ENCLOSURE 1 TO NYN- 88091
PROPOSFD TECHNICAL SPECIFICATION CHANGES

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
1. Manual Reactor Trip	N.A.	N.A.	N.A.	N.A.	N.A.
2. Power Range, Neutron Flux					
a. High Setpoint	7.5	4.56	0	≤109% of RTP*	≤111.1% of RTP*
b. Low Setpoint	8.3	4.56	0	≤25% of RTP*	≤27.1% of RTP*
3. Power Range, Neutron Flux, High Positive Rate	1.6	0.5	0	≤5% of RTP* with a time constant ≥2 seconds	≤6.3% of RTP* with a time constant ≥2 seconds
4. Power Range, Neutron Flux, High Negative Rate	1.6	0.5	0	≤5% of RTP* with a time constant ≥2 seconds	≤6.3% of RTP* with a time constant ≥2 seconds
5. Intermediate Range, Neutron Flux	17.0	8.41	0	≤25% of RTP*	≤31.1% of RTP*
6. Source Range, Neutron Flux	17.0	10.01	0	≤10^5 cps	≤1.6×10^5 cps
7. Overtemperature ΔT	6.5	3.31	1.04** +0.47**	See Note 1	See Note 2
8. Overpower ΔT	4.8	1.43	0.12	See Note 3	See Note 4
9. Pressurizer Pressure - Low	3.12 ~~3.1~~	0.86 ~~0.71~~	0.99 ~~1.69~~	≥1945 psig	≥1931 ~~≥1,935~~ psig
10. Pressurizer Pressure - High	3.12 ~~3.1~~	1.00 ~~0.71~~	0.99 ~~1.69~~	≤2385 psig	≤2398 ~~≤2,395~~ psig

*RTP = RATED THERMAL POWER

**The sensor error for T_{avg} is 1.04 and the sensor error for Pressurizer Pressure is 0.47. "As measured" sensor errors may be used in lieu of either or both of these values, which then must be summed to determine the overtemperature ΔT total channel value for S.

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
11. Pressurizer Water Level - High	8.0	~~2.18~~ 4.20	~~1.82~~ 0.84	<92% of instrument span	~~<93.8%~~ of instrument span* ≤93.75%
12. Reactor Coolant Flow - Low	2.5	1.87	0.6	>90% of loop design flow*	>~~89.4% of loop~~ design flow*
13. Steam Generator Water Level Low - Low	14.0 ~~17.0~~	12.53 ~~15.28~~	0.55 ~~1.76~~	≥14.0% ~~≥21.6%~~ of narrow range instrument span	≥12.6% ~~≥15.9%~~ of narrow range instrument span
14. Undervoltage - Reactor Coolant Pumps	15.0	1.39	0	≥10,200 volts	≥9,822 volts
15. Underfrequency - Reactor Coolant Pumps	2.9	0	0	≥55.5 Hz	≥55.3 Hz
16. Turbine Trip					
a. Low Fluid Oil Pressure	N.A.	N.A.	N.A.	≥500 psig	≥450 psig
b. Turbine Stop Valve Closure	N.A.	N.A.	N.A.	≥1% open	≥1% open
17. Safety Injection Input from ESF	N.A.	N.A.	N.A.	N.A.	N.A.

*Loop design flow = 95,700 gpm

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
1. Safety Injection (Reactor Trip, Feedwater Isolation, Start Diesel Generators, Phase "A" Isolation, Containment Ventilation Isolation, and Emergency Feedwater, Service Water to Secondary Component Cooling Water Isolation, CBA Emergency Fan/Filter Actuation, and Latching Relay).					
a. Manual Initiation	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	N.A.
c. Containment Pressure--Hi-1	4.2	0.71	1.67	≤ 4.3 psig	≤ 5.3 psig
d. Pressurizer Pressure--Low	15.0 ~~13.1~~	12.91 ~~10.71~~	0.99 ~~1.69~~	≥ 1865 ~~≥ 1875~~ psig	≥ 1852 ~~≥ 1840~~ psig
e. Steam Line Pressure--Low	13.1	10.71	1.63	≥ 585 psig	≥ 568 psig*
2. Containment Spray					
a. Manual Initiation	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
c. Containment Pressure--Hi-3	3.0	0.71	1.67	≤ 18.0 psig	≤ 18.7 psig

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
4. Steam Line Isolation					
a. Manual Initiation (System)	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
c. Containment Pressure--Hi-2	5.2	0.71	1.67	≤4.3 psig	≤5.3 psig
d. Steam Line Pressure--Low	13.1	10.71	1.63	≥585 psig	≥568 psig*
e. Steam Generator Pressure - Negative Rate--High	3.0	0.5	0	≤100 psi	≤123 psi**
5. Turbine Trip					
a. Automatic Actuation Logic Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
b. Steam Generator Water Level--High-High (P-14)	4.0	2.24 ~~2.18~~	0.55 ~~1.76~~	≤86.0% of narrow range instrument span.	≤87.7% ~~≤87.2%~~ of narrow range instrument span.
6. Feedwater Isolation					
a. Steam Generator Water Level--Hi-Hi-(P-14)	4.0	2.24 ~~2.18~~	0.55 ~~1.76~~	≤86.0% of narrow range instrument span.	≤87.7% ~~≤87.2%~~ of narrow range instrument span.
b. Low RCS T_{avg} Coincident with Reactor Trip	4.6	1.12	1.38	≥564°F	≥561.2°F
c. Safety Injection	N.A.	N.A.	N.A.	N.A.	N.A.

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
7. Emergency Feedwater					
a. Manual Initiation					
(1) Motor driven pump	N.A.	N.A.	N.A.	N.A.	N.A.
(2) Turbine driven pump	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
c. Steam Generator Water Level--Low-Low Start Motor-Driven Pump and Start Turbine Driven Pump	14.0 ~~17.0~~	12.53 ~~15.28~~	0.55 ~~1.76~~	≥14.0% ~~≥ 17.0%~~ of narrow range instrument span.	≥12.6% ~~≥ 15.9%~~ of narrow range instrument span.
d. Safety Injection Start Motor-Driven Pump and Turbine-Driven Pump	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.				
e. Loss-of-Offsite Power Start Motor-Driven Pump and Turbine-Driven Pump	See Item 9. for Loss-of-Offsite Power Setpoints and Allowable Values.				
8. Automatic Switchover to Containment Sump					
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
b. RWST Level--Low-Low Coincident With Safety Injection	2.75	1.0	1.8	≥122,525 gals.	≥121,609 gals.
	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.				

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
9. Loss of Power (Start Emergency Feedwater)					
a. 4.16 kV Bus E5 and E6 Loss of Voltage	N.A.	N.A.	N.A.	≥ 2975 volts with a ≤ 1.20 second time delay.	≥ 2908 volts with a ≤ 1.315 second time delay.
b. 4.16 kV Bus E5 and E6 Degraded Voltage	N.A.	N.A.	N.A.	≥ 3933 volts with a ≤ 10 second time delay.	≥ 3902 volts with a ≤ 10.96 second time delay.
Coincident with: Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.				
10. Engineered Safety Features Actuation System Interlocks					
a. Pressurizer Pressure, P-11	N.A.	N.A.	N.A.	≤ 1950 psig	≤ 1964 ~~≤ 1960~~ psig
b. Reactor Trip, P-4	N.A.	N.A.	N.A.	N.A.	N.A.
c. Steam Generator Water Level, P-14	See Item 5. above for all Steam Generator Water Level Trip Setpoints and Allowable Values.				

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least the above required reactor coolant pumps, if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to ~~17%~~ 14% at least once per 12 hours.

4.4.1.2.3 The required reactor coolant loops shall be verified in operation and circulating reactor coolant at least once per 12 hours.

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required reactor coolant pump(s), if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary-side water level to be greater than or equal to ~~17%~~ 14% at least once per 12 hours.

4.4.1.3.3 At least one reactor coolant or RHR loop shall be verified in operation and circulating reactor coolant at least once per 12 hours.

REACTOR COOLANT SYSTEM

REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

COLD SHUTDOWN - LOOPS FILLED

LIMITING CONDITION FOR OPERATION

3.4.1.4.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation*, and either:

a. One additional RHR loop shall be OPERABLE**, or

b. The secondary-side water level of at least two steam generators shall be greater than ~~17%~~ 14%.

APPLICABILITY: MODE 5 with reactor coolant loops filled***.

ACTION:

a. With one of the RHR loops inoperable and with less than the required steam generator water level, immediately initiate corrective action to return the inoperable RHR loop to OPERABLE status or restore the required steam generator water level as soon as possible.

b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.4.1.1 The secondary side water level of at least two steam generators when required shall be determined to be within limits at least once per 12 hours.

4.4.1.4.1.2 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

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*The RHR pump may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

**One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE and in operation.

***A reactor coolant pump shall not be started unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold-leg temperatures.

LIMITING CONDITION FOR OPERATION

3.6.1.7 Each containment purge supply and exhaust isolation valve shall be OPERABLE and:

a. Each 36-inch containment shutdown purge supply and exhaust isolation valve shall be closed and locked closed, and

b. The 8-inch containment purge supply and exhaust isolation valve(s) shall be sealed closed except when open for purge system operation for pressure control; for ALARA, respirable, and air quality considerations to facilitate personnel entry; and for surveillance tests that require the valve(s) to be open.

APPLICABILITY: MODES 1*, 2*, 3, and 4.

ACTION:

a. With a 36-inch containment purge supply or exhaust isolation valve open or not locked closed, close and lock close that valve or isolate the penetration(s) within 4 hours, otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one or more of the 8-inch containment purge supply or exhaust isolation valves open for reasons other than given in Specification 3.6.1.7.b above, close the open 8-inch valve(s) or isolate the penetration(s) within 4 hours, otherwise be in at least HOT STANDBY within the next 6 hours, and in COLD SHUTDOWN within the following 30 hours.

c. With one or more containment purge supply or exhaust isolation valves having a measured leakage rate in excess of the limits of Specifications 4.6.1.7.2 or 4.6.1.7.3, restore the inoperable valve(s) to OPERABLE status or isolate the affected penetration(s) so that the measured leakage rate does not exceed the limits of Specifications 4.6.1.7.2 or 4.6.1.7.3 within 24 hours and close the purge supply if the affected penetration is the exhaust penetration, otherwise be in at least HOT STANDBY within the next 6 hours, and in COLD SHUTDOWN within the following 30 hours.

*The 8-inch containment purge supply and exhaust isolation valves may not be opened while in MODE 1 or MODE 2 until installations of the narrow-range containment pressure instrument channels and alarms are completed.

ENCLOSURE 2 TO NYN-88091
JUSTIFICATION FOR PROPOSED CHANGES

BACKGROUND:

During hot functional testing, ambient temperature compensation calibration shifts were observed with Veritrak pressurizer pressure transmitters located inside Containment. After hot functional testing, an ambient temperature compensation test was performed on these transmitters. Based on the results of these tests, a potential 10CFR50.55(e) defect was reported to the NRC [References (a), (b), and (c)] and the Unit 2 transmitters were returned to Westinghouse for repair. Neither Westinghouse nor the transmitter vendor were able to isolate the cause of the drift. Thus, Westinghouse provided Tobar transmitters as replacements for the Unit 2 pressurizer pressure Veritrak transmitters. Based on available data on the Veritrak and Tobar transmitters, NHY increased the surveillance and calibration requirements for all Class 1E Veritrak and Tobar transmitters located inside Containment which provide inputs to the Reactor Protection System. Additionally, Westinghouse recommended that NHY revise the trip setpoints for pressurizer pressure low safety injection actuation and steam generator level low-low reactor trips. The Seabrook Technical Specifications reflect these revised setpoints.

These additional calibrations have: 1) increased the length of time the unit will need to remain in Mode 3 during startup; 2) increased the workload of the station staff; and 3) are not consistent with ALARA principles. The existing Technical Specification setpoints have less margin to the operating range and thus the chance of unnecessary trips. Therefore, Rosemount transmitters have been installed to allow the additional surveillance and calibration requirements to be deleted and the setpoints relaxed.

DESCRIPTION OF PROPOSED CHANGE:

The proposed change provides new setpoints for the pressurizer pressure, pressurizer water level, and steam generator water level channels. This change provides new values for Total Allowance (TA), Z, Trip Setpoint, and Allowable Value for these transmitters in Technical Specification Tables 2.2-1 (REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS) and 3.3-4 (ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SETPOINTS). The steam generator water level low-low value is also revised in Specifications 4.4.1.2.2, 4.4.1.3.2, and 3.4.1.4.1, to be consistent with the setpoints.

The loop accuracy calculation [Reference (d)] applies to the pressurizer pressure, pressurizer level, and steam generator narrow range level instrument channels, each of which provide reactor trip signals. Additionally, the pressurizer pressure instrument loop provides a safety injection (SI) initiating signal and a low pressure safety injection block permissive. The steam generator instrument loops provide a high level signal which trips the turbine, isolates feedwater, trips feedwater pumps, and blocks the start of the startup feedwater pump. The steam generator low-low level signal provides for the start of emergency feedwater pumps in addition to the reactor trip.

The steam generator level low-low reactor trip setpoint has been lowered from 17% to 14% due to a decrease in the calculated total allowance value. This value includes a larger reference leg error of 5.5 percent which results from not taking credit for operator action in response to a feedwater line break inside Containment. The steam generator level high reactor trip setpoint remains unchanged.

The pressurizer pressure -low and -high reactor trip setpoints, and the low pressure safety injection block permissive setpoint remain unchanged. The pressurizer pressure -low SI trip setpoint has been decreased from 1875 psig to 1865 psig due to a decrease in the calculated total allowance value. The pressurizer pressure transmitters provide an input to the overtemperature delta T trip setpoint. The revised calculation indicates that the use of the Rosemount transmitters in this application improves the channel statistical allowance and results in an increased margin of safety.

The pressurizer level high reactor trip setpoint remains unchanged. No credit is taken for this trip in any FSAR Chapter 15 accident analysis. The FSAR Chapter 15 feedwater line break analysis assumed a 2 percent pressurizer level control uncertainty. Reference (d) shows a pressurizer level uncertainty of 4.6 percent. This larger uncertainty was reviewed by Westinghouse and was determined to be acceptable.

Technical Specification 3.6.1.7 is being modified to delete the note (*) restricting the opening of the 8-inch containment purge and supply valves. As discussed Reference (e), the setpoint proposed for the steam generator water level low-low reactor trip includes the effect of reference leg heatup on the instrument and obviates the need for installation of the narrow-range containment pressure instrument channels and alarms; therefore, NHY requests that this condition, as described Reference (f), be deleted from the Technical Specifications.

SAFETY EVALUATION OF PROPOSED CHANGE:

The Rosemount transmitters replace the Veritrak/Tobar Class 1E transmitters that provide steam generator level, pressurizer level and pressurizer pressure inputs to the Solid State Protection System. The Rosemount transmitters are environmentally and seismically qualified for their locations inside the Containment. The Veritrak/Tobar transmitters experienced ambient temperature compensation shifts in excess of their specified values; therefore, the calibration frequency of the transmitters was increased and the trip setpoints for steam generator level low-low level reactor trip and low pressurizer pressure safety injection were set more conservatively. This results in the setpoint being closer to the operating limit and thereby increases the probability of plant trips, especially during plant startup and low power operation. The replacement Rosemount transmitters have been used in operating plants and have an excellent history of performing within stated accuracy limits.

The replacement Rosemount transmitters are identical in type to the Veritrak transmitters except for the pressurizer pressure transmitter. In this application, the Rosemount transmitter is a gauge type pressure transmitter while the Veritrak transmitter is an absolute type. Therefore, an increase in containment pressure will cause the pressurizer pressure channel to indicate low, and a decrease in containment pressure will cause it to read high. The normal variations in atmospheric pressure have been considered in the instrument setpoint calculation.

The pressurizer pressure transmitter provides two reactor trip signals (high and low pressurizer pressure), input to the overtemperature delta T reactor trip, and safety injection actuation. The pressurizer pressure reactor trips are not relied upon for the mitigation of any FSAR Chapter 15 transient that would result in a harsh containment environment; therefore, the only effect on a gauge pressure transmitter in this application is the normal containment pressure variation discussed above.

For the low pressurizer pressure safety injection actuation, the high containment pressure caused by a harsh environment will cause the transmitter to indicate a lower than actual pressure. This difference is in the conservative direction as it will cause the safety injection signal to be generated sooner than it otherwise would be.

The protection system setpoints were developed by calculating the instrument channel statistical allowance using the Westinghouse methodology, and applying this to the FSAR Chapter 15 accident analysis limit. This information has previously been submitted to the NRC Staff via Reference (g).

Based on the foregoing, it has been determined that the proposed changes will not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or

2. Create the possibility of a new or different kind of accident from any accident previously evaluated; or

3. Involve a significant reduction in a margin of safety.

REFERENCES:

(a) Telephone conversation of August 5, 1986, J. M. O'Connor and V. W. Sanchez (YAEC) to D. Haverkamp (USNRC Region I)

(b) PSNH letter SBN-1191 dated September 12, 1986, "Interim 10CFR50.55(e) Report: Veritrak/Tobar Transmitters (CDR-86-00-09)," J. DeVincentis to R. W. Starostecki

(c) PSNH letter SBN-1212 dated October 9, 1986, "Veritrak/Tobar Transmitters," G. S. Thomas to V. S. Noonan

(d) Yankee Atomic Electric Company Calculation SBC-207 (Proprietary) (Available for inspection at the NHY Bethesda Licensing Office)

(e) PSNH letter NYN-88082 dated June 9, 1988, "Level Measurement Error Due to Reference Leg Heatup," G. S. Thomas to USNRC

(f) NUREG-0896, Supplement No. 5, "Safety Evaluation Report Related to the Operation of Seabrook Station, Units 1 and 2", Section 7.3.2.8

(g) PSNH letter NYN-88075 dated May 27, 1988, "Veritrak/Tobar Transmitter Replacement," G. S. Thomas to USNRC