Docket No. 50-346

License No. NPF-3

Serial No. 981

August 26, 1983

TOLEDO EDISON

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Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Eisenhut:

During the week of July 25-29, 1983, the Nuclear Regulatory Commission (NRC) performed a fire protection audit at the Toledo Edison Company (TED), Davis-Besse Nuclear Power Station, Unit 1 (DB-1). This letter transmits, for your review, a Plan and Evaluation addressing our understanding of the findings identified by the NRC at the exit interview held on July 29, 1983. The Plan and Evaluation, Attachment 1, was requested by your staff at the August 16, 1983 meeting at your offices, during a August 18, 1983 telephone conversation with members of your staff, your letter concerning this matter, and in Mr. Al DeAgazio's Meeting Summary of the August 16, 1983 meeting dated August 22, 1983.

Toledo Edison Company has evaluated the public health and safety significance of each audit finding and concluded that adequate fire protection features are in place to return to power for Fuel Cycle 4 operation. However, consistent with discussions at the August 16, 1983 meeting, additional actions will be completed and some compensatory measures will be implemented prior to power operation, to provide corrections of specific fire protection audit deficiencies. These measures are detailed in Attachment 1.

Toledo Edison has also initiated a program of long term actions. Basically, the long term program consists of a multifaceted review and upgrade of the existing Fire Hazards Analysis Report and detailed review of plant design to ensure DB-1 meets the requirements and accurate interpretations of 10 CFR 50, Appendix R. This program is described in the attached Plan and Evaluation. The findings and actions intended to resolve the findings described within Attachment 1 will be reviewed for appropriateness by the on and off site safety review committees.

Further details concerning this program will be provided in our formal response to the audit inspection report after it is issued. Additional findings that may be identified during the long term program will be reported in accordance with Technical Specification requirements, and any necessary actions will be taken in an expeditious manner.

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The long term portion of the program has been developed to address the generic type actions derived from the audit findings, as well as to validate and modify, if necessary, any of the short term actions. Toledo Edison's understanding of the findings was transmitted to the NRC Resident Inspector and delivered to both NRR and I&E representatives at the August 16, 1983 meeting. Any misunderstanding of the findings by Toledo Edison, or any revisions found to be necessary upon receipt of the NRC Inspection Report, will be addressed in our response to that Report.

An interim schedular exemption is hereby requested from Appendix R, Sections III.G, III.J, III.O, and III.L, until the long term Appendix R review program described in Section IV of Attachment 1 has been completed and any modifications have been implemented, or until individual exemptions have been requested and approved by the NRC.

Toledo Edison believes that the compensatory actions being taken prior to restart, as described in Attachment 1, and the existing fire protection features at DB-1, provide adequate justification for a schedular exemption from the requirements of Appendix R until the long term corrective actions can be implemented. Upon the conclusion of the short term actions, the compensatory actions and the implementation of the long term program, described in Attachment 1, it is our belief that all Appendix R issues are to be resolved. Final resolution may require additional exemptions as part of the solution.

Specifically, exemptions will be requested by October 1, 1983, for the reactor coolant pump oil collection system holding capacity and the 72 hour time frame for reaching cold shutdown. Toledo Edison's fire protection program developed and implemented during the licensing process was designed to meet and exceed the requirements in place at that time. Be assured, therefore, that any exemptions that may be requested will demonstrate justification of adequate fire protection capability.

Toledo Edison's management has given the Fire Protection Review Program its full attention and support. Throughout the performance of both the short term tasks and the development of the long term program, persons have been assigned to follow the work progress very closely.

A Fire Audit Response Coordinator has been chartered to report program progress regularly to the Nuclear Services Director. Project status will then be reported to me directly.

It is Toledo Edison's intent to hold regularly scheduled program status review meetings with your staff. This will aid in ensuring a successful program integration and proper interpretation on the part of my staff of the intent of the Appendix R requirements, the Generic Letter 81-12, and the subsequently issued clarification letter.

If desired, following your receipt of this submittal, we would be pleased to meet with your staff, in your offices, during the week of August 29, 1983, to describe our program in greater detail and to answer any questions concerning this matter. Attachment 2 is a schedule to aid both your staff and ours in tracking appropriate actions. It includes short term, interim, and long term actions identified within Section III.B of Attachment 1.

As a result of the review performed by Toledo Edison and the corrective actions discussed in Attachment 1, we are confident that DB-1 can be operated in a manner to ensure protection of plant equipment important to safe shutdown and with no adverse effects to the health and safety of the public. These actions, combined with the program plan activities identified, provide adequate justification for operation of the facility until the identified audit findings are completely resolved.

Very truly yours,

RPC:JSH:nlf
encl.
cc: DB-1 NRC Resident Inspector

TOLEDO EDISON COMPANY

DAVIS-BESSE NUCLEAR POWER STATION

UNIT 1

EVALUATION OF JULY 25-29, 1983

NRC APPENDIX R AUDIT FINDINGS

AND CORRECTIVE ACTION PLAN

I. INTRODUCTION

The NRC conducted an onsite audit of the Davis-Besse Nuclear Power Station, Unit 1 (DB-1) during the week of July 25-29, 1983. The purpose of this audit was to ascertain whether the Plant was in conformance with Sections III.G, III.J, III.O and III.L of Appendix R to 10 CFR 50. Twenty-nine findings were identified by the NRC audit team at the exit meeting on July 29, 1983. Of the findings the NRC audit team identified, eleven are considered deficiencies to Appendix R while eighteen are considered Fire Protection Program - NFPA commitment type deficiencies.

The Toledo Edison Company (TED) has initiated a program for corrective action in response to the findings of the NRC audit team. Immediate corrective actions have been or are being implemented as described in Section III. Longer-term corrective actions addressing the programmatic-generic deficiencies are described in Section IV.

TED has evaluated each audit finding and has concluded that adequate fire protection features will be in place, prior to return to power operation for Fuel Cycle 4, to assure the protection of plant equipment important to safe shutdown. The specific audit findings, and the basis for conclusions justifying continued plant operation, are discussed in Section III.

II. BACKGROUND

DB-1 was originally designed and licensed for protection against fire in accordance with General Design Criterion 3 of Appendix A to 10 CFR 50. In September, 1976, the NRC requested that TED compare the existing fire protection provisions at DB-1 with the new NRC guidelines, as set forth in Branch Technical Position (BTP) APCSB 9.5-1.

In October, 1976, TED notified the NRC that the requested information would be in the form of a Fire Hazards Analysis Report (FHAR) based on Appendix A to BTP APCSB 9.5-1. The FHAR was initially issued on February 11, 1977.

Subsequent to this issue of the FHAR, six revisions were made to the document. These revisions were developed to resolve concerns evolving from the ongoing discussions and interfacing activities held between the NRC and TED at the time. The seventh revision currently being developed incorporates the most recently completed Facility Change Requests (FCR) relative to Fire Protection System Upgrades.

The Safety Evaluation Report (SER) issued as License Amendment 18 was received by TED in July, 1979.

Within the SER, the NRC stated that the fire protection program at DB-1 is adequate at the present time and meets General Design Criterion 3. Extensive fire protection improvements, however, were required, scheduled, and implemented. These modifications consisted of service water system modifications, installation of additional fire extinguishers, sprinkler systems, water curtains, concrete curbing, hose stations, battery room alarms, fire rated doors, dampers, fire detection systems, emergency lighting, conduit protection, additional fire protection of structural steel and cable trays and the additional availability of portable radio communication equipment for emergency fire fighting operations. Administrative controls and training procedures were additionally upgraded. The 1980 Refueling Outage was significantly extended to ensure the installation of all the required equipment with the exception of a backup to the service water system which was scheduled for completion in mid-1984. In November, 1980, the NRC published a final rule on fire protection programs for operating nuclear power plants as 10 CFR 50.48 and Appendix R to 10 CFR 50. This rule became effective on February 19, 1981. With respect to certain generic issues, Appendix R then re-established specific fire protection features required to satisfy General Design Criterion 3.

Section III.G of Appendix R, "Fire Protection Safe Shutdown Capability," requires fire protection for equipment important to safe shutdown. Such fire protection is achieved by various combinations of fire barriers, fire suppression systems, fire detectors, and separation of safety trains (III.G.2) or alternative safe shutdown equipment free of the fire area (III.G.3 and III.L). The objective of this protection is to ensure that one train of equipment needed for hot shutdown would be undamaged by fire, and that systems needed for cold shutdown could be repaired within 72 hr. (III.G.1).

Section III.J of Appendix R, "Emergency Lighting", requires that emergency lighting units with at least an 8-hr. battery power supply be provided in all areas needed for operation of safe shutdown equipment and in routes thereto.

Section III.O of Appendix R, "Oil Collection System for Reactor Coolant Pump", requires each reactor coolant pump to be equipped with an oil collection system.

On February 20, 1981, the NRC published Generic Letter 81-12. This letter stated that Appendix R would require each licensee to reassess all those areas of the plant to determine whether the requirements of Section III.G.2 of Appendix R were satisfied. If not, licensees were to: (a) make any modifications necessary to comply with Section III.G.2

requirements; or (b) provide alternate shutdown capability in conformance with Section III.G.3; or (c) request an exemption if there was some justifiable basis. Licensees were also requested to submit the results of their reassessment of plant design features for meeting the requirements of Sections III.G, Section III.J, and Section III.O of Appendix R.

TED provided a response to Generic Letter 81-12. In March, 1982, TED personnel met with NRC representatives to discuss the Appendix R requirements. A need for two specific exemptions were subsequently identified. Two specific exemptions from the requirements of Appendix R were requested by a letter dated April 29, 1982. The NRC issued an SER on June 2, 1982, granting both exemptions requested.

III. FINDING EVALUATION

Section A below lists each of the twenty-nine audit findings as they were orally presented to TED by the NRC audit team at the audit exit interview. Section B evaluates the current plant condition, describes actions to be implemented prior to return to power operation for Fuel Cycle 4 and summarizes our current conclusions regarding the justification for continued plant operation pending further analyses/modifications. Long-term actions are described in Section IV.

A. Summary of Audit Finding

1. Alternative Shutdown Capability to Achieve Hot Standby

There is no demonstrated alternate shutdown capability for achieving hot standby in the event of a fire in the cable spreading room/control room.

2. Alternative Shutdown Capability to Achieve Cold Shutdown

There is no demonstrated alternate shutdown capability for achieving cold shutdown in the event of a fire in the cable spreading room/control room.

3. Auxiliary Shutdown Panel

The auxiliary shutdown panel does not meet the shutdown capability requirements of Appendix R with respect to source range flux, cold leg temperature, and the range for hot leg temperature.

4. Emergency Lighting Design

The emergency lighting does not meet the requirements of Appendix R with respect to equipment operation, access and egress routes, testing, lighting intensity, positioning and installation.

5. Fire Doors

Two fire doors, designated as doors 215 and 217, are not labeled as UL approved.

6. Reactor Coolant Pump Oil Collection System

The reactor coolant pump oil collection holdup capacity cannot accommodate the entire lubricating oil system inventory as required by Section III.O of Appendix R.

7. Housekeeping

Wooden scaffolding was found stored in Mechanical Penetration Room 3 since April 30, 1983, and scrap wood and sawdust were present in the room.

8. Fire Damper Inoperability

Three dampers were inoperable with no fire watch for a period of approximately two to three months due to personnel error and an inadequate test procedure.

9. Service Water Discharge Valve Room

Discharge valves and local controllers are exposed to a single disabling fire in violation of Section III.G of Appendix R. One hour wrap deficiencies exist and there is partial versus full suppression capability in the room.

10. One Hour Fire Barriers - Test Report

The adequacy of the Kaowool wraps was left as an open item with the following comments:

a. The test report in support of crediting the wraps as one-hour barriers was inconsistent and inadequate.
b. The test report did not address configurations existing at Davis-Besse.

11. One Hour Wraps - Installation

The one hour wraps are incomplete, poorly installed, and not in accordance with the test installation.

12. Fire in the Auxiliary Shutdown Panel

A fire in the auxiliary shutdown panel can cause a loss of both trains of the auxiliary feedwater pump governor control circuitry.

13. Diesel Fire Pump Test Procedure

The diesel fire pump test procedure was not written nor the test performed in accordance with NFPA 20 requirements.

14. Fire Hose Stations

Fire hose stations are not in accordance with NFPA 14 requirements to have pressure reducers on standpipes.

15. Fire Door Modifications

Modifications were made to the fire door to room 320 with no documentation.

16. Sprinkler System

Routing of water suppression below cable trays located near the ceiling is in violation of NFPA STD-13 and -16 and License Amendment 18.

17. Yard Hydrants and Valves

No physical barriers exist around some yard hydrants/valves.

18. Fire Pump Test

The fire pump test is not in accordance with NFPA as stated in the FSAR.

19. Control of Combustibles

A procedure does not exist for control of combustibles.

20. Fire Protection System Flush

The fire protection system flush and valve operation is performed every three years instead of every year as required by NFPA.

21. Fire Detector Maintenance

Dust accumulation requires photoelectric detector adjustment. Procedures do not address this.

22. Fire Door and Damper Maintenance

Procedures for fire door and damper maintenance identified no surveillance from 1978 until recently. NFPA requires a monthly visual check as a minimum.

23. Emergency Lighting - Surveillance

Procedures should be revised to perform surveillance quarterly instead of semi-annually.

24. Off-Site Fire Department Training

The level of training, knowledge and responsibility for off-site fire department assistance is inadequate.

25. Welding Permits

Welding permits are not to be issued for greater than 24 hours as required in NFPA 51 and 51B. Weekly permits are allowed at Davis-Besse.

26. Sprinkler Tests

The 1980-1983 sprinkler tests are inadequate relative to NFPA.

27. Off-Site Contractors Fire Watch Training

Off-site contractors are inadequately trained as fire watches.

28. Fire Protection Coordinator Staff

The fire protection effort appears understaffed relative to Administrative Procedure AD 1810.00 and License Amendment 18.

29. High/Low Pressure Interfaces

The nonexistence of high/low pressure interface deficiencies on the PORV's and letdown cooler isolation valves should be verified.

B. Evaluation of Audit Findings

An evaluation was performed for each audit finding. These evaluations are presented below.

Of the twenty-nine audit findings, eighteen are not directly related to Appendix R, rather they are fire protection program items, the majority coming under the NFPA code or Fire Protection Handbook items. Eleven findings are directly related to Appendix R.

Each evaluation below is based on the following:

- status of the item
- a review of the status for compliance against the appropriate references (Appendix R or NFPA)

- an identification of short-term and/or long-term actions to correct any NRC identified deficiencies
- any compensatory actions taken
- justification for start-up and continued operation in view of the degree of non-compliance and the corrective actions planned to be taken

1. Alternative Shutdown Capability to Achieve Hot Standby
2. Alternative Shutdown Capability to Achieve Cold Shutdown

The audit team identified that an item-by-item listing of those systems and components required to achieve hot standby* and cold shutdown condition was not developed. Component listings are included in the Fire Protection Manual Preplans in addition to the listing in FHAR Appendix 5, however, they were identified as being cumbersome to use. These listings, as well as the Fire Preplans themselves, were not referenced in the appropriate control room evacuation procedure. This led to the deficiency identified by the audit team that inadequate procedures existed to demonstrate personnel, equipment and operational preparedness in accordance with the 10 CFR 50 Appendix R.

TED had originally developed the Fire Preplans which identify the rooms, access routes, locations of power supplies and receptacles, room ventilation information, support information in addition to the evaluation of potentially lost equipment and the evaluation of the shutdown capability (i.e., identification of alternate trains available) to support the fire fighting and plant operability conditions as a result of a fire in each area. To not have this information directly incorporated into the Evacuation of the Control Room Procedure was identified as a deficiency.

A review of the Fire Protection Manual Preplans is being performed to ensure no inconsistencies exist. During the audit, two discrepancies were found in the tables, "Evaluation of Fire and Shutdown Equipment". The resolution of the discrepancies is addressed in the actions resolving Findings Numbers 9 and 12. This was interpreted by TED as requiring the generic review. This action will sufficiently address the inconsistency concern. If additional discrepancies are found, resolution will be provided prior to restart. A long-term task has been incorporated to thoroughly review and re-validate the Preplans. This task with its schedule, is discussed in Section IV, Task 8.

* Mode 3 for DB-1

The NRC audit team conducted a walk-thru on July 28, 1983, to test the plant's ability and the ability of the operators to achieve hot standby in the event of fire in the control room. The audit team praised the operators in their ability to quickly formulate a procedure during the drill tieing much information together from various procedures. However, the audit team concluded that development of procedures for achieving hot standby and cold shutdown in the event of a fire in the control room and cable spreading room, using on-site power only, was necessary.

TED is developing a detailed procedure (AB 1203.26) to be used in the case of a total loss of the control room and/or cable spreading room due to fire to get the plant to a safe hot standby condition and subsequent cold shutdown condition. The procedure is designed to be responsive to the requirements of Appendix R.

The criteria inherent in the development of the procedure is:

a. loss of off-site power due to the possibility of spurious power breaker operation,

b. total burnout of power and/or control to all trains of equipment with power or control power in the control room or cable spreading room (whichever has the fire)

c. worst possible position of all components in the trains that were burned out

d. use of only the components which the fire preplan identified as remaining available subsequent to the fire

e. capability to accomplish hot standby by current on-shift organization

f. total loss of the Gai-tronics communication system

The basic approach to the new procedure is to de-energize all equipment which could cause the spurious or maloperation of safe shutdown equipment and additionally to de-energize non-safety related equipment which could mislead the operator. The emergency diesel generator buses will be manually reloaded sequentially with the equipment necessary to achieve hot standby and cold shutdown. Required safety and repair equipment will be identified. The fire preplans were consulted in the writing of the new procedure, and the

procedure integrates the applicable information provided in the fire preplans concerning potential effects of a fire in the control room or cable spreading room. Instrumentation is discussed under Finding 3.

The shutdown procedure will be reviewed, including a walkdown of the procedure, and approved in accordance with Section 6 of the Technical Specifications. Operating personnel will be trained on the new procedure prior to initial criticality (Technical Specification Mode 2) or before going on shift after initial criticality. The training of each operator will be documented. The ongoing operator training program will include reviews of the new procedure.

This procedure is considered interim in nature for two reasons. First, a major long-term review is being performed on the entire fire protection program both relative to 10 CFR 50 Appendix R, Generic letter 81-12, the clarification letter to the Generic Letter, in addition to the original work and commitments made to meet Appendix A to BTP 9.5-1. Integral to our review program is a feedback loop to ensure procedure accuracy and to upgrade the procedure as necessary. This will validate that hot standby and cold shutdown for a fire in the Control Room or Cable Spreading Room is not only achievable but is procedurealized for the minimum equipment necessary.

Secondly, as discussed in our August 16, 1983 meeting, for a non-fire related issue a major verification analysis is ongoing to ascertain appropriate cooldown rates based on natural circulation conditions. Our current expectations are that a significant time in excess of 72 hours would be required. To address this problem in the interim, the procedure under development is for a cold shutdown under loss of offsite power conditions independent of time. Of course, the plant condition that would require this procedure to be implemented also generates a "Site Emergency" condition under the auspices of 10 CFR 50, Appendix E, and fully activates all utility, industry, state, and federal emergency response organizations. An evaluation of the conditions and acceptability of any action will be under the direct purview of our respective emergency response personnel. They would consider the latest available information and an appropriate engineering assessment at the time of the condition and confer in the appropriate actions.

These procedures are considered to be acceptable and certainly justify plant operation until modified as a result of the longer term activity identified in Section IV.

Additional actions required to address the Appendix R requirements relative to these deficiencies will be reviewed and addressed integral to long-term Tasks 1 and 2 (see Section IV). The lack of an associated circuits submittal was not identified as an audit finding. During the audit, three DB-1 representatives were provided to support the associated circuit review auditor. No unresolvable associated circuits deficiencies were identified. This was a result of the circuit isolation, design, and coordination activities integrated at DB-1 during plant design and construction.

During 1975-1976, TED, in conjunction with Bechtel, performed a detailed engineering inspection of the circuit separation at DB-1. The results of that review are documented in TED files. The review addressed the concerns relative to associated circuits identified at that time. TED will research the documentation of the 1975-1976 review to confirm to what extent it meets the associated circuit analysis requirements provided in Appendix R, Sections III.G and L, Generic Letter 81-12, and the NRC clarification letter to the Generic Letter. This effort is part of our long-term program (see Section IV Task 5).

There are extensive fire protection measures presently in place to provide fire protection in the Control Room and Cable Spreading Room. The Cable Spreading Room (CSR) fire protection features include full Kaowool cable tray blanketing to inhibit smoke and heat transmittal between trays, multiple area detection systems, full suppression, a linear fire detector location system, total penetration sealing and extremely tight security controlled access. Access to the CSR is computer controlled and extremely limited. The control room fire protection features have been previously submitted to you and approved in our April 29, 1982 exemption request. Detailed information will be provided, if requested.

TED feels that due to the extensive fire protection features in place in the Control Room and CSR and together with the newly developed procedure, no additional interim measures are necessary prior to ultimate resolution under the long-term program.

3. Auxiliary Shutdown Panel

The NRC audit team concluded that the auxiliary shutdown panel does not meet the shutdown capability requirements of Appendix R in that source range flux, cold leg temperature and an adequate range for hot leg temperature are not provided. Questions were additionally raised during the audit concerning the adequacy of isolation devices and separation of power supplies for instrument loops.

The auxiliary shutdown panel was originally designed to achieve and maintain hot standby. The design basis of the auxiliary shutdown panel was an event which necessitated an evacuation of the control room, and not a debilitating fire in the control room. The DB-1 Updated Safety Analysis Report describes the auxiliary shutdown panel design.

TED will perform a review of the isolation circuitry and power supplies for instrument loops to meet the requirements of Appendix R as part of the long-term corrective action program (see Section IV Tasks 1, 2, and 5).

Interim actions will be taken to compensate for the absence of source range flux, cold leg temperature, and wide range hot leg temperature in the event of a fire in the control room/cable spreading room.

A portable battery powered Digital Volt Ohm Meter (DVOM) will be used to take resistance readings and convert them to appropriate cold leg and hot leg temperatures. A conversion table has been developed to quickly provide this indication. The DVOM can be connected by an I&C technician in separate locations. The procedure to perform this hookup will be available prior to restart.

The long-term program will evaluate how to provide permanent cold leg temperature indication and wide range hot leg temperature indication (see Section IV Tasks 1 and 2).

Concerning source range flux monitoring the following actions will ensure adequate reactivity control for the shutdown conditions required by Appendix R.

Insufficient demineralized water sources exist that could get to the reactor coolant system through spurious operation of fire damaged circuits to cause a significant dilution accident resulting in criticality. The procedure for Control Room Evacuation due to fire adequately eliminates the possibility of a long-term dilution accident by

immediately stationing an operator at the makeup pump area to ensure appropriate valves are lined up, letdown is aligned appropriately if and when needed, and systems are operating properly. Concentrated boron from the Boric Acid Addition Tanks and water from the Borated Water Storage Tank are both used as makeup water sources.

The reactor, by procedure, is to be shutdown prior to Control Room evacuation.

Primary water samples are taken as soon as possible to verify suitable boron concentration. The letdown system is returned to service early to enable sampling.

Concerning the circuit isolation finding, the audit team again found no unresolvable deficiencies. Preliminary review indicates that a fire in the Control Room and/or CSR may result in loss of reactor coolant pressure and hot leg temperature indication through inadequate isolation. Alternate hot leg temperature indication is provided through use of the DVOM as discussed. Reactor coolant pressure would be available through installation of a mechanical pressure gauge on RC 54. These actions will adequately provide the necessary indications on an interim basis. These actions are incorporated into the new procedure. Until the long-term tasks are completed to address these three parameters on the auxiliary shutdown panel, TED concludes that these interim measures will provide adequate monitoring.

4. Emergency Lighting Design

The NRC Audit Team identified that the emergency lighting does not meet the requirements of Appendix R with respect to equipment operation, access and egress routes, testing, lighting intensity, positioning and installation.

The DB-1 Emergency Lighting System is a system of battery powered lanterns providing illumination of critical plant areas in the event of a loss of the normal plant lighting system. The lanterns are powered by individual nickel cadmium batteries which are continuously charged by an integral battery charging system to maintain the batteries in a fully charged condition. The emergency lighting is located in critical areas such as access and egress routes and areas where equipment is located which requires operator action.

Emergency lighting is located in the following areas:

545'-0" Elevation
Rooms 101, 105, 110, 113, 114, 115, 116, 117, 122, 124, 125
565'-0" Elevation
Rooms 201, 202, 203, 204, 208, 209, 211, 212, 221, 223, 225, 227, 230, 234, 235, 236, 237, 238, 240, 241, 242, 243, 244, 249
585'-0" Elevation
Rooms 300, 303, 304, 310, 312, 313, 314, 318, 319, 320, 322, 323, 324, 325, 328
603'-0" Elevation
Rooms 401, 402, 404, 405, 406, 411, 412, 427, 428, 428A, 428B, 429, 429A, 429B, 432
623'-0" Elevation
Rooms 500, 501, 502, 515, 516
643'-0" Elevation
Rooms 600, 601, 602

A new procedure (AB 1203.26) is developed and will be available by restart for fire in the Control Room or Cable Spreading Room. This procedure contains provisions for restoring normal plant lighting after aligning necessary MCC's and associated lighting control panels to the emergency diesel generators. Plant lighting will be supplied from the diesel generators after all required essentially fed loads are being carried on the diesel generators.

During the walkdown activity associated with the procedure training, all emergency lighting units will be properly directed to provide maximum illumination for the components to be operated and/or the access and egress routes to be used.

Ten portable "Captain's" lanterns (of the same type as presently utilized for the fire brigade) were purchased and are on-site. These lanterns are solely for use by the operators should the need arise (i.e., loss of normal lighting). They are stored with the communications equipment necessary to implement Procedure AB 1203.26. These lanterns in conjunction with the present emergency lighting system will allow the operators to successfully carry out their required tasks. Control and accountability of the portable lanterns will be in accordance with Procedure PT 5116.04.

In addition, the security force maintains an adequate inventory of portable lanterns to supply all security personnel while performing their duties during a station blackout.

A long-term review is planned to close out the open audit item on emergency lighting. The finding stated that in many areas the lighting intensity was insufficient. The long-term review will determine the adequacy of the present emergency lighting system and the locations required for emergency lighting necessary for plant operations as well as access/egress routes. Long-term actions are addressed in Section IV Task 4.

5. Fire Doors

The NRC Audit Team identified that two fire doors, designated as doors 215 and 217, are not labeled as U. L. approved.

Review of available documentation verifies the configuration of Door 215 to be U.L. listed as a three-hour fire barrier. TED delineation and door schedule drawings along with specification 7749-A2 indicated Door 215 to be of Class A construction with a U.L. fire barrier rating of three (3) hours. Door 215, located between the two auxiliary feedpump rooms, is a dual purpose fire barrier and pressure rated door. Additional information is available in DB-1 FHAR Appendix 3, Section 16.

Review of available documentation verifies that Door 217 is part of a double door configuration leading into the Emergency Diesel Fire Pump Room, Room 51. Door 217 is not designed to Class A construction and is not intended to perform as a fire barrier. Door 217A and its associated hardware, located immediately behind Door 217, is rated as a three (3) hour Class A constructed fire barrier and conforms to 10 CFR 50 Appendix R criteria for fire door construction (Ref. FCR 79-005).

This finding is considered to be adequately resolved for restart.

6. Reactor Coolant Pump Oil Collection System

The reactor coolant pump oil collection system was identified as not being capable of collecting lube oil from all potential leakage sites from all four reactor coolant pumps as required.

Each of the four DB-1 Reactor Coolant Pumps (RCPs) has a self-contained lubricating oil system. An oil spillage collection system has been installed on each RCP. This system consists of a set of catch basins, drip pans, and enclosures, assembled as attachments to the RCP motor to contain or catch any spilled or leaking oil and route it to a drain tank.

The reactor coolant pump oil collection system contains two RCP motor oil drain tanks each with a 250 gallon capacity yielding 500 gallon capacity total oil storage. A failure of either RCP upper or lower bearings, oil lift pumps, oil cooler or oil supply piping will collect and drain to the RCP oil drain tank. The upper RCP bearing has an oil capacity of 200 gallons and the lower RCP bearing has an oil capacity of 25 gallons yielding a total of 225 gallons per RCP.

RCP oil drain tank overflow would be through a 1¼ inch overflow to the area beneath the tank and ultimately to floor drains which are routed to the containment building normal sump.

The oil collection system's function is to keep oil leakage away from hot spots on the RCP and motor. Any RCP fire would be limited to that residual oil remaining on pumps or collection system surfaces and could be extinguished manually by locally mounted dry chemical fire extinguisher or by the 150 lb. wheeled dry chemical fire extinguishers located nearby on the 565'-0" elevation.

Due to plant layout, it is unlikely that any overflow from the collection tanks would come into contact with hot RCS surfaces as the RCP oil drain tanks are separated and are on a lower elevation than each RCP. There is a very low probability of gross rupture of multiple RCP lube oil systems resulting in overflow of the RCP oil drain tanks and a low probability of an ignitiion in the event that an overflow does occur. Therefore, the present design poses no threat to safe shutdown capability. However, a review will be made to determine if as-built conditions ensure that any overflow will be properly drained so that it does not present a fire hazard. This review will culminate in an exemption request which will be filed by October 1, 1983.

This finding is considered to be resolved upon approval of the exemption request.

7. Housekeeping

The NRC Audit Team identified that wooden scaffolding was found stored in Mechanical Penetration Room 3 since April 30, 1983, and scrap wood and sawdust were present in the room.

The control of transient combustibles can be adequately demonstrated in Maintenance Procedure MP 1410.75. This procedure will be implemented by November 1, 1983. The total transient combustible loading of Mechanical Penetration Room 3, as identified by the TED Fire Protection Staff on or around June 1, 1983, equalled 1591 BTU's/ft^2. This transient combustible loading is well below the allowable transient loading as specified by MP 1410.75, "Control and Regulation of Transient Combustibles" (273,989 BTU's/ft^2).

Administrative implementation of MP 1410.75 provides for a continuous evaluation of transient combustibles for each safety-related room or area of the plant. Attachment 3 (Combustibles for Work Activity) of Procedure MP 1410.75 has provision for continual monitoring of transient combustibles based on the premise that appropriate sign off's are demonstrated for addition and removal of transient combustibles based on:

a. the scope of the work activity

b. the time duration and sign off's indicating removal of transient combustibles after individual maintenance or modification activities have been completed

The transient combustibles stored in the radioactive waste barrels were removed from the pipe chase in Mechanical Penetration Room 3, which is a high radiation area. The wood contained in the radioactive waste barrels was awaiting clearance from Chemistry and Health Physics personnel prior to being removed from the area.

Scaffolding erected in the area was for ongoing maintenance activities associated with the new piping supports and hangers installed in the area and was scheduled to continue into the outage, beginning in late July, ref. MWO No. 1-83-2795-00, status as of 08/11/83 "being scheduled." Upon completion of the maintenance work activity, the scaffolding will be removed from the area as required by "Plant Cleanliness Inspection Program", AD 1835. MP 1410.75 is currently being implemented on an interim basis during the current outage to develop the necessary administrative

controls and to evaluate the effect of the procedure on maintenance and modification activities. Training programs are currently being developed to train personnel associated with maintenance and modification activities to ensure their understanding of the Transient Combustible Control Procedure and the necessity of articulate performance while completing Attachment 3 of the procedure.

Additional control of transient combustibles is demonstrated in AD 1810.01 "Control of Combustibles and Ignition Sources". It is the policy of the Fire Protection Staff at Davis-Besse to conduct routine periodic inspections of all areas listed in AD 1810.01 Section 1, to ensure that good housekeeping policies are enforced in accordance with AD 1835, "Plant Cleanliness Inspection Program".

We believe the above actions are adequate to address this issue.

8. Fire Damper Inoperability

The NRC Audit Team identified that three dampers were inoperable with no fire watch for a period of approximately two to three months due to personnel error and an inadequate test procedure.

Violation of Limiting Condition of Operation (LCO) concerning fire dampers has been reviewed by the TED fire protection staff with the following action steps incorporated to correct the deficiency and ensure tighter administrative control of fire damper and barrier surveillance testing.

A complete review of all surveillance testing accomplished by the individual responsible for improper notification and testing of fire dampers has been completed. This review included the following surveillance tests; ST 5071.01, ST 5011.03, ST 5051.10, ST 5074.01 and ST 5051.09. This review encompasses the total work scope of the aforementioned individual from January 1, 1983 to August 12, 1983. This review, conducted by the lead Maintenance Engineer, concluded that the surveillance tests mentioned above were properly performed and reviewed.

Revision of ST 5016.11, "Fire Protection System Barrier Surveillance Test" has been completed and the following areas of the procedure have been revised to reflect tighter administrative control by the TED Fire Protection Staff. The revised procedure clearly indicates administrative steps to be taken when functionability of a fire barrier,

fire door, or fire damper is unsatisfactory. Revision of Section III of the procedure ST 5016.11 clarifies the definition of "operable" and provides explicit guidance in testing and maintenance of fire dampers. Separate attachments incorporated into ST 5016.11 provide direct and explicit control of fire door and dampers which function unsatisfactorily. The attachments incorporate the following information to aid in control of barrier/separation criteria failure; time and date fire barrier declared inoperable, maintenance work order under which fire barrier was repaired, and time fire barrier was retested and returned to service. Under the guidelines of the revised procedure (ST 5016.11) maintenance personnel were trained utilizing a program approved by both the Maintenance and Fire Protection Staff. All fire dampers inadequately tested shall be re-tested utilizing the revised procedure prior to plant startup.

Licensee Event Report (LER) NP-33-83-50 is being reviewed by both Maintenance and Fire Protection Staff and will be processed on or before August 26, 1983, as per AD 1804.00, Enclosure 5. The LER will include events listed in DVRs 83-092, 83-094, 83-095, 83-096, 83-097 and resolve LCO concerns regarding fire dampers.

This finding is considered to be adequately resolved for restart with the re-evaluation of the affected dampers using the revised surveillance test procedure.

9. Service Water Discharge Valve Room

The Service Water Discharge Valve Room was identified to not meet the requirements of 10 CFR 50 Appendix R, Section III.G since local controllers are exposed to a single disabling fire and could fault closed as a result of damage to discharge valves or local controllers located in the Service Water Valve Room.

To ensure exposure to a single disabling incendiary event will not cause failure due to an electrical short of service water return valves or associated local controllers, the following action will be taken by TED. Procedure SP 1104.11 "Service Water System Operating Procedure" will be revised prior to restart to allow for de-energization of the breaker for whichever service water discharge flow path is in use. De-energizing the appropriate breaker will remove power to the motor operated valve and associated local control circuitry eliminating the possibility that a single disabling fire could cause all service water returns

to fail closed. In the event of a fire, the de-energized valve and its associated circuitry will fail "as is" allowing service water return at all times. The discharge valves can be manually operated.

Implementation of the above actions will be accomplished prior to restart.

Concerning the one-hour wrap deficiency in the service water valve room, a walkdown of the required conduit wrapping will be performed to ascertain all deficiencies. All deficiencies will be eliminated prior to restart (see Finding 11 discussion).

This finding is considered to be adequately resolved for restart with the completion of the above actions.

Many areas in the DB-1 station utilize partial versus full suppression. A review of all these areas will be performed consistent with the long-term actions in Section IV, Task 2. It is expected that an exemption request will be submitted.

10. One-Hour Fire Barriers - Test Report

The NRC Audit Team identified that the adequacy of the Kaowool wraps was left as an open item with the following comments:

a. The test report in support of crediting the wraps as one-hour barriers was inconsistent and inadequate.
b. The test report did not address configurations existing at Davis-Besse.

The test report provided by Bechtel provides different results for each configuration tested. The one-hour rating is consistent with Test No. 3B for Aluminum Open Ladder Cable Tray and Aluminum Conduct Wrapped with 2" Kaowool Blanket (Tight Rutt Joints). The closest tray and conduit configuration identified in the test report that is representative of the DB-1 fire barrier design, per FCR 79-032, is consistent with Test No. 2 - Steel Solid Bottom Cable Tray and Steel Conduit Wrapped with 2" Kaowool Blanket (Tight Rutt Joints). The results of this test indicate fifty (50) minutes of protection from a total engulfment fire. The test report provided by Bechtel adequately represents the DB-1 conduit fire barrier system, including the tray configurations cited in FCR 79-032 for trays 1CJP10 and 1CJP12, as contained in Rooms 303 and 304. It should be noted that all other Kaowool tray applications

pertain to preventing the propagation of fires from within one tray to another tray and do not attempt to protect the cables contained within these trays. All safe shutdown circuits that require protection are identified in FCR 79-032 as being in conduit and the two (2) cable trays cited above.

As part of the corrective action program (see Section IV, Task 6) additional review of the adequacy of the test report will be performed to verify the acceptability of the Kaowool fire barrier wraps on cable trays and conduit in accordance with ASTM-119.

When identified, inadequate protection based on existing fire area/zone combustible loading will be modified to assure safe shutdown capabilities.

Justification for interim operation is based on the reasons cited below.

- All safe shutdown circuits that require protection in tray and conduit have passive fire barrier protection in accordance with FCR 79-032.

- No fire zone containing protected shutdown circuits in tray or conduit has a combustible loading exceeding 49,000 BTU/ft^2 (equivalent 37 minute fire per NFPA Handbook, Section 6).

- These areas are protected by ionization type smoke detectors and automatic wet sprinkler suppression systems.

- The existing tray protection does provide some degree of fire protection yet not quantified.

- A one-man roving fire patrol will be continuously administered for all areas and zones containing protected safe shutdown circuits having a combustible loading greater than 20,000 BTU/ft^2 (Rooms 053, 209, 304, 313, and 314). Rooms 304, 313, and 314 are radiation areas. Due to ALARA controls, a roving fire patrol is recommended for all rooms.

- The Bechtel test reflects total fire engulfment of cable tray. Existing fire suppression systems will preclude total fire engulfment of cable trays.

- All other Kaowool tray applications throughout the plant will contain a fire generated within the tray and prohibit transfer to other cable trays.

  This finding is considered to be adequately resolved for restart.

11. One-Hour Wraps - Installation

The NRC Audit Team identified that the one hour wraps are incomplete, poorly installed, and not in accordance with the test installation.

FCR 79-032 identified those conduits and cable trays requiring Kaowool blanket wraps to provide fire protection to assure safe shutdown capability. A fire protection walkdown will be performed to the requirements of FCR 79-032 to identify any deficient cable tray and conduit Kaowool wraps. Subsequent to this review, all identified missing wrap segments, if any, will be reworked to meet the FCR 79-032 requirements prior to restart. Appropriate Quality Assurance and Quality Control measures will be in place for this work.

This finding is considered to be resolved for restart upon completion of the short term action.

To prevent future alteration of these protective barriers, an evaluation will be performed to determine how to prevent recurrence. The final solution will be discussed in TED's response to the Inspection Report.

12. Fire in the Auxiliary Shutdown (S/D) Panel

A fire in the Auxiliary S/D panel may defeat the auxiliary feedwater turbine control from both the Aux. S/D panel and the control room.

A fire in the Auxiliary S/D panel will not require the evacuation of the control room and will not require the use of the auxiliary feedwater system. A plant shutdown would not result from fire in the auxiliary shutdown panel, and normal feedwater would be available.

In the highly unlikely event that a loss of offsite power occurs concurrently with a fire in the Auxiliary S/D panel, then auxiliary feedwater pump turbine (AFPT) control from both the auxiliary shutdown panel and control room may be defeated.

A fire in the Auxiliary S/D panel while AFPT control is from the Auxiliary S/D panel may result in blowing the AFPT governor control circuit fuses in the disconnect switch cabinets CDE12A-1 and CDF12A-1. A fire in the Auxiliary S/D panel while AFPT control is from control room in "auto-essential" mode may result in blowing the AFPT governor remote control circuit fuses in the disconnect switch cabinets. If AFPT control is from control room in manual mode, no blowing of control circuit fuses will occur. If these fuses blow, AFPT control will not be possible from the control room.

In the event of loss of AFPT governor control, the governor will either control at the setting prior to the loss of power to the governor speed changer motor or control at one of the governor limit stops. If the governor continues to control at its previous setting, or controls at the high speed stop, then AFPT control will be accomplished by operating the AFPT steam inlet valves from the control room. The governor is normally on the high speed limit setting.

In the event that the governor controls at the low limit stop, then the start up feed pump powered from the essential busses, will be utilized in accordance with Procedure AB 1203.05.

Upon restoration of Auxiliary feedwater, the control room mode switch can be selected to manual and the appropriate AFPT governor remote control circuit fuses can be replaced by maintenance personnel to return AFPT governor control to the control room.

A review will be performed to investigate the possibility of correcting this problem. This occurs because cabling is routed through the Aux. S/D panel to the control room for permissive interlocks. Also, the OTSG level contacts are located internal to the Aux. S/D panel. If the cables for the permissive interlocks are rerouted, and if the OTSG level contacts are relocated to the disconnect switch cabinets, then no loss of AFPT governor control would be experienced in the event of a fire in the Aux. S/D panel.

Based on the identified capabilities to supply feedwater given a fire at the auxiliary S/D panel, TED considers this finding to be resolved for restart.

This finding will be addressed in the long term actions (see Section IV, Task 5).

13. Diesel Fire Pump Test Procedure

The Diesel Fire Pump Test Procedure was identified as not written nor performed in accordance with NFPA 20 requirements for annual Fire Pump Flow Test.

NFPA requirements for Annual Fire Pump Tests as stated in NFPA 20, Sections 11-3.1 thru 11-3.3 require the pumps performance to be evaluated at peak loads. The peak load for the diesel fire pump at DB-1 is 3750 gpm at 150% of rated flow.

ST 5016.12 "Diesel Fire Pump Annual Flow Test" has been revised to include a 3750 gpm (150%) flow test as required by NFPA 20 Section 11-3. The 14th Edition NFPA Handbook is utilized by the Fire Protection Staff for additional guidance and not as a basis for test procedure format.

To determine the extent, if any, of the reduction in operating characteristic of the fire pump assembly (ref. NFPA 20 11-3.3) the Original Acceptance Test TP 180.01 was modified and performed in part by the Fire Protection Staff. A pump performance curve was plotted and compared to both the manufacturer's shop test and the 1976 original acceptance test (ref. T-7314). Based on the results of the revised Original Acceptance Test, the pump was judged to be 6-7% below acceptable margins.

Inspection of both the diesel engine and pump shaft speeds indicated they were performing below manufacturer's design speed at all flows with the exception of the 627 gpm flow test.

Conference with Maintenance personnel, the Fire Protection Staff, and the manufacturer of the Diesel Engine resulted in the conclusion that the Diesel Engine is operable. However, it is in need of service outside the realm of routine periodic maintenance procedures. A manufacturer's representative has been scheduled to service the diesel engine, thus resolving NFPA 20 requirements as stated in Section 11-3.3 for deteriorated operating characteristics.

Even in the deteriorated condition demonstrated by T-7314 the Diesel Fire Pump meets and exceeds Surveillance Requirements 4.7.9.1.1.f.2 of the DB-1 Technical Specifications, Appendix A.

TED does not run shut-off head tests on the Diesel Fire Pump. NFPA 20, Section 11-3 "Annual Fire Pump Tests" does not require shut off head test performance during the Annual Flow Test. NFPA Handbook 14th Edition is once again used by TED only as a guideline. The Diesel Fire Pump at DB-1 is equipped with a full flow 2500 gpm relief valve.

This finding is considered to be resolved for restart.

Long-term commitment compatibility review will be performed (see Section IV, Task 3).

14. Fire Hose Stations

Fire hose stations and stand pipes were identified as not designed in accordance with NFPA 14. Investigation by TED has shown that no commitment was made to design stand pipes in accordance with NFPA 14 except for sizing, spacing, and pipe supports. Requirements established in NFPA 14 are written for application by untrained personnel not by trained personnel such as those of the Toledo Edison Fire Brigade who utilize the equipment. The fire brigade is trained in the use and operation of the aforementioned fire suppression equipment. Consequently, the lack of pressure reducing devices presents no significant safety concern. Further documentation regarding TED's commitments may be obtained by referencing Davis-Besse FHAR Table 4-1 (Sheet 33a).

This finding is considered to be resolved for restart.

Long-term commitment compatibility review will be performed (see Section IV, Task 3).

15. Fire Door Modifications

The NRC Audit Team identified that modifications were made to the fire door to room 320 with no documentation.

A preliminary walkdown of selected fire areas confirms that certain three-hour rated fire doors may have been modified using non U.L. listed hardware. The modifications to the fire doors were due to the installation of the card key access control system. Due to the low combustible loading in the affected areas and the nominal effects of the minor modifications identified, TED believes that the fire ratings of the doors in questions have not been significantly affected. The ultimate resolution of this issue shall be addressed in the long term program (see Section IV, Task 2).

16. Sprinkler System

The NRC Audit Team identified that routing of water suppression below cable trays located near the ceiling is in violation of NFPA STD-13 and -16 and License Amendment 18.

The NRC conducted a plant tour in 1978 to review the adequacy and necessity of certain plant fire protection features. Based on that site visit and the subsequent meeting in Bethesda in October, 1978, the following sprinkler system design criteria were derived and agreed upon for the Auxiliary Building:

- The sprinkler heads shall be positioned in such a manner that they will adequately control and/or extinguish a fire that could originate on the floor of the protected area and cause an exposure to conduits, piping and/or equipment required for safe shutdown.

- The design of the sprinkler systems should consider the fire to involve transient combustible and external ignition sources and not caused by electrically originated fires in overloaded cables based on the fire tests which are discussed in Section 6 of the Fire Hazard Analysis Report.

- The sprinkler designs shall utilize sprinkler heads which will respond quickly to thermal conditions.

- The sprinkler designs shall be supported seismically and analyzed for a moderate energy pipe crack in accordance with the criteria stated in NRC Branch Technical Position (BTP) MEB 3-1.

- The sprinkler systems shall be designed to the applicable portions of NFPA 13-1978.

- Heat collectors, where applicable, shall be installed to assure reliable sprinkler actuation.

- Safety related equipment is required to be protected from inadvertent sprinkler operation which could render equipment inoperable due to water spray.

In order to support the above general design criteria as dictated by the authority having jurisdiction* (NRC), exceptions to portions of NFPA 13 were taken for the Auxiliary Building and Intake Structure sprinkler systems.

Therefore, generic justification for the sprinkler head placement is provided below:

- The ceiling spaces of the various rooms which are sprinklered are heavily congested with large diameter piping, rigid steel conduit and steel cable trays with solid metal bottoms. The cabling in the cable trays have been fire tested and have been proven a non-propagating fire retardant type. The tops of the cable trays are enclosed with a two (2) inch thick Kaowool thermal blanket which has a one-half hour fire resistive rating. Conduits containing critical cabling required for shutdown are wrapped in a two (2) inch Kaowool thermal blanket. The Kaowool blanket affords the conduit with a one-half hour fire resistive rating. The equipment located within the ceiling spaces is considered to be noncombustible.

- With the sprinkler heads located near the ceiling as required by Chapter 4 of the NFPA 13-1978, inadequate sprinkler water distribution covering the floor would exist.

- The heavy congestion of piping, cable trays, and conduits in the ceiling space of the sprinklered rooms creates a false ceiling effect which could preclude heat from reaching sprinkler heads mounted at the ceiling level, thus causing delayed sprinkler actuation.

- The false ceiling effect created by the piping, cable trays and conduit congestion in the ceiling space creates an area of heat collection below the lowest level of cable trays and conduits. This is shown by sprinkler response tests conducted by Union Carbide in July of 1973 for the U. S. Atomic Energy Commission under U. S. Government contract W.7405 eng. 26, Document V-JA-96. The sprinkler heads were equipped with heat collection canopies and were placed at five (5) feet and seven (7) feet above the floor elevation.

*The National Fire Protection Association does not approve, inspect or certify any installations, procedures, equipment, or material, nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. This note is a direct excerpt from NFPA Chapter 13, Paragraph 1-3.

The tests were conducted because of the complexity of piping fixtures and structural interferences, as it was realized that it would be expensive and probably ineffective to install sprinklers near the ceiling as per the code.

The tests concluded that in most cases the sprinklers installed under canopies actuated faster than those not installed under canopies. However, when a high heat source was used the tests did demonstrate that the sprinkler position had little effect on the sprinkler actuation times and any slower buildup of heat, due to smaller fires which would result in a time delay of sprinkler actuation, would be compensated by canopies.

- Based on the congestion in the ceiling spaces and the requirements to support the sprinkler pipe seismically, the pipe supports had to be attached to wall(s) and/or the floor. This requirement and the congestion in ceiling space dictated the routing of the sprinkler piping, at an elevation approximately 7'-8' above the floor in most cases.

  The sprinkler systems were hydraulically designed in accordance with NFPA 13-1978 and the calculations took into account the convoluted piping arrangement. Grinnell Fire Protection Systems Company, Inc., was contracted by Bechtel to review the Auxiliary Building sprinkler and water curtain designs and associated hydraulic calculations, and give recommendations and guidance concerning the type of sprinkler head or water spray nozzles best suited for a specific application, considering the restrictions on the layout of various sprinkler heads and/or water spray nozzles.

In summation, it is considered that the best possible sprinkler design currently exists in the DB-1 auxiliary building.

In addition, the American Nuclear Insurers (ANI) has found the Auxiliary Building sprinkler system designs to be acceptable for insurance coverage related to fire protection.

This finding is considered to be resolved for restart.

The long-term actions relative to NFPA-USAR commitment compatibility will be reviewed to reflect this information. (See Section IV, Task 3)

17. Yard Hydrants and Valves

No physical barriers exist around some yard hydrants/post indicating valves at DB-1.

Review of NFPA 24 Section 3.34 depicts that "Post Indicator Valves shall be properly protected against mechanical damage where needed." Post indicator valves addressed during the 10 CFR 50 Appendix R audit are located within the protected area where vehicular traffic is held to a minimum and with few exceptions is monitored by the Nuclear Security staff. NFPA 24 Section 4-3.5 states that, "Hydrants shall be protected if subject to mechanical damage."

Again, hydrants identified during the 10 CFR 50 Appendix R audit are located within the protected area where vehicular traffic is held to a minimum. Additionally, all post indicating valves and hydrants utilized at the DB-1 are of the "breakaway" type. This type of valve stem is recognized by NFPA as designed such that failure of a valve stem will not affect the operability of the Fire Suppression System. This is identified as acceptable under NFPA. Further protection from mechanical damage is not warranted.

This finding is considered to be resolved for restart.

Long-term commitment compatibility review will be performed (see Section IV, Task 3).

18. Fire Pump Test

The Diesel Fire Pump Test Procedure was identified as not written nor performed in accordance with NFPA 20 requirements for annual Fire Pump Flow Test.

NFPA requirements for Annual Fire Pump Surveillance Tests as stated in NFPA 20, Sections 11-3.1 thru 11-3.3 require the pumps performance to be evaluated at peak loads. The peak load for the diesel fire pump at DB-1 is 3750 gpm at 150% of rated flow.

ST 5016.12 "Diesel Fire Pump Annual Flow Test" has been revised to include a 3750 gpm (150%) flow test as required by NFPA 20 Section 11-3. The 14th Edition NFPA Handbook is

utilized by the Fire Protection Staff for additional guidance and not as a basis for test procedure format.

To determine the extent, if any, of the reduction in operating characteristic of the fire pump assembly (ref. NFPA 20 11-3.3) the Original Acceptance Test TP 180.01 was modified and performed in part by the Fire Protection Staff. A pump performance curve was plotted and compared to both the manufacturer's shop test and the 1976 original acceptance test (ref. T-7314). Based on the results of the revised Original Acceptance Test, the pump was judged to be 6-7% below acceptable margins.

Inspection of both the diesel engine and pump shaft speeds indicated they were performing below manufacturer's design speed at all flows with the exception of the 627 gpm flow test.

Conference with Maintenance personnel, the Fire Protection Staff, and the manufacturer of the Diesel Engine resulted in the conclusion that the Diesel Engine is in need of service outside the realm of routine periodic Maintenance procedures. A manufacturer's representative has been scheduled to service the diesel engine, thus resolving NFPA 20 requirements as stated in Section 11-3.3 for deteriorated operating characteristics.

Even in the deteriorated condition demonstrated by T-7314 the Diesel Fire Pump meets and exceeds Technical Specification Requirements.

TED does not run shut-off head tests on the Diesel Fire Pump. NFPA 20, Section 11-3 "Annual Fire Pump Tests" does not require shut off head test performance during the Annual Flow Test. NFPA Handbook 14th Edition is once again used by TED only as a guideline. The Diesel Fire Pump at Davis-Besse is equipped with a full flow 2500 gpm relief valve.

In addition, the Fire Protection Staff in its efforts to review existing test procedures to insure their adequacy with applicable NFPA codes has incorporated vibration readings in ST 5016.08 "Electric Fire Pump Annual Flow Test", at all three levels of flow; 1250 gpm, 2500 gpm, and 3750 gpm, in accordance with NFPA 20.

This finding is considered to be resolved for restart.

Long-term commitment compatibility review will be performed (see Section IV, Task 3).

19. Control of Combustibles

The control of transient combustibles is adequately demonstrated in Maintenance Procedure MP 1410.75.

Administrative implementation of MP 1410.75 provides for a continuous evaluation of transient combustibles for each safety-related room or area of the plant. Attachment 3 (Combustibles for Work Activity) of Procedure MP 1410.75 has provision for continual monitoring of transient combustibles based on the premise that appropriate sign off's are demonstrated for addition and removal of transient combustibles based on:

a. the scope of the work activity.

b. the time duration and sign off's indicating removal of transient combustibles after individual maintenance or modification activities.

Additional control of transient combustibles is demonstrated in AD 1810.01 "Control of Combustibles and Ignition Sources". It is the policy of the Fire Protection Staff at Davis-Besse to conduct routine periodic inspections of all areas listed in AD 1810.01 Section 1, to ensure that good housekeeping policies are enforced in accordance with AD 1835, "Plant Cleanliness Inspection Program". Training programs are currently being developed to train personnel associated with maintenance and modification activities. This will ensure their understanding of the Transient Combustible Control Procedure and the necessity of completing Attachment 3 of the procedure. MP 1410.75 will be in place on or before November 1, 1983.

This finding is considered to be resolved for restart upon completion of the short term action.

Long term commitment compatibility review will be performed (see Section IV, Task 3).

20. Fire Protection System Flush

The NRC Audit Team identified that the fire protection system flush and valve operation is performed every three years instead of every year as required by NFPA.

NFPA requirements for valve operation indicate that for good testing policies, valves should be cycled at least once per year. Review of ST 5016.10 "Fire Protection System Valve Surveillance Test" shows that each Technical Specification and non-Technical Specification valve in the flow path is cycled through at least one complete cycle of full travel annually. This surveillance test is performed in accordance with NFPA Handbook; Section 11.G Chapter 2, 14th Edition.

NFPA requirements for Fire Protection Flushing indicates that underground lead-in connections to system risers shall be flushed at least annually. This test is currently performed in accordance with NFPA requirements as stated in NFPA 15 Section 6-2.9 as referenced in ST 5016.16 "Fire Protection System Flush". Records are available demonstrating performance of this test.

This finding is considered to be resolved for restart.

21. Fire Detector Maintenance

The NRC Audit Team identified that dust accumulation requires photoelectric detector adjustment. Procedures do not address this.

Fire detection maintenance and demonstration of operability at DB-1 is performed in accordance with NFPA 72D and manufacturer's recommendations. Reference of all applicable manufacturers operation and maintenance manuals is supportive of the fact that current DB-1 maintenance procedures are sufficient and no further action is necessary. In the case that excessive amounts of dust are present in the environment surrounding detectors at DB-1, degraded performance of the detector is not experienced. Increased sensitivity of the detection system accompanies increases in the amount of dust present in the surrounding environment. NFPA clearly states that maintenance practices are left up to the authority having jurisdiction. Current policy at DB-1 is to replace detectors which give inaccurate detection.

This finding is considered to be resolved for restart.

Long term commitment compatibility review will be performed (see Section IV, Task 3).

22. Fire Door and Damper Maintenance

The NRC Audit Team identified that procedures for fire doors and damper maintenance identified no surveillance from 1978 until recently. NFPA requires a monthly visual check as a minimum.

Prior to 1981, surveillance testing was not performed on fire dampers. A new Technical Specification concerning testing of fire doors, penetration barriers, and fire dampers was transmitted to the NRC for their approval in May, 1981, via FCR 80-265A. This transmittal addressed the requirements of NRC letter dated September 23, 1980 (Log No. 609), and complied with NRC requests concerning TED, NRC letter dated December 26, 1980 (Log No. 669). Since May, 1981, all fire dampers have been tested in accordance with this yet to be approved Technical Specification.

A newly issued procedure (ST 5016.11, Rev. 1) is currently being implemented for the first time to address surveillance testing of fire barriers, fire doors, and fire dampers. It will be implemented by restart. Test results will be available for review upon completion of the surveillance test. NFPA 80 requirements indicate that periodic inspection and maintenance programs should be implemented and should be the responsibility of property management.

A monthly preventive maintenance program has been in effect since 1981 to assess the operability of fire doors at DB-1.

The implementation of surveillance testing based on the yet to be approved Technical Specification and the program of monthly preventive maintenance activities as addressed in generic maintenance work orders demonstrates TED's good faith effort to adequately verify the operability of fire barriers, fire doors, and fire dampers.

This finding is considered to be resolved for restart upon completion of the short term action.

Long term commitment compatibility review will be performed (see Section IV, Task 3).

23. Emergency Lighting - Surveillance

The NRC Audit Team identified that procedures should be revised to perform surveillance quarterly instead of semi-annually.

The periodic test currently in place for the maintainability of the Emergency Lighting (EL) units has incorporated all identified manufacturer's recommendations. These actions include measurement of electrolyte level, 90 second burn test, subsequent fast charge and then return to trickle charge verification and a thorough cleaning.

In addition to these surveillance actions, a battery life determination will be made and then factored into the battery replacement schedule.

TED has planned to replace all batteries on the emergency lighting units of the older type that have failed the eight hour burn test performed during the audit. Prior to replacement, units of this type will be selected at random and an eight hour burn test will be performed. This will act as baseline information for determining battery life.

Additionally, maintenance will begin random sampling all of the remaining EL units beginning October 1, 1983, and perform eight hour burn tests on these as well. Based on the results of this study, a guideline will be established to indicate the optimal replacement time for lighting units at DB 1. TED believes that the results of this study will provide a better indication of the need to replace batteries than by performing surveillance testing on a quarterly basis. TED will continue to conduct surveillance testing in accordance with manufacturer's specifications until this study is completed. Long term actions will be considered resolved at this point (see Section IV, Task 4).

This finding is considered to be resolved for restart.

24. Off-Site Fire Department Training

Review of the existing level of training and responsibility delineation for off-site fire department assistance was determined to be inadequate. Our understanding of this finding is that the offsite fire department by State law is charged with taking control of the situation upon their arrival. The training was deemed inadequate assuming that the offsite agency did not use in-plant fire brigade advice to fight the fire. TED does not agree that the offsite agency will not use the fire brigade input in fighting the fire.

The training programs in effect at DB-1 are indicative of the fact that the DB-1 Fire Protection Staff is aware of the special requirements for fighting fires in a nuclear environment and takes every precaution to ensure adequate training of offsite fire departments.

It is our understanding this deficiency concerns the inadequacy of the authority and responsibility delineations of the offsite fire personnel.

The Emergency Plan Section 8.1.1 has been revised to depict the role of offsite fire departments when responding to fires at DB-1. The letter of mutual aid will be revised prior to startup to ensure conformance of offsite fire departments with the revised Emergency Plan and its implications of authority, jurisdiction, direction of offsite fire departments by the Davis-Besse fire brigade.

This finding is considered to be resolved upon completion of the short term action.

25. Welding Permits

The NRC audit team found that welding permits are not to be issued for greater than 24 hours as required in NFPA 51 and 51B, and that weekly permits are allowed at Davis-Besse.

We have reviewed NFPA 51B and the Fire Protection Handbook, 14th Edition, and the 24 hour minimum requirement as stated by the audit team does not exist. NFPA 51B requires the area where welding is to be permitted to be inspected by the individual responsible for authorizing the welding operations to ensure that it is a firesafe area. NFPA 51B states, "This individual shall designate precautions to be followed in granting authorization to proceed, preferably in the form of a written permit. (A suggested form of written permit is shown in Appendix A. It may be modified to suit conditions.)" The form has an entry for designated as "permit expires".

DB-1 allows weekly permits during periods of heavy activities such as during outages, and during periods of non-power production (Modes 2 through 6 as specified in the Technical Specifications). Otherwise, during power production (Mode 1), 24 hour welding permits are used. The current level of controls and durations are considered acceptable.

This finding is considered to be resolved.

26. Sprinkler Tests

The NRC Audit Team identified that the 1980-1983 sprinkler tests are inadequate relative to NFPA.

Review of NFPA requirements to DB-1 test procedures indicates the necessity to revise the "Diesel Fire Pump Annual Flow Test" Procedure ST 5016.12. The test was revised as discussed in response to finding 13. The two inch drain test is run in accordance with NFPA 13A on all sprinkler systems at the plant (ref. ST 5016.07). In addition to the two inch drain test, the Inspector's test as referenced in NFPA 13A is run on all wet sprinkler systems installed in the plant on an annual basis.

This finding is considered to be resolved for restart.

Long term commitment compatibility review will be performed (see Section IV, Task 3).

27. Off-Site Contractors Fire Watch Training

The audit team indicated that offsite contractors were inadequately trained as fire watches.

Davis-Besse Fire Protection Staff reviewed training programs of offsite contractors as fire watch and has identified the lack of hands-on training for offsite contractors. Current levels of training include:

- presentation of industrial fire safety films
- presentation and explanation of AD 1844.07 Maintenance "Open Flame, Welding, Grinding and Cutting Permits"
- AD 1810.01 "Control of Combustibles and Ignition Sources"
- Standing Order No. 30, the Blocking of Penetration Fire Barriers, Fire Doors, and Negative Pressure Boundary Doors.
- Fire extinguisher training to include (a) matching extinguishers to the hazard, (b) the correct method of using portable fire extinguishers, and (c) the operation and use of fire extinguishers.

All appropriate TED employees utilized as fire watch or fire brigade receive thorough hands-on training. The lack

of hands-on training for offsite contractor personnel is directly correlated to finding 28, which addresses the lack of trained and qualified manpower to perform such evolutions. A hands-on program has, in the past, been performed by individual contractors performing maintenance or modification activities on site. This program was discontinued eliminating training as specified in NFPA 51B.

This task action will be addressed in the response to audit finding 28.

Long term commitment compatibility review will be performed (see Section IV, Task 3).

28. Fire Protection Staff

The NRC audit team stated that the fire protection effort appears understaffed relative to Administrative Procedure AD 1810.00 and License Amendment 18.

The full-time Fire Protection Coordinator has been on the Toledo Edison staff in that position at DB-1 in excess of three years. The fire protection engineer position is filled by a consultant as designated in the Fire Hazards Analysis Report, Volume I, Section 1.

The Toledo Edison Company currently maintains that sufficient manpower exists to address the fire protection program. This conclusion may not have been apparent to the audit team due to the dispersion of duties among various TED personnel. In lieu of the audit finding, however, the Toledo Edison management responsible for Davis-Besse has directed that the staffing required to support fire protection activities be re-studied. This will ensure that all the requirements of the fire protection program, as well as all the short-term actions and the long-term Appendix R review programs are directed, monitored and followed through to completion.

A review of personnel responsibilities will be performed to determine whether additional staff is needed and when. This study will be reviewed by the Vice President, Nuclear.

Toledo Edison management is dedicated to providing a quality fire protection staff with responsibility for the fire protection activities as defined in Administrative Procedure AD 1810.00.

Further clarification of this item will be provided in our response to the Inspection Report.

29. High/Low Pressure Interfaces

All valves including the Power Operated Relief Valve and the Letdown Cooler Isolation Valves are subject to spurious actuation in the event of a fire in the Control and/or Cable Spreading Room.

The long-term generic actions are described in Section IV, Task 5.

The PORV block valve (HVRC11) can be isolated by disconnecting the control circuits at disconnect switch CDE16B and utilizing the pushbutton at the MCC BE 1602. The TED action will be to utilize existing procedures to close and de-energize the PORV block valve at the appropriate motor control center. In addition, the motor-operated letdown containment isolation valve will be closed and de-energized from the appropriate motor control center.

This finding is considered to be resolved for restart.

IV. CORRECTIVE ACTION PROGRAM

A two-phased approach has been initiated by TED to respond to the NRC fire protection audit findings.

The first phase is a short-term program of corrective actions which is already underway, as described in Section III, to address the NRC audit findings and to provide the basis for startup and operation of DB-1.

TED considers fourteen (14) out of the twenty-nine (29) audit findings to be resolved in the short-term (prior to restart). The resolved findings are listed below.

Finding No.	Item
5	Fire Doors
8	Fire Damper Operability
13*	Diesel Fire Pump Test Procedure
14*	Fire Hose Stations
16*	Sprinkler System
17*	Yard Hydrants and Valves
18*	Fire Pump Test
20*	Fire Protection System Flush
21*	Fire Detector Maintenance
22*	Fire Door and Damper Maintenance
24	Off-Site Fire Department Training
25*	Welding Permits
26*	Sprinkler Tests
27	Off-Site Contractors Fire Watch Training

In addition to the short-term actions, a number of compensatory actions have been taken by TED in lieu of meeting the NRC audit findings related to Appendix R on an interim basis. The compensatory actions are summarized in Attachment 2.

The second phase is a longer-term generic review program which will involve performing and documenting additional Appendix R analyses (Appendix R, Sections III.G, J, O, and L as clarified by NRC Generic Letter 81-12). The longer-term program includes the actions necessary to supplement and address certain NRC fire protection audit findings. Any design or procedural modifications that may be identified from the analyses will be implemented, or exemptions requested.

A summary of the specific longer-term tasks of this program, as defined to date, and a schedule for their completion, are:

Task 1. Safe Shutdown Systems Identification

Minimum systems, components and circuits required for hot standby and for cold shutdown will be identified. Associated circuits whose damage could affect shutdown capability as defined in Generic Letter 81-12 will be included.

The systems, components and circuits identified will be located in the plant. Fires will be postulated in each fire area/zone and the fire protection features for the

*Resolved except for NFPA, USAR, FHAR, Tech Spec compatibility review (Task 3).

systems, components and circuits will be evaluated against the requirements of Appendix R, Section III.G.2.

Review of the isolation of circuits between the Auxiliary Shutdown Panel and the control room/cable spreading room will be included in this task.

Systems, components and circuits required for hot standby and cold shutdown will be identified by October 17, 1983. The fire protection evaluation against requirements of Appendix R is scheduled for completion by January 31, 1984.

Task 2. Fire Hazards Analysis Report (FHAR) - Appendix R Review

Revision 6 of the DB-1 FHAR will be reviewed against the requirements of 10 CFR 50 Appendix R, Sections III.G, J, O and L. Revisions resulting from Task 1 will be incorporated in the FHAR. Feedback will be provided to upgrade the interim procedures when information affecting the procedures becomes available.

This effort is scheduled to be completed and submitted to the NRC for review by January 31, 1984.

A generic review of the instrumentation will be performed to identify the extent of conformance to the alternative shutdown capability requirements of Appendix R, Section III.L. Recommendations concerning modifications and/or exemptions will be made.

This review is scheduled to be completed by January 31, 1984.

Task 3. Fire Hazards Analysis Report - Compatibility Review

A review will be performed to ensure commitment capability between the DB-1 Fire Hazards Analysis Report (including referenced documents), the National Fire Protection Association Code, the updated Final Safety Analysis Report and the DB-1 Technical Specifications.

This effort is scheduled to be completed by November 30, 1983.

Task 4. Emergency Lighting Review

Areas requiring emergency lighting will be identified. This will include the areas for which operator actions are required as well as access and egress routes from the

control room to the Alternate Shutdown Panel and from the Alternate Shutdown Panel to other locations in the plant.

Based on the identification of areas, the existing plant Emergency Lighting System will be evaluated for compliance to Appendix R Section III.J.

This review is scheduled to be completed by November 30, 1983.

Task 5. Associated Circuit Analysis

A review will be performed of the TED 1975-1976 engineering inspection of channel separation at DB-1 to determine consistency with the guidelines provided in Appendix R Sections III.G and L, Generic Letter 81-12, and the clarification letter to the Generic Letter. Existing TED analyses will be upgraded, as necessary, to meet the aforementioned guidelines.

This review and analysis is scheduled to be completed by January 31, 1984.

Task 6. One-Hour Barrier Review

A one-hour barrier review will be conducted to verify the adequacy of the one-hour barriers in the plant where they are necessary to meet the requirements of Appendix R, Section III.G.2.C. Included in this review will be (1) the evaluation of the acceptability of Kaowool as a one-hour barrier as used in the plant, (2) the adequacy of the installed one-hour barriers with respect to completeness and test documentation.

This review is scheduled to be completed by December 16, 1983.

Task 7. BTP APCSB 9.5.1 Review

A review will be performed of compliance with previous commitments made to BTP APCSB 9.5.1 and appropriate NRC Supplemental Guideline Documents for fire protection.

This review is scheduled for completion by November 30, 1983.

Task 8. Fire Protection Manual Preplans Review

The Fire Protection Manual Preplans will be reviewed to ensure that: (1) they are complete for all fire areas/zones identified in the FHAR, (2) individual preplans are accurate, (3) any identified deficiencies in the preplans have been resolved, and (4) the procedure to achieve hot standby and cold shutdown is compatible with the fire preplans and revisions thereto. Any revisions to the preplans will be made subsequent to this review and will include all impacting information identified through the performance of the other actions and long-term tasks.

This review is scheduled for completion by April 30, 1984.

The schedule for any procedure or document revisions, for plant modifications, or for submittal of exemption requests to the NRC will be identified as the specific evaluations are completed.

ACTION SUMMARY

Finding No.	Finding Action	To Be Completed Prior To Restart	Considered Interim Compensatory Action	Comments
1.	Alt Shutdown Capability/Hot Standby			
1.1	Interim procedure developed	X		
1.2	Operators trained	X		
1.3	Procedures implemented	X		
1.4	Revalidation of procedure after long-term Tasks 1 and 2			Tasks 1 and 2 Systems-Oct. 17, 1983 Evaluation-Jan. 31, 1984
1.5	Associate circuits analysis			Task 5 Jan. 13, 1984
1.6	Preplan validation			Task 8 April 30, 1984
2.	Alt Shutdown Capability/Cold Shutdown			
2.1	Interim procedure developed	X		
2.2	Operators trained	X		
2.3	Procedures implemented	X		
2.4	72 hour time requirement exemption request submitted			File for exemption Oct. 1, 1983
2.5	Revalidation of procedure after long-term Tasks 1 and 2			Tasks 1 and 2 Systems-Oct. 17, 1983 Evaluation-Jan. 31, 1984
2.6	Associate circuits analysis			Task 5 Jan. 31, 1984
2.7	Preplan validation			Task 8 April 30, 1984
3.	Auxiliary Shutdown Panel			
3.1	T_c and T_h interim readout capability	X	X	

Finding No.	Finding Action	To Be Completed Prior To Restart	Considered Interim Compensatory Action	Comments
3.	Auxiliary Shutdown Panel (Cont.)			
3.2	Source range flux, T_c and T_h permanent resolution			Task 1 Resolution identification and schedule provided Jan. 31, 1984
3.3	Permanent sampling and valve lineup procedures for reactivity monitoring	X	X	
4.	Emergency Lighting Design			
4.1	Normal lighting re-energizing from essential bus integrated into procedure	X	X	
4.2	Lighting walkdown maximizing illumination	X	X	
4.3	Emergency lighting review to App. R, Section III.J			Task 4 Nov. 30, 1983
5.	Fire Doors			
5.1	Resolution on NRC identified doors	X		
6.	Reactor Coolant Pump Oil Collection System			
6.1	File for exemption request, RCP oil collection system			File for exemption Oct. 1, 1983
7.	Housekeeping			
7.1	Transient combustible procedure implementation			Procedure implemented by Nov. 1, 1983
8.	Fire Damper Inoperability			
8.1	LER processed	X		
8.2	Surveillance Tests (ST) reviewed	X		

Finding No.	Finding Action	To Be Completed Prior To Restart	Considered Interim Compensatory Action	Comments
8.	Fire Damper Inoperability (Cont.)			
8.3	Surveillance Test Revision	X		
8.4	Surveillance Test portions re-performed	X		
8.5	Applicable records available for audit	X		
9.	Service Water Discharge Valve Room			
9.1	Resolution of discharge valve deficiency by revised procedure	X		
9.2	One-hour wrap deficiency resolution			See Finding Action 11
9.3	Partial vs. full suppression resolution (possible exemption request)			Task 2 Jan. 31, 1981 (when information is available)
10.	One Hour Fire Barriers - Test Report			
10.1	Kaowool wrap acceptability review			Task 6 Dec. 16, 1983
10.2	Presently installed required wrap walkdown, reinstallation, repair	X	X	
10.3	Fire watches in place in high combustible loading areas	X	X	
11.	One Hour Wraps - Installation			
11.1	Presently installed required wrap walkdown, reinstallation, repair	X	X	Task 6 Dec. 16, 1983
11.2	Administrative controls on wraps in place	X	X	

Finding No.	Finding Action	To Be Completed Prior To Restart	Considered Interim Compensatory Action	Comments
12.	Fire in the Auxiliary Shutdown Panel			
12.1	Auxiliary feed pump turbine circuitry resolution	X	X	
12.2	Associated Circuits Analysis			Task 5 Jan. 31, 1984
13.	Diesel Fire Pump Test Procedure			
13.1	NFPA-USAR compatibility			Task 3 Nov. 30, 1983
13.2	Full procedure deficiency identification	X		
13.3	Procedure rectification	X		
13.4	Manufacturer's representative inspection and adjustment			Scheduled
14.	Fire Hose Stations			
14.1	NFPA-USAR compatibility			Task 3 Nov. 30, 1983
14.2	Finding review and resolution	X		
15.	Fire Door Modifications			
15.1	Resolution of door deficiency			Task 2 Jan. 31, 1984
16.	Sprinkler System			
16.1	Sprinkler deficiency resolution	X		
16.2	NFPA-USAR compatibility			Task 3 Nov. 30, 1983

Finding No.	Finding Action	To Be Completed Prior To Restart	Considered Interim Compensatory Action	Comments
17.	Yard Hydrants and Valves			
17.1	Yard hydrant, and valves resolution	X		
17.2	NFPA-USAR compatibility			Task 3 Nov. 30, 1983
18.	Fire Pump Test			
18.1	See deficiency 13			
18.2	Vibration reading incorporation	X		
18.3	NFPA-USAR compatibility			Task 3 Nov. 30, 1983
19.	Control of Combustibles			
19.1	See deficiency 7			
20.	Fire Protection System Flush			
20.1	System flush deficiency resolution	X		
20.2	NFPA-USAR compatibility			Task 3 Nov. 30, 1983
21.	Fire Detector Maintenance			
21.1	Detector maintenance deficiency resolution	X		
22.	Fire Door and Damper Maintenance			
22.1	Issuance of new procedure	X		
22.2	NFPA-USAR compatibility			Task 3 Nov. 30, 1983
23.	Emergency Lighting - Surveillance			
23.1	NFPA-USAR compatibility			Task 3 Nov. 30, 1983

Finding No.	Finding Action	To Be Completed Prior To Restart	Considered Interim Compensatory Action	Comments
23.	Emergency Lighting - Surveillance (Cont.)			
23.2	Manufacturer's recommendations review	X		
23.3	Batteries replaced			Jan. 31, 1984
23.4	Random sampling completed			Jan. 31, 1984
23.5	Replacement schedule established, Surveillance Test revised			Jan. 31, 1984
24.	Off-Site Fire Department Training			
24.1	Off-site personnel training resolution	X		
24.2	Off-site responsibility delineation	X		
25.	Welding Permits			
25.1	NFPA-USAR compatibility			Task 3 Nov. 30, 1983
25.2	Welding permit deficiency resolved	X		
26.	Diesel Fire Pump Tests			
26.1	Test resolution	X		
26.2	NFPA-USAR compatibility			Task 3 Nov. 30, 1983
27.	Off-Site Contractors Fire Watch Training			
27.1	Fire watch training resolution	X		
27.2	NFPA-USAR Compatibility			Task 3 Nov. 30, 1983

Finding No.	Finding Action	To Be Completed Prior To Restart	Considered Interim Compensatory Action	Comments
28.	Fire Protection Coordinator Staff			
28.1	Fire protection staff resolution			Jan. 31, 1984
29.	High/Low Pressure Interfaces			
29.1	Specific deficiency resolution	X		
29.2	Associated circuits analysis			Task 5 Jan. 31, 1984
N/A	Additionally requested BTP APCSB 9.5-1 review			Task 7 Nov. 30, 1983
N/A	Preplan review			Task 8 Apr. 30, 1984