TABLE 3.7-1

MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH INOPERABLE STEAM LINE SAFETY VALVES DURING FOUR-LOOP OPERATION

MAXIMUM NUMBER OF INOPERABLE SAFETY VALVES ON ANY OPERATING STEAM GENERATOR	MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT (PERCENT OF RATED THERMAL POWER)
1	~~87~~ 66
2	~~65~~ 47
3	~~43~~ 28

TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

VALVE NUMBER

Loop 1	Loop 2	Loop 3	Loop 4	LIFT SETTING* (± 3%)**	ORIFICE SIZE
V6	V22	V36	V50	1185 psig	16.0 sq. in.
V7	V23	V37	V51	1195 ~~1203~~ psig	16.0 sq. in.
V8	V24	V38	V52	1205 ~~1220~~ psig	16.0 sq. in.
V9	V25	V39	V53	1215 ~~1238~~ psig	16.0 sq. in.
V10	V26	V40	V54	1225 ~~1255~~ psig	16.0 sq. in.

*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

**Within ± 1% following main steam line Code safety valve testing

BASES

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line Code safety valves ensures that the Secondary System pressure will be limited to within 110% (1320 psia) of its design pressure of 1200 psia during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a Turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, (1974 Edition, including the Summer 1975 Addenda). The total relieving capacity for all valves on all of the steam lines is 1.889 x 10^7 lbs/hr which is 122% of the total secondary steam flow of 1.514 x 10^7 lbs/hr at 100% RATED THERMAL POWER. A minimum of two OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-1.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in Secondary Coolant System steam flow and THERMAL POWER required by the reduced Reactor trip settings of the Power Range Neutron Flux channels. The Reactor Trip Setpoint reductions are derived on the following bases:

For four loop operation:

$$SP = \frac{(X) - (Y)(V)}{X} \times 109$$

Where:

SP = Reduced Reactor Trip Setpoint in percent of RATED THERMAL POWER,

V = Maximum number of inoperable safety valves per steam line,

109 = Power Range Neutron Flux-High Trip Setpoint for four loop operation,

X = Total relieving capacity of all safety valves per steam line in lbs/hr, and

Y = Maximum relieving capacity of any one safety valve in lbs/hr

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INSERT "B 3/4.7.1.1"

$$Hi\ \phi = (100/Q_{rated})*(W_s*h_{fg}*N/K - Q_{rcp})$$

where:

$Hi\ \phi$ = Safety Analysis power range high neutron flux setpoint, percent of RATED THERMAL POWER

Q_{rated} = RATED THERMAL POWER, Mwt

Q_{rcp} = Reactor coolant pump heat, Mwt

K = Conversion factor, 3.412×10^6 (Btu/hr)/Mwt

h_{fg} = heat of vaporization for steam at 110% of the Secondary System design pressure, Btu/lbm

N = Number of loops in the plant

W_s = Minimum total steam flow rate, lbm/hr, of the operable MSSVs on any one steam generator at the MSSV inlet pressure which assures all Secondary System pressures are no greater than 110% of design.

The steam flow rate through each operable MSSV is calculated with consideration of 1) opening setpoint with allowance for as-found setpoint tolerance, 2) accumulation, and 3) inlet pressure. For example, if the maximum number of inoperable MSSVs on any one steam generator is one, then W_s is a summation of the calculated flow though each MSSV at the appropriate valve inlet pressure, excluding the MSSV with the highest flow. If the maximum number of inoperable MSSVs per steam generator is three, then W_s is a summation of the calculated flow through each MSSV at the appropriate valve inlet pressure, excluding the three MSSVs with the highest flows. The following plant specific safety valve flow rates were used:

SG Safety Valve Number (Bank No.)	Main Steam System	
	Set Pressure (psia)	Flow (lbm/hr per loop)
1	1200	893,160
2	1210	900,607
3	1220	908,055
4	1230	915,502
5	1240	922,950

The Safety Analysis limit values of the power range high neutron flux setpoints calculated from this algorithm are adjusted lower for use in Technical Specification 3.7.1.1 to account for instrument and channel uncertainties.

III. RETYPE OF LAR 95-04 PROPOSED CHANGES

The enclosed retyped pages reflect the currently issued version of Technical Specifications and Bases. Revision bars are provided in the right margin to designate a change in the text.

TABLE 3.7-1

MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH INOPERABLE STEAM LINE SAFETY VALVES DURING FOUR-LOOP OPERATION

MAXIMUM NUMBER OF INOPERABLE SAFETY VALVES ON ANY OPERATING STEAM GENERATOR	MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT (PERCENT OF RATED THERMAL POWER)
1	66
2	47
3	28

TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

VALVE NUMBER					
Loop 1	Loop 2	Loop 3	Loop 4	LIFT SETTING* (± 3%)**	ORIFICE SIZE
V6	V22	V36	V50	1185 psig	16.0 sq. in.
V7	V23	V37	V51	1195 psig	16.0 sq. in.
V8	V24	V38	V52	1205 psig	16.0 sq. in.
V9	V25	V39	V53	1215 psig	16.0 sq. in.
V10	V26	V40	V54	1225 psig	16.0 sq. in.

*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

**Within ±1% following main steam line Code safety valve testing.

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line Code safety valves ensures that the Secondary System pressure will be limited to within 110% (1320 psia) of its design pressure of 1200 psia during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a Turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, (1974 Edition, including the Summer 1985 Addenda). The total relieving capacity for all valves on all of the steam lines is 1.816×10^7 lbs/hr which is 120% of the total secondary steam flow of 1.514×10^7 lbs/hr at 100% RATED THERMAL POWER. A minimum of two OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-1.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in Secondary Coolant System steam flow and THERMAL POWER required by the reduced Reactor trip settings of the Power Range Neutron Flux channels. The Reactor Trip Setpoint reductions are derived on the following bases:

For four loop operations:

$$Hi\ \phi = (100/Q_{rated}) \times \left[\frac{(W_s \times h_{fg} \times N)}{K} - Q_{rcp} \right]$$

where:

$Hi\ \phi$	=	Safety Analysis power range high neutron flux setpoint, percent of RATED THERMAL POWER
Q_{rated}	=	RATED THERMAL POWER, Mwt
Q_{rcp}	=	Reactor coolant pump heat, Mwt
K	=	Conversion factor, 3.412×10^6 (Btu/hr)/Mwt
h_{fg}	=	heat of vaporization for steam at 110% of the Secondary System design pressure, Btu/lbm
N	=	Number of loops in plant
W_s	=	Minimum total steam flow rate, lbm/hr, of the operable MSSVs on any one steam generator at the MSSV inlet pressure which assures all Secondary System pressures are no greater than 110% of design.

3/4.7.1 TURBINE CYCLE (Continued)

3/4.7.1.1 SAFETY VALVES

The steam flow rate through each operable MSSV is calculated with consideration of 1) opening setpoint with allowance for as-found setpoint tolerance, 2) accumulation, and 3) inlet pressure. For example, if the maximum number of inoperable MSSVs on any one steam generator is one, then W_s is a summation of the calculated flow through each MSSV at the appropriate valve inlet pressure, excluding the MSSV with the highest flow. If the maximum number of inoperable MSSVs per steam generator is three, then W_s is a summation of the calculated flow through each MSSV at the appropriate valve inlet pressure, excluding the three MSIVs with the highest flows. The following plant specific safety valve flow rates were used:

SG Safety Valve Number (Bank No.)	Main Steam System	
	Set Pressure (psia)	Flow (lbm/hr per loop)
1	1200	893,160
2	1210	900,607
3	1220	908,055
4	1230	915,502
5	1240	922,950

The Safety Analysis limit values of the power range high neutron flux setpoints calculated from this algorithm are adjusted lower for use in Technical Specification 3.7.1.1. to account for instrument and channel uncertainties.

IV. DETERMINATION OF SIGNIFICANT HAZARDS FOR LAR 95-04 PROPOSED CHANGES

1. The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes assure that the consequences of postulated overpressure events will remain in compliance with the Basis to Technical Specification 3.7.1.1. Specifically, the Secondary System pressure will be limited to within 110% (1320 psia) of its design pressure of 1200 psia during the most severe anticipated system operational transient. The most severe anticipated transient remains a Turbine trip from 100% Rated Thermal Power coincident with an assumed loss of condenser heat sink. No changes are made to the design or manner of operation of structures, systems or components. Therefore, the proposed changes do not involve an increase in the probability or consequences of an accident previously evaluated.

2. The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

   As described above, the changes proposed in this LAR involve reducing the opening setpoints of the Main Steam Safety Valves (MSSVs) and reducing the maximum allowable Power Range Neutron Flux High Setpoints with inoperable MSSVs. These changes do not cause the associated structures, systems, or components to be operated outside their original design envelope. No changes are made to the design or manner of operation of structures, systems, or components. No new failure mechanisms are introduced. Therefore, the proposed changes do not create the possibility of a new or different accident from any accident previously evaluated.

3. The proposed changes do not result in a significant reduction in the margin of safety.

   The margin of safety is defined by: 1) the acceptance criteria for the design of associated structures, systems, or components; and 2) the acceptance criteria for previously evaluated accidents.

   As previously stated, the proposed changes do not cause the associated structures, systems or components to be operated outside their original design envelope. Similarly, the proposed changes assure that the acceptance criteria for previously evaluated accidents will continue to be met. The proposed changes assure that the consequences of postulated overpressure events will remain in compliance with the Basis to Technical Specification 3.7.1.1. Specifically, the Secondary System pressure will be limited to within 110% (1320 psia) of its design pressure of 1200 psia during the most severe anticipated system operational transient. The most severe anticipated transient remains a Turbine trip from 100% Rated Thermal Power coincident with an assumed loss of condenser heat sink. Therefore, the proposed changes do not result in a reduction in the margin of safety.

V. PROPOSED SCHEDULE FOR LICENSE AMENDMENT ISSUANCE AND EFFECTIVENESS

North Atlantic requests NRC review of License Amendment Request 95-04 and issuance of a license amendment by October 27, 1995 having effectiveness when the MSSV lift setpoints have been reset, approximately November 3, 1995. Specifically, the new power range neutron flux trip setpoint values will become effective after all of the affected MSSV lift setpoints have been reset, which may be done on-line. During the transition from the current setpoints to the new lift setpoints, the safety analysis remains conservative for interim configurations since the lift setpoints are being reduced. Each MSSV to be reset will be declared OPERABLE after its setpoint has been reset to the new value and verified. The power range neutron flux trip setpoints currently approved by Technical Clarification will be in effect until all of the affected MSSV lift setpoints have been reset. At that time, the higher power range neutron flux trip setpoints addressed in this evaluation will become effective in the event that a MSSV becomes inoperable.

VI. ENVIRONMENTAL IMPACT ASSESSMENT

North Atlantic has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluent that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, North Atlantic concludes that the proposed change meets the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement.