

REFLECTOR AND SHIELDING

61. Reflector	20900 kg (46049 lb) of D ₂ O, thickness at center 55 cm (21.6 in.), at ends 14 cm (5.6 in.) 45300 kg (100000 lb) of H ₂ O, thickness 33 cm (13 in.)	63. Shielding	214 cm (7 ft) of Ilmenite concrete (density 3.5), cooled by banks of H ₂ O cooling pipes, max. temperature: 54.5° C (130° F)
62. Radiation levels	Boiler room (shut-down) ≤ 7 mrem/hr Turbine room (operating) ≤ 1 mrem/hr		

CONTAINMENT

64. Type and material	The reactor is located below ground level in a 7 ft thick concrete vault (see No. 55 and 63) which will withstand 0.7 kg/cm ² (10 psig) internal pressure. A spray system in the area condenses any accidental steam release at its source	65. Surroundings	Scrub forest sparsely populated area on the Ontario side of the Ottawa river, 16 miles upstream of Chalk River; max. population density at a radius of 2.5 miles: 38 per square mile
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TURBO - GENERATOR

66. Turbine	1 impulse-condensing single cylinder with separators Max. capacity 22000 kW Nominal capacity 20000 kW	67. Generator	1 totally enclosed unit 25882 kVA, 3 phase, 13.8 kV, power factor 0.85, 60 cycles/sec
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COST ESTIMATE

68. Total capital investment in reactor plant	Not available	70. Load factor and production /yr	Load factor 80 % 154000 MWh/year
		71. Plant life and interest rate	Expected lifetime of demonstration reactor: 10 years
		72. Total production costs	Not available
69. Cost per kw installed	Not available		

STAFF

5 shifts of 6 men (1 shift engineer in each) 30 Supervisory and technical personnel 10 Maintenance and technical staff 19 Clerical staff 4	Total staff 63
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REMARKS

The name of the reactor has been changed from NPD-2 to simply NPD. The NPD reactor is a demonstration power project of small size; therefore, it is felt that information on capital and production costs has no meaning

BIBLIOGRAPHY

- 1) Canadian General Electric Co. Ltd., Civilian Atomic Power Department, "NPD, Design Description: Canada's First Nuclear Power Station" (September 1958)
- 2) Geneva Paper P/209 (1958)
- 3) AECL 990