

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 VAN BRUNT, E.E. Arizona Public Service Co.
 RECIP. NAME RECIPIENT AFFILIATION
 KNIGHTON, G.W. Licensing Branch 3

SUBJECT: Forwards marked-up draft Tech Specs. Figures, graphs & tables will be available by 850815. Development schedule should be based on 851001 fuel load date. Util involved in C-E Owners Group investigation of diesel generator Tech Spec changes.

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NOTES: Standardized plant.

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	NRR/DE/CEB 11	1 1	NRR/DE/EHEB	1 1
	NRR/DE/EQB 13	2 2	NRR/DE/GB 28	2 2
	NRR/DE/MEB 18	1 1	NRR/DE/MTEB 17	1 1
	NRR/DE/SAB 24	1 1	NRR/DE/SGEB 25	1 1
	NRR/DHFS/HFEB40	1 1	NRR/DHFS/LQB 32	1 1
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	NRR/DSI/AEB 26	1 1	NRR/DSI/ASB	1 1
	NRR/DSI/CPB 10	1 1	NRR/DSI/CSB 09	1 1
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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be clearly documented and supported by appropriate evidence. This ensures transparency and accountability in the financial process.

Furthermore, it is noted that regular audits are essential to verify the accuracy of the records. These audits help identify any discrepancies or errors early on, allowing for prompt correction and preventing larger issues from arising.

In addition, the document highlights the need for clear communication between all parties involved. Regular meetings and reports should be conducted to keep everyone informed of the current status and any changes that may occur.

The second section of the document focuses on the implementation of internal controls. These controls are designed to prevent fraud, reduce the risk of errors, and ensure that resources are used efficiently. Key elements of a strong internal control system include:

- Segregation of duties to prevent any one individual from having too much control over a process.
- Authorization and approval procedures to ensure that all transactions are properly reviewed and approved.
- Regular monitoring and reporting to detect any unusual or suspicious activity.
- Physical controls to protect assets and ensure their safekeeping.

By implementing these controls, organizations can significantly reduce the risk of financial loss and improve the overall reliability of their financial statements.

Finally, the document stresses the importance of ongoing training and education for all employees. Keeping staff up-to-date on the latest financial practices and internal control requirements is crucial for maintaining a high level of performance and compliance.

In conclusion, the document provides a comprehensive overview of the key principles and practices for effective financial management. By following these guidelines, organizations can ensure the accuracy and integrity of their financial records, minimize risks, and achieve their long-term goals.

It is the responsibility of all employees to adhere to these standards and contribute to the overall success of the organization.



Arizona Nuclear Power Project

P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U.S Nuclear Regulatory Commission
Washington, D.C. 20555

July 12, 1985
ANPP-33009/EEVB/JRP

Subject: Palo Verde Nuclear Generating Station
Unit 2
Docket No. 50-529
Plant Technical Specifications (Draft)
File: 85-055-026

Dear Mr. Knighton:

Enclosed are marked up pages of the Palo Verde Unit 2 Technical Specifications. Please note that marked up figures, graphs and tables will not be available until a later submittal, approximately August 15, 1985. Presently we are involved with the CE Owners Group investigating Diesel Generator Technical Specification changes and plan to have a formalized version for the August submittal.

We would at this time like to bring to your attention the matter of an accelerated Technical Specification schedule for Unit 2. Your letter dated June 21, 1985, enclosed a development schedule based on a December 1, 1985, fuel load date. We request that development schedule be based on an October 1, 1985, fuel load date.

If you have any questions please call.

Very truly yours,

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/JRP/slh
Attachments

cc: Director Region V, USNRC (all w/a)
NRC Project Manager - E. A. Licitra
NRC Resident Inspector - R. P. Zimmerman
NRC Technical Reviewer - S. Brown

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TABLE 3.3-1 (Continued)

TABLE NOTATIONS

*With the protective system trip breakers in the closed position, the CEA drive system capable of CEA withdrawal, and fuel in the reactor vessel.

#The provisions of Specification 3.0.4 are not applicable.

- (a) Trip may be manually bypassed above 10⁻⁴% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is less than or equal to 10⁻⁴% of RATED THERMAL POWER.
- (b) Trip may be manually bypassed below 400 psia; bypass shall be automatically removed whenever pressurizer pressure is greater than or equal to 500 psia.
- (c) Trip may be manually bypassed below 1% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is greater than or equal to 1% of RATED THERMAL POWER.
- (d) Trip may be bypassed during testing pursuant to Special Test Exception 3.10.3.
- (e) See Special Test Exception 3.10.2.
- (f) There are four channels, each of which is comprised of one of the four reactor trip breakers, arranged in a selective two-out-of-four configuration (i.e., one-out-of-two taken twice).

03

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and/or open the protective system trip breakers.

ACTION 2 - With the number of channels OPERABLE one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may continue provided the inoperable channel is placed in the bypassed or tripped condition within 1 hour. If the inoperable channel is bypassed, the desirability of maintaining this channel in the bypassed condition shall be reviewed in accordance with Specification 6.5.1.6. The channel shall be returned to OPERABLE status no later than during the next COLD SHUTDOWN.

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TABLE 4.3-1

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
I. TRIP GENERATION				
A. Process				
1. Pressurizer Pressure - High	S	R	M	1, 2
2. Pressurizer Pressure - Low	S	R	M	1, 2
3. Steam Generator Level - Low	S	R	M	1, 2
4. Steam Generator Level - High	S	R	M	1, 2
5. Steam Generator Pressure - Low	S	R	M	1, 2, 3*, 4*
6. Containment Pressure - High	S	R	M	1, 2
7. Reactor Coolant Flow - Low	S	R	M	1, 2
8. Local Power Density - High	S	D (2, 4), R (4, 5)	M, R (6)	1, 2
9. DNBR - Low	S	D (2, 4), R (4, 5) M (8), S (7)	M, R (6)	1, 2
B. Excore Neutron Flux				
1. Variable Overpower Trip	S	D (2, 4), M (3, 4) Q (4)	M	1, 2
2. Logarithmic Power Level - High	S	R (4)	M and S/U (1)	1, 2, 3, 4, 5 and *
C. Core Protection Calculator System				
1. CEA Calculators	S	R	M, R (6)	1, 2
2. Core Protection Calculators	S	D (2, 4), R (4, 5) M (8), S (7)	M (9) R (6)	1, 2

PALO VERDE - UNIT 2

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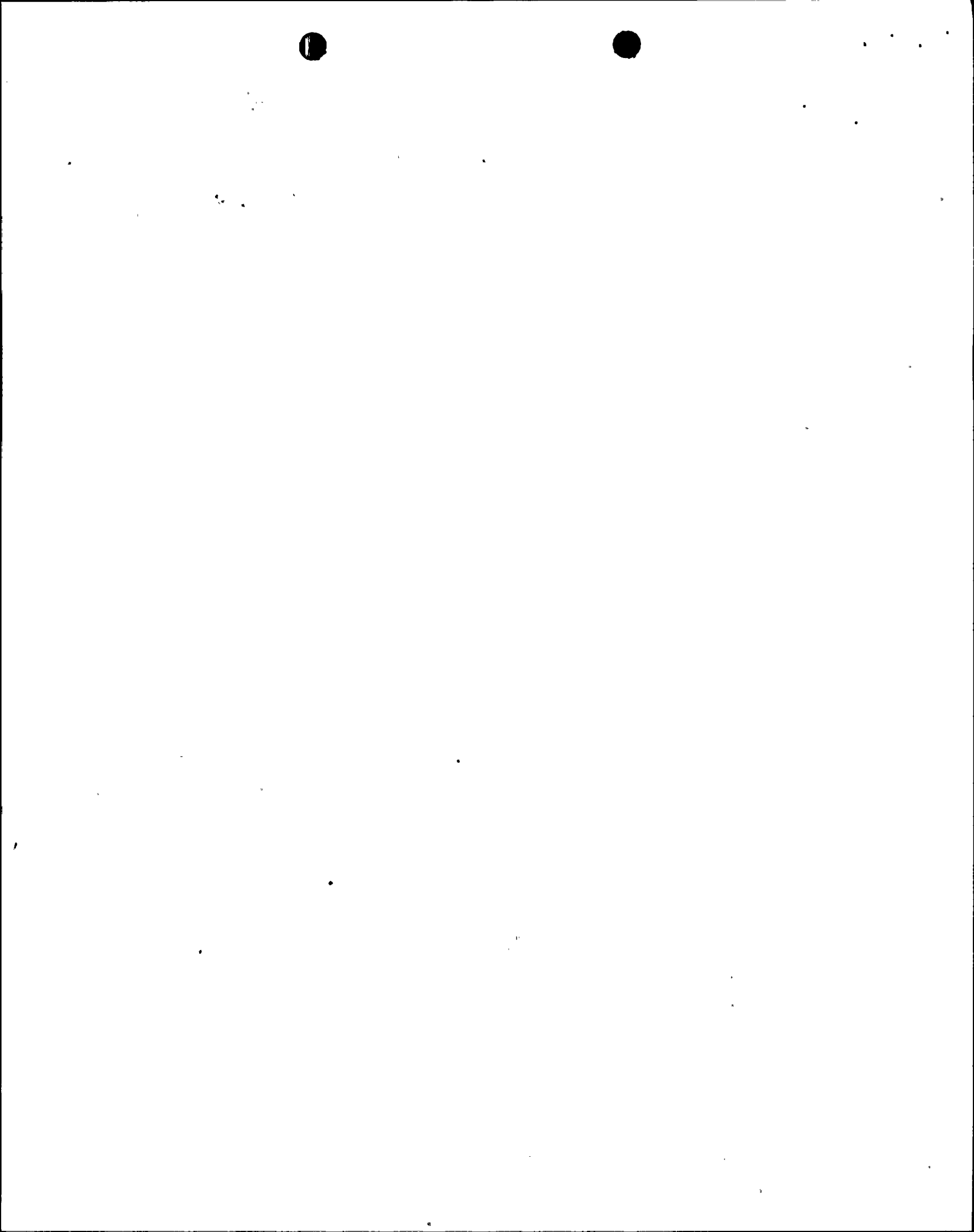


TABLE 4.3-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
D. Supplementary Protection System				
Pressurizer Pressure - High	S	R	M	1, 2
II. RPS LOGIC				
A. Matrix Logic	N.A.	N.A.	M	1, 2, 3*, 4*, 5*
B. Initiation Logic	N.A.	N.A.	M	1, 2, 3*, 4*, 5*
III. RPS ACTUATION DEVICES				
A. Reactor Trip Breakers	N.A.	N.A.	M, R (SD)	1, 2, 3*, 4*, 5*
B. Manual Trip	N.A.	N.A.	M	1, 2, 3*, 4*, 5*

PALO VERDE - UNIT 2

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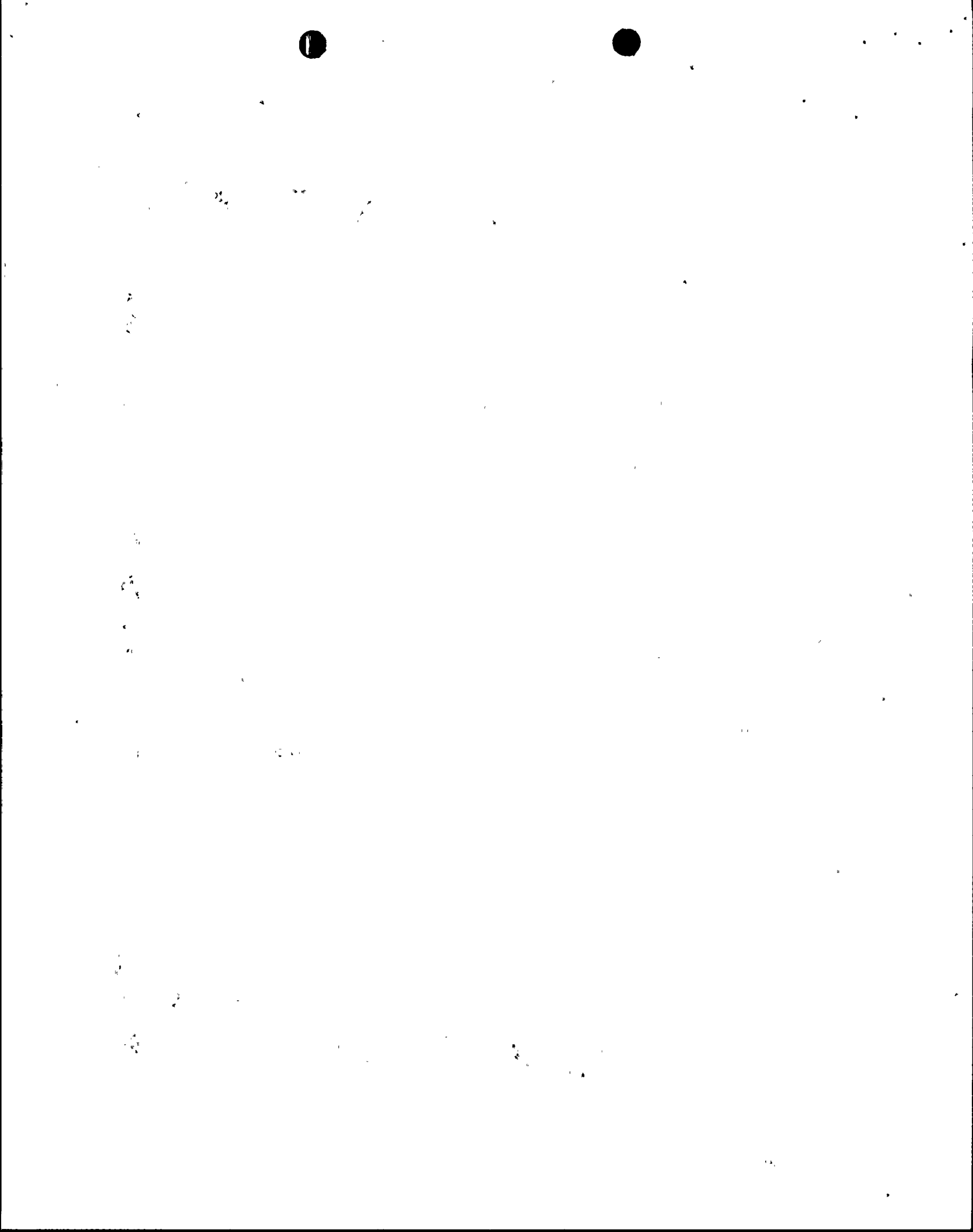


TABLE 4.3-1 (Continued)

TABLE NOTATIONS

- * - With reactor trip breakers in the closed position and the CEA drive system capable of CEA withdrawal, and fuel in the reactor vessel.
- (1) - Each STARTUP or when required with the reactor trip breakers closed and the CEA drive system capable of rod withdrawal, if not performed in the previous 7 days.
- (2) - Heat balance only (CHANNEL FUNCTIONAL TEST not included), above 15% of RATED THERMAL POWER; adjust the linear power level, the CPC delta T power and CPC nuclear power signals to agree with the calorimetric calculation if absolute difference is greater than 2%. During PHYSICS TESTS, these daily calibrations may be suspended provided these calibrations are performed upon reaching each major test power plateau and prior to proceeding to the next major test power plateau.
- (3) - Above 15% of RATED THERMAL POWER, verify that the linear power sub-channel gains of the excore detectors are consistent with the values used to establish the shape annealing matrix elements in the Core Protection Calculators.
- (4) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (5) - After each fuel loading and prior to exceeding 70% of RATED THERMAL POWER, the incore detectors shall be used to determine the shape annealing matrix elements and the Core Protection Calculators shall use these elements.
- (6) - This CHANNEL FUNCTIONAL TEST shall include the injection of simulated process signals into the channel as close to the sensors as practicable to verify OPERABILITY including alarm and/or trip functions.
- (7) - Above 70% of RATED THERMAL POWER, verify that the total steady-state RCS flow rate as indicated by each CPC is less than or equal to the actual RCS total flow rate determined by either using the reactor coolant pump differential pressure instrumentation or by calorimetric calculations and if necessary, adjust the CPC addressable constant flow coefficients such that each CPC indicated flow is less than or equal to the actual flow rate. The flow measurement uncertainty may be included in the BERRI term in the CPC and is equal to or greater than 4%.
- (8) - Above 70% of RATED THERMAL POWER, verify that the total steady-state RCS flow rate as indicated by each CPC is less than or equal to the actual RCS total flow rate determined by either using the reactor coolant pump differential pressure instrumentation and the ultrasonic flow meter adjusted pump curves or calorimetric calculations.
- ~~(9) - The monthly CHANNEL FUNCTIONAL TEST shall include verification that the correct values of addressable constants are installed in each OPERABLE CPC per Specification 2.2:2.~~ Delete
- ~~(10) -~~ At least once per 18 months and following maintenance or adjustment of the reactor trip breakers, the CHANNEL FUNCTIONAL TEST shall include independent verification of the undervoltage and shunt trips.

INSTRUMENTATION

FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.7 As a minimum, the fire detection instrumentation for each FPER detection zone shown in Table 3.3-11 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument is required to be OPERABLE.

ACTION:

- a. With any, but not more than one-half the total in any fire zone Function X fire detection instrument shown in Table 3.3-11 inoperable, restore the inoperable instrument(s) to OPERABLE status within 14 days or within the next 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect that containment zone at least once per 8 hours or monitor the containment air temperature at least once per hour at 5 of the locations listed in Specification 4.6.1.5.
- b. With more than one-half of the Function X fire detection instruments in any fire zone shown in Table 3.3-11 inoperable, or with any Function Y fire detection instruments shown in Table 3.3-11 inoperable, or with any two or more adjacent fire detection instruments shown in Table 3.3-11 inoperable, within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect that containment zone at least once per 8 hours or monitor the containment air temperature at least once per hour at the locations listed in Specification 4.6.1.5.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7.1 Each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months by performance of a CHANNEL FUNCTIONAL TEST. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by the performance of a CHANNEL FUNCTIONAL TEST during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

4.3.3.7.2 The NFPA Standard 72D supervised circuits supervision associated with the detector alarms of each of the above required fire detection instruments shall be demonstrated OPERABLE at least once per 6 months.

CONTAINMENT SYSTEMS

3/4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN MONITORS

LIMITING CONDITION FOR OPERATION

3.6.4.1 Two independent containment hydrogen monitors shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

- a. With one hydrogen monitor inoperable, restore the inoperable monitor to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.
- b. With both hydrogen monitors inoperable, restore at least one monitor to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours.
- c. With one hydrogen monitor inoperable, and the hydrogen monitor in the Post Accident Sampling System OPERABLE, the provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.4.1 Each hydrogen monitor shall be demonstrated OPERABLE by the performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days, and at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using sample gases containing a nominal:

- a. One volume percent hydrogen, balance nitrogen.
- b. Four volume percent hydrogen, balance nitrogen.

/during hydrogen monitor system operation

PLANT SYSTEMS

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.11.4 The fire hose stations shown in Table 3.7-4 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the fire hose stations is required to be OPERABLE, except that fire hose stations located in containment shall have their containment isolation valves closed in MODES 1, 2, 3, 4, and 5*.

ACTION:

- a. With one or more of the fire hose stations shown in Table 3.7-4 inoperable, provide a gated wye on the nearest OPERABLE hose station. One outlet of the wye shall be connected to the standard length of hose provided for the OPERABLE hose station. The second outlet of the wye shall be connected to a length of hose sufficient to provide coverage for the area left unprotected by the inoperable hose station. The above action shall be accomplished within one hour if the inoperable fire hose is the primary means of fire suppression; otherwise provide the additional hose in 24 hours.

The hose for the unprotected area shall be stored at the OPERABLE hose station. Signs identifying the purpose and location of the fire hose and related valves shall be mounted above the hose and at the inoperable hose station.

- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.11.4 Each of the fire hose stations shown in Table 3.7-4 shall be demonstrated OPERABLE:

- a. At least once per 31 days by visual inspection of the stations accessible during plant operation to assure all required equipment is at the station.
- b. At least once per 18 months by:
 1. Visual inspection of the stations not accessible during plant operations to assure all required equipment is at the station.
 2. Removing the hose for inspection and reracking, and
 3. Inspecting all gaskets and replacing any degraded gaskets in the couplings.

*If ^{hot work} maintenance is to be performed in containment during MODE 5, the fire hose stations located in containment shall have their containment isolation valves open during the period the ~~maintenance~~ ^{hot work} is being performed.

TABLE 3.7-5

YARD FIRE HYDRANTS AND ASSOCIATED HYDRANT HOSE HOUSES

<u>LOCATION</u>	<u>HYDRANT NUMBER</u>
150' Plant North of Fuel Bldg.	F. H. # 15 15
100' Plant West of Rad Waste Bldg.	F. H. # 17 17
150' Plant Northwest of Fuel Bldg.	F. H. # 16 16

*No hose house, however, the hose station is used to service condensate transfer pump

PLANT SYSTEMS

HALON SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.11.6 The following Halon systems shall be OPERABLE.

- a. Train A Remote Shutdown Panel Room, Zone 10A - Control Building
100 ft. Elevation
- b. Train B Remote Shutdown Panel Room, Zone 10B - Control Building
100 ft. Elevation

APPLICABILITY: Whenever equipment protected by the Halon system is required to be OPERABLE.

ACTION:

- a. With one or more of the above required Halon systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.11.6 Each of the above required Halon systems shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position.
- b. At least once per 6 months by verifying Halon storage tank weight to be at least 95% of full charge weight and pressure to be at least 90% of full charge pressure.
- c. At least once per 18 months by:
 1. Verifying the system actuates manually and automatically, upon receipt of a simulated test signal, and
 2. Performance of a flow test through headers and nozzles to assure no blockage.



1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial statements and for providing a clear audit trail.

2. The second part of the document outlines the various methods used to collect and analyze data. It describes the process of gathering information from different sources and how it is then processed to identify trends and patterns.

3. The third part of the document focuses on the results of the analysis. It presents the findings in a clear and concise manner, highlighting the key areas where improvements can be made and the potential risks associated with the current state of affairs.

4. Finally, the document concludes with a series of recommendations and a plan of action. It provides specific steps that should be taken to address the identified issues and to ensure that the organization remains on track with its strategic goals.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying the diesel starts from ambient condition and accelerates to at least 600 rpm in less than or equal to 10 seconds.* The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds* after the start signal. The diesel generator shall be started for this test by using one of the following signals:
 - a) Manual.
 - b) Simulated loss-of-offsite power by itself.
 - c) Simulated loss-of-offsite power in conjunction with an ESF actuation test signal.
 - d) An ESF actuation test signal by itself.
5. Verifying the generator is synchronized, loaded to greater than or equal to 5500 kW in less than or equal to 5 minutes, and operates with a load greater than or equal to 5500 kW for at least an additional 60 minutes, and
6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
- b. ~~At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tanks.~~ see insert
- c. By sampling new fuel oil in accordance with ASTM D4057-81 prior to addition to the storage tanks and:
 1. By verifying in accordance with the tests specified in ASTM D975-81 prior to addition to the storage tanks that the sample has:
 - a) An API Gravity of within 0.3 degrees at 60°F or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89 or an API gravity at 60°F of greater than or equal to 27 degrees but less than or equal to 39 degrees,
 - b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if gravity was not determined by comparison with the supplier's certification,

*The diesel generator start (10 seconds) from ambient conditions shall be performed at least once per 184 days in these surveillance tests. All other engine starts for the purpose of this surveillance testing may be preceded by an engine prelube period and/or other warmup procedures recommended by the manufacturer so that mechanical stress and wear on the diesel engine is minimized.



Insert

b. By removing accumulated water:

1) From the day tank at least once per 31 days after each occasion when the diesel is operated for greater than 1 hour, and

2) From the storage tank at least once per 31 days.



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ELECTRICAL POWER SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

~~The other properties specified in Table 1 of ASTM-D975-1977 and Regulatory Guide 1.137, Revision 1, October 1979, Position 2.a., when tested in accordance with ASTM-D975-1977; analysis shall be completed within 14 days after obtaining the sample but may be performed after the addition of new fuel oil.~~ *Delete*

exp. At least once per 18 months during shutdown by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
2. Verifying the generator capability to reject a single largest load of greater than or equal to 839 kW (Train B AFW pump) or 696 kW (Train A HPSI pump) while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 1.2 Hz.
3. Verifying the generator capability to reject a load of 5500 kW without tripping. The generator voltage shall not exceed 6240 volts during and following the load rejection.
4. Simulating a loss-of-offsite power by itself, and:
 - a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and $60 + 1.2/-0.3$ Hz during this test.
5. Verifying that on an ESF actuation test signal (without loss-of-offsite power) the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The steady-state generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the generator voltage and frequency shall be maintained within these limits during this test.
6. Simulating a loss-of-offsite power in conjunction with an ESF actuation test signal, and

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

11. Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross connection lines.
12. Verifying that the automatic load sequence timer is OPERABLE with the interval between each load block within ± 1 second of its design interval.
13. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:
 - a) (turning gear engaged)
 - b) (emergency stop)

fa At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 600 rpm (steady-state generator voltage and frequency of 4160 ± 420 volts and 60 ± 1.2 Hz) in less than or equal to 10 seconds.

9% At least once per 10 years by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite solution or the equivalent, and
2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code at a test pressure equal to 110% of the system design pressure.

4.8.1.1.3 Reports - All diesel generator failures, valid or nonvalid, shall be reported to the Commission within 30 days in a Special Report pursuant to Specification 6.9.2. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b. of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests (on a per nuclear unit basis) is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 With the reactor vessel head closure bolts less than fully tensioned or with the head removed, the boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:

- a. Either a K_{eff} of 0.95 or less, or
- b. A boron concentration of greater than or equal to 2150 ppm.

APPLICABILITY: MODE 6*.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 26 40 gpm of a solution containing \geq 4000 ppm boron or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2150 ppm, whichever is the more restrictive.

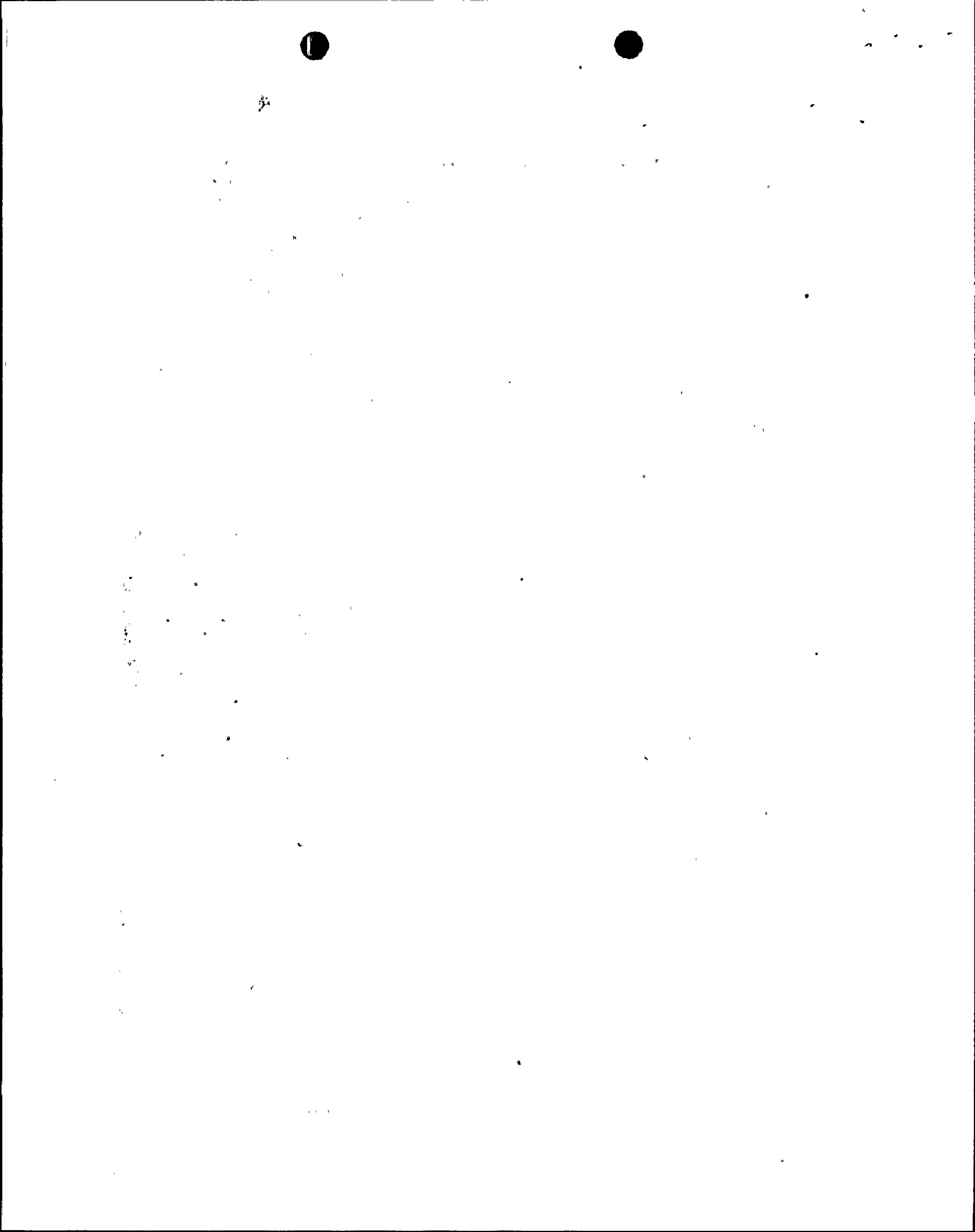
SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

- a. Removing or unbolting the reactor vessel head, and
- b. Withdrawal of any full-length CEA in excess of 3 feet from its fully inserted position within the reactor pressure vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the reactor vessel head closure bolts less than fully tensioned or with the head removed.



3/4.10 SPECIAL TEST EXCEPTIONS

3/4.10.1 SHUTDOWN MARGIN

LIMITING CONDITION FOR OPERATION

3.10.1 The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 may be suspended for measurement of CEA worth and shutdown margin provided reactivity equivalent to at least the highest estimated CEA worth is available for trip insertion from OPERABLE CEA(s), or the reactor is subcritical by at least the reactivity equivalent of the highest CEA worth.

APPLICABILITY: MODES 2, 3* and 4*#.

ACTION:

- a. With any full-length CEA not fully inserted and with less than the above reactivity equivalent available for trip insertion, immediately initiate and continue boration at greater than or equal to ~~2640~~ 40 gpm of a solution containing greater than or equal to 4000 ppm boron or its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.
- b. With all full-length CEAs fully inserted and the reactor subcritical by less than the above reactivity equivalent, immediately initiate and continue boration at greater than or equal to ~~280~~ gpm of a solution containing greater than or equal to 4000 ppm boron or its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.

SURVEILLANCE REQUIREMENTS

4.10.1.1 The position of each full-length and part-length CEA required either partially or fully withdrawn shall be determined at least once per 2 hours.

4.10.1.2 Each CEA not fully inserted shall be demonstrated capable of full insertion when tripped from at least the 50% withdrawn position within 24 hours prior to reducing the SHUTDOWN MARGIN to less than the limits of Specification 3.1.1.1.

4.10.1.3 When in MODE 3 or MODE 4, the reactor shall be determined to be subcritical by at least the reactivity equivalent of the highest estimated CEA worth or the reactivity equivalent of the highest estimated CEA worth is available for trip insertion from OPERABLE CEAs at least once per 2 hours by consideration of at least the following factors:

- a. Reactor Coolant System boron concentration,
- b. CEA position,
- c. Reactor Coolant System average temperature,
- d. Fuel burnup based on gross thermal energy generation,
- e. Xenon concentration, and
- f. Samarium concentration.

* Operation in MODE 3 and MODE 4 shall be limited to 6 consecutive hours.

Limited to low power PHYSICS TESTING at the 320°F plateau.

