Pre-Decisional Enforcement Conference

NRC Region II
Atlanta, Georgia

April 30, 2009

Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

ENCLOSURE 3

Agenda

I. **Introduction**

II. **Description of the event**
- Identification and notification
- Immediate corrective actions
- Root cause analysis
- Actions taken to prevent recurrence

III. **Assessment**

IV. **Conclusion**

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CWS Horn event

Apparent violation

Failure of the licensee to adhere to Nuclear Safety Instruction (NSI) O-10.0 Revision 2, which states, in part, that while the CWS alarm is silenced, a radiation protection monitor (RPM) must monitor the console and be prepared to activate the alarm if a criticality is detected. The result of this failure was the CWS alarms in the fuel manufacturing building were disabled for four days.

GNF-A response

Concur

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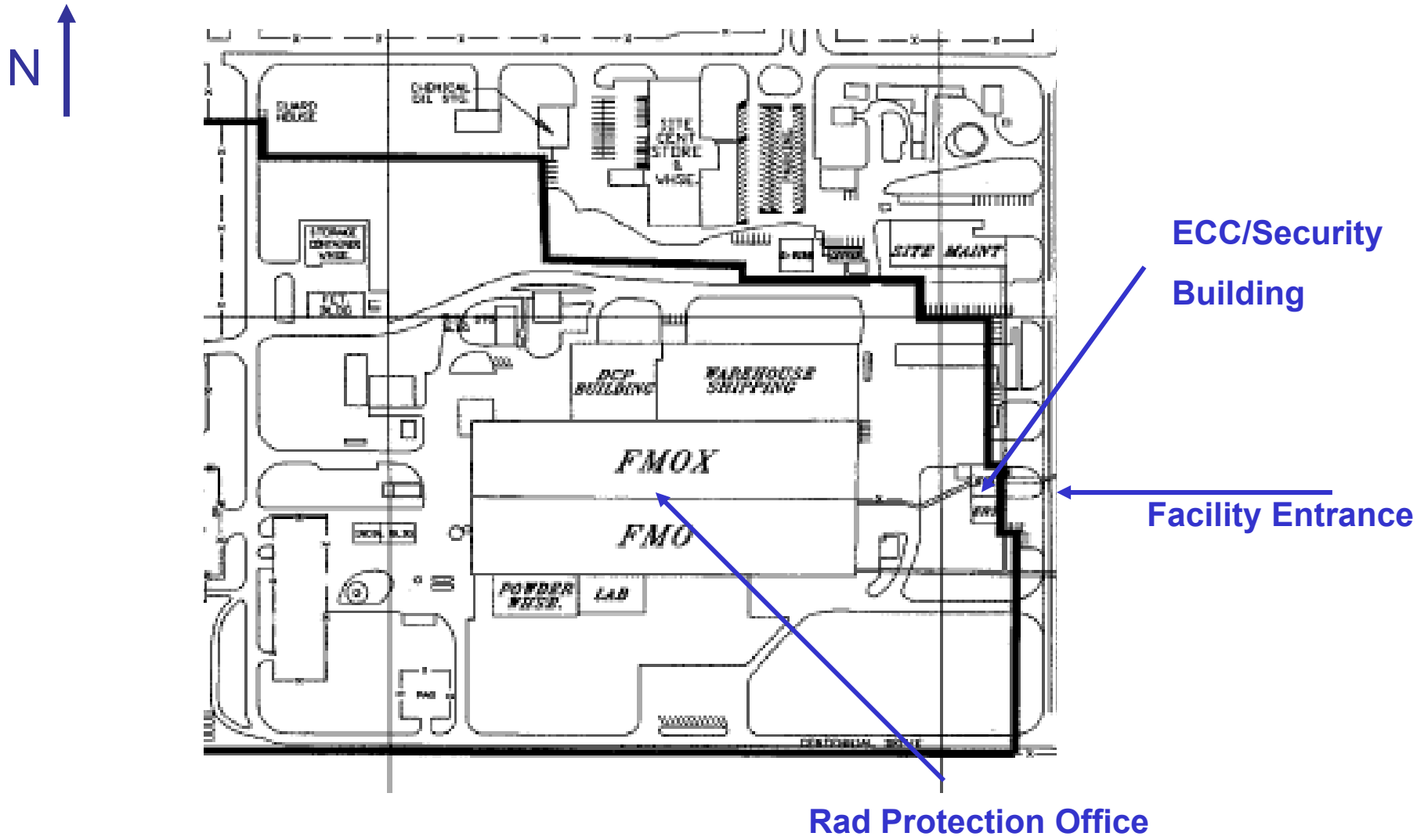
Fuel manufacturing complex



CWS Horn event - timeline

12/10/08	**2100**	Criticality Warning System (CWS) abnormal indicator light discovered burned out. Maintenance notified. No replacement bulb was immediately available
12/11/08		Change Request initiated to replace light bulb with available style
12/12/08	**0600**	CWS detectors went into alarm mode from spurious signal. Emergency Response Organization activated & Emergency Control Center (ECC) manned. At ~0650 false alarm confirmed & CWS horns placed in manual mode with ECC CWS panel manned
	0700	Rad Protection Monitor (RPM) manning ECC CWS panel directed to help with personnel re-entry surveys. RPM left ECC CWS in manual mode in violation of Nuclear Safety Instruction. At 0720 the RPM office CWS panel manned & placed in manual mode for system trouble shooting
	0730	Off normal condition terminated at ECC. Personnel left ECC with ECC CWS panel still in manual mode
	1515	Repairs to CWS completed. RPM office CWS panel placed back in automatic mode (abnormal indicator light not working). Manning of the RPM office CWS panel secured
12/16/08	**0600**	RPM performing other CWS maintenance entered ECC, discovered CWS horns still in manual mode. ECC CWS panel returned to automatic operation. Notifications made in accordance with procedure. CWS system tested to ensure system operation normal
	1615	Made required regulatory notifications

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CWS Horn event

Immediate Corrective Actions

- Returned CWS building horns to automatic mode immediately upon discovery
- Immediately notified the Site Emergency Director
- Determined no unusual events or elevated area dose rates
- Tested building CWS horns to ensure proper system operability
- Made Agency notifications as required on 12/16/08
- Replaced inoperable bulb

Self identified … prompt response … timely notification

GNF

CWS Horn event

Root causes

- Responsible Radiation Protection Monitor failed to follow procedures (Human performance)
- Rad Protection console warning light inoperable (Management systems)

Contributing factors

- Emergency event stand down procedure could have provided redundant instruction with respect to the CWS horns
- CWS status indicators could have a redundant verification method to ensure operability

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CWS Horn event

Actions taken to prevent recurrence

- Revised procedures to include additional specific actions
  - if CWS lights and functions are not normal
  - when CWS horns are placed in manual mode
- Revised emergency procedures to include additional specific actions when standing down from a CWS alarm
- Installed additional CWS console status indicator lights at both CWS consoles
- Added daily checks to both CWS console routines

All short and long term corrective actions are complete and have been reviewed by NRC

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CWS Horn event

Assessing significance of the event

NRC Enforcement Policy (NUREG -1600) lists criteria for assessing the significance of each violation:

- Actual safety consequences
- Potential safety consequences
- Impacting the regulatory process - None
- Willfulness - None

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CWS Horn event

Actual safety consequences

- No events occurred that would have resulted in actuation of the CWS horns
- No plant upset condition or elevated radiation levels
- Margin of subcritical safety maintained
  - No loss of any criticality safety controls
  - Double contingency protection maintained at all times

No actual safety consequences

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CWS Horn event

Potential safety consequences

- Automatic CWS horn activation was disabled, though CWS system remained operable in manual mode
- Local alarms at CWS panels & security office (staffed 24/7) remained operational. Manual building evacuation available
- Plant monitoring systems & automatic alarms remained operational
- Nuclear safety controls were unaffected by horns being in manual mode - risk of criticality event remained highly unlikely
- Exterior CWS system provided some coverage and remained unaffected

In the event of a criticality, a building evacuation would have been delayed

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CWS Horn event

Conclusion

- GNF-A self identified the condition and notified the NRC as required
- GNF-A performed a detailed root cause evaluation
- GNF-A implemented prompt, comprehensive and effective corrective actions, which have been reviewed by the NRC
- GNF-A believes elements exist for receiving credit for identification and corrective actions

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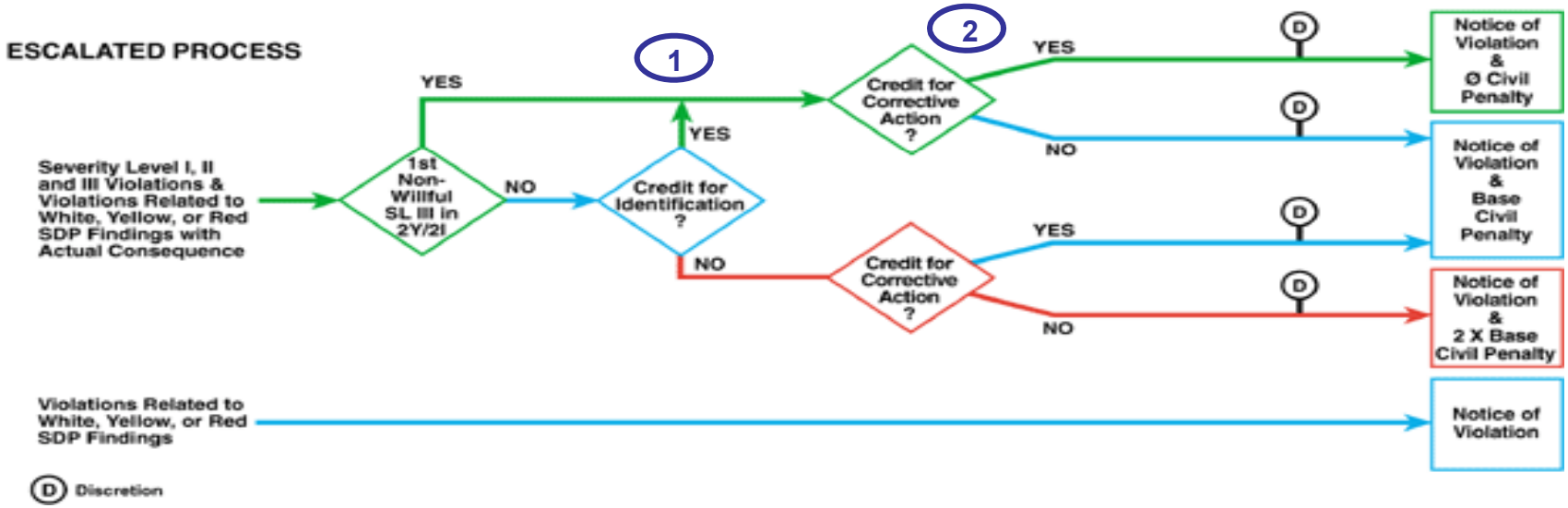
Additional material

CWS Horn event

Severity Level III example

A system designed to prevent or mitigate a serious safety event:

a) Not being able to perform its intended function under certain conditions (e.g., safety system not operable unless utilities available, materials or components not according to specifications)



1. Self Identified
2. Corrective action taken, reviewed and concurred with by the NRC