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RECIP.NAME RECIPIENT AFFILIATION
KNIGHTON,G.W. PWR Project Directorate 7

SUBJECT: Forwards proposed changes to 851108 final draft Tech Specs & certification.Implementation process to ensure that workable Tech specs developed listed.

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Arizona Nuclear Power Project
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

November 27, 1985
ANPP-34120-EEVB/JRP

Director of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Project Director
PWR Project Directorate #7
Division of Pressurized Water Reactor Licensing - B
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Docket No. STN 50-529
Final Draft - Technical Specification Certification
File: 85-056-026

References: (A) NRC letter dated June 21, 1985, from G. W. Knighton, NRC, to E. E. Van Brunt, Jr., ANPP
(B) ANPP letter dated July 12, 1985, from E. E. Van Brunt, Jr., ANPP, to G. W. Knighton, NRC
(C) ANPP letter dated August 2, 1985, from E. E. Van Brunt, Jr., ANPP, to G. W. Knighton, NRC
(D) NRC letter dated August 14, 1985, from G. W. Knighton, NRC, to E. E. Van Brunt, Jr., ANPP
(E) NRC letter dated October 18, 1985, from G. W. Knighton, NRC, to E. E. Van Brunt, Jr., ANPP
(F) ANPP letter dated November 1, 1985, from E. E. Van Brunt, Jr., ANPP, to G. W. Knighton, NRC
(G) NRC letter dated November 19, 1985, from G. W. Knighton, NRC, to E. E. Van Brunt, Jr., ANPP

Dear Mr. Knighton:

This letter is submitted for the purpose of (i) transmitting proposed changes to the November 8, 1985, Final Draft Technical Specifications (Reference G) and (ii) provide our certification of the PVNGS Unit 2 Final Draft Technical Specifications dated November 8, 1985, as amended by Attachment 1.

In developing the Final Draft for PVNGS Unit 2, the following process was implemented to ensure that a workable set of Technical Specifications (Tech Specs) was developed.

A committee to review NUREG-0212 Rev. 3 and develop PVNGS Unit 1 Tech Specs was established approximately three years ago. This committee consisted of representatives from offsite Engineering, Licensing, onsite Engineering, H.P./Chemistry, Maintenance, Startup, Q.A., STA/ISEG, I&C, Training, Bechtel Engineering and Combustion Engineering. This group worked closely with the NRC reviewer to develop a set of Tech Specs that represented PVNGS. The work of this committee resulted in Appendix A to the Operating License for Unit 1. It was this license document that was used as a basis for a draft version of the Unit 2 Tech Specs.

B001
1/1

In reviewing this draft version, the following aspects were incorporated:

1. Utilization of Unit 1 plant specific experience to review systems, their functions,parameters and system names.

2. Discussed Tech Spec problems with operating units in the industry.

3. Monitored Federal Register to see if any Tech Spec changes other plants obtained would apply to PVNGS.

4. Reviewed various operating experiences (i.e., LER's, Special Reports, Inspection Reports, etc.).

5. Compared the Tech Specs to the PVNGS FSAR for consistency.

6. Compared the Tech Specs to the PVNGS SER for consistency.

7. Compared the Tech Specs to the CESSAR FSAR for consistency.

8. Compared the Tech Specs to the CE-SER for consistency.

9. We have used our vendors' experience and support from the beginning to develop the Tech Specs.

Reference (D) transmitted to ANPP a Proof and Review copy based on the Unit 1 License Appendix A Technical Specifications. In the process of resolving comments, a series of meetings were conducted between the appropriate NRC branches and ANPP representatives. In resolving the comments, a Final Draft of the PVNGS Unit 2 Tech Specs was developed (Reference E). This Final Draft was transmitted to ANPP for a final review. After the review it was apparent that there were a number of editorial and/or typographical errors in this Final Draft. These were discussed with and transmitted to the NRC (Reference F).

Reference (G) transmitted a revised Final Draft to ANPP to perform a review and certification that the Tech Specs represent the design and operation of PVNGS Unit 2. In formulating a certification program, ANPP requested Bechtel Power Corporation and Combustion Engineering certify that the design and operation of PVNGS Unit 2 was reflected in the Tech Specs.

Attachment 1 to this letter contains changes to the Final Draft (Reference G) that are necessary for the operation of PVNGS Unit 2. Based on these changes, and on the review process implemented, the certification process, Bechtel's and Combustion Engineering's certifications, I certify that to the best of my knowledge, the Final Draft of the Technical Specifications for PVNGS Unit 2, as transmitted to ANPP (Reference G), and as amended by Attachment 1, accurately reflect the as-built condition of the plant, the PVNGS Final Safety Analysis Report and the Safety Evaluation Report.

Very truly yours,

E E Van Brunt Jr/JH

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

EEVB/JRP/rw
Attachment

cc: Director, Region V, USNRC
NRC Project Manager Unit 2 - M. Ley
NRC Resident Inspector - R. P. Zimmerman
NRC Tech Spec Reviewer - S. Brown

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, Jerry G. Haynes, represent that I am Vice President of Nuclear Production of Arizona Nuclear Power Project, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority to do so, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true and correct.

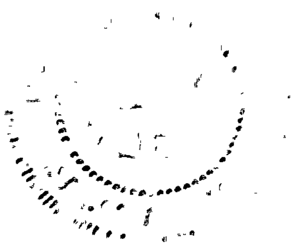
J G Haynes
Jerry G. Haynes

Sworn to before me this 27 day of November, 1985.

Irene C. Clausen
Notary Public

My Commission Expires:

My Commission Expires Nov. 12, 1988



ATTACHMENT 1

Changes to the November 8, 1985 Final Draft of PVNGS Unit 2 Technical Specifications.

ATTACHMENT 1

Changes to the November 8, 1985 Final Draft of PVNGS Unit 2 Technical Specifications.

Proposed Changes to Table 4.3-2
and Basis for the Proposed Change

The proposed changes are on the attached marked up pages.

The basis for these changes is as follows:

Table 4.3-2 must be changed to be consistent with table 3.3-3. The Unit 2 Tech. Specs. used Unit 1 Tech. Specs. as a model, and they will be changed by separate request.

The change as proposed by this letter agree with the Standard Technical Specifications.

TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ESFA SYSTEM FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
I. SAFETY INJECTION (SIAS)				
A. Sensor/Trip Units				
1. Containment Pressure - High	S	R	M	1, 2, 3, 4
2. Pressurizer Pressure - Low	S	R	M	1, 2, 3, 4
B. ESFA System Logic				
1. Matrix Logic	NA	NA	M	1, 2, 3, 4
2. Initiation Logic	NA	NA	M	1, 2, 3, 4
3. Manual SIAS	NA	NA	M	1, 2, 3, 4
C. Automatic Actuation Logic	NA	NA	M(1) (2) (3)	1, 2, 3, 4
II. CONTAINMENT ISOLATION (CIAS)				
A. Sensor/Trip Units				
1. Containment Pressure - High	S	R	M	1, 2, 3
2. Pressurizer Pressure - Low	S	R	M	1, 2, 3
B. ESFA System Logic				
1. Matrix Logic	NA	NA	M	1, 2, 3, 4
2. Initiation Logic	NA	NA	M	1, 2, 3, 4
3. Manual CIAS	NA	NA	M	1, 2, 3, 4
4. Manual SIAS	NA	NA	M	1, 2, 3, 4

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TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ESFA SYSTEM FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
II. CONTAINMENT ISOLATION (Continued)				
C. Automatic Actuation Logic	NA	NA	M(1) (2) (3)	1, 2, 3, 4
III. CONTAINMENT SPRAY (CSAS)				
A. Sensor/Trip Units				
1. Containment Pressure -- High - High	S	R	M	1, 2, 3
B. ESFA System Logic				
1. Matrix Logic	NA	NA	M	1, 2, 3, 4
2. Initiation Logic	NA	NA	M	1, 2, 3, 4
3. Manual CSAS	NA	NA	M	1, 2, 3, 4
C. Automatic Actuation Logic	NA	NA	M(1) (2) (3)	1, 2, 3, 4

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FINAL DRAFT

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ESFA SYSTEM FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
V. RECIRCULATION (RAS)				
A. Sensor/Trip Units				
Refueling Water Storage Tank - Low	S	R	M	1, 2, 3
B. ESFA System Logic				
1. Matrix Logic	NA	NA	M	1, 2, 3, 4
2. Initiation Logic	NA	NA	M	1, 2, 3, 4
3. Manual RAS	NA	NA	M	1, 2, 3, 4
C. Automatic Acutation Logic	NA	NA	M(1) (2) (3)	1, 2, 3, 4
VI. AUXILIARY FEEDWATER (SG-1)(AFAS-1)				
A. Sensor/Trip Units				
1. Steam Generator #1 Level - Low	S	R	M	1, 2, 3
2. Steam Generator Δ Pressure SG2 > SG1	S	R	M	1, 2, 3

FINAL DRAFT

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TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ESFA SYSTEM FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
VI. AUXILIARY FEEDWATER (SG-1)(AFAS-1) (Continued)				
B. ESFA System Logic				
1. Matrix Logic	NA	NA	M	1, 2, 3, 4 de
2. Initiation Logic	NA	NA	M	1, 2, 3, 4
3. Manual AFAS	NA	NA	M	1, 2, 3, 4
C. Automatic Actuation Logic	NA	NA	M(1) (2) (3)	1, 2, 3, 4
VII. AUXILIARY FEEDWATER (SG-2)(AFAS-2)				
A. Sensor/Trip Units				
1. Steam Generator #2 Level - Low	S	R	M	1, 2, 3
2. Steam Generator Δ Pressure SG1 > SG2	S	R	M	1, 2, 3
B. ESFA System Logic				
1. Matrix Logic	NA	NA	M	1, 2, 3, 4 de
2. Initiation Logic	NA	NA	M	1, 2, 3, 4
3. Manual AFAS	NA	NA	M	1, 2, 3, 4
C. Automatic Actuation Logic	NA	NA	M(1) (2) (3)	1, 2, 3, 4
VIII. LOSS OF POWER (LOV)				
A. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	S	R	R	1, 2, 3, 4 de
B. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	S	R	R	1, 2, 3, 4 de

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FINAL DRAFT

Proposed Change and Basis for Change to

Technical Specification page 3/4 4-34

The proposed change is on the attached marked up page.

The basis for the change is as follows:

This change is based on a meeting held in the NRC office on 11/26 and 11/27.

FINAL DRAFT

3/4.4.10 REACTOR COOLANT SYSTEM VENTS

LIMITING CONDITION FOR OPERATION

3.4.10 Both reactor coolant system vent paths shall be operable and closed at each of the following locations: ~~from the reactor vessel head shall be OPERABLE and closed.~~
a. Reactor vessel head, and
b. Pressurizer steam space.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With only one of the above required reactor coolant system ~~vessel~~ head vent paths OPERABLE, restore both paths to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. from either location at that location

b. With none of the above required reactor coolant system ~~vessel~~ head vent paths OPERABLE, restore at least one path to OPERABLE status within the next 6 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. from either location at that location

SURVEILLANCE REQUIREMENTS

4.4.10 Each Reactor Coolant System vent path shall be demonstrated OPERABLE at least once per 18 months, when in MODES 5 or 6, by:

a. Verifying all manual isolation valves in each vent path are locked in the open position.

b. Cycling each vent through at least one complete cycle from the control room.

c. Verifying flow through the reactor coolant system vent paths during venting.

Proposed Changes and Basis for Changes to Technical Specification 3.6.4.1 and Bases Located on Page B3/4 6-4

The proposed changes are on the attached marked up pages.

The basis for the changes is as follows:

The containment atmosphere hydrogen and oxygen monitors have been deleted from the design of the PASS. Our current design and plans to obtain and analyze grab samples meet the requirements of NUREG 0737 Section II.B.3 for post accident sampling.

Action statement C will insure that hydrogen sampling capability exists even though one hydrogen monitor is out of service.

This change is necessary because the final draft does not reflect the plant design.

FINAL DRAFT

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 SAMPLING CAPABILITY ~~monitor in~~ OF 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.

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FINAL DRAFT

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment automatic isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of GDC 54 through GDC 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

The only valves in the Table 6.2.4-1 of the PVNGS FSAR that are not required to be listed in Table 3.6-1 are the following: main steam safety valves and main steam atmospheric dump valves. The main steam safety valves and the atmospheric dump valves have very high pressure setpoints to actuate and are covered by Specifications 3/4.7.1.1 and 3/4.7.1.6, respectively.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit (or the purge system) is capable of controlling the expected hydrogen generation associated with (1) zirconium-water reactions, (2) radiolytic decomposition of water and (3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

There is a hydrogen monitor and a oxygen monitor in the Post Accident Sampling System (PASS). There is a line from the two containment hydrogen monitors to the PASS which allows the licensee to monitor hydrogen concentration in the containment following an accident with the PASS. An OPERABLE hydrogen monitor in the PASS allows the licensee to enter Modes 1 and 2 with one containment hydrogen monitor inoperable. For the hydrogen monitor in PASS to be OPERABLE, the valves in the piping to the monitor must be OPERABLE.

REPLACEMENT PARAGRAPH

There is a line from one of the containment hydrogen monitors to the PASS which allows for sampling of post accident hydrogen concentration in the containment. Sampling of the containment astmosphere in this manner meets the requirements of NUREG 0737 Section II.B.3 for post accident sampling. An OPERABLE sampling capability in the PASS will allow entrance into MODES 1 and 2 with one containment hydrogen monitor inoperable. For the hydrogen sampling capability to the OPERABLE the valves in the piping to the sample point must be operable.

roposed Change and Basis for Change to
Technical Specification 3.6.4.2

The proposed change is on the attached marked up pages.

The basis for the proposed change is as follows.

The Technical Specifications as presently written allow operation in MODES 1 and 2 for an unlimited time with one hydrogen recombiner system INOPERABLE as long as the hydrogen purge system is OPERABLE. The bases for this specification state that the recombiner or the purge unit are capable of controlling the expected hydrogen generation during an accident.

Since there is a separate specification for the purge unit, and that this unit is capable of controlling the expected hydrogen generation during an accident, the proposed change is prudent and does not increase the risk to the public while allowing operational flexibility.

This item was requested in letter ANPP-33898-EEVB/JRP, dated 11-1-85, but was not included in the final draft because it had not been reviewed by the staff.

FINAL DRAFT

ELECTRIC HYDROGEN RECOMBINERS

LIMITING CONDITION FOR OPERATION

3.6.4.2 Two portable independent containment hydrogen recombiner systems shared among the three units shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With one hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or meet the requirements of Specification 3.6.4.3, or be in at least HOT STANDBY within the next 6 hours.

b. WITH ONE HYDROGEN RECOMBINER SYSTEM INOPERABLE, AND THE HYDROGEN PURGE SYSTEM OPERABLE PER SPECIFICATION 3.6.4.3; THE PROVISIONS OF SPECIFICATION 3.0.4 ARE NOT APPLICABLE

SURVEILLANCE REQUIREMENTS

4.6.4.2 Each hydrogen recombiner system shall be demonstrated OPERABLE:

a. At least once per 6 months by:

1. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure and control console.

2. Operating the air blast heat exchanger fan motor and enclosed blower motor continuously for at least 30 minutes.

b. At least once per year by:

1. Performing a CHANNEL CALIBRATION of recombiner instrumentation.

2. Performing a "Low-Level Test-Heater Power Off" and "Low-Level Test-Heater Power On" test and verifying that the recombiner temperature increases to and is maintained at 600 ± 25°F for at least one hour. With power off and a simulated input signal of 1280°F, verify the OPERABILITY of all control circuits. When this test is conducted, the air blast heat exchanger fan motor and enclosed blower motor shall be operated continuously for at least 30 minutes.

c. At least once per 5 years by performing a Recombiner System "High-Level Test" and verifying that the recombiner temperature increases to and is maintained at 1200 ± 50°F for at least one hour.

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Proposed Change and Basis for Change to

Technical Specification 3/4.8.1

The proposed change is on the attached marked up page.

The basis for the changes is as follows:

Regulatory Guide 1.108 Section C, Item 1.b.6 states "All diesel generator protective trips should be in force during diesel generator unit testing." In the final draft of Surveillance Requirement 4.8.1.1.2.a.4, the following problem is encountered.

These signals place the diesel generator in the emergency mode of operation:

1. The simulated loss of offsite power.
2. The simulated loss of offsite power in conjunction with an ESF actuation test signal.
3. The ESF actuation test signal.

Being in the emergency mode bypasses 15 out of 18 diesel generator protective trips.

Diesel trips that are bypassed in the Emergency Mode are:

- High jacket water temperature
- Low turbocharge lube oil pressure
- Turbocharger bearing failure
- Excessive engine vibration
- Main bearing high temperature
- Outboard bearing high temperature
- Connecting rod bearing high temperature
- Crankcase pressure high
- Loss of field
- Generator ground overcurrent
- Generator voltage restrained overcurrent
- Reverse power
- Load unbalance
- Underfrequency
- Incomplete sequence

The following three shutdowns will stop the engine in both the EMERGENCY MODE and NORMAL MODE:

- Generator differential
- Low engine lube oil pressure
- Overspeed

There is no provision in the plant design to reinstate the bypassed trips without shutting down thediesel generator and restarting it by a manual start in the test or normal mode.

These surveillance requirements as written would force Palo Verde to operate the diesel generators in a manner different than that recommended by the Regulatory Guide.

4.8.1.1.1 Each of the above required physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignment indicating power availability

b. Demonstrated OPERABLE at least once per 18 months during shutdown by manually transferring the onsite Class 1E power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the day tank.

2. Verifying the fuel level in the fuel storage tank.

3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.

4. Verifying the diesel generator can start** and accelerate to generator voltage and frequency at 4160 ± 420 volts and 60 ± 1.2 Hz in less than or equal to 10 seconds. Subsequently, the generator shall be manually synchronized to its appropriate bus and gradually loaded** to an indicated 5200-5400 kW*** and operates for at least 60 minutes. The diesel generator shall be started for this test ~~by using one of the following signals on a STAGGERED TEST BASIS:~~ MANUALLY FROM THE CONTROL ROOM

   ~~a) Manual from control room.~~
   ~~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 diesel generator is aligned to provide standby power to the associated emergency busses.

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank obtained in accordance with ASTM-D4176-82, is within the acceptable limits specified in Table 1 of ASTM D975-81 when checked for viscosity, water and sediment.

**This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

***This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

Proposed Change and Basis for Change to
Technical Specification page B 3/4 1-2

The proposed change is on the attached marked up page.

The basis for the change is as follows:

This change is based on a meeting held in the NRC office on 11/26 and 11/27.

FINAL DRAFT

3/4.1.1.4 MINIMUM TEMPERATURE FOR CRITICALITY

This specification ensures that the reactor will not be made critical with the Reactor Coolant System cold leg temperature less than 552°F. This limitation is required to ensure (1) the moderator temperature coefficient is within its analyzed temperature range, (2) the protective instrumentation is within its normal operating range, and (3) to ensure consistency with the FSAR safety analysis.

3/4.1.2 BORATION SYSTEMS

The boron injection system ensures that negative reactivity control is available during each mode of facility operation. The components required to perform this function include (1) borated water sources, (2) charging pumps, (3) separate flow paths, ~~and~~ (4) an emergency power supply from OPERABLE diesel generators, and (5) the volume control tank (VCT) outlet valve CH-UV-501, capable of isolating the VCT from the charging pump suction line. The nominal capacity of each charging pump is 44 gpm at its discharge. Up to 16 gpm of this may be diverted to the volume control tank via the RCP control bleedoff. Instrument inaccuracies and pump performance uncertainties are limited to 2 gpm yielding the 26 gpm value.

With the RCS temperature above 210°F, a minimum of two separate and redundant boron injection systems are provided to ensure single functional capability in the event an assumed failure renders one of the systems inoperable. Allowable out-of-service periods ensure that minor component repair or corrective action may be completed without undue risk to overall facility safety from injection system failures during the repair period.

The boration capability of either system is sufficient to provide a SHUTDOWN MARGIN from expected operating conditions of 4% delta k/k after xenon decay and cooldown to 210°F. The maximum expected boration capability requirement occurs at EOL from full power equilibrium xenon conditions and requires 23,800 gallons of 4000 ppm borated water from either the refueling water tank or the spent fuel pool.

With the RCS temperature below 210°F one injection system is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single injection system becomes inoperable. The restrictions of one and only one operable charging pump whenever reactor coolant level is below the bottom of the pressurizer is based on the assumptions used in the analysis of the boron dilution event.

The boron capability required below 210°F is based upon providing a 4% delta k/k SHUTDOWN MARGIN after xenon decay and cooldown from 210°F to 120°F. This condition requires 9,700 gallons of 4000 ppm borated water from either the refueling water tank or the spent fuel pool.

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Proposed Change for Page B 3/4 4-7

The proposed change is on the attached marked up page.

The reason for this change is to correct the referenced table number.

FINAL DRAFT

PRESSURE/TEMPERATURE LIMITS (Continued)

The actual shift in RT_{NDT} of the vessel material will be established periodically during operation by removing and evaluating, in accordance with ASTM E185-73 and Appendix H of 10 CFR 50, reactor vessel material irradiation surveillance specimens installed near the inside wall of the reactor vessel in the core area. Since the neutron spectra at the irradiation samples and vessel inside radius are essentially identical, the measured transition shift for a sample can be applied with confidence to the adjacent section of the reactor vessel. The heatup and cooldown curves must be recalculated when the delta RT_{NDT} determined from the surveillance capsule is different from the calculated delta RT_{NDT} for the equivalent capsule radiation exposure.

The pressure-temperature limit lines shown on Figure 3.4-2 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR Part 50. The reactor vessel material irradiation surveillance specimens are removed and examined to determine changes in material properties. The results of these examinations shall be used to update Figure 3.4-2 based on the greater of the following:

(1) the actual shift in reference temperature for plate F-773-1 and weld 101-142 as determined by impact testing, or

(2) the predicted shift in reference temperature for the limiting weld and plate as determined by RG 1.99, "Effects of Residual Elements on Predicted Radiation Damage to Reactor Vessel Materials."

The maximum RT_{NDT} for all Reactor Coolant System pressure-retaining materials, with the exception of the reactor pressure vessel, has been determined to be 40°F. The Lowest Service Temperature limit is based upon this RT_{NDT} since Article NB-2332 (Summer Addenda of 1972) of Section III of the ASME Boiler and Pressure Vessel Code requires the Lowest Service Temperature to be RT_{NDT} + 100°F for piping, pumps, and valves. Below this temperature, the system pressure must be limited to a maximum of 20% of the system's hydrostatic test pressure of 3125 psia. However, based upon the 10 CFR Part 50 Appendix G analysis, the isothermal condition for the reactor vessel is more restrictive than the Lowest Service Temperature line. Therefore, only the isothermal line is shown on Figure 3.4-2.

The number of reactor vessel irradiation surveillance capsules and the frequencies for removing and testing these capsules are provided in Table 4.4-~~3~~5 to assure compliance with the requirements of Appendix H to 10 CFR Part 50.

NOV 08 1985

Proposed Change and Basis for Change to

Technical Specification page B 3/4 8-2

The proposed change is on the attached marked up page.

The basis for the change is as follows:

The change is because of a typographical error.

FINAL DRAFT

A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

The surveillance requirement for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.010 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7-day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

If any other metallic structures (e.g., buildings, new or modified piping systems, conduit) are placed in the ground in the vicinity of the fuel oil storage system or if the original system is modified, the adequacy and frequency of inspections of the cathodic protection system shall be re-evaluated and adjusted in accordance with Regulatory Guide 1.137.