

N57. DOSES decreasing AT ONTARIO HYDRO

Ontario Hydro has had a major nuclear power program since 1962. The program is based on the CANDU PHWR, developed at Atomic Energy of Canada, Limited, and currently supplies over 50% of the electrical energy consumed in Ontario. Dose performance has improved as the program has developed. There has been a significant decrease in collective dose in the newer facilities, with Pickering B superior to Pickering A; Bruce B superior to Bruce A; and Bruce A better than Pickering A. This improvement is primarily because of close cooperation between operators and designers in using operating experience from older plants to improve the design at new plants. Some improvements in plant design include material selection and control; system chemical control; fission product control; component elimination; improved reliability and maintainability; and plant layout optimization.

Distribution of annual individual dose
for Ontario Hydro employees, 1985 and 1989

Year	Number of employees in dose interval					
	>0-1 mSv	>10-2 mSv	>20- mSv	>30- mSv	>40- mSv	>50 mSv
1,985	2,106	268	71	10	1	0

The collective dose at individual plants has not increased continuously with time, even though radiological hazards and maintenance requirements have increased. This trend is a measure of the effectiveness of operational improvements made by the facility operators. Such improvements made at Ontario Hydro's facilities include:

- Using system decontamination techniques, including full-scale decontamination.
- Improving work planning.
- Making extensive use of mock-ups for training before executing work.
- Using remote tooling.
- Reducing tritium exposures through use of higher capacity air driers, increased ventilation capacity, leak reduction from components, and improved collection systems.

For more, see Armitage, G., "Doses coming down at Ontario Hydro," Nuclear Engineering International, pp. 50-52, November 1990.