MAR 14 1986

50-346

MEMORANDUM FOR: Charles E. Norelius, Director, Division of Reactor Projects

THRU: Carl J. Paperiello, Director, Division of Reactor Safety

FROM: Luis A. Reyes, Chief, Operations Branch, Division of Reactor Safety

SUBJECT: DAVIS-BESSE STUDY GROUP REPORT

References: 1. Memo dated July 5, 1985, C. E. Norelius to J. G. Keppler
2. Memo dated June 21, 1985, C. E. Norelius to J. G. Keppler

As stated in references "1" and "2" above, the Davis-Besse Study Group conducted a broad review of the history of Davis-Besse. The Study Group conducted its review using LER and inspection history, status of TMI items, and a historical review of management and enforcement meetings. In addition to the attached report, the Study Group actively supported the responses to Representative E. J. Markey.

As a result of this review, the Study Group identified areas where there was no evidence of improvement. These areas include (1) procedure violations and (2) the control of doors with multiple functions such as fire and ventilation boundaries. These areas should be reviewed by the inspection staff during the upcoming startup activities to assure that the licensee has taken effective corrective action in these areas.

During the review of LERs, the Study Group identified deficiencies regarding maintenance and housekeeping activities. The Study Group did not pursue these findings because this area is the subject of review by the Division of Human Factors Safety as part of the Safety Evaluation Report to be issued prior to the unit startup, and significant improvement in housekeeping was observed subsequent to the June 9, 1985, event.

The most significant finding of the Study Group is the fact that there were multiple equipment failures during five different reactor trips in the last six years. Although the corrective action for each event and equipment failure appears to be adequate, the historical performance raises questions about the licensee's overall programs and the lack of NRC historical review subsequent to similar events. The Study Group recommends that current inspection procedures for event followup (93700 series) be revised to include guidance regarding a review of other reactor trips with multiple equipment failures.

FEU 1/1

The attached report covers the remaining activities covered under references "1" and "2" above and is considered the last activity of this group.

ORIGINAL SIGNED BY LUIS A. REYES

Luis A. Reyes, Chief
Operations Branch

Attachment: As stated

cc w/attachment:
J. Gleason, ASLBP
J. G. Keppler
A. B. Davis
J. A. Hind
C. J. Paperiello
T. N. Tambling
B. L. Burgess
P. M. Byron, SRI,
Davis-Besse

RIII
Reyes/mab
03/14/86

RIII
Paperiello
3/17/86

STUDY GROUP REVIEW OF
PERFORMANCE HISTORY FOR DAVIS-BESSE
NUCLEAR POWER STATION

FINAL REPORT

Study Group Members:

L. A. Reyes

T. N. Tambling

B. L. Burgess

D. L. Williams

TABLE OF CONTENTS

I. Executive Summary

Subsequent to the Davis-Besse June 9, 1985 event, Region III established a study group to review the performance history of Davis-Besse. The study group conducted a review of Licensee Event Reports, Deviation Reports (DVRs), and Enforcement History. Upon completion of the review the study group concluded that:

A. Multiple equipment failures were experienced during five reactor trips that occurred during the period of review. (See Section III.D.)

B. Prior to the June 9, 1985, event the licensee had not successfully identified the root causes and provided lasting corrective action for many component failures/malfunctions.

C. Poor housekeeping has been identified on many occasions as the cause for safety-related equipment malfunctions. Significant improvement was observed subsequent to the June 9, 1985, event. (See Section III.B.1.)

D. Many instances of inadequate maintenance activities have resulted in safety-related equipment being degraded or inoperable. (See Section III.B.2.)

E. Numerous procedure violations were identified throughout the review period with no indications of improvement. (See Section III.E.)

F. Plant regulatory performance has historically been poor (numerous Level IV and V violations and several escalated enforcement cases in the last year).

G. A decrease in overall SALP rating occurred subsequent to SALP 3.

II. Introduction and Methodology

The Study Group conducted a review of the Davis-Besse Nuclear Power Plant Licensee Event Reports (LERs) beginning with TMI restart activities in 1979 until the present (Attachment C). Due to the revised threshold for LER reportability instituted in January of 1984, the LERs for 1984 and 1985 are not detailed in the review but a listing of the more significant events is included in Attachment C.

A review of licensee Deviation Reports (DVRs) for calendar years 1984 and 1985 was also conducted. The purpose of the review was to evaluate potential trends and determine if these trends could have identified the probability of the events of June 9, 1985, and to determine if any other problems surfaced which are not already being addressed by the licensee or the NRC.

In addition, the enforcement history of the Davis-Besse Nuclear Plant was reviewed starting in 1979 and continuing through August 1985. The review consisted of an examination of violations and performance history and an analysis of any trends found. Details of the review are delineated in Attachments F, H, and I. The analysis is based on a breakdown of violations into the categories of (A) Procedural Violations, (B) Technical Specification violations, and (C) miscellaneous violations. These categories were selected to give the reviewer a different perspective than that gained utilizing the more conventional methodology of the Systematic Assessment of Licensee Performance (SALP) process. However, a breakdown of violations into SALP Categories is provided in Attachment F. To provide the reader with a perspective of the number of man-hours spent per calendar year, Attachment G was devised and comparisons can be made between Attachments F and G to draw conclusions as to the number of violations vs. man-hours.

III. Observations and Findings

A. The licensee has demonstrated inadequate investigation and corrective actions for some system component failures. These are:

1. Repetitive failure of valve CC1467 Component Cooling Water Heat exchanger outlet to operate correctly. The licensee adjusted the torque switch setting, initiated a design change to the actuator linkage and subsequently discovered that a flanged bearing had not been installed for several years or as early as initial installation. Failure to install the flanged bearing was determined to be the root cause for the failures experienced. See LERs 79-98, 79-125, 81-23 and 82-64 (Attachment C).

2. Repetitive failure of source range nuclear instrument NI-1. Following each failure the licensee would declare the instrument operable after successfully completing surveillance procedures. Subsequent investigation revealed a weak preamplifier signal and ultimately the containment penetration associated with NI-1 was replaced. Problems with NI-1 have continued to reoccur and were present during the June 9, 1985 event. This finding is addressed by the licensee in the Course of Action (C.O.A.) Plans 15A and 15B. See LERs 79-78, 79-92, 80-54, 80-59 and 82-35 (Attachment C).

3. Continuous problems with the latching mechanism for the personnel air lock. The licensee is currently evaluating possible resolutions recommended by the vendor and proposed under Facility Change Request (FCR) 85-0178. These changes are scheduled to be implemented during the next refueling outage. See LERs 80-73, 81-67 and 83-39 and DVRs 81-181, 83-087 and 85-009 (Attachments C and D).

4. Continuing problems with fire and ventilation boundary doors closing/latching mechanisms. As of the time of this review, the licensee does not appear to have resolved these problems. See LERs 81-07, 81-42, 82-03, 82-16, 82-31, 82-43, 82-57, 83-06, 83-21, 85-14 and DVRs 84-044, 85-087, 85-095 and 85-116 (Attachments C and D).

5. Recent recurrent problems maintaining nitrogen pressure in electrical containment penetrations. The licensee is developing a corrective action at this time and has proposed a facility change request to install a bank of nitrogen bottles to resolve this problem. See DVRs 84-102, 84-108, 84-109, 84-112, 84-115, 84-121, 85-068 and 85-090 (Attachment D).

6. Repetitive failure of Auxiliary Steam supply valve MS106 to open. Originally identified in LER 79-02, ten months later the licensee finally discovered that the valve actuator had been assembled incorrectly. This is part of the licensee's C.O.A. action plan 27. See LERs 79-73 and 79-112 (Attachment C).

B. The licensee's housekeeping and maintenance program appears inadequate as demonstrated by the following examples of equipment problems directly attributable to the presence of dirt, improper lubrication or inadequate assembly during maintenance.

1. The failure of several Containment Isolation valves to operate successfully due to inadequate housekeeping. See LERs 80-02, 80-14, 80-42, 81-20, 82-27, 83-20, 83-44, 83-60, 84-14, 85-04 and DVRs 84-018, 84-059, 85-037, 85-052, and 85-126 (Attachments C and D). Significant improvement was observed in this area subsequent to the June 9, 1985, event.

2. The following LERs indicate as their cause code inadequate maintenance or inadequate maintenance procedures. These actions or lack of actions rendered the following equipment inoperable. Auxiliary Feedwater (6 times), Diesel Generator (2 times), Emergency Ventilation (2 times), Fire Protection (2 times). See LERs 79-71, 80-03, 80-94, 81-40, 83-10 and 83-57 for Auxiliary Feedwater (AFW); 79-128 and 79-129 for Emergency Ventilation; 83-22 and 83-27 for Diesel Generator; 82-56 and 83-46 for Fire Protection (Attachment C).

C. The licensee has experienced a continuing problem with motor-operated valves' torque switch settings. At least 11 LERs are attributed to incorrect torque switch settings. Many of these LERs have multiple valves listed. Several valve failures that occurred during the June 9, 1985 event were due to incorrect torque switch settings. See LERs 79-83, 79-90, 79-112, 80-14, 80-24, 83-09, 83-20, 83-27, 83-44, 83-60, 84-003, and DVRs 84-058, 84-060 and 85-118 (Attachments C and D).

D. During the review of licensee DVRs, 11 incidents of personnel failing to follow the lifted leads and jumper procedure were identified. The incidents involved failure to notify operations personnel, improper tagging of lifted leads, and jumpers left installed in systems. See DVRs 83-131, 84-049, 84-074, 84-086, 84-152, 84-153, 84-157, 84-160, 85-005, 85-035 and 85-079 (Attachment D).

A comprehensive independent review of LERs prior to 1984 would have raised concerns for the adequacy of the licensee's programs. It appears that the possibility for multiple failures of components during the June 9, 1985 event could have been foreseen. Some LERs indicate that multiple component failures had already occurred when systems were called upon to function. See the following LERs:

LER 79-96 Reactor trip, loss of offsite power due to failure of generator output breaker, failure of Component Cooling Water (CCW) and Service Water (SW) pumps to start, and inability to restart a Reactor Coolant Pump (RCP) due to defective couch relay.

LER 81-37 Reactor trip, loss of instrument power due to abnormal lineup, AFW pump did not respond properly, and Main Steam Safety Valve (MSSV) SP17B4 failed to reseat and loss of more than one saturation meter due to wiring diagram error.

LER 84-03 MSIV closure, reactor trip, one MSSV failed to open (SP17A1), one MSSV failed to reseat (SP17A4), failure of AF599 to open (Auxiliary Feedwater supply to SG).

LER 85-02 Integrated Control System (ICS) controlling steam generator levels erratically, reactor trip, AFW Train No. 1 transferred suction to service water, attempts to restore proper lineup isolated an AFW pump and caused short-term cavitation of pump.

LER 85-11 High turbine vibration, reactor trip, main feedwater pumps trip, AFW pump 1 did not respond properly.

E. During the LER/DVR review, over 300 procedure violations have been identified. This appears to be a significant number of violations. The areas that indicate the most concerns are:

1. Technical specification violations due to inoperable equipment (31 incidents); failure to complete surveillances (65 incidents) (Attachment A).

2. Control of valves; 22 incidents identifying valves mispositioned, seven incidents for valves position not reflected in locked valve log and six incidents for valves not properly locked into position (Attachment A).

3. Control of equipment; seven incidents of improper removal of equipment from service and ten incidents of failure to follow jumpers and lifted leads procedure (Attachment A).

4. Fire protection, 19 incidents of fire doors open, 31 incidents of improperly sealed fire barrier penetrations, eight incidents of inadequate fire watch, and 13 incidents of equipment inoperable (Attachment A).

The review was unable to attach significance to the number of procedure violations, but the examples listed above indicate more attention by the licensee is needed. The procedure violations did not show a significant decreasing trend, and this area should be addressed by the licensee's staff.

F. Approximately 233 violations were issued at Davis-Besse during the period 1979 through 1985. This number does not include the proposed violations under consideration for the June 9, 1985 event, but does include the nine violations proposed for the escalated enforcement package under consideration in the fire protection area. Of the 233

violations, 46 were issued for failure to follow procedures and nine violations for inadequate procedures. The majority of these violations are clustered in the areas of Operations, Maintenance, and Quality Assurance. The root cause was identified by both Region III and the licensee as inadequate management controls and training. Of particular concern were the repetitive violations issued for failure of the Site Review Board (SRB) to review procedures and the licensee's inability to maintain controlled drawings and procedures. (See Attachment I.A. Report Nos. 7914, 7919, 8008, 8301, 8401, 8412, 8429, 8501).

Thirty-seven violations of Technical Specifications (T.S.) were issued excluding T.S. 6.8.1 (failure to follow procedure) which is discussed above. The type of repetitive violations identified in the above paragraph are again highlighted here. The Site Review Board and the Corporate Nuclear Review Board were repeatedly cited for failure to review violations and procedures (See Attachment I.B. Report Nos. 7928, 8103, 8225, 8409, 8501.) The remainder of the violations fall into the areas of Operations, Maintenance, Surveillance, and Fire Protection and do not indicate any unusual or previously unidentified trends.

Thirty-seven violations of 12 of the 18 Appendix B criteria were identified (excluding Criterion V) and were broken down as follows:

*Criterion XVI - Corrective Action - 9 violations
*Criterion III - Design Control - 4 violations
*Criterion VI - Document Control - 4 violations
*Criterion XVII - Quality Assurance Records - 4 violations
*Criterion XII - Control of Measuring and Test Equipment - 3 violations
*Criterion XIII - Handling and Storage - 3 violations
*Criterion II - Quality Assurance Program - 2 violations
*Criterion X - Inspection --2 violations
*Criterion XI - Test Control - 2 violations
*Criterion XV - Nonconforming Materials, Parts and Components - 2 violations
*Criterion XIV - Inspection, Test, and Operating Status - 1 violation
*Criterion XVIII - Audit - 1 violation

*See Attachment I.B.

Although the issuance of only one violation in an area might not indicate a problem, the repetitive violations issued for Criteria III, VI, XVI, and XVII indicate a lack of adequate management controls and inability to identify root causes and/or effectively implement adequate corrective actions.

Seventy-four violations were included in the miscellaneous section of Attachment I. The majority of these violations (51) are security violations, of which 44 were identified in the 1979 to 1982 time frame. Recent inspections in the security area have shown improvement in licensee performance and this improvement is indicated in Attachment 3.

The remainder of the violations can be clustered in the areas of fire protection, failure to report noncompliances, and license violations. These violations do not indicate any unusual trends with the exception of the failure to report noncompliances, which, in hindsight can be said to indicate an underlying communication problem.

Based on a review of the violations and enforcement and management meetings, the review did not identify trends in licensee performance that were not previously identified by the inspection program. The number and repetitive nature of procedural violations as well as continued lack of adequate management controls and adequate corrective action are key elements in the inability of the licensee to turn around their regulatory performance. (Recent corrective action addressing these problem areas has been taken by the licensee.) However, the number of management and enforcement meetings, as well as the continue concentrated inspection effort by the Region, was ineffective in providing lasting improved licensee performance. Although almost every tool with respect to regulatory actions was taken in an attempt to turn around licensee performance, the final result was only marginal improvement in some areas with no improvement noted in others. (See SALPs 2-4 Attachment F.)

G. A decrease in overall SALP rating occurred subsequent to SALP 3. The issues identified in the SALP 4 report indicated a further decline in licensee performance and resulted in increased NRC attention. Several management meetings resulted in the licensee implementing an extensive and comprehensive corrective action program entitled the Performance Enhancement Program (PEP). Subsequent to the June 9, 1985 event the licensee determined that full implementation of the PEP was not cost effective and instituted the Course of Action regulatory improvement program. Region III dedicated inspectors and management to overview COA activities and results of inspections completed to date have indicated an improved overall performance.

ATTACHMENT A

PROCEDURE VIOLATIONS IDENTIFIED VIA LER/DVR REVIEW

	YEAR							
	79	80	81	82	83	84	85[1]	Total
Technical Specification violations due to								
1. equipment	0	4	5	7	7	6	2	31
2. surveillance	8	17	15	6	5	11	3	65
Control of valves								
1. mispositioned	1	1	3	4*	1*	7*	5*	22
2. log book not reflective of actual position	1	0	0	3	1	0	2	7
3. improperly locked	0	1	1	2	0	1	1	6
4. miscellaneous (procedures, drawings	1	2	0	0	0	1	0	4
Control of equipment								
1. improper removal of equipment from service	0	1	2	0	2	1	1	7
2. failure to follow jumper and lifted wire procedure	0	1	0	0	2	6	1	10
Fire protection								
1. open fire doors	0	0	1	6	7	4	1	19
2. improper fire seals (penetrations)	0	1	4	10	5	11	0	31
3. inadequate fire watch	0	0	1	4	1	1	1	8
4. equipment inoperable	1	0	1	2	2	5	2	13
Non-detailed procedure violations	19	6	18	16	15	14	10	98
Total procedure violations	31	34	51	60	48	68	29	321

*82 - not fully shut (1);
83 - uncapped, mislabeled (1);
84 - uncapped, open (2);
uncapped (1);
85 - uncapped (5), gagged (2)

[1] as of September 1985

ATTACHMENT B

TOTAL NUMBER OF LERs BY SYSTEM

System	YEAR								Grand Total
	79*	80	81	82	83	Total	84	85	
Fire Protection	3	7	7	6	12	35	6		41
Cooling/Ventilation	4	3	7	13	7	34	4		38
Aux Feedwater	8	6	4	5	8	31	2	4	37
Containment Isolation	0	13	6	2	8	29	2	2	33
Radiation Monitors	7	1	7	8	5	28	0	2	30
Control Rods/Indication	8	8	5	1	4	26	0	1	27
Decay Heat	3	7	5	3	4	22	0	0	22
SFRCS	6	4	2	4	4	20	1	0	21
Nuclear Instruments	3	5	0	3	2	13	1	0	14
120V AC Essential	2	4	1	2	4	13	1	0	14
Diesel Generators	1	4	3	1	3	12	0	0	12
MSIV/MSSV	0	2	3	1	2	8	2	0	10
BWST	0	4	2	1	1	8	0	0	8
Snubber/Hangers	2	4	0	1	1	8	0	0	8
SFAS	2	5	2	1	1	11	0	1	12
RPS	2	3	5	0	1	11	0	0	11
BAAT	1	1	0	1	1	3	0	0	3
Spent Fuel Pool Level	0	1	0	1	1	3	0	0	3
RCS	3	3	7	2	3	18	1	1	20
HPI	2	1	2	2	1	8	1	0	9
CS	1	1	0	1	0	3	0	0	3
CFT	1	1	0	1	0	3	0	0	3
CCW/SW/MU	2	2	1	4	0	9	1	0	10
480/4160/offsite	1	2	5	1	1	10	0	0	10
OPT/APSR	0	0	2	1	3	6	1	0	7
Incore	1	0	0	1	0	2	0	0	2
Other	2	2	5	1	2	12	1	1	14
	65	94	81	68	78	391			

*Beginning with 1979 Restart activities after TMI Order was lifted.

ATTACHMENT C

SELECTED LERs LISTING BY SYSTEM

FIRE PROTECTION LER REVIEW

Event Date	Cause Code	LER Number	Description
11/22/79	D	79-115	Computer failure, failed to conduct fire watch tours
12/10/79	X	79-127	System 7 Contact Data logger failure
12/29/79	X	79-134	System 7 Contact Data logger failure
01/12/80	A	80-06	Fire damper inoperable - material interference
01/16/80	D	80-08	Penetration not sealed, procedure not clear
03/13/80	E	80-21	Diesel fire pump would stop, start
03/30/80	E	80-26	Fire detector DS 8656 failed twice, cleaned contacts
07/09/80	X	80-55	Fire damper HA 5441 inoperable, cause undetermined
08/23/80	E	80-63	Fire damper HA 5442 blown fuse
08/28/80	E	80-70	Diesel firepump inoperable, multiple problems
03/16/81	A	81-22	Penetrations unsealed, 2 events
08/07/81	A	81-46	5 penetrations not sealed
10/18/81	A	81-65	Fire watch not established after turnover
10/24/81	D	81-68	Penetration not sealed, procedure
11/05/81	A	81-72	3 penetrations unsealed
12/02/81	B	81-77	Conduit pull boxes not sealed
12/03/81	A	81-78	Fire door 308B propped open
05/30/82	A	82-26	Fire door 504 propped open 3 times
08/08/82	A	82-36	Penetration not sealed
08/29/82	E	82-43	Fire door 428C latching mechanism not working
09/17/82	A	82-48	Personnel left fire watch station
11/04/82	E	82-56	Jocky fire pump seized
11/16/82	B	82-61	Doors 509 and 512 had improper UL rating labels
01/26/83	E	83-06	Door 311 would not latch
04/29/83	E	83-25	Fire zone detector failure, containment
06/14/83	A	83-30*	Floor plugs removed in Auxiliary Building
06/20/83	Y	83-33	Fire detector failure, containment
07/27/83	B	83-41	3 fire dampers wouldn't work, original construction
08/01/83	A	83-42	3 fire doors open, 601, 602, 101A
08/30/83	B	83-46	15 fire dampers inoperable
10/06/83	A	83-55	2 fire doors found open, 203 and 108
10/21/83	C*	83-58	Penetration not sealed
11/10/83	B	83-63	Separation criteria "Bechtel did not verify as-built conditions"
11/24/83	A	83-67	Failure to post fire watch
11/30/83	B	83-69	Attachments could degrade fire doors

COOLING/VENTILATION LER REVIEW

Event Date	Cause Code	LER Number	Description
08/06/79	B	79-84	Response time of containment air coolers
07/25/79	B	79-86	CRVS compressor motor failure
12/10/79	E	79-128	Charcoal beds not torqued down
12/11/79	E	79-129	Charcoal beds not torqued down
06/08/80	D	80-47	Doors blocked open
08/29/80	A	80-66	Doors open, 9 times
10/13/80	B	80-77	C.R. ventilation did not close in T.S. time
01/22/81	E	81-07	Door 306 latch not working
02/18/81	E	81-13	Blown fuse in chlorine detector caused dampers to close, heat tracing and fuse size
02/27/81	A	81-15	Door 107 propped open
07/24/81	E	81-42	Door 302 latch not working
09/25/81	E	81-55	Door 108 found open, twice
09/15/81	D	81-57	ECCS room coolers out of service at same time
11/30/81	B	81-76	Door 306 open twiceclosure not adequate
01/08/82	B	82-03	Door 400 failure of latch
01/12/82	A	82-04	Door 108 open
02/08/82	E	82-08	ΔP transmitter vent line frozen
02/09/82	D	82-09	Door 107 open twice
03/11/82	A	82-14	Door 101A open
03/12/82	A	82-15	C.R. ventilation not in recirc. when CL_2 detector failed
03/12/82	E	82-16	Door 108 latching mechanism
05/12/82	A	82-22	Door 302 open
06/25/82	B	82-31	Doors 500, 302 and 426 door, closing mechanism
08/16/82	X	82-37	Door 306 seal damaged
10/21/82	A	82-54	Door 107 open
11/05/82	A	82-57	Door 400 open, closing mechanism
12/01/82	A	82-65	CRVS not in recirc. when CL_2 out of service
03/03/83	D	83-12	1 of 2 ECCS room coolers inoperable
03/04/83	E	83-13	Plugged orifice CL_2 detector actuated all control room HVAC
05/02/83	E	83-21	Door 406 closing mechanism
06/14/83	A	83-30*	Floor plugs in Auxiliary Building (fire)
07/06/83	E	83-35	Door 306 open
09/05/83	E	83-49	Door 306 broken
11/17/83	B	83-65	Conduit not properly supported

AUXILIARY FEEDWATER LER REVIEW

Event Date	Cause Code	LER Number	Description
07/04/79	E	79-71	Valve AF 3870 motor failure, maintenance, component
07/08/79	B	79-73	Valve MS106 torque settings
07/07/79	B	79-74	Pressure switch (CST to SW) had wrong diaphram and microswitch setting
07/05/79	E	79-77	MS106 relay sockets, inadequate contact
08/27/79	A	79-90	MS107 seat wear, corrosion, torque setting
09/25/79	X	79-95	MS 106 control fuse-fault MS106A R2 relay-socket replaced twice
10/22/79	X*	79-102	AFW pump 1-1 loss of lube oil, loose sight glass
11/19/79	B	79-112	MS106 failed to open, appears torque setting changed, subsequent investigation 3 weeks later it was discovered spacers installed upside down
01/03/80	E*	80-03	AF Pump 1-1 clutch misadjusted
03/27/80	E	80-24	MS107 closed randomly, changed torque setting low suction switchover added 2½ sec. delay
04/11/80	E	80-34	Pressure switch PSL-106B, vendor found microswitch mounting screws loose
11/28/80	E	80-84	PSL-107D microswitch stem worn-replaced
12/19/80	E	80-92	Couch relay R1, replaced
12/26/80	D	80-94	AFWP 1-2 bad outboard bearings, lack of lubrication
06/04/81	E	81-32*	AF599 failure activation circuits, relay driver board
06/24/81	A*	81-37*	AFP 1-2 governor
07/22/81	D*	81-40	AFWP 1-2 speed element not adjusted
07/30/81	E	81-45	AFWP 1-2 governor
03/23/82	A	82-17	AFWP 1-1, 1-2, FW 786 and 790 suction isolation in wrong position (appear to have been locked)
04/19/82	B	82-19	AFW header in SG damaged
07/04/82	A	82-32	AFP 1-2, SW6 supply in wrong position
09/04/82	X	82-45	FW 786 closing/closed, no cause determined
12/13/82	B	82-66	AFW Pump 1-1 terminal board not mounted seismically (Aux. shutdown panel)
02/07/83	E*	83-10	MS106A stem dirty, lubricated, PM
02/11/83	A	83-11	Personnel bumped trip throttle valve to trip
04/07/83	E	83-16*	LT-SP9A3 amplifier - AFWP 1-2 could not control SG level in auto-essential
05/24/83	E	83-26*	Failed input buffer in SFRCS would have prevented AFWP flow to SG No. 2
06/28/83	B*	83-32	Personnel turned off power supply for AFW flow indication to SG No. 1
07/25/83	B	83-40	AFWP 1-1 clutch, adjustment attempted, had to install new style clutch
10/15/83	E	83-57	AFP 1-2 started then tripped, trip linkage sticky, happened during feedwater transient
11/03/83	D	83-59	AFP 1-2, MS107A control power fuse, no cause determined

CONTAINMENT ISOLATION LER REVIEW

Event Date	Cause Code	LER Number	Description
01/03/80	E	80-02	Valve DW6831B limit switch - LER unclear if valve actually closed or LLRT tested after maintenance
02/08/80	D*	80-14	2 events RC240B - 1) torque switch setting wrong 2) stripped screw-replaced torque switch
02/13/80	D	80-16	Failure to do T.S. surveillance after containment entry
03/06/80	A	80-20	Valve CV 5072 breaker open - personnel bumped
03/17/80	E	80-22	Valve CV 5010E had power removed - breaker open
05/10/80	E	80-42	4 valves exceeded leakage MU 242, MU 243, MU 244, MU 245 valve seats lapped
08/12/80	D	80-61	SV 5005 installed in 1076, not qualified
10/02/80	E	80-72	Valve CV 5011E failure
10/08/80	E	80-73	Personnel airlock, inner door would not latch due to broken cam roller bearings
10/08/80	D	80-74	Personnel airlock T.S. surveillance missed
11/17/80	D	80-79	Inadequate testing containment pressure transmitters
12/06/80	X	80-87	Valve CV 5006 would not stroke, cause unknown
12/19/80	B	80-93	Valve DW 6831B would not meet stroke time
03/24/81	E	81-20	Valve CV 501A, handweel would not disengage
06/24/81	B	81-35	Valves CV 5005, 5006, 5007, 5008 design could prevent closing
07/18/81	A	81-39	Personnel airlock surveillance not completed
08/20/81	D	81-50	Failed to test check valves (CV 124, CV 125, NN 58, SA 502, IA 501) per ASME XI & T.S.
10/04/81	D	81-62	Valve SA 535 open, required for isolation
10/22/81	E*	81-67	Personnel airlock outer door did not latch shut, cam roller bearings. Inner door was opened during this event.
06/08/82	E	82-27	8 valves failed leakage limits SA 502, SA 2010, CV 125, CF 1451, CC 1411B
	B, A		CV5010A, CV 5005, CV 5006 4 had dirty seats, 2 had wrong seat material (hard). 2 had limitorque adjustments.
08/20/82	B	82-39	Annulus T.S. pressure limit exceeded. Purge valves closed due to design problems
01/27/83	D	83-05	Personnel airlock surveillance limits and T.S. limits different
02/07/83	E	83-09	Valve CV 5010D torque switch failure
04/28/83	E	83-20	Valve RC 240B, torque settings, lack of lubrication
07/26/83	B	83-39	Personnel airlock, door remained open while latching handwheel indicated shut. Design from vendor

Event Date	Cause Code	LER Number	Description
08/22/83	E	83-44	4 valves CC 1407B, SA 2010, DR 2012A, CC 1411B Dirty internals, rust, dirt on seat, torn liner and torque settings
11/04/83	E	83-60	3 valves CV 5090, CV 5071, CV 5070 Torque switch, improper maintenance, faulty control switch. 2 occurrences
11/11/83	E	83-64	Valve FV 1CS-11A loss of auto closure solenoid
12/19/83	X	83-73	Valve CV 5011E failed to close electrically, no cause determined

RADIATION MONITORING LER REVIEW

Event Date	Cause Code	LER Number	Description
07/16/79	B	79-80	RE 2005 failed
07/17/79	B	79-81	RE 5029 pump failure - bearings
07/20/79	B	79-82	RE 5030 pump failure - carbon vanes
07/22/79	B	79-85	RE 5030 pump
08/11/79	B	79-89	RE 2005 - vibration causes spiking
10/17/79	B	79-101	RE 2005 low range boards; auxiliary boards
12/03/79	D	79-119	RE 1878A, RE 1878B - procedure allowed contaminated fluid to increase setpoint
07/09/80	A	80-56	RE 2006 - procedure
05/05/81	D	81-28	Liquid releases without current surveillances complete - RE 1878A, RE 1878B
06/16/81	X	81-36	RE 5030 inoperable, hose loose
07/24/81	E	81-43	RE 5030 pump worn out
09/09/81	E	81-54	RE 5029 pump components worn out
09/26/81	E	81-59	RE 5030 paper tape filter torn
10/21/81	E	81-64	RE 5029, RE 5030 low flow setpoints
09/19/81	E	81-69	Several rad. monitors, blown power supply fuse
01/03/82	B	82-02	RE 2007 broken wire
01/26/82	E	82-05	RE 2007 failed
03/02/82	E	82-13	RE 2007 failed, 3 times
09/20/82	E	82-49	RE 4597AB software, flow control valve
10/21/82	E	82-55	RE 2007, failed twice, replaced
11/06/82	E	82-58	RE 4597E microprocessor
11/08/82	E	82-59	RE 4597AA, RE 4597BA failed boards
12/17/82	E	82-67	RE 8447 detector failed
04/17/83	E	83-18	RE 2007 detector failed
06/03/83	E	83-28	RE 8445, RE 8447 failed, fuse
07/15/83	X	83-36	RE 2007, failed 3 times
09/25/83	X	83-53	RE 8446 de-energized - cause unknown
10/10/83	E	83-56	RE 8446 inoperable, fuse in power supply cabinet

CONTROL ROD MECHANISM/INDICATION LER REVIEW

Event Date	Cause Code	LER Number	Description
07/08/79	B	79-72	Group 8 Rod 2 reed switch
07/12/79	B	79-79	Group 8 Rod 4 oxide buildup reed switch
07/20/79	B	79-83	Group 5 Rod 4 reed switch
07/31/79	B	79-87	Power supply failure, Group 6 out > T.S. limit
10/14/79	B	79-100	Group 7 Rod 7 cable replaced
11/23/79	X	79-116	Group 5 Rod 11 reed switch
11/29/79	B	79-120	Rod 7-5 reed switch
11/30/79	B	79-121	Rod 8-1 position indication meter
01/07/80	D	80-04	Rod 5-11 reed switch
01/16/80	A	80-07	Missed T.S. surveillance - LER 80-04
02/08/80	E	80-13	Blown fuse Rod 5-11
02/10/80	D	80-15	Rod 5-11 reed switch
03/27/80	E	80-23	+24V DC power supply, Groups 3 and 4 stepping in
03/30/80	D	80-25	Rod 5-11 reed switch
05/14/80	B	80-40*	20 holddown springs broken
11/03/80	X	80-80	Control Rod trip breakers would not trip breaker C (2X), breaker D (IX)
02/12/81	E	81-12	Rod 1-3, noise at containment electrical penetration
03/23/81	E	81-19	Rod 4-7, elect. penetration module
06/25/81	E	81-38	Rod 5-8, anti-rotation device shattered
10/03/81	E	81-61	Rod 4-7, containment penetration
10/26/81	E	81-70	Control Rod trip breaker B failed to trip
02/25/82	E	82-11	Blown fuse transfer switch module - dropped Rod 5-2
09/30/83	E	83-54	Group 8 motor programmer
11/09/83	E	83-62	Group 2 and 3 programmer board and dirt
11/29/83	E	83-68	Rod 7-12 motor programmer
12/05/83	E	83-71	Rods 5-2, 7-1 and 7-9 motor power return gate SCR

DECAY HEAT REMOVAL SYSTEM

Event Date	Cause Code	LER Number	Description
10/04/79	B	79-98	DH/CCW Hx outlet valve CC 1467 would not open - slippage of control linkage
11/08/79	E	79-108	DH pump 1 cutout switch damage - breaker would not close
12/08/79	B	79-125	Valve CC 1467 - slippage of linkage - LER 79-98
04/18/80	E	80-30	DH 62 actuator out of calibration
04/10/80	E	80-35	Valve DH 14A mechanical interference, radial arm mounting bolts
05/28/80	D	80-43	Procedure allowed I&C to inadvertently close DH 11 valve. (No jumper called for) No flow to RCS
05/31/80	A	80-44	Personnel removed discharge pressure indication while running
07/10/80	D	80-57	Procedure allowed removal of DC power from DH 14A, resulted in exceeding T.S. limit for DH flow to RCS
07/24/80	A, D* and A	80-58	3 events stopped DH flow when needed
08/13/80	A	80-60	Personnel failed to defeat interlock and caused loss of flow to RCS when required
01/07/81	B	81-04	DH pump 1-1 breaker would not operate. Cut off switch
02/26/81	E*	81-14	Set rod bushing installed incorrectly DH 64
03/09/81	E	81-17	DH 63 torque switch faulty
04/03/81	X*	81-23	Flanged bearing CC 1467 not installed LER 79-98, LER-125
07/27/81	A	81-44	Fuse cartridge plug-in bent - DH pump 1-2
02/19/82	A	82-10	DH 10 locked into wrong position verified, signed off
09/09/82	E	82-46	24V DC power supply - flow indication
11/29/82	B	82-64	CC 1467 flanged bearing not installed
01/19/83	A	83-04	Personnel failed to remove jumper - could have overpressurized system
09/06/83	X	83-50	Failed to perform T.S. surveillance
09/22/83	A	83-52	Failed to position valve DH 13A prior to mode change
12/17/83	A	83-72*	Procedure failed to position valves for overpressure protection

STEAM FEEDWATER RUPTURE CONTROL SYSTEM

Event Date	Cause Code	LER Number	Description
07/05/79	E	79-70	+24V DC power supply channel 1
09/01/79	E	79-91	Optical isolator channel 3
09/17/79	E	79-83	Optical isolator channel 3
10/04/79	E	79-97	+15V DC power supply channel 4
11/09/79	B	79-105	Low level setpoints less conservative that T.S. limits
12/12/79	B	79-131	2 events, setpoint drift, +15V DC channel 4 power supply
01/31/80	E	80-11	+15V DC power supply channel 11
03/31/80	E	80-27	+15V DC power supply channel
04/18/80	E	80-37	GS level setpoint zero shift, 2 setpoints, 2 SG
10/08/80	X	80-75	SG level setpoint zero shift channel 3
04/01/81	E	81-21	+24V DC power supply
06/04/81	F	81-32*	Failed Relay driver card, SFRCS channel 2
09/16/82	H	82-44	Personnel failed to complete T.S. surveillance
09/21/82	E	82-51	48 V DC power supply channel 3
10/18/82	E	82-53	24V DC power supply channel 2
11/18/82	E	82-60	48V DC power supply channel 2
04/07/83	E	83-16*	LT SP9A3 amplifier, would not control in auto-essential
04/21/83	E	83-19	15V DC power supply 2X channel 3
05/24/83	E	83-26*	Failed input buffer, channel 2 - No AFW to SG 2
07/25/83	E	83-38	48V DC power supply channel 2 48V DC power supply channel 3

NUCLEAR INSTRUMENTS LER REVIEW

Event Date	Cause Code	LER Number	Description
07/10/79	X	79-78	NI 1-1 failed twice; LER 80-59 no cause determined
09/08/79	E	79-92	NI-1 & NI-3 failed low, clean cable connector and during later outage replace NI-1 cable and NI-3 detector
12/31/79	D	79-132	Procedure allowed non-conservative values
01/22/80	B	80-09	NI-7 out of calibration
05/11/80	E	80-41	NI-2 test module failure, personnel were turning down audible count in containment
06/09/80	A	80-45	NI-2 input for audible not connected
06/27/80	E	80-54	NI-1 failed, no cause determined
07/20/80	E	80-59	NI-1 failure - discovered weak preamp signal - LERs 79-78, 92 and 80-54, 59
03/26/82	B*	82-18	Personnel cut power cable for NI-2
05/05/82	D*	82-21	Personnel disconnected audible input during surveillance
07/19/82	E	82-35	NI-1 containment penetration module replaced
08/27/83	B*	83-45	NI-2 inoperable, technician shorted leads
12/20/83	X	83-66	NI-5 indication perturbations, no cause determined

120V AC ESSENTIAL POWER

Event Date	Cause Code	LER Number	Description
08/07/79	B	79-88	Fault in BAAT room heater, tripped F1 essential bus
11/12/79	B	79-107	Power supply inverter YV2
04/19/80	X	80-29	Personnel error, B Bus tripped E2, Y1, F2, Y3
08/23/80	E	80-64	Component failure - Y2
11/23/80	A	80-81	Loss of Y2, input fuse blown, personnel error
12/03/80	B*	80-86	Loss of Y3, input fuse, personnel error
10/18/81	E	81-66	+15V DC power supply inverter YV3, Y3
04/09/82	A	82-20	Fuse YV2 - personnel
06/08/82	E	82-29	Inverter YV2, Bus Y2, DC power supply
01/31/83	E	83-07	YV1 inverter fuse, Bus Y1, cause unknown
05/10/83	A	83-23	YV4 inverter; personnel allowed water in
11/09/83	E	83-61	Blown fuse YV2, Bus Y2, cause unknown
12/17/83	A	83-72*	Short in component; personnel error Bus Y1

DIESEL GENERATOR LER REVIEW

Event Date	Cause Code	LER Number	Description
12/09/79	A, E*	79-126	2 events, 1) DG1-1 Governor allowed voltage swings, 2) personnel racked out wrong DG
07/09/80	B	80-52	Original design of exhaust ductwork
08/26/80	A	80-65	Personnel removed DC control power
09/02/80	B*	80-69	Bolts holding idler gear for turbo charger DG1-1 loose
09/23/80	E	80-71	Oil seal failure, turbo charger fire DG1-2
01/07/80	A	81-01	Personnel removed supports for DO on DG1-1, DG1-2
01/28/81	E	81-09	Air start motor broken shaft DG1-2
09/25/91	D	81-53	Personnel failed to replace tornado barriers
08/14/82	B	82-38	Bolt on DG1-1 day tank broke
03/05/83	E	83-15	2 events, 1) Governor problems DG1-1, 2) output breaker would not close
05/13/83	E	83-22	Governor had screw cross threaded DG1-1 - not tight
05/27/83	D*	83-27	2 events, 1) DG1-1 Tripped on overspeed twice, 2) Governor settings, tachometer out of calibration

MSIV, MSSV LER REVIEW

Event Date	Cause Code	LER Number	Description
08/29/80	B	80-67	Valve MS101B bypass would not open; AC coil in DC system/per design
11/11/80	E	80-82	MS100-1 would not close, packing and corrosion, mechanical binding (twice)
02/02/81	E	81-10	MS100A would not close, increased spring tension
06/01/81	X	81-34	Main steam line code safeties had low setpoints
06/24/81	X	81-37*	Safety valve SP17B4 bent spindle wouldn't reseat
08/21/82	E	82-41	3 MSSV setpoints wrong; 2 due to aging, 1 personnel error
01/19/83	X	83-03	MSIV 100 failed to close after reactor trip - no cause determined
06/12/83	X	83-29	MSSV low setpoints 13 of 15

REACTOR COOLANT SYSTEM LER REVIEW

Event Date	Cause Code	LER Number	Description
10/23/79	B	79-103	No. 1 & 3 seal failure RCP
10/25/79	B	79-104	RCP 2-2 tripped, relay failure
11/22/79	X	79-114	RCS flow below T.S. limitation
04/17/80	X	80-28	TMI backfit, RCP trip at 1650 psi would remove motive force for Pzr spray
05/14/80	B	80-40*	Hold-down springs on fuel assemblies broken ~20
12/03/80	E	80-89	I_{131} limits exceeded after Rx trip
01/02/81	E	81-02	Seal failure RCP 1-2 & RCP 2-1
01/14/81	D	81-05	Chloride T.S. limits exceeded
03/08/81	E	81-16	I_{131} T.S. limits exceeded
05/21/81	E	81-29	RCP 2-1 seal failure
05/12/81	E	81-31	I_{131} activity level exceeded
08/05/81	D	81-41	Boron dilution ~0.9$^{\Delta}$K/K reactivity insertion
08/14/81	D	81-48	Rx coolant flow not recorded during deboration
03/14/82	A	82-12	Inadvertent boron dilution ~1803 → 1698
06/15/82	D	82-30	Improper boron sampling method changed DH pump did not compensate
01/15/83	E	83-02	I_{131} T.S. limits exceeded
07/07/83	E	83-34	Pressurizer amplifier module failure (level)
12/10/83	E	83-70	Chloride levels - had placed weak base resin in service

Event Date	Cause Code	LER Number	Description
			Containment Isolation
01/19/84	D	84-02	Vent valves on transfer tube not closed or capped
09/21/84	X	84-14	4 valves failed LLRT SA2010, CV5005, CC1411B, CF1541
			Auxiliary Feedwater
03/02/84	B	84-03	Valves AF 599 and AF 608 torque setting
06/18/84	B	84-09	Design requirements for pipe rupture of moderate energy could impact AFW suction piping
			Cooling Ventilation
05/07/84	A	84-05	Switches not returned to operable position after maintenance
11/20/84	D	84-16	Failed to verify operability of EVS prior to fuel movement
12/20/84	B	84-21	Seismic design/installation problems with HVAC ductwork
12/17/84	A	84-22	CRVS flow exceeded design since 1980
			MSIV/MSSV
03/02/84	B	84-03	Wiring problems in MSIV logic; MSSV failed to close, another failed to open
09/11/84	X	84-13	MSSV failed to reseat - control solenoids
			Fire Protection
03/21/84	B	84-04	Fire doors did not meet NFPA 80 standards, U.L. labels
05/17/84	X	84-07	Diesel Fire pump right angle drive failed
08/08/84	B	84-11	Fire penetration not sealed
08/21/84	A	84-12	Penetration seal inadequate
11/23/84	A	84-17	T.S. surveillance for fire hose station exceeded time limit
12/04/84	B	84-20	Fire dampers inoprable, 18, various reasons

1985 LERs

Event Date	Cause Code	LER Number	Description
			Auxiliary Feedwater
01/15/85	A	85-02	Loss of AFW, suction switched to SW cause unknown
03/23/85	B	85-07	Speed bushings in AFWP 1-2, wrong one installed
06/02/85	X	85-11	AFW-1 failed to deliver design flow
06/03/85	A	85-12	AFW control room indicator wired backwards
			Containment Isolation
01/09/85	D	85-01	Failed to meet T.S. surveillance frequency for atmospheric vent valves
02/20/85	A	85-04	RC 229A failed LLRT on 2/7/85 discovered 2/26/85

NOTES:

*Do not agree with Cause Code assignment
*On LER number, used for two entries of LER review

ATTACHMENT D

DEVIATION REPORTS

Containment Personnel Airlock

81-181	Personnel hatch lock malfunction
83-087	Inner door of CTMT airlock would not close
85-009	Containment personnel lock outer door jammed in open position

Fire Door Latch Mechanism

84-004	Loose door mechanism
85-087	Door 318 latch mechanism inoperable
85-095	Door 515 latch mechanism missing
85-116	Door 500 wouldn't close against pressure

Nitrogen Gas Pressure to Electrical Containment Penetrations

81-024	Found water in penetration PAP4F
84-102	Nitrogen pressure excessive penetration No. 1
84-108	Nitrogen pressure < 60 psig, both electrical penetration rooms
84-109	Nitrogen pressure < 60 psig, containment penetration
84-112	Nitrogen pressure < 60 psig, containment penetrations
84-115	Nitrogen pressure < 60 psig, containment penetration
84-121	Nitrogen pressure < 60 psig, containment penetrations
85-068	Nitrogen pressure < 60 psig, containment penetrations
85-090	Nitrogen pressure < 60 psig, containment penetrations

Containment Isolation Valves/Housekeeping/Preventative Maintenance

84-018	DH 2735 valve would not close electrically
84-059	SW 1368 would not close electrically, broken wire at lug
85-052	CV 5005/CV 5006 leakage greater after work
85-126	CV 5007/CV 5008, overpressurized penetration during leak rate testing

Torque Switch Problems

84-058	SW 1379 valve torqued out opening
84-060	DR 2012 torque switch setting
85-118	SW 1379 torque switch setting, caused motor failure

DEVIATION REPORTS

Lifted Leads, Jumpers and Tagging

83-131	Jumper not removed after testing MV 107
84-049	Improper hanging of tags
84-074	Work started on diesel generator without permission
84-086	Resistors replaced without using procedure
84-152	Tagging procedure not followed for MV 4
84-153	Improper lifting of wires for FW 488 and FW 450
84-157	Improper removal of tags, seismic monitors
84-160	Improper tagging
85-005	Switches PSL 3687L and PSL 3689K isolated without informing operations
85-035	CRD breakers closed using jumper, no temporary modification written to permit this action
85-079	Jumper left installed, caused CRD breaker to open

ATTACHMENT E

TMI STATUS DAVIS-BESSE

Items still open:

II.B.1.2 Install RCS Vents
Due Date: 1st refueling after July 1, 1982 (with the exception of the reactor vessel head vents)
Ready for Inspection: Yes
Responsible Group: DRP
Pertinent Inspection Report: None
Note: Reactor vessel head vents do not have to be installed. NRR closed this item October 5, 1983.

II.B.1.3 Procedures for RCS Vents
Due Date: 1st refueling after July 1, 1982
Ready for Inspection: No
Responsible Group: DRP
Pertinent Inspection Report: Statused in Inspection Report No. 86005.
Note: See Item II.B.1.2

II.E.1.1.2 Auxiliary Feedwater System Evaluation - Long-Term System Modifications
Due Date: October 1985
Ready for Inspection: N/A
Responsible Group: NRR
Pertinent Inspection Reports: Nos. 79-13, 81-04, 86-05
Note: Final closeout pending T.S. amendment (NRR letter dated February 21, 1984)

II.F.2.3.B Inadequate Core Cooling Instrument (Implement)
Due Date: Still negotiating with NRR
Ready for Inspection: Yes
Responsible Group: DRP
Pertinent Inspection Report: No. 82-21
Note: 82-21 inspected installation of incore thermocouples and T-Sat meter. T.S. addition and review of surveillance tests and drawing changes are still to be done.

The need for a reactor vessel monitoring system is still to be negotiated between NRR and licensee.

II.K.2.9 Orders on B&W Plants - FEMA on ICS
Due Date: Refueling outage - 1984
Ready for Inspection: No
Responsible Group: DRP
Pertinent Inspection Report: No. 82-21, statused in 86005.

III.A.2 (1 item) Emergency Preparedness

Due Date: July 1, 1982

Ready for Inspection: Closure contingent upon EP Appraisals to be scheduled.

Responsible Group: DRSS/EP

Pertinent Inspection Report: None

Note: February 27, 1984 Confirmatory Order for Supplement 1

	No. of Items Open	No. of Items Ready for Inspection
DRP	5	4
DRSS/EP	1	1
Total	6	5

ATTACHMENT F

SUMMARY OF VIOLATIONS

SALP Functional Areas	78	79	80	81	82	83	84	85
Plant Operations	2	5	3	2	7	2	5	5
Radiological Controls	5	1	8	0	0	0	0	1
Maintenance	1	2	1	4	6	6	5	3
Surveillance	3	1	2	3	4	2	5	2
Fire Protection	2	4	2	1	6	9(A)	0(C)	0
Emergency Preparedness	0	0	0	0	0	0	2	1
Security	8	7	24	1	4	2	4	1
Refueling	0	0	0	0	0	0	0	0
Quality Programs & Administrative Controls	8	9	1	2	4	3	16	11
Training	(B)	(B)	(B)	(B)	(B)	2	1	2
TOTALS	29	29	41	13	31	26	38	26

(A) Fire protection violations under consideration for possible escalated enforcement action.

(B) Not rated as a SALP functional area during this year.

(C) Following inspection conducted in June 1984 (IR 84-10); no violations were identified.

ATTACHMENT G

INSPECTOR MAN-HOURS

	79	80	81	82	83	84	85*	TOTAL
Plant Operations	934	834	734	594	745	1,027	928	5,796
Radiological Controls	**	**	5	**	2	162	41	210
Maintenance	124	110	197	228	234	332	500	1,715
Surveillance	8	89	205	180	168	212	238	1,100
Fire Protection	**	**	**	31	36	**	(est) 72	139
Emergency Preparedness	**	**	**	**	230	388	382	1,000
Security	**	34	**	58	4	46	75	217
Refueling	51	93	28	63	10	142	118	505
Quality Programs & Administrative Controls	125	44	47	55	120	143	271	805
TOTALS	1,242	1,204	1,206	1,209	1,549	2,452	2,625	11,487

*Hours of inspection prior to June 9, 1985.
**Indeterminate

ATTACHMENT H

Regulatory Performance History

1.	Enforcement Conference	April 18, 1979 - Areas covered included enforcement history, number of personnel errors, breakdowns in management controls, equipment problems and general effectiveness of management in dealing with identified problems.
2.	Management Meeting	May 31, 1979 - Second in a series of management meetings. Licensee outlined a program, based upon their assessment of problem areas, to improve the level of management controls, staffing, training, the correction of equipment problems, and plant operations.
3.	Management Meeting	July 17, 1979 - Third in a series of meetings. Licensee reported status of their program to improve management controls. Region III acknowledged progress made in ten areas to improve management controls and operations of Davis-Besse (staffing, procedures, management control, training, LERs, maintenance, surveillance testing, communication, Nuclear Services Group).
4.	Management Meeting	September 19, 1979 - Fourth in a series of management meetings. Concerns were identified by the licensee relative to difficulty in filling vacancies, LERs in area of personnel errors declined in the past six months, Nuclear Services Group to handle support activities established, training position vacancies being filled.
5.	Management Meeting	February 29, 1980 - Licensee committed to immediate implementation of three short term actions (return of experienced and qualified equipment operators to shift, provide one additional person for day shift, expedite off-shift training, not yet fully qualified). Meet ANSI 3.1 by December 1979.
6.	Management Meeting and Enforcement Conference ($13,000 Civil Penalty Issued)	June 4, 1984 - Sixth in a series of management meetings and enforcement conference to discuss April 30, 1980 overexposure. Additionally, security inspection findings discussed. Licensee

		effort would be directed towards equipment problems, morale, training. Region III stated that problems in implementation of the security program and the overexposure seriously detracted from apparent improvement in other areas. Reemphasized licensee's need to identify and correct problems in security.
7.	SALP 2	July 1980 November 1980 - March 1982. Identified lack of aggressive corrective action before issues become regulatory issues. Weaknesses in capability to recognize design basis requirements for equipment operability.
8.	IAL	January 29, 1981 - Issued to require licensee to determine root cause of water in electrical penetration problem and to establish long term isulation resistance program.
9.	Management Meeting	January 21, 1982 - Licensee identified corrective actions in the areas of drawing control, nonconformance reports, personnel errors. Region III commented on licensee's corrective actions and provided constructive criticism.
10.	Enforcement Conference	March 9, 1983 - Discussed NRC concerns regarding lack of improvement in the maintenance program, the adequacy of the corrective action in drawing control, the licensee's equipment "operability" philosophy. Licensee introduced Comprehensive Corrective Action Program.
11.	SALP 3	July 1983 - Improvements noted in confirmatory measurements and procurement. Maintenance continued at a poor performance level. Personnel errors and operator cognizant of design and FSAR assumptions still a NRC concern.
12.	Management Meeting	November 4, 1983 - Meeting held to request licensee to develop a Regulatory Improvement Program. Meeting was to address comprehensive corrective action program concerns identified during a site visit by Commissioner V. Gilinsky.
13.	Enforcement Conference (Escalated Enforcement Pending)	December 1, 1983 - Discussion of fire protection violations.

14.	CAL	March 3, 1984 - Issued to ensure effects of the Stuck Open Main Steam Safety Valve event of March 2 were assessed and evaluated.
15.	Enforcement Conference $90,000 Civil Penalty	July 13, 1984 - Discussion of recent events that indicate a breakdown in management control systems, and the inability of TECo to recognize design basis requirement for equipment operability. TECo corrective actions were specific to the identified violations, but failed to address root causes. PEP was identified as the program that would address root causes and necessary corrective action.
16.	Management Meeting	November 1984 - Management meeting among the President of Toledo Edison, the Director OIE, and the Regional Administrator to discuss the need for improved licensee communication and support for program improvements.
17.	SALP 4	January 5, 1985 - Five Category 3 ratings given in the areas of maintenance, fire protection, emergency preparedness, quality programs, administrative controls, and training. Licensee outlined the PEP actions to address poor performance areas.
18.	Management Meeing	March 4, 1985 - Management meeting to further discuss the licensee corrective actions from SALP findings.
19.	Enforcement Conference $100,000 Civil Penalty issued	May 24, 1985 - Discussion of inspection findings regarding a sleeping operator in the SUFP room, inadequate communications between security and operations personnel and failure to maintain proper reactor power for the indicated reactor coolant flow rate. Discussion of the repetition of inadequate corrective action to correct problem and lack of inadequate management controls.

In addition to the above, working level meetings were held on a biweekly (twice a month) basis during the first months of 1985 to status the Performance Enhancement Program and to provide Region III middle level management opportunity to observe, first hand, the communication and activities of plant management and technical personnel.

ATTACHEMNT I

A. Procedural Violations

I. Failure to Follow Procedures

	Report Number	Subject
1.	7902	Required reading list not maintained, resulting in operators not aware of plant changes/modifications.
2.	7904	Prerequisites for T_{ave} and stable power level not met and deficient conditions regarding differential boron worth not documented.
3.	7905	Biweekly testing required for HPI Pump 1-1 surveillance results not performed and maintenance on Emergency Diesel Generator (EDG) 1-2 ventilation fan not documented, reviewed, and approved.
4.	7907	Safety relief valves maintenance instruction not reviewed by SRB.
5.	7913	Valve in spent fuel pool not aligned in accordance with T-Mod 3431.
6.	7914	Emergency Plan not reviewed annually in the SRB.
7.	7915	Fire protection preplan not reviewed by SRB and approved by station superintendent.
8.	7916	Procedure for operation of radwaste solidification not reviewed by SRB and approved by the station superintendent.
9.	7919	Drawings not revised to reflect as-built condition of plant.
10.	7919	Flammable materials not controlled in switchgear room "B".
11.	8008	Technical Section not audited in 1978 for activities related to nuclear fuel management.
12.	8012	Job planning associated with tunnel sump entry not followed.
13.	8019	AF599 and AF608 were open and the locked valve log indicated closed.
14.	8019	Fire extinguishers found without inspection tags or tags not signed.

15. 8023 Operations engineer did not tour plant as required.

16. 8025 Latest approved procedure for surveillance testing not used.

17. 8101 Pipe supports for EDG removed without a work requirements checklist prepared.

18. 8103 Five examples of Appendix B violations involving maintenance section training, receipt inspection, corrective action reports and audits, storage and handling of equipment and maintenance procedures.

19. 8104 Maintenance personnel did not inform Shift Supervisor of troubleshooting of EPG 1-2.

20. 8166 (a) MWOs for safety-related work not approved by the foreman and Shift Supervisor.

(b) Grouted seismic supports for SFRCS instrument lines not painted.

(c) Unplanned release of radioactive water due to improper removal of RCDT rupture disk.

21. 8203 (a) Failure to control combustibles and flammable liquids.

(b) Failure to post a fire watch.

(c) Failure to conduct fire brigade drills.

22. 8208 Required MWO not generated for moving Motor Control Center F16B.

23. 8209 Disconnected radiation meter cables not labeled.

24. 8218 Valves repositoned from their normally locked condition were not logged.

25. 8221 Safety-related conduit hung from nonsafety-related hanger and conduit support hardward not in accordance with design drawings.

26. 8221 Safety-related cable left unprotected on cable spreading room floor.

27. 8229 Preparation, approval, and administration of reactor theory exam without Training Supervisor approval.

28. 8301 Drawing not updated to reflect plant "as-built condition.

29. 8304 Waivers for two individuals were not obtained for missed Rad Control training.

30. 8319 Acceptance criteria for test procedure not assigned to appropriate test.

31. 8320 Equipment returned to service without Shift Supervisor approval.

32. 8324 Maintenance individual used respiratory equipment although his certification expired.

33. 8401 Controlled drawings not used for repair of core flood tank level indicator.

34. 8401 Test not suspended nor adjustments made due to test deficiency.

35. 8402 Electrical junction boxes not protected from the fire protection sprinkler system.

36. 8412 Six examples of failure to implement procedures for startup, operation, and shutdown of the Startup Feed Pump.

37. 8415 (a) Control Room Emergency Ventilation System (CREVS) inoperability not reported to Shift Supervisor.

(b) Pressure door connecting AFW pump rooms left open.

(c) Test leader not assigned.

(d) Chronological log not maintained.

(e) Proper administrative controls not maintained.

(f) Deficiency Report (DR) not generated for test deficiencies.

38. 8429 Drawing M029B did not include valve for Channel 3 of the RPS.

39. 8501 Two examples of the use of uncontrolled technical manuals to calibrate instruments.

40. 8501 MWOs not to sufficient detail for the type of activity being performed.

41. 8503 Piping not capped.

42. 8505 QA vendor audit responses not addressed.

43. 8509 Hand calculations not performed to verify calculation of thermal power.

44. 8512 (a) Completed work steps not signed off prior to time work was completed on CRDM.

(b) Completed work steps not signed off prior to time work on Control Rod position indication was completed.

(c) Crane operator left control of polar crane with bolting tool suspended over reactor vessel head.

45. 8516 RCS boron concentration not determined one every two hours during rod movement and a test deficiency list was not attached to a completed test.

46. 8524 Daily checks on Eberline BC-4 Beta Counters were outside the control line.

II Inadequate Procedures

1. 7907 Maintenance Instruction M-46 not adequate for safety relief valves inspection and repair.

2. 7915 Inadequate written procedure for the brigade program.

3. 7916 Radwaste solidification system procedures not adequate.

4. 8012 Failure to follow procedure resulting in inadequate survey of tunnel sump cavity prior to entry.

5. 8221 Quantitative and qualitative criteria not included in drawings for attributes such as slope, etc. for instrument impulse lines.

6. 8231 Inadequate procedures regarding repair of buried fire piping.

7. 8319* Quality Assurance (QA) elements not adequately implemented for personnel training.

8. 8409 Procedure not provided for independent verificaton subsequent to initial tagging of plant equipment.

9. 8501 Approval procedures not established for calibration of M&TE.

*This violation covers seven Appendix B criteria.

B. Technical Specification Violations

	Report Number	Subject
1.	7925	Fire detection alarm point remained in alarm for 20 hours without posting a fire watch, T.S. 3.3.3.8.
2.	7928	Logic channels not operable with RCS > 200°F during the startup of a RCP or a Circulating Water Pump, T.S. 3.3.2.1.
3.	7928	SRB did not investigate nor prepare a report for a violation, T.S. 6.5.1.6e.
4.	7929	Setpoint for Flux-D Flux-flow trip not verified with one RCP out of service, T.S. 3.4.1a.
5.	7930	CNRB did not review violations for reports 79-02, 79-16, 79-79, and 79-29, T.S. 6.5.2.7.
6.	8001	Control Room EVS system switch found in local position T.S. 3.7.6.1.
7.	8014	Failure to establish a fire watch, T.S. 3.3.3.8.
8.	8019	Log of events for containment leak test not maintained, T.S. 4.6.1.2.
9.	8029	Surveillance test did not include exercising of a containment pressure channel, T.S. 4.3.2.1.1.
10.	8103	CNRB did not review violations, T.S. 6.5.2.7.
11.	8103	(a) SRB membership did not include a reliability engineer, T.S. 6.5.1.6e.
		(b) SRB did not review violations, T.S. 6.5.1.2.
12.	8104	Containment purge accumulated time not determined, T.S. 4.6.1.7.
13.	8105	(a) Pump inlet pressure not measured prior to pump startup and values not established for pump inlet pressure, T.S. 4.0.5., ASME Section XI.
		(b) Instruments used for pump testing did not meet accuracy or range requirements, T.S. 4.0.5., ASME Section XI.
14.	8112	Failure to post a fire watch after identification of holes in fire sealed penetrations were identified, T.S. 3.7.10.

15. 8113 Valve manipulations not logged during ST 5099.11, T.S. 4.0.5, ASME Section XI.

16. 8118 RPS temperature trip setpoints not calibrated properly, T.S. 2.2.1 and 3.3.1.

17. 8202 Valves in the CV, SA, IA and NN systems not exercised, T.S. 4.0.5 and ASME Section XI.

18. 8203 Fire doors not maintained in a functional condition and firewatch not posted, T.S. 3.7.10.

19. 8225 CNRB did not review 50.59 re: Cross Core Fuel Shuffle, T.S. 6.5.2.7.

20. 8227 With containment isolation valves inoperable, T.S. LCO violated, T.S. 3.6.3.1.

21. 8227 All SFRCS low pressure steam line channels not tested at required frequency, T.S. 3.6.3.1.

22. 8234 Axial Power Imbalance not calculated hourly, T.S. 4.2.1.

23. 8320 NCR 83-32 not reported as NCR within thirty days, T.S. 6.9.1.9b.

24. 8409 RCS chloride concentration not maintained within limits, T.S. 3.4.7.

25. 8409 SRB did no review Temporary Modifications to procedures and NCRs, T.S. 6.5.1.6 and 6.5.1.7a.

26. 8401 SRB did not review audits, T.S. 6.5.1.6e.

27. 8415 Control Room EVS rendered inoperable by removal of both trains, T.S. 3.7.6.1.

28. 8415 Supply fan for EDG taken out of secure thus rendering EDG inoperable, T.S. 3.8.1.1.

29. 8422 Ventilation system for storage pool area not demonstrated operable, T.S. 4.6.5.1.

30. 8422 Source range monitor not adequately tested prior to core alterations, T.S. 3.9.2.

31. 8428 Fire hose stations not tested, T.S. 4.7.9.3.

32. 8501 SRB and Station Superintendent did not review and approved procedures implemented pursuant to 6.8.1, T.S. 6.8.2.

33. 8501 SRB failed to review 8-10% of temporary modifications to procedures, T.S. 6.8.3c.

34. 8508 Valve leak rate data not treated or evaluated, T.S. 4.0.5, ASME Section XI.

35. 8510 STA did not receive training in 1984, T.S. 6.4.1.

36. 8510 Valve RC229A exceeded isolation time and was not restored to operability within four hours, T.S. 3.6.3.1.

37. 8518 Reactor power not maintained for the indicated reactor coolant flow rate, T.S. 3.2.5.

C. Miscellaneous Violations

	Report Number	Subject
1.	7903	Fire drills not conducted on a quarterly basis, Fire Hazards Analysis, Table 4-1, Section B6(b).
2.	7903	Surveys to determine radiation levels in incore tunnel not conducted and high radiation area not locked, 10 CFR 20.203(c)(2).
3-7	7910	Five security noncompliances.
8-9	7918	Two security noncompliances.
10-18	8002	Nine security noncompliances.
19.	8012	Exposure limit exceeded during normal tunnel sump entry, 10 CFR, Part 20.
20-24	8013	Five security noncompliances.
25.	8015	NRC not notified of tornado and an accidental release, 10 CFR 50.72.
26-28	8018	Three security noncompliances.
29.	8023	Security noncompliance involving vital area doors.
30-33	8024	Four noncompliances involving Environmental Technical Specifications, Appendix B.
34-39	8032	Six security noncompliances.
40.	8203	Fixed fire suppression system not provided in control room, 10 CFR 5048 and Appendix R, Criterion 3.
41.	8103	Security noncompliance, uncontrolled access to protected area, Security Plan.
42.	8203	Fire protection administrative active control procedures not upgraded, Facility License NPF-3, Amendment 18.
43.	8204	Assigned reading not completed by 7 ROs and SROs, 10 CFR 55, Appendix A.
44.	8307	Safety evaluation non conducted for operation of BWST > 90°F, 10 CFR 50.59.
45-46	8217	Two security noncompliances.

47-48	8230	Two security noncompliances.
49-50	8308	Two security noncompliances.
51-59	8316	Nine fire protection noncompliances, escalated enforcement pending, enforcement conference December 1, 1983.
60.	8402	Adequacy of interfaces with State and local governments not reviewed, 10 CFR 50.54(f).
61.	8402	Semi-annual health physics drills not conducted, 10 CFR 50.54(g).
62-64	8403	Three security violations.
65.	8406	RPS inadvertent actuations not reported within four hours, 10 CFR 50.72.
66.	8412	Six examples of deficiencies in the procedures used to evaluate 10 CFR 21 issues.
67.	8413	Security violation - improper identification of 2 NRC inspectors.
68.	8428	Fire hose stations inoperability not reported per 10 CFR 50.73(g)(2)(i)B.
69.	8429	Isolation valve leakage not quantified and combined leakage not calculated, 10 CFR 50, Appendix J. Paragraph III.C.3.
70.	8504	Exam results for ROs and SROs not evaluated for Summer 1983 exam, 10 CFR 55, Appendix A.
71.	8513	Extent of hanger damage not reported to NRC, 10 CFR 50.73.
72.	8514	Security violation.
73.	8518	SUFP piping not properly monitored, Section 2.c.3(f) of Facility License.
74.	8523	State not notified within 15 minutes, 10 CFR 50, Appendix E, Paragraph IV.D.3.