ATTACHMENT 71111.01

INSPECTABLE AREA: Adverse Weather Protection

CORNERSTONE: Initiating Events (20%)
Mitigating Systems (80%)

INSPECTION BASES: Weather conditions leading to loss of offsite power (LOOP), freezing temperatures, high temperatures, and high winds dominate external risk. Adverse weather can lead to loss of multiple trains and loss of redundant equipment due to common causes.

LEVEL OF EFFORT: Prior to or during seasonal susceptibilities, select 3 to 6 samples representing the review of preparations/protection for hot and cold weather conditions of 2 to 4 risk significant systems, and 1 to 2 site specific weather related conditions in a year regardless of the number of reactor units at the site.

71111.01-01 INSPECTION OBJECTIVE

This inspection will focus on verifying that the design features and implementation of the licensee's procedures protect mitigating systems from adverse weather effects. This procedure would be used in response to impending adverse weather conditions.

71111.01-02 INSPECTION REQUIREMENTS

This review shall be performed for the types of weather-related risks identified for the site. Common weather-related risks include tornado, hurricane, high winds, extreme high or low temperatures, extreme ultimate heat sink conditions (i.e. debris, ice blockages), frazil ice, and electrical storms. This inspection should be performed before the expected adverse weather conditions exist at the site and after the licensee has made their seasonal preparations, but before the weather actually presents a challenge.

02.01 Evaluate Readiness For Seasonal Susceptibilities

Perform a detailed review of the station's adverse weather procedures written for seasonal extremes (e.g. extreme high temperatures, extreme low temperatures, or hurricane season preparations). Select for inspection 2 to 4 risk-significant systems that are required to be protected from adverse weather.

a. Verify, including review of UFSAR, Technical Specifications, and plant documents, that the selected systems or components will remain functional when challenged by adverse weather. Verify that plant features and procedures for operation and continued availability of the ultimate heat sink (i.e. river, lake, ocean) during adverse weather are appropriate.

b. Verify cold weather protection features, such as heat tracing, space heaters, and weatherized enclosures are monitored sufficiently to ensure they support operability of the system, structure, or component (SSC) they protect. This includes instrument controller and alarm calibration programs as necessary to

support the cold weather protection function. Perform necessary walkdowns to verify the physical condition of weather protection features. Additional references for cold weather are listed in Section 06.

c. Verify that operator actions defined in the licensee's adverse weather procedure maintain readiness of essential systems. Verify that minimum/adequate operator staffing is specified. (Note: Consider accessibility of controls, indications, and equipment)

d. If the system/component selected for inspection is required for a reactor shutdown, verify that it would be available for performance of the reactor shutdown function under the weather conditions assumed prior to the shutdown.

02.02 Evaluate Readiness For Impending Adverse Weather Conditions

a. Evaluate implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of and during adverse weather conditions.

b Verify that operator actions defined in the licensee's adverse weather procedure maintain readiness of essential systems. Verify that minimum/adequate operator staffing is specified. (Note: Consider accessibility of controls, indications, and equipment

c. The Enforcement Policy provides for the exercise of enforcement discretion under circumstances in which maintaining the stability and reliability of the electrical power supply system is consistent with protecting the public health and safety. Weather-related NOED requests usually involve a missed surveillance, an improperly scheduled surveillance, or inoperable equipment. Verify that required surveillances are current, or are scheduled and completed, if practical, before anticipated extreme weather conditions develop. Verify the licensee implements periodic equipment walkdowns , if practical, or other measures to ensure that the condition of plant equipment is good and that potentially inoperable equipment does not prompt a NOED request.

d. Plant modifications, new evolutions, procedure revisions, or operator workarounds implemented to address periods of adverse weather can inadvertently affect maintenance rule SSCs and should be reviewed. Determine whether these activities pose a challenge to safe plant operation. Further follow-up may be appropriate using related inspection procedures such as IP 71111.12 "Maintenance Rule Implementation," IP 71111.15 "Operability," IP 71111.16, "Operator Workarounds," IP 71111.17 "Permanent Modifications," and IP 71111.23 "Temporary Modifications."

02.03 Identification and Resolution of Problems. Verify whether the licensee is identifying weather related problems that could affect mitigating systems and their support systems in the licensee's corrective action program and verify that they are properly addressed for resolution. Review the historical corrective action database to identify trends and to determine whether corrective actions have been effective. History searches of adverse weather events as well as specific weather effect mitigation equipment (e.g. heat trace circuits, intake structure traveling screens, station chillers, heat exchangers, etc.) may be useful. Review the station's self assessments or audits for adverse weather readiness. See Baseline Inspection Procedure 71152, "Identification and Resolution of Problems," for additional guidance.

Cornerstone	Inspection Objective	Risk Priority	Example
Initiating Events	Inspect for adequate equipment protection to preclude weather induced initiating events.	Site Specific For high winds, high risk exists for outdoor components, including power supplies, fuel/air lines, and sensing lines. For cold weather, high risk exists for components /sensing lines located in areas exposed to outside weather or located outside structures. Plant modifications, new evolutions, procedure revisions, or operator workarounds implemented to address periods of adverse weather.	Adequacy of protection of equipment outside structures from high winds (tornadoes and/or hurricanes) and high wind generated missiles. Adequacy of heat tracing and space heaters for cold weather protection of piping and equipment. Adequacy of physical condition of the insulation of sensitive instrument components and lines. Adequacy of continued availability of ultimate heat sink (protection from frazil ice or intake structure blockage due to debris including ice). Adequacy of safety evaluation for modification or change.

Mitigating Systems	Inspect for the ability of the selected mitigating system or component to perform its design function under projected adverse weather.	Site specific For high winds, high risk exists for outdoor components, including power supplies, fuel/air lines, and sensing lines. For cold weather, high risk exists for components /sensing lines located in areas exposed to outside weather or located outside structures. For hot weather, high risk exists for marine fouling of various heat exchangers due to clams/mussels etc.	Adequacy of protection of equipment outside structures from high winds (tornadoes and/or hurricanes) and high wind generated missiles. Adequacy of cold weather protection of RWST/CST level sensing lines. Adequacy of cold weather protection for cooling lines for service water pumps. Adequacy of site marine biofouling treatment and monitoring program. This area may be inspected when performing IP 71111.07.

71111.01-04 RESOURCE ESTIMATE

The annual resource expenditure for this inspection procedure is estimated to be 15 to 21 hours at a site regardless of the number of reactor units at that site. The actual resource requirement at a site may vary, based on site specific adverse weather challenges.

71111.01-05 COMPLETION STATUS

Inspection of the minimum sample size will constitute completion of this procedure in the Reactor Programs Systems (RPS). That minimum sample size will consist of 3 samples representing the review of preparations/protection for hot and cold weather conditions of 2 risk-significant systems and 1 site specific weather related condition in a year regardless of the number of reactor units at that site.

71111.01-06 REFERENCES

NRC Regulatory Issue Summary 2000-15, Recommendations for Ensuring Continued Safe Plant Operation and Minimizing Requests for Enforcement Discretion During Extreme Weather Conditions"

NRC Incident Response Supplement 2650-2652 "Hurricane / Severe Weather / Natural Phenomenon Event Response"

NRC IE Bulletin 79-24, "Frozen Lines"

Licensee report to NRC Regional Administrator in response to NRC IE Bulletin 79-24

IEEE 622-1979, “Recommended Practice for the Design and Installation of Electric Pipe Heating Systems for Nuclear Power Generating Plants”

Inspection Procedure 71152, “Identification and Resolution of Problems”

Inspection Procedure 71714, “Cold Weather Preparations”

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