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ANALYSIS OF RADIATION PROTECTION TRENDS IN THE NUCLEAR POWER INDUSTRY

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Principal Investigator:

Project Manager:

Ralph Andersen
Nuclear Energy Institute
1776 Eye Street, NR
Suite 300
Washington, DC 20006-3708
U.S.A.
Phone: (202) 739-8111

Objectives: To examine the trends in radiation protection in the nuclear power industry over a ten year period.

Some of the main points that emerged from this study were:

1. The average dose per year per reactor has fallen in the United States from a high of 700 person-rem in 1984 to 198 person rem in 1994.
2. The average annual dose per worker has fallen from 0.61 rem in 1984 to 0.31 rem in 1994.
3. The number of workers per year who received doses greater than 2 rem has come down from 8,000 in 1984 to less than 1,000 in 1994.

Comments: Higher dose workers were looked at from various perspectives:

1. By Group: Mechanical maintainers 40%; SG maintainers 24%; Insulators 5%; Health Physicists 4%; Refuelers 4%; Carpenters 3%; Others 20%.
2. By Employer: Non Utility workers 93%; Utility workers 7%. 3. By age: 18-30 years 31%; 31-40 yrs 42%; 41-50 yrs 20%; 51-60 yrs 7%.

Those workers with lifetime dose greater than age were examined:

1. By Group: Mechanical maintainers 40%; Refuelers 16%; Management and supervisors 10%; Health physicists 9%; Welders 7%; In-service inspectors 3%; Others 15%.
2. By Employer: Utility 50%; Non-utility 50%. 3. By age: 27-40 yrs 40%; 41-50 yrs 43%; 51-60 yrs 13%; Over 60 yrs 4%.

Workers with annual dose > 1 rem and lifetime dose > age were also examined. Non-utility workers comprised 86% of this group.

Remarks: The main high dose jobs at PWRS were:

Steam generator maintenance, in-service inspection, refueling, RX head work, Primary system valve maintenance, RX coolant pump maintenance, Radwaste processing and handling.

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The main high dose jobs at BWRS were:

In-service inspection, Control rod drive maintenance, Primary system valve maintenance, refueling, RX head work, Recirculation pump maintenance, snubber inspection and repair, and under vessel instrumentation and control work.

References: Andersen, R., "Radiation Protection Industry Perspective," Proceedings, EPRI Radiation Field Control and Chemical Decontamination Seminar, Tampa, Florida, November 6, 1995, available from Electric Power Research Institute, EPRI Distribution Center, P.O. Box 23205, Pleasant Hill, CA 94523.

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