



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 2, 2017

LICENSEE: Exelon Generation Company, LLC

FACILITY: Nine Mile Point Nuclear Station, Units 1 and 2
James A. FitzPatrick Nuclear Power Plant

SUBJECT: SUMMARY OF APRIL 25, 2017, MEETING WITH EXELON GENERATION COMPANY, LLC, ON PLANNED SUBMITTAL OF LICENSE AMENDMENT REQUEST TO CHANGE EMERGENCY ACTION LEVELS ASSOCIATED WITH LAKE ONTARIO WATER LEVEL

On April 25, 2017, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Exelon Generation Company, LLC (Exelon, the licensee) by teleconference. The purpose of the meeting was for Exelon to discuss a license amendment request (LAR) that the licensee planned to submit to the NRC that would change emergency action levels (EALs) associated with Lake Ontario water level for the Nine Mile Point Nuclear Station, Units 1 and 2 (Nine Mile Point), and James A. FitzPatrick Nuclear Power Plant (FitzPatrick). The licensee planned to submit the LAR to the NRC by April 28, 2017. The meeting notice and agenda, dated April 24, 2017, are available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML17114A409. A list of attendees is provided as Enclosure 1.

The licensee presented information using excerpt from the FitzPatrick Updated Final Safety Analysis Report (Enclosure 2), excerpt from an EAL bases document for FitzPatrick (Enclosure 3), and draft LAR for Nine Mile Point (Enclosure 4). Prior to presenting an overview of the technical basis for the planned LAR, the licensee provided background and context for the need to change the EAL in response to the increasing level of Lake Ontario. Both FitzPatrick and Nine Mile Point are located on the banks of Lake Ontario. The licensee presented two options for changing the EALs at FitzPatrick and Nine Mile Point.

According to the licensee, the International Joint Commission, which is the organization that licenses and regulates certain water resource projects along the United States and Canadian border, changed the water management strategy for Lake Ontario in December 2016. The change allows the lake level to be managed at a level above the unusual event condition for certain EALs at FitzPatrick and Nine Mile Point. In addition to the change in management strategy, the licensee noted that the water level in Lake Ontario has been impacted by an abnormally wet spring and heavy rains. The first option described by Exelon using FitzPatrick as an example would increase the high lake water level of the EAL involving Lake Ontario. This option would be permitted without prior NRC approval in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(q)(3) if the change in water level of the EAL did not reduce the effectiveness of the site's emergency plan. The second option described by Exelon using Nine Mile Point as an example would seek NRC approval, on an exigent basis, of a license amendment to remove the high lake water level as an initiating condition for providing notification of an unusual event. Exelon wanted to change the EALs that contain high lake level

threshold to avoid entering and remaining in an unusual event for a prolonged period and to avoid contributing to existing public concerns attributed to the unexpected environmental conditions (i.e., record high lake levels).

During the meeting, the NRC staff acknowledged that Exelon could change the EALs for FitzPatrick and Nine Mile Point per 10 CFR 50.54(q)(3) if the conditions for making changes to the emergency plan without prior NRC approval are met. Regarding the second option (i.e., license amendment), the NRC staff informed the licensee that more substantive technical justification than the one provided during the meeting would need to be included in the LAR. Specifically, the licensee would need to provide a more substantive description of how the change in the EAL would continue to demonstrate compliance with the requirements for emergency plans.

Members of the public were in attendance. At the end of the meeting, but prior to adjourning the meeting, a representative of the State of New York asked clarifying questions about the 10 CFR 50.54(q)(3) regulation. Public meeting feedback forms were not received.

No regulatory decisions were made during the meeting. At the time of the public teleconference, Exelon had not decided which of the two options it would pursue in changing the EALs. Subsequent to the meeting, Exelon verbally informed the NRC that it would implement the first option (i.e., increasing the high lake level threshold) for both FitzPatrick and Nine Mile Point by using the provisions of 10 CFR 50.54(q)(3).

Please direct any inquiries to me at 301-415-2871 or Michael.Marshall@nrc.gov.



Michael L. Marshall, Jr., Senior Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-220, 50-333, and 50-410

Enclosures:

1. List of Attendees
2. Excerpt from FitzPatrick Updated Final Safety Analysis Report
3. Excerpt from Emergency Action Level Bases Document for FitzPatrick
4. Draft License Amendment Request for Nine Mile Point

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SUBJECT: SUMMARY OF APRIL 25, 2017, MEETING WITH EXELON GENERATION COMPANY, LLC, ON PLANNED SUBMITTAL OF LICENSE AMENDMENT REQUEST TO CHANGE EMERGENCY ACTION LEVELS ASSOCIATED WITH LAKE ONTARIO WATER LEVEL DATED JUNE 2, 2017

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OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM
NAME	MMarshall	LRonewicz	JDanna	MMarshall
DATE	06/01/17	06/01/17	06/02/17	06/02/17

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LIST OF ATTENDEES

APRIL 25, 2017, MEETING WITH EXELON GENERATION COMPANY, LLC
ON PLANNED CHANGE TO EMERGENCY ACTION LEVELS ASSOCIATED WITH
LAKE ONTARIO WATER LEVEL

Name	Organization
Alyse Peterson	State of New York
Art Daniels	Exelon Generation Company, LLC
Bill Drews	Exelon Generation Company, LLC
Booma Venkataraman	U.S. Nuclear Regulatory Commission
Bridgette Frymire	State of New York
Dave Burch	Exelon Generation Company, LLC
Dave Gudger	Exelon Generation Company, LLC
Dennis Moore	Exelon Generation Company, LLC
Don Johnson	U.S. Nuclear Regulatory Commission
Doug Walker	Exelon Generation Company, LLC
Jerry Collin	State of New York
Jim Jones	Exelon Generation Company, LLC
John Metro	State of New York
Katy Yurkon	Exelon Generation Company, LLC
Ken Kristensen	Exelon Generation Company, LLC
Larry Baker	Exelon Generation Company, LLC
Mark Hawes	Exelon Generation Company, LLC
Michael Marshall	U.S. Nuclear Regulatory Commission
Ray Hoffman	U.S. Nuclear Regulatory Commission
Ron Reynolds	Exelon Generation Company, LLC
Ryan Pritch	Exelon Generation Company, LLC

Enclosure 2

Excerpt from FitzPatrick Updated Final Safety Analysis Report

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FSAR UPDATE

In addition, a one-dimensional steady-state model was used to predict the maximum probable setup at the JAF site using the maximum probable wind storm as input.

Comparisons were made to Lake Erie, Lake Michigan, and Lake Ontario based on the results of the one-dimensional model.

Two-dimensional Time Dependent Model

a. Description of the Model

During winter or during a large wind storm, Lake Ontario is in a barotropic or "homogeneous fluid" condition (Ref. 10). Therefore, the hydrodynamics of the lake can be represented by a two-dimensional barotropic mathematical model in a vertically integrated form. The complete momentum equations in two horizontal directions, including the pressure term vertically integrated, and the continuity equation, are solved for the water level fluctuation using an imposed time variable wind field as input on the surface of the lake. Effects of bottom friction, bottom topography and lateral boundary configuration are included in the model. The effect of the rotation of the earth is represented by a constant coriolis parameter.

The wind driven circulation patterns of the lake were first determined by the development of the vorticity equation from the governing equations (Refs. 11,12). The velocity field of the lake, the continuity equation, and the divergence of the vector form of the momentum equations were then used to obtain the water level fluctuation in the lake. A square grid of 5 km was used to form the basis for the circulation and setup model of Lake Ontario. Figure 2.4-1 shows the depth and rectangular step approximation of the outline of Lake Ontario. The important parameters which appear to have strong influence on the magnitude of the setup of the lake are wind stress, bottom stress, depth of water, and bottom configuration

b. Validation of the Model

The wind storm used to validate the model occurred on January 25, 1972. The storm generated a considerable surge in the eastern end of Lake Ontario. The storm was selected on the basis of easy access to the wind data and water level records.

The lowest pressure of the storm was located about 300 miles north of Lake Ontario at 7 a.m., January 25, 1972, with a minimum central pressure of 982 mb. The center of the low moved toward the northeast with a speed of approximately 40 miles per hour. During the period of high wind speed, the direction of wind over the lake was persistently toward east, which coincides with the long axis of Lake Ontario. The wind field over the lake was compiled from ten weather stations located along the shorelines of the lake in the United States and Canada. At the eastern end of the lake, wind speeds as high as 52 miles per hour for about three hours were recorded at Kingston, Ontario. A complete spacial time dependent wind field over the lake for the period of the storm was used to compute the wind stress at each grid point on the lake surface. A typical wind speed and direction at the JAF site, grid index of the mathematical model - (55, 5), is shown in Figure 2.4-2

The water level fluctuation over the entire extent of Lake Ontario was generated by the mathematical model using the prescribed wind field as input data. Figure 2.4-3 depicts the predicted and observed water levels at Toronto, Rochester, and Oswego, which represent the western, middle, and eastern sections of Lake Ontario, respectively. It can be seen that at all three locations the predicted and observed water levels compare reasonably well.

Since the wind was blowing toward the east, the water level at the western end of the lake was depressed while the eastern end of the lake was higher and the

JAF FSAR UPDATE

mid-section of the lake experienced minimal fluctuations. Figure 2.4-4 shows the water level variation over the entire lake at the hour of maximum setup at the eastern end.

Prediction of the Maximum and Minimum Probable Setup - Two-dimensional Time Dependent Model

The maximum probable wind storm which will occur in the lake area was based on a modification of the storm of January 25, 1972. The duration and wind directions of the January 25, 1972 storm were retained; however, the wind speeds were increased by a statistical technique developed by Gumbel (Ref. 13) to reflect a storm with a recurrence interval of 10,000 years. The resulting storm, Figure 2.4-5, has a maximum sustained wind speed of 88 mph, lasting for 3 hours. The mathematical model was used to simulate the circulation and water level fluctuations of Lake Ontario under the influence of the probable maximum wind storm. Figure 2.4-6 is the result of the numerical simulation showing the water level variations on the entire lake at the hour of maximum setup at the eastern end. A vertical profile across the axis of the lake is also shown in Figure 2.4-6. Due to the combination of on-shore and along-shore currents resulting from the bottom and boundary configurations, the setup along the shore is relatively higher than that at some distance off-shore. At JAF site, the maximum setup was calculated to be 4.1 feet. With west wind the maximum water level of Lake Ontario occurs at the east shore and the minimum water level occurs at the west shore. The maximum instantaneous water variations occurred at both the west shore and the east shore with a magnitude of 4.6 ft.

The probable maximum decrease in lake level at JAF site when the wind blows from the opposite direction was assumed to be the same as the probable maximum setup as described above, namely 4.1 ft. Since the fetch and flow resistance in the lake would be the same for both east wind or west wind, the nodal point or the pivot point of the lake water surface would also remain essentially unchanged.

The hydrograph of water level versus time near JAF site during the storm period is shown in Figure 2.4-7. According to the prediction, the maximum setup of 4.1 ft above mean water level will last for about one hour.

Steady State - One-dimensional Model

The steady state one-dimensional model was used to calculate the maximum setup for comparison. The stress coefficient of the one-dimensional model was adjusted by using the observed wind and water level data for the January 25, 1972 storm. Water levels over Lake Ontario were then calculated using the maximum probable windstorm described in the above paragraph as input to the adjusted one-dimensional model. The water level profile along the long axis of the lake is shown in Figure 2.4-8. The maximum setup at JAF site was calculated to be 3.5 ft and that at the eastern end of the lake was calculated to be 4.5 ft. These values compare reasonably well with those calculated by the two-dimensional model.

Comparison of Setup in Lakes Ontario, Michigan, and Erie - One-dimensional Model

Since the one-dimensional model can estimate setup of Lake Ontario reasonably well as compared to the observed setup and because it is a simple model, it was used to calculate the setup values on Lake Michigan and Erie for the purpose of comparing the setup values of these three lakes.

Setup values for each lake are calculated using the one-dimensional model with the same wind speed and stress coefficient. These values are shown in Table 2.4-1. The greater setup (and setdown) values calculated for Lake Erie and Michigan, reflect the major influences of the shallower depth of Lake Erie and longer fetch of Lake Michigan, as compared to Lake Ontario.

Since the magnitude of wind surges depends primarily on the wind speed, the fetch length over which the wind blows, and the depth of the lake, it is possible to make an estimate of the magnitude

JAF
FSAR UPDATE

of wind setups on the Great Lakes for a given wind speed with the wind direction along the longest fetch. Such an estimate serves as an index for relative magnitude of wind driven surges in the lakes. Table 2.4-2 shows the mean depth, fetch, and the relative setup index of the Great Lakes. The relative setup index is the relative magnitudes of wind surge among the five Great Lakes. Assuming maximum wind setup on Lake Erie as 100 percent, the percentages in the index column show the relative maximum setups on the other lakes for any given wind speed. For example, if for a given wind speed the maximum setup on Lake Erie were 10.0 ft, for the same wind speed, the maximum setup on Lake Ontario would be 18 percent of 10.0 ft, or 1.8 ft. The values shown on

Table 2.4-2 agree well with the results of the one-dimensional model as indicated on Table 2.4-1.

2.4.3.4 Computing Maximum Wave Runup

The maximum probable wind storm was used in conjunction with deep water wave forecasting curves of the Bretschneider-revised Sverdrup-Munk method (Ref. 15) to determine the "significant" deep water wave height and period. The significant deep water wave produced by the maximum probable storm had a height of 35 ft (trough to crest) and a period of 13.5 sec.

The portion of the storm with average hourly winds greater than 50 mph was taken to be the critical portion of the storm for wave formation. The duration of winds 50 mph and greater is 23 hrs. Using the significant wave period of 13.5 sec, approximately 6,100 consecutive waves reached the shore during the critical portion of the storm. The probability that a single wave with the highest combination of height and period will occur during this period is 1/6100 or 0.16 per 1,000 consecutive waves. Using the data from Bretschneider (Ref. 15) as to the joint distribution of height and period per 1,000 consecutive waves, this probability corresponds to a deep water wave 50 ft in height with a period of 20 sec.

Standard orthogonal refraction techniques were used to determine the variation in wave height as the waves approached the shoreline. All waves were assumed to break when the ratio of wave height to water depth was 0.78. This criterion is derived from solitary wave theory and is consistent with data on the breaking of oscillatory waves (Ref. 16).

The magnitude of the wave runup was determined according to the composite slope method of Saville (Ref. 17). This technique, based on model test data, considers the following parameters:

- a. The location and water depth at which the wave breaks
- b. The wave period and breaking height
- c. The lake bottom topography
- d. The shore topography.

A maximum wave runup of 7.5 ft was estimated.

2.4.3.5 Monthly Mean High Water Level of Record

The all-time monthly mean high water level (el. 249.3) occurred in June, 1952 when Lake Ontario was unregulated and subject to changes in levels produced by natural inflows and outflows.

Regulation of Lake Ontario was implemented in April, 1960 at the direction of the International Joint Commission (IJC). One of the primary objectives of the plan of regulation is that the monthly mean level of Lake Ontario shall not exceed el. 248. The agreement states that lake level is regulated within a range of elevations from "244 feet (navigation season) to 248 feet as nearly as may be..."

The regulation of Lake Ontario is carried out under the general supervision of the International St. Lawrence River Board of Control, composed of ten members representing Canada and the United States. The Board has appointed regulation representatives who oversee the day-to-day operations conducted under the regulation plan. In addition, the Board formed a five member operations advisory group whose members include NYPA, Ontario Hydro, Hydro Quebec, the St. Lawrence Seaway Development Corporation, and the Canadian Coast Guard. This group, together with the

JAF
FSAR UPDATE

regulation representatives, meets at weekly intervals to consider Lake Ontario and St. Lawrence River conditions as they affect regulation. Regulation is physically implemented through the control of the flows through the St. Lawrence Project. To this end, Ontario Hydro and the Authority receive advice each Thursday as to the flow to be released during the following week which meets the IJC's objectives insofar as Lake Ontario regulation is concerned.

In view of the strict surveillance exercised by the IJC, through the St. Lawrence River Board of Control and the Board's operations advisory group, with respect to the levels of Lake Ontario, lake level will not be regulated in excess of el. 248 through operator error or unilateral action on the part of the Authority or Ontario Hydro. Furthermore, there is no likelihood that the International Joint Commission will allow the level of Lake Ontario to be regulated in excess of el. 248 due to the adverse effect of such action on development along the lake shorefront.

The plan of regulation is based upon historic norms for the period 1860 to 1954. Since regulation began, transient conditions in excess of historic norms have caused monthly mean lake level to exceed el. 248 on a few separate occasions, each of three to four months duration. In each case, levels were lower than would have been experienced under natural control. The highest monthly mean lake level experienced since regulation began was el. 249.1 in May 1973.

The original FSAR concluded that the all-time monthly mean high water level, or any other level above el. 248 would be experienced only if regulation were suspended and Lake Ontario were to revert to natural control; and that it was proper to assume that the maximum storm occurs when the lake stage is at el. 248, the maximum controlled still water level. Since it has been shown that input in excess of historic norms can occur and can cause lake level to exceed el. 248 on rare occasions, an additional evaluation was performed (Ref. 40). This evaluation concluded that no condition adverse to safety exists with a maximum lake level at or below el. 250.

2.4.3.6 Design Minimum Low Water

The design minimum low water level of Lake Ontario for the FitzPatrick Plant is el. 236.5. This elevation is based on superposition of the following effects:

- | | | |
|----|--|-----------|
| 1. | Minimum still water level of Lake Ontario | el. 240.6 |
| 2. | Instantaneous lowering of the still water level due to the maximum probable seiche on Lake Ontario | 4.1 ft |

It should be noted that the actual minimum still water levels of Lake Ontario, observed during a period of record beginning in 1860 and continuing through the present time, were:

- | | | |
|----|---|-----------|
| 1. | Lowest monthly mean water surface level recorded prior to construction of the St. Lawrence Power Project (November, 1934) | el. 242.7 |
| 2. | Lowest mean water surface level for a quarter-month recorded prior to construction of the St. Lawrence Power Project (third quarter of December, 1934) | el. 242.6 |
| 3. | Lowest monthly mean water surface level recorded subsequent to the commencement of regulation of Lake Ontario by the St. Lawrence Power Project (January, 1965) | el. 243.0 |

The Effect of Failure of the St. Lawrence Power Project on Low Lake Levels

The St. Lawrence Power Project constructed jointly by the Authority and Ontario Hydro consists of two dams and a hydroelectric power plant in the St. Lawrence River. Iroquois Dam is a gated gravity-type structure located 78 miles below the outlet of the lake. Long Sault Dam, a second gated

JAF
FSAR UPDATE

gravity type structure, is located 102 miles below the outlet of the lake and serves as the spillway for the power dam. The central element of the St. Lawrence Power Project is the Robert Moses-Robert H. Saunders Power Dam, a massive gravity-type structure located 106 miles below the outlet of the lake. Iroquois Dam and the Moses-Saunders Power Dam ordinarily pass the full flow of the St. Lawrence River, less relatively small diversions, including the quantity of water needed to operate the locks of the St. Lawrence Seaway which, in the aggregate, amount to much less than 1 percent of the river's total flow. Long Sault Dam is operated infrequently and customarily discharges no water at all.

In the course of normal operation, Lake Ontario is regulated at the Power Dam pursuant to a plan of regulation approved by the IJC. Actual operation has demonstrated that the lake also can be regulated by manipulating the gates at Iroquois Dam. The Power Project, therefore, provides a redundant safeguard against any loss of capability to regulate Lake Ontario.

The failure of any part of the St. Lawrence Power Project is beyond reasonable expectations. The three gravity dams are massive structures which were conservatively designed to withstand all static and dynamic forces by wide margins. For example, the design criteria applicable to these dams provided factors of safety of at least 2.0 against overturning and at least 3.0 against sliding. Gravity structures were designed to resist seismic forces equivalent to 0.05 g in both the horizontal and vertical directions, while the seismic design of slender structures was based on dynamic analysis. All phases of construction which had any bearing on the ultimate safety of any structure were continuously inspected, during performance of the work, by qualified engineers and subjected to rigorous quality control requirements.

Since completion of the project, all structures have been under continuous surveillance by the Authority and Ontario Hydro. Both Ontario Hydro and the Authority conduct rigorous programs of inspection and preventive maintenance with respect to all elements of the project under their jurisdiction. Once every five years, or more often if necessary, a complete safety inspection of the project is performed by independent consultants who report to the Federal Power Commission with respect to the condition of dams and other structures. The integrity of the dams which comprise the St. Lawrence Power Project and regulate the levels of Lake Ontario is, therefore, ensured by the combination of conservative design, rigorous quality control during construction, and continuous surveillance following completion of the project.

In November, 1968, the St. Lawrence Study Office at the Canadian Department of Energy, Mines and Resources analyzed possible upstream and downstream effects resulting from failure of the St. Lawrence Power Project structures. Under the adverse assumptions of this study, which postulated the sudden destruction of the above mentioned dams and the lowest supply sequence on record, it was determined that the lake level would decline gradually and, approximately one year following the assumed failure, be no more than 2.1 ft below the lowest level attained during regulation, i.e., the lake level would decline from el. 242.7 to el. 240.6. The study concluded that once the lake level had declined to about el. 240.6, natural controls, such as existed before the project, would be re-established and the lake levels would rise and fall thereafter in accordance with natural supplies delivered to Lake Ontario from the Great Lakes watershed.

Lake Ontario is the source of the St. Lawrence River and the last in the chain of five Great Lakes. These lakes drain an area of approximately 300,000 sq miles in the United States and Canada. Taken together, they make up the largest body of fresh water in the world. Each lake acts as an enormous natural regulating reservoir which smooths out variations in inflow and tends to equalize outflows from season to season.

Lake Ontario obtains its principal supply of water from the Niagara River which drains the four upper lakes (Erie, Huron, Michigan and Superior) and discharges 200,000 cu ft per sec on an annual average basis. Other inflows are received from precipitation and springs within the Lake Ontario watershed.

JAF FSAR UPDATE

The outflow from Lake Ontario, which corresponds to the flow in the St. Lawrence River, is equal to the quantity of water supplied from the Niagara River and all other sources, less the change in the quantity of water stored in the lake. Although storage in Lake Ontario is now governed by artificial controls, the lake was self-regulating in its natural state.

Flow in the St. Lawrence River is characterized by its extreme regularity. The maximum flow (350,000 cu ft per sec) is about twice the minimum flow (170,000 cu ft per sec). This condition existed before construction of the St. Lawrence Power Project, and would continue today if the project did not exist. In the improbable event of the simultaneous failure of the Iroquois Dam and the Moses-Saunders Power Dam or Long Sault Dam, the actual level to which Lake Ontario could fall would be governed by supplies of water to the lake during the period following such failure and the natural resistance of the lakes to sudden changes in levels and flows. These effects would guarantee that the actual minimum still water level of the lake would be well above the design minimum water level elevation of the FitzPatrick Plant during any period necessary to re-establish control of the lake.

It is concluded that the simultaneous failure of the dams which regulate the levels of Lake Ontario is beyond any reasonable probability of occurrence. In the event of any such catastrophe, the levels of Lake Ontario would decline gradually. The full effect should be experienced about a year following the failure, by which time the still water level might fall to a minimum at el. 240.6. Superposition of the maximum probable seiche would produce a further lowering of 4.1 ft. to el. 236.5 over a short term.

2.4.3.7 Implication of the Maximum and Minimum Lake Levels on Power Station

The cross-sectional profiles through the intake and discharge screenhouses and tunnels are shown in Figure 2.4-9. The average ground elevation outside the screenhouse is 272.0 ft. Concerning the flooding of the exterior access of the power plant, the maximum wave runup of 7.5 ft, the maximum wind setup of 4.1 ft, and the maximum rainfall of 0.35 ft were added to the maximum controlled still water level of 248 ft resulting in a maximum probable flood level of el. 260 at the JAF site. The grade elevation of the power plant, 272.0 ft, is well above the probable coincident maximum flood level of 260 ft at the power plant site with a freeboard of 12 ft. Consideration of a maximum lake level of el. 250 would still result in approximately 10 ft. of freeboard.

The original design basis maximum flood level in the screenhouse was determined as el. 252.5. Since the intake screenhouse top deck ceiling is at el. 253.0, which is 0.5 ft above maximum probable flood level in the screenhouse, no damage from flooding would be expected. The revised design basis flood level of el. 255 coincides with the floor level in the screenwell. Any uplift forces on the floor slab resulting from this higher floor level are more than offset by the weight of the slab (Ref. 40). Again, no damage from flooding is expected. All seismic Class I equipment in the screenwell area is mounted at or above el. 255.

The effect of waves in the lake on the performance of the circulating water system is negligible and no loss of cooling water resulting from surging in the intake conduit could occur.

A mathematical model of the circulating water system was developed. The model uses the equation of continuity and momentum and solves for the flow system and the pumps characteristics simultaneously.

The maximum wave height that can exist without breaking at the location of the intake with a maximum probable lake elevation of el. 252.5 is 22 ft. Different wave periods of 8 sec, 13.9 sec, and 27.8 sec, representing a range of possible occurrences, were considered. The variations in the circulating water system due to the action of the above mentioned waves under the evaluated conditions is summarized below:

JAF
FSAR UPDATE

Wave Hgt	Wave Period	Pump Flow Fluctuation	Intake Tunnel Flow Fluctuation	Screenwell Water Level Fluctuation
ft	sec	cfs	cfs	inch
22	8	-1.0	±85.0	+0.1,-0.4
22	13.9	-2.0	±148.0	+0.5,-1.2
22	27.8	-6.0	±300.0	+2.3,-5.4

Figure 2.4-10 shows the effects of a 22 ft wave having a period of 13.9 sec., which represents the most probable occurrence of a 22 ft wave over the lake structure.

It can be seen from Figure 2.4-10 that although the circulating water system is subjected to a continuous train of 22 ft high waves over the intake structure, the screenwell water level experiences only about two inches of fluctuation and the variation in the circulating water pump flow is negligible. Because of the energy damping effects of the long intake and discharge tunnels, the resonance period of the circulating water system is much longer than the periods of waves acting over the intake and discharge structures.

Enclosure 3

Excerpt from Emergency Action Level Bases Document for FitzPatrick

ATTACHMENT 3 - EAL BASES

Category: H - Hazards

Subcategory: 1 - Natural & Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting the Protected Area

EAL:

HU1.5 Unusual Event

Lake water level > 248 ft

OR

ESW intake bay water level < 237 ft

Mode Applicability:

ALL

NEI 99-01 Basis:

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL addresses other site specific phenomena (such as hurricane, flood, or seiche) that can also be precursors of more serious events.

JAFNPP Basis:

The high lake level is based upon the maximum attainable controlled lake water level as specified in the FSAR (ref. 1). The low level is based on ESW intake bay water level and corresponds to the design minimum lake level (ref. 2).

JAFNPP Basis Reference(s):

1. FSAR Section 2.4.3
2. Safety Evaluation JAF-SE-93-034 "Evaluation of Maximum and Minimum Water Levels at Screenwell for Safe Operation of Class I Equipment"

Enclosure 4

Draft License Amendment Request for Nine Mile Point

10 CFR 50.90
10 CFR 50.54(q)

NMP1L3153

April XX, 2017

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Nine Mile Point Nuclear Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-63 and NPF-69
NRC Docket Nos. 50-220, 50-410, and 72-1036

SUBJECT: License Amendment Request – Change Emergency Action Level HU1.5 to Remove High Lake Level Initiating Condition for Unusual Event Emergency Classification

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," and pursuant to 10 CFR 50.54(q), "Emergency Plans," Exelon Generation Company, LLC (Exelon) is requests amendments to the licenses for the facilities listed above.

Specifically, the proposed changes involve revising the Emergency Plans for the affected facilities to revised Emergency Action Level (EAL) HU1.5 to remove the high lake level as an initiating condition for entering a Notice of Unusual Event (UE) emergency classification.

Exelon has concluded that the proposed changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92, "Issuance of amendments."

The proposed changes have been reviewed by the Plant Operations Review Committee in accordance with the requirements of the Exelon Quality Assurance Program.

This LAR contains no regulatory commitments.

Attachment 1 provides the evaluation of the proposed changes. Attachment 2 provides a copy of the markup of the proposed Emergency Action Level Matrices pages. Attachment 3 provides a copy of the clean proposed Emergency Action Level Matrices pages. Attachment 4 provides a copy of the marked up EAL Technical Bases pages that reflect the proposed changes and Attachment 5 provides the clean EAL Technical Bases pages.

License Amendment Request
Revise EAL HU1.5 to Remove High Lake Level
NRC Docket Nos. 50-220 and 50-410
April XX, 2017
Page 2

Exelon requests approval of this LAR by May 24, 2017, to support the predicted rise in lake level as described in Attachment 1.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), Exelon is notifying the State of New York of this application for license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

If you have any questions or require additional information, please contact Ron Reynolds at (610) 765-5247.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the XXth day of April 2017.

Respectfully,

Jim Barstow
Director, Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachments: 1. Evaluation of Proposed Changes
 2. Markup of Proposed Emergency Action Level Matrices Pages
 3. Clean Proposed Emergency Action Level Matrices Pages
 4. Markup of Proposed Emergency Action Level Bases Technical Pages
 5. Clean Emergency Action Level Bases Technical Pages

cc: Regional Administrator - NRC Region I w/ attachments
 NRC Senior Resident Inspector - NMP "
 NRC Project Manager, NRR - NMP "
 A.L. Peterson, NYSDERDA "

License Amendment Request
Revise EAL HU1.5 to Remove High Lake Level
NRC Docket Nos. 50-220 and 50-410
April XX, 2017
Page 3

bcc: Senior Vice President - Mid-Atlantic Operations	w/o attachments
Site Vice President - NMP	"
Plant Manager - NMP	"
Director, Operations - NMP	"
Director, Site Engineering - NMP	"
Director, Site Training - NMP	"
Manager, Regulatory Assurance - NMP	w/ attachments
Manager, Licensing, KSA	"
R. Reynolds, KSA	"
Commitment Coordinator - KSA	"
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ATTACHMENT 1

License Amendment Request

EVALUATION OF PROPOSED CHANGES

Subject: License Amendment Request – Change Emergency Action Level HU1.5 to Remove High Lake Level Initiating Condition for Unusual Event Emergency Classification

1.0 SUMMARY DESCRIPTION

2.0 DETAILED DESCRIPTION

3.0 TECHNICAL EVALUATION

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

4.2 Precedent

4.3 No Significant Hazards Consideration

4.4 Conclusions

5.0 ENVIRONMENTAL CONSIDERATION

6.0 REFERENCES

1.0 SUMMARY DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," and pursuant to 10 CFR 50.54(q), "Emergency Plans," Exelon Generation Company, LLC (Exelon) is requesting approval for proposed changes to the Emergency Action Level (EAL) of Renewed Facility Operating License Nos. DPR-63 and NPF-69 for Nine Mile Point Nuclear Station, Unit 1 (NMP1) and Unit 2 (NMP2).

The proposed changes involve revising the Emergency Action Level (EAL) HU1.5 for NMP1 and NMP2 by removing the Notification of Unusual Event (UE) emergency classification threshold for high lake water level. This change is necessary because of recent changes in water management strategy and of natural causes on Lake Ontario.

Exelon requests approval of this license amendment request by May 24, 2017, as a result of the change in water management strategy for the lake and the predicted rise in lake level as a result of natural causes.

2.0 DETAILED DESCRIPTION

The Boundary Waters Treaty of 1909 (BWT) established the International Joint Commission (IJC) as a cornerstone of United States – Canada relations in the boundary region. Under the BWT, the IJC licenses and regulates certain water resource projects along the border that affect levels and flows on the other side. The IJC also alerts the governments to emerging issues that might have negative impacts on the quality or quantity of boundary waters.

The BWT was established in 1909 and later amended in 1987 and 2012. The 2012 amendment was implemented on December 8, 2016, via a Supplementary Order of Approval. The Order required the regulated monthly mean level of Lake Ontario not to exceed monthly values which have occurred between 1900 and 2005. Trigger levels were established for actions to prevent lake level from getting too high or too low. The high trigger levels for April (248.03 ft.), May (248.46 ft.), June (248.33 ft.), and July (248.13 ft.), exceed 248.2 ft. The International Lake Ontario – St. Lawrence River Board ensures the provisions of the Order relating to water levels are adhered to.

Since there was a change in water management strategy of Lake Ontario instituted by a Supplemental Order which was implemented in December 2016 under the provisions of the BWT between the U.S. and Canada. The Order required the regulated monthly mean level of Lake Ontario not to exceed monthly values and action levels were established to prevent lake level from getting too high or too low. Under the current water management strategy mandated by the Order, certain action levels will allow the lake level to be managed above the threshold for the UE condition. As result, Exelon is requesting the elimination of high lake water level as an initiating condition for a UE emergency classification. As of April 18, 2017, the current level of Lake Ontario is approximately 247.3 ft. The U.S. Army Corp of Engineers projects a rise in lake level by another 6-inches by May 14, 2017, based on forecasted level management by the St. Lawrence dam controls. In addition, it is an abnormally wet spring season and recent heavy rain is also impacting water level in Lake Ontario.

Further projected increases may exceed the high water level defined in the NMP1 Updated Final Safety Analysis Report (UFSAR) and NMP2 Updated Safety Analysis Report (USAR). The UFSAR and USAR high lake level is an initiating condition for entering EAL HU1.5. Once the threshold is exceeded, the plants are required to declare a UE emergency classification in accordance with HU1.5. Therefore, the plants will enter a UE for a prolonged period of time which will compound existing public concerns caused by the unexpected environmental conditions being experienced in the area. This UE will remain in place until the lake water level recedes below the action level limits that would require entry into the UE classification. As noted in Section 3.0, the water levels are managed on a month-by-month bases from April through July. These levels, during this period, may exceed the high water level initiating condition for entering the UE. Therefore, if entered, the UE could last through June based on the trigger levels described in Section 3.0.

Proposed Emergency Action Level Changes:

The proposed change to the NMP1 and NMP2 EALs (EP-AA-1013, Addendums 3 and 4), is to delete the Notice of UE threshold for high lake water level as provided in Recognition Category H - Hazards and Other Conditions Affecting Plant Safety, EAL HU1.5. See proposed changes to the EAL and EAL Basis shown below.

NMP1 EP-AA-1013, Addendum 3

Category: H – Hazards and Other Conditions Affecting Plant Safety
Subcategory: 1 – Natural or Destructive Phenomena
Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL: HU1.5 Unusual Event

~~Lake water level > 248.2 ft~~
OR
~~Intake water level < 238.8 ft~~

Plant-Specific

This threshold addresses high and low bay water level conditions that could be a precursor of more serious events (ref. 1, 2).

~~The high lake level is based upon the maximum attainable uncontrolled lake water level as specified in the NMP 2 USAR. Dams on the St. Lawrence River, under the authority of the International St. Lawrence River Board of Control, are now used to regulate the lake level. The low limit is set for el 74.37 m (244 ft) on April 1 and is maintained at or above that elevation during the entire navigation season (April 1 to November 30). The upper limit of the lake level is el 75.59 m (248.2 ft) (ref. 3).~~

The low level is based on intake forebay level and corresponds to the minimum intake water level for operability of Emergency Service Water, Emergency Diesel Generator cooling water, Containment Spray Raw Water and Diesel and Electric FIRE Pump (ref. 4-9).

During planned evolutions such as intake water gate manipulation for reverse flow operations in which continuous monitoring of the intake level is being accomplished, entry into this EAL would not be warranted unless UNPLANNED /unexpected conditions and/or indications occur.

Generic

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL addresses other site specific phenomena that can also be precursors of more serious events.

NMP2, EP-AA-1013, Addendum 4

Category: H – Hazards and Other Conditions Affecting Plant Safety
Subcategory: 1 – Natural or Destructive Phenomena
Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL:

HU1.5 Unusual Event

~~Lake water level > 248.2 ft~~

OR

Intake water level < 237 ft

Mode Applicability:

All

Basis:

Plant-Specific

This threshold addresses high and low lake water level conditions that could be a precursor of more serious events.

~~The high lake level is based upon the maximum attainable uncontrolled lake water level as specified in the USAR. Dams on the St. Lawrence River, under the authority of the International St. Lawrence River Board of Control, are now used to regulate the lake level. The low limit is set for el 74.37 m (244 ft) on April 1 and is maintained at or above that elevation during the entire navigation season (April 1 to November 30). The upper limit of the lake level is el 75.59 m (248.2 ft) (ref. 1).~~

The low level is based on intake water level and corresponds to the design minimum lake level. The probable minimum low water level of Lake Ontario at the site has been determined to be 72.0 m (236.3 ft.) resulting from a setdown caused by a Probable Maximum Wind Storm concurrent with the lowest probable lake level. (ref. 2)

Generic

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL addresses other site specific phenomena that can also be precursors of more serious events.

3.0 TECHNICAL EVALUATION

Background

Lake Ontario, the easternmost of the Great Lakes, is an international body of water forming part of the border between the United States and Canada. The lake is 193 mi long and 53 mi wide at its largest points, and has a surface area of 7,340 sq mi. It has a maximum depth of 802 ft., an average depth of approximately 283 ft., and a volume of 393 cu mi.

The International Lake Ontario – St. Lawrence River Board uses the Moses-Saunders dam on the St. Lawrence River to regulate the lake level. The low limit is set for elevation 244 ft., on April 1 and is maintained at or above that elevation during the entire navigation season (April 1 to November 30).

The BWT established the International Joint Commission (IJC) as a cornerstone of United States – Canada relations in the boundary region. Under the BWT, the IJC licenses and regulates certain water resource projects along the border that affect levels and flows on the other side. The IJC also alerts the governments to emerging issues that might have negative impacts on the quality or quantity of boundary waters.

The 2012 amendment which was implemented on December 8, 2016, via a Supplementary Order of Approval, required the regulated monthly mean level of Lake Ontario not to exceed monthly values which have occurred between 1900 and 2005. Trigger levels were established for actions to prevent lake level from getting too high or too low. The high trigger levels for May (248.46 ft.) and June (248.33 ft.) exceed 248.2 ft., which is the existing threshold. The International Lake Ontario – St. Lawrence River Board ensures the provisions of the Supplemental Order relating to water levels are adhered to.

Water surface setup and seiche are produced by winds and atmospheric pressure gradients. These short-term lake fluctuations are generally less than 2 ft., in amplitude. Winds are directly related to the formation of surface waves, the magnitude of which varies between 0 and 15 ft., in height during a given year. Tide magnitudes amount to less than 1-in.

Lake Ontario provides a heat sink for processing and operating heat from safety related components during a Design Basis Accident (DBA) or transient, as well as during normal operation. Thus, two of the principal functions of Lake Ontario at NMP1 and NMP2 are the dissipation of residual heat after reactor shut down and dissipation of residual heat after an accident.

Flood Protection

All safety-related facilities except the intake structure are protected from flooding by a revetment ditch system. The system is constructed along the lakeshore in front of NMP2. The top of the revetment is at an elevation of 263 ft., and prevents possible plant flooding due to lake level wave action. All safety-related facilities, systems, and equipment are protected against flood damage resulting from the probable maximum storm and historical maximum lake level, historical maximum precipitation and probable maximum lake level and surge with wind-wave action from Probable Maximum Wind Surge (PMWS).

All personnel entrances to Category I structures are at elevation 261 ft., or higher. The revetment ditch system was approved by the NRC in a December 1977 letter.

Lake Level Determination

Lake level determination at the NMP site is performed by accessing a website maintained by the National Oceanic and Atmospheric Administration (NOAA). Current lake level in Oswego, NY is calculated by adding the "Observed Height" to 243.3 ft., (International Great Lakes Datum of 1985 (IGLD85)). Note that IGLD85 is a reference elevation system used to define water levels within the Great Lakes-St. Lawrence River system.

Emergency Action Level Revision

NEI 99-01, Revision 5

Currently, the EAL scheme used at NMP1 and NMP2 are based on the guidance provided in NEI 99-01, Revision 5. NEI 99-01, Revision 5, EAL HU1, Natural or destructive phenomena affecting the PROTECTED AREA includes guidance for establishing a threshold (#5) based on "(Site specific occurrences affecting the PROTECTED AREA)." The basis for threshold #5 states:

This EAL addresses other site specific phenomena (such as hurricane, flood, or seiche) that can also be precursors of more serious events.

This is consistent with the definition of an UE found in NEI 99-01, Revision 5, which states:

Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.

Discussion: *Potential degradation of the level of safety of the plant is indicated primarily by exceeding plant technical specification Limiting Condition of Operation (LCO) allowable action statement time for achieving required mode change. Precursors of more serious events should also be included because precursors do represent a potential degradation in the level of safety of the plant. Minor releases of radioactive materials are included. In this emergency classification level, however, releases do not require monitoring or off-site response.*

In response to the NEI 99-01, Revision 5 guidance, NMP1 and NMP2 EALs have established EAL HU1.5 to provide the minimum and maximum lake levels to serve as a precursor to a more serious event. Specifically, the NMP EALs state the UE maximum lake level of 248.2 ft., in HU1.5 is:

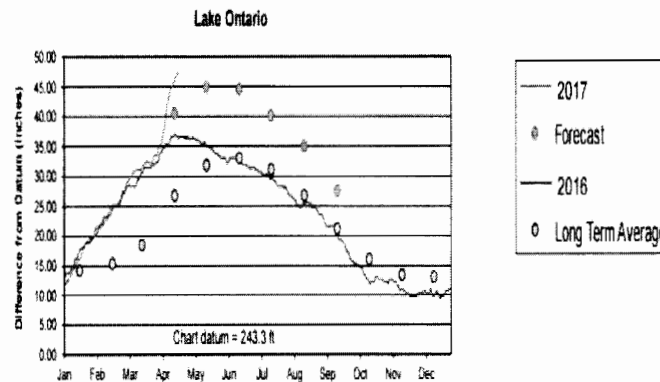
..based on upon the maximum attainable uncontrolled lake water level as specified in the USAR. Dams on the St. Lawrence River, under the authority of the International St. Lawrence River Board of Control, are now used to regulate the lake level.

However, the BWT currently controls lake water level in excess of the UE threshold at NMP1 and NMP2. An amendment to the Boundary Waters Treaty of 1909 was implemented on December 8, 2016, via a Supplementary Order of Approval. The Order required the regulated monthly mean level of Lake Ontario not to exceed monthly values which have occurred between 1900 and 2005. Trigger levels were established for actions to prevent lake level from getting too high or too low. The high trigger levels for May (248.46 ft.) and June (248.33 ft.) exceed the 248.2 ft., UE EAL thresholds at NMP1 and NMP2.

Note that the spring of 2017 has been characterized by high rain levels and low snow and lake freezing levels. As of April 20, 2017, the U.S. Army Corps of Engineers stated that, over the last month, water levels have risen on all of the Great Lakes. Lake Ontario has risen 15 inches. In the next month, Lake Ontario is currently expected to rise approximately 6 inches. The forecast levels exceed the long-term average by 10 inches for the months in question.



U.S. Army Corps of Engineers
Detroit District
<http://www.lre.usace.army.mil>



4/20/2017

As noted, the Lake Ontario lake levels are being controlled to a level which exceeds the UE threshold at NMP1 and NMP2. Because of the IJC actions to control the lake level above the EAL threshold, the UE EAL must be revised to prevent potentially frequent and unjustified entries into an emergency (i.e., UE) condition.

A review of the basis for the NMP maximum lake level threshold of 248.2 ft., indicates there is no operational impact that corresponds to the value. The HU1.5 threshold was selected solely based on being a precursor to a more serious event. Note that the NMP1 and NMP2 EALs provide an "Alert" EAL HA1.5 with a maximum lake level of > 254 ft. This "Alert" level is approximately 6 ft., above the UE level and represents a large differential considering the size of the lake and the time required for the lake levels to change by this amount (i.e., approximately 6 ft.).

Exelon proposes to revise the HU1.5 EAL threshold to remove the UE maximum lake level threshold. NMP site utilizes Operating Procedures to monitor the lake level twice daily. Changes to lake level occur incrementally and large changes occur over extended periods of time. Observed changes/trends are communicated to Station Management for review and appropriate actions. The IJC also provides predictions for significant lake level changes. Station Management is alerted and has opportunity to evaluate trends as the "Alert" EAL threshold is approached.

Given the gradual rate at which significant lake level changes occur, the approximate 6 ft., difference between the UE and "Alert" threshold noted above, provides little value in being a precursor to the "Alert" classification. Considering there is no operational impact to the station until after the 254 ft., "Alert" level, the UE threshold is not necessary or useful considering the frequent monitoring performed by Operations at each unit. UE declarations would be declared unnecessarily with little association or correlation to potential to reach the "Alert" threshold.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The following regulatory requirements have been considered:

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met.

10 CFR 50.47, Emergency Plans: 10 CFR 50.47(b)(4) states, "A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures." The revised EAL criteria continue to meet the requirements of this regulation.

10 CFR 50.54(q) states: "... (2) A holder of a nuclear power reactor operating license under this part...shall follow and maintain in effect emergency plans which meet the requirements in Appendix E of this part.... (4) The changes to a licensee's emergency plan that reduce the effectiveness of the plan...may not be implemented without prior approval by the NRC. A licensee desiring to make such a change...shall submit an application for an amendment to its license...." This LAR for revising the EAL is being submitted in accordance with this regulation. 10 CFR Part 50, Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities, Section IV.B states, "emergency plans are to include EALs, which are to be used as criteria for determining the need for notification and participation of State and local agencies, the NRC and other Federal agencies...." The revised actions continue to meet the requirements of this regulation.

10 CFR 50, Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities, Section IV.B states, "emergency plans are to include EALs, which are to be used as criteria for determining the need for notification and participation of State and local agencies, the NRC and other Federal agencies" The revised actions continue to meet the requirements of this regulation.

Regulatory Guide 1.219, Revision 1, "*Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors*," dated July 2016. This Regulatory Guide describes a method that the NRC considers acceptable to implement the requirements of 10 CFR 50.54(q) related to emergency preparedness and specifically to making changes to emergency response plans.

4.2 Precedent

There is no precedent for this proposed change.

4.3 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon) requests license amendments for the facilities listed below in support of Emergency Plan changes to revise Emergency Action Level (EAL) HU1.5 related to the declaration of a Notice of Unusual Event (UE) emergency classification on high lake level.

- Nine Mile Point Nuclear Station, Unit 1 (NMP1)
- Nine Mile Point Nuclear Station, Unit 2 (NMP2)

The proposed changes have been reviewed considering the applicable requirements of, 10 CFR 50.47, 10 CFR 50, Appendix E, 10 CFR 50.54(q), and other applicable NRC guidance. Exelon has evaluated the proposed changes to the affected facilities Emergency Plans and determined that the changes do not involve a Significant Hazards Consideration. In support of this determination, an evaluation of each of the three (3) standards, set forth in 10 CFR 50.92, "Issuance of amendment," is provided below.

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed changes to EAL HU1.5 do not reduce the capability to meet the emergency planning requirements established in 10 CFR 50.47 and 10 CFR 50, Appendix E. The proposed changes do not reduce the functionality, performance, or capability of the Emergency Response Organization (ERO) to respond in mitigating the consequences of accidents or transients. All required ERO functions at the facilities will continue to be performed as required.

The probability of a reactor accident requiring implementation of Emergency Plan EALs has no relevance in determining whether the proposed changes to the EAL HU1.5 reduce the effectiveness of the Emergency Plans for NMP1 and NMP2. As discussed in Section D, "Planning Basis," of NUREG-0654, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants":

"...The overall objective of emergency response plans is to provide dose savings (and in some cases immediate life saving) for a spectrum of accidents that could produce offsite doses in excess of Protective Action Guides (PAGs). No single specific accident sequence should be isolated as the one for which to plan because each accident could have different consequences, both in nature and degree. Further, the range of possible selection for a planning basis is very large, starting with a zero point of requiring no planning at all because significant offsite radiological accident consequences are unlikely to occur, to planning for the worst possible accident, regardless of its extremely low likelihood...."

Therefore, Exelon did not consider the risk insights regarding any specific accident initiation or progression in evaluating the proposed changes.

The proposed changes do not involve any physical changes to plant equipment or systems, nor do they alter the assumptions of any accident analyses. The proposed changes do not adversely affect accident initiators or precursors nor do they alter the design assumptions, conditions, and configuration or the manner in which the plants are operated and maintained. The proposed changes do not adversely affect the ability of Structures, Systems, or Components (SSCs) to perform their intended safety functions in mitigating the consequences of an initiating event within the assumed acceptance limits.

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

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed changes to EAL HU1.5 do not involve any physical changes to plant systems or equipment. The proposed changes do not involve the addition of any new plant equipment. The proposed changes will not alter the design configuration, or method of operation of plant equipment beyond its normal functional capabilities. All Exelon ERO functions will continue to be performed as required. The proposed changes do not create any new credible failure mechanisms, malfunctions, or accident initiators.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from those that have been previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed changes to EAL HU1.5 do not alter or exceed a design basis or safety limit. There is no change being made to safety analysis assumptions, safety limits, or limiting safety system settings that would adversely affect plant safety as a result of the proposed changes. There are no changes to setpoints or environmental conditions of any SSC or the manner in which any SSC is operated. Margins of safety are unaffected by the proposed changes. The applicable requirements of 10 CFR 50.47 and 10 CFR 50, Appendix E will continue to be met.

Therefore, the proposed changes do not involve any reduction in a margin of safety.

4.4 Conclusions

In conclusion, and based on the considerations discussed above: 1) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed changes to EAL HU1.5; 2) the changes will be in compliance with the NRC's regulations; and 3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment would change requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 because the amendment approves an acceptable EAL change which is required for operation of the facility. Exelon has evaluated the proposed change and has determined that the change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. Regulation Plan 2014 for the Lake Ontario and the St. Lawrence River
2. Nuclear Energy Institute Guidance Document 99-01, Revision 5
3. Nine Mile Point Unit 1 Final Safety Analysis Report (Updated), Revision 24
4. Updated Safety Analysis Report Nine Mile Point Unit 2

ATTACHMENT 2

License Amendment Request

**Change Emergency Action Level HU1.5 to Remove High Lake Level
Initiating Condition for Unusual Event Emergency Classification**

Markup of Proposed Emergency Action Level Matrices Pages

NMP1 EAL Matrices Pages

1

2

NMP2 EAL Matrices Pages

1

2

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																																			
R Abnorm. Rad Release / Rad Effluent	1 Offsite Rad Conditions	None	RS1.1 1 2 3 4 D ANY monitor reading > Table R-1 "SAE" column for ≥ 15 min. (Note 1) • Do not delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RS1.2) OR None	RA1.1 1 2 3 4 D ANY gaseous monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2) RA1.2 1 2 3 4 D ANY liquid monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2) RA1.3 1 2 3 4 D Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 x ODCM limits for ≥ 15 min. (Note 2)	RU1.1 1 2 3 4 D ANY gaseous monitor reading > Table R-1 "UE" column for ≥ 15 min. (Note 2) RU1.2 1 2 3 4 D ANY liquid monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2) RU1.3 1 2 3 4 D Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x ODCM limits for ≥ 60 min. (Note 2)																																			
	2 Onsite Rad Conditions & Spent Fuel Events	RG1.2 1 2 3 4 D Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY RG1.3 1 2 3 4 D Field survey results indicate closed window dose rates > 1,000 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 5,000 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	RS1.2 1 2 3 4 D Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY RS1.3 1 2 3 4 D Field survey results indicate closed window dose rates > 100 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 500 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	None	None																																			
	3 CR/CAS Rad	None	None	None	None																																			
H Hazards & Other Conditions Affecting Plant Safety	1 Natural or Destructive Phenomena	<p>Table R-1 Effluent Monitor Classification Thresholds</p> <table border="1"> <thead> <tr> <th>Monitor</th> <th>GE</th> <th>SAE</th> <th>ALERT</th> <th>UE</th> </tr> </thead> <tbody> <tr> <td>GASEOUS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Stack (RN 10A/B)</td> <td>N/A</td> <td>N/A</td> <td>3.0E4 cps</td> <td>300 cps</td> </tr> <tr> <td>EC Vent</td> <td>N/A</td> <td>300 mRem/hr</td> <td>30 mRem/hr</td> <td>10 mRem/hr</td> </tr> <tr> <td>LIQUID</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SW Effluent</td> <td>N/A</td> <td>N/A</td> <td>90,000 cpm</td> <td>900 cpm</td> </tr> <tr> <td>RW Discharge</td> <td>N/A</td> <td>N/A</td> <td>200 x batch</td> <td>2 x batch</td> </tr> </tbody> </table> <p>Table H-1 Safe Shutdown Areas</p> <ul style="list-style-type: none"> Reactor Building (including Primary Containment) Control Room Screenhouse Turbine Building Battery Rooms Battery Board Rooms Coffey Board Rooms Main Steam Isolation Valve Room Diesel Generator Engine and Board Rooms Security Central Alarm Station Secondary Alarm Station Security Uninterruptible Power Supply Room <p>Notes</p> <ol style="list-style-type: none"> The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown. If loss of water level in the refueling pathway occurs while in Mode 3, 4 or D, consider classification under EALS CU3.1, CU3.2 or CU3.3 The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event. 				Monitor	GE	SAE	ALERT	UE	GASEOUS					Stack (RN 10A/B)	N/A	N/A	3.0E4 cps	300 cps	EC Vent	N/A	300 mRem/hr	30 mRem/hr	10 mRem/hr	LIQUID					SW Effluent	N/A	N/A	90,000 cpm	900 cpm	RW Discharge	N/A	N/A	200 x batch	2 x batch
	Monitor	GE	SAE	ALERT	UE																																			
	GASEOUS																																							
	Stack (RN 10A/B)	N/A	N/A	3.0E4 cps	300 cps																																			
	EC Vent	N/A	300 mRem/hr	30 mRem/hr	10 mRem/hr																																			
	LIQUID																																							
	SW Effluent	N/A	N/A	90,000 cpm	900 cpm																																			
	RW Discharge	N/A	N/A	200 x batch	2 x batch																																			
	2 Fire or Explosion	None	None	None	None																																			
	3 Hazardous Gas	None	None	None	None																																			
4 Security	HG4.1 1 2 3 4 D A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions HG4.2 1 2 3 4 D A HOSTILE ACTION has caused failure of Spent Fuel Cooling systems AND IMMINENT fuel damage is likely	HS4.1 1 2 3 4 D A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Site Supervisor OR A validated notification from NRC of an AIRLINER attack threat within 30 min. of the site	HA4.1 1 2 3 4 D A HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area as reported by the Security Site Supervisor OR A credible site-specific security threat notification OR A validated notification from NRC providing information of an aircraft threat	HU4.1 1 2 3 4 D A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Site Supervisor OR A validated notification from NRC providing information of an aircraft threat																																				
5 Control Room Evacuation	None	HS5.1 1 2 3 4 D Control Room evacuation has been initiated AND Control of the plant cannot be established within 15 min.	HA5.1 1 2 3 4 D Control Room evacuation has been initiated	None																																				
6 Judgment	HG6.1 1 2 3 4 D Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) offsite for more than the immediate site area	HS6.1 1 2 3 4 D Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. ANY releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY	HA6.1 1 2 3 4 D Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. ANY releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE)	HU6.1 1 2 3 4 D Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs																																				
E ISFSI	None	None	None	EU1.1 1 2 3 4 D Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by measured dose rates > then ANY of the following: • 400 mRem/hr at 3 feet from the HSM surface • 100 mRem/hr outside HSM door on centerline • 20 mRem/hr end shield wall exterior																																				

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
S System Malfunc.	1 Loss of AC Power	SG1.1 1 2 Loss of all offsite and all onsite AC power, Table S-1, to 4.16 kV emergency buses AND EITHER: Restoration of at least one 4.16 kV emergency bus within 4 hours is not likely OR RPV water level cannot be restored and maintained above -84 in. or RPV water level cannot be determined	SS1.1 1 2 Loss of all offsite and all onsite AC power, Table S-1, to 4.16 kV emergency buses for ≥ 15 min. (Note 4)	SA1.1 1 2 AC power capability to 4.16 kV emergency buses reduced to a single power source, Table S-1, for ≥ 15 min. (Note 4) AND ANY additional single power source failure will result in a loss of all 4.16 kV emergency bus power	SU1.1 1 2 Loss of all offsite AC power, Table S-1, to 4.16 kV emergency buses for ≥ 15 min. (Note 4)
	2 Loss of DC Power	None	SS2.1 1 2 < 106 VDC on both Battery Board 11 and Battery Board 12 for ≥ 15 min. (Note 4)	None	None
	3 Criticality & RPS Failure	SG3.1 1 An automatic scram fails to shut down the reactor as indicated by reactor power > 6% AND All manual actions fail to shut down the reactor as indicated by reactor power > 6% AND EITHER of the following exist or have occurred: RPV water level cannot be restored and maintained above -109 in. or RPV water level cannot be determined OR Torus water temperature and RPV pressure cannot be maintained below the Heat Capacity Temperature Limit (N1-EOP-4 Figure M)	SS3.1 1 An automatic scram failed to shut down the reactor as indicated by reactor power > 6% AND Manual actions taken at the reactor control console (mode switch in shutdown, manual scram push buttons and ARI) failed to shut down the reactor as indicated by reactor power > 6%	SA3.1 1 An automatic scram failed to shut down the reactor AND Manual actions taken at the reactor control console (mode switch in shutdown, manual scram push buttons or ARI) successfully shut down the reactor as indicated by reactor power ≤ 6%	SU3.1 1 2 An UNPLANNED sustained positive period observed on nuclear instrumentation
	4 Inability to Reach or Maintain Shutdown Conditions	None	None	None	SUA.1 1 2 Plant is not brought to required operating mode within Technical Specifications LCO required action completion time
	5 Inst.	<p>Table S-2 Significant Transients</p> <ul style="list-style-type: none"> Turbine runback > 25% thermal reactor power Electric load rejection > 25% full electrical load Reactor scram ECCS injection Thermal power oscillations > 10% 	SS5.1 1 2 Loss of > approximately 75% of annunciation or indication on Control Room panels L, K, H, F and G for ≥ 15 min. (Note 4) AND A significant transient is in progress, Table S-2 AND Compensatory indications are unavailable (Plant Computer, SPDS)	SA5.1 1 2 UNPLANNED loss of > approximately 75% of annunciation or indication on Control Room panels L, K, H, F and G for ≥ 15 min. (Note 4) AND EITHER: A significant transient is in progress, Table S-2 OR Compensatory indications are unavailable (Plant Process Computer, SPDS)	SUS.1 1 2 UNPLANNED loss of > approximately 75% of annunciation or indication on Control Room panels L, K, H, F and G for ≥ 15 min. (Note 4)
	6 Comm.	None	None	None	SUE.1 1 2 Loss of all Table S-3 onsite (internal) communication methods affecting the ability to perform routine operations OR Loss of all Table S-3 offsite (external) communication methods affecting the ability to perform offsite notifications
	7 Fuel Clad Degradation	None	None	None	SU7.1 1 2 Reactor coolant activity > 4 µCi/gm I-131 Equivalent
	8 RCS Leakage	None	None	None	SU7.2 1 2 Offgas radiation monitor RN-12A or RN-12B > hi-hi alarm for ≥ 15 min. SUS.1 1 2 Unidentified drywell leakage > 10 gpm OR Identified reactor coolant drywell leakage > 25 gpm
F Fission Product Barrier Degradation	FG1.1 1 2 Loss of ANY two fission product barriers AND Loss or potential loss of third fission product barrier (Table F-1)	FS1.1 1 2 Loss or potential loss of ANY two fission product barriers (Table F-1)	FA1.1 1 2 ANY loss or ANY potential loss of EITHER Fuel Clad barrier OR RCS barrier (Table F-1)	FU1.1 1 2 ANY loss or ANY potential loss of Containment barrier (Table F-1)	

Table S-3 Communications Systems

System	Onsite (internal)	Offsite (external)
PBX (normal dial telephones)	X	X
Galtronics	X	X
Hand-Held Portable Radio (station radio)	X	X
Control Room installed satellite phones (non portable)		X
ENS	X	X
RECS	X	X

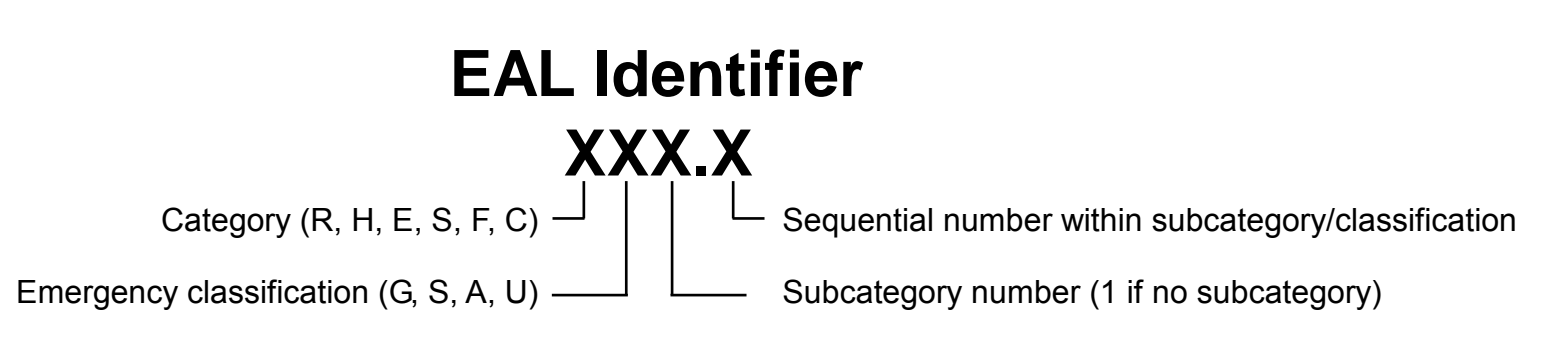
Table F-1 Fission Product Barrier Matrix

	Fuel Clad Barrier		Reactor Coolant System Barrier		Containment Barrier	
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
A RPV Water Level	1. Primary Containment Flooding is required	1. RPV water level cannot be restored and maintained above -84 in. following depressurization of the RPV or RPV water level cannot be determined	1. RPV water level cannot be restored and maintained above -84 in. or RPV water level cannot be determined	None	None	1. Primary Containment Flooding is required
B Primary Containment Pressure / Temperature	None	None	2. Primary Containment pressure rise followed by a rapid UNPLANNED drop in Primary Containment pressure	None	1. Primary Containment pressure response not consistent with LOCA conditions	2. Torus pressure > 35 psig and rising 3. Explosive mixture exists inside Primary Containment (≥ 6% H ₂ and ≥ 5% O ₂)
C Isolation	None	None	3. Release pathway exists outside Primary Containment resulting from isolation failure in ANY of the following systems (excluding normal process system flowpaths from an UNSOLUBLE system): • Main steam line • EC steam line • RWCU • Feedwater	1. UNSOLUBLE primary system leakage outside Primary Containment as indicated by exceeding EITHER: ANY N1-EOP-5 Detail T area temperature alarm setpoint OR ANY N1-EOP-5 Detail R area radiation alarm setpoint	3. Failure of all Primary Containment isolation valves in ANY one line to close following auto or manual initiation AND Direct downstream pathway outside Primary Containment and to the environment exists	4. Intentional Primary Containment venting per EOPs 5. UNSOLUBLE primary system leakage outside Primary Containment as indicated by exceeding EITHER: Maximum safe general area temperature of 135°F OR Maximum safe area radiation of 8 R/hr
D Rad	2. Drywell radiation ≥ 3,000 R/hr 3. Reactor coolant activity > 300 µCi/gm I-131 Equivalent	None	5. Drywell radiation ≥ 80 R/hr	None	None	5. Drywell radiation ≥ 4.0 E4 R/hr
E Judgment	4. ANY condition in the opinion of the Emergency Director that indicates loss of the Fuel Clad barrier	2. ANY condition in the opinion of the Emergency Director that indicates potential loss of the Fuel Clad barrier	6. ANY condition in the opinion of the Emergency Director that indicates loss of the Reactor Coolant System barrier	2. ANY condition in the opinion of the Emergency Director that indicates potential loss of the Reactor Coolant System barrier	6. ANY condition in the opinion of the Emergency Director that indicates loss of the Containment barrier	6. ANY condition in the opinion of the Emergency Director that indicates potential loss of the Containment barrier

EAL Identifier
XXXX.X
Category (R, H, E, S, F, C) Sequential number within subcategory/classification
Emergency classification (G, S, A, U) Subcategory number (1 if no subcategory)

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																																			
R Abnorm. Rad Release / Rad Effluent	1 Offsite Rad Conditions	None	RS1.1 [1 2 3 4 D] ANY monitor reading > Table R-1 "SAE" column for ≥ 15 min. (Note 1) • Do not delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RS1.2)	RA1.1 [1 2 3 4 D] ANY gaseous monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2)	RU1.1 [1 2 3 4 D] ANY gaseous monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2)																																			
	2 Onsite Rad Conditions & Spent Fuel Events	RG1.2 [1 2 3 4 D] Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY	RS1.2 [1 2 3 4 D] Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY (Note 1)	RA1.2 [1 2 3 4 D] ANY liquid monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2)	RU1.2 [1 2 3 4 D] ANY liquid monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2)																																			
	3 CR/CAS Rad	RG1.3 [1 2 3 4 D] Field survey results indicate closed window dose rates > 1,000 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 5,000 mrem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	RS1.3 [1 2 3 4 D] Field survey results indicate closed window dose rates > 100 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 500 mrem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	RA1.3 [1 2 3 4 D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 x ODCM limits for ≥ 15 min. (Note 2)	RU1.3 [1 2 3 4 D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x ODCM limits for ≥ 60 min. (Note 2)																																			
H Hazards & Other Conditions Affecting Plant Safety	1 Natural or Destructive Phenomena	<p>Table R-1 Effluent Monitor Classification Thresholds</p> <table border="1"> <thead> <tr> <th>Monitor</th> <th>GE</th> <th>SAE</th> <th>ALERT</th> <th>UE</th> </tr> </thead> <tbody> <tr> <td>GASEOUS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Stack (RV 10A/B)</td> <td>N/A</td> <td>N/A</td> <td>3.0E4 cps</td> <td>300 cps</td> </tr> <tr> <td>EC Vent</td> <td>N/A</td> <td>300 mRem/hr</td> <td>30 mRem/hr</td> <td>10 mRem/hr</td> </tr> <tr> <td>LIQUID</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SW Effluent</td> <td>N/A</td> <td>N/A</td> <td>90,000 cpm</td> <td>900 cpm</td> </tr> <tr> <td>RW Discharge</td> <td>N/A</td> <td>N/A</td> <td>200 x batch</td> <td>2 x batch</td> </tr> </tbody> </table> <p>Table H-1 Safe Shutdown Areas</p> <ul style="list-style-type: none"> Reactor Building (including Primary Containment) Control Room Screenhouse Turbine Building Battery Rooms Battery Board Rooms Cable Spreading Room Main Steam Isolation Valve Room Diesel Generator Engine and Board Rooms Security Central Alarm Station Secondary Alarm Station Security Uninterruptible Power Supply Room <p>Notes</p> <ol style="list-style-type: none"> The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown. If loss of water level in the refueling pathway occurs while in Mode 3, 4 or D, consider classification under EALs CUS.1, CUS.2 or CUS.3 The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event. 				Monitor	GE	SAE	ALERT	UE	GASEOUS					Stack (RV 10A/B)	N/A	N/A	3.0E4 cps	300 cps	EC Vent	N/A	300 mRem/hr	30 mRem/hr	10 mRem/hr	LIQUID					SW Effluent	N/A	N/A	90,000 cpm	900 cpm	RW Discharge	N/A	N/A	200 x batch	2 x batch
	Monitor	GE	SAE	ALERT	UE																																			
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	Stack (RV 10A/B)	N/A	N/A	3.0E4 cps	300 cps																																			
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	LIQUID																																							
	SW Effluent	N/A	N/A	90,000 cpm	900 cpm																																			
	RW Discharge	N/A	N/A	200 x batch	2 x batch																																			
	2 Fire or Explosion	None	None	HA2.1 [1 2 3 4 D] FIRE or EXPLOSION resulting in EITHER: • VISIBLE DAMAGE to ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR • Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area	HU2.1 [1 2 3 4 D] FIRE not extinguished within 15 min. of Control Room notification or verification of a Control Room FIRE alarm in ANY Table H-1 area, Rad/Waste Solidification and Storage Bldg. or Security West Bldg (Note 4)																																			
	3 Hazardous Gas	None	None	HA3.1 [1 2 3 4 D] Access to ANY Table H-1 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shutdown the reactor (Note 5)	HU3.1 [1 2 3 4 D] Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS																																			
4 Security	HG4.1 [1 2 3 4 D] A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions	HS4.1 [1 2 3 4 D] A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Site Supervisor	HA4.1 [1 2 3 4 D] A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Site Supervisor	HU4.1 [1 2 3 4 D] A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Site Supervisor																																				
5 Control Room Evacuation	None	HS5.1 [1 2 3 4 D] Control Room evacuation has been initiated	HA5.1 [1 2 3 4 D] Control Room evacuation has been initiated	None																																				
6 Judgment	HG6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) offsite for more than the immediate site area	HS6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of; or, (2) that prevent effective access to equipment needed for the protection of the public. ANY releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY	HA6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. ANY releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE)	HU6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs																																				
E ISFSI	None	None	None	EU1.1 [1 2 3 4 D] Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by measured dose rates > then ANY of the following: • 400 mRem/hr at 3 feet from the HSM surface • 100 mRem/hr outside HSM door on centerline • 20 mRem/hr end shield wall exterior																																				

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																																
C Cold SD/ Refuel System Malfunc.	1 Loss of AC Power	<p>Table C-1 AC Power Sources</p> <table border="1"> <thead> <tr> <th>Onsite</th> <th>Offsite</th> </tr> </thead> <tbody> <tr> <td>• DG102 • DG103</td> <td>• T-101N • T-101S • T-10 backfed from offsite through T-1 or T-2 (only if already aligned)</td> </tr> </tbody> </table>		Onsite	Offsite	• DG102 • DG103	• T-101N • T-101S • T-10 backfed from offsite through T-1 or T-2 (only if already aligned)	CA1.1 [1 2 3 4 D] Loss of all offsite and all onsite AC power, Table C-1, to 4.16 kV emergency buses for ≥ 15 min. (Note 4)	CU1.1 [1 2 3 4 D] AC power capability to 4.16 kV emergency buses reduced to a single power source, Table C-1, for ≥ 15 min. (Note 4) AND ANY additional single power source failure will result in a loss of all 4.16 kV emergency bus power																												
	Onsite	Offsite																																			
	• DG102 • DG103	• T-101N • T-101S • T-10 backfed from offsite through T-1 or T-2 (only if already aligned)																																			
	2 Loss of DC Power	None		CA3.1 [1 2 3 4 D] RPV water level < +5 in. OR RPV water level cannot be monitored for ≥ 15 min. with ANY UNPLANNED RPV leakage indication, Table C-2 (Note 4)	CU2.1 [1 2 3 4 D] < 106 VDC on required 125 VDC buses (Battery board 11, Battery board 12) for ≥ 15 min. (Note 4)																																
	3 RPV Water Level	CG3.1 [1 2 3 4 D] RPV water level < -84 in. for ≥ 30 min. (Note 4) AND ANY Containment Challenge Indication, Table C-3	CS3.1 [1 2 3 4 D] With CONTAINMENT CLOSURE not established, RPV water level < -1 in.	CA3.1 [1 2 3 4 D] RPV water level cannot be monitored for ≥ 30 min. (Note 4) with a loss of RPV inventory as indicated by ANY of the following: • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication	CU3.1 [1 2 3 4 D] RCS leakage results in the inability to maintain or restore RPV water level > +53 in. for ≥ 15 min. (Note 4)																																
	4 RCS Temp.	CG3.2 [1 2 3 4 D] RPV water level cannot be monitored with core uncovers indicated by ANY of the following for ≥ 30 min. (Note 4): • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication	CS3.2 [1 2 3 4 D] With CONTAINMENT CLOSURE established, RPV water level < -84 in.	CA4.1 [1 2 3 4 D] An UNPLANNED event results in EITHER: • RCS temperature > 212°F for > Table C-4 duration OR • RPV pressure increase > 10 psi due to an UNPLANNED loss of decay heat removal capability	CU4.1 [1 2 3 4 D] Unplanned event results in RCS temperature > 212°F																																
5 Inadvertent Criticality	CG3.3 [1 2 3 4 D] RPV water level cannot be monitored for ≥ 30 min. (Note 4) with a loss of RPV inventory as indicated by ANY of the following: • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication	CS3.3 [1 2 3 4 D] RPV water level cannot be monitored for ≥ 30 min. (Note 4) with a loss of RPV inventory as indicated by ANY of the following: • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication	CA4.2 [1 2 3 4 D] Loss of all RCS temperature and RPV water level indication for ≥ 15 min. (Note 4)	CU4.2 [1 2 3 4 D] Loss of all RCS temperature and RPV water level indication for ≥ 15 min. (Note 4)																																	
6 Comm.	<p>Table C-2 RPV Leakage Indications</p> <ul style="list-style-type: none"> Drywell equipment drain tank level rise Drywell floor drain tank level rise Reactor building equipment sump level rise (Note 3) Reactor Building floor drain sump level rise Torus water level rise UNPLANNED rise in RPV make-up rate ARM 25 (Rx building - east wall) ARM 29 (Refuel bridge (LOW RANGE)) Refuel Bridge (HIGH RANGE) Reactor Building Vent Radiation Monitor Observation of UNISOLABLE RCS leakage <p>Table C-3 Containment Challenge Indications</p> <ul style="list-style-type: none"> CONTAINMENT CLOSURE not established Explosive mixture exists inside Primary Containment (H₂ ≥ 6% and O₂ ≥ 5%) UNPLANNED rise in Primary Containment pressure RB area radiation > 8 R/hr <p>Table C-4 RCS Reheat Duration Thresholds</p> <ul style="list-style-type: none"> If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, the EAL is not applicable. <table border="1"> <thead> <tr> <th>RCS Status</th> <th>CONTAINMENT CLOSURE Status</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>INTACT</td> <td>N/A</td> <td>60 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Established</td> <td>20 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Not established</td> <td>0 min.</td> </tr> </tbody> </table> <p>Table C-5 Communications Systems</p> <table border="1"> <thead> <tr> <th>System</th> <th>Onsite (internal)</th> <th>Offsite (external)</th> </tr> </thead> <tbody> <tr> <td>PBX (normal dial telephones)</td> <td>X</td> <td>X</td> </tr> <tr> <td>Galtronics</td> <td>X</td> <td>X</td> </tr> <tr> <td>Hand-Held Portable Radio (station radio)</td> <td>X</td> <td></td> </tr> <tr> <td>Control Room installed satellite phones (non portable)</td> <td></td> <td>X</td> </tr> <tr> <td>ENS</td> <td></td> <td>X</td> </tr> <tr> <td>RECS</td> <td></td> <td>X</td> </tr> </tbody> </table>		RCS Status	CONTAINMENT CLOSURE Status	Duration	INTACT	N/A	60 min.*	Not INTACT	Established	20 min.*	Not INTACT	Not established	0 min.	System	Onsite (internal)	Offsite (external)	PBX (normal dial telephones)	X	X	Galtronics	X	X	Hand-Held Portable Radio (station radio)	X		Control Room installed satellite phones (non portable)		X	ENS		X	RECS		X	CU5.1 [1 2 3 4 D] An UNPLANNED sustained positive period observed on nuclear instrumentation	CU6.1 [1 2 3 4 D] Loss of all Table C-5 onsite (internal) communication methods affecting the ability to perform routine operations OR Loss of all Table C-5 offsite (external) communication methods affecting the ability to perform offsite notifications
RCS Status	CONTAINMENT CLOSURE Status	Duration																																			
INTACT	N/A	60 min.*																																			
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Hand-Held Portable Radio (station radio)	X																																				
Control Room installed satellite phones (non portable)		X																																			
ENS		X																																			
RECS		X																																			



Emergency Classification Matrix (EAL) for Offsite Rad Conditions, Onsite Rad Conditions & Spent Fuel Events, CR/CAS Rad, Natural or Destructive Phenomena, Hazards & Other Conditions Affecting Plant Safety, Fire or Explosion, Hazardous Gas, Security, Control Room Evacuation, Judgment, and ISFSI. Includes sub-tables for Effluent Monitor Classification Thresholds and Safe Shutdown Areas.

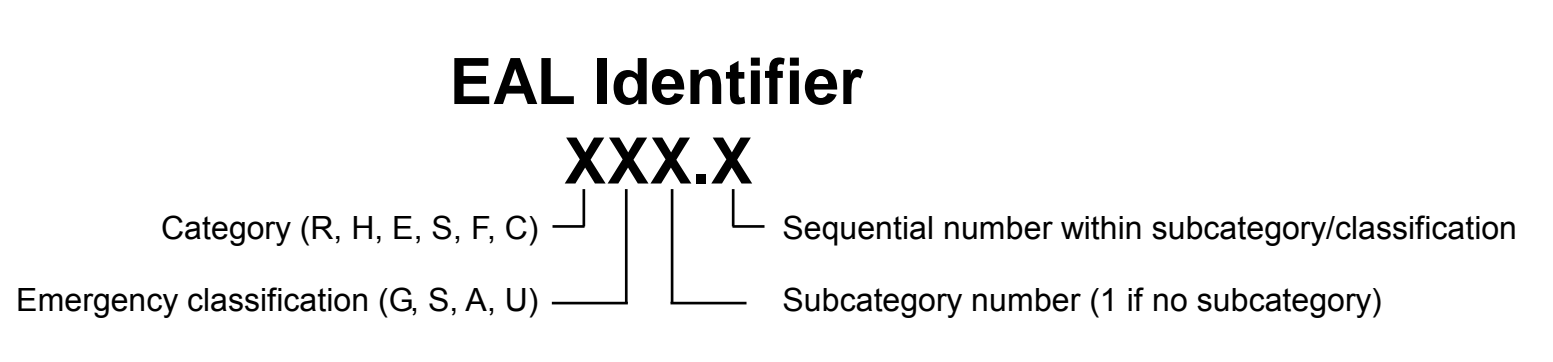
Emergency Classification Matrix (EAL) for Loss of AC Power, Loss of DC Power, Criticality & RPS Failure, Inability to Reach or Maintain Shutdown Conditions, System Malfunc., Inst., Comm., Fuel Clad Degradation, RCS Leakage, and Fission Product Barrier Degradation. Includes sub-tables for Significant Transients and Communications Systems.

Table F-1 Fission Product Barrier Matrix. Matrix with columns for Fuel Clad Barrier, Reactor Coolant System Barrier, and Containment Barrier, and rows for RPV Water Level, Primary Containment Pressure / Temperature, Isolation, Rad, and Judgment. Includes EAL Identifier legend and Modes: Power Operation, Startup, Hot Shutdown, Cold Shutdown, Refuel, Defueled.

MODE 1, 2 or 3

	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																																																						
R Abnorm. Rad Release / Rad Effluent	1 Offsite Rad Conditions RG1.1 [1][2][3][4][5][D] ANY monitor reading > Table R-1 "GE" column for ≥ 15 min. (Note 1) • Do not delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RG1.2) RG1.2 [1][2][3][4][5][D] Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY (Note 1) RG1.3 [1][2][3][4][5][D] Field survey results indicate closed window dose rates > 1,000 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 5,000 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	1 Onsite Rad Conditions & Spent Fuel Events RS1.1 [1][2][3][4][5][D] ANY monitor reading > Table R-1 "SAE" column for ≥ 15 min. (Note 1) • Do not delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RS1.2) RS1.2 [1][2][3][4][5][D] Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY (Note 1) RS1.3 [1][2][3][4][5][D] Field survey results indicate closed window dose rates > 100 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 500 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	1 Alert RA1.1 [1][2][3][4][5][D] ANY gaseous monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2) RA1.2 [1][2][3][4][5][D] ANY liquid monitor > Table R-1 "Alert" column for ≥ 15 min. (Note 2) RA1.3 [1][2][3][4][5][D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 x ODCM limits for ≥ 15 min. (Note 2)	1 Unusual Event RU1.1 [1][2][3][4][5][D] ANY gaseous monitors > Table R-1 "UE" column for ≥ 60 min. (Note 2) RU1.2 [1][2][3][4][5][D] ANY liquid monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2) RU1.3 [1][2][3][4][5][D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x ODCM limits for ≥ 60 min. (Note 2)																																																						
	2 Onsite Rad Conditions & Spent Fuel Events Table R-1 Effluent Monitor Classification Thresholds <table border="1"> <thead> <tr> <th>Monitor</th> <th>GE</th> <th>SAE</th> <th>ALERT</th> <th>UE</th> </tr> </thead> <tbody> <tr> <td>GASEOUS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Radwaste/RB Vent Effluent</td> <td>5.5E+7 µCi/s</td> <td>5.5E+6 µCi/s</td> <td>200 x Alarm</td> <td>2 x Alarm</td> </tr> <tr> <td>Main Stack Effluent</td> <td>1.0E+10 µCi/s</td> <td>1.0E+9 µCi/s</td> <td>200 x Alarm</td> <td>2 x Alarm</td> </tr> <tr> <td>Service Water Effluent</td> <td>N/A</td> <td>N/A</td> <td>200 x DRMS High (red)</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>Liquid Rad/Waste Effluent</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>Cooling Tower Blowdown</td> <td>N/A</td> <td>N/A</td> <td>200 x DRMS High (red)</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>LIQUID</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Service Water Effluent</td> <td>N/A</td> <td>N/A</td> <td>200 x DRMS High (red)</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>Liquid Rad/Waste Effluent</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>Cooling Tower Blowdown</td> <td>N/A</td> <td>N/A</td> <td>200 x DRMS High (red)</td> <td>2 x DRMS High (red)</td> </tr> </tbody> </table>	Monitor	GE	SAE	ALERT	UE	GASEOUS					Radwaste/RB Vent Effluent	5.5E+7 µCi/s	5.5E+6 µCi/s	200 x Alarm	2 x Alarm	Main Stack Effluent	1.0E+10 µCi/s	1.0E+9 µCi/s	200 x Alarm	2 x Alarm	Service Water Effluent	N/A	N/A	200 x DRMS High (red)	2 x DRMS High (red)	Liquid Rad/Waste Effluent	N/A	N/A	N/A	2 x DRMS High (red)	Cooling Tower Blowdown	N/A	N/A	200 x DRMS High (red)	2 x DRMS High (red)	LIQUID					Service Water Effluent	N/A	N/A	200 x DRMS High (red)	2 x DRMS High (red)	Liquid Rad/Waste Effluent	N/A	N/A	N/A	2 x DRMS High (red)	Cooling Tower Blowdown	N/A	N/A	200 x DRMS High (red)	2 x DRMS High (red)	2 Onsite Rad Conditions & Spent Fuel Events RA2.1 [1][2][3][4][5][D] Alarm on ANY of the following radiation monitors due to damage to irradiated fuel or loss of water level: • 2RMS-RE111 • 2RMS-RE112 • 2RMS-RE113 • 2RMS-RE114 • 2RMS-RE140 • 2HVR-RE14A • 2HVR-RE14B RA2.2 [1][2][3][4][5][D] A water level drop in a reactor refueling pathway that will result in irradiated fuel becoming uncovered RA2.3 [1][2][3][4][5][D] Dose rates > 15 mRem/hr in EITHER of the following areas as indicated by EITHER: • Control Room indication of degraded performance of systems required to maintain plant safety functions: Control Room OR CAS OR ANY amber LED light lit at the Seismic Monitor Panel, Response Spectrum Annunciator AND Earthquake confirmed by ANY of the following: • Earthquake felt in plant • JAFNPP seismic instrumentation • Control Room indication of degraded performance of systems required for the safe shutdown of the plant HA1.1 [1][2][3][4][5][D] Seismic event > OBE (0.075g) as indicated by EITHER: • Annameter 842/21 SEISMIC ACCELERATION EXCEEDED indicates seismic event detected OR • Confirmation of earthquake received on NMP-1 or JAFNPP seismic instrumentation • Earthquake felt in plant HA1.2 [1][2][3][4][5][D] Earthquake confirmed by ANY of the following: • Earthquake felt in plant • JAFNPP seismic instrumentation • Control Room indication of degraded performance of systems required for the safe shutdown of the plant HA1.3 [1][2][3][4][5][D] Internal flooding resulting in EITHER: • An electrical shock hazard that precludes access to operate or monitor ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR • Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area HA1.4 [1][2][3][4][5][D] Turbine failure-generated PROJECTILES resulting in EITHER: • VISIBLE DAMAGE to or penetration of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR • Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area HA1.5 [1][2][3][4][5][D] Lake water level > 254 ft OR Intake water level < 233 ft HA1.6 [1][2][3][4][5][D] Vehicle crash resulting in EITHER: • VISIBLE DAMAGE to ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR • Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area HA2.1 [1][2][3][4][5][D] FIRE or EXPLOSION resulting in EITHER: • VISIBLE DAMAGE to ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR • Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area HA3.1 [1][2][3][4][5][D] Access to ANY Table H-1 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safety shutdown of the reactor (Note 5) HA4.1 [1][2][3][4][5][D] A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Site Supervisor OR A validated notification from NRC of an AIRLINER attack threat within 30 min. of the site HA5.1 [1][2][3][4][5][D] Control Room evacuation has been initiated HA6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts: (1) toward site personnel or equipment that could lead to the likely failure of or: (2) that prevent effective access to equipment needed for the protection of the public. ANY releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY	2 Onsite Rad Conditions & Spent Fuel Events RU2.1 [1][2][3][4][5][D] UNPLANNED water level drop in a reactor refueling pathway as indicated by inability to restore and maintain SFP level > low water level alarm (Note 3) AND Area radiation monitor reading rise on ANY of the following: • 2RMS-RE111 • 2RMS-RE112 • 2RMS-RE113 • 2RMS-RE114 • 2RMS-RE140 • 2HVR-RE14A • 2HVR-RE14B RU2.2 [1][2][3][4][5][D] UNPLANNED area radiation readings rise by a factor of 1,000 over NORMAL LEVELS HU1.1 [1][2][3][4][5][D] Seismic event identified by ANY two of the following: • Annameter 842/21 SEISMIC ACCELERATION EXCEEDED indicates seismic event detected • Confirmation of earthquake received on NMP-1 or JAFNPP seismic instrumentation • Earthquake felt in plant HU1.2 [1][2][3][4][5][D] Tornado striking within PROTECTED AREA boundary OR Sustained high winds > 90 mph HU1.3 [1][2][3][4][5][D] Internal flooding that has the potential to affect ANY SAFETY-RELATED STRUCTURE, SYSTEM, OR COMPONENT required by Technical Specifications for the current operating mode in ANY Table H-1 area HU1.4 [1][2][3][4][5][D] Turbine failure resulting in ANY of the following: • Casing penetration • Damage to turbine seals • Damage to generator seals HU1.5 [1][2][3][4][5][D] Lake water level > 245.2 ft OR Intake water level < 237 ft HU2.1 [1][2][3][4][5][D] FIRE not extinguished within 15 min. of Control Room notification or verification of a Control Room FIRE alarm in ANY Table H-1 area or Turbine Building (Note 4) HU2.2 [1][2][3][4][5][D] EXPLOSION of sufficient force to damage permanent structures or equipment within the PROTECTED AREA HU3.1 [1][2][3][4][5][D] Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS HU3.2 [1][2][3][4][5][D] Recommendation by local, county or state officials to evacuate or shelter site personnel based on an offsite event HU4.1 [1][2][3][4][5][D] A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Site Supervisor OR A credible site-specific security threat notification OR A validated notification from NRC providing information of an aircraft threat HU5.1 [1][2][3][4][5][D] Control Room evacuation has been initiated HU6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. ANY releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE)
	Monitor	GE	SAE	ALERT	UE																																																					
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3 CRICAS Rad None	3 CRICAS Rad None	3 CRICAS Rad None	3 CRICAS Rad None																																																							
H Hazards & Other Conditions Affecting Plant Safety	1 Natural or Destructive Phenomena Table H-1 Safe Shutdown Areas <ul style="list-style-type: none"> Reactor Building (including Primary Containment) Control Room Diesel Generator Engine and Board Rooms Standby Switchgear and Battery Rooms HPCS Switchgear and Battery Rooms HPCS Switchgear and Battery Rooms Remote Shutdown Rooms Control Building HVAC Rooms Service Water Pump Rooms Electrical Protection Assembly Room PGCC Relay Room Notes 1. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time 2. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown 3. If loss of water level in the refueling pathway occurs while in Mode 4, 5 or D, consider classification under EALs CU3.1, CU3.2 or CU3.3 4. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time 5. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.	1 Natural or Destructive Phenomena None	1 Natural or Destructive Phenomena None	1 Natural or Destructive Phenomena None																																																						
	2 Fire or Explosion None	2 Fire or Explosion None	2 Fire or Explosion None	2 Fire or Explosion None																																																						
	3 Hazardous Gas None	3 Hazardous Gas None	3 Hazardous Gas None	3 Hazardous Gas None																																																						
E ISFSI	4 Security HG4.1 [1][2][3][4][5][D] A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions HG4.2 [1][2][3][4][5][D] A HOSTILE ACTION has caused failure of Spent Fuel Cooling systems AND IMMINENT fuel damage is likely	4 Security HS4.1 [1][2][3][4][5][D] A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Site Supervisor HS5.1 [1][2][3][4][5][D] Control Room evacuation has been initiated AND Control of the plant cannot be established within 15 min.	4 Security HA4.1 [1][2][3][4][5][D] A HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area as reported by the Security Site Supervisor HA5.1 [1][2][3][4][5][D] Control Room evacuation has been initiated	4 Security HU4.1 [1][2][3][4][5][D] A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Site Supervisor HU5.1 [1][2][3][4][5][D] Control Room evacuation has been initiated																																																						
	5 Control Room Evacuation None	5 Control Room Evacuation None	5 Control Room Evacuation None	5 Control Room Evacuation None																																																						
E ISFSI	6 Judgment HG6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) offsite for more than the immediate site area	6 Judgment HS6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts: (1) toward site personnel or equipment that could lead to the likely failure of or: (2) that prevent effective access to equipment needed for the protection of the public. ANY releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY	6 Judgment HA6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. ANY releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE)	6 Judgment HU6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. ANY releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE)																																																						
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C Cold SD/ Refuel System Malfunction	1 Loss of AC Power Table C-1 AC Power Sources <table border="1"> <thead> <tr> <th>Onsite</th> <th>Offsite</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> 2EGS'EG1 2EGS'EG3 </td> <td> <ul style="list-style-type: none"> Reserve Transformer A Reserve Transformer B Aux Boiler Transformer </td> </tr> </tbody> </table>	Onsite	Offsite	<ul style="list-style-type: none"> 2EGS'EG1 2EGS'EG3 	<ul style="list-style-type: none"> Reserve Transformer A Reserve Transformer B Aux Boiler Transformer 	1 Loss of AC Power CA1.1 [1][2][3][4][5][D] Loss of all offsite and all onsite AC power, Table C-1, to 4.16 KV emergency buses 2ENS'SWG101 and 2ENS'SWG103 for ≥ 15 min. (Note 4)	1 Alert CA3.1 [1][2][3][4][5][D] RPV water level < 17.8 in. OR RPV water level cannot be monitored for ≥ 15 min. with ANY UNPLANNED RPV leakage indication, Table C-2 (Note 4)	1 Unusual Event CU1.1 [1][2][3][4][5][D] AC power capability to 4.16 KV emergency buses 2ENS'SWG101 and 2ENS'SWG103 reduced to a single power source, Table C-1, for ≥ 15 min. (Note 4) AND ANY additional single power source failure will result in a loss of all power to 4.16 KV emergency buses 2ENS'SWG101 and 2ENS'SWG103 CU2.1 [1][2][3][4][5][D] < 105 VDC on required 125 VDC emergency buses for ≥ 15 min. (Note 4)																												
	Onsite	Offsite																																		
	<ul style="list-style-type: none"> 2EGS'EG1 2EGS'EG3 	<ul style="list-style-type: none"> Reserve Transformer A Reserve Transformer B Aux Boiler Transformer 																																		
	2 Loss of DC Power CG3.1 [1][2][3][4][5][D] RPV level < -14 in. for ≥ 30 min. (Note 4) AND ANY Containment Challenge Indication, Table C-3 CG3.2 [1][2][3][4][5][D] RPV water level cannot be monitored with core uncover indicated by ANY of the following for ≥ 30 min. (Note 4): • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication AND ANY Containment Challenge Indication, Table C-3	2 Loss of DC Power CS3.1 [1][2][3][4][5][D] With CONTAINMENT CLOSURE not established, RPV water level < 11.8 in. CS3.2 [1][2][3][4][5][D] With CONTAINMENT CLOSURE established, RPV water level < -14 in. CS3.3 [1][2][3][4][5][D] RPV water level cannot be monitored for ≥ 30 min. (Note 4) with a loss of RPV inventory as indicated by ANY of the following: • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication	2 Alert CA3.1 [1][2][3][4][5][D] RPV water level < 17.8 in. OR RPV water level cannot be monitored for ≥ 15 min. with ANY UNPLANNED RPV leakage indication, Table C-2 (Note 4)	2 Unusual Event CU3.1 [1][2][3][4][5][D] RCS leakage results in the inability to maintain or restore RPV water level > 159.3 in. for ≥ 15 min. (Note 4) CU3.2 [1][2][3][4][5][D] UNPLANNED RPV water level drop below EITHER of the following for ≥ 15 min. (Note 4): • 364 in. (RPV flange) • RPV water level band (when the RPV water level band is established below the RPV flange) CU3.3 [1][2][3][4][5][D] RPV water level cannot be monitored with a loss of RPV inventory as indicated by ANY UNPLANNED RPV leakage indication, Table C-2																																
	3 RPV Water Level Table C-2 RPV Leakage Indications <ul style="list-style-type: none"> Drywell equipment drain sump level rise Drywell floor drain sump level rise Reactor building equipment sump level rise Reactor Building floor drain sump level rise Suppression Pool level rise UNPLANNED rise in RPV make-up rate Observation of UNISOLABLE RCS leakage 	3 RPV Water Level Table C-3 Containment Challenge Indications <ul style="list-style-type: none"> CONTAINMENT CLOSURE not established Explosive mixture exists inside Primary Containment (H₂ ≥ 6% and O₂ ≥ 5%) UNPLANNED rise in Primary Containment pressure RB area radiation > 8.0E+3 mR/hr 	3 RPV Water Level CA4.1 [1][2][3][4][5][D] An UNPLANNED event results in EITHER: • RCS temperature > 200°F for > Table C-4 duration OR • RPV pressure increase > 10 psi due to an UNPLANNED loss of decay heat removal capability	3 RPV Water Level CU4.1 [1][2][3][4][5][D] UNPLANNED event results in RCS temperature > 200°F CU4.2 [1][2][3][4][5][D] Loss of all RCS temperature and RPV water level indication for ≥ 15 min. (Note 4)																																
	4 RCS Temp. Table C-4 RCS Reheat Duration Thresholds <table border="1"> <thead> <tr> <th>RCS Status</th> <th>CONTAINMENT CLOSURE Status</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>INTACT</td> <td>N/A</td> <td>60 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Established</td> <td>20 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Not established</td> <td>0 min.</td> </tr> </tbody> </table>	RCS Status	CONTAINMENT CLOSURE Status	Duration	INTACT	N/A	60 min.*	Not INTACT	Established	20 min.*	Not INTACT	Not established	0 min.	4 RCS Temp. Table C-5 Communications Systems <table border="1"> <thead> <tr> <th>System</th> <th>Onsite (internal)</th> <th>Offsite (external)</th> </tr> </thead> <tbody> <tr> <td>PBX (normal dial telephones)</td> <td>X</td> <td>X</td> </tr> <tr> <td>Galtronics</td> <td>X</td> <td>X</td> </tr> <tr> <td>Station radio (portable)</td> <td>X</td> <td>X</td> </tr> <tr> <td>Control Room installed satellite phones (non portable)</td> <td></td> <td>X</td> </tr> <tr> <td>ENS</td> <td></td> <td>X</td> </tr> <tr> <td>RECS</td> <td></td> <td>X</td> </tr> </tbody> </table>	System	Onsite (internal)	Offsite (external)	PBX (normal dial telephones)	X	X	Galtronics	X	X	Station radio (portable)	X	X	Control Room installed satellite phones (non portable)		X	ENS		X	RECS		X	4 RCS Temp. CU4.1 [1][2][3][4][5][D] UNPLANNED event results in RCS temperature > 200°F CU4.2 [1][2][3][4][5][D] Loss of all RCS temperature and RPV water level indication for ≥ 15 min. (Note 4)
RCS Status	CONTAINMENT CLOSURE Status	Duration																																		
INTACT	N/A	60 min.*																																		
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System	Onsite (internal)	Offsite (external)																																		
PBX (normal dial telephones)	X	X																																		
Galtronics	X	X																																		
Station radio (portable)	X	X																																		
Control Room installed satellite phones (non portable)		X																																		
ENS		X																																		
RECS		X																																		
5 Inadvertent Criticality Table C-4 RCS Reheat Duration Thresholds <table border="1"> <thead> <tr> <th>RCS Status</th> <th>CONTAINMENT CLOSURE Status</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>INTACT</td> <td>N/A</td> <td>60 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Established</td> <td>20 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Not established</td> <td>0 min.</td> </tr> </tbody> </table>	RCS Status	CONTAINMENT CLOSURE Status	Duration	INTACT	N/A	60 min.*	Not INTACT	Established	20 min.*	Not INTACT	Not established	0 min.	5 Inadvertent Criticality Table C-5 Communications Systems <table border="1"> <thead> <tr> <th>System</th> <th>Onsite (internal)</th> <th>Offsite (external)</th> </tr> </thead> <tbody> <tr> <td>PBX (normal dial telephones)</td> <td>X</td> <td>X</td> </tr> <tr> <td>Galtronics</td> <td>X</td> <td>X</td> </tr> <tr> <td>Station radio (portable)</td> <td>X</td> <td>X</td> </tr> <tr> <td>Control Room installed satellite phones (non portable)</td> <td></td> <td>X</td> </tr> <tr> <td>ENS</td> <td></td> <td>X</td> </tr> <tr> <td>RECS</td> <td></td> <td>X</td> </tr> </tbody> </table>	System	Onsite (internal)	Offsite (external)	PBX (normal dial telephones)	X	X	Galtronics	X	X	Station radio (portable)	X	X	Control Room installed satellite phones (non portable)		X	ENS		X	RECS		X	5 Inadvertent Criticality CU4.1 [1][2][3][4][5][D] UNPLANNED event results in RCS temperature > 200°F CU4.2 [1][2][3][4][5][D] Loss of all RCS temperature and RPV water level indication for ≥ 15 min. (Note 4)	5 Inadvertent Criticality CU5.1 [1][2][3][4][5][D] An UNPLANNED sustained positive period observed on nuclear instrumentation CU6.1 [1][2][3][4][5][D] Loss of all Table C-5 onsite (internal) communication methods affecting the ability to perform routine operations OR Loss of all Table C-5 offsite (external) communication methods affecting the ability to perform offsite notifications
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6 Comm.	6 Comm.	6 Comm.	6 Comm.																																	



ATTACHMENT 3

License Amendment Request

**Change Emergency Action Level HU1.5 to Remove High Lake Level
Initiating Condition for Unusual Event Emergency Classification**

Clean Proposed Emergency Action Level Matrices Pages

NMP1 EAL Matrices Pages

1
2

NMP2 EAL Matrices Pages

1
2

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																																			
R Abnorm. Rad Release / Rad Effluent	1 Offsite Rad Conditions	None	RS1.1 [1 2 3 4 D] ANY monitor reading > Table R-1 "SAE" column for ≥ 15 min. (Note 1) • Do not delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RS1.2) OR None	RA1.1 [1 2 3 4 D] ANY gaseous monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2) RA1.2 [1 2 3 4 D] ANY liquid monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2) RA1.3 [1 2 3 4 D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 x ODCM limits for ≥ 15 min. (Note 2)	RU1.1 [1 2 3 4 D] ANY gaseous monitor reading > Table R-1 "UE" column for ≥ 15 min. (Note 2) RU1.2 [1 2 3 4 D] ANY liquid monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2) RU1.3 [1 2 3 4 D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x ODCM limits for ≥ 60 min. (Note 2)																																			
	2 Onsite Rad Conditions & Spent Fuel Events	RG1.2 [1 2 3 4 D] Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY RG1.3 [1 2 3 4 D] Field survey results indicate closed window dose rates > 1,000 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 5,000 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	RS1.2 [1 2 3 4 D] Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY RS1.3 [1 2 3 4 D] Field survey results indicate closed window dose rates > 100 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 500 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	None	None																																			
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H Hazards & Other Conditions Affecting Plant Safety	1 Natural or Destructive Phenomena	<p>Table R-1 Effluent Monitor Classification Thresholds</p> <table border="1"> <thead> <tr> <th>Monitor</th> <th>GE</th> <th>SAE</th> <th>ALERT</th> <th>UE</th> </tr> </thead> <tbody> <tr> <td>GASEOUS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Stack (RN 10A/B)</td> <td>N/A</td> <td>N/A</td> <td>3.0E4 cps</td> <td>300 cps</td> </tr> <tr> <td>EC Vent</td> <td>N/A</td> <td>300 mRem/hr</td> <td>30 mRem/hr</td> <td>10 mRem/hr</td> </tr> <tr> <td>LIQUID</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SW Effluent</td> <td>N/A</td> <td>N/A</td> <td>90,000 cpm</td> <td>900 cpm</td> </tr> <tr> <td>RW Discharge</td> <td>N/A</td> <td>N/A</td> <td>200 x batch</td> <td>2 x batch</td> </tr> </tbody> </table> <p>Table H-1 Safe Shutdown Areas</p> <ul style="list-style-type: none"> Reactor Building (including Primary Containment) Control Room Screenhouse Turbine Building Battery Rooms Battery Board Rooms Cable Spreading Room Main Steam Isolation Valve Room Diesel Generator Engine and Board Rooms Security Central Alarm Station Secondary Alarm Station Security Uninterruptible Power Supply Room <p>Notes</p> <ol style="list-style-type: none"> The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown. If loss of water level in the refueling pathway occurs while in Mode 3, 4 or D, consider classification under EALS CU3.1, CU3.2 or CU3.3 The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event. 				Monitor	GE	SAE	ALERT	UE	GASEOUS					Stack (RN 10A/B)	N/A	N/A	3.0E4 cps	300 cps	EC Vent	N/A	300 mRem/hr	30 mRem/hr	10 mRem/hr	LIQUID					SW Effluent	N/A	N/A	90,000 cpm	900 cpm	RW Discharge	N/A	N/A	200 x batch	2 x batch
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5 Control Room Evacuation	None	HS5.1 [1 2 3 4 D] Control Room evacuation has been initiated AND Control of the plant cannot be established within 15 min.	HA5.1 [1 2 3 4 D] Control Room evacuation has been initiated	None																																				
6 Judgment	HG6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) offsite for more than the immediate site area	HS6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. ANY releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY	HA6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve a potential degradation of the level of safety of the plant or a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs	HU6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs																																				
E ISFSI	None	None	None	EU1.1 [1 2 3 4 D] Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by measured dose rates > then ANY of the following: • 400 mRem/hr at 3 feet from the HSM surface • 100 mRem/hr outside HSM door on centerline • 20 mRem/hr end shield wall exterior																																				

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
S System Malfunc.	1 Loss of AC Power	SG1.1 [1 2] Loss of all offsite and all onsite AC power, Table S-1, to 4.16 kV emergency buses AND EITHER: Restoration of at least one 4.16 kV emergency bus within 4 hours is not likely OR RPV water level cannot be restored and maintained above -84 in. or RPV water level cannot be determined	SS1.1 [1 2] Loss of all offsite and all onsite AC power, Table S-1, to 4.16 kV emergency buses for ≥ 15 min. (Note 4)	SA1.1 [1 2] AC power capability to 4.16 kV emergency buses reduced to a single power source, Table S-1, for ≥ 15 min. (Note 4) AND ANY additional single power source failure will result in a loss of all 4.16 kV emergency bus power	SU1.1 [1 2] Loss of all offsite AC power, Table S-1, to 4.16 kV emergency buses for ≥ 15 min. (Note 4)
	2 Loss of DC Power	None	SS2.1 [1 2] < 106 VDC on both Battery Board 11 and Battery Board 12 for ≥ 15 min. (Note 4)	None	None
	3 Criticality & RPS Failure	SG3.1 [1] An automatic scram fails to shut down the reactor as indicated by reactor power > 6% AND All manual actions fail to shut down the reactor as indicated by reactor power > 6% AND EITHER of the following exist or have occurred: RPV water level cannot be restored and maintained above -109 in. or RPV water level cannot be determined OR Torus water temperature and RPV pressure cannot be maintained below the Heat Capacity Temperature Limit (N1-EOP-4 Figure M)	SS3.1 [1] An automatic scram failed to shut down the reactor as indicated by reactor power > 6% AND Manual actions taken at the reactor control console (mode switch in shutdown, manual scram push buttons and ARI) failed to shut down the reactor as indicated by reactor power > 6%	SA3.1 [1] An automatic scram failed to shut down the reactor AND Manual actions taken at the reactor control console (mode switch in shutdown, manual scram push buttons or ARI) successfully shut down the reactor as indicated by reactor power ≤ 6%	SU3.1 [1 2] An UNPLANNED sustained positive period observed on nuclear instrumentation
	4 Inability to Reach or Maintain Shutdown Conditions	None	None	None	SUA.1 [1 2] Plant is not brought to required operating mode within Technical Specifications LCO required action completion time
	5 Inst.	Table S-2 Significant Transients • Turbine runback > 25% thermal reactor power • Electric load rejection > 25% full electrical load • Reactor scram • ECCS injection • Thermal power oscillations > 10%	SS5.1 [1 2] Loss of > approximately 75% of annunciation or indication on Control Room panels L, K, H, F and G for ≥ 15 min. (Note 4) AND A significant transient is in progress, Table S-2 AND Compensatory indications are unavailable (Plant Computer, SPDS)	SA5.1 [1 2] UNPLANNED loss of > approximately 75% of annunciation or indication on Control Room panels L, K, H, F and G for ≥ 15 min. (Note 4) AND EITHER: A significant transient is in progress, Table S-2 OR Compensatory indications are unavailable (Plant Process Computer, SPDS)	SUS.1 [1 2] UNPLANNED loss of > approximately 75% of annunciation or indication on Control Room panels L, K, H, F and G for ≥ 15 min. (Note 4)
	6 Comm.	None	None	None	SUE.1 [1 2] Loss of all Table S-3 onsite (internal) communication methods affecting the ability to perform routine operations OR Loss of all Table S-3 offsite (external) communication methods affecting the ability to perform offsite notifications
	7 Fuel Clad Degradation	None	None	None	SU7.1 [1 2] Reactor coolant activity > 4 µCi/gm I-131 Equivalent SU7.2 [1 2] Offgas radiation monitor RN-12A or RN-12B > hi-hi alarm for ≥ 15 min. SU8.1 [1 2] Unidentified drywell leakage > 10 gpm OR Identified reactor coolant drywell leakage > 25 gpm
	8 RCS Leakage	None	None	None	None
F Fission Product Barrier Degradation	FG1.1 [1 2] Loss of ANY two fission product barriers AND Loss or potential loss of third fission product barrier (Table F-1)	FS1.1 [1 2] Loss or potential loss of ANY two fission product barriers (Table F-1)	FA1.1 [1 2] ANY loss or ANY potential loss of EITHER Fuel Clad barrier OR RCS barrier (Table F-1)	FU1.1 [1 2] ANY loss or ANY potential loss of Containment barrier (Table F-1)	

Table S-3 Communications Systems

System	Onsite (internal)	Offsite (external)
PBX (normal dial telephones)	X	X
Galtronics	X	X
Hand-Held Portable Radio (station radio)	X	X
Control Room installed satellite phones (non portable)		X
ENS		X
RECS		X

Table F-1 Fission Product Barrier Matrix

	Fuel Clad Barrier		Reactor Coolant System Barrier		Containment Barrier	
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
A RPV Water Level	1. Primary Containment Flooding is required	1. RPV water level cannot be restored and maintained above -84 in. following depressurization of the RPV or RPV water level cannot be determined	1. RPV water level cannot be restored and maintained above -84 in. or RPV water level cannot be determined	None	None	1. Primary Containment Flooding is required
B Primary Containment Pressure / Temperature	None	None	2. Primary Containment pressure > 3.5 psig due to RCS leakage	None	1. Primary Containment pressure rise followed by a rapid UNPLANNED drop in Primary Containment pressure 2. Primary Containment pressure response not consistent with LOCA conditions	2. Torus pressure > 35 psig and rising 3. Explosive mixture exists inside Primary Containment (≥ 6% H ₂ and ≥ 5% O ₂) 4. Torus water temperature and RPV pressure cannot be maintained below the Heat Capacity Temperature Limit (N1-EOP-4 Figure M)
C Isolation	None	None	3. Release pathway exists outside Primary Containment resulting from isolation failure in ANY of the following systems (excluding normal process system flowpaths from an UNISOLABLE system): • Main steam line • EC steam line • RWCU • Feedwater	1. UNISOLABLE primary system leakage outside Primary Containment as indicated by exceeding EITHER: ANY N1-EOP-5 Detail T area temperature alarm setpoint OR ANY N1-EOP-5 Detail R area radiation alarm setpoint	3. Failure of all Primary Containment isolation valves in ANY one line to close following auto or manual initiation AND Direct downstream pathway outside Primary Containment and to the environment exists 4. Intentional Primary Containment venting per EOPs 5. UNISOLABLE primary system leakage outside Primary Containment as indicated by exceeding EITHER: Maximum safe general area temperature of 135°F OR Maximum safe area radiation of 8 R/hr	None
D Rad	2. Drywell radiation ≥ 3,000 R/hr 3. Reactor coolant activity > 300 µCi/gm I-131 Equivalent	None	5. Drywell radiation ≥ 80 R/hr	None	None	5. Drywell radiation ≥ 4.0 E4 R/hr
E Judgment	4. ANY condition in the opinion of the Emergency Director that indicates loss of the Fuel Clad barrier	2. ANY condition in the opinion of the Emergency Director that indicates potential loss of the Fuel Clad barrier	6. ANY condition in the opinion of the Emergency Director that indicates loss of the Reactor Coolant System barrier	2. ANY condition in the opinion of the Emergency Director that indicates potential loss of the Reactor Coolant System barrier	6. ANY condition in the opinion of the Emergency Director that indicates loss of the Containment barrier	6. ANY condition in the opinion of the Emergency Director that indicates potential loss of the Containment barrier

EAL Identifier
XXXX.X
Category (R, H, E, S, F, C) Sequential number within subcategory/classification
Emergency classification (G, S, A, U) Subcategory number (1 if no subcategory)

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																																			
R Abnorm. Rad Release / Rad Effluent	1 Offsite Rad Conditions	None	RS1.1 [1 2 3 4 D] ANY monitor reading > Table R-1 "SAE" column for ≥ 15 min. (Note 1) • Do not delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RS1.2)	RA1.1 [1 2 3 4 D] ANY gaseous monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2)	RU1.1 [1 2 3 4 D] ANY gaseous monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2)																																			
	2 Onsite Rad Conditions & Spent Fuel Events	RG1.2 [1 2 3 4 D] Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY	RS1.2 [1 2 3 4 D] Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY	RA1.2 [1 2 3 4 D] ANY liquid monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2)	RU1.2 [1 2 3 4 D] ANY liquid monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2)																																			
	3 CR/CAS Rad	RG1.3 [1 2 3 4 D] Field survey results indicate closed window dose rates > 1,000 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 5,000 mrem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	RS1.3 [1 2 3 4 D] Field survey results indicate closed window dose rates > 100 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 500 mrem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	RA1.3 [1 2 3 4 D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 x ODCM limits for ≥ 15 min. (Note 2)	RU1.3 [1 2 3 4 D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x ODCM limits for ≥ 60 min. (Note 2)																																			
H Hazards & Other Conditions Affecting Plant Safety	1 Natural or Destructive Phenomena	<p>Table R-1 Effluent Monitor Classification Thresholds</p> <table border="1"> <thead> <tr> <th>Monitor</th> <th>GE</th> <th>SAE</th> <th>ALERT</th> <th>UE</th> </tr> </thead> <tbody> <tr> <td>GASEOUS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Stack (RV 10A/B)</td> <td>N/A</td> <td>N/A</td> <td>3.0E4 cps</td> <td>300 cps</td> </tr> <tr> <td>EC Vent</td> <td>N/A</td> <td>300 mRem/hr</td> <td>30 mRem/hr</td> <td>10 mRem/hr</td> </tr> <tr> <td>LIQUID</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SW Effluent</td> <td>N/A</td> <td>N/A</td> <td>90,000 cpm</td> <td>900 cpm</td> </tr> <tr> <td>RW Discharge</td> <td>N/A</td> <td>N/A</td> <td>200 x batch</td> <td>2 x batch</td> </tr> </tbody> </table>				Monitor	GE	SAE	ALERT	UE	GASEOUS					Stack (RV 10A/B)	N/A	N/A	3.0E4 cps	300 cps	EC Vent	N/A	300 mRem/hr	30 mRem/hr	10 mRem/hr	LIQUID					SW Effluent	N/A	N/A	90,000 cpm	900 cpm	RW Discharge	N/A	N/A	200 x batch	2 x batch
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	2 Fire or Explosion	None	None	HA2.1 [1 2 3 4 D] FIRE or EXPLOSION resulting in EITHER: VISIBLE DAMAGE to ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area	HU2.1 [1 2 3 4 D] FIRE not extinguished within 15 min. of Control Room notification or verification of a Control Room FIRE alarm in ANY Table H-1 area, Rad/Waste Solidification and Storage Bldg. or Security West Bldg (Note 4)																																			
	3 Hazardous Gas	None	None	HA3.1 [1 2 3 4 D] Access to ANY Table H-1 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shutdown the reactor (Note 5)	HU3.1 [1 2 3 4 D] Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS																																			
4 Security	HG4.1 [1 2 3 4 D] A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions HG4.2 [1 2 3 4 D] A HOSTILE ACTION has caused failure of Spent Fuel Cooling systems AND IMMINENT fuel damage is likely	HS4.1 [1 2 3 4 D] A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Site Supervisor	HA4.1 [1 2 3 4 D] A HOSTILE ACTION is occurring or has occurred within the PROTECTED Area as reported by the Security Site Supervisor OR A validated notification from NRC of an AIRLINER attack threat within 30 min. of the site	HU4.1 [1 2 3 4 D] A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Site Supervisor OR A credible site-specific security threat notification OR A validated notification from NRC providing information of an aircraft threat																																				
5 Control Room Evacuation	None	HS5.1 [1 2 3 4 D] Control Room evacuation has been initiated AND Control of the plant cannot be established within 15 min.	HA5.1 [1 2 3 4 D] Control Room evacuation has been initiated	None																																				
6 Judgment	HG6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) offsite for more than the immediate site area	HS6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of; or, (2) that prevent effective access to equipment needed for the protection of the public. ANY releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY	HA6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. ANY releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE)	HU6.1 [1 2 3 4 D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs																																				
E ISFSI	None	None	None	EU1.1 [1 2 3 4 D] Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by measured dose rates > then ANY of the following: • 400 mRem/hr at 3 feet from the HSM surface • 100 mRem/hr outside HSM door on centerline • 20 mRem/hr end shield wall exterior																																				

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																				
C Cold SD/ Refuel System Malfunc.	1 Loss of AC Power	<p>Table C-1 AC Power Sources</p> <table border="1"> <thead> <tr> <th>Onsite</th> <th>Offsite</th> </tr> </thead> <tbody> <tr> <td>• DG102 • DG103</td> <td>• T-101N • T-101S • T-10 backed from offsite through T-1 or T-2 (only if already aligned)</td> </tr> </tbody> </table>		Onsite	Offsite	• DG102 • DG103	• T-101N • T-101S • T-10 backed from offsite through T-1 or T-2 (only if already aligned)	CA1.1 [1 2 3 4 D] Loss of all offsite and all onsite AC power, Table C-1, to 4.16 kV emergency buses for ≥ 15 min. (Note 4)	CU1.1 [1 2 3 4 D] AC power capability to 4.16 kV emergency buses reduced to a single power source, Table C-1, for ≥ 15 min. (Note 4) AND ANY additional single power source failure will result in a loss of all 4.16 kV emergency bus power																
	Onsite	Offsite																							
	• DG102 • DG103	• T-101N • T-101S • T-10 backed from offsite through T-1 or T-2 (only if already aligned)																							
	2 Loss of DC Power	None		CA3.1 [1 2 3 4 D] RPV water level < +5 in. OR RPV water level cannot be monitored for ≥ 15 min. with ANY UNPLANNED RPV leakage indication, Table C-2 (Note 4)	CU2.1 [1 2 3 4 D] < 106 VDC on required 125 VDC buses (Battery board 11, Battery board 12) for ≥ 15 min. (Note 4)																				
	3 RPV Water Level	<p>Table C-2 RPV Leakage Indications</p> <ul style="list-style-type: none"> Drywell equipment drain tank level rise Drywell floor drain tank level rise Reactor building equipment sump level rise (Note 3) Reactor Building floor drain sump level rise Torus water level rise UNPLANNED rise in RPV make-up rate Observation of UNISOLABLE RCS leakage 		CA3.1 [1 2 3 4 D] RPV water level cannot be monitored for ≥ 30 min. (Note 4) with a loss of RPV inventory as indicated by ANY of the following: • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication	CU3.1 [1 2 3 4 D] RCS leakage results in the inability to maintain or restore RPV water level > +53 in. for ≥ 15 min. (Note 4)																				
	4 RCS Temp.	<p>Table C-3 Containment Challenge Indications</p> <ul style="list-style-type: none"> CONTAINMENT CLOSURE not established Explosive mixture exists inside Primary Containment (H₂ ≥ 6% and O₂ ≥ 5%) UNPLANNED rise in Primary Containment pressure RB area radiation > 8 R/hr 		CA4.1 [1 2 3 4 D] An UNPLANNED event results in EITHER: RCS temperature > 212°F for > Table C-4 duration OR RPV pressure increase > 10 psi due to an UNPLANNED loss of decay heat removal capability	CU4.1 [1 2 3 4 D] Unplanned event results in RCS temperature > 212°F																				
5 Inadvertent Criticality	<p>Table C-4 RCS Reheat Duration Thresholds</p> <ul style="list-style-type: none"> If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, the EAL is not applicable. <table border="1"> <thead> <tr> <th>RCS Status</th> <th>CONTAINMENT CLOSURE Status</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>INTACT</td> <td>N/A</td> <td>60 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Established</td> <td>20 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Not established</td> <td>0 min.</td> </tr> </tbody> </table>		RCS Status	CONTAINMENT CLOSURE Status	Duration	INTACT	N/A	60 min.*	Not INTACT	Established	20 min.*	Not INTACT	Not established	0 min.	CA5.1 [1 2 3 4 D] An UNPLANNED sustained positive period observed on nuclear instrumentation	CU5.1 [1 2 3 4 D] An UNPLANNED sustained positive period observed on nuclear instrumentation									
RCS Status	CONTAINMENT CLOSURE Status	Duration																							
INTACT	N/A	60 min.*																							
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6 Comm.	<p>Table C-5 Communications Systems</p> <table border="1"> <thead> <tr> <th>System</th> <th>Onsite (internal)</th> <th>Offsite (external)</th> </tr> </thead> <tbody> <tr> <td>PBX (normal dial telephones)</td> <td>X</td> <td>X</td> </tr> <tr> <td>Galtronics</td> <td>X</td> <td>X</td> </tr> <tr> <td>Hand-Held Portable Radio (station radio)</td> <td>X</td> <td></td> </tr> <tr> <td>Control Room installed satellite phones (non portable)</td> <td></td> <td>X</td> </tr> <tr> <td>ENS</td> <td></td> <td>X</td> </tr> <tr> <td>RECS</td> <td></td> <td>X</td> </tr> </tbody> </table>		System	Onsite (internal)	Offsite (external)	PBX (normal dial telephones)	X	X	Galtronics	X	X	Hand-Held Portable Radio (station radio)	X		Control Room installed satellite phones (non portable)		X	ENS		X	RECS		X	CA6.1 [1 2 3 4 D] Loss of all Table C-5 onsite (internal) communication methods affecting the ability to perform routine operations OR Loss of all Table C-5 offsite (external) communication methods affecting the ability to perform offsite notifications	CU6.1 [1 2 3 4 D] Loss of all Table C-5 onsite (internal) communication methods affecting the ability to perform routine operations OR Loss of all Table C-5 offsite (external) communication methods affecting the ability to perform offsite notifications
System	Onsite (internal)	Offsite (external)																							
PBX (normal dial telephones)	X	X																							
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ENS		X																							
RECS		X																							

MODE 3, 4 or D

Emergency classification matrix for Modes 1-6. Columns include General Emergency, Site Area Emergency, Alert, and Unusual Event. Rows include Offsite Rad Conditions, Onsite Rad Conditions & Spent Fuel Events, CR/CAS Rad, Natural or Destructive Phenomena, Fire or Explosion, Hazardous Gas, Security, Control Room Evacuation, and ISFSI.

Emergency classification matrix for Modes 7-8. Columns include General Emergency, Site Area Emergency, Alert, and Unusual Event. Rows include Loss of AC Power, Loss of DC Power, Criticality & RPS Failure, Inability to Reach or Maintain Shutdown Conditions, System Malfunction, Inst., Comm., Fuel Clad Degradation, RCS Leakage, Fission Product Barrier Degradation, and Fuel Clad Degradation.

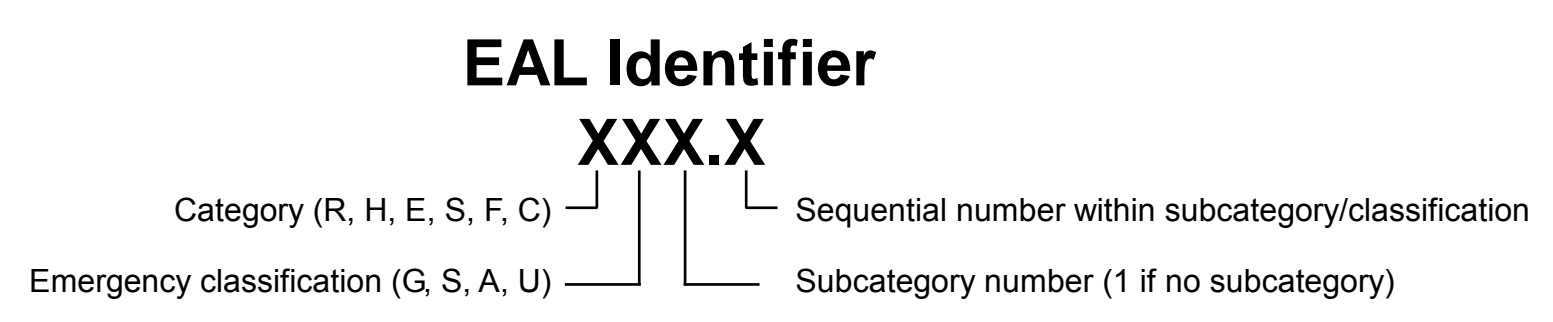
Table H-1 Safe Shutdown Areas. Lists areas such as Reactor Building, Control Room, Diesel Generator Engine and Board Rooms, Standby Switchgear and Battery Rooms, HPCS Switchgear and Battery Rooms, Remote Shutdown Rooms, Control Building HVAC Rooms, Service Water Pump Rooms, Electrical Protection Assembly Room, and PGCC Relay Room.

Notes: 1. The ED should not wait until the applicable time has elapsed... 2. The ED should not wait until the applicable time has elapsed... 3. If loss of water level in the refueling pathway occurs while in Mode 4, 5 or D, consider classification under EALS CUS 1, CUS 2 or CUS 3.

Table S-2 Significant Transients. Lists events such as Automatic turbine runback > 25% thermal reactor power, Electric load rejection > 25% full electrical load, Reactor scram, ECCS injection, and Thermal power oscillations > 10%.

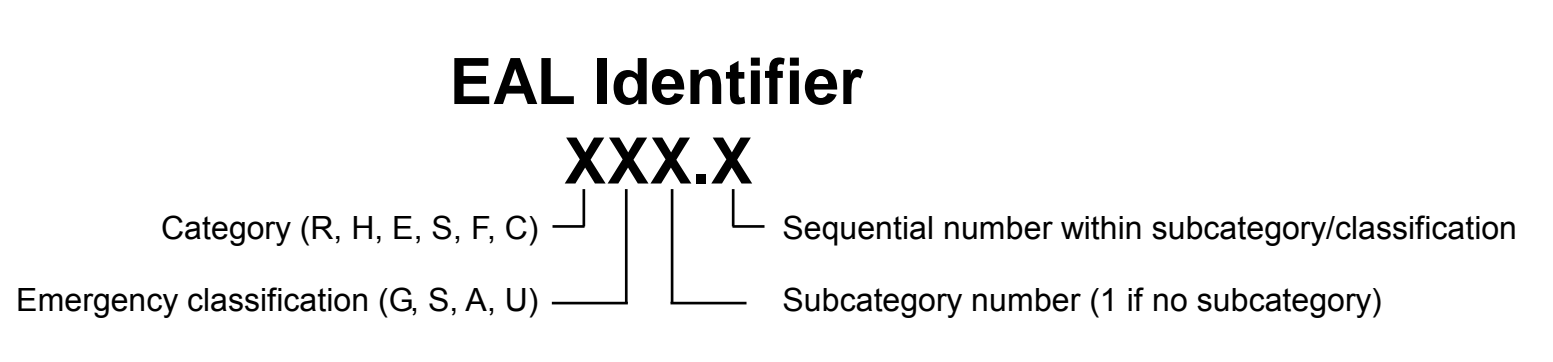
Table S-3 Communications Systems. Matrix showing System, Onsite (internal), and Offsite (external) availability for PBX, Galectronics, Station radio, Control Room, ENS, and RECS.

Table F-1 Fission Product Barrier Matrix. Matrix showing Loss and Potential Loss for Fuel Clad Barrier, Reactor Coolant System Barrier, and Containment Barrier across categories A-E.



	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																																																						
R Abnorm. Rad Release / Rad Effluent	1 Offsite Rad Conditions RG1.1 [1][2][3][4][5][D] ANY monitor reading > Table R-1 "GE" column for ≥ 15 min. (Note 1) • Do not delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RG1.2) RG1.2 [1][2][3][4][5][D] Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY (Note 1) RG1.3 [1][2][3][4][5][D] Field survey results indicate closed window dose rates > 1,000 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 5,000 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	1 Onsite Rad Conditions & Spent Fuel Events RS1.1 [1][2][3][4][5][D] ANY monitor reading > Table R-1 "SAE" column for ≥ 15 min. (Note 1) • Do not delay declaration awaiting dose assessment results • If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL RS1.2) RS1.2 [1][2][3][4][5][D] Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY (Note 1) RS1.3 [1][2][3][4][5][D] Field survey results indicate closed window dose rates > 100 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY (Note 1) OR Analyses of field survey samples indicate thyroid CDE > 500 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)	1 Alert RA1.1 [1][2][3][4][5][D] ANY gaseous monitor reading > Table R-1 "Alert" column for ≥ 15 min. (Note 2) RA1.2 [1][2][3][4][5][D] ANY liquid monitor > Table R-1 "Alert" column for ≥ 15 min. (Note 2) RA1.3 [1][2][3][4][5][D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 x ODCM limits for ≥ 15 min. (Note 2)	1 Unusual Event RU1.1 [1][2][3][4][5][D] ANY gaseous monitor > Table R-1 "UE" column for ≥ 60 min. (Note 2) RU1.2 [1][2][3][4][5][D] ANY liquid monitor reading > Table R-1 "UE" column for ≥ 60 min. (Note 2) RU1.3 [1][2][3][4][5][D] Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x ODCM limits for ≥ 60 min. (Note 2)																																																						
	2 Onsite Rad Conditions & Spent Fuel Events Table R-1 Effluent Monitor Classification Thresholds <table border="1"> <thead> <tr> <th>Monitor</th> <th>GE</th> <th>SAE</th> <th>ALERT</th> <th>UE</th> </tr> </thead> <tbody> <tr> <td>GASEOUS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Radwaste/RB Vent Effluent</td> <td>5.5E+7 µCi/s</td> <td>5.5E+6 µCi/s</td> <td>200 x Alarm</td> <td>2 x Alarm</td> </tr> <tr> <td>Main Stack Effluent</td> <td>1.0E+10 µCi/s</td> <td>1.0E+9 µCi/s</td> <td>200 x Alarm</td> <td>2 x Alarm</td> </tr> <tr> <td>Service Water Effluent</td> <td>N/A</td> <td>N/A</td> <td>200 x DRMS High (red)</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>Liquid Rad/Waste Effluent</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>Cooling Tower Blowdown</td> <td>N/A</td> <td>N/A</td> <td>200 x DRMS High (red)</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>LIQUID</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Service Water Effluent</td> <td>N/A</td> <td>N/A</td> <td>200 x DRMS High (red)</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>Liquid Rad/Waste Effluent</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>2 x DRMS High (red)</td> </tr> <tr> <td>Cooling Tower Blowdown</td> <td>N/A</td> <td>N/A</td> <td>200 x DRMS High (red)</td> <td>2 x DRMS High (red)</td> </tr> </tbody> </table>	Monitor	GE	SAE	ALERT	UE	GASEOUS					Radwaste/RB Vent Effluent	5.5E+7 µCi/s	5.5E+6 µCi/s	200 x Alarm	2 x Alarm	Main Stack Effluent	1.0E+10 µCi/s	1.0E+9 µCi/s	200 x Alarm	2 x Alarm	Service Water Effluent	N/A	N/A	200 x DRMS High (red)	2 x DRMS High (red)	Liquid Rad/Waste Effluent	N/A	N/A	N/A	2 x DRMS High (red)	Cooling Tower Blowdown	N/A	N/A	200 x DRMS High (red)	2 x DRMS High (red)	LIQUID					Service Water Effluent	N/A	N/A	200 x DRMS High (red)	2 x DRMS High (red)	Liquid Rad/Waste Effluent	N/A	N/A	N/A	2 x DRMS High (red)	Cooling Tower Blowdown	N/A	N/A	200 x DRMS High (red)	2 x DRMS High (red)	2 Onsite Rad Conditions & Spent Fuel Events RA2.1 [1][2][3][4][5][D] Alarm on ANY of the following radiation monitors due to damage to irradiated fuel or loss of water level: • ANY radiation monitor indicating degraded performance of systems required for the safe shutdown of the plant • JAFNPP seismic instrumentation • Control Room indication of degraded performance of systems required for the safe shutdown of the plant AND Earthquake confirmed by ANY of the following: • Earthquake felt in plant • JAFNPP seismic instrumentation • Control Room indication of degraded performance of systems required for the safe shutdown of the plant RA2.2 [1][2][3][4][5][D] A water level drop in a reactor refueling pathway that will result in irradiated fuel becoming uncovered RA2.3 [1][2][3][4][5][D] Dose rates > 15 mRem/hr in EITHER of the following areas as indicated by EITHER: • Annunerator 842/21 SEISMIC ACCELERATION EXCEEDED indicates seismic event detected • Confirmation of earthquake received on NMP-1 or JAFNPP seismic instrumentation • Earthquake felt in plant	2 Unusual Event RU2.1 [1][2][3][4][5][D] UNPLANNED water level drop in a reactor refueling pathway as indicated by inability to restore and maintain SPF level > low water level alarm (Note 3) AND Area radiation monitor reading rise on ANY of the following: • 2RMS-RE111 • 2RMS-RE112 • 2RMS-RE113 • 2RMS-RE114 • 2RMS-RE140 • 2HVR-RE14A • 2HVR-RE14B RU2.2 [1][2][3][4][5][D] UNPLANNED area radiation readings rise by a factor of 1,000 over NORMAL LEVELS RU2.3 [1][2][3][4][5][D] Seismic event identified by ANY two of the following: • Annunerator 842/21 SEISMIC ACCELERATION EXCEEDED indicates seismic event detected • Confirmation of earthquake received on NMP-1 or JAFNPP seismic instrumentation • Earthquake felt in plant
	Monitor	GE	SAE	ALERT	UE																																																					
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3 CRICAS Rad None	3 CRICAS Rad None	3 CRICAS Rad None	3 CRICAS Rad None																																																							
H Hazards & Other Conditions Affecting Plant Safety	1 Natural or Destructive Phenomena Table H-1 Safe Shutdown Areas <ul style="list-style-type: none"> Reactor Building (including Primary Containment) Control Room Diesel Generator Engine and Board Rooms Standby Switchgear and Battery Rooms HPCS Switchgear and Battery Rooms Remote Shutdown Rooms Control Building HVAC Rooms Service Water Pump Rooms Electrical Protection Assembly Room PGCC Relay Room 	1 Natural or Destructive Phenomena Notes <ol style="list-style-type: none"> The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time The ED should not wait until the applicable time has elapsed, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown. If loss of water level in the refueling pathway occurs while in Mode 4, 5 or D, consider classification under EALs CU3.1, CU3.2 or CU3.3 The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event. 	1 Alert HA1.1 [1][2][3][4][5][D] Seismic event > OBE (0.075g) • Annunerator 842/21 SEISMIC ACCELERATION EXCEEDED indicates seismic event detected • Confirmation of earthquake received on NMP-1 or JAFNPP seismic instrumentation • Earthquake felt in plant AND Earthquake confirmed by ANY of the following: • Earthquake felt in plant • JAFNPP seismic instrumentation • Control Room indication of degraded performance of systems required for the safe shutdown of the plant HA1.2 [1][2][3][4][5][D] Tornado striking OR Sustained high winds > 90 mph resulting in EITHER: VISIBLE DAMAGE to ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area HA1.3 [1][2][3][4][5][D] Internal flooding resulting in EITHER: • An electrical shock hazard that precludes access to operate or monitor ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area HA1.4 [1][2][3][4][5][D] Turbine failure-generated PROJECTILES resulting in EITHER: VISIBLE DAMAGE to or penetration of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area HA1.5 [1][2][3][4][5][D] Lake water level > 254 ft OR Intake water level < 233 ft HA1.6 [1][2][3][4][5][D] Vehicle crash resulting in EITHER: VISIBLE DAMAGE to ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area	1 Unusual Event HU1.1 [1][2][3][4][5][D] Seismic event identified by ANY two of the following: • Annunerator 842/21 SEISMIC ACCELERATION EXCEEDED indicates seismic event detected • Confirmation of earthquake received on NMP-1 or JAFNPP seismic instrumentation • Earthquake felt in plant HU1.2 [1][2][3][4][5][D] Tornado striking within PROTECTED AREA boundary OR Sustained high winds > 90 mph HU1.3 [1][2][3][4][5][D] Internal flooding that has the potential to affect ANY SAFETY-RELATED STRUCTURE, SYSTEM, OR COMPONENT required by Technical Specifications for the current operating mode in ANY Table H-1 area HU1.4 [1][2][3][4][5][D] Turbine failure resulting in ANY of the following: • Casing penetration • Damage to turbine seals • Damage to generator seals HU1.5 [1][2][3][4][5][D] Intake water level < 237 ft																																																						
	2 Fire or Explosion None	2 Fire or Explosion None	2 Alert HA2.1 [1][2][3][4][5][D] FIRE or EXPLOSION resulting in EITHER: VISIBLE DAMAGE to ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area HA2.2 [1][2][3][4][5][D] FIRE or EXPLOSION resulting in EITHER: VISIBLE DAMAGE to ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area OR Control Room indication of degraded performance of ANY SAFETY-RELATED STRUCTURE, SYSTEM or COMPONENT within ANY Table H-1 area	2 Unusual Event HU2.1 [1][2][3][4][5][D] FIRE not extinguished within 15 min. of Control Room notification or verification of a Control Room FIRE alarm in ANY Table H-1 area or Turbine Building (Note 4) HU2.2 [1][2][3][4][5][D] EXPLOSION of sufficient force to damage permanent structures or equipment within the PROTECTED AREA																																																						
	3 Hazardous Gas None	3 Hazardous Gas None	3 Alert HA3.1 [1][2][3][4][5][D] Access to ANY Table H-1 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shutdown the reactor (Note 5) HA3.2 [1][2][3][4][5][D] Recommendation by local, county or state officials to evacuate or shelter site personnel based on an offsite event	3 Unusual Event HU3.1 [1][2][3][4][5][D] Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS HU3.2 [1][2][3][4][5][D] Recommendation by local, county or state officials to evacuate or shelter site personnel based on an offsite event																																																						
	4 Security HG4.1 [1][2][3][4][5][D] A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions HG4.2 [1][2][3][4][5][D] A HOSTILE ACTION has caused failure of Spent Fuel Cooling systems AND IMMINENT fuel damage is likely	4 Security HS4.1 [1][2][3][4][5][D] A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Site Supervisor HS4.2 [1][2][3][4][5][D] A validated notification from NRC of an AIRLINER attack threat within 30 min. of the site	4 Alert HA4.1 [1][2][3][4][5][D] A HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area as reported by the Security Site Supervisor HA4.2 [1][2][3][4][5][D] A validated notification from NRC providing information of an aircraft threat	4 Unusual Event HU4.1 [1][2][3][4][5][D] A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Site Supervisor OR A credible site-specific security threat notification OR A validated notification from NRC providing information of an aircraft threat																																																						
	5 Control Room Evacuation None	5 Control Room Evacuation HS5.1 [1][2][3][4][5][D] Control Room evacuation has been initiated AND Control of the plant cannot be established within 15 min.	5 Alert HA5.1 [1][2][3][4][5][D] Control Room evacuation has been initiated	5 Unusual Event HU5.1 [1][2][3][4][5][D] None																																																						
	6 Judgment HG6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) offsite for more than the immediate site area	6 Judgment HS6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or imminent major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts (1) toward site personnel or equipment that could lead to the likely failure of or (2) that prevent effective access to equipment needed for the protection of the public. ANY releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY	6 Alert HA6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. ANY releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE or 5,000 mRem thyroid CDE)	6 Unusual Event HU6.1 [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat facility protection has been initiated. NO releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs																																																						
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	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT																																
C Cold SD/ Refuel System Malfunction	1 Loss of AC Power Table C-1 AC Power Sources <table border="1"> <thead> <tr> <th>Onsite</th> <th>Offsite</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> 2EGS*EG1 2EGS*EG3 </td> <td> <ul style="list-style-type: none"> Reserve Transformer A Reserve Transformer B Aux Boiler Transformer </td> </tr> </tbody> </table>	Onsite	Offsite	<ul style="list-style-type: none"> 2EGS*EG1 2EGS*EG3 	<ul style="list-style-type: none"> Reserve Transformer A Reserve Transformer B Aux Boiler Transformer 	1 Loss of AC Power CA1.1 [1][2][3][4][5][D] Loss of all offsite and all onsite AC power, Table C-1, to 4.16 KV emergency buses 2ENS*SWG101 and 2ENS*SWG103 for ≥ 15 min. (Note 4)	1 Alert CA1.1 [1][2][3][4][5][D] Loss of all offsite and all onsite AC power, Table C-1, to 4.16 KV emergency buses 2ENS*SWG101 and 2ENS*SWG103 for ≥ 15 min. (Note 4)	1 Unusual Event CU1.1 [1][2][3][4][5][D] AC power capability to 4.16 KV emergency buses 2ENS*SWG101 and 2ENS*SWG103 reduced to a single power source, Table C-1, for ≥ 15 min. (Note 4) AND ANY additional single power source failure will result in a loss of all power to 4.16 KV emergency buses 2ENS*SWG101 and 2ENS*SWG103																												
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	2 Loss of DC Power CG3.1 [1][2][3][4][5][D] RPV level < -14 in. for ≥ 30 min. (Note 4) AND ANY Containment Challenge Indication, Table C-3 CG3.2 [1][2][3][4][5][D] RPV water level cannot be monitored with core uncover indicated by ANY of the following for ≥ 30 min. (Note 4): • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication AND ANY Containment Challenge Indication, Table C-3	2 Loss of DC Power CS3.1 [1][2][3][4][5][D] With CONTAINMENT CLOSURE not established, RPV water level < 11.8 in. CS3.2 [1][2][3][4][5][D] With CONTAINMENT CLOSURE established, RPV water level < -14 in. CS3.3 [1][2][3][4][5][D] RPV water level cannot be monitored for ≥ 30 min. (Note 4) with a loss of RPV inventory as indicated by ANY of the following: • ANY UNPLANNED RPV leakage indication, Table C-2 • Erratic Source Range Monitor indication	2 Alert CA3.1 [1][2][3][4][5][D] RPV water level < 17.8 in. OR RPV water level cannot be monitored for ≥ 15 min. with ANY UNPLANNED RPV leakage indication, Table C-2 (Note 4)	2 Unusual Event CU2.1 [1][2][3][4][5][D] < 105 VDC on required 125 VDC emergency buses for ≥ 15 min. (Note 4) CU3.1 [1][2][3][4][5][D] RCS leakage results in the inability to maintain or restore RPV water level > 159.3 in. for ≥ 15 min. (Note 4)																																
	3 RPV Water Level Table C-2 RPV Leakage Indications <ul style="list-style-type: none"> Drywell equipment drain sump level rise Drywell floor drain sump level rise Reactor building equipment sump level rise Reactor Building floor drain sump level rise Suppression Pool level rise UNPLANNED rise in RPV make-up rate Observation of UNISOLABLE RCS leakage 	3 RPV Water Level Table C-3 Containment Challenge Indications <ul style="list-style-type: none"> CONTAINMENT CLOSURE not established Explosive mixture exists inside Primary Containment (H₂ ≥ 6% and O₂ ≥ 5%) UNPLANNED rise in Primary Containment pressure RB area radiation > 8.00E+3 mR/hr 	3 Alert CA4.1 [1][2][3][4][5][D] An UNPLANNED event results in EITHER: RCS temperature > 200°F for > Table C-4 duration OR RPV pressure increase > 10 psi due to an UNPLANNED loss of decay heat removal capability	3 Unusual Event CU3.2 [1][2][3][4][5][D] UNPLANNED RPV water level drop below EITHER of the following for ≥ 15 min. (Note 4): • 364 in. (RPV flange) • RPV water level band (when the RPV water level band is established below the RPV flange)																																
	4 RCS Temp. Table C-4 RCS Reheat Duration Thresholds <table border="1"> <thead> <tr> <th>RCS Status</th> <th>CONTAINMENT CLOSURE Status</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>INTACT</td> <td>N/A</td> <td>60 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Established</td> <td>20 min.*</td> </tr> <tr> <td>Not INTACT</td> <td>Not established</td> <td>0 min.</td> </tr> </tbody> </table>	RCS Status	CONTAINMENT CLOSURE Status	Duration	INTACT	N/A	60 min.*	Not INTACT	Established	20 min.*	Not INTACT	Not established	0 min.	4 RCS Temp. Table C-5 Communications Systems <table border="1"> <thead> <tr> <th>System</th> <th>Onsite (internal)</th> <th>Offsite (external)</th> </tr> </thead> <tbody> <tr> <td>PBX (normal dial telephones)</td> <td>X</td> <td>X</td> </tr> <tr> <td>Galtronics</td> <td>X</td> <td>X</td> </tr> <tr> <td>Station radio (portable)</td> <td>X</td> <td>X</td> </tr> <tr> <td>Control Room installed satellite phones (non portable)</td> <td></td> <td>X</td> </tr> <tr> <td>ENS</td> <td></td> <td>X</td> </tr> <tr> <td>RECS</td> <td></td> <td>X</td> </tr> </tbody> </table>	System	Onsite (internal)	Offsite (external)	PBX (normal dial telephones)	X	X	Galtronics	X	X	Station radio (portable)	X	X	Control Room installed satellite phones (non portable)		X	ENS		X	RECS		X	4 Alert CA4.1 [1][2][3][4][5][D] An UNPLANNED event results in EITHER: RCS temperature > 200°F for > Table C-4 duration OR RPV pressure increase > 10 psi due to an UNPLANNED loss of decay heat removal capability
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ATTACHMENT 4

License Amendment Request

**Change Emergency Action Level HU1.5 to Remove High Lake Level
Initiating Condition for Unusual Event Emergency Classification**

Markup of Proposed Emergency Action Level Technical Bases Pages

NMP1 EAL Page

74

NMP2 EAL Page

81

Attachment 1, Emergency Action Level Technical Bases (Continued)

Category: H – Hazards and Other Conditions Affecting Plant Safety
Subcategory: 1 – Natural or Destructive Phenomena
Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA
EAL:

HU1.5 Unusual Event
Lake water level > 248.2 ft
OR
Intake water level < 238.8 ft

Mode Applicability:

All

Basis:

Plant-Specific

This threshold addresses ~~high and~~ low bay water level conditions that could be a precursor of more serious events (ref. 1, 2).

~~The high lake level is based upon the maximum attainable uncontrolled lake water level as specified in the NMP 2 USAR. Dams on the St. Lawrence River, under the authority of the International St. Lawrence River Board of Control, are now used to regulate the lake level. The low limit is set for el 74.37 m (244 ft) on April 1 and is maintained at or above that elevation during the entire navigation season (April 1 to November 30). The upper limit of the lake level is el 75.59 m (248.2 ft) (ref. 3).~~

The low level is based on intake forebay level and corresponds to the minimum intake water level for operability of Emergency Service Water, Emergency Diesel Generator cooling water, Containment Spray Raw Water and Diesel and Electric FIRE Pump (ref. 4-9).

During planned evolutions such as intake water gate manipulation for reverse flow operations in which continuous monitoring of the intake level is being accomplished, entry into this EAL would not be warranted unless UNPLANNED /unexpected conditions and/or indications occur.

Attachment 1, Emergency Action Level Technical Bases (Continued)

Category: H – Hazards and Other Conditions Affecting Plant Safety
Subcategory: 1 – Natural or Destructive Phenomena
Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA
EAL:

HU1.5 Unusual Event
~~Lake water level > 248.2 ft~~
OR
Intake water level < 237 ft

Mode Applicability:

All

Basis:

Plant-Specific

This threshold addresses ~~high and~~ low lake water level conditions that could be a precursor of more serious events.

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The low level is based on intake water level and corresponds to the design minimum lake level. The probable minimum low water level of Lake Ontario at the site has been determined to be 72.0 m (236.3 ft) resulting from a setback caused by a Probable Maximum Wind Storm concurrent with the lowest probable lake level. (ref. 2)

Generic

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL addresses other site specific phenomena that can also be precursors of more serious events.

NMP2 Basis Reference(s):

1. USAR Section 2.4.1.2
2. USAR Section 2.4.11.2
3. N2-OSP-LOG-W001, Weekly Checks
4. NEI 99-01 IC HU1

ATTACHMENT 5

License Amendment Request

**Change Emergency Action Level HU1.5 to Remove High Lake Level
Initiating Condition for Unusual Event Emergency Classification**

Clean Emergency Action Level Bases Technical Pages

NMP1 EAL Page

74

75

NMP2 EAL Page

81

Attachment 1, Emergency Action Level Technical Bases (Continued)

Category: H – Hazards and Other Conditions Affecting Plant Safety

Subcategory: 1 – Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL:

HU1.5	Unusual Event
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Intake water level < 238.8 ft

Mode Applicability:

All

Basis:

Plant-Specific

This threshold addresses low bay water level conditions that could be a precursor of more serious events (ref. 1, 2).

The low level is based on intake forebay level and corresponds to the minimum intake water level for operability of Emergency Service Water, Emergency Diesel Generator cooling water, Containment Spray Raw Water and Diesel and Electric FIRE Pump (ref. 4-9).

During planned evolutions such as intake water gate manipulation for reverse flow operations in which continuous monitoring of the intake level is being accomplished, entry into this EAL would not be warranted unless UNPLANNED /unexpected conditions and/or indications occur.

Attachment 1, Emergency Action Level Technical Bases (Continued)**HU1.5 Unusual Event (Continued)**Generic

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL addresses other site specific phenomena that can also be precursors of more serious events.

NMP1 Basis Reference(s):

1. USAR Section III-F Screenhouse, Intake and Discharge Tunnels
2. USAR Section X-F Service Water System
3. NMP 2 USAR Section 2.4.11.2
4. N1-ARP-H2 Annunciator H2-1-3
5. N1-SOP-18.1 Service Water Failure/Low Intake Level
6. S13.1-100F003
7. S14-93F003
8. S16.9NPSHAM002
9. Calc No. S14-93-F007
10. NEI 99-01 IC HU1

Attachment 1, Emergency Action Level Technical Bases (Continued)

Category: H – Hazards and Other Conditions Affecting Plant Safety

Subcategory: 1 – Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL:

HU1.5	Unusual Event
--------------	----------------------

Intake water level < 237 ft

Mode Applicability:

All

Basis:

Plant-Specific

This threshold addresses low lake water level conditions that could be a precursor of more serious events.

The low level is based on intake water level and corresponds to the design minimum lake level. The probable minimum low water level of Lake Ontario at the site has been determined to be 72.0 m (236.3 ft) resulting from a setdown caused by a Probable Maximum Wind Storm concurrent with the lowest probable lake level. (ref. 2)

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