

# EMBAR<sup>ARK</sup>

VENTURE STUDIO

# VISION

Giving staff the courage to make real change

# MISSION

We are creative catalysts who remove barriers to innovation and launch initiatives that improve the way we work to make SAFE use of nuclear technology POSSIBLE

# BREAKING DOWN BARRIERS



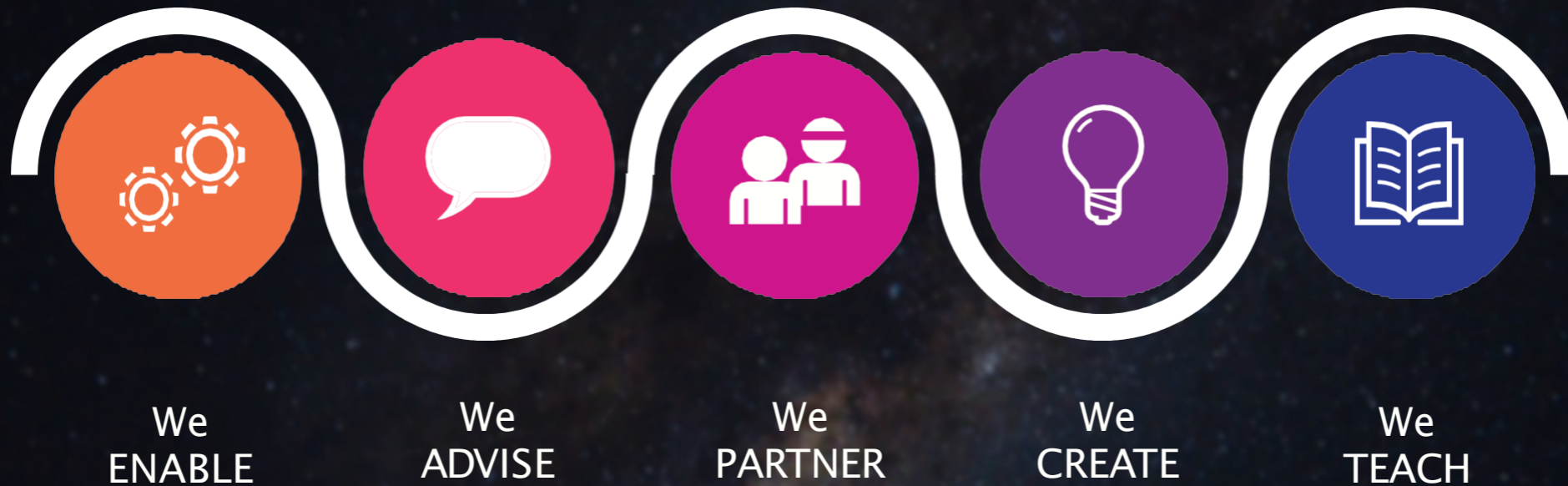
- ✓ Challenge invisible orthodoxies
- ✓ Harness underappreciated trends
- ✓ Leverage embedded competencies and assets
- ✓ Address “unarticulated” needs

|| If you look at history, innovation doesn't come just from giving people incentives; it comes from creating environments where their ideas can connect.. ||

*Steven Johnson*

# OPERATING MODEL

No two EMBARK projects are alike - so how we engage varies.



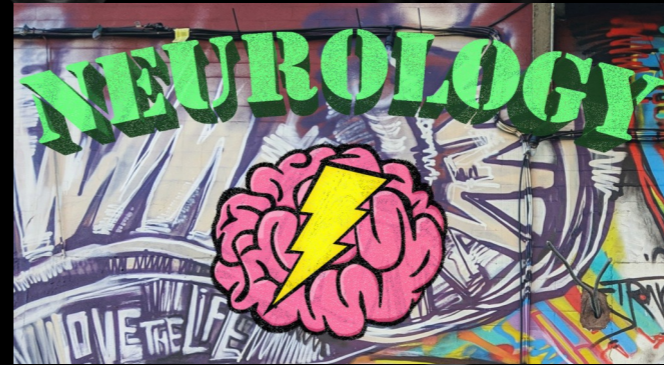
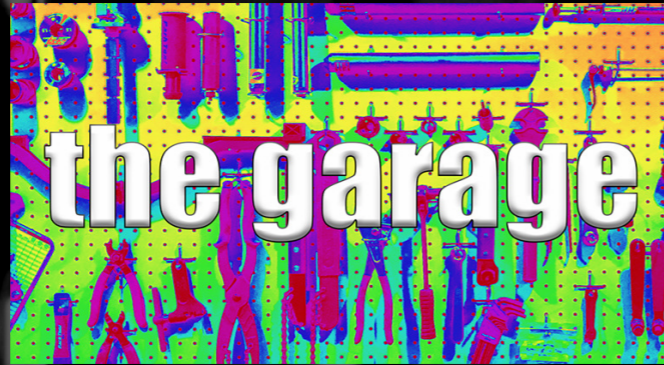
We **INSPIRE.**

# EMBARK

VENTURE STUDIO  
DEPARTMENTS

## THE GARAGE

The Garage is our process improvement effort. It is the place where we tune up our processes and upgrade our procedures to transform the way we regulate for the nuclear future. We are looking at our approach and prototyping new ideas.



## NEUROLOGY

Neurology is about understanding risk, overcoming fear of failure, challenging the status quo, and breaking down barriers. We envision an Agency that proactively and creatively adapts to our environment while staying true to our mission.

## NEXTGEN DATA

NextGen Data is focused on taking data to the masses, leveraging the data we have in innovative ways to bring transparency and greater understanding for better regulatory decisionmaking.



## #HASHtagChange

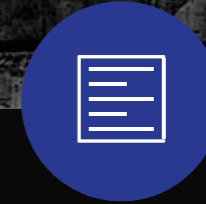
HASHtagChange is all about improving the experience for our internal and external stakeholders and providing more effective tools that enhance the way we interact with each other.



ASME Code  
Rulemaking



Request for Confirmatory  
Information



Topical Reports  
Process

# ELEVATING THE "*BUSINESS AS USUAL*"



Mission Analytics  
Portal



Risk Informed Process  
for Exemptions



Subsequent License  
Renewal Enhancements



ASME Code  
Rulemaking



Request for Confirmatory  
Information



Topical Reports  
Process

# ELEVATING THE "*BUSINESS AS USUAL*"



Mission Analytics  
Portal



Risk Informed Process  
for Exemptions



Subsequent License  
Renewal Enhancements

# Rethinking Standard OpE Keyword List

Proposed Draft Keywords  
3/27/20 (Score ≥ 2, redundancies removed, E>4r added in)

89-13	FLOW ACCELERATED	RADIATION MONITOR
ADVERSE LOCALIZED ENVIRONMENT	FLOW RESTRICT	RECUR
AGE	FLOW-ASSIST	RESIDUE
ARC	FOUL	RUPTURE
ARCING	FRACTURE	RUST
BAC	FUEL OIL	SCC
BIO	FUSE HOLDER	SEDIMENT
BLISTER	GALVANIC	SEEP
BLOCK	GROUT	SERVICE WATER
BOLT	HALON	SHELL
BORIC	HARDEN	SILICONE RUBBER
BRONZE	HEAT SINK	SILT
BUS	HIGH RANGE	SPALL
CABLE	CONTAINMENT AREA	SPRAY
CARBON DIOXIDE	MONITOR	SPRINKLER
CAST	HIGH RANGE RADIATION	STRESS
CAVITAT	MONITOR	STRESS CORROSION
CHECWOK	HIGH VOLTAGE	CRACKING
CHLORIDE	INSULATOR	STRUCTURAL SUPPORT
CLAM	HWC	SWITCHYARD
CLEVIS	HYDROGEN WATER	TAN DELTA
CLOG	CHEMISTRY	TERMINATION
CMU	IMPINGE	THERMOGRAPHY
COAT	INFRARED INSPECTION	THROUGH WALL
CONCRETE	LEACH	TRANSIENT MONITORING
CONNECTION	LEAK	TRANSMISSION
COOLER	LOSS OF MATERIAL	CONDUCTOR - LOSS OF
CORRO	MASONRY	STRENGTH - CORROSION
CRACK	MEB	TRANSMISSION
CYCL	MEDIUM VOLTAGE	CONNECTORS -
DEALLOY	CABLE	OXIDATION - LOSS OF
DEALUM	METAL ENCLOSED BUS	PRELOAD
DEGRAD	MIC	TRANSMISSION LINE
DEGRAPH	MIN WALL	UNDERGROUND
DELAMIN	MOLLUSK	VESSEL INTERNALS
DEPOSITS	MORTAR	WALL LOSS
DRAIN	NEUTRON ABSORB	WALL THICK
DRAINAGE	NEUTRON FLUX	WALL THIN
BRITTLE	NEUTRON-ABSORB	WATER INTRUSION
EPR	NICKEL-ALLOY	WEAR
EQ	NOBLE	WELD
ETHYLENE PROPYLENE	NODUL	XLPE
RUBBER	OXYGEN	
EXCAVAT	PEEL	
FAC	PIT	
FAIL	POLYMER HV	
FATIGUE	INSULATORS	
FLAW	PRELOAD	
	PWSCC	

Goal: Reduce unnecessary burden on the licensee and staff while maintaining the ability to do an appropriate and effective OpE review.

Why?

- The standardized list of 179 keywords approved in Nov. 2017 keeps changing and growing. The keywords are of varying usefulness to the staff

How?

- Surveying Staff to find out which words are most essential to have in the licensee-prepared spreadsheet and analyzing the results.
- Discussing ways of doing things differently with industry in order to understand the impact.

*Draft keyword list as of 4/1.*

*Subject to change!*



# Could we....

- Maintain the capability for staff to do their own keyword searches or additional keyword searches, if necessary?
- Have more in-depth discussions with applicants during pre-app meeting?
  - Plant-specific terms instead of generic ones
- Perform connected keyword searches (e.g., “corrosion + pipe”)?
- See what keyword lists applicants use for their own searches when populating basis documents?
- Sort by system number in the CR database? (have a separate column for system number?)
- Have one master list rather than separate tabs (assuming that the master list is searchable)?

# Could we....

- Maintain the capability for staff to do their own keyword searches or additional keyword searches, if necessary?
- Have more in-depth discussions with applicants during pre-app meeting?
  - Plant-specific terms instead of generic ones
- Perform connected keyword searches (e.g., “corrosion + pipe”)?
- See what keyword lists applicants use for their own searches when populating basis documents?
- Sort by system number in the CR database? (have a separate column for system number?)
- Have one master list rather than separate tabs (assuming that the master list is searchable)?

# Could we....

- Maintain the capability for staff to do their own keyword searches or additional keyword searches, if necessary?
- **Have more in-depth discussions with applicants during pre-app meeting?**
  - **Plant-specific terms instead of generic ones**
- Perform connected keyword searches (e.g., “corrosion + pipe”)?
- See what keyword lists applicants use for their own searches when populating basis documents?
- Sort by system number in the CR database? (have a separate column for system number?)
- Have one master list rather than separate tabs (assuming that the master list is searchable)?

# Could we....

- Maintain the capability for staff to do their own keyword searches or additional keyword searches, if necessary?
- Have more in-depth discussions with applicants during pre-app meeting?
  - Plant-specific terms instead of generic ones
- **Perform connected keyword searches (e.g., “corrosion + pipe”)?**
- See what keyword lists applicants use for their own searches when populating basis documents?
- Sort by system number in the CR database? (have a separate column for system number?)
- Have one master list rather than separate tabs (assuming that the master list is searchable)?

# Could we....

- Maintain the capability for staff to do their own keyword searches or additional keyword searches, if necessary?
- Have more in-depth discussions with applicants during pre-app meeting?
  - Plant-specific terms instead of generic ones
- Perform connected keyword searches (e.g., “corrosion + pipe”)?

**See what keyword lists applicants use for their own searches when populating basis documents?**

- Sort by system number in the CR database? (have a separate column for system number?)
- Have one master list rather than separate tabs (assuming that the master list is searchable)?

# Could we....

- Maintain the capability for staff to do their own keyword searches or additional keyword searches, if necessary?
- Have more in-depth discussions with applicants during pre-app meeting?
  - Plant-specific terms instead of generic ones
- Perform connected keyword searches (e.g., “corrosion + pipe”)?
- See what keyword lists applicants use for their own searches when populating basis documents?
- **Sort by system number in the CR database? (have a separate column for system number?)**
- Have one master list rather than separate tabs (assuming that the master list is searchable)?

# Could we....

- Maintain the capability for staff to do their own keyword searches or additional keyword searches, if necessary?
- Have more in-depth discussions with applicants during pre-app meeting?
  - Plant-specific terms instead of generic ones
- Perform connected keyword searches (e.g., “corrosion + pipe”)?
- See what keyword lists applicants use for their own searches when populating basis documents?
- Sort by system number in the CR database? (have a separate column for system number?)
- **Have one master list rather than separate tabs (assuming that the master list is searchable)?**

Thank you!



We will go back and refine the list based on what we've heard here today.



# Use of Formal Risk Information

But what about PRA and other formal risk information?  
Can it be used in a SLRA?

Generally, yes, although some approaches are more achievable in the short term.

Ready to Explore AMPs

# Working Group's Next Steps

Engage industry, through public meetings, to determine the level of interest in using PRA or other risk insights in the various parts of the license renewal application.

Develop conceptual guidance for NRC staff to use when reviewing PRA or risk insights as part of the license renewal review, including how and when to engage risk experts.

# ***EMBARC* Venture Studio – Risk Informing Subsequent License Renewal (RISLR) Project**

## Potential Subsequent License Renewal Process Enhancements

# Pre-Submittal Meetings

Determine what process “risk” entails for pre-submittal meetings.

Encourage wider use of the pre-submittal meeting process to include early communication on areas such as risk information, deviations from guidance, operating experience, to allow for more efficient and effective allocation of staff resources.

Request the applicant to provide additional information during pre-submittal meetings including the use of corporate or fleet procedures that have been reviewed by the staff for previous applications for aging management activities.

Identify incomplete SLRA areas during the pre-submittal meetings, which can be addressed prior to submittal.

# Acceptance Review

Determine what process “risk” entails for the acceptance review.

Consider the use of a representative team to perform the acceptance review of the SLRA.

Leverage the acceptance review phase to communicate new or complex technical issues early in the review.

Identify missing SLRA information that is low risk (low safety risk or low process risk) – accept the application contingent on receiving the additional, low risk information within “x” number of days (during which the staff might audit or have a public meeting on these areas).

## SLRA Section 2 – Scoping and Screening Review

As identified in the pre-submittal meetings focus staff resources on:

- New or modified plant systems and risk significant systems.
- For the remaining systems—existing systems, that have not been modified, not of high risk significance, and which were reviewed and approved for the initial license renewal application—consider a sampling review of SLRA information and the license renewal drawings.

## SLRA Section 3 – Aging Management Review

Streamline and enhance the TRP Tool development to align with project managers workload processing tools to avoid complex/overly burdensome/duplicative process interconnections.

Staff to perform a sample review of not applicable (N/A) line items—very few errors (typically none) have been identified during previous reviews.

## SLRA Section 4 – TLAA Review

- Review all TLAA's but focus staff resources on TLAA's that have not been previously evaluated (if any are identified).
- Reduce staff focus on non-time dependent TLAA attributes that were reviewed and approved during the initial license renewal application review.
  - Request applicants to specifically identify any changes in the non-time-dependent attributes of TLAA's.



# Operating Experience (OE) Audit

Reevaluate the current practice of requesting the applicant to develop an excel file of the results of a query of the CAP data base, based on staff supplied keywords, for the preceding 10 years.

Determine whether a common time period (e.g. 10 year) is appropriate for various AMPs.

# Operating Experience (OE) Audit

Consider relocating the audit to the applicant's facility, with direct access to the CAP database.

Perform the OE audit using a representative team of approximately eight technical reviewers, where each reviewer would support the reviews of additional staff members.

Expand the scope of the OE Audit to address any to discuss the pre-developed RAIs, RCIs, complex technical issues, and perform necessary visual observations of equipment conditions and configurations.

The audit might be referred to as the OE and Aging Management Audit with an anticipated audit length of one week.

## In-Office Audit

Increase the use of “Request for Confirmation of Information” (RCIs) – note this is the new term for the “4d,” process.

Initial portal documentation to include SLRA development implementing procedures, AMP/TLAA basis documents, and information providing a basis for AMPs taking an exception/enhancement to GALL. Additional portal requests to have a regulatory and technical basis related to an RAI, RCI, or complex technical issue.

Continue to use additional on-site audits and public meetings, as necessary to resolve complex technical issues as early as possible during the review period.

**Thank You**

Additional questions?