Metropolitan Edison Company
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Writer's Direct Dial Number

April 8, 1980
TLL 166

TMI Program Office
Attn: J. T. Collins, Deputy Manager
U. S. Nuclear Regulatory Commission
c/o Three Mile Island Nuclear Station
Middletown, Pa. 17057

Dear Sir:

Three Mile Island Nuclear Station, Unit II (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Reactor Building Entry

This letter is in response to your letter (NRC/TMI-80-048) dated March 25, 1980, and to request your further consideration and approval of the TMI-II reactor building entry on April 15, 1980. Prior to permission being granted for entry, your letter requested the Metropolitan Edison Company " . . . provide documentation to show that the containment atmosphere will sustain life in the event of a malfunction of the respiratory equipment. Present data suggest that there is an oxygen deficiency in the containment atmosphere. In addition, no data exists to preclude the existence of toxic contaminants in the building atmosphere (CO, O_3, and etc.)."

Our response is as follows: The Metropolitan Edison Company agrees to perform testing and provide data to the NRC concerning the results of experiments which will be performed to determine the presence of toxic contaminants in the Unit II reactor building atmosphere. Specifically, we will test for the presence of H_2S, O_3, CO_2 and CO. This information will be made available to the NRC upon completion of the testing to determine the concentration levels, if any, of the toxic contaminants.

The oxygen and hydrogen levels in the reactor building were tested again on April 3, 1980 using the Edmont Wilson Model 60-400 oxygen combustible gas monitor. Since the gas sample was drawn directly from the reactor building, using penetration 626 glove box, it is considered to be representative. The oxygen level was found to be approximately 13.1% and the hydrogen explosive gas level was found to be less than 1%. This result is in agreement with samples taken on 3/21/80 in the penetration and is in general agreement with earlier samples taken using HPR-227.

For work performed in hazardous atmosphere 29 CFR Part 1910 Occupational Safety and Health Standards and the NUREG 0041 Manual for Respiratory Protection Against Airborne Radioactive Materials govern. Metropolitan Edison Company complies with these regulations. In addition, all equipment used complies with NUREG 0041 Manual for Respiratory Protection Against Airborne Radioactive Materials, 29 CFR Part 1910 Occupational Safety and Health Standards and 30 CFR 11 Respiratory Protective

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Devices Test for Permissibility, Fees. Since the self-contained breathing apparatus being used for the initial entry into the Unit II reactor building is fully qualified by National Institute for Occupational Safety and Health and Mine Safety and Health Administration for use in oxygen deficient or toxic atmospheres and meets the requirements of the aforementioned regulations, we feel the NRC should permit Metropolitan Edison Company to enter the TMI-II reactor building as planned.

It is the intent of the tests to fully understand the atmosphere inside the reactor building prior to entry. The above regulations provide adequate protection for the industrial worker under the conditions that the containment atmosphere may not sustain life and the presence of a toxic or hazardous atmosphere should not be justification for denial of entry when proper safety precautions have been taken.

We feel the above information satisfies the NRC concerns with the TMI-II reactor building entry program. We request NRC approval for entry into the Unit II reactor building on April 15, 1980.

The Metropolitan Edison Company appreciates the additional concerns of the staff and responds to their additional recommendations included in the letter stated above as follows:

1. Recommendations:

   Sampling and analysis of the containment atmosphere by a qualified industrial hygienist for oxygen, carbon monoxide and other contaminants should be performed, evaluated and any potential for threat to life and safety of the entry team members must be eliminated.

   Response:

   The sampling and analysis of the containment atmosphere will be performed by qualified personnel. The GPU System Industrial Hygienist will review and evaluate the sampling techniques and test results. As discussed above, Metropolitan Edison Company believes that <u>any</u> potential for threat to life and safety to the entry team members cannot be eliminated as the NRC has stated. It is the determination of the Metropolitan Edison Company that the potential for threat to life is minimal and that we have and will comply with the applicable regulations concerning work in toxic or hazardous environments as discussed above.

2. Recommendation:

   The fit of the Bio Pac 60 face piece should be verified while used with the actual protective clothing employed during the entry. In addition, the cautions contained in a memorandum from Goller to Distribution, Subject: Recommendations on the use of Recirculating - Mode (Closed Circuit) Self-Contained Breathing Apparatus (Rebreathers) dated March 3, 1980, should be met.

Response:

The fit of the Bio Pac 60 face piece was verified while used with the actual protective clothing. All personnel achieved a protection factor of 10,000 or greater under heaviest work conditions with no excessive inward or outward leakage. The recommendations covered in the NRC memo from Goller to Distribution are addressed as follows:

1. The Bio Pac 60 was selected due to its supply time of 60 minutes - a planned entry of 20 minutes is anticipated -, and because of its light weight in relation to the weight of typical open circuit SCBA.

2. Entry personnel have had adequate training to insure they will leave a contaminated area if outward leakage from the facial seal of the mask is detected.

3. All entry personnel have been tested with full breathing gear and with the protective clothing on for face piece leakage in a respirator booth. All personnel tested have achieved a protection factor of greater than 10,000.

4. All personnel have received training for use of the Bio Pac 60 SCBA from the Bio Pac factory representative. The training included hands on replacement of sorbent by personnel along with training on the operation and construction of the equipment.

   The entry personnel are familiar with the components that make up the Bio Pac 60 rebreather and have experienced the behavior of the unit as it runs down and are familiar with the end of service whistle from hands on training and use.

5. The fogging problem is acknowledged and personnel are familiar with the problem. They have had extensive use of the Bio Pac 60 SCBA and are well trained and accustomed to the fogging problems associated with use of the equipment.

3. Recommendation:

Entry team members must receive additional practice in radiological survey methods under actual radiological conditions.

Response:

Entry team members have received and will receive additional practice in radiological survey methods under actual radiological conditions. This training has always been part of the entry program.

4. Recommendation:

A breathing zone air sampler should be provided for all entry team members to both verify the respiratory protection and to gain added

useful information on radiological environmental conditions during work activities in the reactor building.

Response:

A breathing zone air sampler will be provided for each of the entry team members for use during the initial entry survey.

5. Recommendation:

Provisions should be added to reduce the beta dose to personnel connected with the taking and carrying of the swipes. In view of the fact that swipes are not quantitative, consideration should be given to a technique that will provide for quantitative removal of activity from the surface.

Response:

Adequate provisions are incorporated in the entry program to provide beta protection to the personnel connected with taking of and carrying of swipes. Swipes will be taken using rad-wipe smears.

The swipes will be carried on the back of one entry team member mounted on the cover to the outside of the Bio Pac 60 SCBA. The SCBA will provide additional beta shielding to the individual carrying the swipes and enables the swipes to be carried the furthest practical distance from the skin. It should be noted that potential beta skin dose from swipes taken is insignificant in relation to the potential beta skin dose from the overall reactor building atmosphere.

The swipes to be taken will provide information concerning isotopes present and ratios of isotopic concentration. Due to the configuration of the swipe pad and shape of the swipe tool, an 8" long swipe will cover approximately 100 cm^2. Meaningful data will be acquired from the swipes to aid in decontamination planning.

Sincerely,

G. K. Hovey
Director, TMI-II

GKH:SDC:hah

cc: B. Snyder

GAMMA RATE RECORDER - GOLDSBORO FIRE HALL

The chart of the radiation levels as measured by a gamma rate recorder installed at the Goldsboro Fire Hall has been reviewed for the period 10:00 a.m. 03/29/80 through 12:40 p.m. 04/07/80. The average daily readings are tabulated below. The average range figures represent the high and low values for the day excluding instantaneous fluctuations which result from power surges, line transients or other electrical causes and which immediately return to normal background levels.

Date (time)	Avg. (mR/hr)	Range (mR/hr)	Comment
03/29/80 (1000)	.012	.009 - .018	Normal Background
03/30/80	.012	.009 - .017	Normal Background
03/31/80	.012	.009 - .018	Normal Background
04/01/80	.012	.009 - .017	Normal Background
04/02/80	.012	.009 .018	Normal Background
04/03/80	.012	.009 - .018	Normal Background
04/04/80	.012	.008 - .017	Normal Background
04/05/80	.012	.008 - .016	Normal Background
04/06/80	.012	.009 - .017	Normal Background
04/07/80 (1240)	.012	.009 - .017	Normal Background

Allan E. Smith
U. S. Environmental Protection Agency
Senior On-Site Representative

bcc: John Collins, NRC
Thomas Gerusky, PA DER

These data have been posted for the people of Goldsboro.

GOLDSBORO NOBLE GAS SAMPLER

In addition to the gamma rate recorder the EPA has installed a sampling devise, which collects a compressed air sample, at the Fire Hall. This sample is analyzed in a laboratory, specifically for Krypton-85.

Krypton-85 exists in the atmosphere world-wide as a result of nuclear weapons testing, nuclear power generation and fuel reprocessing. Samples collected in the vicinity of TMI in recent months show background levels of Krypton-85 to be in the range of 20-40 pCi/m^3 (picocuries per cubic meter).

The sample collected March 21 - March 24, 1980 contained 22 pCi/m^3.

Allan E. Smith
U. S. Environmental Protection Agency
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