



Response to Apparent Violations

(EA-10-086)
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Presented to U.S. NRC
Atlanta, Georgia



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Introduction

- Agree with findings relative to sufficiency and effectiveness of credited controls
- Nurturing a Safety Culture is a continuing challenge
- Fundamental change in approach to Safety Conscious Work Environment (SCWE) and Conduct of Operations is being instituted
- Continuous Improvement is our goal



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Tim Lindstrom

Vice President, Operations



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Review of the Apparent Violations

2010-007-01

- Insufficient engineered or administrative controls to meet 70.61(b) performance requirements
 - Only one IROFS (BPF-43, NOx Detection) was designated to prevent or mitigate a high consequence accident scenario/sequence

2010-007-02

- Multiple failures to follow procedures related to the Configuration Management system

2010-007-03

- Failure to properly implement 10 CFR 70.72
 - Inadequate written evaluation of the bases for determination that the change(s) did not require prior NRC approval



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Review of the Apparent Violations

2010-007-04

- Failure to maintain process safety information that would have provided reasonable assurance that IROFS BUA-43 (chemical addition) could perform its intended design function as described in the ISA

2010-007-05

- Prior to 12/11/2009, failure to identify IROFS for several accident scenarios involving excessive NO_x in FMF, BPF U-Oxide and U-Aluminum, and CDL



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Overview of Presentation

- Timeline of the Process Upset Condition
- Prompt, Comprehensive Response
- Safety Significance
- Corrective Actions
- Safety Culture
- NFS Conclusions and Summary



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Timeline of the Process Upset Condition

10/13/2009

- UAL “fines” input into Bowl Cleaning station
- Operator noticed heat and NO_x formation
- System was shutdown
- NO_x detector (IROFS BPF-43) alarmed
- Facility was evacuated per procedure
- Re-entry and remote NO_x detector data indicated that NO_x levels were not significant
- Confirmed no worker exposures/injuries or environmental release
- Investigation initiated



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Timeline of the Process Upset Condition

10/19/2009

- Based on lab analysis of similar “fines” material, NOx generation rate was revised
- NFS then determined insufficient IROFS were in place to meet the 70.61 performance requirements
- NRC Operations Center was notified at 1700 EST (NRC Event No. 45446)



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Prompt, Comprehensive Response

10/13 – 11/17/2009: Root cause investigation

10/16 – 10/21/2009: Extent of condition review of feed materials / uncontrolled chemical reaction (FMF, BPF LEU, CDL)

10/22 – 10/26/2009: Developed & issued LOA to limit off-shift approvals, implement Technical Basis Questions, and establish Enhanced Safety Review

10/26 – 12/28/2009: Extent of condition review of NO_x calculations (plant-wide)

10/26 – 12/4/2009: Safety Basis Reviews

11/3 – 11/6/2009: Held “All Employee Briefings” to discuss recent incidents & core values (BCS NO_x, Fire Dampers)

11/19 – 12/17/2009: Safety Culture Component review of causal factors



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Prompt, Comprehensive Response

11/24/2009: “4-Hour Notification” reporting protocol established to inform Senior Management of events

12/8 – 12/14/2009: Multi-level and multi-discipline team (including B&W Lynchburg) developed Conduct of Operations improvements

12/15/2009: “Management Expectations” meetings

12/18/2009: Notification sent to employees that operations will remain shutdown after the December holiday period into 2010 to implement Conduct of Operations improvements

12/30/2009: NFS commits to suspension of SNM processing operations pending completion and NRC inspection of Restart Actions

1/7/2010: NRC issues Confirmatory Action Letter



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Safety Significance

- No actual safety significance to workers
- No actual or potential safety significance to the public or the environment



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Corrective Actions

PIRCS ID	Corrective Action	Affected Procedure / Document	Link to Violation No.	Reviewed during NRC Inspection?
11111	Develop and implement new IROFS to replace BUA-43.	IROFS 333-UGENER, Rev. 33	1	RRAT 1 RRAT 2
10616	Implement a project management program to be executed for all new projects or major process changes to current processes.	NFS-TS-009, Rev. 1 NFS-CM-004, Rev. 4	1, 2, 3	RRAT 1
10679	Revise the configuration management program to provide the requirements for a technical basis with sufficient technical detail to facilitate the risk and hazard assessments of process changes.	NFS-CM-004, Rev. 4	1, 2, 3	RRAT 1
10683	Provide guidelines to ensure process changes made on off-shifts have adequate technical support and oversight.	LOA-MISC-09-066 LOA-MISC-09-074 LOA-MISC-09-083 NFS-TS-009, Rev. 1 NFS-CM-004, Rev. 4	2	RRAT 1
11975	Revise the definition of "urgent change".	NFS-CM-004, Rev. 6	2	RRAT 1
10617	Develop/implement a process to ensure formal communications occur between Operations and Laboratory.	SOP 387, Rev. 4 Request for Testing form NFS-TS-009, Rev. 1	2, 3	RRAT 1
10682	Require routing of mark-up copies of procedures/documents during the approval process.	NFS-RM-010, Rev. 7	2, 3	RRAT 1
11061	Evaluate internal and external operating experience before initiating significant processing changes.	NFS-TS-009, Rev. 1 NFS-CM-004, Rev. 4	2, 3	RRAT 1

Corrective Actions

PIRCS ID	Corrective Action	Affected Procedure / Document	Link to Violation No.	Reviewed during NRC Inspection?
11062	Ensure that Laboratory personnel are given the opportunity to concur with engineering/safety work products for new or revised processes that rely on test data produced by the Lab.	NFS-TS-009, Rev. 1 NFS-CM-004, Rev. 4	2, 3	RRAT 1
11260	Develop a performance based qualification process to ensure required personnel have a demonstrated capability to prepare technical basis documents.	Training	2, 3	RRAT 1
11334	Establish procedural guidance for preparation of technical basis documents (links with CA 11260).	NFS-CM-004, Rev. 5	2, 3	RRAT 1
11384	Provide training on the improvements to the change control process to appropriate operations, technical oversight, and management staff.	Training	2, 3	RRAT 1
11114	ISA Team Leaders should have a formal procedure or job aide that details how screening should be conducted.	NFS-HS-A-67, Rev. 6	3	RRAT 1
10957	Provide a more formal engineering basis to document the use of sodium nitrate (IROFS BUA-43) to inhibit UO ₂ production.	backup documentation for setpoint	4	RRAT 1
P23613	Independent review of NFS setpoint analyses for issues similar to BUA-43.	memo from review team to NFS	4	RRAT 1 RRAT 2

Corrective Actions

PIRCS ID	Corrective Action	Affected Procedure / Document	Link to Violation No.	Reviewed during NRC Inspection?
11289	Revise the procedure that provides guidance for preparation of setpoint analysis documentation to enhance the basis of evaluation, specifically to provide guidelines for justifying the basis for critical parameters.	ENG-EPS-A-003, Rev. 1	4	RRAT 1 RRAT 2
11093	Add IROFS to 2 areas in Fuel to better support NOx calculation assumptions.	IROFS 302-100200, Rev. 5 IROFS 303-100200, Rev. 4 IROFS 302-EURECOV, Rev. 7	5	RRAT 1
11094	Add IROFS to 1 area in 301 to better support NOx calculation assumptions.	IROFS 301-PROCESS, Rev. 10	5	RRAT 3
11095	Revise NFS-HS-A-61 to clarify the definition of "unmitigated" analysis.	NFS-HS-A-61, Rev. 10	5	RRAT 1

Legend

RRAT 1 – CAL, Management Systems, FMF

RRAT 2 – BPF U-Metal / U-Oxide and associated support systems

RRAT 3 – BPF U-Aluminum, 301 Column Dissolver and associated support systems



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Mark Elliott

Director, Quality, Safety, and Safeguards

Safety Culture

Why did Safety Culture Improvement Initiatives fail to prevent the upset?

- Safety Culture Contributing Factors:
 - Insufficient management oversight of the change management process
 - Insufficient questioning attitude (white-collar / management)
 - Insufficient/untimely communications
 - Perceived production pressure
- 2007-2009 Safety Culture Improvements Valuable, but Insufficient

Safety Culture

Why did Safety Culture Improvement Initiatives fail to prevent the upset?

- Implementation shortcomings
 - Addressed individual recommendations, rather than implementing a holistic approach, including an effectiveness evaluation
 - Focused on programs rather than behaviors, assuming programs would drive behaviors
 - Failed to organize for success – did not initially assign full time project manager to the Safety Culture Improvement Initiative
 - Safety Culture initiative not appropriately prioritized in the face of other distractions – sale and acquisition of the company; transition to new owner and new corporate systems, benefits; and the construction and startup of the Commercial Development Line



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David Amerine

President

Safety Culture

What are we doing to get this right?

The new path forward, under the NRC CAL, has focused on:

- Conduct of Operations
- Standards and Behaviors
- Event Response
- Management oversight system improvements

These efforts are proving successful as evidenced by:

- NFS Evaluation
- Corporate Independent Review
- NRC CAL and RRAT Inspections
- Demonstrated improvement in conduct of operations

Safety Culture

What are we doing to get this right?

- NFS is implementing enhancements to sustain the progress made thus far
- We are expanding our focus to strengthen the seven SCuBA Team High Priority Recommendations:
 - Organizational and individual accountability
 - Corrective Action Program effectiveness
 - Resource management
 - Technical / professional competencies
 - Questioning attitude
 - Work Control
 - Safety Conscious Work Environment (SCWE)

Continuous Improvement

Safety Culture

What are we doing to get this right?

- Sustaining performance improvement in each of the seven areas listed on the previous page is a specific part of NFS' business strategy
- Continuing the approach of addressing behaviors, not just programs or individual tasks
- Assigning a dedicated executive level resource to lead and manage the continuing safety culture improvement initiative
- Established a Nuclear Safety Review Board (NSRB)
- Provided direction and funding to conduct another safety culture survey in 2011



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Summary and Conclusions

- Acted promptly to assure compliance
- NFS recognizes the programmatic weaknesses
- Reviews and actions to prevent recurrence are comprehensive in scope
- NFS believes the actual risk presented does not warrant Escalated Enforcement
- Request Regional Administrator's discretion, specifically in consideration of the significant resources expended during the shutdown period