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NEED FOR PROCESS/RADIOCHEMISTS AT NUCLEAR POWER PLANTS

(Viewgraphs to be presented at the 1984 ACS Annual Meeting in Philadelphia)

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CONCLUSIONS FROM RADIOCHEMISTRY / PROCESS CHEMISTRY SURVEY AND DISCUSSIONS

1. A MODEST JOB MARKET DOES EXIST FOR RADIOCHEMISTS/ PROCESS CHEMISTS AT NUCLEAR POWER PLANTS.

2. THE NUMBER OF GRADUATES IN RADIOCHEMISTRY IS UNLIKELY TO MEET THE DEMAND.

3. THE COLLEGE COURSES AVAILABLE DO NOT COVER THE PERCEIVED TRAINING NEEDS.

4. THE PERCEIVED NEEDS BY SOME POWER PLANT OPERATORS ARE NOT NECESSARILY THE REAL NEEDS.

5. THE SHORTAGE OF RADIOCHEMISTS / PROCESS CHEMISTS APPEARS CERTAIN TO INCREASE.

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NEED FOR PROCESS / RADIOCHEMISTS AT NUCLEAR POWER PLANTS

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RECOGNITION OF THE GROWING SHORTAGE OF CHEMISTS IN NUCLEAR FIELDS

1979 REPORT OF AD HOC COMMITTEE OF ACS DIVISION OF NUCLEAR CHEMISTRY AND TECHNOLOGY ON STATUS OF TRAINING OF NUCLEAR AND RADIOCHEMISTS

1979 ACS PANEL DISCUSSION ON DECLINE OF STUDENT ENROLLMENT AND DECREASED FUNDING IN NUCLEAR AND RADIOCHEMISTRY

1979 LETTER FROM CHAIRMAN OF ACS DNCT TO DOE REQUESTING CREATION OF NUCLEAR AND RADIO–CHEMISTRY BRANCH OF DIVISION OF CHEMICAL SCIENCES IN OFFICE OF BASIC ENERGY SCIENCES

RECOGNITION OF THE GROWING SHORTAGE OF CHEMISTS IN NUCLEAR FIELDS (Continued)

1983 PRESENTATION TO COMMITTEE ON NUCLEAR AND RADIOCHEMISTRY OF NATIONAL ACADEMY OF SCIENCES ON MANPOWER AND TRAINING NEEDS FOR RADIO–CHEMISTRY STAFF AND THEIR RELATIONSHIP TO HEALTH PHYSICS

1983 PRESENTATION TO COMMITTEE ON NUCLEAR AND RADIOCHEMISTRY OF NAS ON RADIOCHEMISTRY SURVEY OF U.S. NUCLEAR POWER PLANTS

1983 BRIEFING PRESENTED BY CHAIRMAN OF COMMITTEE ON NUCLEAR AND RADIOCHEMISTRY TO BOARD ON CHEMICAL SCIENCES AND TECHNOLOGY OF NATIONAL ACADEMY OF SCIENCES ON STATUS OF NUCLEAR AND RADIOCHEMISTS

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DEFICIENCIES IN PERFORMING RADIOCHEMISTRY/PROCESS CHEMISTRY OPERATIONS AT NUCLEAR POWER PLANTS

- TOO MUCH RELIANCE ON ANALYTICAL "PACKAGES"
- LACK OF ABILITY TO INTERPRET RESULTS OF ANALYSES
- FAILURE TO GATHER AND INTERPRET TREND INFORMATION
- LACK OF UNDERSTANDING OF CHEMICAL PROCESSES USED AT PLANTS
- LACK OF UNDERSTANDING OF "WATER CHEMISTRY"
- LACK OF KNOWLEDGE OF LONG–TERM CORROSION

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RADIOCHEMISTRY AT NUCLEAR POWER PLANTS

(46 Replies out of 106 letters)

ORGANIZATIONAL STRUCTURE	%
RADIOCHEMISTRY IS SEPARATE FROM HEALTH PHYSICS	72
RADIOCHEMISTRY AND HEALTH PHYSICS ARE COMBINED	24
RADIOCHEMISTRY IS A FUNCTION UNDER HEALTH PHYSICS	4

LEVEL OF TRAINING	%
Ph. D.	7
M.S.	9
B. S.	39
On–The–Job–Training	17
Special Training (short courses, etc.)	21
"Other"	7

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AREAS OF GREATEST INTEREST TO NUCLEAR POWER PLANT OPERATORS (16 Replies out of 50 Letters)

	YES	NO	MAYBE
INTEREST IN PERSON WITH POWER PLANT CHEMISTRY AND RADIOCHEMISTRY	15	1	0
FAVOR AND SUPPORT FOR COOPERATIVE PROGRAM BETWEEN POWER PLANT AND QUALIFIED UNIVERSITY	10	3	3
INTEREST IN B. S. CHEMISTRY MAJOR WITH COURSE IN NUCLEAR POWER PLANT CHEMISTRY AND RADIOCHEMISTRY PLUS SUMMER INTERNSHIP AT POWER PLANT	10	2	2

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AREAS OF CHEMISTRY TRAINING IMPORTANT TO NUCLEAR POWER PLANT OPERATORS
(16 Replies Out of 50 Letters)

	RATING SCALE 5/4/3/2/1
RADIOCHEMISTRY AS IT APPLIES TO INSTRUMENTATION AND TECHNIQUES	7/2/6/1/0
ELECTROCHEMISTY AS IT APPLIES TO CORROSION CONTROL	4/4/1/6/1
ENVIRONMENTAL CHEMISTRY APPLIED TO PATHWAY MONITORING AND MODELING OF F.P.s, ACTINIDES, ETC.	1/4/6/2/3
SURFACE AND COLLOID CHEMISTRY APPLIED TO DECONTAMINATION OF SURFACES	1/5/5/3/2
SEPARATIONS CHEMISTRY (E.G., ION EXCHANGE AND SORPTION, APPLIED TO WASTE CLEANUP AND DISPOSAL, MAINTENANCE OF PRIMARY COOLING SYSTEM, ETC.)	6/5/3/1/1
RADIATION CHEMISTRY AS IT RELATES, FOR EXAMPLE, TO THE PRIMARY COOLING SYSTEM	5/6/2/2/0

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RECOGNIZED OPPORTUNITIES FOR EMPLOYING CHEMISTS AT NUCLEAR POWER PLANTS

OPPORTUNITIES	EMPLOYMENT
NUMBER OF CHEMISTS IN NUCLEAR–RELATED ACTIVITIES (1983)	∿3200
NUMBER OF CHEMISTS AT NUCLEAR POWER REACTORS (1983)	∿220
NUMBER OF OPENINGS FOR CHEMISTS AT NUCLEAR POWER REACTORS (1983)	∿27
APPROXIMATELY 40 NUCLEAR POWER REACTORS ARE "IN THE PIPELINE"	?

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TRAINING OFFERED IN RADIOCHEMISTRY*
(15 Replies Out of 30 Letters)

	NO. PER YEAR
B. S. DEGREE WITH EMPHASIS IN RADIOCHEMISTRY	2
M.S. DEGREE WITH EMPHASIS IN RADIOCHEMISTRY	1
Ph.D. WITH EMPHASIS IN RADIOCHEMISTRY	0.8
SHORT COURSE FOR PROFESSIONALS	7
SHORT COURSE FOR TECHNICIANS	25

* EXCLUSIVE OF SAN DIEGO STATE UNIVERSITY

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RADIOCHEMISTRY TRAINING AT SAN DIEGO STATE UNIVERSITY OVER THE LAST TEN YEARS

DEGREE	NUMBER
B.S.	100
M.S.	10
Ph.D.	1