



# Results of Temporary Instruction 2515/165

*Operational Readiness of Offsite Power and the Impact  
on Plant Risk*

George Morris, Senior Electrical Engineer  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission



# Background

---

- **Performed assessments of operational readiness of offsite power for nuclear power plants**
  - Temporary Instruction 2515/156 [ML041200565]
  - Temporary Instruction 2515/163 [ML051240080]
  - Temporary Instruction 2515/165 [ML060550258]



# Temporary Instruction 2515/165

---

## ■ **Offsite power**

- Notification of inadequate post-trip voltage
- Compensatory actions

## ■ **Maintenance**

- Procedures for including offsite power in assessing plant risk
- Acceptance criteria for notifying grid operator to manage risk



# **Temporary Instruction 2515/165 Findings**

---

- **Notified of a post-trip contingency, all nuclear power plants would either immediately declare offsite power inoperable or evaluate the situation before deciding on what action to take**
- **All but 5 nuclear power plants have procedures with compensatory actions**
- **All nuclear power plants consider offsite power in their risk assessments**



# **Temporary Instruction 2515/165 Findings (Cont.)**

---

- **All nuclear power plants have or are developing procedures that require the assessment of plant risk based on maintenance activities**
- **A few nuclear power plants do not notify the Grid Operator of changes at the nuclear power plant that could impact the transmission system**



# Summary

---

- **Nuclear power plants appear to be ready for the summer**
- **Nuclear Power Plant Licensees recognize the sensitivity of offsite power**



# Results of Generic Letter 2006-02

*Grid Reliability and the Impact on Plant Risk  
and the Operability of Offsite Power*

Paul Gill, Senior Electrical Engineer  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission



## Focus of Generic Letter 2006-02

---

- **Generic Letter focused on Licensees' capability to:**
  - Monitor grid conditions to determine the operability of offsite power systems
  - Incorporate grid conditions in the assessment and management of risk-associated maintenance
  - Evaluate site-specific increases in loss of offsite power frequency and impact on station blackout



# Offsite Power Area Results

---

- **Switchyard voltage limits [Question 1g]**
  - Not provided by some licensees
  
- **Compensatory measures for loss of ability to predict post-trip voltage [2f]**
  - Multi-layered software capability
  
- **Validation of predicted post-trip voltage [2g]**
  - Actual trip values not used for verification



# Offsite Power Area Results (Cont.)

---

- **Definition of single-contingency [3a]**
  - Only addressed trip of nuclear power plant
  
- **Double sequencing [3b]**
  - Not part of licensing basis
  - Some licensees have performed an analysis



# Maintenance Rule Area Results

---

- **Seasonal variation in grid stress [5c]**
  - Not addressed
  
- **Communication during grid risk-sensitive maintenance [5g]**
  - Changes not addressed



# Station Blackout Area Results

---

- **Review of station blackout analysis [8b]**
  - Nuclear power plants that experienced a loss-of-offsite power event have not addressed classification



# Summary

---

## ■ **Off-site Power Area**

- Protocols exist between Nuclear Power Plant Licensees and Grid Operators [1]

## ■ **Maintenance Rule Area**

- Grid-risk-sensitive equipment considered in maintenance rule evaluations [5a]

## ■ **Station Blackout Area**

- Nuclear Power Plants given off-site power restoration priority [7a]



## Next Steps

---

- **Work with nuclear power plant licensees and industry to resolve open items**
- **Possible generic communication to outline concerns in detail**