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March 25, 1974

Mr. Donald F. Knuth
Director of Regulatory Operations
U. S. Atomic Energy Commission
Washington, D. C. 20545

Subject: Radiation Exposure
R. E. Ginna Nuclear Power Plant, Unit No. 1
Docket No. 50-244

Dear Mr. Knuth:

This letter is being submitted pursuant to 10 CFR 20.405 to report the exposure of forty (40) individuals to radiation doses in excess of 3 Rem in one quarter. Previous reports concerning four of these individuals who received greater than 5 Rem in one quarter have been sent to Mr. James P. O'Reilly, Director of Region I Regulatory Office. All individuals have been notified as required by 10 CFR 20.409b. The exposures received were as follows:

29 men - 3000 to 4000 mRem
7 men - 4000 to 5000 mRem
3 men - 5000 to 6000 mRem
1 man - 6100 mRem

All men were employed by Nuclear Installation Services Company (NISCO), a contractor hired to repair leaks in the spent fuel pit liner. The work had been in progress since November 1973 and involved cleaning, grinding, welding and dye checking the liner and liner welds. The dose rate in the work areas varied from a few mR/hr. at the top of the spent fuel pit to 4 R/hr on contact with the spent fuel pit wall in some locations. Radiation surveys of the entire area were made regularly, survey maps posted and all who worked in the spent fuel pit were informed concerning the high radiation areas. The high radiation areas were shielded by using lead sheets to reduce the doses received by the workmen. When not actively working, the men were instructed to enter a lead shielded bucket or to leave the radiation area.

The following procedures were established and carried out to instruct the men involved in this work and to monitor, record and control their radiation exposure:

1. All personnel who worked on the spent fuel pit job were given a one-hour lecture in Health Physics practices, procedures and hazards. This lecture included the use of radiation monitoring equipment, protective clothing and breathing protection, the effects of contamination

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or radiation and radiation dose limits. AEC Form 4's were obtained so that the allowable radiation dose could be calculated for each individual.

2. Rochester Gas and Electric Corporation (RG&E) staff personnel were assigned to zero the dosimeters and to read and record the exposures of the workmen.
3. Daily dosimeter records showing the accumulated radiation dose for each individual were maintained.
4. A procedure was established that a man would be restricted from entry into controlled areas when his accumulated radiation dose measured by dosimeter exceeded 1920 mRem. The 1920 mRem value multiplied by a factor of 1.3 results in an adjusted level of 2500 mRem, which is 500 mRem below the quarterly dose limit of 3000 mRem. The 1.3 factor is applied as a conservation correlation ratio between dosimeter and film badge readings; the 500 mRem value is used to allow for statistical variations between dosimeter and film badge readings.
5. Daily cumulative dosimeter radiation exposure dose lists, adjusted by the 1.3 factor, were prepared before each shift reported to work and provided the contractor supervisors in order to restrict these men recording over 2500 mRem.

An investigation was conducted by RG&E to determine why these men received radiation exposures exceeding 3 Rem and the findings were as follows:

1. The total adjusted cumulative radiation exposure doses from dosimeter readings for 38 of the 40 men were all under 3000 mRem. The other two men received 3133 mRem and 3245 mRem adjusted dosimeter readings (actual readings were 2410 and 2495 mRem respectively). These men had been permitted to work in the spent fuel pit for some period of time after their adjusted accumulated radiation dose records indicated that they had exceeded the established 2500 mRem limit.
2. With three exceptions, all of the 40 men with film badge dose levels greater than 3000 mRem worked only during the last three weeks of the job (January 15 to February 5, 1974). The other 137 NISCO employees working on the spent fuel pit during November, December and January received less than 3 Rem level.
3. During November and December 1973, the work was conducted on a one-shift basis and a check station was set up in a room adjacent to the spent fuel room and RG&E employees checked the dosimeters as the men left the working area. During January 1974, because of a decision to refuel earlier than expected, it became necessary to complete as soon as possible the repairs to the spent fuel pit. The work schedule was increased to two-shifts, including weekends with considerable overtime. It is significant that in January a separate check

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station for issuing and reading dosimeters for this particular job was set up in the Health Physics spaces which provided monitoring control but not the degree of visual surveillance and direct control of the workmen as the men entered and departed the spent fuel pit room entrance.

4. No other changes were made in the radiation monitoring procedures, the dosimeter and film badge equipment, the contractor employed to read film badges and other factors that could have resulted in unanticipated discrepancies between film badge and dosimeter readings during the November 1973 - January 1974 period.

Since commencing operations in November 1969, only three Rochester Gas and Electric employees have received greater than 3 Rem per quarter and were reported as follows:

August 19, 1970	- 4.20 Rem
July 21, 1971	- 3.09 Rem
June 26, 1972	- 3.31 Rem

Because of these exposures, procedures were established to more closely monitor the cumulative dosimeter readings and apply the 1.3 adjustment factor and 500 mRem statistical variation factor to ensure that the dosimeter readings were conservative and the film badge readings would not exceed the allowable dose limits. In addition, one subcontractor employee was reported on May 31, 1972 to have had a potential exposure to higher than permissible dose level due to a face mask not functioning properly. Of the approximately 600 other RG&E and subcontractor personnel employed at Ginna Station during January 1974, there were no significant differences between cumulative adjusted dosimeter and film badge readings. No personnel, except the 40 NISCO personnel working in the spent fuel pit, received greater than 3 Rem/quarter, although other repairs were in progress in high radiation areas.

The conclusion reached from the investigation is that by not exercising direct and frequent visual supervision of contractor personnel working in high radiation areas, opportunities were allowed to exist where a workman could maintain his dosimeter readings lower than the dose levels recorded by his film badges, and thereby, be permitted to remain on the job for a longer period of time.

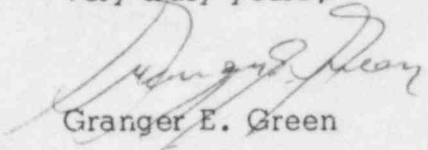
Corrective action has been taken to prevent recurrence by a policy of closely supervising contractor personnel with RG&E staff employees whenever work is in progress in high radiation areas.

Additional steps have been taken to reduce and control the radiation exposure levels of all personnel at Ginna Station. A letter to all on-site personnel reiterating the rules for wearing film badges and dosimeters has been sent to all Ginna Station Foremen. A revised outline of material to be covered

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in Health Physics training has been prepared to ensure that all items required by 10 CFR 19 are included and to stress the importance of the proper use of radiation dose measuring devices, the radiation dose records and the individual's responsibility to report any unsafe conditions or violations of procedures.

Very truly yours,



Granger E. Green

xc: Mr. James P. O'Reilly