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time								25	26	27		28	29	30			
1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	79	80
	Health Physics, Radiation Health, or Radiation Protection	10																									
	Radiobiology or Biophysics	20																									
	Medical Radiation Physics or Radiological Physics	30																									
	Engineering or Basic Sciences, Health Physics Option	40																									
	Other (Specify)	5																									
TOTAL																											
• Please break out the following from the totals reported above.																											
	Foreign	Male	60																								
	Nationals	Female	6A																								
	White, U.S. Citizens	Male	70																								
		Female	7A																								
	Blacks, U.S. Citizens	Male	72																								
		Female	7B																								
	Spanish-surnamed, U.S. Citizens	Male	73																								
		Female	7C																								
	Asian Americans, U.S. Citizens	Male	74																								
		Female	7D																								
	American Indians, U.S. Citizens	Male	75																								
		Female	7E																								

Data supplied above may be published in listings by individual institutions.

Authorized Signature Date

Remarks:

APPENDIX C (Continued)

**U.S. Energy Research and Development Administration
Office of University Programs
Washington, D.C. 20545**

**Radiation Health and Radiation Safety (Health Physics)
Enrollment and Degree Survey**

INSTRUCTIONS FOR COMPLETING FORM ERDA 617

This survey is conducted by the U.S. Energy Research and Development Administration as part of its continuing effort to assure itself and its contractors a supply of well prepared experts in the nuclear field. With this questionnaire we hope to determine, by degree level, the yearly supply and anticipated supply of those trained in health physics, radiation health or safety, radiological health, or similar programs, who would be qualified to be responsible for some major phase of a program for the evaluation and control of radiation hazards.

PLEASE READ THE FOLLOWING INSTRUCTIONS BEFORE FILLING OUT THE QUESTIONNAIRE:

- Instr. a. **Curriculum.** Using a separate line for each major program, report only curricula which prepare students to participate in conducting, coordinating, directing, or planning a program for the evaluation and control of radiation hazards for an installation, community, or state agency.
Combine very small specialties with related major areas.
- Instr. b. Report only students enrolled definitely as candidates for a degree. Report co-op students* as being enrolled full-time. If exact figures are not available, please give best estimate and indicate by "E" after the estimated number.
- Instr. c. **Pre-Doctoral Degree.** Enrollments for professional degrees beyond the bachelor's are to be included with master's degree enrollments to simplify this report. Also see Instr. d.
- Instr. d. **Doctoral Programs.** Report only enrollments specifically leading to a doctorate. If ultimate degree is uncertain, report as master candidates.
- Instr. e. **Women, Minorities, Foreign Students.** Requests for information about women and minorities are numerous. The number of foreign nationals is important to predicting manpower supplies. Therefore, please provide as accurate a breakout as possible. Blanks will be treated as zeros.
- Instr. f. **Degrees Granted.** This number should also reflect those students with a health physics related option.

*For purposes of this survey, a co-op student is defined as one who alternates sessions of schooling with sessions of employment in a position related to his academic specialty.

RADIATION PROTECTION ENROLLMENT AND DEGREE SURVEY—SUPPLEMENT

Reporting Institution _____

Date _____

Please indicate placement or plans of degree recipients for July 1976-June 1977 reported on ERDA Form 617

NOTE: "Graduates Returning to previously held jobs" and "Foreign Nationals" should also be included in "Total Graduates."

PLACEMENT OR PLANS AFTER GRADUATION	BACHELORS			MASTERS			DOCTORATES		
	Total Graduates	Graduates Returning to Previously Held Jobs	Foreign Nationals	Total Graduates	Graduates Returning to Previously Held Jobs	Foreign Nationals	Total Graduates	Graduates Returning to Previously Held Jobs	Foreign Nationals
Further study									
U.S. Academic employment (show students employed part time under further study)									
Federal Government employment									
ERDA-owned, Contractor- operated installations employment (GOCO's)									
State and Local Government employment									
Medical Facilities (Including Teaching Hospitals) Employment									
Industrial employment within U.S.									
Employment with foreign employer									
U.S. Military service									
Other (specify)									
Still seeking employment									
Unknown									