

T. Fasano

METROPOLITAN EDISON COMPANY Subsidiary of General Public Utilities Corporation

Subject NRC INSPECTION REPORT 80-08 FINAL REPORT
REPORT PERIOD: 3/26/80 THROUGH 4/30/80

Location TMI NUCLEAR STATION
Date MAY 9, 1980

To DISTRIBUTION

ATTENDEES: G. J. Troffer
R. S. Harbin

D. Haverkamp
M. Shanbaky

1. No Unit 1 items of non-compliance were identified during the inspection.
2. One unresolved item was identified during the inspection (289/80-08-01). During the spent resin tank overflow that occurred on March 31, 1980, in which approximately 15 gallons of resin were spilled on the auxiliary building floor, the incident was treated as a local emergency but never reported as such by the Shift Supervisor (was reported as an item of public interest). D. Haverkamp has since discussed this item with G. Giangi and M. Ross and conveyed his concern that we continue to use approved (and not proposed) emergency reporting procedures and that the appropriate operations personnel be instructed on the proper use of these procedures. (Since this discussion, M. J. Ross has resolved the concern by discussing with each Shift Supervisor the use of proper procedures for reporting.) G. Giangi committed to reissuing procedures to improve clarity the requirements for reporting items falling into the following three categories:

1. Events classified as:
 - a. Unusual
 - b. Local
 - c. Site
 - d. General
2. Events classified as of public interest
3. Events classified under the requirements of 10CFR50.72 (12 items).
As it stands now, the TCN to AP-1044 being used in the control room is not clear.

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PDR ADOCK 05000289
P PDR

ACTION: G. Giangi

3. There were several items thought to be of potential interest to Unit I Management/Personnel.
 - a) The attached list of 1980 NRC Inspections was provided for information (see attachment 1).
 - b) There has been a long-standing legal controversy over requirements for establishing a "Radiation Area". Shanbaky intends to bring this controversy to a head and force the issue at TMI. For Radiation "sources" that are deemed fixed (to remain for greater than 5 days) Shanbaky feels

*Tony
I am
concerned
about this
statement*

MAY 9, 1980

the area should be treated as a Radiation area if the levels are above .8 MR/hr. figure. .8 MR/hr. is based on:

$$\frac{100 \text{ MR/week}}{5 \text{ days/wk.} \times 24 \text{ hr./day}} = .83 \text{ MR/hr.}$$

Shanbaky intends to have his people begin looking for areas that are greater than .8MR/hr. and not treated as Radiation area.

ACTION: W. Potts/W. Heward (Info. only)

c) Unit 2 items of non-compliance identified during inspection:

1. February 6 and March 6 Sample Bomb shipments to B&W leaked because the balms did not have caps on the connections.

ACTION: E. C. Fuhrer (Info. only)

2. Shipment of liquid waste was improperly made in a "Spec. 7" container.

ACTION: E. C. Fuhrer (Info. only)

3. Inspector Plumlee was denied access to Unit 2 Control Room and was made to undergo an unreasonable delay (1 to 1½ hours) to get authorization from Unit 2 Shift management.

ACTION: M. J. Ross (Info. only)
SS/SF

R. S. Harbin
R. S. HARBIN *jl*

RSH/jl

cc: Attendees
Action Parties
J. G. Herbein
B. Ballard
J. J. Colitz
D. Dyckman
R. Fenti
C. E. Hartman - PORC Chairman for review with PORC as applicable.
T. M. Hawkins
G. P. Miller
M. J. Ross
D. M. Shovlin
M. J. Stromberg
R. J. Toole
File

ATTACHMENT ITMI-I NRC INSPECTIONS

<u>INSPECTION #</u>	<u>DATES COVERED</u>	<u>SUBJECT</u>	<u>INSPECTOR(S)</u>
80-01	1/05/80 - 1/31/80	OPS/HP	Haverkamp
80-02	2/01/80 - 2/29/80	OPS/HP	Haverkamp/ Shanbaky
80-03	2/01/80 - 3/27/80	Security Guard/ Guide	Shepard
80-04	2/01/80 - 2/29/80	Construction/QA	Gage
80-05	2/27/80 - 2/29/80	Construction/QA	Napuda
80-06	3/03/80 - 3/31/80	Construction/QA	Gage
80-07	3/21/80	Special Invest. (Const./QA?)	Durr
80-08	3/16/80 - 4/30/80	OPS/QA	Haverkamp/ Shanbaky
80-09	4/01/80 - 4/30/80	Construction/QA	Gage
80-10	5/01/80 - 5/31/80	OPS/HP	Napuda
80-11	4/28/80 - 5/02/80	QA	Napuda
80-12	4/23/80 - 4/25/80	Security - North Gate Incident	Ladun
80-13	5/05/80 - 5/30/80	Construction/QA	Gage

the limits specified in Appendix "B", Table II of this part, except as authorized pursuant to § 20.302 or paragraph (b) of this section. For purposes of this section concentrations may be averaged over a period not greater than one year.

(b) An application for a license or amendment may include proposed limits higher than those specified in paragraph (a) of this section. The Commission will approve the proposed limits if the applicant demonstrates:

(1) That the applicant has made a reasonable effort to minimize the radioactivity contained in effluents to unrestricted areas; and

(2) That it is not likely that radioactive material discharged in the effluent would result in the exposure of an individual to concentrations of radioactive material in air or water exceeding the limits specified in Appendix "B", Table II of this part.

(c) An application for higher limits pursuant to paragraph (b) of this section shall include information demonstrating that the applicant has made a reasonable effort to minimize the radioactivity discharged in effluents to unrestricted areas, and shall include, as pertinent:

(1) Information as to flow rates, total volume of effluent, peak concentration of each radionuclide in the effluent, and concentration of each radionuclide in the effluent averaged over a period of one year at the point where the effluent leaves a stack, tube, pipe, or similar conduit;

(2) A description of the properties of the effluents, including:

(i) chemical composition;

(ii) physical characteristics, including suspended solids content in liquid effluents, and nature of gas or aerosol for air effluents;

(iii) the hydrogen ion concentrations (p^H) of liquid effluents; and

(iv) the size range of particulates in effluents released into air.

(3) A description of the anticipated human occupancy in the unrestricted area where the highest concentration of radioactive material from the effluent is expected, and, in the case of a river or stream, a description of water uses downstream from the point of release of the effluent.

(4) Information as to the highest concentration of each radionuclide in an unrestricted area, including anticipated concentrations averaged over a period of one year:

(i) In air at any point of human occupancy; or

(ii) In water at points of use downstream from the point of release of the effluent.

(5) The background concentration of radionuclides in the receiving river or stream prior to the release of liquid effluent.

(6) A description of the environmental monitoring equipment, including sensitivity of the system, and procedures and calculations to determine concentrations of radionuclides in the unrestricted area and possible reconcentrations of radionuclides.

(7) A description of the waste treatment facilities and procedures used to

reduce the concentration of radionuclides in effluents prior to their release.

(d) For the purposes of this section the concentration limits in Appendix "B", Table II of this part shall apply at the boundary of the restricted area. The concentration of radioactive material discharged through a stack, pipe or similar conduit may be determined with respect to the point where the material leaves the conduit. If the conduit discharges within the restricted area, the concentration at the boundary may be determined by applying appropriate factors for dilution, dispersion, or decay between the point of discharge and the boundary.

(e) In addition to limiting concentrations in effluent streams, the Commission may limit quantities of radioactive materials released in air or water during a specified period of time if it appears that the daily intake of radioactive material from air, water, or food by a suitable sample of an exposed population group, averaged over a period not exceeding one year, would otherwise exceed the daily intake resulting from continuous exposure to air or water containing one-third the concentration of radioactive materials specified in Appendix "B", Table II of this part.

(f) The provisions of this section do not apply to disposal of radioactive material into sanitary sewage systems, which is governed by § 20.303

§ 20.107 Medical diagnosis and therapy.

Nothing in the regulations in this part shall be interpreted as limiting the intentional exposure of patients to radiation for the purpose of medical diagnosis or medical therapy.

§ 20.108 Orders requiring furnishing of bio-assay services.

Where necessary or desirable in order to aid in determining the extent of an individual's exposure to concentrations of radioactive material, the Commission may incorporate appropriate provisions in any license, directing the licensee to make available to the individual appropriate bio-assay services and to furnish a copy of the reports of such services to the Commission.

PRECAUTIONARY PROCEDURES

§ 20.201 Surveys.

(a) As used in the regulations in this part, "survey" means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions. When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present.

(b) Each licensee shall make or cause to be made such surveys as may be necessary for him to comply with the regulations in this part.

§ 20.202 Personnel monitoring.

(a) Each licensee shall supply appropriate personnel monitoring equipment to, and shall require the use of such

equipment by:

(1) Each individual who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 25 percent of the applicable value specified in paragraph (a) of § 20.101.

(2) Each individual under 18 years of age who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 5 percent of the applicable value specified in paragraph (a) of § 20.101.

(3) Each individual who enters a high radiation area.

(b) As used in this part,

(1) "Personnel monitoring equipment" means devices designed to be worn or carried by an individual for the purpose of measuring the dose received (e. g. film badges, pocket chambers, pocket dosimeters, film rings, etc.);

(2) "Radiation area" means any area, accessible to personnel, in which there exists radiation, originating in whole or in part within licensed material, at such levels that a major portion of the body could receive in any one hour a dose in excess of 5 millirem, or in any 5 consecutive days a dose in excess of 100 millirems;

(3) "High radiation area" means any area, accessible to personnel, in which there exists radiation originating in whole or in part within licensed material at such levels that a major portion of the body could receive in any one hour a dose in excess of 100 millirem.

§ 20.203 Caution signs, labels, signals, and controls.

(a) *General.* (1) Except as otherwise authorized by the Commission, symbols prescribed by this section shall use the conventional radiation caution colors (magenta or purple on yellow background). The symbol prescribed by this section is the conventional three-bladed design:

PETITIONS FOR RULE MAKING

control requirements of 10 CFR Parts 19 and 20. Detailed discussion of these relationships follows. The arguments presented by commenters opposing the petitioned change basically were similar to those of the NRC staff and are set forth below.

Historically, § 20.105, "Permissible levels of radiation in unrestricted areas", was deliberately worded differently from the definition of radiation area set forth in § 20.202(b)(2). The underlying philosophy was that, because licensees cannot control the activities of individuals in (unrestricted) areas outside of the licensee's control, the regulations should be expressed in terms of limitations on the levels of radiation and the concentrations of radioactive material in effluents that licensees may permit to be released to unrestricted areas. These radiation levels and effluent concentrations were derived such that, with assumed probabilities, including full-time occupancy (7 days per week), it would be unlikely that any individual in the population would receive doses greater than 10 percent of the occupational dose-limiting standards recommended by the International Commission on Radiological Protection (ICRP), the National Council on Radiation Protection and Measurements (NCRP), and the Federal Radiation Council (FRC). The FRC function is now part of the responsibility of the Environmental Protection Agency.

The NRC's regulations in 10 CFR Part 20 provide for the control of personnel exposures to radiation and radioactive material through the establishment of five different types of areas with varying degrees of prescribed protection.

There are two basic types of areas, unrestricted and restricted; within restricted areas there may be radiation areas, high radiation areas, and airborne radioactivity areas.

An unrestricted area is one that is not controlled by the licensee for purposes of radiation protection. However, permissible levels of radiation in unrestricted areas are specified (§ 20.105, and listed above), as are concentrations of radioactive material that may be released in effluents to unrestricted areas. If one or more of the limits is likely to be exceeded, the affected area must be classified as a restricted area.

A restricted area is any area access to which is controlled by the licensee for purposes of radiation protection. Within a restricted area a graduated scale of protective measures is imposed according to the degree of hazard present. Included in these protective measures are requirements for caution signs for the types of areas mentioned above.

A radiation area is one in which the dose to personnel could exceed 5 millirems in 1 hour or 100 millirems in any 5 consecutive days, and must be posted with a sign or signs bearing the radiation symbol and the words CAUTION—RADIATION AREA. If the dose could exceed 100 millirems in 1 hour, the area must be classified as a high radiation area, must be posted with a sign or signs bearing the radiation symbol and the words Caution—High Radiation Area, and additional controls imposed.

An airborne radioactivity area is one in which the concentration of airborne radioactive material exceed specified limits. These areas must be posted with a sign or signs bearing the radiation symbol and the words Caution—Airborne Radioactivity Area. In addition, any area in which radioactive materials exceeding specified limits are used or stored must be posted with a sign or signs bearing the radiation symbol and the words Caution—Radioactive Materials.

In their simplest form, these area designations envision a restricted area defined for example by a fence for access control, and a building and rooms within posted as radiation areas, high radiation areas, etc. If operations planned by a licensee could result in dose rates outside of the fence that may exceed one or more of the limits established for unrestricted areas (§ 20.105), the licensee must either modify the operations or the facilities in which they are to be conducted to reduce the dose rates, or take steps to restrict the additional area in which the dose rates may exist. The regulations in 10 CFR Part 20 recognize the practicality of establishing a restricted area and controlling access for purposes of radiation protection at some physical barrier that may be remote from the radioactive material and any associated radiation dose rates. Inside of the restricted area there may exist dose rates above 2 millirems per hour without further required posting until dose rates reach 5 millirems per hour at which time the area must be posted as a radiation area. Inside of the radiation area dose rates may exist above 5 millirems per hour without additional posting until dose rates reach 100 millirems per hour at which time the area must be posted as a high radiation area and other controls imposed.

Posting of areas is only one of the controls licensees are required to establish at and within the restricted areas. The individuals entering the licensee's restricted area are to be subject to the licensee's control, must be instructed commensurate with the risk (§ 19.12, 10 CFR Part 19), must be

monitored according to § 20.202, and the individuals' doses maintained as low as is reasonably achievable as well as below the dose-limiting standards specified in §§ 20.101 and 20.104, 10 CFR Part 20. These controls ensure that individuals are aware of their entry into a restricted area. The NRC staff believes that the additional measure of posting signs at the restricted area boundary is unnecessary. As an individual progresses inside of a licensee's restricted area, the regulations provide for progressive levels of posting for radiation areas and high radiation areas and for varying degrees of control by alarms and interlocked devices that prevent entry until the dose rates are reduced or automatically reduce the dose rates present.

If the petitioned changes were made to the definition of radiation area, licensees would be required to post at lower instantaneous dose rates than at present, that is, at 2 millirems rather than 5 millirems per hour. Posting would also be required at lower steady-state dose rates because the petitioned change would specify 100 millirems in any 7 rather than 5 consecutive days, that is at 0.8 rather than 0.8 millirems per hour, even though a majority of workers are on the job 5 days a week. It would appear that these changes would result in only very small improvement in radiation protection practices and very little or no reduction in radiation doses to workers. Indeed, the petitioned change would be counterproductive for it would have the disadvantage of eliminating the requirement for posting of any warning signs inside of the restricted area until dose rates reached 100 millirems per hour. The NRC staff is concerned that this could result in unnecessary exposure of workers. Further, as noted by persons commenting on the petition, those installations constructed to meet 5 millirems per hour requirements may require structural modifications in order to meet a 2 millirem per hour requirements.

The petitioned amendment to the regulations in 10 CFR Part 20 would require establishment and posting of the restricted area boundary at the point where the dose rate equals that permitted in unrestricted areas. The staff does not consider such action desirable because it would not recognize the practicality of establishing the restricted area at some physical barrier that may be remote from the areas in which radiation dose rates exist, or necessary in view of the other controls licensees are required to impose at the boundary of the restricted area.

The petitioner referred to OSHA's regulations in § 1910.145, 29 CFR 1910, that call for the provision of warning

ROUTING AND TRANSMITTAL SLIP

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TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. John J Collins		
2.		
3.		
4.		
5.		

File IGE Inspections Reports

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

Spoke to Bill Potts, he felt language was not very diplomatic. I expressed our concern on such remarks -

He + Howard did meet with their people and have embarked on a program to change their definition to be in compliance with code of Reg - Have attached excerpts of reg F & I.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
	Phone No.

Tomy 5/14/80