Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

ROP Baseline Inspection Program

Dave Lochbaum
Director, Nuclear Safety Project

July 17, 2013

Questions Being Asked by the NRC

1. What issues/programs/components, if any, should be covered by the ROP baseline inspection program, but are not? What areas, if any, are covered by the ROP baseline inspection program that should not be?

2. How can the baseline inspection program be more efficient and/or effective?

3. What redundancies exist in the baseline inspection program? For example, do the current baseline inspection procedures have the correct breadth to ensure we are not inspecting the same things?

Questions Being Asked by the NRC

4. **What ways are there to increase the NRC's focus on the most significant performance issues at a plant? Are there areas of licensee plant operations and performance which warrant increased or new NRC focus? Are there areas where the NRC's focus should be decreased?**

5. **How can we improve the existing baseline inspections to result in findings that have a clear tie to nuclear safety, are indicative of current performance, and provide the most insight?**

6. **How can we better integrate operating experience into the baseline inspection program?**

Questions Being Asked by the NRC

7. **What changes, if any, can be made to the existing baseline inspection program to ensure we are sufficiently evaluating age related degradation or failures of passive or active systems, structures, or components?**

8. **What changes, if any, should be made to the baseline inspection program to ensure it is adequate for the current environment (e.g., external event uncertainties, plants entering extended operation, effects of power uprates, new corporate/financial structures, etc)?**

9. **What changes, if any, should be made to the frequency of team inspections?**

Q1 - What issues/programs/components, if any, should be covered by the ROP baseline inspection program, but are not?

A recurring theme involves licensees that have not adequately implemented lessons from NRC's generic communications. Examples include boric acid corrosion control (Davis-Besse), fire protection system header corrosion (Monticello), and electrical penetration assemblies (Fort Calhoun).

The baseline program, perhaps the CDBIs which are rumored to be target-deprived, could select a smart sample of generic communications and assess how effectively they've been implemented and maintained.

Q2 - How can the baseline inspection program be more efficient and/or effective?

Remedy disconnect between 3-year scope of baseline inspection program and 2-year scope of inspection findings in assessment space.

Example: Three different sites each have the IDENTICAL greater-than-green inspection findings from triennial fire protection inspections performed two years ago, last year, and this year.

All other ROP elements being equal, one plant (i.e., the one with the oldest triennial) would score better in ROP space simply due to this arbitrary disconnect. That's not fair.

Q2 - How can the baseline inspection program be more efficient and/or effective?

	Performance Indicators				Inspection Findings			
	Green	White	Yellow	Red	Green	White	Yellow	Red
2001	1,834	8	0	0	660	23	2	0
2002	1,835	5	0	0	783	30	1	2
2003	1,825	15	0	0	748	19	2	4
2004	1,834	6	0	0	778	11	0	0
2005	1,850	4	0	0	849	10	1	0
2006	1,843	11	0	0	676	13	0	0
2007	1,942	8	1	0	759	9	2	0
2008	1,762	6	0	0	776	17	0	0
2009	7,039	18	0	0	879	7	0	0
2010	7,009	23	0	0	816	9	2	0
Sum	28,773	104	1	0	7,724	148	10	6
Percent	99.6%	0.4%	0.0%	0.0%	97.9%	1.9%	0.1%	0.1%

Developing more useful performance indicators would benefit the baseline inspection program.

Q2 - How can the baseline inspection program be more efficient and/or effective?

A formal assessment should be performed following each SIT/AIT/IIT to determine if its findings warrant changes to the baseline inspection program.

In other words, do the SIT/AIT/IIT findings suggest changes in what is being examined, how it is being examined, and/or when it is being examined?

Also, SIT/AIT/IIT findings should be formally reviewed against most recent CDBI (s) to determine if CDBI selection criteria and inspection methods need tweaking.
(See Q5, slide 17)

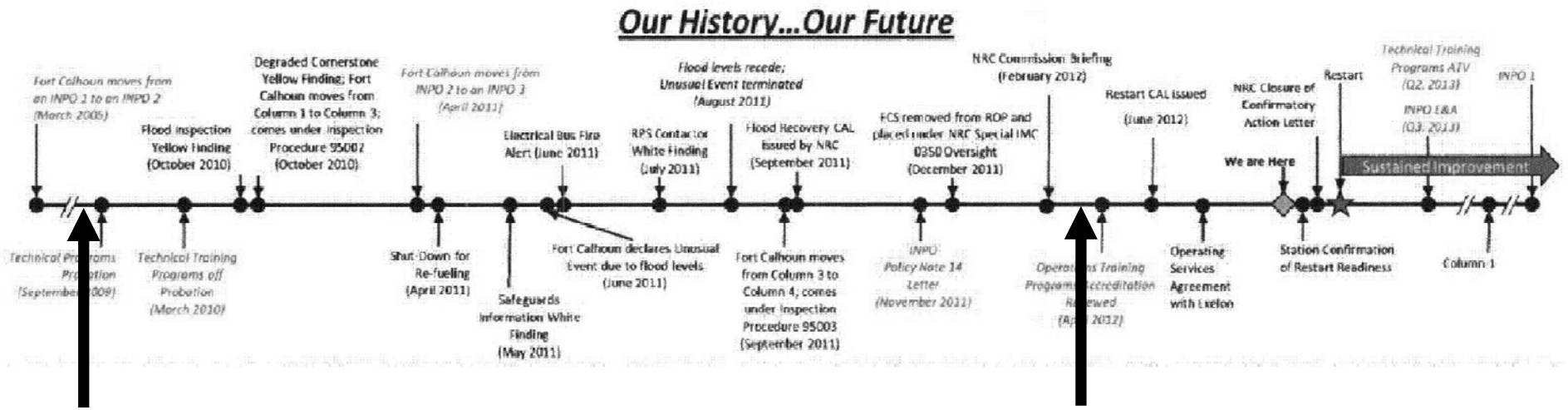
Q2 - How can the baseline inspection program be more efficient and/or effective?

IP 71152 should be revised to focus more attention on programmatic weaknesses in testing and inspection regimes.

IP 71152 currently focuses almost exclusively on effectiveness of corrective actions (e.g., root causes, extent of condition, and recurrence control).

IP 71152 must also examine why testing and inspection regimes failed to detect longstanding problems (example: electrical penetration assemblies at Fort Calhoun).

Fort Calhoun's Performance Improvement Plan, Rev. 5, June 2013 (ML13172A351)



07/2009: NRC biennial PI&R inspection - "The team concluded that the licensee correctly identified deficiencies that were conditions adverse to quality and did enter them into the corrective action program in accordance with the licensee's corrective action program guidance and NRC requirements."

03/2012: NRC biennial PI&R inspection – "Overall, the NRC team noted deficiencies in all three areas of the problem identification and resolution process." "The team noted that while the licensee was identifying and placing a large number of adverse conditions into the corrective action process (nearly 21,000 in two and a half years), the associated corrective action were often narrowly focused and failed to adequately identify the extent of cause and extent of condition, where required."

Item 3.a Corrective Action Program

The Corrective Action Program and the use of industry Operating Experience at a nuclear power plant is a key element in ensuring the licensee's ability to effectively detect, correct, and prevent problems. Based upon problems with Corrective Action Program effectiveness the licensee is performing a comprehensive review of this program.

The NRC will assess the licensee's evaluations and associated improvement actions related to the Corrective Action Program. The NRC will also conduct independent inspections to validate whether the Corrective Action Program is appropriately functioning. Additionally, the NRC will verify that the licensee has established appropriate effectiveness measures to monitor the effectiveness of program improvements.

Item	Actions to Be Verified Prior to Restart	Status
3.a.1	Licensee Assessment of Corrective Action Program	
3.a.2	Adequacy of extent of condition and extent of causes	
3.a.3	Adequacy of corrective actions	
3.a.4	Adequacy of effectiveness measures to monitor program improvements	

The site performed an integrated assessment and identified fifteen Fundamental Performance Deficiencies that resulted in the overall performance decline at the station. The Corrective Action Program was identified as one of these areas for improvement. Examples identified by the licensee included problems not being thoroughly evaluated to determine the causes; corrective actions lack clarity or don't correlate to the root and contributing causes, condition reports are assigned incorrect significance levels, and corrective actions are not completed in a timely manner. With respect to this FPD, the NRC will assess the following:

Item	Actions to Be Verified Prior to Restart	Status
3.a.5	Licensee Assessment of the Fundamental Performance Deficiency associated with the Corrective Action Program	
3.a.6	Adequacy of extent of condition and extent of causes	

NRC biennial PI&R inspection report 50-285/2011006 dated March 16, 2012, for Fort Calhoun stated:

"The team also identified that due to the lack of an effective trending program, the licensee failed to identify degrading performance and therefore was unable to take action prior to the manifestation of conditions adverse to quality."

Isn't the NRC's IP 71152 guilty of this same charge? The corrective action program at Fort Calhoun was not dandy in July 2009 and broken by March 2012 as NRC's PI&R inspections suggest. IP 71152 must be fixed.

Cumulative effects of regulation?

What about the cumulative effects of ineffective regulation?

Had IP 71152 given the NRC and the licensee more accurate assessments of deteriorating corrective action processes, it would not have taken over two years at such high cost to remedy the myriad problems – and the people living around the facility would not have been exposed to elevated risk before the myriad problems were finally recognized and remedied.

Q3 - What redundancies exist in the baseline inspection program?

The cross-cutting areas/issues/aspects should be reviewed for possible elimination or significant trimming.

In addition to being highly subjective – contrary to ROP's guiding concepts – the cross-cutting issues appear to be "piling on" to flags raised by inspection findings.

The "value added" by the cross-cutting things should be identified or they should be eliminated and the resource applied more productively.

Q4 - Are there areas of licensee plant operations and performance which warrant increased or new NRC focus?

The baseline inspection program could be enhanced through the use of topical vice region focused inspections.

Examples: Team inspections of reactors with BWR Mark II containments, reactors with PWR ice condenser containments (GSI-189), reactors with Transamerica Delaval emergency diesel generators, or all plants operated by an owner across multiple NRC regions.

Q5 - How can we improve the existing baseline inspections to result in findings that have a clear tie to nuclear safety, are indicative of current performance, and provide the most insight?

A short-term goal of reducing the annual rate of SITs/AITs/IITs should be established and findings from last year's inspections factored into what is inspected when over the next two years.

Example: During 2012, SITs/AITs at Byron, Catawba, Fort Calhoun, River Bend, and Wolf Creek identified electrical distribution problems that failed to isolate/contain initial failure.

Q5 - How can we improve the existing baseline inspections to result in findings that have a clear tie to nuclear safety, are indicative of current performance, and provide the most insight?

UCS keeps hearing that the CDBIs have examined all risk-significant components and operator actions and there's nothing left for the CDBIers to examine.

The sustained rate of nearly a dozen SITs/AITs annually – basically one per month – rebuts that presumption. If CDBIs were truly "mission accomplished," the SIT/AIT rate would be declining. It's not, therefore it's not.
(See Q2, slide 8)

Q6 - How can we better integrate operating experience into the baseline inspection program?

The baseline inspection program should examine how licensees handled operating experience reports received from external sources (e.g., generic correspondence issued by NRC, SERs/SOERs from INPO, and service information letters issued by vendors).

Example: NRC Info Notice 2013-09 alerted licensees to recent problems with cylinders containing compressed flammable gases. IP 71152 could examine how this notice was handled within the corrective action program or a fire protection inspection could examine admin controls over use and storage of such cylinders.

Q6 - How can we better integrate operating experience into the baseline inspection program?

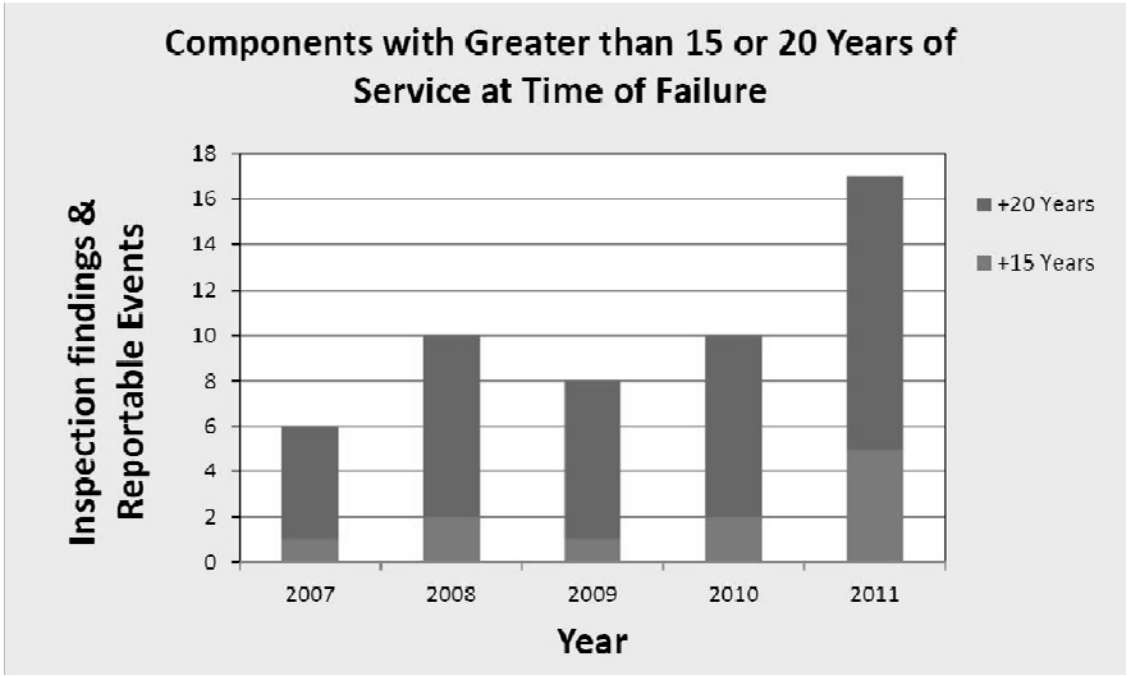
When applicable, factor findings from SIT/AIT/IIT into IP 71152 inspections.

Example: In 2012, SITs at Brunswick and Harris found that training and testing regimes discontinued in 2000 contributed to the events.

Ensuing IP 71152 inspections should probe such findings further to ascertain whether the program discontinuations were isolated or reflective of other discontinuations potentially setting the stage for future events.

Q7 - What changes, if any, can be made to the existing baseline inspection program to ensure we are sufficiently evaluating age related degradation or failures of passive or active systems, structures, or components?

Excellent recent study by IOEB (Feb. 2013, ML13044A49) looked at LERs and inspection findings between 2007 and 2011 and identified a notable increase in age-related degradation failures of components in service over 15 years.



Baseline inspection program must incorporate such valuable lessons learned.

Q8 - What changes, if any, should be made to the baseline inspection program to ensure it is adequate for the current environment ?

Each site or region should have "unallocated" baseline inspection resources to examine out-of-the-box areas.

Example: Resident inspector staff wanted to pull the string on the increased replacement frequency of air filters in the containment rad monitors at Davis-Besse but were prevented from doing so because these components have low safety significance and are non-ROP worthy.

Q9 - What changes, if any, should be made to the frequency of team inspections?

No changes should be made.