Docket No. 50-346
License No. NPF-3
Serial No. 913
February 22, 1983

Attachment I

I. Changes to Davis-Besse Nuclear Power Station Unit 1, Appendix A Technical Specifications 3.3.2.3, 4.3.2.3, Tables 3.3-15, 4.3-15 and Bases.

A. Time required to Implement. This change is to be effective upon NRC approval.

B. Reason for Change (Facility Change Request 79-283, Rev. B, Supp 3). This amendment request supercedes Toledo Edison submittal of November 15, 1982 (Serial No. 873) and responds to Generic Letter 82-16

C. Safety Evaluation (See Attached)

SAFETY EVALUATION

This License Amendment Request (LAR) provides new Technical Specifications for "Limiting Condition for Operation" and surveillance requirements for the safety grade Anticipatory Reactor Trip System (ARTS).

Without the installation of ARTS in the facility, when the main turbine trips at reactor power greater than 25% of full power, the ICS will initiate a reactor power runback and the unit should stablilize when the reactor power reaches a level less than 25% full power. However, if the ICS is not properly tuned, high RCS pressure may occur causing a RPS reactor trip. The initiation of ARTS, in this case, is to prevent the ICS from challenging the RPS. In the event that both of the main feed pump turbines are lost, the ARTS will anticipate the problem and trip the reactor before the RCS reaches the RPS high pressure trip setpoint. ARTS is not required for the case when the main turbine trips at reactor power less than 25% full power since the turbine bypass valves are designed to fully handle this condition without challenging the RPS to trip the reactor or without changing the reactor power or turbine header pressure.

The new Technical Specifications are considered to be adequate to demonstrate and ensure the continued operability of ARTS. The surveillance requirement specified for this system ensures that the overall system functional capability is maintained and the periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

Pursuant to the above, it is concluded that the proposed Technical Specification changes do not involve an unreviewed safety question.

INSTRUMENTATION

ANTICIPATORY REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2.3 The Anticipatory Reactor Trip System instrumentation channels of Table 3.3-15 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-15

ACTION: As shown in Table 3.3-15

SURVEILLANCE REQUIREMENTS

4.3.2.3 The Anticipatory Reactor Trip System shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST for the modes and at the frequencies shown in Table 4.3-15.

TABLE 3.3-15

ANTICIPATORY REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Turbine Trip	4	2[(a)]	3	1[(b)]	16
2. Trip of Both Main Feed Pump Turbines	4	2	3	1	17
3. Output Logic	4	2	3	1	18

(a) Trip automatically bypassed below 25 percent of RATED THERMAL POWER
(b) Applicable only above 25 percent of RATED THERMAL POWER

TABLE 3.3-15 (CONTINUED)

ACTION STATEMENTS

ACTION 16 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirements, restore the inoperable channel to OPERABLE status within 72 hours or reduce reactor power to less than 25 percent of RATED THERMAL POWER within the next 6 hours.

ACTION 17 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirements, restore the inoperable channel to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours.

ACTION 18 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed provided both of the following conditions are satisfied:

a) The control rod drive trip breaker associated with the inoperable channel is placed in the tripped condition within one hour.

b) The Minimum Channels OPERABLE requirement is met; however, one additional control rod drive trip breaker associated with another channel may be tripped for up to 2 hours for surveillance testing per Specification 4.3.2.3, after reclosing the control rod drive trip breaker opened in a) above.

TABLE 4.3-15

ANTICIPATORY REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE IS REQUIRED
1. Turbine Trip [a]	S	Not Applicable	M	1[b]
2. Main Feed Pump Turbine Trip	S	Not Applicable	M	1
3. Output Logic	Not Applicable	Not Applicable	M	1

[a] Trip automatically bypassed below 25 percent of RATED THERMAL POWER
[b] Applicable only above 25 percent of RATED THERMAL POWER

BASES

ANTICIPATORY REACTOR TRIP

Safety-grade anticipatory reactor trip is initiated by a turbine trip (above 25 percent of RATED THERMAL POWER) or trip of both main feedwater pump turbines. This anticipatory trip will operate in advance of the reactor coolant system high pressure reactor trip to reduce the peak reactor coolant system pressure and thus reduce challenges to the power operated relief valve. This anticipatory reactor trip system was installed to satisfy Item II.K.2.10 of NUREG-0737.

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Attachment II

I. Changes to Davis-Besse Nuclear Power Station Unit 1, Appendix A Technical Specifications 3.1.2.8, 3.1.2.9, 4.1.2.1 and 4.1.2.2.

A. Time required to Implement. This change is to be effective upon NRC approval.

B. Reason for Change (Facility Change Request 82-111, Rev. B).

A section of the heat traced piping from the Boric Acid Addition Tank (BAAT) to the "T" connections to the letdown return line is used not only for Boric Acid addition from the BAAT but also is used for the transport of demineralized water and low boron concentration liquid (<5000 ppm) from the clean radwaste receiver tank. When this section of the piping is used for concentration of liquids of less than 5000 ppm boron, the maintainance of piping temperature greater than 105°F is not necessary.

C. Safety Evaluation
(See attached).

SAFETY EVALUATION

This amendment request is to revise the Technical Specifications Sections 4.1.2.1, 4.1.2.2 (Surveillance Requirements) and 3.1.2.8, 3.1.2.9 (Limiting Condition for Operation).

The purpose of the affected Technical Specification is to provide assurance against boron crystallization in the concentrated boric acid addition system and the boron injection flow path from this system. The safety function of the boric acid addition system is to provide a boration capability sufficient to ensure adequate shutdown margin from all operating conditions to 1.0% $\Delta K/K$ after Xenon decay and cooldown to 200°F.

Technical Specifications sections 4.1.2.1, 4.1.2.2, 3.1.2.8, and 3.1.2.9 require that two flow paths be operable by verifying that the pipe temperature of the heat traced portion of the flow path from the concentrated boric acid storage system is greater than 105°F when the boric acid addition system and associated heat tracing has between 7,875 and 13,125 ppm of boron with a solution temperature greater than 105°F. The 105°F minimum boric acid solution temperature for the boric acid flow path is intended to avoid crystallization of the boric acid solution by maintaining the heat traced portion of the flow path from the concentrated boric acid system above 105°F. However, the same function can also be achieved by changing the Technical Specification as attached.

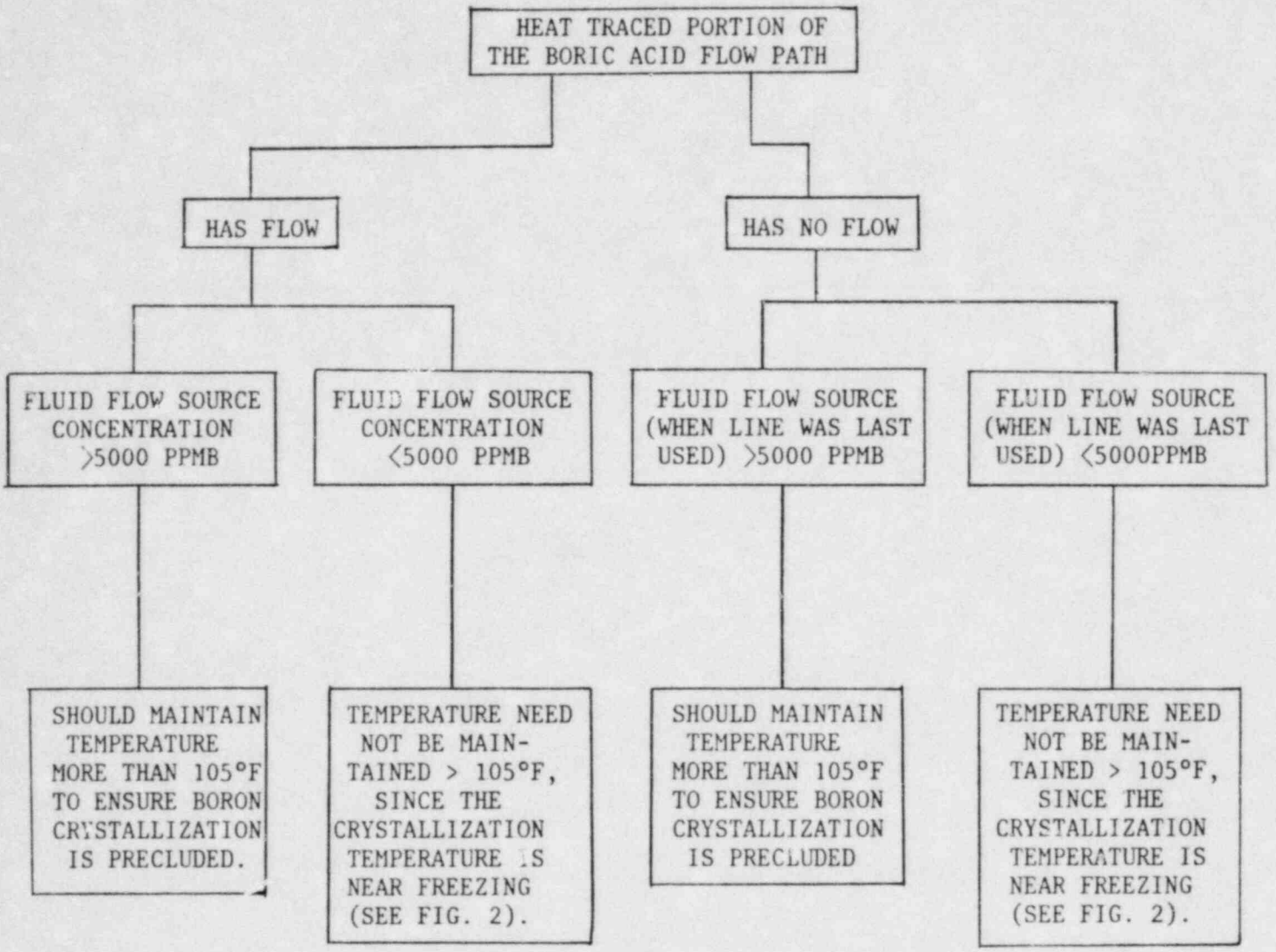
Technical Specifications 4.1.2.1a and 4.1.2.2a should be revised because a section of the heat traced piping from the Boric Acid Addition Tank (BAAT) to the "T" connection to the letdown return line is used not only for boric acid addition from BAAT but also for the transport of demineralized water and other low boron concentration liquid ($<$5000 ppm) e.g. the clean radwaste receiver tank (see attached Figure 1). The only time that this temperature should be monitored above 105°F is determined by the attached decision tree. The decision tree demonstrates that the only time the need for temperature verification exists is during and after the flow path has been used for transporting fluid with a source concentration of $>$5000 ppmB. If at any time the line is used for transporting the fluid of source concentration $<$5000 ppmB the temperature need not be maintained above 105°F. During times when the line is used for transporting a boric acid solution more than 5000 ppmB and after that, the temperature needs to be verified to be more than 105°F. If the fluid source concentration is less than 5000 ppmB, the temperature need not be maintained above 105°F since per the attached graph (Figure 2) the crystallization will occur only below the freezing point of approximately 32°F. Thus, there is no safety concern for boric acid crystallization under those circumstances. Only when the flow path contains high ($>$5000 ppmB) boric acid concentration does the need for avoiding crystallization exist. Liquid samples are taken from the source for verification of boron concentration (not from the flow path) and this is so reflected in the revised Technical Specifications.

Technical Specifications 3.1.2.8a.3 and 3.1.2.9a.3 require that the boric acid addition system and associated heat tracing have a minimum solution temperature of 105°F. However, revised Technical Specifications 4.1.2.1a and 4.1.2.2a will ensure that the associated heat traced portion of the flow path from the concentrated boric acid storage system is > 105°F when this flow path is used to transport boric acid solutions with a fluid source concentration more than 5000 ppmB until the time that this flow path is used for any other purpose. Therefore, Technical Specifications 3.1.2.8a.3 and 3.1.2.9a.3 should not include the associated heat traced portion since the Surveillance Requirements for its operability are already included in revised Technical Specifications 4.1.2.1a and 4.1.2.2a.

The proposed changes to the Technical Specifications will ensure that adequate protection is available when required. At the same time it will eliminate an undue restriction on temperature during the times when this restriction does not serve any safety function. The proposed changes adequately provide the assurance that the intent of the Technical Specifications is being met. Therefore, making this change in the Technical Specifications will preserve the safety function of the boron injection system and the protection provided by the existing Technical Specification will remain unaltered.

Pursuant to the above, this is not an unreviewed safety question.

DECISION TREE



SECTION OF HEAT TRACED PIPING

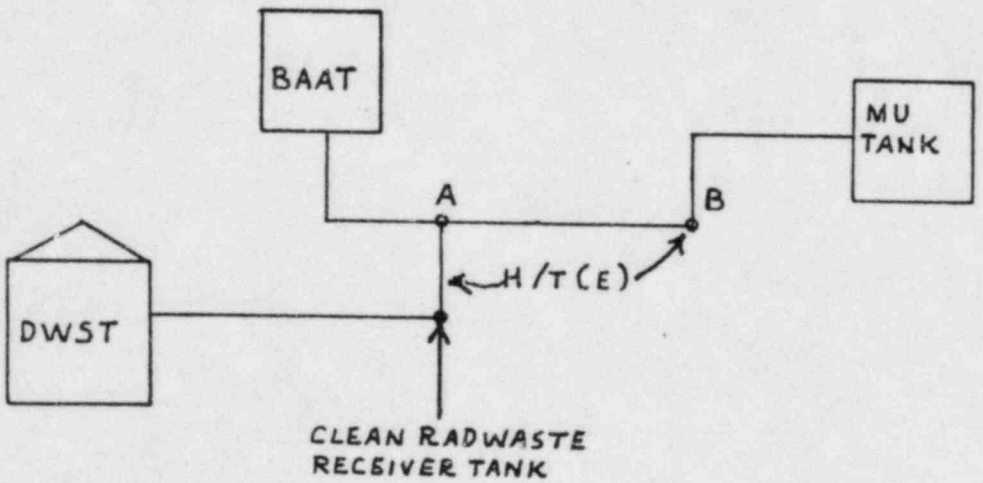
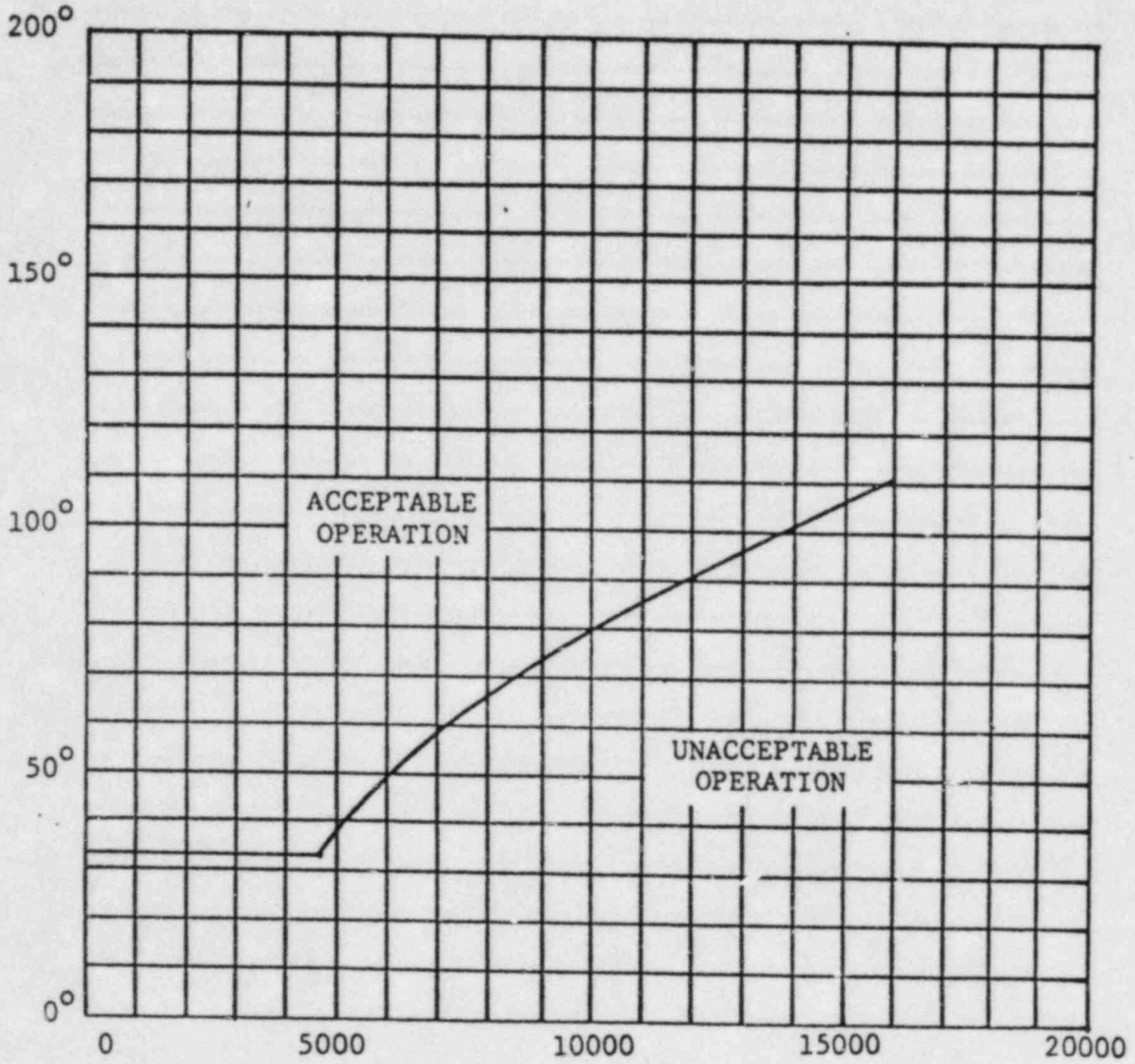


FIGURE - 1



Minimum Solution Temperature in the Boric Acid Addition System

FIGURE-2

REACTIVITY CONTROL SYSTEMS

3/4.1.2 BORATION SYSTEMS

FLOW PATHS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.1 At least one of the following boron injection flow paths shall be OPERABLE.

a. A flow path from the concentrated boric acid storage system via a boric acid pump and a makeup or decay heat removal (DHR) pump to the Reactor Coolant System, if only the boric acid storage system in Specification 3.1.2.8a is OPERABLE, or

b. A flow path from the borated water storage tank via a makeup or DHR pump to the Reactor Coolant System if only the borated water storage tank in Specification 3.1.2.8b is OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

With none of the above flow paths OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until at least one injection path is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.1.2.1 At least one of the above required flow paths shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the pipe temperature of the heat traced portion of the flow path is $\geq$ 105°F. THIS IS APPLICABLE DURING ~~when a flow path from the concentrated boric acid storage system is used,~~ and AFTER THIS FLOW PATH IS USED TO TRANSPORT BORIC ACID SOLUTIONS WITH A FLUID SOURCE CONCENTRATION MORE THAN 5000 PPM B UNTIL THE TIME THAT THIS FLOW PATH IS USED FOR ANY OTHER PURPOSE.

b. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed or otherwise secured in position is in its correct position.

REACTIVITY CONTROLS SYSTEMS

FLOW PATHS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.2 Each of the following boron injection flow paths shall be OPERABLE:

a. A flow path from the concentrated boric acid storage system via a boric acid pump and makeup or decay heat removal (DHR) pump to the Reactor Coolant System, and

b. A flow path from the borated water storage tank via makeup or DHR pump to the Reactor Coolant System.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With the flow path from the concentrated boric acid storage system inoperable, restore the inoperable flow path to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to 1% $\Delta k/k$ at 200°F within the next 6 hours; restore the flow path to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the flow path from the borated water storage tank inoperable, restore the flow path to OPERABLE status within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVIELLANCE REQUIREMENTS

4.1.2.2 Each of the above required flow paths shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the pipe temperature of the heat traced portion of the flow path from the concentrated boric acid storage system is $\geq$ 105°F THIS IS APPLICABLE DURING AND AFTER THIS FLOW PATH IS USED TO TRANSPORT BORIC ACID SOLUTIONS WITH A FLUID SOURCE CONCENTRATION MORE THAN 5000 PPm B UNTIL THE TIME THAT THIS FLOW PATH IS USED FOR ANY OTHER PURPOSE.

BORATED WATER SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.9 Each of the following borated water sources shall be OPERABLE:

a. The boric acid addition system ~~and associated heat tracing~~ with:

1. A minimum contained borated water volume in accordance with Figure 3.1-1,

2. Between 7875 and 13,125 ppm of boron, and

3. A minimum solution temperature of 105°F.

b. The borated water storage tank (BWST) with:

1. A contained borated water volume of between 482,778 and 550,000 gallons,

2. Between 1800 and 2200 ppm of boron, and

3. A minimum solution temperature of 35°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With the boric acid addition system inoperable, restore the storage system to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to 1% $\Delta k/k$ at 200°F within the next 6 hours; restore the boric acid addition system to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the borated water storage tank inoperable, restore the tank to OPERABLE status within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

REACTIVITY CONTROL SYSTEMS

BORATED WATER SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.8 As a minimum, one of the following borated water sources shall be OPERABLE:

a. A boric acid addition system ~~and associated heat tracing~~ with:

1. A minimum contained borated water volume in accordance with Figure 3.1-1,

2. Between 7875 and 13,125 ppm of boron, and

3. A minimum solution temperature of 105°F.

b. The borated water storage tank (BWST) with:

1. A minimum contained borated water volume of 70,700 gallons,

2. A minimum boron concentration of 1800 ppm, and

3. A minimum solution temperature of 35°F.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no borated water sources OPERABLE, suspend all operations involving CORE ALTERATION or positive reactivity changes until at least one borated water source is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.1.2.8 The above required borated water source shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the boron concentration of the water,

2. Verifying the contained borated water volume of the source, and

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Attachment III

I. Changes to Davis-Besse Nuclear Power Station Unit 1, Appendix A Technical Specifications 6.9.1.4.

A. Time required to Implement. This change is to be effective upon NRC approval.

B. Reason for Change (Facility Change Request 81-007). Correcting these typographical errors does not create an unreviewed safety question.

C. Safety Evaluation

The purpose of Technical Specification 6.9.1.5.b is to outline reporting requirements (to the NRC) of the steam generator tube inservice inspection results. This Technical Specification (6.9.1.5.b) does not perform a safety function. The existing Technical Specification requires that reports required on an annual basis shall include the complete results of steam generator tube inservice inspections (Specification 4.5.5.b). The reference to Specification 4.5.5.b is a typographical error because there is no Specification 4.5.5.b. The correct Specification to be referenced is 4.4.5.5.b. Also, the intent of the Technical Specification relates to the steam "generator" rather than steam "generation".

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power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL OPERATING REPORT[1]

6.9.1.4 Annual reports covering the activities of the unit during the previous calendar year shall be submitted prior to March 31 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality. 1

6.9.1.5 Reports required on an annual basis shall include:

a. A tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man rem exposure according to work and job functions,[2] e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.

b. The complete results of steam ~~generation~~ generator tube inservice inspections (Specification ~~4.5.5.b~~ 4.4.5.5.b). 1

MONTHLY OPERATING REPORT

6.9.1.6 Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the Director, Office of Management and Program Analysis, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Regional Office, to arrive no later than the 15th of each month following the calendar month covered by the report. 1

1/ A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

2/ This tabulation supplements the requirements of §20.407 of 10 CFR Part 20.