

J. P. Newell, Chief
Environmental & Radiation Safety Tech. Br., DRL

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Robert L. Waterfield
Environmental & Radiation Safety Tech. Br., DRL

BASIS OF INDIAN POINT #2 SITE EVALUATION AS
APPLIED TO #3, DOCKET 50-286

E&RSTB:DRL:RLW RT-228

The pertinent assumptions regarding fission product availability and performance of engineering safety features are as follows:

1. 25% of iodine inventory available for leakage
2. Leak rate 0.1% per day initially
3. 5% of iodine in containment is organic
4. Building wake effect

With these assumptions, the 2 hour dose will be 300 rem at the site boundary for the following combinations of safeguard performance (any of which produce a removal rate of 1.675 per hour):

<u>Fan Units Operating</u>	<u>Efficiency</u>	<u>Removal rate/hr @ 90%</u>
2	56%	2.70
3	37%	4.05
4	28%	5.40
5	22%	6.35

Using the same assumptions, the 30-day dose at 1100 meters (less than the low population distance which could have been utilized) has the following dependence on safeguard performance:

<u>Fan Units Operating</u>	<u>Efficiency</u>
2	80%
3	53%
4	40%
5	32%

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In all cases, no credit was taken for the spray system. Without any removal, the stated doses for 2 hours and 30 days are 870 and 3250 rem, respectively.

With 20% of the containment iodine as methyl, a removal rate of 3.78 per hour is required. This can be achieved with 4 fan units at 84% efficiency, or 5 units at 67% efficiency, so the dose criteria could be met. However, for the 30-day dose, the dose criteria cannot be met at 1100 meters for more than 9.2% organic iodine present.

We feel that 1.25 miles, or 2000 meters could possibly be considered as a low population distance. The 30-day dose at this distance, without iodine removal, is approximately 1200 rem, which can readily be reduced to the guideline value when with 20% organic present. However, our public hazards analysis stated the low population distance is 0.87 miles or about 1400 meters. The 30-day dose at this distance without iodine removal is approximately 2150 rem. Reduction to 300 rem from this value is not possible if more than 14% organic iodine is present.

From this, it appears that it will be very difficult to approve this reactor with 20% organic iodine in the containment, although it will require more dependence on the filters than we usually allow. There is also the lack of a backup system to evaluate (no sprays).

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