

Examination Writing Workshop

FAILURE IS NOT AN OPTION

Chuck Casto
Region II

Human Performance

- Human Performance is a cross-cutting issue
- Major conclusions:
 - Safety System availability running about 97%
 - Human error contributes significantly to risk in nearly all significant events
 - Latent errors were present in every event analyzed
 - Latent errors are more predominant than active errors by at least a ratio of 3:1

Human Performance (cont'd)

- Latent errors are noted in all facets of performance studied
- For significant events, there are an average of four or more human errors/event
- 56% of events have five or more errors
- 41% of events have evidence of recurrence

Operator Performance

- For Reactor Operators, two types of errors dominate – command, control including resource allocation, and ineffective diagnosis

Summary of Operations Human Error for Analyzed Operational Events

ASP Events Operations (72 of 272/27%)	No. of Latent Errors	No. of Active Errors
Command and control including resource allocation	4	14
Inadequate knowledge or training	15	8
Operator Action/Inaction	3	13
Communications	9	6

Operator Events by Cornerstone

Cornerstone	2000	2001	2002
Barrier Integrity	9 Green	11 Green 1 n/a	6 Green
Initiating Events	12 Green 1 n/a	22 Green	10 Green
Emergency Planning	1 n/a	3 White	
Misc	2 Green 7 n/a 2 SLIV	3 Green 6 n/a	1 Green 1 n/a
Mitigating Systems	42 Green 3 n/a 1 White	54 Green 4 n/a 1 SLIV 1 Yellow	50 Green
Rad Safety		1 Green	1 Green
Security		1 Green	

Risk Significant Operator Events

Cornerstone	2000	2001	2002
Barrier Integrity			
Initiating Events			
Emergency Planning		3 White	
Misc			
Mitigating Systems	1 White	1 Yellow	
Rad Safety			
Security			

INSPECTION PROCEDURE 71111B – LOR

01/01/2000 – 04/20/2003

Cornerstone	Findings
Barrier Integrity	1 Green
Initiating Events	1 Green
Miscellaneous	2 n/a
Miscellaneous	SL-IV
Mitigating Systems	7 Green
Mitigating Systems	4 TBD
Mitigating Systems	1 Yellow

Inspection Procedure 711111Q Licensed Operator Requal 01/01/2000 – 04/20/2003

Cornerstone	Findings
Barrier Integrity	1 Green
Initiating Events	1 Green
Initiating Events	1 n/a
Mitigating Systems	2 Green
Mitigating Systems	1 TBD

Examiner Qualifications

- Power Plant Engineering
- Systems Courses
- Examiner Techniques Course
- Qualification Program 1300 hours
 - Self Study
 - Exam development
 - OJT
- Chief Examiner adds 500 more hours
- Also must complete inspector qualification

Feedback Mechanisms

- Regulatory Impact Process
- Talk with Chief Examiner, BC
- Talk with Regional Management
- Talk with Inspector General's Office
- NRC's safety hotline (800) 695-7403
- NRC Management site visits
- Licensee Management drop-in visits
- Routine feedback to NRC line staff
- Nothing "off the record"

Integrity

- A number of recent events highlight a a continued need to focus on integrity
 - FFD cases
 - Falsification
 - Delaying exams/training
 - Limited remediation
 - Training “exceptions”

Efficiency

- Treat exam like a project
- Communicate
- Plan
- Do not delegate to contractor
- Good tie between sample plan, questions and K/A's
- Legitimate distractors
- Use of Information Technology (LXR test, tablets, simulators)

Efficiency

- Well organized, indexed, and up-to-date examination material saves us time therefore you money.....

Effectiveness

- Realism/fidelity – the way you practice is the way you play
- Reporting culture – feedback crucial to SAT
- Team building lessons – build up and build in confidence
- Manager observations
- Legacy building
- Focus on external communications
- Understand physical security issues

Professionalism

- Trainer's Role in establishing safety culture
 - Tough – forever accountable
 - Competent – never take anything for granted
 - Discipline – everyday, every situation
 - Morale – belief in team, mission, yourself
- NRC exam is not the standard
- Applicants take the exam by themselves but they're not alone

FAILURE IS NOT AN OPTION

- NOT ONE UNQUALIFIED OPERATOR
IN THE CONTROL ROOM