

NIAGARA MOHAWK POWER CORPORATION

NIAGARA  MOHAWK300 ERIE BOULEVARD, WEST
SYRACUSE, N. Y. 13202

October 16, 1975

Director of Inspection and Enforcement
United States Nuclear Regulatory Commission
Washington, D.C. 20555

RE: Docket No. 50-220

Dear Sir:

This notification is sent to you in accordance with 10 CFR 20.405. A report of a technical over-exposure to concentration of radioactivity in excess of 10 CFR 20 limits follows.

One of the Nine Mile Point radiation protection technicians entered the reactor refueling cavity on 9/16/75 to make a preliminary survey of the reactor cavity "bellows" area. The technician performed a contamination and dose-rate survey and took an air sample during this entry. Upon exiting from the area, he found himself contaminated to a general level of 3000 to 4000 cpm on his hair and body. A nasal smear taken at this time showed ~50,000 dpm and a fixed contamination level of 40,000 cpm. After showering and undergoing nasal irrigation smearable activity was <100 cpm and fixed activity less than background at his nasal passages and his general body contamination level was approximately 500 cpm.

The technician was then sent to the whole body counter where he showed the following levels of activity on his first count taken 9/16/75 at 2100 hours.

| | |
|--------|----------|
| Co-60: | 4921 nCi |
| Mn-54 | 2187 nCi |

It was determined that whole body counting would continue to follow the Co-60 activity in order to determine if the man's activity level was due to external contamination or due to a lung uptake from being exposed to air concentrations above that allowed by 10 CFR 20.

Subsequent whole body counting data was as follows:

| <u>Date/Time</u> | <u>Isotope</u> | <u>Activity - nCi</u> | <u>%MPBB</u> |
|------------------|----------------|-----------------------|--------------|
| 9/17/75 0225 | Co-60 | 4091 | 372 |
| | Mn-54 | 1973 | 55 |

5 0862

May

| <u>Date/Time</u> | <u>Isotope</u> | <u>Activity - nCi</u> | <u>%MPBB</u> |
|------------------|----------------|-----------------------|--------------|
| 9/18/75 1710 | Co-60 | 912 | 83 |
| | Mn-54 | 453 | 16 |
| 9/20/75 0125 | Co-60 | 387 | 35 |
| | Mn-54 | 203 | 6 |
| 9/25/75 410 | Co-60 | 266 | 24 |
| | Mn-54 | 153 | 4 |
| | Cs-137 | 35 | < 1 |
| | I-131 | 34 | 5 |
| 10/3/75 1730 | Co-60 | 157 | 14 |
| | Cs-134 | 127 | < 1 |
| | Cs-137 | 129 | < 1 |
| | I-131 | 16 | 2 |
| 10/7/75 2140 | Co-60 | 155 | 14 |
| | Cs-134 | 130 | < 1 |
| | Cs-137 | 132 | < 1 |
| 10/14/75 1620 | Co-60 | 152 | 14 |
| | Cs-134 | 121 | < 1 |
| | Cs-137 | 124 | < 1 |

Based on the 10/14/75 whole body count and using ICRP Report #10 formula for Co-60 in oxide form for lung uptakes, it was determined that the man's lung uptake was 426 nCi. Therefore based on this data, it would appear that the technician had been exposed to airborne concentrations at or near 10 CFR 20 maximum occupational 40 hour MPC's (i.e. 432 nCi for Co-60).

Further investigation, however, shows the following:

1. The air sample collected by the technician during his survey of the "bellows" area show the air concentrations to be 9.3×10^{-6} uCi/cc for Co-60 and 2.2×10^{-6} uCi/cc for Mn-54 or a total of $1093 \times$ MPC.
2. The allowable exposure time without respiratory protection would be 2.2 minutes.
3. During an interview with the technician involved, he stated that he was in the area of the high airborne activity for a period of 4 minutes.
4. The technician was wearing a half-face mask with a particulate filter and charcoal cartridge but since these masks are not NIOSH approved (not approved for 99.9% removal based on DOP) we used a protection factor of 1 when using these masks.


Based on these facts, we have determined that it is likely that the technician of interest was involved in a technical over-exposure to 10 CFR 20 limits on 9/16/75.

We have made an estimate of the man's exposure (to the lung) from this incident and it would appear to be approximately 850 mrem.

We have initiated the following corrective actions to prevent a recurrence of this type of incident:

1. Review and change, if necessary, the Site Radiation Protection Operating Procedures to ensure that we use special procedures for making surveys of highly contaminated confined areas such as the cavity "bellows" area.
2. Review our respiratory protection program and evaluate the use of air purifying respirators.
3. Upgrade the training of the radiation protection technicians to better enable them to recognize the hazards of entering highly contaminated confined areas.

Very truly yours,


R.R. Schneider
Vice President -
Electric Operations

cc: I&E Region I

RAB/mm

THE
FEDERAL
BUREAU OF
INVESTIGATION
UNITED STATES
DEPARTMENT OF
JUSTICE
WASHINGTON, D. C.
20535

W. J. R. R.

Attachment to 10 CFR 20.405 Report for Nine Mile Point Unit #1 dated 10/15/75

License No. DPR-63
Docket No. 50-220

Name of Individual:
Social Security Number:
Date of Birth:
Estimate of Exposure:
to lung

John C. Coates
097-42-6193
February 6, 1949
850 mrem

