

[^{Union of}
Concerned Scientists

Fire When NOT Ready

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Issues

- **Glacial pace is slowing down**
- **Interim risk not negligible**
- **Broken contract with public**

Slow and Slowing

	Harris	Oconee	Browns Ferry	Diablo Canyon
LOI to LAR	3.0	3.2	4.1	7.5
LAR to LA	2.1	2.6	1.2 plus	0.9 plus
Fire to LAR	33.2	33.2	38.0	38.3

LOI to LAR is the number of years between the letter of intent and the license amendment request

LAR to LA is the number of years between the license amendment request and the license amendment (plus indicates ongoing tally)

Fire to LAR is the number of years between the Browns Ferry fire and the license amendment request

Slow and Slowing – 50/50

NFPA 805
Schedule Report

3-18-2013

	3 months	5 months	7 months	14 months	16 months	17 months	19 months	20 months	24 months	
	Acceptance	Audit	RAIs Issued	Issue Final RAIs	RAIs Resolved	Draft SE Done	Final SE Done	SE to DORL	Amendment Issued	
DC Cook	Sep 2011	Nov 2011	Jan 2012	Sep 2012	Nov 2012	Dec 2012	Feb 2013	Mar 2013	Jun 2013	10-24-2013
Duane Arnold	Oct 2011	Dec 2011	Jan 2012	Oct 2012	Dec 2012	Jan 2013	Mar 2013	Apr 2013	Jul 2013	09-10-2013
Callaway	Nov 2011	Jan 2012	Mar 2012	Nov 2012	Jan 2013	Feb 2013	Apr 2013	May 2013	Aug 2013	01-13-2014
Fort Calhoun	Dec 2011	Mar 2012	Apr 2012	Dec 2012	Feb 2013	Mar 2013	May 2013	Jun 2013	Sep 2013	LATE
Waterford	Feb 2012	May 2012	Jul 2012	Feb 2013	Apr 2013	May 2013	Jul 2013	Aug 2013	Nov 2013	LATE
Summer	Feb 2012	Jun 2012	Jul 2012	Feb 2013	Apr 2013	May 2013	Jul 2013	Aug 2013	Nov 2013	LATE
Cooper	Jul 2012	Oct 2012	Nov 2012	Jul 2013	Sep 2013	Oct 2013	Dec 2013	Jan 2014	Apr 2014	04-29-2014
NMP	Aug 2012	Nov 2012	Dec 2012	Aug 2013	Oct 2013	Nov 2013	Jan 2014	Feb 2014	May 2014	LATE
Turkey Point	Oct 2012	Dec 2012	Jan 2013	Sep 2013	Nov 2013	Dec 2013	Feb 2014	Mar 2014	Jun 2014	
Prairie Island	Dec 2012	April 2013	May 2013	Dec 2013	Feb 2014	Mar 2014	May 2014	Jun 2014	Sep 2014	
Farley	Dec 2012	Mar 2013	Apr 2013	Dec 2013	Feb 2014	Mar 2014	May 2014	Jun 2014	Sep 2014	
Brunswick	Dec 2012	April 2013	May 2013	Dec 2013	Feb 2014	Mar 2014	May 2014	Jun 2014	Sep 2014	
Palisades	Mar 2013	May 2013	Jul 2013	Feb 2014	Apr 2014	May 2014	Jul 2014	Aug 2014	Nov 2014	
ANO 2	Mar 2013	May 2013	Jul 2013	Feb 2014	Apr 2014	May 2014	Jul 2014	Aug 2014	Nov 2014	

Only half of the amendments scheduled to be issued in the past year were actually issued.

Slow and Slowing - Sideslide

50.48 and App. R went into effect on February 17, 1981.

It took NRC more than 15 years to discover that nearly half the U.S. fleet did not comply with these prescriptive regulations.

Will it take as long or longer to verify NFPA 805 compliance?

Delays Have Risk Implications

“Approximately one-half of the core damage risk at operating reactors results from accident sequences that initiate with fire events.”

Jack Grobe, Associate Director for Engineering and Safety Systems, Office of Nuclear Reactor Regulatory, Nuclear Regulatory Commission during July 17, 2008, Commission Briefing on Fire Protection Issues

Delays Have Risk Implications

Fire risk roughly equals risk from ALL OTHER ACCIDENT SEQUENCES combined, and that's if fire regulations are being met. Fire risk increase when reactors do not comply with the safety regulations.

Delays Have Risk Implications

Risk Comparison of ONS Modifications

Modification	Estimated Risk Reduction (delta CDF per year)
Increase SSF Flood Protection	1.5E-4
Total of Currently Planned Modification (sum of values below)	8.1E-5
Tornado	6.8E-6
Internal Events	1.4E-5
HELB	1.0E-5
Fire	5.0E-5

The numerical risk of NOT complying with fire safety regulations.

Delays Have Risk Implications



Nuclear

Modification Breakdown By Type

Protect or Reroute Cables	26 Design Changes/39 Stages
Fusing of Associated Circuits	7 Design Changes/91 Stages
Circuit Protection and Coordination	2 Design Changes/~150 Stages
Interposing Relays for Circuit Isolation	3 Design Changes/18 Stages
Isolation Switches	7 Design Changes/27 Stages
Prevent Spurious Valve Operation	9 Design Changes/28 Stages
Eliminate Unnecessary Circuits/ Functions	8 Design Changes/54 Stages
New Logic Inhibit Switches	4 Design Changes/24 Stages
Fire Protection System Enhancement	5 Design Changes/11 Stages
New High Pressure Injection Pump and backup diesel generator	1 Design Change/3 Stages
Mechanical Isolation	2 Design Changes/12 Stages

Delays Have Risk Implications



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Closing

- TVA is strongly committed to reducing fire risk at BFN
- TVA is committed to strategy of parallel plant modification and NFPA 805 application development
 - Modifications are progressing consistent with the schedule captured in the TVA commitment letter of February 17, 2012
- BFN NFPA 805 License Amendment is on track for submittal no later than March 29, 2013

More than 38 years AFTER the Browns Ferry fire - what would a weak commitment to fire safety look like?

Broken Contract

Regulations and operating licenses are three-way contracts between NRC, licensees, and the public.

do
They protect licensees from NRC requiring more stringent, and more costly, measures.

Should also
They protect the public from NRC accepting less than compliance with regulatory requirements.

Broken Contract

10 CFR 50.48 and App. R became effective 02/17/81

NFPA 805 became effective 07/16/04

Browns Ferry and other reactors transitioning to NFPA 805 have never complied with these fire regulations for even a millisecond

NRC is letting the public down.

Broken Contract

Compensatory measures, in place for decades and counting, have not gone through a rulemaking process.

NRC could have pursued rulemaking producing a regulation outlining when compensatory measures are permissible under what conditions.

Relying on compensatory measures year after year constitutes *de facto* rulemaking denying the public its right to contest it.

Nuclear Safety 1.0

Whether risk from fire regulation non-compliance is $5.0E-5$, $2.3E-6$, or $6.2E-3$ per reactor year, the appropriate metric must be $1.0E+0$ per reactor year.

There must be a 100 percent chance that reactors comply with NRC's fire safety regulations for nuclear power's risks to be managed properly and responsibly.

July 16, 2014

Four weeks from today is the tenth anniversary of the NFPA 805 regulations becoming effective.

In that decade, a not-so-grand total of six (6) reactors achieved compliance and nearly four dozen others expressed some interest in maybe doing so, too.

Fire safety must be taken seriously.

Acronym List

BFN – Browns Ferry nuclear plant

HELB – high energy line break

LA – license amendment

LAR – license amendment request

LOI – letter of intent

LER – licensee event report

**NFPA – National Fire Protection
Association**

**NRC – Nuclear Regulatory
Commission**

TVA – Tennessee Valley Authority

Backup Slides

Enforcement ~~Discretion~~ Dismissal

Petitioners questioned how NRC inspects a reactor known not to comply with either App. R or NFPA 805.

NRC's answer: "For Shearon Harris and all other plants that are transitioning to 805, we have a revised inspection procedure. ... In other words, that is no reason to go and reinspect things like operator manual actions where we believe that the licensee is not in compliance."

Source: Transcript of NRC Petition Review Board meeting conducted 11/13/2006 (ML063210488)

Shearon Harris Timeline

Date	Event
03/22/75	Browns Ferry fire
02/17/81	50.48 and App. R regulations effective
07/16/04	NFPA 805 regulations effective
06/10/05	Letter of intent for transition to NFPA 805 submitted
05/29/08	License amendment request for NFPA 805 transition submitted
12/17/08	Renewed license issued
06/28/10	License amendment for NFPA 805 transition issued

Shearon Harris Timeline, cont.

Date	Event
03/22/75	Browns Ferry fire
02/17/81	50.48 and App. R regulations effective
07/16/04	NFPA 805 regulations effective
06/10/05	Letter of intent for transition to NFPA 805 submitted
05/29/08	License amendment request for NFPA 805 transition submitted
12/17/08	Renewed license issued
06/28/10	License amendment for NFPA 805 transition issued

Oconee Timeline

Date	Event
03/22/75	Browns Ferry fire
12/08/11	First triennial fire protection inspection post-NFPA 805 identifies one Green finding (non-existent step in response procedure)
12/23/11	NRC grants fee waiver for review costs from NFPA 805 license amendment request
11/04/13	Routine inspection effort identifies one Green finding (non-existent compensatory measure for fire protection impairment)

Oconee Timeline, cont.

Date	Event
03/22/75	Browns Ferry fire
07/31/12	Duke requests completion date for NFPA 805 implementation be extended to 12/31/14
01/15/13	NRC denies extension request because "<i>the increase in core damage frequency (CDF) resulting from the change requested in the July 2012 application is about four times the greatest acceptable increase in CDF for a facility with a very low total risk and 40 times the greatest acceptable CDF increase for a high total risk plant</i>"

Oconee Timeline, cont.

Date	Event
03/22/75	Browns Ferry fire
01/31/13	NRC issued apparent violation for missing 12/31/12 deadline
03/11/13	Duke commits to fully implementing NFPA 805 measures by 11/15/16
07/01/13	Confirmatory Order directs all NFPA 805 measures be completed by 11/15/16

Browns Ferry Timeline

Date	Event
03/22/75	Browns Ferry fire
02/17/81	50.48 and App. R regulations effective
03/19/85	Unit 1 enters extended outage
03/19/93	TVA commits to achieving compliance with 50.48 and App. R on Unit 1
07/16/04	NFPA 805 regulations effective
06/02/07	Unit 1 ends 22-year plus outage
03/04/09	Letter of intent for transition to NFPA 805 submitted

Browns Ferry Timeline, cont.

Date	Event
03/22/75	Browns Ferry fire
01/26/12	Fire inside Unit 3's control room
02/17/12	TVA reports 6 modifications completed and 27 pending to reduce fire risk
05/18/12	Confirmatory Order extends NFPA 805 submittal deadline to 03/29/13
05/29/12	LER for combustible materials not in compliance with exclusion zone requirements

Browns Ferry Timeline, cont.

Date	Event
03/22/75	Browns Ferry fire
06/22/12	White finding for "<i>failure to adequately identify and perform required training for implementation of procedures for combating plant fire events</i>"
11/08/12	TVA identifies dozens of additional modifications needed to reduce fire risk
03/27/13	License amendment request for NFPA 805 transition submitted

Diablo Canyon Timeline

Date	Event
03/22/75	Browns Ferry fire
02/17/81	50.48 and App. R regulations effective
07/16/04	NFPA 805 regulations effective
12/29/05	Letter of intent for transition to NFPA 805 submitted
10/15/08	Target date for submitting license amendment request extended by one year
06/26/13	License amendment request for NFPA 805 transition submitted