



# Utility Expectations for Human Performance and Safety Culture in the Supplier Community

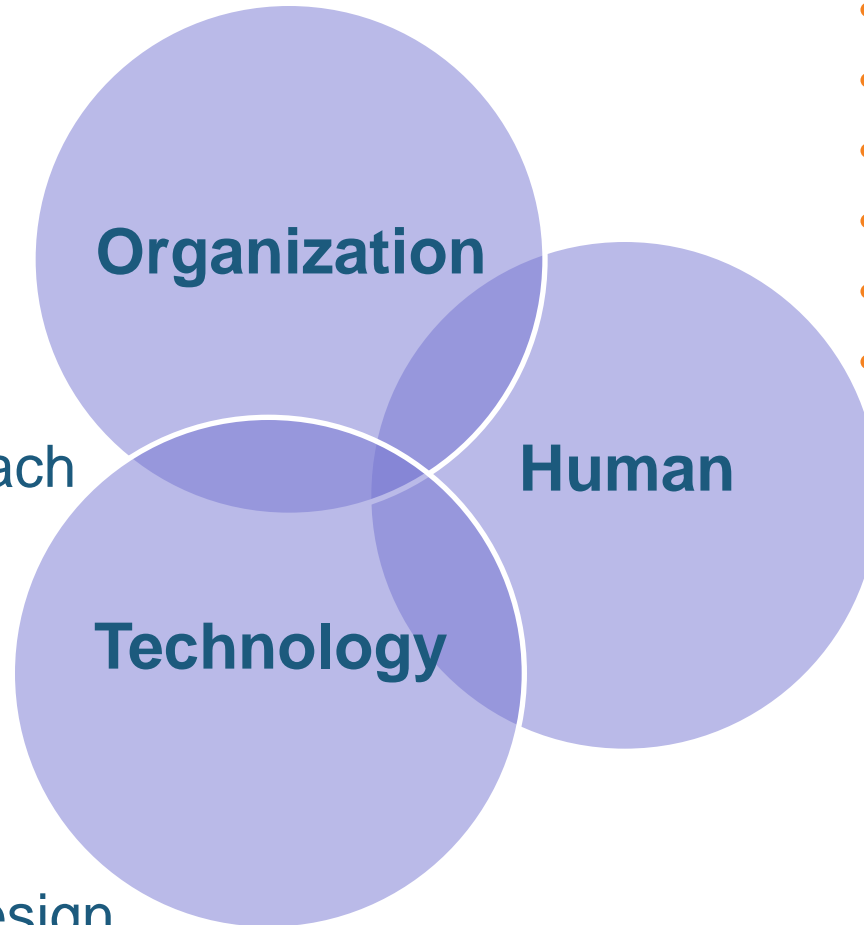
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# Factors that Support Human Performance

- Management System
- Organization Structure
- Safety Culture
- Oversight
- Continuous Improvement
- Contracting Approach

- Procedures
- Plant Design
- Task Design
- Equipment Design
- Physical Environment



- Competence
- Capabilities
- Engagement
- Work Practices
- Use of HU Tools
- Fitness for Duty



# Managing Defences

## Cultural Defences

Values and beliefs of the organization manifested in our actions

## Engineered Defences

Providing physical barriers to protect people from challenging the plant

## Oversight Defences

Assessing team performance and consistently addressing problems and vulnerabilities

## Administrative Defences

Procedures, training, processes, and policies that keep activities safe and predictable



# Leadership for Safety

- **#1 Value: “Safety First”**
- Nuclear Safety integrated throughout Management System
  - Managing Defences
  - HU Tools / Behaviours
  - Supervisory Oversight
- Leadership training: Human Performance & Safety Culture
- Safety Culture is Monitored and Assessed
  - WANO Framework: “Traits of a Healthy Nuclear Safety Culture”
  - Periodic Safety Culture assessments
  - Nuclear Safety Culture Monitoring Panels



# Managing Human Performance: Good for Safety & for Business

- 75% of significant events are due to human error
- 70 % of causes due to organization weaknesses
- 50% of significant events caused by supplemental personnel
- 25% of significant events involved lack of appropriate supervisory oversight

**HU Errors = a significant contributor to costs**



# Factors Influencing Current Supplier Performance





# Core 4 Tools

Events analysis determined that utilization of “Core 4” HU tools could avoid 95% of events:

## CORE4

HU TOOLS ARE A FORMULA FOR SUCCESS  
HU FACT SHEET

Human Performance (HU) tools for workers are used to anticipate, prevent and catch errors before they cause harm to people, plant, property or the environment.  
HU tools are proven techniques used within the nuclear industry to help staff to safely and successfully complete their work.  
An analysis of recent HU events at Bruce Power revealed that using four of our HU tools, the “Core 4”, could have had an impact on 90 per cent of these events. Workers at every level are encouraged to review and internalize these tools.

### CORE 4 HU TOOLS:

1. **Procedure use and adherence** (step by step)
2. **Self check with verbalization** (stop, think, act, review - STAR)
3. **Effective communication** (3-way)
4. **Stop when unsure** (contact your Supervisor)

### LEARN MORE:

1. **Procedure use and adherence** (step by step)
  - Use this tool when the work being done is governed by procedures
  - Verify the working copy is current by comparing it to the controlled copy
  - Review all prerequisites, limits and precautions before starting work
  - Use the procedure according to its designated level of use: information, reference and continuous
  - Follow the procedure as written (step by step)
  - Use STAR at every step
  - Placekeep (continuous use, reference use)
  - Stop if you can't follow a procedure as written, and contact your Supervisor
  - Follow the requirements of BP-PROC-0811, Procedure Alterations, if a change to a procedure is required
2. **Self check with verbalization** (STAR)
  - Stop, Think, Act, Review
  - Stop: pause before performing the task step. Focus attention on the task's immediate objective in order to eliminate distractions
  - Think: verify the action is appropriate given the equipment status by questioning the intended action and understanding the expected result of the action
  - Verbalize: the intended action and expected result
  - Act: without losing physical or visual contact, perform the action
  - Review: verify the actual result is the expected result
  - Verbalization creates greater task focus
  - Verbalization slows the mind down to the speed of the body
  - No verbalization = no reduction in error rate
3. **Effective communication** (3-way)
  - Ensures reliable transfer of information
  - Use 3-way communication to confirm understanding
    - sender states the message
    - receiver re-states the message
    - sender acknowledges the receiver's understanding of the message
    - "that is correct" or "that is wrong"
  - Use phonetic alphabet to confirm the correct component
4. **Stop when unsure** (contact your Supervisor)
  - Use this tool when:
    - you are outside of procedures or processes (OOPS)
    - something unexpected occurs
    - When you have a "gut feeling" that something just isn't right
  - Error rates are much higher in these situations (as high as 50 per cent)
  - Stop, place the work in a safe state and contact your Supervisor
  - Confirm next steps with your Supervisor and obtain a new pre-job brief before continuing work

### CONTACT A HUMAN PERFORMANCE EXPERT:

If you have any questions or require help or support please contact the Human Performance manager in your work area:  
Bruce A: Kathryn Fellingner at ext. 11833  
Bruce B: Robert Shaw at ext. 12766  
Centre of Site: John Jamieson at ext. 15773

This information has been adopted from BP-PROC-00617.

- Procedure Use & Adherence
- Self Check with Verbalization
- Effective Communication
- Stop when Unsure



# 2014-2016 HU Strategic Plan

- HU Training for leaders
- Supervisory oversight: reinforce use of HU tools
- Improve worker knowledge of HU tools and Error Precursors
  - Improve supplemental workers' HU competency
- Improve workers' & supervisors' risk recognition
- Line Support: HU Advocates
- Continuous improvement of the HU program





# Dynamic Learning Activities

- Facilitators, observers, & participants get opportunity to experience firsthand how knowledge, skills, work practices, and processes are applied while performing realistic work activities in a simulated work environment.
- Can reveal organizational weakness
- Used to indoctrinate supplemental workers prior to outages or for just-in-time training before critical work activities



2012 – Paper Based Activity



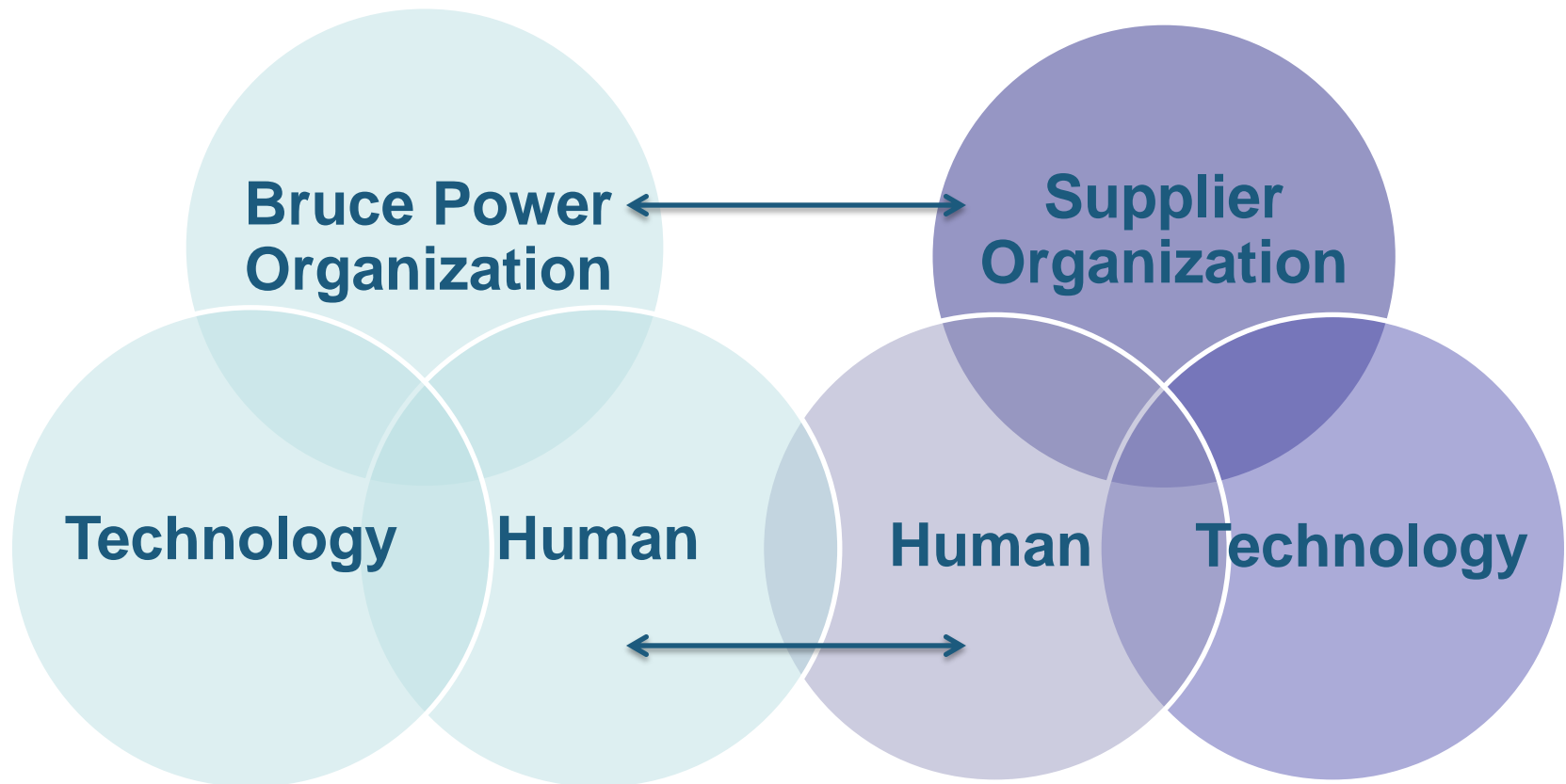
2013 – Table Top Activity



2014 – Murphy's Alley



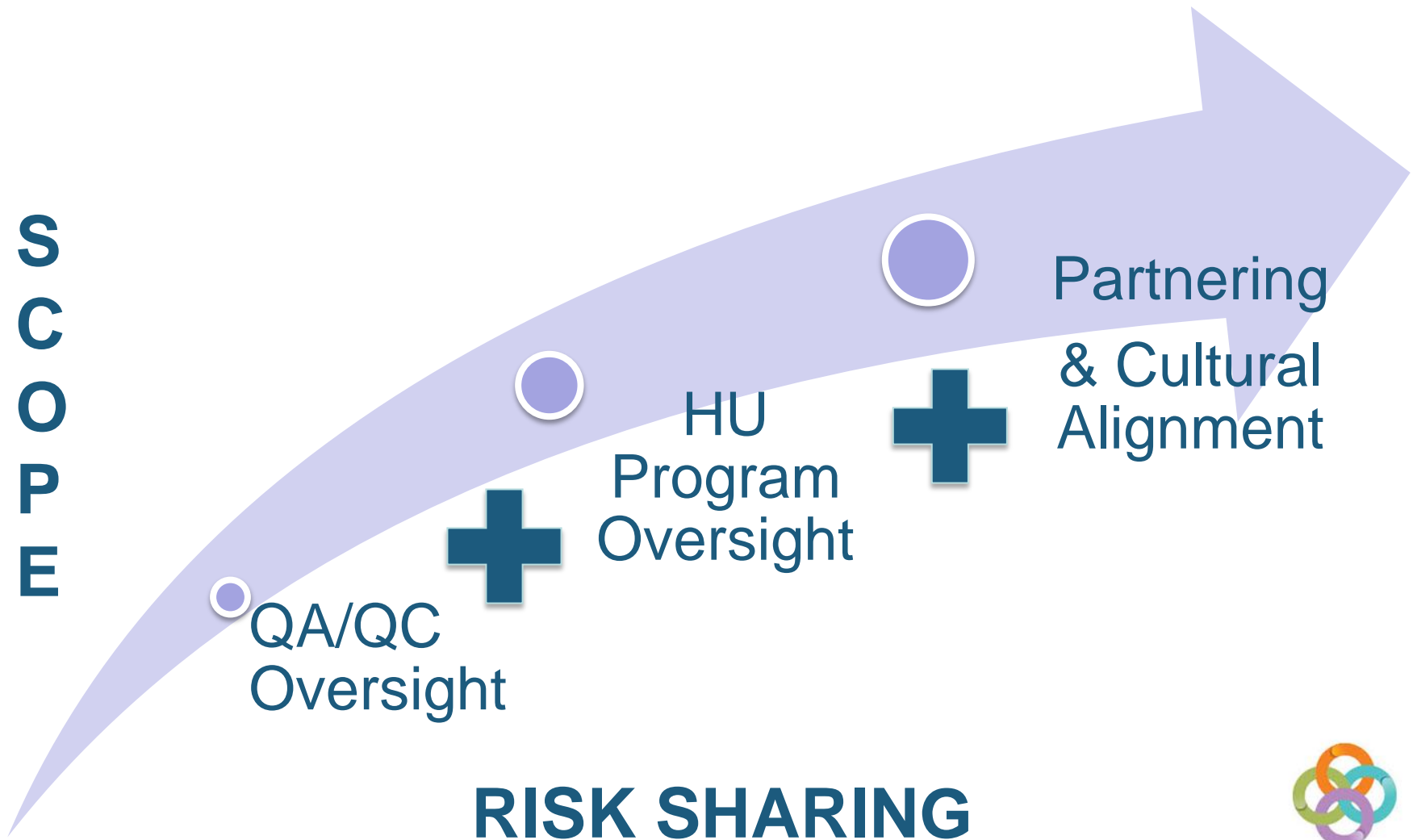
# Contracting Considerations



**Assumptions, Values, Attitudes & Behaviours**  
**How much alignment is desirable?**



# Vendor Oversight Fit for Purpose



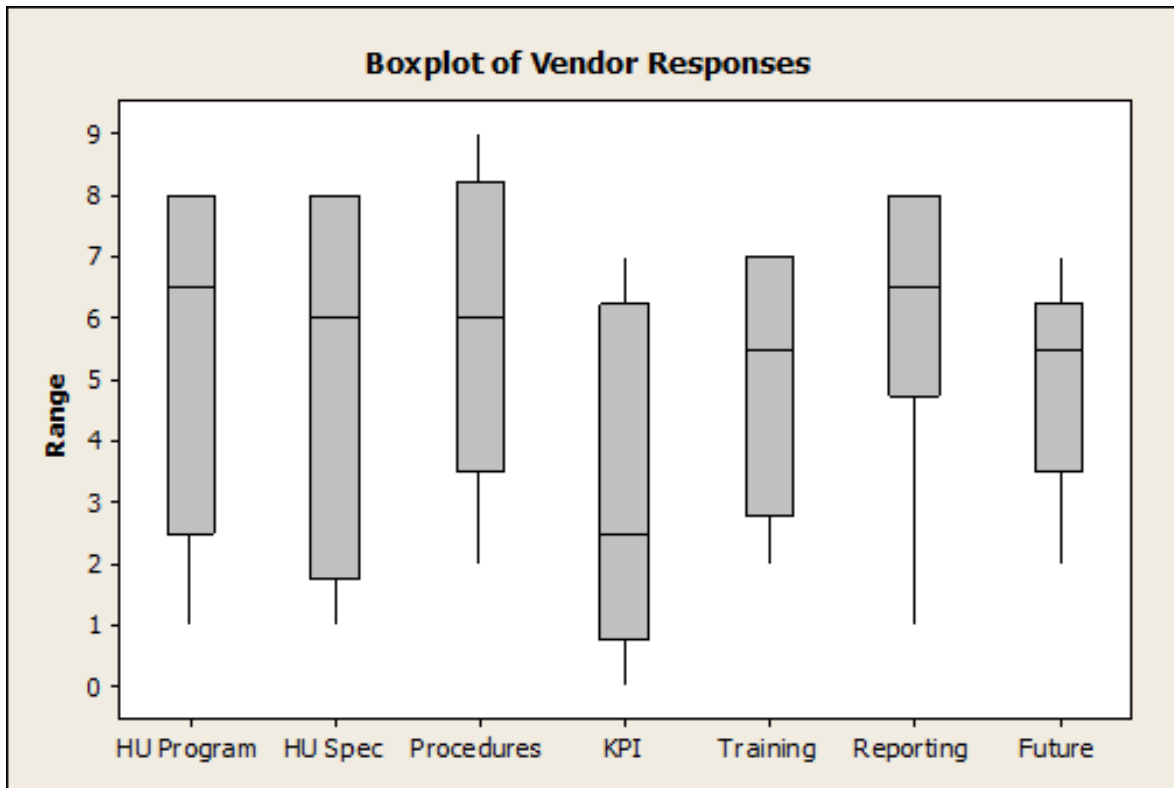
# What is expected from the supplier community today?

- Commitment to Safety
- Customer focus: understand our expectations
- Excellent Quality Management
- Strong ownership for and advocacy of HU
- Robust HU program
- Healthy Safety Culture
- Learning Organization



# Vendor HU at Bruce Power

## Assessment of Health



- Common cause analysis and “Vendor Oral Board” completed to identify current state of eight major vendor HU programs

Ranking given to each vendor based on whether they have met the intent



# Lessons Learned

- Zero significant HU events can be achieved by
  - Reducing the frequency of events
  - Minimizing the severity of events.
- The use of Core 4 HU tools and Dynamic Learning Activities reduced the event frequency
- To achieve next level performance, we need to focus on managing defenses to minimize the severity of events.
- Our planned refurbishment activities will change our relationship with suppliers ... We need to recognize & adapt to the human, technology and organization impacts



# Future Considerations



Sharing of lessons learned



Increased collaboration on planning, training and oversight



Sharing Safety Culture Assessment results

**Partnering with vendors on refurbishment will require new approaches to HU and Safety Culture**





# Questions?

CORE4



**Performing to the  
world's highest standards**

