

Closeout of IE Bulletin 79-18: Audibility Problems Encountered on Evacuation of Personnel from High-Noise Areas

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PARAMETER, Inc.

Prepared for
U.S. Nuclear Regulatory Commission

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Closeout of IE Bulletin 79-18: Audibility Problems Encountered on Evacuation of Personnel from High-Noise Areas

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ABSTRACT

Documentation is provided in this report for the closeout of IE Bulletin 79-18 regarding audibility problems encountered on evacuation of personnel from high-noise areas. Closeout is based on the implementation and verification of four (4) required actions. Evaluation of utility responses and NRC/Region inspection reports indicates that the bulletin is closed for all of the 64 operating nuclear power facilities to which it was issued for action. Facilities which were shut down indefinitely or permanently at the time of issuance of this report are not included in this review. Background information is presented in the Introduction and Appendix A. The conclusion is made that the bulletin concerns have been resolved.

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CLOSEOUT OF IE BULLETIN 79-18:
AUDIBILITY PROBLEMS ENCOUNTERED ON EVACUATION
OF PERSONNEL FROM HIGH-NOISE AREAS

INTRODUCTION

This report provides documentation for the closeout of IE Bulletin 79-18 in accordance with the Statement of Work in Task Order 37 under NRC Contract 05-85-157-02. Documentation is based on records obtained from the NRC Document Control System.

The bulletin was issued by the NRC on August 7, 1979 for action by all licensees of operating nuclear power facilities. The concern was audibility problems encountered on evacuation of personnel from high-noise areas. Licensees were required to take four (4) actions to ensure that audibility problems would be corrected if present.

A copy of IE Bulletin 79-18 is included in Appendix A for background information. Evaluation of utility responses and NRC/Region inspection reports is documented in Appendix B and they form the basis for bulletin closeout. Abbreviations used in the report and associated documents are presented in Appendix C.

SUMMARY

1. The bulletin is closed per the Criterion (see page B-6) for all of the 64 facilities for which actions were required:

Arkansas 1,2	Haddam Neck	Quad Cities 1,2
Beaver Valley 1	Hatch 1,2	Rancho Seco 1
Big Rock Point 1	Indian Point 2,3	Robinson 2
Browns Ferry 1,2,3	Kewaunee	Salem 1
Brunswick 1,2	Maine Yankee	San Onofre 1
Calvert Cliffs 1,2	Millstone 1,2	St. Lucie 1
Cook 1,2	Monticello	Surry 1,2
Cooper Station	Nine Mile Point 1	TMI 1
Crystal River 3	North Anna 1	Trojan
Davis-Besse 1	Oconee 1,2,3	Turkey Point 3,4
Dresden 2,3	Oyster Creek 1	Vermont Yankee 1
Duane Arnold	Palisades	Yankee-Rowe 1
Farley 1	Peach Bottom 2,3	Zion 1,2
FitzPatrick	Pilgrim 1	
Fort Calhoun 1	Point Beach 1,2	
Ginna	Prairie Island 1,2	

2. The following facilities are excluded from Table B.1 because they are shut down indefinitely or permanently (SDI):

Dresden 1	Humboldt Bay 3	La Crosse
Fort St. Vrain	Indian Point 1	TMI 2

CONCLUSION

Review of licensee responses, NRC/Region inspection reports, and other supporting documentation indicates that the bulletin concerns have been resolved.

APPENDIX A

Background Information and Required Actions

Note: For actions required of the licensees,
see pages A-1 and A-2.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

August 7, 1979

IE Bulletin No. 79-18

AUDIBILITY PROBLEMS ENCOUNTERED ON EVACUATION OF PERSONNEL FROM HIGH-NOISE AREAS

Description of Circumstances:

In January 1979, a number of licensee personnel were engaged in routine activities in the auxiliary building at the Florida Power Corporation, Crystal River Unit 3 nuclear plant. While these individuals were working in the auxiliary building, in a high-noise (fan) area, an unplanned release of radioactive noble gases was detected by building monitors within the auxiliary building at concentrations which caused the licensee to initiate the facility emergency plan auxiliary building evacuation procedure. The facility Emergency Officer (Shift Supervisor) assessed the monitor readings and initiated an auxiliary building evacuation. The evacuation announcement, made over the licensee's PA system, was not heard by the personnel working in the high-noise area. Licensee personnel did evacuate the auxiliary building upon observing that other personnel had left, and after calling the control room to inquire if an evacuation had been initiated. During these occurrences, licensee personnel were not exposed to quantities of radionuclides above regulatory guidance. However, the potential existed for inadvertent unnecessary exposure of individuals to radioactive materials.

Subsequent to the NRC followup inspection of this occurrence, Florida Power Corporation initiated an assessment of this situation and performed an engineering evaluation and identified several plant areas where the annunciator system needed audibility improvement. The licensee has installed a new auxiliary building evacuation tone signal and may add visual alarm indicators in areas of very high noise.

Action to be Taken by the Licensees:

For all power reactor facilities with an operating license:

1. Determine whether current alarm systems and evacuation announcement systems are clearly audible or visible throughout all plant areas with emphasis on high-noise areas. Determination in high-noise areas must be made with the maximum anticipated noise level.
2. Determine what corrective action is necessary to assure that areas identified as inaudible areas in (1) above, will receive adequate audible/

visual evacuation signals. In areas where adequate audible/visual evacuation signals cannot be assured by hardware changes, determine what additional administrative measures are necessary to assure personnel evacuation.

3. Submit within 45 days of the date of issuance of this Bulletin, a written report of the findings on item (1), and delineate completed or proposed corrective actions per item (2). For operating facilities in a refueling or extended outage, the written report must be submitted within 30 days after plant startup following the outage.
4. For accessible areas, all corrective actions determined per item (2) must be completed within 120 days of the date of issuance of this Bulletin. For inaccessible areas, the written report must include a time schedule for completion of corrective actions in this area.

Reports should be submitted to the Director of the appropriate NRC Regional Office and a copy should be forwarded to the NRC Office of Inspection and Enforcement, Division of Reactor Operations Inspection, Washington, D.C. 20555.

For all power reactor facilities with a construction permit, this Bulletin is for information only and no written response is required.

Approved by GAO, B180225 (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for identified generic problems.

Enclosure:
List of IE Bulletins Issued
in Last 6 Months

APPENDIX B

Documentation of Bulletin Closeout

TABLE B.1 PULLETTIN CLOSEOUT STATUS

Facility	Utility	Docket	Facility Status 08-07-79 (1)	NRC Region	NSSS	Utility Response Date	Inspection Report and Date	Closeout Status (2)
Arkansas 1	AP&L	50-313	OL	IV	B&W	09-19-79 10-10-79	80-05(04-14-80)	Closed
Arkansas 2	AP&L	50-368	OL	IV	C-E	09-19-79 10-10-79	80-05(04-14-80)	Closed
Beaver Valley 1	DLC	50-334	OL	I	W	09-26-79 12-12-79	81-12(07-27-81)	Closed
Big Rock Point 1	CPC	50-155	OL	III	GE	09-28-79 12-12-79	80-03(03-24-80)	Closed
Browns Ferry 1	TVA	50-259	OL	II	GE	09-21-79 02-12-80 03-25-80 03-13-81	86-01(01-31-86)	Closed (3,4)
Browns Ferry 2	TVA	50-260	OL	II	GE	09-21-79 02-12-80 03-25-80 03-13-81	86-01(01-31-86)	Closed (3,4)
Browns Ferry 3	TVA	50-296	OL	II	GE	09-21-79 02-12-80 03-25-80 03-13-81	86-01(01-31-86)	Closed (3,4)
Brunswick 1	CP&L	50-325	OL	II	GE	09-17-79	80-30(09-04-80)	Closed
Brunswick 2	CP&L	50-324	OL	II	GE	09-17-79	80-33(09-04-80)	Closed
Calvert Cliffs 1	BG&E	50-317	OL	I	C-E	08-15-79	80-26(02-11-81)	Closed
Calvert Cliffs 2	BG&E	50-318	OL	I	C-E	08-15-79	80-22(02-11-81)	Closed
Cook 1	IMECO	50-315	OL	III	W	09-21-79	80-02(02-11-80)	Closed
Cook 2	IMECO	50-316	OL	III	W	09-21-79	80-02(02-11-80)	Closed
Cooper Station	NPPD	50-298	OL	IV	GE	09-07-79	79-16(12-21-79)	Closed

Notes indicated by numbers in parentheses are located at the end of the table.

TABLE B.1 (contd)

Facility	Utility	Docket	Facility Status 08-07-79 (1)	NRC Region	NSSS	Utility Response Date	Inspection Report and Date	Closeout Status (2)
Crystal River 3	FPC	50-302	OL	II	B&W	09-21-79 12-13-79	81-07(06-12-81)	Closed
Davis-Besse 1	TECO	50-346	OL	III	B&W	09-14-79	80-25(10-14-80)	Closed
Dresden 2	CECO	50-237	OL	III	GE	09-20-79	80-17(09-29-80)	Closed
Dresden 3	CECO	50-249	OL	III	GE	09-20-79	80-21(09-29-80)	Closed
Duane Arnold	IELPCO	50-331	OL	III	GE	09-20-79 05-06-80	79-32(01-08-80)	Closed
Farley 1	APCO	50-348	OL	II	W	12-12-79	81-20(11-09-81)	Closed
FitzPatrick	PASNY	50-333	OL	I	GE	09-07-79 10-17-79 02-14-80	80-01(03-04-80)	Closed
Fort Calhoun 1	OPPD	50-285	OL	IV	C-E	09-20-79	79-17(11-15-79)	Closed
Ginna	RG&E	50-244	OL	I	W	09-21-79	85-12(08-23-85)	Closed
Haddam Neck	CYAPCO	50-213	OL	I	W	09-21-79	90-12(08-22-90)	Closed
Hatch 1	GPC	50-321	OL	II	GE	09-20-79 11-30-79 12-05-79 02-25-80 06-30-80	87-18(08-31-87)	Closed
Hatch 2	GPC	50-366	OL	II	GE	09-20-79 11-30-79 12-05-79 02-25-80 06-30-80	87-18(08-31-87)	Closed
Indian Point 2	ConEd	50-247	OL	I	W	10-15-79	83-11(05-11-83)	Closed
Indian Point 3	PASNY	50-286	OL	I	W	09-17-79 03-03-80	82-10(07-29-82)	Closed

Notes indicated by numbers in parentheses are located at the end of the table.

TABLE B.1 (contd)

Facility	Utility	Docket	Facility Status 08-07-79 (1)	NRC Region	NSSS	Utility Response Date	Inspection Report and Date	Closeout Status (2)
Kewaunee	WPS	50-305	OL	III	W	09-21-79 11-08-79 07-31-80 09-04-80	81-02(03-02-81)	Closed
Maine Yankee	MYAPCO	50-309	OL	I	C-E	09-24-79 10-17-79	80-10(08-18-80)	Closed
Millstone 1	NNECO	50-245	OL	I	GE	09-17-79	80-17(10-27-80)	Closed
Millstone 2	NNECO	50-336	OL	I	C-E	09-17-79	80-19(10-27-80)	Closed
Monticello	NSP	50-263	OL	III	GE	09-21-79	79-18(12-07-79)	Closed
Nine Mile Point 1	NMP	50-220	OL	I	CE	09-19-79	82-07(06-11-82)	Closed
North Anna 1	VEPCO	50-338	OL	II	W	09-24-79 06-05-80 08-21-80 10-10-80	84-09(06-08-84)	Closed
Oconee 1	DUPCO	50-269	OL	II	B&W	10-11-79 10-15-79 12-27-79	82-14(06-04-82) 87-27(07-21-87)	Closed
Oconee 2	DUPCO	50-270	OL	II	B&W	10-11-79 10-15-79 12-27-79	82-14(06-04-82) 87-27(07-21-87)	Closed
Oconee 3	DUPCO	50-287	OL	II	B&W	10-11-79 10-15-79 12-27-79	82-14(06-04-82) 87-27(07-21-87)	Closed
Oyster Creek 1	JCP&L/ GPUN	50-219	OL	I	GE	09-21-79 12-06-79	87-05(03-17-87)	Closed (5)
Palisades	CPC	50-255	OL	III	C-E	09-28-79 06-17-80 08-01-80 11-07-80 03-30-81	83-29(01-04-84)	Closed

Notes indicated by numbers in parentheses are located at the end of the table.

TABLE B.1 (contd)

Facility	Utility	Docket	Facility Status 08-07-79 (1)	NRC Region	NSSS	Utility Response Date	Inspection Report and Date	Closeout Status (2)
Peach Bottom 2	PECO	50-277	OL	I	GE	09-21-79 01-18-80	86-03(04-17-86)	Closed (6)
Peach Bottom 3	PECO	50-278	OL	I	GE	09-21-79 01-18-80	86-03(04-17-86)	Closed (6)
Pilgrim 1	BECO	50-293	OL	I	GE	11-23-79 06-27-80	83-03(03-16-83)	Closed
Point Beach 1	WEPCO	50-266	OL	III	W	09-20-79	80-10(08-05-80)	Closed
Point Beach 2	WEPCO	50-301	OL	III	—	09-20-79	80-10(08-05-80)	Closed
Prairie Island 1	NSP	50-282	OL	III	W	09-21-79	81-17(09-11-81)	Closed
Prairie Island 2	NSP	50-306	OL	III	W	09-21-79	81-19(09-11-81)	Closed
Quad Cities 1	CECO	50-254	OL	III	GE	09-20-79	79-21(10-16-79)	Closed
Quad Cities 2	CECO	50-265	OL	III	GE	09-20-79	79-18(10-16-79)	Closed
Rancho Seco 1	SMUD	50-312	OL	V	B&W	09-12-79	80-09(05-19-80)	Closed
Robinson 2	CP&L	50-261	OL	II	W	09-21-79	80-39(03-19-81)	Closed
Salem 1	PSE&G	50-272	OL	I	—	03-18-80 04-02-80	80-13(07-18-80)	Closed
San Onofre 1	SCE	50-206	OL	V	W	09-19-79 12-04-79 06-15-81 09-01-81 10-15-81 03-19-86	81-37(12-04-81)	Closed
St. Lucie 1	FPL	50-335	OL	II	C-E	09-21-79	82-05(03-25-82)	Closed
Surry 1	VEPCO	50-280	OL	II	W	11-29-79 02-28-80 06-05-80	82-05(05-21-82)	Closed
Surry 2	VEPCO	50-281	OL	II	W	11-29-79 06-05-80	82-05(05-21-82)	Closed

Notes indicated by numbers in parentheses are located at the end of the table.

TABLE B.1 (contd)

Facility	Utility	Docket	Facility Status 08-07-79 (1)	NRC Region	NSSS	Utility Response Date	Inspection Report and Date	Closeout Status (2)
TMI 1	Met-Ed/ GPUN	50-289	OL	I	B&W	09-25-79 12-04-79 12-27-79 01-09-80 02-04-80 02-28-81 08-02-82	81-20(02-25-82) 82-05(06-22-82)	Closed
Trojan	PGE	50-344	OL	V	W	09-19-79 06-17-80 07-20-81 03-31-83 06-07-83	83-05(03-03-83) 83-10(05-11-83) 83-12(06-10-83) 85-01(01-28-85)	Closed
Turkey Point 3	FPL	50-250	OL	II	W	09-24-79	86-33(08-27-86) 87-13(04-01-87) 88-08(05-23-88)	Closed
Turkey Point 4	FPL	50-251	OL	II	W	09-24-79	86-33(08-27-86) 07-13(04-01-87) 88-08(05-23-88)	Closed
Vermont Yankee 1	VYNP	50-271	OL	I	GE	09-21-79	81-13(08-13-81)	Closed
Yankee-Rowe 1	YAECO	50-029	OL	I	W	09-26-79 11-28-79	80-08(07-25-80)	Closed
Zion 1	CECO	50-295	OL	III	W	09-20-79	79-20(10-17-79)	Closed
Zion 2	CECO	50-304	OL	III	W	09-20-79	79-19(10-17-79)	Closed

Notes indicated by numbers in parentheses are located below.

Notes for Table B.1:

- Facility status is based on Reference 1, page B-6. The following abbreviation applies to facility status: OL, operating license.
- The closeout criterion is on page B-6.

Notes for Table B.1 (contd):

3. In the meeting of 01-25-90 at NRC Headquarters, Kerry Landis (RII) informed Carl H. Berlinger and Alan Hennick that Inspection Report 86-01 closes the bulletin for Browns Ferry 1,2,3 and that Inspection Report 88-09 does not reopen it despite identifying a related problem.
4. As a general extension of Note 3, Kerry Landis (RII) indicated that Region II intends to retain a closeout unless it specifically reopens the bulletin in a later Inspection Report.
5. Per the telephone call of 03-15-90 between A. W. Dromerick and the Oyster Creek 1 resident inspector's office, Inspection Report 87-05 closes the bulletin.
6. Per memorandum dated July 20, 1990 from Walter R. Butler to Carl H. Berlinger, Inspection Report 86-03 closes the bulletin for Peach Bottom 2,3.

CRITERION FOR CLOSEOUT OF BULLETIN

The utility response and an NRC/Region inspection report indicate that all four (4) actions required by the bulletin have been completed satisfactorily.

REFERENCES

1. United States Nuclear Regulatory Commission, Licensed Operating Reactors, Status Summary Report, Data as of 02-28-90, NUREG-0020, Volume 14, Number 3, March 1990.
2. United States Nuclear Regulatory Commission, Code of Federal Regulations, Energy, Title 10, Parts 0 to 50, January 1, 1990, cited as 10 CFR 0.735-1.

APPENDIX C

Abbreviations

APCO	Alabama Power Company
AP&L	Arkansas Power and Light Company
BECO	Boston Edison Company
BG&E	Baltimore Gas and Electric Company
B&W	Babcock and Wilcox Company
C-E	Combustion Engineering Incorporated
CECO	Commonwealth Edison Company
CFR	Code of Federal Regulations
ConEd	Consolidated Edison Company of New York, Inc.
CPC	Consumers Power Company
CP&L	Carolina Power and Light Company
CR	Contractor Report
CYAPCO	Connecticut Yankee Atomic Power Company
DLC	Duquesne Light Company
DUPCO	Duke Power Company
FPC	Florida Power Corporation
FPL	Florida Power & Light Company
GAO	Government Accounting Office
GE	General Electric Company
GPC	Georgia Power Company
GPUN	GPU Nuclear Corporation
IE	(See NRC/IE)
IEB	Inspection and Enforcement Bulletin (NRC)
IELPCO	Iowa Electric Light and Power Company
IMECO	Indiana and Michigan Electric Company
IR	Inspection Report (NRC/Region)
JCP&L	Jersey Central Power and Light Company
Met-Ed	Metropolitan Edison Company
MYAPCO	Maine Yankee Atomic Power Company
NMP	Niagara Mohawk Power Company
NNECO	Northeast Nuclear Energy Company
NPPD	Nebraska Public Power District
NRC/IE	Nuclear Regulatory Commission/ Office of Inspection & Enforcement
NRR	Office of Nuclear Reactor Regulation (NRC)
NSP	Northern States Power Company
NSSS	Nuclear Steam System Supplier
OL	Operating License
OPPD	Omaha Public Power District
PA	Public Address
PASNY	Power Authority of the State of New York
PECO	Philadelphia Electric Company
PGE	Portland General Electric Company
PSE&G	Public Service Electric and Gas Company
R	Region (NRC)
RG&E	Rochester Gas and Electric Corporation
SCE	Southern California Edison Company
SDI	Shut Down Indefinitely or Permanently
SMUD	Sacramento Municipal Utility District
TECO	Toledo Edison Company
TMI	Three Mile Island
TVA	Tennessee Valley Authority
VEPCO	Virginia Electric and Power Company
VYNP	Vermont Yankee Nuclear Power Corporation
W	Westinghouse Electric Corporation
WEPCO	Wisconsin Electric Power Company
WPS	Wisconsin Public Service Corporation
YAECO	Yankee Atomic Electric Company

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EVACUATION OF PERSONNEL FROM HIGH-NOISE AREAS

NOVEMBER 1979