July 27, 1974

The Honorable Dixy Lee Ray
Chairman
The Atomic Energy Commission
Washington, D.C. 20545

Dear Chairman Ray:

Your attention is called to matters relating to overexposures suffered by workers at the Indian Point I and Ginna plants. In the Indian Point case, the corrective action proposed by Consolidated Edison and accepted by the AEC is clearly inadequate in preventing future overexposures. In both cases, the AEC's lack of guidance in establishing worker control standards is at least partly responsible for the overexposures.

Indian Point overexposures:

The Indian Point cases involve eight individuals who were allowed to exceed their quarterly dose limits, over the period November 1972 to December 1973. Two cases involved 18 year olds who were overexposed before their ages were discovered. Uncertainty pervades the remaining overexposures. In each of the six cases, dose by film badge was greater than 3 rem, but dose by dosimeter was less than 3 rem.

In the worst case, the film badge dose was nearly four times that of the corresponding dosimeter value (2290 mrem vs. 575 mrem, during September 1973; reported by letter from Con Edison to Directorate of Regulatory Operations (DRO) on November 23, 1973). The only mention Con Edison makes of any efforts to resolve the film-dosimeter discrepancy appears in the November 23 letter. The company assures DRO that Con Edison is "accelerating our investigation" of the discrepancy. Apparently the acceleration has not been rapid enough to provide answers at this time.

The company's proposed corrective action for the discrepancies is to require workers to wear thermoluminescent dosimeters (TLD's) as a measuring device. But the company has not determined the causes of the film-dosimeter differences. Nor has it evaluated relative accuracies of the two methods when a difference occurs. The company in fact has provided no public evidence that it is investigating either problem. To use the TLD's without answers to these problems is merely to add a third potential discrepancy.

Question (1): Con Edison's public files are silent on its efforts to resolve the film-dosimeter discrepancies. Has the company kept the AEC informed of its efforts to solve these problems? Has the AEC required the company to adequately inform the AEC of the company's efforts?

Ginna overexposures:

Additional problems have occurred at the R.E. Ginna plant. In a letter to DRO dated March 25, 1974, Rochester Gas and Electric (RGE) reported that 40 men had received film badge doses of 3 rem or greater in a quarter, while the dosimeter doses for the same men were all less than 2500 mrem. In four cases, the dose by film badge was greater than 5 rem.

RGE felt that the discrepancies were due to improper supervision of workers - all 40 men were employed by an outside contractor for maintenance on the spent fuel pit. As corrective action, Ginna now requires that any contractor personnel be closely supervised by RGE personnel. RGE was apparently unaware of the Indian Point problems, and believed that worker control would eliminate the Ginna problem. In light of similar occurences at two plants, however, the possibility of a generic discrepancy cannot be dismissed.

Question (2): Are the Indian Point and Ginna cases isolated incidents, or does a generic film-dosimeter discrepancy exist? If a generic problem does exist, what action has the AEC initiated to solve it?

Inadequacy of Con Edison corrective action:

As further corrective action for its overexposures, Con Edison has established a limit of 2 rem, after which a worker is excluded from radiation work for the remainder of the quarter. This limit is supposed to prevent the worker from receiving a dose by film badge which might be greater than 3 rem per quarter.

However, in four out of the six cases involving greater than 3 rem exposure, this limit would not have prevented the excessive doses. Consider the following cases:

1. An overdose during April 1973 was reported by a Con Edison letter to DRO on June 18, 1973. The individual received 1980 mrem by dosimeter during April 5 and 11. When his film badges for those days were developed several days later, they gave an exposure of 3080 mrem.

2. An overdose during August 1973 was reported by a Con Edison letter to DRO on September 14, 1973. An individual who had no previous exposure for the quarter entered a high radiation area wearing an 0-2000 mrem dosimeter. He left the area after noticing the dosimeter was off scale. His film badge when developed read 3210 mrem.

3. An overdose during September 1973 was reported by a Con Edison letter to DRO on November 23, 1973. An individual's exposure during July and August 1973 was 925 mrem by dosimeter and 1420 mrem by film. His dose by dosimeter for September was 575 mrem; when added to the film dose for the previous two months, this would have given 1995 mrem total exposure. When the September film badge was developed later, it gave an exposure of 2290 mrem for a total of 3710 mrem.

4. An overdose during October 1973 was reported by a Con Edison letter to DRO on December 13, 1973. The individual's exposure earlier in the month was 1050 mrem by dosimeter and 1030 mrem by film. His next dosimeter reading was 925 mrem, for a total of 1975 mrem. When the film badge was developed it read 2700 mrem for a total of 3730 mrem for the quarter.

Clearly, in none of these four cases would the 2 rem limit have prevented overexposure by film. It is hard to believe that the AEC would have accepted Con Edison's proposed corrective action, had the agency been completely aware of the inadequacies, as it should have been. But the Regional reply to Con Edison's proposed action was little more than an acknowledgment (Region I letter to Con Edison, May 16, 1974).

Question (3): Was the AEC aware of this case by case inadequacy in the company's corrective action? If the AEC was not aware of the inadequacy, why was it overlooked? If the AEC was aware of the inadequacy, why did it accept the company's action?

Consolidated Edison's program seems more inadequate when compared even to RGE's program to control radiation exposures. At Ginna, the following controls were in effect prior to the overexposures:

1. RGE personnel were assigned to zero the dosimeters of contractor personnel.
2. Daily dosimeter lists were maintained.
3. Men were restricted from radiation work when the dosimeter dose reached 1920 mrem in a quarter. When a 1.3 factor is applied for possible film dose differences, this gives 2500 mrem adjusted exposure.
4. A daily dose list with the 1.3 factor was prepared in order to restrict men below the 2500 mrem level. Authorization in writing was required for any man to exceed 2500 mrem adjusted.

The Con Edison corrective action is thus less effective than the RGE program in effect before the Ginna overexposures. Since RGE's program was insufficient to prevent overexposure, it is even more puzzling that the AEC accepted Con Edison's corrective action without comment.

Question (4): Regulatory Guides 8.8 and 8.10 give no more than general guidelines for limiting radiation exposures. Other than these Guides, does the AEC have any standards or requirements for nuclear plant programs to control worker exposure?

Necessary AEC action:

It is not unexpected that different nuclear plants have different technical specifications, in light of the present non-standardization of plant systems. It is more inexplicable that an apparent hodge-podge of worker control programs exists in different plants. The AEC should review and standardize each plant's instructions for preventing overexposures. Such action will result in advancing the health of nuclear workers.

The Code of Federal Regulations, 10 CFR 20.601, provides for civil penalties in the case of radiation overexposures. The Consolidated Edison overexposures involve recurring incidents for over a year. The company has taken no discernible action to resolve the film-dosimeter discrepancies which contributed to the incidents. In a show or callous negligence, the company has established corrective action which if applied to previous cases would have been insufficient to prevent overexposures. For these reasons, it is urged that the AEC demonstrate its concern for worker safety by invoking these regulations.

Sincerely,

RNader

Ralph Nader