Change 4

3.0 LIMITING CONDITIONS FOR OPERATION

4. The reactor vessel head bolting studs shall not be under tension unless the temperature of the vessel head flange and the head are ≥70°F.

C. Coolant Chemistry

1. The steady state radioiodine concentration in the reactor coolant shall not exceed ~~5~~ 0.25 microcuries of I-131 dose equivalent per gram of water.

4.0 SURVEILLANCE REQUIREMENTS

4. When the reactor vessel head studs are under tension and the reactor is in the Cold Shutdown Condition, the reactor vessel shell flange temperature shall be permanently recorded.

C. Coolant Chemistry

1. (a) A sample of reactor coolant shall be taken at least every 96 hours and

C. Coolant Chemistry

exclusion area   10% of the dose guidelines of 10CFR100

A steady state radioiodine concentration limit of 5 uCi of I-131 dose equivalent per gram of water in the reactor coolant system can be reached if the gross radioactivity in the gaseous effluents are near their limits or there is a failure or prolonged shutdown of the cleanup demineralizer. In the event of a steam line rupture outside the drywell, the NRC staff calculations show the resultant radiological dose at the nearest site boundary (465 m) to be less than 30 Rem to the thyroid. This dose was calculated on the basis of the radioiodine concentration limit of 5 2 uCi of I-131 dose equivalent per gram of water. atmospheric diffusion from an equivalent elevated release of 30 meters under fumigation conditions for Pasquill type F 1 meter/sec wind speed and a steam line isolation valve closure time of five seconds with a steam/water mass release of 36,000 pounds.

Change A

The reactor coolant sample will be used to assure that the limit of Specification 3.6.C.1 is not exceeded. The radioiodine concentration would not be expected to change rapidly during steady state operation over a period of 96 hours. In addition, the trend of the radioactive gaseous effluents, which is continuously monitored, is a good indicator of the trend of the radioiodine concentration in the reactor coolant. When a significant increase in radioactive gaseous effluents is indicated, as specified, an additional reactor coolant sample shall be taken and analyzed for radioactive iodine.

Whenever an isotopic analysis is performed, a reasonable effort will be made to determine a significant percentage of those contributors representing the total radioactivity in the reactor coolant sample. Usually at least 80 percent of the total gamma radioactivity can be identified by the isotopic analysis.

It has been observed that radioiodine concentration can change rapidly in the reactor coolant during transient reactor operations such as reactor shutdown, reactor power changes, and reactor startup if failed fuel is present. As specified, additional reactor coolant samples shall be taken and analyzed for reactor operations in which steady state radioiodine concentrations in the reactor coolant indicate various levels of iodine releases from the fuel. Since the radioiodine concentration in the reactor coolant is not continuously measured, reactor coolant sampling would be ineffective as a means to rapidly detect gross fuel element failures. However, some capability to detect gross fuel element failures is inherent in the radiation monitors in the off-gas system and on the main steam line.

Materials in the primary system are primarily 304 stainless steel and zircaloy. The reactor water chemistry limits are established to prevent damage to these materials. The limit placed on chloride concentration is to prevent stress corrosion cracking of the stainless steel.

In the event of a postulated high energy line break in the RWCU system outside the drywell, calculations show the resultant radiological dose at the exclusion area boundary to be less than 10% of the dose guidelines of 10CFR100. This dose was calculated on the basis of the radioiodine concentration limit of 0.25 μCi of I-131 dose equivalent per gram of water.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS

b. When both filter trains of the control room emergency filtration system are inoperable, restore at least one train to operable status within 24 hours or be in hot shutdown within the next 12 hours following the 24 hours and reduce the reactor coolant water temperature to below 212°F within the following 24 hours.

2. Performance Requirements

a. Periodic Requirements

(1) The combined results of the in-place DOP tests at 1000 cfm (±10%) on HEPA filters shall show ~~≤1%~~ ≤0.3% DOP penetration.

(2) The results of in-place halogenated hydrocarbon tests at 1000 cfm (±10%) on charcoal banks show ~~≤1%~~ ≤0.3% penetration.

(3) The results of laboratory carbon sample analysis shall show ~~>90% methyl iodide removal efficiency when tested at 80°C, 95% R.H.~~ the methyl iodide penetration ≤0.4% when tested at 30°C and 95% relative humidity.

Change 13

2. Performance Requirement Test

a. At least once per 720 hours of system operation; or once per operating cycle, but not to exceed 18 months, whichever occurs first; or following painting, fire, or chemical release while the system is operating that could contaminate the HEPA filters or charcoal adsorbers, perform the following:

(1) In-place DOP test the HEPA filter banks.

(2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer.

(3) Remove one carbon test canister from the charcoal adsorber. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.

(4) Initiate from the control room 1000 cfm (±10%) flow through both trains of the emergency filtration treatment system.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. The system shall be shown to be operable with: (1) Combined filter pressure drop ≤8 inches water. (2) Inlet heater power output 5kw ± 10%. (3) Automatic initiation upon receipt of a high radiation signal.	b. At least once per operating cycle, but not to exceed 18 months, the following conditions shall be demonstrated for each emergency filtration system train: (1) Pressure drop across the combined filters of each train shall be measured at 1000 cfm (±10%) flow rate. (2) Operability of inlet heater at nominal rated power shall be verified. (3) Verify that on a simulated high radiation signal, the train switches to the pressurization mode of operation and the control room is maintained at a positive pressure with respect to adjacent areas at the design flow rate of 1000 cfm (±10%).
3. Post Maintenance Requirements a. After any maintenance or testing that could affect the combined HEPA filter or HEPA filter mounting frame leak tight integrity, the results of the in-place DOP tests at 1000 cfm (±10%) on HEPA filters shall show ~~≤1%~~ ≤0.3% DOP penetration. b. After any maintenance or testing that could affect the charcoal adsorber leak tight integrity, the results of in-place halogenated hydrocarbon tests at 1000 cfm (±10%) on charcoal adsorber banks shall show ~~≤1%~~ ≤0.3% penetration.	3. Post Maintenance Testing a. After any maintenance or testing that could affect the leak tight integrity of the HEPA filters, perform in-place DOP tests on the HEPA filters. b. After any maintenance or testing that could affect the leak tight integrity of the charcoal adsorber banks, perform halogenated hydrocarbon tests on the charcoal adsorbers.

Change B

During normal operation, the CRV system recirculates the air in the control room envelope as needed. During a high radiation event, the Control Room Ventilation System continues to operate and the Control Room Emergency Filtration Train system will start automatically to pressurize the control room protective envelope. The Emergency Filtration Train system can also be started manually.

3.17 Bases

A. Control Room Ventilation System (CRV)

The Control Room Ventilation System provides air conditioning and heating as required to maintain a suitable environment in the main control room and portions of the first and second floors of the Emergency Filtration Train (EFT) building. ~~The main control room is normally slightly pressurized and it is possible to have 0 to 100% recirculation of conditioned air. The system is designed to maintain a nominal temperature of 78°F dry bulb and 50% nominal relative humidity in the main control room in the summer and a nominal temperature or 72°F in the winter. The Control Room Ventilation System may be isolated from unfiltered external air supply by manual action.~~

All toxic substances which are stored on site or stored/shipped within a 5 mile radius of the plant have been analyzed for their affect on the control room operators. It has been concluded that the operators will have at least two minutes to don protective breathing apparatus before incapacitation limits are exceeded. For toxic substance which are transported on highways within 5 miles of the plant, it has been determined that the probability of a release from the plant due to incapacitation of the operators caused by a spill is sufficiently low that this scenario may be excluded. Protection for toxic chemicals is provided through operator training.

B. Control Room Emergency Filtration System

The Control Room Emergency Filtration System assures that the control room operators will be adequately protected against the effects of radioactive leakage which may by-pass secondary containment following a loss of coolant accident or radioactive releases from a steam line break accident. The system is designed to ~~isolate and~~ slightly pressurize the control room on a radiation signal in the ventilation air. Two completely redundant trains are provided.

penetration or equal to 0.3% penetration from or equal to 0.3%

Each train has a filter unit consisting of a prefilter, HEPA filters, and charcoal adsorbers. The HEPA filters remove particulates from the Control Room pressurizing air and prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to remove any radioiodines ~~form~~ the pressurizing air. The in-place test results should indicate a HEPA filter ~~leakage~~ of less than ~~1%~~ through DOP testing and a charcoal adsorber ~~leakage~~ of less than ~~1%~~ through halogenated hydrocarbon testing. The laboratory carbon sample results should indicate a radioactive methyl iodide ~~removal efficiency of a least 99%~~ under test conditions similar to expected accident conditions. System flows should be near their design values. The verification of these performance parameters combined with the qualification testing conducted on new filters and adsorbers provide a high level of assurance that the Emergency Filtration System will perform as predicted in reducing doses to plant personnel below those level stated in Criterion 19 of Appendix A to 10 CFR 50.

penetration of less than or equal to 0.4% 98%

Dose calculations have been performed for the Control Room Emergency Filtration System which show that, assuming ~~99%~~ 85% standby gas treatment system adsorption and filtration efficiency and ~~99%~~ 98% control room emergency filtration system adsorption and filtration efficiency and radioiodine plateout, whole body and organ doses remain within the ~~NRC~~ guidelines of ~~5 rem and 30 rem~~ 10 CFR 50, Appendix A, General Design Criterion 19, respectively.

Change B

A. Control Room Ventilation System

Control room air temperature is checked each shift to ensure that the continuous duty rating for the instrumentation and equipment cooled by this system is not exceeded.

Demonstrating automatic isolation of the control room using simulated accident signals assures control room isolation under accident conditions.

B. Control Room Emergency Filtration System

Air flow through the filters and charcoal adsorbers each month assures operability of the system.

The frequency of tests and sample analysis is necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. The charcoal adsorber tray is installed which can accommodate a sufficient number of representative adsorber sample modules for estimating the amount of penetration the system adsorbs though its life. Sample modules will be installed with the same batch characteristics as the system adsorbent and will be withdrawn for the methyl iodide removal efficiency tests. Each module withdrawn will be replaced or blocked off. In-place testing procedures will be established utilizing applicable sections of ~~Regulatory Guide 1.52, Revision 2 and ANSI N510-1980 standards~~ ASME N510-1989 as procedural guidelines only. If test results are unacceptable, all adsorbent in the train is replaced. Any HEPA filters found defective are replaced.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than or equal to 8 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

Demonstrating automatic control room pressurization using simulated accident signals assures control room pressurization with respect to adjacent areas under accident conditions.

The laboratory methyl iodide test of the carbon adsorber is to be performed in accordance with ASTM D 3803-89, "Standard Test Method for Nuclear-Grade Activated Carbon."

The individual test results obtained from in-place penetration testing for the HEPA filter upstream of the charcoal adsorber and of the HEPA filter downstream of the charcoal adsorber unit are to be multiplied together to determine the penetration of the combination of the two filters in series as a unit to satisfy the criteria of the specifications.

Change B

Exhibit C

Monticello Nuclear Generating Plant

Revision One to License Amendment Request dated July 26, 1996

Revised Technical Specification Pages

Exhibit C consists of the Technical Specification pages with the proposed changes incorporated. Existing pages affected by this change are listed below:

Page

123
148
229w
229x
229y
229Z

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
4. The reactor vessel head bolting studs shall not be under tension unless the temperature of the vessel head flange and the head are ≥70°F.	4. When the reactor vessel head studs are under tension and the reactor is in the Cold Shutdown Condition, the reactor vessel shell flange temperature shall be permanently recorded.
C. Coolant Chemistry	C. Coolant Chemistry
1. The steady state radioiodine concentration in the reactor coolant shall not exceed 0.25 microcuries of I-131 dose equivalent per gram of water.	1. (a) A sample of reactor coolant shall be taken at least every 96 hours and

C. Coolant Chemistry

In the event of a steam line rupture outside the drywell, calculations show the resultant radiological dose at the exclusion area boundary to be less than 10% of the dose guidelines of 10CFR100. This dose was calculated on the basis of the radioiodine concentration limit of 2 μCi of I-131 dose equivalent per gram of water. In the event of a postulated high energy line break in the RWCU system outside the drywell, calculations show the resultant radiological dose at the exclusion area boundary to be less than 10% of the dose guidelines of 10CFR100. This dose was calculated on the basis of the radioiodine concentration limit of 0.25 μCi of I-131 dose equivalent per gram of water.

The reactor coolant sample will be used to assure that the limit of Specification 3.6.C.1 is not exceeded. The radioiodine concentration would not be expected to change rapidly during steady state operation over a period of 96 hours. In addition, the trend of the radioactive gaseous effluents, which is continuously monitored, is a good indicator of the trend of the radioiodine concentration in the reactor coolant. When a significant increase in radioactive gaseous effluents is indicated, as specified, an additional reactor coolant sample shall be taken and analyzed for radioactive iodine.

Whenever an isotopic analysis is performed, a reasonable effort will be made to determine a significant percentage of those contributors representing the total radioactivity in the reactor coolant sample. Usually at least 80 percent of the total gamma radioactivity can be identified by the isotopic analysis.

It has been observed that radioiodine concentration can change rapidly in the reactor coolant during transient reactor operations such as reactor shutdown, reactor power changes, and reactor startup if failed fuel is present. As specified, additional reactor coolant samples shall be taken and analyzed for reactor operations in which steady state radioiodine concentrations in the reactor coolant indicate various levels of iodine releases from the fuel. Since the radioiodine concentration in the reactor coolant is not continuously measured, reactor coolant sampling would be ineffective as a means to rapidly detect gross fuel element failures. However, some capability to detect gross fuel element failures is inherent in the radiation monitors in the off-gas system and on the main steam line.

Materials in the primary system are primarily 304 stainless steel and zircaloy. The reactor water chemistry limits are established to prevent damage to these materials. The limit placed on chloride concentration is to prevent stress corrosion cracking of the stainless steel.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. When both filter trains of the control room emergency filtration system are inoperable, restore at least one train to operable status within 24 hours or be in hot shutdown within the next 12 hours following the 24 hours and reduce the reactor coolant water temperature to below 212°F within the following 24 hours.	
2. Performance Requirements	2. Performance Requirement Test
a. Periodic Requirements	a. At least once per 720 hours of system operation; or once per operating cycle, but not to exceed 18 months, whichever occurs first; or following painting, fire, or chemical release while the system is operating that could contaminate the HEPA filters or charcoal adsorbers, perform the following:
(1) The combined results of the in-place DOP tests at 1000 cfm ($\pm$10%) on HEPA filters shall show $\leq$0.3% DOP penetration.	(1) In-place DOP test the HEPA filter banks.
(2) The results of in-place halogenated hydrocarbon tests at 1000 cfm ($\pm$10%) on charcoal banks show $\leq$0.3% penetration.	(2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer.
(3) The results of laboratory carbon sample analysis shall show the methyl iodide penetration $\leq$0.4% when test at 30°C and 95% relative humidity.	(3) Remove one carbon test canister from the charcoal adsorber. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.
	(4) Initiate from the control room 1000 cfm ($\pm$10%) flow through both trains of the emergency filtration treatment system.

3.0 LIMITING CONDITIONS FOR OPERATION

b. The system shall be shown to be operable with:

(1) Combined filter pressure drop ≤ 8 inches water.

(2) Inlet heater power output 5kw $\pm$ 10%.

(3) Automatic initiation upon receipt of a high radiation signal.

3. Post Maintenance Requirements

a. After any maintenance or testing that could affect the HEPA filter or HEPA filter mounting frame leak tight integrity, the combined results of the in-place DOP tests at 1000 cfm ($\pm$10%) on HEPA filters shall show $\leq$0.3% DOP penetration.

b. After any maintenance or testing that could affect the charcoal adsorber leak tight integrity, the results of in-place halogenated hydrocarbon tests at 1000 cfm ($\pm$10%) on charcoal adsorber banks shall show $\leq$0.3% penetration.

4.0 SURVEILLANCE REQUIREMENTS

b. At least once per operating cycle, but not to exceed 18 months, the following conditions shall be demonstrated for each emergency filtration system train:

(1) Pressure drop across the combined filters of each train shall be measured at 1000 cfm ($\pm$10%) flow rate.

(2) Operability of inlet heater at nominal rated power shall be verified.

(3) Verify that one simulated high radiation signal, the train switches to the pressurization mode of operation and the control room is maintained at a positive pressure with respect to adjacent areas at the design flow rate of 1000 cfm ($\pm$10%).

3. Post Maintenance Testing

a. After any maintenance or testing that could affect the leak tight integrity of the HEPA filters, perform in-place DOP tests on the HEPA filters.

b. After any maintenance or testing that could affect the leak tight integrity of the charcoal adsorber banks, perform halogenated hydrocarbon tests on the charcoal adsorbers.

A. Control Room Ventilation System

The Control Room Ventilation (CRV) System provides air conditioning and heating as required to maintain a suitable environment in the main control room and portions of the first and second floors of the Emergency Filtration Train (EFT) building. During normal operation, the CRV system recirculates the air in the control room envelope as needed. During a high radiation event, the Control Room Ventilation System continues to operate and the Control Room Emergency Filtration Train system will start automatically to pressurize the control room protective envelope. The Emergency Filtration Train system can also be started manually.

All toxic substances which are stored on site or stored/shipped within a 5 mile radius of the plant have been analyzed for their affect on the control room operators. It has been concluded that the operators will have at least two minutes to don protective breathing apparatus before incapacitation limits are exceeded. For toxic substance which are transported on highways within 5 miles of the plant, it has been determined that the probability of a release from t plant due to incapacitation of the operators caused by a spill is sufficiently low that this scenario may be excluded. Protection for toxic chemicals is provided through operator training.

B. Control Room Emergency Filtration System

The Control Room Emergency Filtration System assures that the control room operators will be adequately protected against the effects of radioactive leakage which may by-pass secondary containment following a loss of coolant accident or radioactive releases from a steam line break accident. The system is designed to slightly pressurize the control room on a radiation signal in the ventilation air. Two completely redundant trains are provided.

Each train has a filter unit consisting of a prefilter, HEPA filters, and charcoal adsorbers. The HEPA filters remove particulates from the Control Room pressurizing air and prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to remove any radioiodines from the pressurizing air. The in-place test results should indicate a HEPA filter penetration of less than or equal to 0.3% through DOP testing and a charcoal adsorber penetration of less than or equal to 0.3% through halogenated hydrocarbon testing. The laboratory carbon sample results should indicate a radioactive methyl iodide penetration of less than or equal to 0.4% under test conditions similar to expected accident conditions. System flows should be near their design values. The verification of these performance parameters combined with the qualification testing conducted on new filters and adsorbers provide a high level of assurance that the Emergency Filtration System will perform as predicted in reducing doses to plant personnel below those level stated in Criterion 19 of Appendix A to 10 CFR 50.

Dose calculations have been performed for the Control Room Emergency Filtration System which show that, assuming 85% standby gas treatment system adsorption and filtration efficiency and 98% control room emergency filtration system adsorption and filtration efficiency and radioiodine plateout, whole body and organ doses remain within the guidelines of 10CFR50, Appendix A, General Design Criterion 19.

4.17 Bases

A. Control Room Ventilation System

Control room air temperature is checked each shift to ensure that the continuous duty rating for the instrumentation and equipment cooled by this system is not exceeded.

Demonstrating automatic isolation of the control room using simulated accident signals assures control room isolation under accident conditions.

B. Control Room Emergency Filtration System

Air flow through the filters and charcoal adsorbers each month assures operability of the system.

The frequency of tests and sample analysis is necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. The charcoal adsorber tray is installed which can accommodate a sufficient number of representative adsorber sample modules for estimating the amount of penetration the system adsorbs though its life. Sample modules will be installed with the same batch characteristics as the system adsorbent and will be withdrawn for the methyl iodide removal efficiency tests. Each module withdrawn will be replaced or blocked off. The laboratory methyl iodide test of the carbon adsorber is to be performed in accordance with ASTM D 3803-89, "Standard Test Method for Nuclear-Grade Activated Carbon." In-place testing procedures will be established utilizing applicable sections of ASME N510-1989 as procedural guidelines only. The individual test results obtained from in-place penetration testing for the HEPA filter upstream of the charcoal adsorber and of the HEPA filter downstream of the charcoal adsorber unit are to be multiplied together to determine the penetration of the combination of the two filters in series as a unit to satisfy the criteria of the specifications. If test results are unacceptable, all adsorbent in the train is replaced. Any HEPA filters found defective are replaced.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than or equal to 8 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

Demonstrating automatic control room pressurization using simulated accident signals assures control room pressurization with respect to adjacent areas under accident conditions.

Exhibit D

Monticello Nuclear Generating Plant

Revision One to License Amendment Request dated July 26, 1996

MNGP MSLBA Evaluation Summary

The radiological evaluation of the Main Steam Line Break Accident (MSLBA) is described in USAR Section 14.7.3.

Assumptions

The postulated accident involves a guillotine break of one of the four main steam lines outside of the containment, resulting in mass loss from both ends of the break. There is no fuel damage as a consequence of this event, therefore the only activity released to the environment is that associated with the steam and liquid discharged from the break. Initially only steam will issue from the broken end of the steam line. Subsequently, rapid depressurization due to the break causes the reactor pressure vessel water level to rise, resulting in a steam-water mixture flowing from the break until the main steam isolation valves (MSIVs) are closed. For the MSIV closure time, an analysis input of 10.5 seconds after the MSLBA is used. Activity associated with the discharged coolant is airborne in the turbine building instantaneously and released to the environment without delay.

The analysis assumes that the accident occurs at hot standby conditions. At these conditions, steam generation from the decay heat in the core is very low and cannot make up the steam loss through the break. The results are a high rate of vessel depressurization and rapid rising of water level to the main steam line inlet. In addition to hot standby conditions, the 10CFR50 Appendix K break flow model was assumed in order to maximize the two-phase break flow rate. Both of these assumptions yielded the maximum coolant mass releases through the break.

Two cases were analyzed. The first case assumes reactor pressure is at the safety relief valve opening setpoint of 1158 psia. The second case assumes the initial reactor pressure is at the pressure regulator setpoint of 965 psia. The results show that the mass leaving the reactor pressure vessel through the break is 71,574 lbm of liquid and 4,030 lbm of steam for the first case. In the second case the mass leaving the reactor pressure vessel through the break is 66,223 lbm of liquid and 4,243 lbm of steam.

Accident parameters relevant to the radiological analysis are summarized in Table D-1. The atmospheric dispersion factors to the site boundary and to the control room intake, as well as control room parameters, are included in Table D-1.

Noble Gas Concentration

The assumed noble gas activity is the Monticello Technical Specification limit which corresponds to an off-gas release rate of 0.26 Ci/sec (rounded to 0.3 Ci/sec in the USAR) at 30 minutes delay. This activity is assumed to consist of a standard isotopic fraction.

Iodine Concentration

The analysis used an input of 2 μCi/gm dose-equivalent of Iodine-131 for the activity in the reactor coolant. A portion of the released coolant exists as steam prior to the accident. Therefore, it is necessary to separate the initial steam mass from the total mass released and assign a certain percentage of the fission product activity contained in this portion of the steam by an equivalent mass of reactor coolant. A 2% carryover ratio was assumed for the analysis.

Offsite Dose and Control Room Dose Evaluations

Activities released to the environment due to the MSLBA are calculated for both hot standby conditions. The case for reactor pressure at the safety relief valve opening setpoint and the case for reactor pressure at the pressure regulator setpoint. In addition, the analysis was performed for coolant concentrations based on both the TID-14844 and Regulatory Guide 1.109 thyroid dose conversion factors.

Offsite dose consequences are presented in Table D-3.

Control room dose consequences are presented in Table D-4.

TABLE D-1
Assumptions for MNGP MSLBA Analysis

PARAMETER		VALUES
Power Level		Hot standby at 4% power (66.8 MWt)
RPV Pressure (psia)		
Case 1		1158
Case 2		965
Time Elapse for MSIV Full Closure (seconds)		10.5
Fuel Rod Damage		0
Mass of Steam-Water Mixture Leaving Break (lbm)		See Table D-2
Reactor Coolant Dose Equivalent I-131 (µCi/gm)		2
Iodine Carryover Factor (%)		2
Iodine Releases (µCi/cm^3)		For Total Release See Table D-2
TID-14844		
	I-131	0.77
	I-132	3.38
	I-133	2.85
	I-134	7.27
	I-135	2.56
Reg. Guide 1.109		
	I-131	1.08
	I-132	4.72
	I-133	3.98
	I-134	10.2
	I-135	3.58
Thyroid Dose Conversion Factors (rem/Ci)		
	I-131	1.08E+06
	I-132	6.44E+03
	I-133	1.80E+05
	I-134	1.07E+03
	I-135	3.13E+04

TABLE D-1 (continued) **Assumptions for MNGP MSLBA Analysis**	
PARAMETER	VALUES
Data for Control Room	
Volume of Control Room (ft^3)	27,000
Filter Intake (cfm)	900
Efficiency of Charcoal adsorber (%)	98
Unfiltered Inleakage (T < 8 hours) (cfm)	250
Unfiltered Inleakage (T > 8 hours) (cfm)	10
Occupancy Factor	
0 - 24 hours	1.0
1 - 4 days	0.6
4-30 days	0.4
Control Room Intake Atmospheric Dispersion Factors (sec/m^3)	
Ground Level Release	
0 - 8 hours	1.67E-03
8 -24 hours	1.41E-03
1 - 4 days	9.65E-04
4 - 30 days	5.62E-04
Offsite Atmospheric Dispersion Factor (sec/ m^3)	
Ground Level Release	
0 - 2 hours (EAB/LPZ)	9.20E-04/7.93E-05
2 - 8 hours (LPZ)	7.93E-05
8 -24 hours	5.35E-05
1 - 4 days	2.28E-05
4 - 30 days	6.68E-06

TABLE D-2		
Mass Release From MSLBA (lbm)	CASE 1	CASE 2
Total liquid released through break	71,574	66,223
Liquid released flashing to steam	10,548	8,151
Initial steam prior to steam line covered	4,030	4,243
Iodine Release From MSLBA (Ci)		
TID-14844		
I-131	28.8	26.2
I-132	126	114
I-133	106	96.3
I-134	271	246
I-135	95.6	86.6
Reg. Guide 1.109		
I-131	40.2	36.4
I-132	176	160
I-133	148	135
I-134	379	343
I-135	134	121

TABLE D-3 MNGP MSLBA Offsite Dose (REM)				
	2 - Hour Exclusion Area Boundary		30 Day Low Population Zone	
TID-14844 DCF	Thyroid	Whole Body	Thyroid	Whole Body
Case 1	17.3	0.28	1.49	0.02
Case 2	15.7	0.26	1.35	0.02
Reg. Guide DCF				
Case 1	24.2	0.40	2.08	0.03
Case 2	21.9	0.36	1.89	0.03
10CFR100	300	25	300	25

TABLE D-4 MNGP MSLBA Control Room Dose (REM)		
	Thyroid	Whole Body
TID DCF		
Case 1	7.26	0.003
Case 2	6.58	0.002
Reg. Guide DCF		
Case 1	10.1	0.004
Case 2	9.18	0.003
GDC 19	30	5

Exhibit E

Mc..:icello Nuclear Generating Plant

Revision One to License Amendment Request dated July 26, 1996

MNGP RWCU Evaluation Summary

TABLE E-1
Inputs for MNGP RWCU Evaluation

PARAMETER			VALUES
Time Elapse for Operator Action from Break Initiation (Min.)			10
Time Elapse for RWCU Valve Closure (seconds)			29
Fuel Rod Damage			0
Mass of Steam-Water Mixture Leaving Break (lbm)			443,460
Data for Control Room			
Volume of Control Room (ft^3)			27,000
Filter Intake (cfm)			900
Efficiency of Charcoal adsorber (%)			98
Unfiltered Inleakage (cfm)			250
Control Room Intake Atmospheric Dispersion Factors Ground Level Release(sec/m^3)			1.67E-03
Offsite Atmospheric Dispersion Factor Ground Level Release(sec/ m^3)			
Exclusion Area Boundary			9.20E-04
Low Population Zone)			7.93E-05
Reactor Coolant Dose Equivalent I-131 (μCi/gm)			0.25
Iodine Releases			
Isotope	Concentration(μCi/cm^3)	Total Release (Ci)	Thyroid Dose Conversion Factors (rem/Ci)
I-131	0.135	27.2	1.10E+06
I-132	0.590	119	6.30E+03
I-133	0.497	100	1.80E+05
I-134	1.27	255	1.10E+03
I-135	0.447	89.9	3.10E+04

TABLE E-2 MNGP RWCU Line Break Offsite Dose (REM)				
	2 - Hour Exclusion Area Boundary		30 Day Low Population Zone	
Dose (REM)	Thyroid 16.5	Whole Body 1.66×10^{-1}	Thyroid 1.42	Whole Body 1.43×10^{-2}
10CFR100 Guideline	300	25	300	25

TABLE E-3 MNGP RWCU Line Break Control Room Dose (REM)		
Dose (REM)	Thyroid 6.98	Whole Body 9.04×10^{-3}
GDC 19 Guideline	30	5