ATTACHMENT 1a

REVISED CURRENT TECHNICAL SPECIFICATIONS PAGES FOR CATAWBA UNIT 1

CONTAINMENT SYSTEMS

3/4.6.5 ICE CONDENSER

ICE BED

LIMITING CONDITION FOR OPERATION

3.6.5.1 The ice bed shall be OPERABLE with:

a. The stored ice having a boron concentration of at least 1800 ppm boron as sodium tetraborate and a pH of 9.0 to 9.5,

b. Flow channels through the ice condenser,

c. A maximum ice bed temperature of less than or equal to 27°F,

d. A total ice weight of at least 2,475,252 pounds at a 95% level of confidence, and

e. 1944 ice baskets.

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

ACTION:

With the ice bed inoperable, restore the ice bed to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.1 The ice condenser shall be determined OPERABLE:

a. At least once per 12 hours by using the Ice Bed Temperature Monitoring System to verify that the maximum ice bed temperature is less than or equal to 27°F,

b. At least once per 9 months by:

1) Chemical analyses which verify that at least nine representative samples of stored ice have a boron concentration of at least 1800 ppm as sodium tetraborate and a pH of 9.0 to 9.5 at 25°C; and

2) Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, and through the top deck floor grating ~~or past the lower inlet plenum support~~

SURVEILLANCE REQUIREMENTS (Continued)

~~structures and turning vanes~~ is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

c. At least once per 18 months by:

INSERT 2

2) Weighing a representative sample of at least 144 ice baskets and verifying that each basket contains at least 1273 lbs of ice. The representative sample shall include six baskets from each of the 24 ice condenser bays and shall be constituted of one basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1273 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1273 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1273 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,475,252 pounds.

d. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

INSERT

1) Verifying, for the lower inlet plenum support structures and turning vanes only, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

ATTACHMENT 1b

REVISED CURRENT TECHNICAL SPECIFICATIONS PAGES FOR CATAWBA UNIT 2

CONTAINMENT SYSTEMS

3/4.6.5 ICE CONDENSER

ICE BED

LIMITING CONDITION FOR OPERATION

3.6.5.1 The ice bed shall be OPERABLE with:

a. The stored ice having a boron concentration of at least 1800 ppm boron as sodium tetraborate and a pH of 9.0 to 9.5,

b. Flow channels through the ice condenser,

c. A maximum ice bed temperature of less than or equal to 27°F,

d. A total ice weight of at least 2,475,252 pounds at a 95% level of confidence, and

e. 1944 ice baskets.

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

ACTION:

With the ice bed inoperable, restore the ice bed to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.1 The ice condenser shall be determined OPERABLE:

a. At least once per 12 hours by using the Ice Bed Temperature Monitoring System to verify that the maximum ice bed temperature is less than or equal to 27°F,

b. At least once per 9 months by:

1) Chemical analyses which verify that at least nine representative samples of stored ice have a boron concentration of at least 1800 ppm as sodium tetraborate and a pH of 9.0 to 9.5 at 25°C; and

2) Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, through the top deck floor grating and ~~/ or / past the / lower inlet plenum / support~~

SURVEILLANCE REQUIREMENTS (Continued)

~~structures and turning vanes~~ is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

c. At least once per 18 months by:

INSERT → 2) Weighing a representative sample of at least 144 ice baskets and verifying that each basket contains at least 1273 lbs of ice. The representative sample shall include six baskets from each of the 24 ice condenser bays and shall be constituted of one basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1273 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1273 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1273 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,475,252 pounds.

d. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

INSERT

1) Verifying, for the lower inlet plenum support structures and turning vanes only, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

ATTACHMENT 1c

REVISED CURRENT TECHNICAL SPECIFICATIONS PAGES FOR MCGUIRE UNIT 1

SURVEILLANCE REQUIREMENTS (Continued)

1 basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1081 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1081 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1081 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,099,790 pounds; and

3) Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on grid flow passages between ice baskets, past lattice frames, through the intermediate and top deck floor grating, ~~or past the lower inlet plenum support structures and turning vanes~~ is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

c. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion, or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

d. * For the lower inlet plenum support structures and turning vanes only, at least once per 18 months, verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

* Not applicable until after an outage of sufficient duration to perform surveillance subsequent to August 12, 1998.

ATTACHMENT 1d

REVISED CURRENT TECHNICAL SPECIFICATIONS PAGES FOR MCGUIRE UNIT 2

SURVEILLANCE REQUIREMENTS (Continued)

1 basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1081 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1081 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1081 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,099,790 pounds; and

3) Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on and flow passages between ice baskets, past lattice frames, through the intermediate and top deck floor grating, ~~for past the lower inlet plenum support structures and turning vanes~~ is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

c. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion, or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

d. * For the lower inlet plenum support structures and turning vanes only, at least once per 18 months, verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

* Not applicable until after an outage of sufficient duration to perform surveillance subsequent to August 12, 1998.

ATTACHMENT 2a

REPRINTED CURRENT TECHNICAL SPECIFICATIONS PAGES FOR CATAWBA UNIT 1

3/4.6.5 ICE CONDENSER

ICE BED

LIMITING CONDITION FOR OPERATION

3.6.5.1 The ice bed shall be OPERABLE with:

a. The stored ice having a boron concentration of at least 1800 ppm boron as sodium tetraborate and a pH of 9.0 to 9.5,

b. Flow channels through the ice condenser,

c. A maximum ice bed temperature of less than or equal to 27°F,

d. A total ice weight of at least 2,475,252 pounds at a 95% level of confidence, and

e. 1944 ice baskets.

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

ACTION:

With the ice bed inoperable, restore the ice bed to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.1 The ice condenser shall be determined OPERABLE:

a. At least once per 12 hours by using the Ice Bed Temperature Monitoring System to verify that the maximum ice bed temperature is less than or equal to 27°F,

b. At least once per 9 months by:

1) Chemical analyses which verify that at least nine representative samples of stored ice have a boron concentration of at least 1800 ppm as sodium tetraborate and a pH of 9.0 to 9.5 at 25°C; and

2) Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, and through the top deck floor grating is restricted to a thickness

of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

c. At least once per 18 months by:

1) Verifying, for the lower inlet plenum support structures and turning vanes only, by a visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

2) Weighing a representative sample of at least 144 ice baskets and verifying that each basket contains at least 1273 lbs of ice. The representative sample shall include six baskets from each of the 24 ice condenser bays and shall be constituted of one basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1273 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1273 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1273 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,475,252 pounds.

d. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

ATTACHMENT 2b

REPRINTED CURRENT TECHNICAL SPECIFICATIONS PAGES FOR CATAWBA UNIT 2

3/4.6.5 ICE CONDENSER

ICE BED

LIMITING CONDITION FOR OPERATION

3.6.5.1 The ice bed shall be OPERABLE with:

a. The stored ice having a boron concentration of at least 1800 ppm boron as sodium tetraborate and a pH of 9.0 to 9.5,

b. Flow channels through the ice condenser,

c. A maximum ice bed temperature of less than or equal to 27°F,

d. A total ice weight of at least 2,475,252 pounds at a 95% level of confidence, and

e. 1944 ice baskets.

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

ACTION:

With the ice bed inoperable, restore the ice bed to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.1 The ice condenser shall be determined OPERABLE:

a. At least once per 12 hours by using the Ice Bed Temperature Monitoring System to verify that the maximum ice bed temperature is less than or equal to 27°F,

b. At least once per 9 months by:

1) Chemical analyses which verify that at least nine representative samples of stored ice have a boron concentration of at least 1800 ppm as sodium tetraborate and a pH of 9.0 to 9.5 at 25°C; and

2) Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, and through the top deck floor grating is restricted to a thickness

SURVEILLANCE REQUIREMENTS (Continued)

of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

c. At least once per 18 months by:

1) Verifying, for the lower inlet plenum support structures and turning vanes only, by a visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

2) Weighing a representative sample of at least 144 ice baskets and verifying that each basket contains at least 1273 lbs of ice. The representative sample shall include six baskets from each of the 24 ice condenser bays and shall be constituted of one basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1273 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1273 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1273 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,475,252 pounds.

d. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

ATTACHMENT 2c

REPRINTED CURRENT TECHNICAL SPECIFICATIONS PAGES FOR MCGUIRE UNIT 1

SURVEILLANCE REQUIREMENTS (Continued)

1 basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1081 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1081 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1081 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,099,790 pounds; and

3) Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, and through the intermediate and top deck floor grating is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

c. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion, or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

d. *For the lower inlet plenum support structures and turning vanes only, at least once per 18 months, verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

* Not applicable until after an outage of sufficient duration to perform surveillance subsequent to August 12, 1998.

ATTACHMENT 2d

REPRINTED CURRENT TECHNICAL SPECIFICATIONS PAGES FOR MCGUIRE UNIT 2

SURVEILLANCE REQUIREMENTS (Continued)

1 basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1081 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1081 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1081 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,099,790 pounds; and

3) Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, and through the intermediate and top deck floor grating is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

c. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion, or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

d. *For the lower inlet plenum support structures and turning vanes only, at least once per 18 months, verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

* Not applicable until after an outage of sufficient duration to perform surveillance subsequent to August 12, 1998.

ATTACHMENT 3a

REVISED IMPROVED TECHNICAL SPECIFICATIONS SUBMITTAL
DOCUMENTATION FOR CATAWBA

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.12.2	Verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is ≤ 0.38 inch thick.	9 months for structural members other than the lower inlet plenum support structures and turning vanes AND 18 months for the lower inlet plenum support structures and turning vanes
SR 3.6.12.3	Verify by chemical analyses of at least nine representative samples of stored ice: a. Boron concentration is ≥ 1800 ppm; and b. pH is ≥ 9.0 and ≤ 9.5.	18 months
SR 3.6.12.4	Verify total weight of stored ice is ≥ 2,330,856 lb by: a. Weighing a representative sample of ≥ 144 ice baskets and verifying each basket contains ≥ 1199 lb of ice; and b. Calculating total weight of stored ice, at a 95% confidence level, using all ice basket weights determined in SR 3.6.12.4.a.	18 months

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.12.1 (continued)

temperature condition. This SR may be satisfied by use of the Ice Bed Temperature Monitoring System.

SR 3.6.12.2

This SR ensures that the flow channels through the ice condenser have not accumulated an excessive amount of ice or frost blockage. The visual inspection must be made for two or more flow channels per ice condenser bay and must include the following specific locations along the flow channel:

a. Past the lower inlet plenum support structures and turning vanes;

b. Between ice baskets;

c. Past lattice frames;

d. Through the intermediate floor grating; and

e. Through the top deck floor grating.

The allowable 0.38 inch thick buildup of frost or ice is based on the analysis of containment response to a DBA with partial blockage of the ice condenser flow passages. If a flow channel in a given bay is found to have an accumulation of frost or ice > 0.38 inch thick, a representative sample of 20 additional flow channels from the same bay must be visually inspected.

If these additional flow channels are all found to be acceptable, the discrepant flow channel may be considered single, unique, and acceptable deficiency. More than one discrepant flow channel in a bay is not acceptable, however. These requirements are based on the sensitivity of the partial blockage analysis to additional blockage. The Frequency of 9 months for structural members other than the lower inlet plenum support structures and turning vanes was based on ice storage tests and the allowance built into the required ice mass over and above the mass assumed in the safety analyses. The 18 month Frequency for the lower inlet plenum support structures and turning vanes is based on the need to perform this Surveillance during the conditions that exist during a plant outage. These areas are access restricted due to ALARA considerations during plant operation.

(continued)

3.6 CONTAINMENT SYSTEMS

~~3/4.6.5 ICE CONDENSER~~

3.6.12 ICE BED

~~LIMITING CONDITION FOR OPERATION~~

LCO 3.6.~~5.1~~ 12 The ice bed shall be OPERABLE with:

a. The stored ice having a boron concentration of at least 1800 ppm boron as sodium tetraborate and a pH of 9.0 to 9.5,

b. Flow channels through the ice condenser,

c. A maximum ice bed temperature of less than or equal to 27°F,

d. A total ice weight of at least ~~2,478,252~~ 2,330,856 pounds at a 95% level of confidence, and

e. 1944 ice baskets. 1*

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

ACTION:

Action A / Action B With the ice bed inoperable, restore the ice bed to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

~~4.6.5.1~~ The ice condenser shall be determined OPERABLE:

SR 3.6.12.1 ~~a.~~ At least once per 12 hours ~~by using the Ice Bed Temperature Monitoring System to~~ verify that the maximum ice bed temperature is less than or equal to 27°F, / LA14

~~b.~~ ~~At least once per 9 months by~~ Once per 18 months L.26

SR 3.6.12.3 ~~1~~ X Chemical analyses which verify that at least nine representative samples of stored ice have a boron concentration of at least 1800 ppm ~~as sodium tetraborate~~ and a pH of 9.0 to 9.5 ~~at 25°C~~ and LA14

SR 3.6.12.2 ~~2~~ 1 Verifying, by a visual inspection ~~of at least two flow passages per ice condenser bay~~, that the accumulation of frost or ice ~~in~~ flow passages between ice baskets, past lattice frames, and through the top deck floor grating is restricted to a thickness ** |

A.1 Structural members comprising flow channels through the ice condenser is ≤

* License Amendment Request Dated 4/8/98

** License Amendment Request Dated 8/14/98

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

** of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

LA.14

At least once per 18 months by:

SR 3.6.12.2 ** a. Verifying, for the lower inlet plenum support structures and turning vanes only, by a visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

SR 3.6.12.4.a b. Weighing a representative sample of at least 144 * 1199 ice baskets and verifying that each basket contains at least 1273 lbs of ice. The representative sample shall include six baskets from each of the 24 ice condenser bays and shall be constituted of one basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than * 1199 1273 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1273 * 1199 pounds/basket at a 95% level of confidence.

SR 3.6.12.5 The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1273 * 1199 pounds/basket at a 95% level of confidence.

SR 3.6.12.4.b SR 3.6.12.4 The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,475,252 * 2,330,856 pounds.

LA 14

d. SR 3.6.12.6 At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion or other damage. The ice baskets shall be raised at least 12 feet for this inspection. LA 14

A.1 azimuthal group of bays

* License Amendment Request Dated 4/8/98

** License Amendment Request Dated 8/14/98

3.6 CONTAINMENT SYSTEMS

~~3/4.6.5 ICE CONDENSER~~

3.6.12 ICE BED

~~LIMITING CONDITION FOR OPERATION~~

LCO 3.6.~~5.1~~12 The ice bed shall be OPERABLE with:

a. The stored ice having a boron concentration of at least 1800 ppm boron as sodium tetraborate and a pH of 9.0 to 9.5,

b. Flow channels through the ice condenser,

c. A maximum ice bed temperature of less than or equal to 27°F,

d. A total ice weight of at least ~~2,475,252~~ 2,330,856 pounds at a 95% level of confidence, and

e. 1944 ice baskets. /*

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

ACTION:

Action A / Action B With the ice bed inoperable, restore the ice bed to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

~~4.6.5.1~~ The ice condenser shall be determined OPERABLE:

SR 3.6.12.1 (a) At least once per 12 hours ~~by using the Ice Bed Temperature Monitoring System to~~ verify that the maximum ice bed temperature is less than or equal to 27°F, LA14

(b) At least once per 9 months by: Once per 18 months L.26

SR 3.6.12.3 (1) Chemical analyses which verify that at least nine representative samples of stored ice have a boron concentration of at least 1800 ppm ~~as sodium tetraborate~~ and a pH of 9.0 to 9.5 ~~at 25°C~~; and LA14

SR 3.6.12.2 (2) Verifying, by a visual inspection ~~of at least two flow passages per ice condenser bay~~ that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, and through the top deck floor grating is restricted to a thickness ** A.1 structural members comprising flow channels through the ice condenser is ≤

* License Amendment Request Dated 4/8/98

** License Amendment Request Dated 8/14/98

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

** of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

LA14

(E) At least once per 18 months by:

SR 3.6.12.2 (1) ** Verifying, for the lower inlet plenum support structures and turning vanes only, by a visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

(2) Weighing a representative sample of at least 144 ice baskets and verifying that each basket contains at least 1273 lbs of ice. The representative sample shall include six baskets from each of the 24 ice condenser bays and shall be constituted of one basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1273 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1273 pounds/basket at a 95% level of confidence.

1199 * (x2)

SR 3.6.12.4.a

* 1199

SR 3.6.12.5 The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1273 pounds/basket at a 95% level of confidence.

1199 *

SR 3.6.12.4.b The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than ~~2,475,252~~ 2,330,856 pounds. *

SR 3.6.12.4 (3) At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

LA14 LA14

SR 3.6.12.6

azimuthal group of bays

A.1

* License Amendment Request Dated 4/8/98

** License Amendment Request Dated 8/14/98

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.13.04 Verify total weight of stored ice is ≥ 2,721,600 lb by:	9 months
a. Weighing a representative sample of ≥ 144 ice baskets and verifying each basket contains ≥ 1400 lb of ice; and	
b. Calculating total weight of stored ice, at a 95% confidence level, using all ice basket weights determined in SR 3.6.13.04.a.	
SR 3.6.13.05 Verify azimuthal distribution of ice at a 95% confidence level by subdividing weights, as determined by SR 3.6.13.04.a, into the following groups: a. Group 1 – bays 1 through 8; b. Group 2 – bays 9 through 16; and c. Group 3 – bays 17 through 24. The average ice weight of the sample baskets in each group from radial rows 1, 2, 4, 6, 8, and 9 shall be ≥ 1400 lb.	9 months
SR 3.6.13.06 Verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is ≤ 0.38 inch thick.	9 months

(continued)

* LICENSE AMENDMENT DATED 4/8/98

** LICENSE AMENDMENT DATED 8/14/98

INSERT 5

for structural members other than the lower inlet plenum support structures and turning vanes

AND

18 months for the lower inlet plenum support structures and turning vanes

INSERT Page 3.6-54

Catawba

No Changes this Page - info only

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.15.8 (12) (5)

This SR ensures that the azimuthal distribution of ice is reasonably uniform, by verifying that the average ice weight in each of three azimuthal groups of ice condenser bays is within the limit. The Frequency of 54 months was based on (19) (4) ice storage tests and the allowance built into the required ice mass over and above the mass assumed in the safety analyses. Operating experience has verified that, with the (4) (18) 54 month Frequency, the weight requirements are maintained with no significant degradation between surveillances.

SR 3.6.15.9 (12) (2)

This SR ensures that the flow channels through the ice condenser have not accumulated an excessive amount of ice or frost blockage. The visual inspection must be made for two or more flow channels per ice condenser bay and must include the following specific locations along the flow channel:

a. Past the lower inlet plenum support structures and turning vanes;

b. Between ice baskets;

c. Past lattice frames;

d. Through the intermediate floor grating; and

e. Through the top deck floor grating.

The allowable 0.38 inch thick buildup of frost or ice is based on the analysis of containment response to a DBA with partial blockage of the ice condenser flow passages. If a flow channel in a given bay is found to have an accumulation of frost or ice > 0.38 inch thick, a representative sample of 20 additional flow channels from the same bay must be visually inspected. (1) (1)

If these additional flow channels are all found to be acceptable, the discrepant flow channel may be considered single, unique, and acceptable deficiency. More than one discrepant flow channel in a bay is not acceptable, however. These requirements are based on the sensitivity of the partial blockage analysis to additional blockage. The

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.13.1 (continued) INSERT 1

Frequency of 9 months was based on ice storage tests and the allowance built into the required ice mass over and above the mass assumed in the safety analyses. INSERT 2

SR 3.6.13.2

Verifying the chemical composition of the stored ice ensures that the stored ice has a boron concentration of at least 1800 ppm as sodium tetraborate and a high pH, ≥ 9.0 and ≤ 9.5 in order to meet the requirement for borated water when the melted ice is used in the ECCS recirculation mode of operation. Sodium tetraborate has been proven effective in maintaining the boron content for long storage periods, and it also enhances the ability of the solution to remove and retain fission product iodine. The high pH is required to enhance the effectiveness of the ice and the melted ice in removing iodine from the containment atmosphere. This pH range also minimizes the occurrence of chloride and caustic stress corrosion on mechanical systems and components exposed to ECCS and Containment Spray System fluids in the recirculation mode of operation. The Frequency of 18 months was developed considering these facts:

a. Long term ice storage tests have determined that the chemical composition of the stored ice is extremely stable;

b. Operating experience has demonstrated that meeting the boron concentration and pH requirements has never been a problem; and

c. Someone would have to enter the containment to take the sample, and, if the unit is at power, that person would receive a radiation dose.

SR 3.6.13.6

This SR ensures that a representative sampling of ice baskets, which are relatively thin walled, perforated cylinders, have not been degraded by wear, cracks, corrosion, or other damage. Each ice basket must be raised at least 12 feet for this inspection. The Frequency of

(continued)

LICENSE AMENDMENT DATED 8/14/98

INSERT 1 (5)

...for structural members other than the lower inlet plenum support structures and turning vanes....

INSERT 2 (5)

The 18 month Frequency for the lower inlet plenum support structures and turning vanes is based on the need to perform this Surveillance during the conditions that exist during a plant outage. These areas are access restricted due to ALARA considerations during plant operation.

Catawba

ATTACHMENT 3c

REVISED IMPROVED TECHNICAL SPECIFICATIONS SUBMITTAL
DOCUMENTATION FOR MCGUIRE

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.12.4	----------NOTE---------- This SR is not applicable to the lower inlet plenum support structures and turning vanes until after a unit outage of sufficient duration to perform the SR subsequent to August 12, 1998. ---------- Verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is ≤ 0.38 inch thick.	9 months for structural members other than the lower inlet plenum support structures and turning vanes AND 18 months for the lower inlet plenum support structures and turning vanes
SR 3.6.12.5	Verify by chemical analyses of at least nine representative samples of stored ice: a. Boron concentration is ≥ 1800 ppm; and b. pH is ≥ 9.0 and ≤ 9.5.	18 months
SR 3.6.12.6	Visually inspect, for detrimental structural wear, cracks, corrosion, or other damage, two ice baskets from each azimuthal group of bays. See SR 3.6.12.3.	40 months

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.12.4 (continued)

of frost or ice > 0.38 inch thick, a representative sample of 20 additional flow channels from the same bay must be visually inspected.

If these additional flow channels are all found to be acceptable, the discrepant flow channel may be considered single, unique, and acceptable deficiency. More than one discrepant flow channel in a bay is not acceptable, however. These requirements are based on the sensitivity of the partial blockage analysis to additional blockage. The Frequency of 9 months for structural members other than the lower inlet plenum support structures and turning vanes was based on ice storage tests and the allowance built into the required ice mass over and above the mass assumed in the safety analyses. The 18 month Frequency for the lower inlet plenum support structures and turning vanes is based on the need to perform this Surveillance during the conditions that exist during a plant outage. These areas are access restricted due to ALARA considerations during plant operation.

The SR is modified by a Note that indicates the Surveillance for the lower inlet plenum support structures and turning vanes is not applicable until after a unit outage of sufficient duration to perform the Surveillance subsequent to August 12, 1998.

SR 3.6.12.5

Verifying the chemical composition of the stored ice ensures that the stored ice has a boron concentration of at least 1800 ppm as sodium tetraborate and a high pH, ≥ 9.0 and ≤ 9.5 at 20°C, in order to meet the requirement for borated water when the melted ice is used in the ECCS recirculation mode of operation. Sodium tetraborate has been proven effective in maintaining the boron content for long storage periods, and it also enhances the ability of the solution to remove and retain fission product iodine. The high pH is required to enhance the effectiveness of the ice and the melted ice in removing iodine from the containment atmosphere. This pH range also minimizes the occurrence of chloride and caustic stress corrosion on mechanical systems and components exposed to ECCS and Containment Spray System

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.12.5 (continued)

fluids in the recirculation mode of operation. The Frequency of 18 months was developed considering these facts:

a. Long term ice storage tests have determined that the chemical composition of the stored ice is extremely stable;

b. Operating experience has demonstrated that meeting the boron concentration and pH requirements has never been a problem; and

c. Someone would have to enter the containment to take the sample, and, if the unit is at power, that person would receive a radiation dose.

SR 3.6.12.6

This SR ensures that a representative sampling of accessible portions of ice baskets, which are relatively thin walled, perforated cylinders, have not been degraded by wear, cracks, corrosion, or other damage. Each ice basket must be raised at least 12 feet for this inspection. The Frequency of 40 months for a visual inspection of the structural soundness of the ice baskets is based on engineering judgment and considers such factors as the thickness of the basket walls relative to corrosion rates expected in their service environment and the results of the long term ice storage testing.

REFERENCES

1. UFSAR, Section 6.2.

2. 10 CFR 50, Appendix K.

3. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

LA14

1 basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1081 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1081 pounds/basket at a 95% level of confidence.

SR 3.6.12.3

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1081 pounds/basket at a 95% level of confidence.

SR 3.6.12.2.b

SR 3.6.12.2

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,099,790 pounds; and

LA.14

SR 3.6.12.4

(3)

A.1

structural members comprising flow channels through the ice condenser ≤

Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, and through the intermediate and top deck floor grating is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

*

LA14

SR 3.6.12.6

c. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion, or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

A.1

azimuthal group of bays

LA14

(4)

SR 3.6.12.4

*For the lower inlet plenum support structures and turning vanes only, at least once per 18 months, verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

*

A.1

Note to SR 3.6.12.4

* Not applicable until after an outage of sufficient duration to perform surveillance subsequent to August 12, 1998.

License Amendment Request Dated 8/14/98

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

LA14

1 basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1081 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1081 pounds/basket at a 95% level of confidence.

SR 3.6.12.3

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - Bays 1 through 8, Group 2 - Bays 9 through 16, and Group 3 - Bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8, and 9 in each group shall not be less than 1081 pounds/basket at a 95% level of confidence.

SR 3.6.12.2.b

SR 3.6.12.2

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,099,790 pounds; and

SR 3.6.12.4

(3)

LA14

Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, and through the intermediate and top deck floor grating is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.

A.1 — structural members comprising flow channels through the ice condenser

LA14

*

SR 3.6.12.6

(4)

At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each one-third of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion, or other damage. The ice baskets shall be raised at least 12 feet for this inspection.

A.1 — azimuthal group of bays

LA14

SR 3.6.12.4

(4)

*For the lower inlet plenum support structures and turning vanes only, at least once per 18 months, verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is less than or equal to 0.38 inch thick.

*

A.1 — Note to SR 3.6.12.4

* Not applicable until after an outage of sufficient duration to perform surveillance subsequent to August 12, 1998.

* License Amendment Request Dated 8/14/98

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.12.2 Verify total weight of stored ice is ≥ 2,099,790 lb by:	9 months
a. Weighing a representative sample of ≥ 144 ice baskets and verifying each basket contains ≥ 1081 lb of ice; and	
b. Calculating total weight of stored ice, at a 95% confidence level, using all ice basket weights determined in SR 3.6.12.2.a.	
SR 3.6.12.3 Verify azimuthal distribution of ice at a 95% confidence level by subdividing weights, as determined by SR 3.6.12.2.a, into the following groups:	9 months
a. Group 1 – bays 1 through 8;	
b. Group 2 – bays 9 through 16; and	
c. Group 3 – bays 17 through 24.	
The average ice weight of the sample baskets in each group from radial rows 1, 2, 4, 6, 8, and 9 shall be ≥ 1081 lb.	
SR 3.6.12.4 Verify, by visual inspection, accumulation of ice or frost on structural members comprising flow channels through the ice condenser is ≤ 0.38 inch thick.	9 months INSERT 1

(continued)

* LICENSE AMENDMENT DATED 8/14/98

INSERT 1 (5)

for structural members other than the lower inlet plenum support structures and turning vanes

AND

18 months for the lower inlet plenum support structures and turning vanes

INSERT 2 (5)

---NOTE---

This SR is not applicable to the lower inlet plenum support structures and turning vanes until after a unit outage of sufficient duration to perform the SR subsequent to August 12, 1998.

INSERT Page 3.6-54

McGuire

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Info Only >

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.(12)5.3

This SR ensures that the azimuthal distribution of ice is reasonably uniform, by verifying that the average ice weight in each of three azimuthal groups of ice condenser bays is within the limit. The Frequency of 9 months was based on ice storage tests and the allowance built into the required ice mass over and above the mass assumed in the safety analyses. Operating experience has verified that, with the 9 month Frequency, the weight requirements are maintained with no significant degradation between surveillances.

SR 3.6.(12)5.4

This SR ensures that the flow channels through the ice condenser have not accumulated an excessive amount of ice or frost blockage. The visual inspection must be made for two or more flow channels per ice condenser bay and must include the following specific locations along the flow channel:

a. Past the lower inlet plenum support structures and turning vanes;

b. Between ice baskets;

c. Past lattice frames;

d. Through the intermediate floor grating; and

e. Through the top deck floor grating.

The allowable ~~(~~0.38~~)~~ inch thick buildup of frost or ice is based on the analysis of containment response to a DBA with partial blockage of the ice condenser flow passages. If a flow channel in a given bay is found to have an accumulation of frost or ice > ~~(~~0.38~~)~~ inch thick, a representative sample of 20 additional flow channels from the same bay must be visually inspected. (1) (1)

If these additional flow channels are all found to be acceptable, the discrepant flow channel may be considered single, unique, and acceptable deficiency. More than one discrepant flow channel in a bay is not acceptable, however. These requirements are based on the sensitivity of the partial blockage analysis to additional blockage. The

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.~~12~~13.4 (continued)

Frequency of 9 months was based on ice storage tests and the allowance built into the required ice mass over and above the mass assumed in the safety analyses.

INSERT 1

INSERT 2

INSERT 3

SR 3.6.~~12~~13.5

Verifying the chemical composition of the stored ice ensures that the stored ice has a boron concentration of at least ~~[1800]~~ ppm as sodium tetraborate and a high pH, ≥ ~~[9.0]~~ and ≤ ~~[9.5]~~ at 20°C, in order to meet the requirement for borated water when the melted ice is used in the ECCS recirculation mode of operation. Sodium tetraborate has been proven effective in maintaining the boron content for long storage periods, and it also enhances the ability of the solution to remove and retain fission product iodine. The high pH is required to enhance the effectiveness of the ice and the melted ice in removing iodine from the containment atmosphere. This pH range also minimizes the occurrence of chloride and caustic stress corrosion on mechanical systems and components exposed to ECCS and Containment Spray System fluids in the recirculation mode of operation. The Frequency of ~~[18]~~ 24 months was developed considering these facts:

a. Long term ice storage tests have determined that the chemical composition of the stored ice is extremely stable;

b. Operating experience has demonstrated that meeting the boron concentration and pH requirements has never been a problem; and

c. Someone would have to enter the containment to take the sample, and, if the unit is at power, that person would receive a radiation dose.

SR 3.6.~~12~~13.6

This SR ensures that a representative sampling of accessible portions of ice baskets, which are relatively thin walled, perforated cylinders, have not been degraded by wear, cracks, corrosion, or other damage. Each ice basket must be raised at least 12 feet for this inspection. The Frequency of

(continued)

* LICENSE AMENDMENT DATED 8/14/98

INSERT 1 (5)

...for structural members other than the lower inlet plenum support structures and turning vanes....

INSERT 2 (1)

The 18 month Frequency for the lower inlet plenum support structures and turning vanes is based on the need to perform this Surveillance during the conditions that exist during a plant outage. These areas are access restricted due to ALARA considerations during plant operation.

INSERT 3 (3)

The SR is modified by a Note that indicates the Surveillance for the lower inlet plenum support structures and turning vanes is not applicable until after a unit outage of sufficient duration to perform the Surveillance subsequent to August 12, 1998.

ATTACHMENT 4

DESCRIPTION OF PROPOSED CHANGES AND TECHNICAL JUSTIFICATION

Description of Proposed Changes

Technical Specification (TS) Surveillance Requirements (SRs) 4.6.5.1b.2 for Catawba and 4.6.5.1b.3 for McGuire state (McGuire-specific wording is in **boldface type**):

"The ice condenser shall be determined OPERABLE at least once per 9 months by verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, through the ***intermediate and*** *top deck floor grating, or past the lower inlet plenum support structures and turning vanes is restricted to a thickness of less than or equal to 0.38 inch. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inch, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser."*

Catawba and McGuire are proposing to change that portion of the above SRs which pertains to the lower inlet plenum support structures and turning vanes from a 9-month frequency to an 18-month frequency. In addition, McGuire has included a footnote in conjunction with its revised surveillance to indicate that the surveillance is not applicable until after an outage of sufficient duration to perform the surveillance subsequent to August 12, 1998. This footnote is necessary because NRC approval of this amendment request is expected prior to entry into the next refueling outages at McGuire, and the surveillance cannot be performed until the units are in an outage.

Technical Justification

The ice condenser's primary function is the absorption of thermal energy released abruptly in the event of a loss of coolant accident, for the purpose of limiting the initial peak pressure in the containment. A secondary function of the ice condenser is the further absorption of energy after the initial incident, causing the containment pressure to be reduced to and held at a lower level for a period of time. The sodium tetraborate solution produced by a partial meltdown of the ice absorbs and retains iodine released during the accident and serves as a heat transfer medium and

neutron poison for cooling the reactor core following the postulated incident.

The main part of the ice condenser is a mass of sodium tetraborate ice stored in an annular chamber inside the containment shell. The ice is maintained in an array of vertical cylindrical columns. The columns are formed by perforated metal baskets. The baskets are assembled into a lattice framework to form a continuous column of ice. The ice condenser is contained in the annulus formed by the containment vessel wall and the crane wall circumferentially over a 300 degree arc.

Three sets of insulated doors are located, respectively, along the lower crane wall, in the intermediate deck, and in the top deck. If lower containment compartment pressure exceeds upper containment compartment pressure by more than one pound per square foot as the result of an accident, the lower inlet doors will swing open and allow the evolved steam to flow into the ice condenser. The direction of steam flow is changed 90 degrees by turning vanes. The steam will condense on the ice and chilled structures, but air will pass through the ice bed and open the intermediate and top deck doors, venting to the upper compartment and compressing the containment atmosphere. The lower inlet doors are spring loaded to assure flow uniformity, while the intermediate and upper doors are held closed by gravity only. During the accident, sodium tetraborate solution mixed with condensed steam will leave the compartment via the doors and floor drains. The solution will drain into the containment sump, where it will be available for residual core heat removal. Iodine released during the accident will be dissolved and retained in the melted sodium tetraborate solution.

This proposed amendment is acceptable because the Catawba and McGuire ice condensers remain fully capable of performing their design function in the event of an accident condition. SR 4.6.5.1b.2 (Catawba) and 4.6.5.1b.3 (McGuire) cannot be performed for the lower inlet plenum support structures and turning vanes with the units at power, due to the high dose rates present in the lower ice condenser. Nevertheless, they are still capable of fulfilling their design safety-related function. Any ice buildup is removed from the lower inlet plenum support structures and turning vanes during refueling outages. In addition, operating experience has shown that an 18-month frequency for these SRs is acceptable. Ice does not build up on the flow passages in the vicinity of the lower inlet plenum support structures and turning vanes such that it would impede flow

during an accident. NRC approval of this amendment request will not result in any unavailability of the ice condensers at Catawba or McGuire.

ATTACHMENT 5

NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

No Significant Hazards Consideration Determination

The following discussion is a summary of the evaluation of the changes contained in this proposed amendment against the 10 CFR 50.92(c) requirements to demonstrate that all three standards are satisfied. A no significant hazards consideration is indicated 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.

First Standard

Implementation of this amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated. Approval of this amendment will have no significant effect on accident probabilities or consequences. The ice condenser is not an accident initiating system; therefore, there will be no impact on any accident probabilities by the approval of this amendment. Each unit's ice condenser is currently fully capable of meeting its design basis accident mitigating function. Therefore, there will be no impact on any accident consequences.

Second Standard

Implementation of this amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated. No new accident causal mechanisms are created as a result of NRC approval of this amendment request. No changes are being made to the plant which will introduce any new accident causal mechanisms. This amendment request does not impact any plant systems that are accident initiators, since the ice condenser is an accident mitigating system.

Third Standard

Implementation of this amendment would not involve a significant reduction in a margin of safety. Margin of safety is related to the confidence in the ability of the fission product barriers to perform their design functions during and following an accident situation. These barriers

include the fuel cladding, the reactor coolant system, and the containment system. The performance of these fission product barriers will not be impacted by implementation of this proposed amendment. The ice condenser for each unit is already capable of performing as designed. Operating experience has shown that the performance of the ice condenser would not be adversely impacted by extending the frequency of these SRs to an 18-month interval. No safety margins will be impacted.

Based upon the preceding analysis, Duke Energy has concluded that the proposed amendment does not involve a significant hazards consideration.

ATTACHMENT 6

ENVIRONMENTAL ANALYSIS

Environmental Analysis

Pursuant to 10 CFR 51.22(b), an evaluation of this license amendment request has been performed to determine whether or not it meets the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) of the regulations.

This amendment to the Catawba and McGuire Unit 1 and 2 TS changes the frequency of SR 4.6.5.1b.2 (Catawba) and 4.6.5.1b.3 (McGuire) from 9 months to 18 months. This will allow the SRs to be performed while the respective units are shut down. Implementation of this amendment will have no adverse impact upon the Catawba or McGuire units; neither will it contribute to any additional quantity or type of effluent being available for adverse environmental impact or personnel exposure.

It has been determined there is:

1. No significant hazards consideration,

2. No significant change in the types, or significant increase in the amounts, of any effluents that may be released offsite, and

3. No significant increase in individual or cumulative occupational radiation exposures involved.

Therefore, this amendment to the Catawba and McGuire TS meets the criteria of 10 CFR 51.22(c)(9) for categorical exclusion from an environmental impact statement.