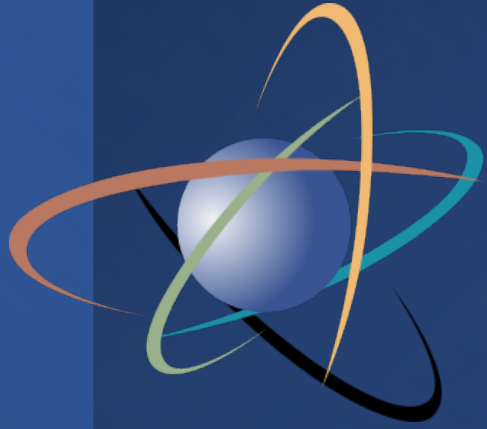




ROP Data-Informed Inspection Concepts



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Baseline Inspection Program

- Baseline inspection program provides indication of licensee performance in areas not measured or not fully measured by performance indicators
- Baseline inspections will
 - 1) verify the accuracy of PI information provided to the NRC by licensees
 - 2) provide indications of licensee performance in the inspectable areas
 - 3) inspect the effectiveness of licensee PI&R programs
- Under the baseline inspection program, all areas where there is a need to inspect a licensee's performance are defined as inspectable areas.
- With the ROP, inspections within these areas were adjusted where licensee performance to meet a cornerstone objective is adequately gauged by performance indicators.

Baseline Inspections

IP 71151

Performance
Indicator
Verification

Cornerstone-Based Inspections

- **Inspection w/in Inspectable Areas**
- Event Follow-up (IP 71153)
- Plant Status (IMC 2515 App. D)

IP 71152

Identification
and Resolution
of Problems

Baseline Inspection Program

- Each inspectable area has a basis document, which describes the scope of the inspectable area and explains why the area is included in the baseline program. (See SECY-99-007.)
- Reasons for inclusion in the program may be that
 - 1) the area is linked to the NRC's mission
 - 2) the inspectable area involves a key attribute of a cornerstone of safety
 - 3) risk information justifies including the area in the baseline inspection program
- Basis document for each inspectable area also identifies whether a performance indicator applies to the area and what inspections may be needed to supplement or complement the information provided by the performance indicators in the area

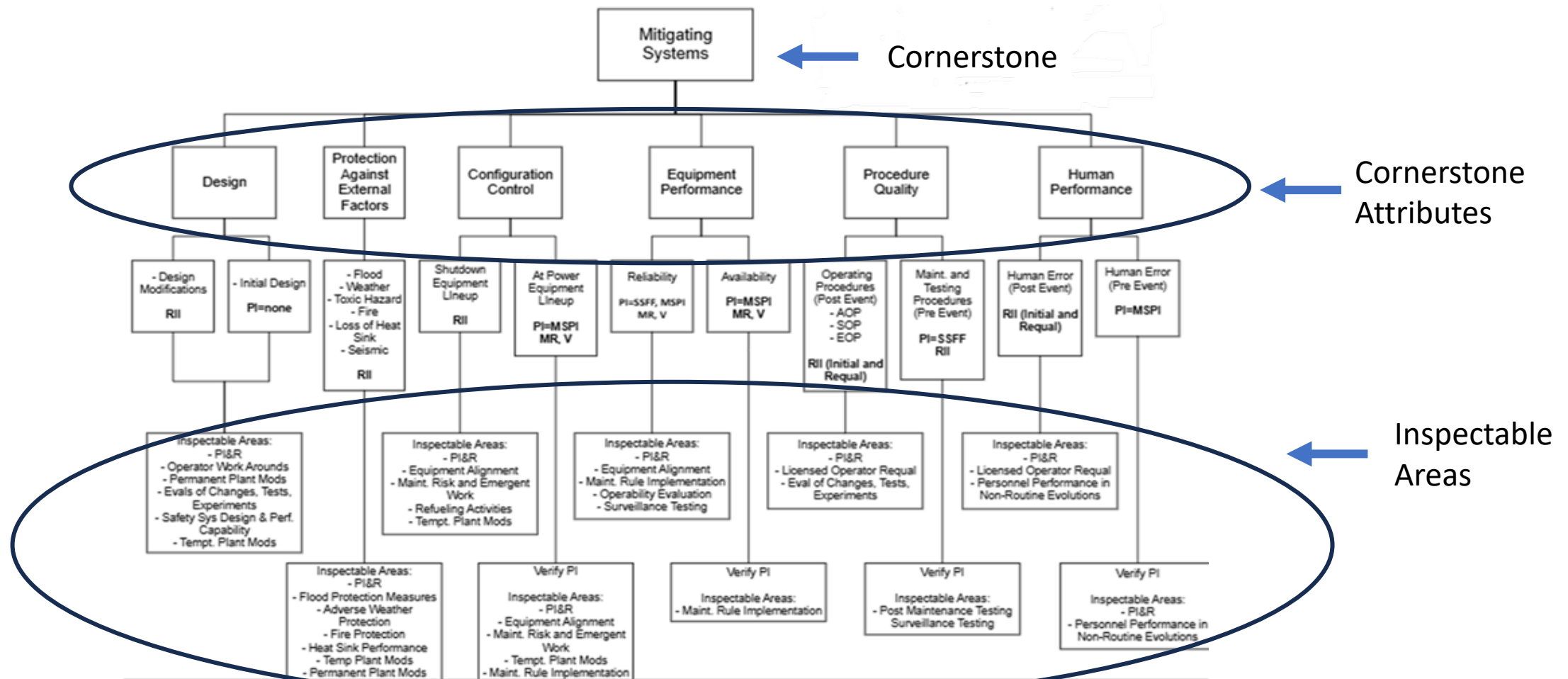
Inspectable Areas

- IMC 2515 Appendix A maps out inspectable areas by Cornerstone

Inspectable Area	Initiating Events	Mitigating Systems	Barrier Integrity	Emergency Preparedness	Occupational Radiation Safety	Public Radiation Safety	Security
Access control to radiologically significant areas					X		
Access authorization program							X
Access control							X
Adverse weather protection	X	X					
ALARA planning and controls							
Alert and notification system testing				X			
Comprehensive engineering team inspection	X	X	X				
Contingency response – Force-on-Force Testing							X
Cybersecurity							X
Drill evaluation				X			
Emergency response organization augmentation testing				X			
Emergency action level and emergency plan changes				X			
Equipment alignment	X	X	X				

Cornerstone Attributes

IMC 2515 Appendix A also maps out how Cornerstone Attributes are covered by the ROP



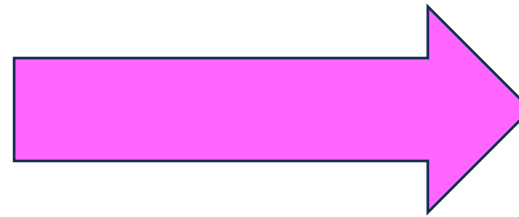
The Goal of This Effort

Today

Less
Data

More Inspection

What do we need to
make this shift in each
inspectable area



2027

More Data

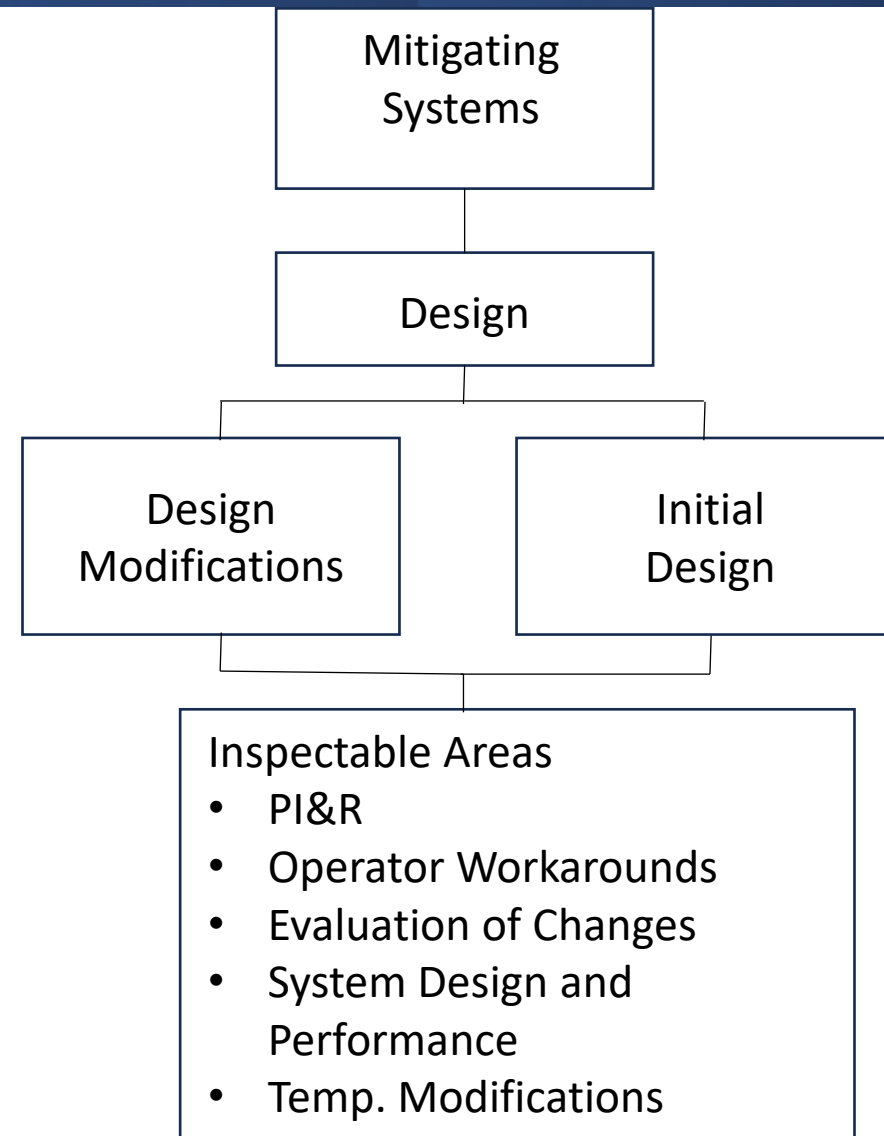
Less
Inspection

With More Data...

- Inspectable areas covered with more data and less, but better targeted, inspection effort
- Lower level data distinct from current concept of Performance Indicators
 - PIs feed plant assessment and Action Matrix
 - Lower-level data would inform baseline samples
- Potential resident inspector baseline:
 - Plant status activities and Corrective Action Program reviews
 - Data verification
 - Bank of flexible hours to apply based on plant status and data review
 - Minimal-to-no required samples when an inspectable area is adequately covered by data
 - Event follow-up (as needed)

Example 1: Attribute – Design

- What data can help assess the inspectable areas such that they no longer require mandatory samples ?
 - Count of Operator Workarounds?
 - Main Control Room deficiencies?
 - Count of entries into elevated risk conditions?
 - Unplanned entry into shutdown Limiting Conditions for Operations?
 - Surveillance failures?
 - Change in risk from temporary modifications?



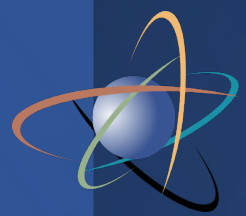
Example 2: Attribute – Equipment Performance

Equipment Performance attribute of MS Cornerstone: Reliability and Availability

- Reliability:
 - Safety System Functional Failure and MS Performance Index PIs
 - Inspectable areas: PI&R, Equipment Alignment, Maintenance Rule implementation, Operability Evaluations, Surveillance Testing
- Availability:
 - MSPI PI
 - Inspectable areas: Maintenance Rule implementation

These are inspected under:

71111.04 Equipment Alignment	71111.15 Operability Evaluations	71151 PI Verification
71111.12 Maintenance Effectiveness	71111.19 Post Maintenance Testing	71152 PI&R
71111.13 Maintenance Risk	71111.22 Surveillance Testing	71111.21M CETI



What Data Could Reduce Inspection?

IP 71111.04

Equipment
Alignment

- **Functional Failures**
- **Unavailability**
- Component Mispositioning Events
- Human Error Events
- Work Order deferrals
- Unplanned short duration LCOs

IP 71111.12

Maintenance
Effectiveness

- **Functional Failures**
- **Unavailability**
- Work Order deferrals
- CAP deferrals
- Unplanned short duration LCOs

IP 71111.13

Maint Risk &
Emergent
Work Control

- **Unplanned downpowers**
- Unplanned short duration LCOs
- Unplanned increase in plant risk condition
- Human Error Events
- Component Mispositioning Events

Data Informs Need for Inspection

Increasing instances of
unplanned short duration
LCO entries



Consider samples:
71111.04 Equipment
Alignment
71111.12 Maintenance
Effectiveness
71111.13 Maint. Risk &
Emergent Work Control

Increasing instances of
work order deferrals



Consider samples:
71111.04 Equipment
Alignment
71111.12 Maintenance
Effectiveness

No min or max samples for most
specific IPs

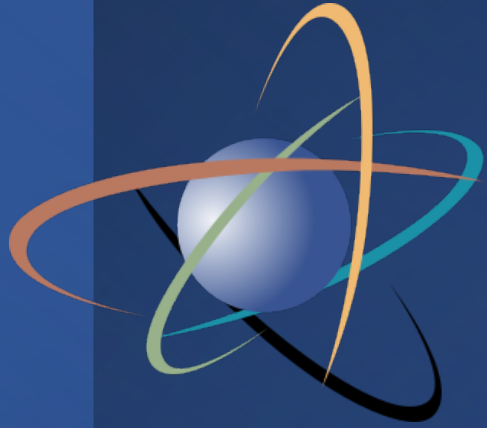
Baseline Inspection Program =
Plant Status activities +
data-informed inspection

There is min and max total
baseline inspection hours, with
max being set at some % less
than now

Note: this exercise was done only looking at the Availability and Reliability items of the Mitigating Systems Cornerstone attribute of Equipment Performance. When fully applied across all cornerstones, additional sample options would exist for many data elements.

The Goal of This Effort

- Review existing ROP Performance Indicators
 - Determine whether to keep, revise, eliminate each
 - Determine whether they continue to feed into Action Matrix
- Identify additional data sources that could be used as indicators of performance
 - Do any feed into Action Matrix
 - Do they inform baseline inspection effort
- Map indicators to inspection effort to inform what a future baseline inspection program could look like
 - Reduced inspection in areas covered by additional data
 - Adjust inspection focus with a modern risk-informed mindset
 - Optimize the inspection effort that does occur based on data results



Questions and Discussion

