ATTACHMENT B

PROPOSED CHANGES TO APPENDIX A,
TECHNICAL SPECIFICATIONS, OF FACILITY
OPERATING LICENSES NPF-37 AND NPF-66

Revision to: 3/4.7.5
B3/4.7.5

PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

LIMITING CONDITIONS FOR OPERATION

3.7.5 ~~Two independent~~ The ultimate heat sinks (UHS) ~~cooling towers~~ shall be OPERABLE with:

a. A ~~minimum~~ water level in each of the UHS cooling tower basins of ~~873.75 feet Mean Sea Level (MSL) (50%),~~ at least 50 %,

b. ~~With only Unit 1 operating, fans OA, OB, OE, and OF are required to be OPERABLE. With only Unit 2 operating, fans OC, OD, OG, and OH are required to be OPERABLE. With both Units 1 and 2 operating, 3 fans with power supplied from each unit are required to be OPERABLE (total of 6 fans),~~ A total of 6 fans OPERABLE (high speed),

c. Two OPERABLE essential service water makeup pumps,

d. An essential service water pump discharge temperature of less than or equal to 80°F ~~with less than 4 fans running in high speed;~~ or less than or equal to ~~98~~ 96* °F with all fans running in high speed, OPERABLE

e. ~~Deleted~~ Two OPERABLE UHS cooling tower basin level switches,

f. The National Weather Service (NWS) does not forecast the Rock River level to exceed 702.0 feet MSL,

g. Rock River water level greater than 670.6 feet MSL, and

h. The National Weather Service (NWS) has not issued a tornado watch that includes the Byron Site Area.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

a. With a water level of less than ~~873.75 feet MSL (50%),~~ at least 50 % in either UHS cooling tower basin, restore the water level to ~~873.75 feet MSL~~ in each UHS cooling tower basin within 6 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. ~~With one of the fans contained in the applicable combination listed above inoperable,~~ restore ~~the listed~~ at least 6 fans to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.
With only 5 fans OPERABLE, within 1 hour verify the 5 OPERABLE fans are capable of being powered by their respective emergency diesel generators.

~~*No fans are required to be running during UHS cooling tower performance testing; however, the essential service water pump discharge temperature must be maintained at less than or equal to 98°F.~~

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

c. With one essential service water makeup pump inoperable, within 72 hours either:

1) Restore the inoperable essential service water makeup pump to OPERABLE ~~STATUS~~ status, or

2) Verify that the same train deep well pump is OPERABLE with ~~its~~ both UHS cooling tower basin levels ≥ 82%. Continue to verify basin levels are ~~level is~~ ≥ 82% every two hours and restore the inoperable essential service water makeup pump to OPERABLE ~~STATUS~~ status within *7 days. (*This can be extended to 14 days for Essential Service Water Makeup pump inspection and extended maintenance during the time when at least one unit is in ~~Mode~~ Mode 5 or 6.) The provisions of Specification 3.0.4 are not applicable.

3) Otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With the essential service water pump discharge water temperature not meeting the above requirement, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

e. ~~Deleted~~

f. With Rock River water level forecasted by NWS to exceed 702.0 feet MSL:

1) Within one hour verify that both deep well pumps are OPERABLE with both UHS cooling tower basin levels ≥ 82% and at least once every 2 hours thereafter, verify both basin levels are ≥ 82%. The provisions of Specification 3.0.4 are not applicable.

2) With one deep well pump inoperable restore both deep well pumps to OPERABLE status with both basin levels ≥ 82% before the Rock River level exceeds 702 feet MSL or within 72 hours, whichever comes first and follow provisions of ACTION f.1).

3) Otherwise be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

g. With Rock River water level at or below 670.6 feet MSL within one hour verify Rock River level and flow, and:

1) If Rock River level > 664.7 feet MSL and flow ≥ 700 cfs verify Rock River level > 664.7 feet MSL and flow ≥ 700 cfs every 12 hours thereafter. The provisions of Specification 3.0.4 are not applicable.

2) If Rock River level ≤ 664.7 feet MSL or flow < 700 cfs, within one hour:

Insert A

e. 1) With one UHS cooling tower basin level switch inoperable:

a) Restore the level switch to OPERABLE status within 72 hours or verify both basin levels are ≥ 82% within the next hour and every 2 hours thereafter. The provisions of Specification 3.0.4 are not applicable.

b) Otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

2) With both UHS cooling tower basin level switches inoperable:

a) Restore one level switch to OPERABLE status within 1 hour and follow the provisions of 4.7.5.e.1 above, or verify both basin levels are ≥ 82% within the next hour and every 2 hours thereafter. The provisions of Specification 3.0.4 are not applicable.

b) Otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

3) With any UHS cooling tower basin level switch inoperable for more than 30 days, prepare and submit a special report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the inoperability and the plans for restoring the switch(es) to OPERABLE status.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

a) Verify that both deep well pumps are OPERABLE with both UHS cooling tower basin levels $\geq$ 82% and at least once every 2 hours thereafter, verify both basin levels are $\geq$ 82%. The provisions of Specification 3.0.4 are not applicable.

b) With one deep well pump inoperable, within 72 hours restore both deep well pumps to OPERABLE status with both basin levels $\geq$ 82% and follow provisions of ACTION g.2)a).

c) Otherwise be in at least HOT STANDBY within the next 6 hours and at least HOT SHUTDOWN within the following 6 hours and at least COLD SHUTDOWN within the subsequent 24 hours.

h) With a tornado watch issued by NWS that includes Byron site area:

1) Within one hour verify that both deep well pumps are OPERABLE with both UHS cooling tower basin levels $\geq$ 82% and at least once every 2 hours thereafter, verify both basin levels $\geq$ 82%. The provisions of Specification 3.0.4 are not applicable.

2) With one deep well pump inoperable, within 30 minutes take action to restore both deep well pumps to OPERABLE status with both basin levels $\geq$ 82% and at least once every 2 hours thereafter, verify both basin levels $\geq$ 82%.

3) Otherwise be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS ~~(Continued)~~

4.7.5 The UHS shall be determined OPERABLE at least once per:

a. 24 hours by verifying the water level in each UHS cooling tower basin to be greater than or equal to ~~873.75 feet MSL. (50%),~~ 50 %,

b. 24 hours by verifying the essential service water pump discharge water temperature is within its limit,

c. 24 hours by verifying that the Rock River water level is within its limits,

d. 31 days by starting from the control room each UHS cooling tower fan that is required to be OPERABLE and not already in operation and operating each of those fans for at least 15 minutes, in high speed — high speed

e. 31 days by

1) Verifying that the fuel supply for each diesel powered essential service water makeup pump is at least 36% of the fuel supply tank volume,

2) Starting the diesel from ambient conditions on a ~~simulated~~ low basin level test signal and operating the diesel powered pump for at least 30 minutes,

3) Verifying that each valve (manual, power operated, or automatic) in the flow path is in its correct position,

4) Starting each deep well pump and operating it for at least 15 minutes and verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position,

~~f. Deleted~~ 18 months by performing a CHANNEL CALIBRATION on each of the UHS cooling tower basin level switches, 9

f. ~~g.~~ 92 days by verifying that a drain sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM D4057-1981, is within the acceptable limits specified in Table 1 of ASTM-D975-1977 when checked for viscosity, water, and sediment,

h. 18 months by subjecting each diesel that powers an essential service water makeup pump to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service and by cycling each testable valve in the flow path through at least one complete cycle of full travel, ~~and~~

i. 18 months by verifying each deep well pump will provide at least 550 gpm flow rate, and

j. 18 months by visually inspecting and verifying no abnormal breakage or degradation of the fill materials in the UHS cooling tower.

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to: (1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and (2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam isolation valves within the closure times of the Surveillance Requirements are consistent with the assumptions used in the safety analyses.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure-induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on a steam generator RT_{NDT} of 60°F and are sufficient to prevent brittle fracture.

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the Component Cooling Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

The OPERABILITY of the Essential Service Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

3/4.7.5 ULTIMATE HEAT SINK

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~~Two cooling tower basins contain water that is immediately available for station cooling. A volume of 200,000 gallons in each basin is reserved for supply to the auxiliary feedwater system (FSAR Q10.1-1) and 90,000 gallons as a minimum inventory for other plant cooling requirements (FSAR Q10.35-1). Alternatively, the inventory of 200,000 gallons is available for transporting heat released from one unit following a loss-of-coolant accident and the second unit during an orderly shutdown. Since this inventory would be exhausted in about 1 day, achievement of the design basis requirement of cooling capability for 30 days is dependent upon redundant makeup systems.~~

ULTIMATE HEAT SINK (Continued)

A redundant makeup system using deep wells as a water source is designed to withstand design basis tornado events, river flood events, and design basis seismic events combined with low Rock River flow or level. The second redundant system is the essential service water makeup system that uses the Rock River as a water source. It is designed to withstand all design basis natural phenomena events and combinations of events except for seismic events during low Rock River flow rates, design basis tornado events and river flood events.

Each essential service water makeup pump is powered by a diesel engine with a fuel supply adequate for approximately 3 days of operation. Achievement of the design basis 30-day operation is dependent upon successful implementation of plant procedures to replenish the fuel supply following design basis events.

With water in the cooling tower basin at an initial temperature less than or equal to 80°F, shutdown can be achieved, for meteorological conditions following a design basis tornado, without operation of the cooling tower fans and without the temperature of the water discharged from the essential service water pump exceeding 110°F, the maximum acceptable temperature for components and systems cooled by the essential cooling water system. Achievement of the design function of the UHS during more severe meteorological conditions, or following a design basis LOCA, requires operation of two cooling tower fans to maintain the discharge temperature less than or equal to 110°F. Plant procedures ensure that the fans are started and controlled by operator action to maintain a discharge temperature of less than 110°F. With all 4 Unit 1 designated cooling tower fans running, either redundant ultimate heat sink train is capable of removing the design bases LOCA heat load without exceeding a pump discharge temperature of 98°F.

3/4.7.6 CONTROL ROOM VENTILATION SYSTEM

The OPERABILITY of the Control Room Ventilation System ensures that: (1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for operations personnel during and following all credible accident conditions. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room

Insert B

BASES - 3/4.7.5 ULTIMATE HEAT SINK

The limitations on the ultimate heat sink ensure 1) sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions and 2) adequate inventory is available to provide a 30-day cooling water supply to safety related equipment. The limiting design basis event for the UHS is a loss of coolant accident coincident with a loss of offsite power on one unit, in conjunction with the other unit proceeding to an orderly shutdown and cooldown from maximum power to Mode 5, assuming a single active failure.

The minimum UHS cooling tower basin water level of 50% indicated (873.75 feet above Mean Sea Level) and the service water pump discharge temperature limits assure that adequate thermal capacity is available in the SX water inventory to absorb the initial accident heat input. Six of eight cooling tower fans are required to be operable so that the required number of fans are available after a single active failure. The SX cooling tower basin temperature will remain less than 100°F.

A volume of 200,000 gallons in each cooling tower basin is available to supply the auxiliary feedwater system. The basin inventory is also available for transporting heat from safety related equipment during normal and accident conditions. Due to evaporation, blowdown, and auxiliary feedwater supply the basin inventory alone is not adequate for the required 30-day cooling water supply, therefore makeup systems are provided to replenish the basin inventory.

Adequate inventory is maintained by the SX makeup system that uses the Rock River as a water source. The SX makeup system is designed to withstand all design basis natural phenomena events and combination of events except for seismic events during low Rock River flow or level (loss of SX makeup pump suction), tornado, and river flood. A backup makeup system uses the deep wells as a water source. The deep well system is designed for seismic, tornado, and river flood events.

Each essential service water makeup pump is powered by a diesel engine with a fuel supply adequate for approximately 3 days of operation. Achievement of the design basis 30-day operation is dependent upon successful implementation of plant procedures to replenish the fuel supply following design basis events.

The operability requirements for the basin level switches, Rock River level limitations, and tornado watch limitations assure that the SX makeup system is available to provide makeup water. The corresponding actions assure that the backup deep well system is available and increases the minimum cooling tower basin level to assure that adequate basin water inventory is available after a two hour delay to manually start the deep well pumps after an accident.

ATTACHMENT C

EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATIONS

Byron Station has evaluated this proposed amendment and determined that it involves no significant hazards considerations. According to 10CFR50.92(c), a proposed amendment to an operating license involves no significant hazards if operation of the facility in accordance with the proposed amendment would 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.

The proposed amendment makes several changes to Byron's Ultimate Heat Sink Technical Specification. These changes involve: 1) SX fan operation and SX pump discharge temperature Limiting Conditions for Operation (LCO), 2) SX fan operation Action Requirements, 3) UHS cooling tower basin level switch operability, 4) addition of the provision that specification 3.0.4 is not applicable to the SX makeup pump Action Requirement, 5) editorial changes, 6) Technical Specification Bases rewrite.

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

The Essential Service Water (SX) system provides cooling water flow from the station's Ultimate Heat Sink (UHS) mechanical draft cooling towers to various safeguard equipment. The system is comprised of two pumps per unit, divided into two trains, where the common trains (i.e., trains A or B) of the two units share a UHS cooling tower. Each cooling tower has four fans, (high and low speed capability, 480 volts AC) two of which are loaded on each unit's safeguard bus, thereby maintaining the required train separation. Providing makeup water to the UHS are two trains of SX makeup pumps using the Rock River as a source of water.

The UHS is designed to dissipate the maximum possible reactor decay heat and essential cooling system heat loads under worst case environmental conditions after normal reactor shutdowns and all UFSAR chapter 15 accident and transient scenarios. The Technical Specification Ultimate Heat Sink tower parameters of required number of fans, basin level, and basin temperature ensure the UHS will always be in a condition capable of performing its design functions from normal operations to its design basis limiting scenario of a Loss of Coolant Accident (LOCA), Loss of Offsite Power (LOOP) on one unit and a normal shutdown of the other unit from full power to cold shutdown and the most limiting single active failure . The UHS can till perform its design function within the allowances of the Action Requirements assuming no single active failure. This is consistent with the methodology of action requirement development.

Design calculations show that the design basis accident limiting scenario can be met with a minimum of five fans operating in high speed with a basin temperature less than or equal to 96°F. An EDG failure on the LOCA/LOOP unit would result in 4 fans operable, which is acceptable, since the LOCA unit heat input to the SX system is reduced by approximately one half. The proposed changes to the UHS LCO would require 6 of the 8 cooling fans to be operable when one or both units are in Modes 1 through 4. Also changed are the SX pump discharge temperature limits. The maximum basin temperature allowed has been reduced to 96°F from 98°F, provided the operable fans are running in high speed. These parameters do not, in themselves, factor into any initiating event of UFSAR chapter 15 accident scenarios and consequently do not increase the probability of occurrence for these previously evaluated accidents. However, although not a factor in initiating any accident, the UHS plays a vital role in mitigating the consequences of any accident or transient. The proposed changes will ensure that the minimum conditions necessary for the UHS to perform its design functions will always be met. Engineering calculations demonstrate that the SX supply design temperature limit of 100°F, which was assumed as an initial input for the accident analyses, is preserved. Consequently, the proposed changes to the number of cooling tower fans operable and SX pump discharge temperature do not increase the consequences of any accidents previously evaluated.

The Byron UHS requires makeup capability in order to meet the design criteria of providing cooling for 30 days. This makeup capability is provided by the two trains of SX makeup pumps taking suction from the Rock River. Each UHS basin has a level switch which provides an automatic start of the appropriate SX makeup pump if basin level drops below the auto-start setpoint of 53%. Neither the UHS basin water level nor its automatic makeup feature factor into any initiating event of the UFSAR chapter 15 accidents and therefore does not increase the probability of occurrence of any of these accidents. The proposed addition of the basin level switches to the LCO requirements would uncouple their operability requirements from that of the SX makeup trains. The action requirement for one or two inoperable basin level switches would allow for an alternative means of ensuring adequate water inventory during the period of inoperability. Separate level channels provide operators indication of basin level. By ensuring basin level is at least 82%, there is sufficient time after the limiting design basis accident scenario to monitor UHS basin level and manually initiate the start of an SX makeup pump or deep well pump in order to maintain necessary basin inventory. With this proposed change, the UHS can still perform its design function for the required 30 days. Therefore the consequences of any accident previously evaluated is not increased.

The proposed change to the action requirements for the SX makeup pump would allow a unit startup if in the 7 or 14 day Limiting Condition for Operation Action Requirement (LCOAR). A degraded SX makeup capability is not an initiating event for any chapter 15 accidents analyzed. The seismically qualified deep well pumps with safety related power supplies provide an adequate backup to the SX makeup trains. To rely on a deep well pump as a backup for one makeup pump for a limited period of time does not significantly increase the consequences of accidents previously evaluated.

The other proposed changes to the UHS Technical Specification are considered administrative in nature. They do not change in any manner the licensing basis, operations, maintenance or regulatory requirements of the UHS. Therefore these changes do not involve any increase in the probability or consequences of an accident previously evaluated.

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

The proposed limits in the number of operable cooling tower fans and SX pump discharge temperature are fully within the design capabilities of the UHS. With these LCO and LCOAR limits the UHS will always be in a condition to dissipate the required heat load from the design limiting accident scenario of one unit undergoing large break LOCA/LOOP and the normal shutdown of the other unit. These changes do not involve any new hardware changes or allow any new modes of operation. These changes are necessary to support the revised licensing basis of the UHS. Consequently, they do not create the possibility of a new or different kind of accident from those previously evaluated.

Allowing for a Unit startup while one train of SX makeup is inoperable does not affect plant safety. The analyses performed bound the situation of both units at full power. This does not, in itself, create a new or different kind of accident from those previously evaluated.

The new basin level switch LCO would allow for continued plant operations with the automatic makeup feature inoperable provided alternative actions are taken to ensure the UHS will be in a condition to perform its design functions. No physical modifications are being made to the plant. The proposed alternative means of ensuring adequate water for the UHS both initially and for long term cooling is adequate. Allowing continued plant operations with the automatic makeup inoperable does not create the possibility of a new or different kind of accident from those previously evaluated.

The other proposed changes to the UHS Technical Specification are administrative in nature. They do not in any manner change the licensing basis, operations, maintenance, or regulatory requirements of the UHS. Therefore they do not create the possibility of a new or different kind of accident from those previously evaluated.

C. **The proposed changes do not involve a significant reduction in a margin of safety.**

The new LCO limits for number of fans and SX pump discharge temperature are based on the results of the UHS reconstitution effort which in part re-defined the Technical Specification margin of safety. These new limits will ensure under the most limiting accident scenario that cooling water from the basin will meet the accident analyses SX input limit of 100°F. The proposed LCO limits would ensure, at the start of the limiting accident scenario, the required number of fans are operable, a basin level of greater than 50%, and basin temperature of no greater that 96°F. Under worst case environmental conditions, for the worst case scenario evaluated, design calculations show the basin water temperature will reach a maximum of 99.1°F.

Allowing for continued operations with the automatic makeup feature inoperable does not significantly reduce any margin of safety. Compensatory actions required by the specification will be taken to ensure there is an adequate source of cooling water to meet the SX design bases.

The other proposed changes to the UHS specification are administrative in nature and do not reduce any margins of safety.

Therefore, based on the above evaluation, Commonwealth Edison has concluded that these changes do not involve significant hazards considerations.

ATTACHMENT D

ENVIRONMENTAL ASSESSMENT

Commonwealth Edison has evaluated the proposed amendment against the criteria for and identification of licensing and regulatory actions requiring environmental assessment in accordance with 10CFR51.21. It has been determined that the proposed change meets the criteria for a categorical exclusion as provided for under 10CFR51.22(c)(9) and (10). This determination is based on the fact that this change is being proposed as an amendment to a license issued pursuant to 10CFR50, it involves changes to the use of facility components located within the restricted area as defined in 10CFR Part 20 and the amendment meets the following specific criteria:

(i) the amendment involves no significant hazards consideration.

As demonstrated in Attachment C, this proposed amendment does not involve any significant hazards considerations.

(ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

As documented in Attachment A, there will be no change in types or increase in the amounts of any effluents released offsite.

(iii) there is no significant increase in individual or cumulative occupational radiation exposure.

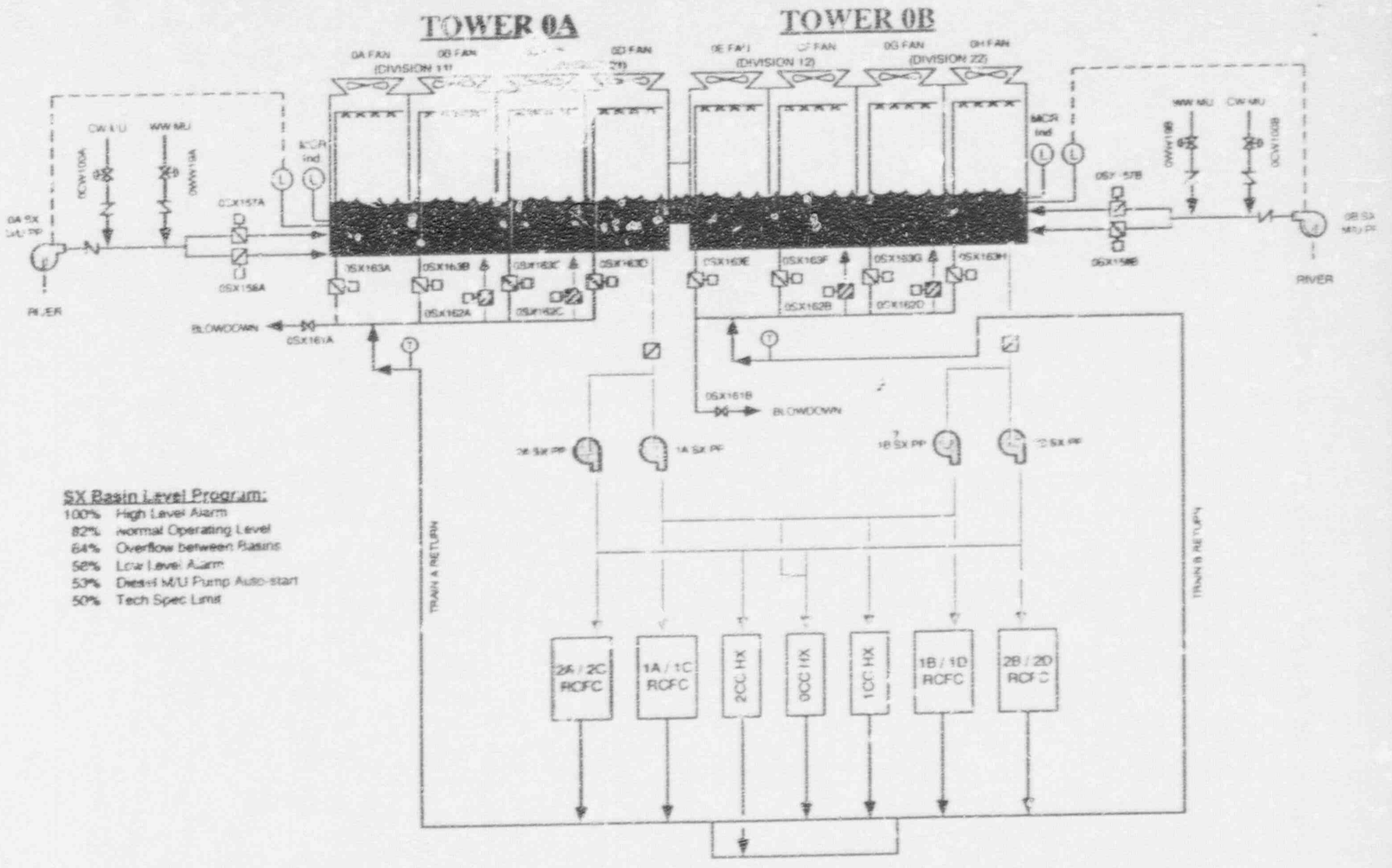
There will be no change in the level of controls or methodology used for processing radioactive effluents or handling solid radioactive waste, nor will the proposal result in any change in the normal radiation levels within the plant. Therefore, there will be no increase in individual or cumulative occupational radiation exposure resulting from this change.

These changes meet the categorical exclusion permitted by 10CFR51.22(c)(9). Other changes are essentially changes in administrative requirements and therefore meet the categorical exclusion permitted by 10CFR51.22(c)(10).

ATTACHMENT E

FIGURES

FIGURE 1



SX Basin Level Program:

100%	High Level Alarm
82%	Normal Operating Level
64%	Overflow between Basins
58%	Low Level Alarm
53%	Diesel M/U Pump Auto-start
50%	Tech Spec Limit

Figure 2

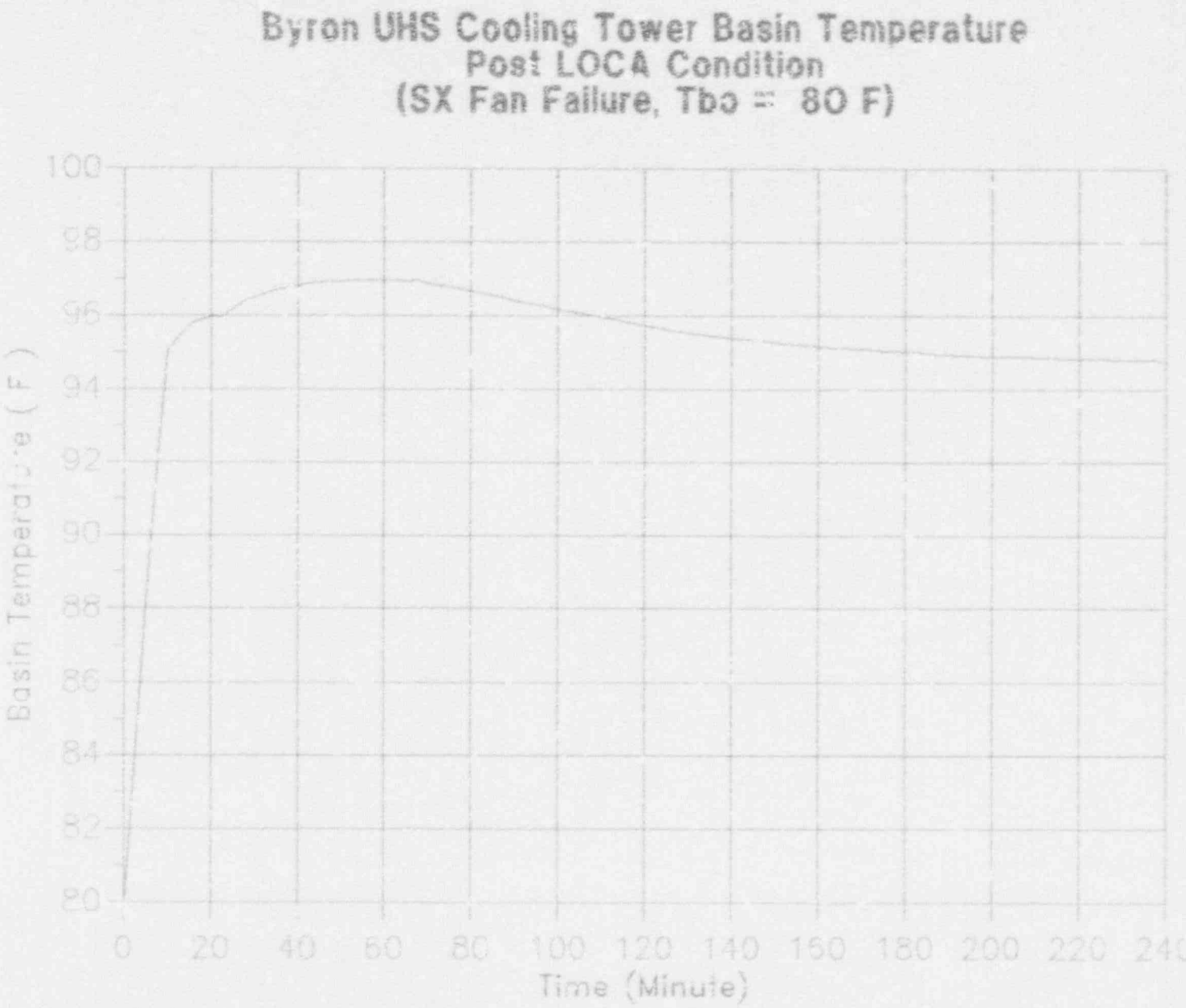

Byron UHS Cooling Tower Basin Temperature
Post LOCA Condition
(SX Fan Failure, Tbo = 80 F)
Basin Temperature (F)
100
98
96
94
92
90
88
86
84
82
80
0
20
40
60
80
100
120
140
160
180
200
220
240
Time (Minute)

Figure 3

Byron UHS Cooling Tower Basin Temperature
Post-LOCA Condition
(SX Fan Failure, Tbo = 96 F)

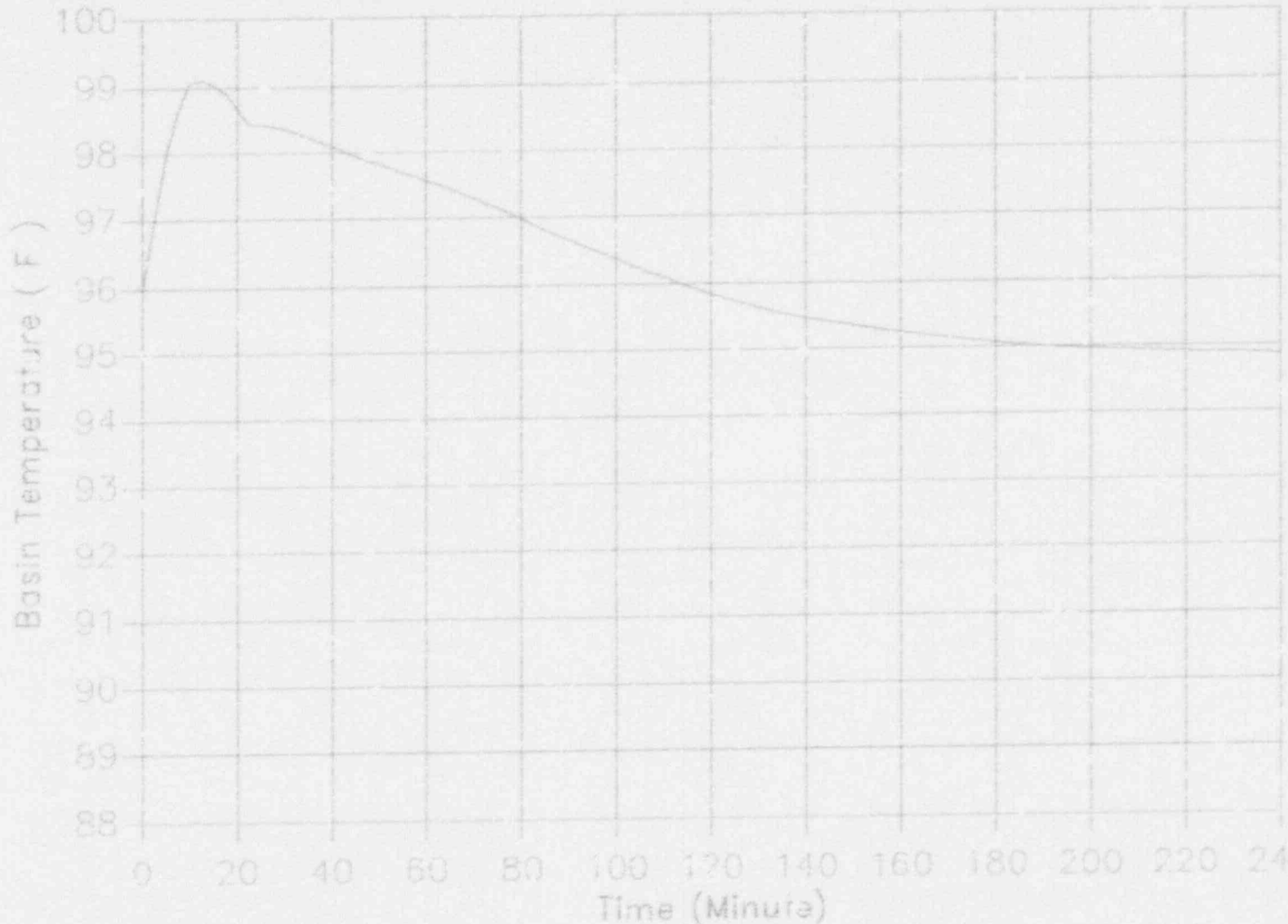
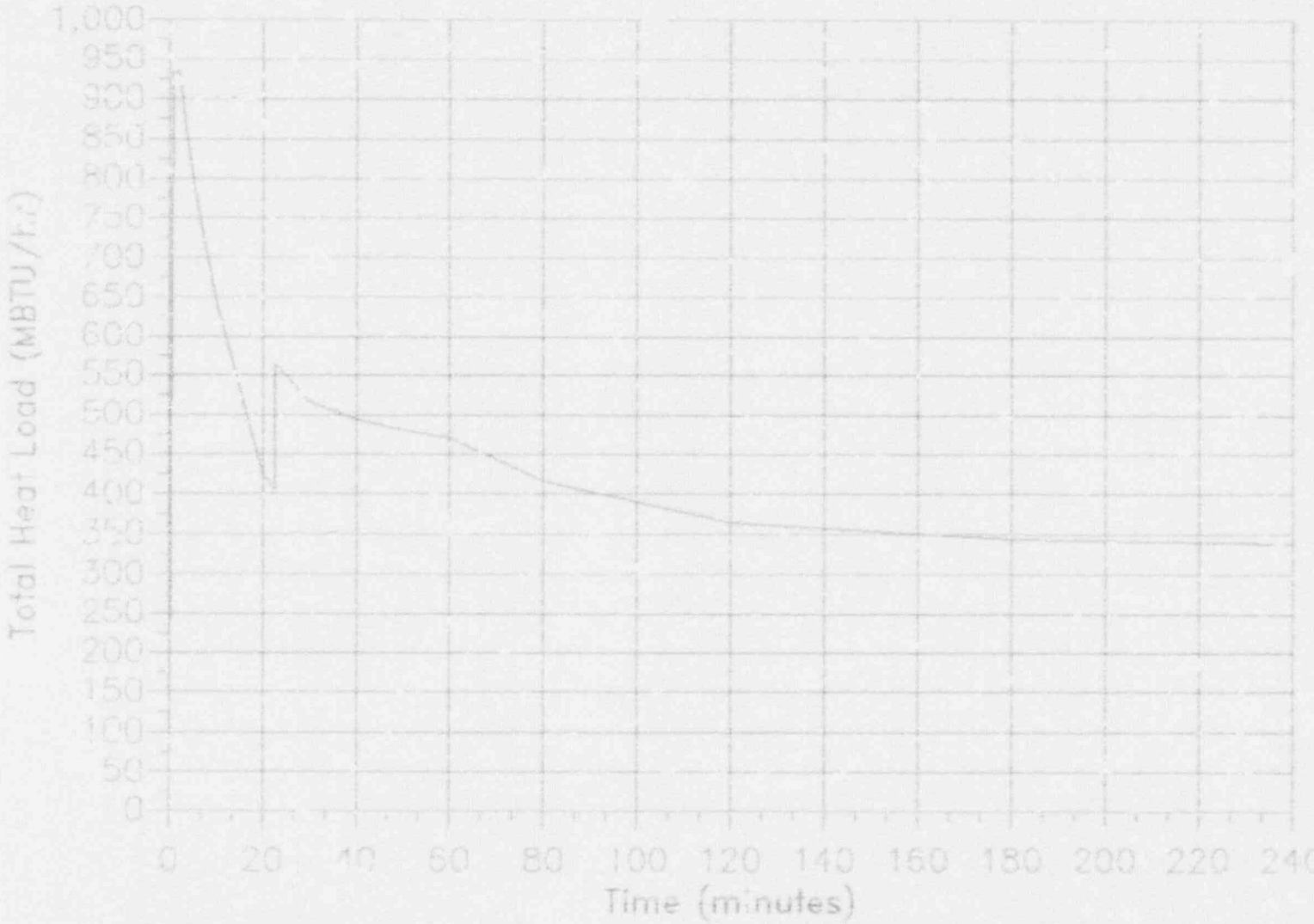


Figure 4

Byron UHS Total Heat Load
(4 RCFCs/2 CS pump)



ATTACHMENT F

LIST OF AFFECTED UFSAR SECTIONS

Section	Page	Description of Change	Reason/Basis	References/Remarks
2.3.1.2.4BY	2.3-10BY	Delete paragraph describing the maximum water makeup required by the UHS	Replace with new description on page 2.3-11BY	Clarify proper wet bulb temperature. UHS final report, page 12
2.3.1.2.4BY	2.3-11BY	Revise paragraphs discussing UHS design temperature and meteorological data	Clarify design basis of UHS cooling towers	UHS final report, page 12
2.3.1.2.4BY	2.3-11BY	Revise three paragraphs discussing the cooling tower makeup water supply	Document calculation results	"Byron Ultimate Heat Sink Cooling Tower Basin Makeup Calculation," Calculation NED-M-MSD-14, Revision 0, dated January 9, 1992
2.3.6BY	2.3-52	Add reference 32	Citation of ASHRAE exceedance value in subsection 2.3.1.2.4	Reference 16 of UHS final report
2.4.11.5BY	2.4-20BY	Revision of paragraph discussing cooling tower makeup	Document calculation results	Calculation NED-M-MSD-14, Revision 0, dated January 9, 1992
2.4.11.6BY	2.4-23BY	Revise paragraph discussing compliance with Regulatory Guide 1.27	Document calculation results	Calculation NED-M-MSD-14, Revision 0, dated January 9, 1992
2.4.11.6BR	2.4-22BR	Insert "The ESCP has ... seismic event."	Document review of Braidwood UHS with respect to Byron UHS design basis reconstitution	Memo from B. J. Adams to D. E. St. Clair dated November 4, 1991 (RA-91-004)
2.5.6.9BR	2.5-112BR	Insert "The ESCP ... event."	Document review of Braidwood UHS with respect to Byron UHS design basis reconstitution	Memo from B. J. Adams to D. E. St. Clair dated November 4, 1991 (RA-91-004)

Section	Page	Description of Change	Reason/Basis	References/Remarks
6.2.1.1.3	6.2-3	Add new paragraph describing the containment analyses contained in subsection 9.2.5	Document differences in the Chapter 6 and Chapter 9 analyses	UHS Final Report, Section III.C, page 18
6.2.2	6.2-38	Add new paragraph describing the containment analyses contained in subsection 9.2.5	Document differences in the Chapter 6 and Chapter 9 analyses	UHS Final Report, Section III.C, page 18
9.2.1.2.1	9.2-2	Revise section	Reflect design basis	UHS Final Report
9.2.1.2.2	9.2-2	Insert "Actual System ... flows."	Specify that the stated flow rate is "typical"	UHS Final Report, Section II.F, page 13
9.2.1.2.2	9.2-2a	Insert reference to Table 9.2-16	Editorial	New table is being added
9.2.1.2.2	9.2-3	Insert "and are normally open"	Document normal system operation	Normal operation
9.2.1.2.2	9.2-3	Replace "Each" with "At Byron, the", replace "tower is" with "towers are" and delete "Both towers . . . in operation"	Editorial	System design basis
9.2.5.1	9.2-29	Insert "Since the . . . active failure"	Document system design basis	UHS Final Report, Section II.A, page 9
9.2.5.1	9.2-29	Delete "redundant" and delete "Only essential . . . towers."	Editorial	Editorial
9.2.5.1	9.2-29	Insert "Components . . . Table 9.2-1" and delete "The normal ... Btu/hr."	Reference the appropriate table for unit heat loads	Editorial

Section	Page	Description of Change	Reason/Basis	References/Remarks
9.2.5.1	9.2-29	Delete references to Table 9.2-6 and Figures 9.2-5 and 9.2-6. Expand the discussion of Figure 9.2-7	Editorial	Table and Figures are being deleted or revised.
9.2.5.2.1	9.2-29	Delete "above normal water level" and "trough"	Editorial	System configuration
9.2.5.2.1	9.2-29a	Change "sinks" to "sink"	Editorial	Editorial
9.2.5.2.1	9.2-29a	Insert description of the essential service water cooling towers	Reflect system configuration	Letter Byron 92-0114, Proposed Technical Specification Amendment, page 2
9.2.5.2.1	9.2-29a	Delete "Each of . . . hot shutdown." and insert "The ultimate . . . an occurrence"	Document system design basis	UHS Final Report, Section II.A, page 9
9.2.5.1	9.2-29a	Insert "The ultimate heat . . . active failure."	Document system design basis.	UHS Final Report, Section II.A, page 9
9.2.5.2.1	9.2-30	Replace "supply header" with "pump discharge"	Editorial	Proper terminology
9.2.5.2.1	9.2-30	Delete stated setpoint values. Refer to "a predetermined value"	Editorial	Information is not part of the system design basis
9.2.5.2.2	9.2-30	Delete "emergency"	Editorial	Proper terminology
9.2.5.2.2	9.2-30	Replace "a volume . . . to" with "sufficient . . . and for"	Document calculation results	Calculation NED M MSD-14, Revision 0, dated January 9, 1992
9.2.5.2.2	9.2-31	Change "post" to "design basis" and insert "low rever . . . event."	Document system design basis	UHS Final Report, Section IV.B, page 25

Section	Page	Description of Change	Reason/Basis	References/Remarks
9.2.5.2.2	9.2-31	Delete "trough"	Editorial	Proper terminology
9.2.5.2.2	9.2-31	Delete "automatically"	Reflect system operation	Normal operating procedure
9.2.5.2.2	9.2-31	Change "post" to "design basis"	Document calculation results	Calculation NED-M-MSD-14, Revision 0, dated January 9, 1992
9.2.5.3.1	9.2-32	Delete "either . . . passive," replace "without impairing . . . failure" with "while . . . function", reference Table 9.2-16, insert "The review . . . a failure."	Document system design basis	Memo from T. K. Schuster to G. Contrady dated August 2, 1991, UHS Final Report section II.A, page 10
9.2.5.3.1.1	9.2-32a	Insert new subsection	Document system design basis	UHS Final Report, Sections III and IV
9.2.5.3.1.2	9.2-33	Insert new subsection title	Editorial	Divide large subsection
9.2.5.3.1.2	9.2-33	Replace "above with "in Subsection 9.2.5.3.1.1"	Editorial	Editorial
9.2.5.3.1.3	9.2-34	Insert new subsection title	Editorial	Divide large subsection
9.2.5.3.1.4	9.2-35	Insert new subsection title	Editorial	Divide large subsection
9.2.5.3.1.4	9.2-35	Replace "a slight supercooling of" with "freezing at"	Editorial	Proper terminology
9.2.5.3.2	9.2-36	Replace stated setpoint values with "a predetermined value"	Editorial	Information is not part of the system design basis
9.2.5.3.2	9.2-37	Replace "is locked" with "remains"	Reflect system operation	Normal operating procedure

Section	Page	Description of Change	Reason/Basis	References/Remarks
9.2.5.3.2	9.2-37	Delete discussion of post-accident evaporation, blow-down, and makeup rates	Document calculation results	Calculation NED-M-MSD-14, Revision 0, dated January 9, 1992
9.2.5.3.2	9.2-38	Delete "therefore"	Editorial	Editorial
9.2.5.3.2	9.2-38	Replace "in one . . . down" with "coincident . . . active failure"	Document system design basis	UHS Final Report, Section II.A, page 9
9.2.9	9.2-61	Insert references 7 through 11	Editorial	References used in preparing new subsection 9.2.5.3.1.1
9.2	9.2-62	Revise Table 9.2-1	Reflect system operation	Normal operating procedure
9.2	9.2-71	Delete Table 9.2-6	Editorial	Information contained in Figure 9.2-7
9.2	9.2-97	Revise Table 9.2-11	Reflect system design	Heat Exchanger Data Sheets, letter from S. C. Mehta to F. Lentine dated January 17, 1990
9.2	9.2-98	Delete Table 9.2-12	Editorial	Information contained in revised Table 9.2-11
9.2	9.2-99	Delete Table 9.2-13	Editorial	Information contained in revised Table 9.2-11
9.2	-	Add Table 9.2-16	Document calculation results	"Ultimate Heat Sink Design Basis LOCA Single Failure Scenarios," S&L Calculation UHS-01, Revision 1, August 5, 1991

Section	Page	Description of Change	Reason/Basis	References/Remarks
9.2	--	Delete Figure 9.2-5	Obsolete	"Heat Load to the Ultimate Heat Sink during a Loss of Coolant Accident," S&L Calculation AID-0063, Revision 0, March 12, 1992
9.2	--	Delete Figure 9.2-6	Obsolete	Calculation AID-0063
9.2	--	Change Figures 9.2-8 through 9.2-14 to 'Braidwood Only'	Editorial	Byron does not have a cooling pond
9.2	--	Add Figure 9.2-30	Document calculation results	Calculation RSA-B-91-03, Figure 14
9.2	--	Add Figure 9.2-31	Document calculation results	Calculation RSA-B-91-03, Figure 15