Peter Zarakas
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July 1, 1980

Director of Nuclear Reactor Regulation
ATTN: Mr. Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Varga:

This information updates the May 5, 1980 letter (Cahill to Schwencer) concerning control room habitability. Attachment A updates Table 1 of the above mentioned letter, adds two (2) drawings to the previous list of drawings and expands previous answers. Attachment B consists of calculated radiation dose rates corresponding to previously measured leak rates into the central control room.

Very truly yours,

Peter Zarakas
Vice President

Attachments

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Attachment A

NRC Request

1 - Control Room Mode of Operation
Radiological Accident - pressurization and filter recirculation.
Chlorine or Toxic Gas Release - isolation.

Response

Radiological Accident - During incident conditions the ventilation system automatically reverts to filter recirculation and isolation.

Chlorine or Toxic Gas Release - The ventilation system can be manually placed into the isolation mode.

NRC Request

2b - Control Room ventilation system schematic with normal and emergency air flow rates.

Response

See additional attached Figure 11 (Drawing No. 138248-2)

NRC Request

3 - On-site storage of Chlorine and other chemicals

Response

See amended Table 1 - attached.

NRC Request

4 - Offsite manufacturing, storage or transportation facilities of hazardous chemicals.

Response

A study is in progress to determine offsite manufacturing, storage or transportation facilities of hazardous chemicals.

Previously submitted Table 2 will be expanded since it only itemizes transportation into Westchester County, i. e., the county where the site is located, and omits adjacent counties.

Table 1

CHEMICAL	QUANTITY	QUANTITY PER CONTAINER	DISTANCE* FROM CONTROL ROOM AIR INTAKE (Feet)
Carbon dioxide	64,000 SCF Stored as Liquid	64,000 SCF	550
Hydrogen	23,300 cu.ft. at 1500 PSI	1,165 cu.ft. at 1500 PSI	550
	23,300 cu.ft. at 1500 PSI	1,165 cu.ft. at 1500 PSI	400
	263.4 cu.ft. at 1500 PSI	8.78 cu.ft. at 1500 PSI	125
Ammonia Hydroxide	55 gal	55 gal	400
Formaldehyde	2250 gal	450 gal	525
Hydrazine	220 gal	55 gal	400
Sodium Hydroxide	500 gal	500 gal	1000
	4200 gal	4200 gal	1000
	10,000 gal	5,000 gal	700
Sulfric Acid	500 gal	500 gal	450
	10,000 gal	5,000 gal	700

* Shortest Vapor Path

Attachment B

Comparison of H.V.A.C. Operating Modes for Accident - Dose Assessment

Three modes of dose-delivery to operators in the Indian Point No. 2 Control Room are evaluated for each of four different HVAC operating modes at the time of a loss-of-coolant accident.

Dose-delivery is considered to be both by inhalation and by immersion in a cloud. Dose-delivery by the cloud within the control room considers beta dose to skin as well as gamma dose to the whole body.

It is shown that, even using conservative assumptions, the doses to operators during 30 days post-LOCA are expected to be within the guidelines of General Design Criterion 19 (10 CFR 50, Appendix A).

Case No.	Test Mode	Dampers	Leak Rate (cfm)	Leak Rate (cfm)	C. C. R. Pressure (in H_2O)	Total Leak Rate (cfm)
1	IP 1 in recirc.	D1, D2	44	112 (1)	0.075	164.0
		D4	8			
	IP 2 in recirc.	A, B	0			
		E	---(2)			
2	IP 1 off	D1, D2	0	23.5 (1)	0	23.5
		D4	0			
	IP22 in recirc.	A, B	0			
		E	---(2)			
3	IP 1 off	D1, D2	0	39.6 (1)	0	39.6
	IP 2 in recirc pluss	D4	0(3)			
	filtered outside air	A, B, E	---(2)			
4	IP 1 in recirc.	D1, D2	45.4	66 (1)	0.075	111114
		D4	0			
	IP 2 in recirc plus	A, B	0(3)			
	filtered outside air	E	---(2)			

(1) All leakage is from El. 72' - 0" where fans, ductwork, and other H.V.A.C. equipment is located.

(2) Damper "E" is located at El. 72' - 0" above control room. Damper "E" Leakage is included in "Leak Rate" column.

(3) Damper "B" open. Leakage across Damper "A" is effectively zero under this condition.

ACCIDENT - DOSE ASSESSMENT
SUMMARY OF 30-Day DOSES (Rem)

Target Organ	Case 1	Case 2	Case 3	Case 4
THYROID				
Inhalation	3.33	0.55	0.70	1.24
Airborne Gamma	2.44	1.53	3.02	3.05
Cloud Outside	1.44	1.44	1.44	1.44
Total for Thyroid	7.21	3.52	5.16	5.73
SKIN				
Airborne Gamma	2.44	1.52	3.02	3.05
Airborne Beta	3.32	2.45	3.60	3.61
Cloud Outside	1.44	1.44	1.44	1.44
Total for Skin	7.20	5.42	8.06	8.10
TOTAL BODY				
Airborne Gamma	2.44	1.53	3.02	3.05
Cloud Outside	1.44	1.44	1.44	1.44
Total for Total Body	3.88	2.97	4.46	4.49