

Views Regarding Upcoming Changes in Dose and Dose-Rate Effectiveness Factor (DDREF) at Low Dose

Impact on radiological protection in
Japanese nuclear power plants
due to the change of DDREF

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Introduction

- We believe that discussions of DDREF should proceed with careful consideration of the situation, and for that reason, we would like to introduce our views for the ICRP.
- In many countries, for example in Japan, many workers are employed in periodic inspections across multiple plants.
- Even if the exposure level is managed at 5mSv in a single plant, there is a possibility that the worker may exceed an annual exposure of 20mSv due to working at multiple plants throughout the year.

Background

Dose Distribution of Workers by Number of Work Sites {FY 2010}

Number of Work sites

Dose(mSv)

Total number of workers (%)

	年間関係事業所数	1	2	3	4	5	6以上	計 人 (%)
年間線量 (mSv)								
Dose ≤ 5	5以下	56,446	10,659	2,983	925	285	138	71,436 (91.9)
5 < Dose ≤ 10	5を超え10以下	1,669	1,225	539	197	63	14	3,707 (4.8)
10 < Dose ≤ 15	10を超え15以下	682	580	298	119	42	11	1,732 (2.2)
15 < dose ≤ 20	15を超え20以下	336	262	144	53	15	5	815 (1.0)
20 < dose ≤ 25	20を超え25以下	0	1	0	0	0	0	1 (0.0)
25 < dose ≤ 30	25を超え30以下	0	0	0	0	0	0	0 (0.0)
30 < dose ≤ 40	30を超え40以下	0	0	0	0	0	0	0 (0.0)
40 < dose ≤ 50	40を超え50以下	0	0	0	0	0	0	0 (0.0)
50 < dose	50を超える	0	0	0	0	0	0	0 (0.0)
Total number of workers (%)	合計人数 (%)	59,133 (76.1)	12,727 (16.4)	3,964 (5.1)	1,294 (1.7)	405 (0.5)	168 (0.2)	77,691 (100.0)
Mean dose	平均線量 (mSv)	0.8	2.3	3.3	3.9	3.9	2.8	1.2

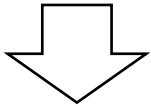
Number (percentage) of workers exposed to more than 10 mSv was 2548 (3.2% of the total).

Source: Radiation Dose Statistics for Nuclear Workers



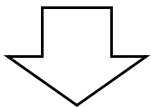
Background

ICRP Recommendation

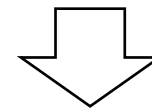


Dose Limit
In Regulations of each country

100mSv per five years(average 20mSv a year)
→ half of the dose limit



On-site management



- It will be difficult for some people to work NPP.
- Workers may feel anxious.



- If the DDREF changes from 2 to 1, it is expected that Japanese laws will become stricter, reducing the recommended annual exposure from 20mSv to 10mSv.
- In this case, some number of workers would be difficult to work, which might have impact on the industry.



Conclusion

- We would like to resist the change in DDREF due to insufficient scientific evidence.
- We would like the ICRP to feel connected to the impact of the recommendation.

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