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SUMMARY OF NATIONAL DOSIMETRIC TRENDS

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The dosimetric trend at the Korean NPPs shows continuous reduction in collective dose and this trend is expected to be continued by the view of the KHNP (Korea Hydro & Nuclear Power Corporation) head office who are currently implementing the second “ten-year dose reduction plan” to improve radiation protection programs in NPPs.

For the year of 2001, 16 NPPs were in operation; 12 PWR units and 4 CANDU units. A new PWR, Yonggwang Unit 5 had done the test operation in 2001. The average collective dose per unit for the year 2001 was 0.67 man-Sv dropping from 0.71 man-Sv in 2000, 0.85 man-Sv in 1999.

As in previous years, the outages of units in 2001 contribute the major part to the collective dose, 79.7% of the collective dose was due to works carried out during the outages. Average annual collective doses of both reactor types for 5 years and average annual collective doses per unit in 2001 are shown in the following tables:

Average annual collective doses for 5 years (man-Sv)

Year	1997	1998	1999	2000	2001
PWR (number of reactors)	0.88 (10)	1.04 (11)	0.84 (11)	0.77 (12)	0.67 (12)
CANDU (number of reactors)	0.62 (2)	1.01 (3)	0.85 (4)	0.55 (4)	0.67 (4)

Average annual collective and individual doses per unit for the year of 2001 (man-Sv)

NPP	Type	Outage Duration (days)	Collective Doses (man-Sv)	Average Individual Doses (mSv)
Kori 1	PWR	27	0.69	1.03
Kori 2	PWR	47	0.74	1.03
Kori 3	PWR	37	1.06	1.57
Kori 4	PWR	35	1.30	1.57
Yonggwang 1	PWR	-	0.04	0.95
Yonggwang 2	PWR	45	1.20	0.95
Yonggwang 3	PWR	-	0.08	0.44
Yonggwang 4	PWR	57	0.47	0.44
Ulchin 1	PWR	29	0.93	1.52
Ulchin 2	PWR	34	1.00	1.52
Ulchin 3	PWR	31	0.28	0.43
Ulchin 4	PWR	37	0.27	0.43
Wolsong 1	CANDU	67	1.44	1.44
Wolsong 2	CANDU	-	0.28	1.44
Wolsong 3	CANDU	44	0.65	0.86
Wolsong 4	CANDU	28	0.30	0.86

Events influencing dosimetric trends

The second “ten-year dose reduction plan” started in 2001 and financial support has been provided for the target NPPs. Accordingly, several areas of system such as SG, RCP, CRUD reduction, in-service inspections and spent fuel transfer to the dry storage have been improved. Additionally, implementation of the optimization principle has been emphasized and its result was being evaluated by the KHNP head office. The adaptation of several industry Good Practices: quick installation of shielding during outages; continuous monitoring of RHR piping during oxygenation process to identify the optimum dose rates; upgrading of the ADR system; regular ALARA Sub-Committee meetings; has recognized as good achievement.

Plans for major work in the coming year

The second “ten-year dose reduction plan” including the financial support will be continued until the year of 2010. The plan, which has been approved by the president of KHNP, includes detailed information on the scope of improvement as well as financial support. According to the plan, the average collective dose in target NPPs will be saved by a factor of 0.15 man Sv per reactor.