



Managed and Operated by
Consolidated Nuclear Security, LLC

Nuclear Criticality Safety Program Roadmap 2021 Report and Status of Improvements

Mission Engineering

Y-12 Operations

Performance Excellence

4/8/2021

This document has been reviewed by a CNS Dual
Authority DC/RO and confirmed to be UNCLASSIFIED
and contains no UCNI.

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Y-12's mission invests in NCS people, processes, and systems to ensure safe mission delivery



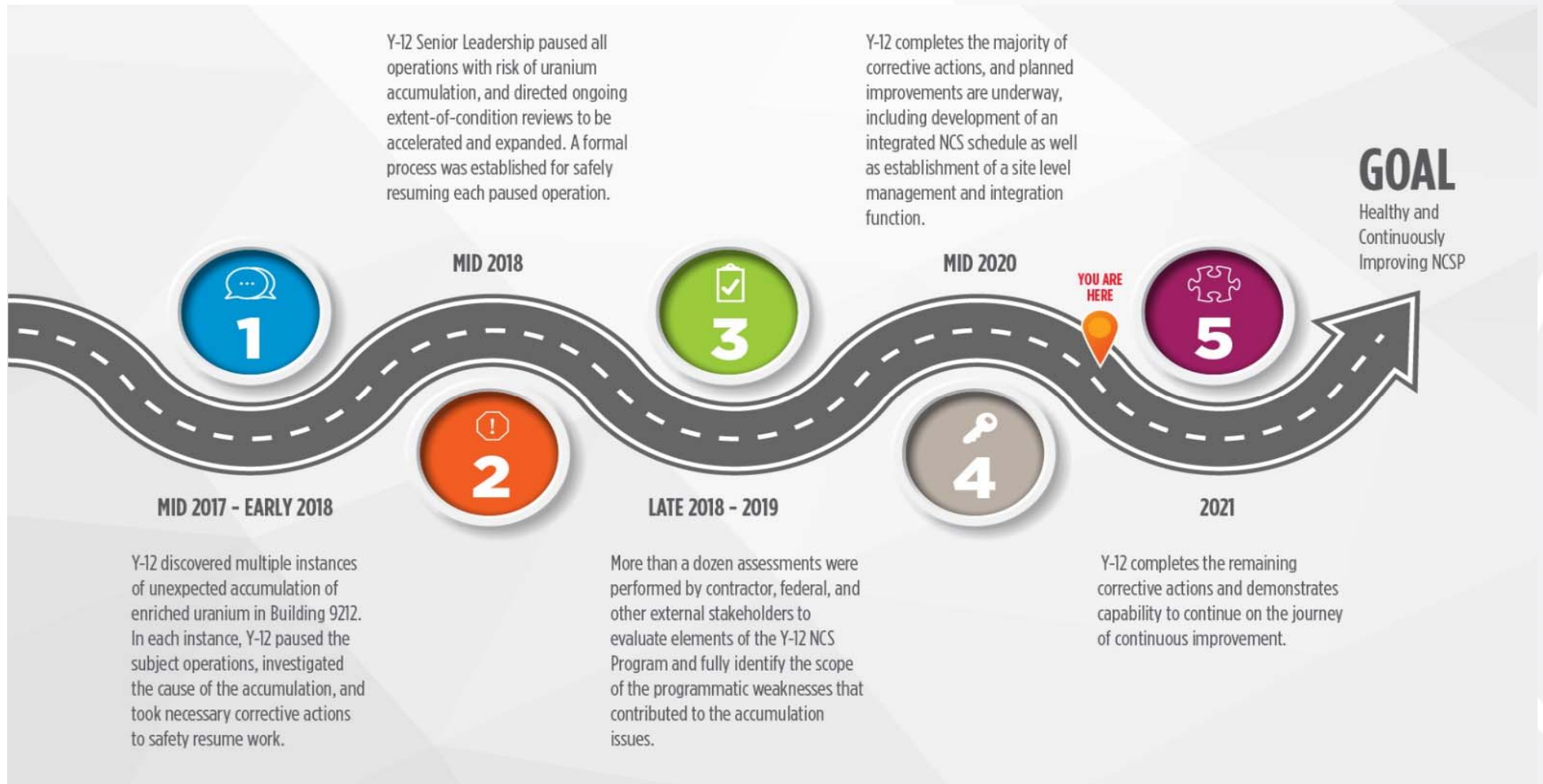
To fulfill this mission, we have:

- ✓ Established ownership and standards
- ✓ Improved Nuclear Criticality Safety Program (NCSP) oversight
- ✓ Increased NCSP support
- ✓ Developed and maintained a resource loaded, integrated schedule
- ✓ Completed Inadvertent Accumulation Prevention Program (IAPP) revitalization

In addition we will:

- Complete implementation of remaining key elements for addressing process drift, Sep 2021
- Complete prove in of the 5 year cycle for Criticality Safety Evaluation (CSE) updates, Sep 2021
- Establish the foundation for integrated production training, Sep 2021

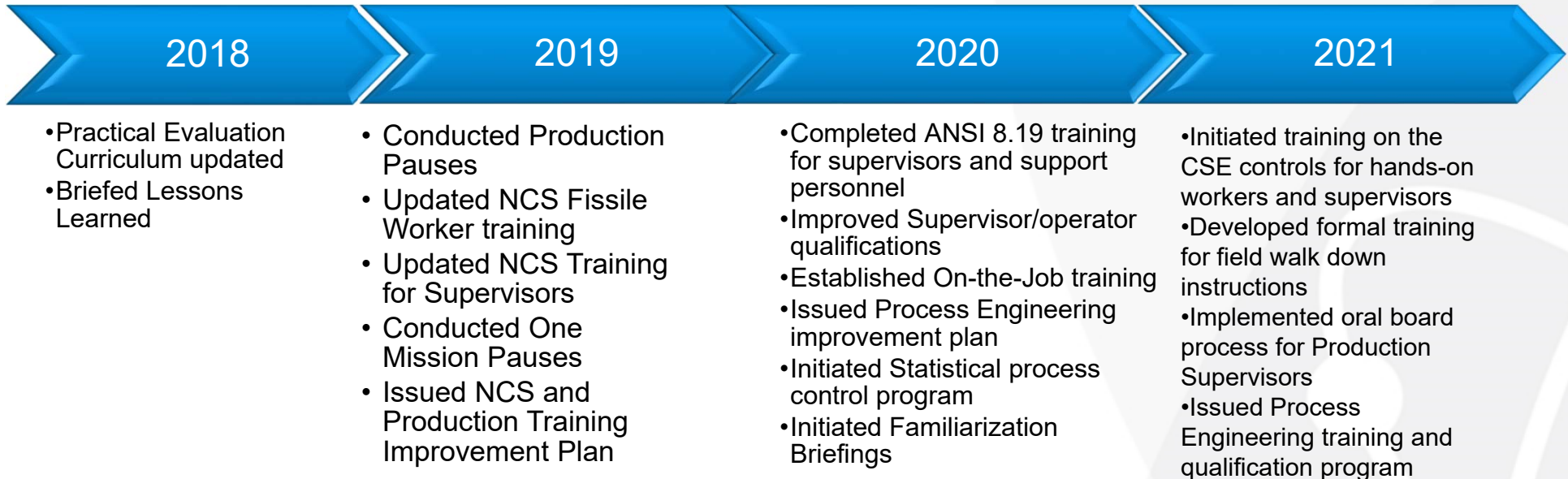
Our Journey



Roadmap provides the comprehensive plan to address NCSP issues

Personnel Training and Qualification

Completed Actions:



Actions in Progress:

- Institutionalize formal training to hands-on workers and supervisors on CSE controls (Apr 2021)
- Update Criticality Safety Officer (CSO) training profiles (Apr 2021)
- Conduct briefings on the CSE controls for technical staff (Sep 2021)
- Transition on-the-job training (OJT) responsibilities from Production to Training (Sep 2021)

Formalized and institutionalized training improvements

Execution of NCS Duties and NCS Program Maintenance

Completed Actions:

2020

- Established an integrated, resource loaded schedule
- Added CSE implementation to schedule
- Established clear roles, responsibilities, accountabilities, and authorities
- Dedicated role for NCS programmatic integration
- Initiated Systematic Review process

2021

- Established a comprehensive metric for tracking NCS deficiencies and minor non-compliances and understanding the causes
- Identified weaknesses in container and material handling
- Issued guidance for accomplishing systematic reviews
- Update integrated schedule for systematic reviews

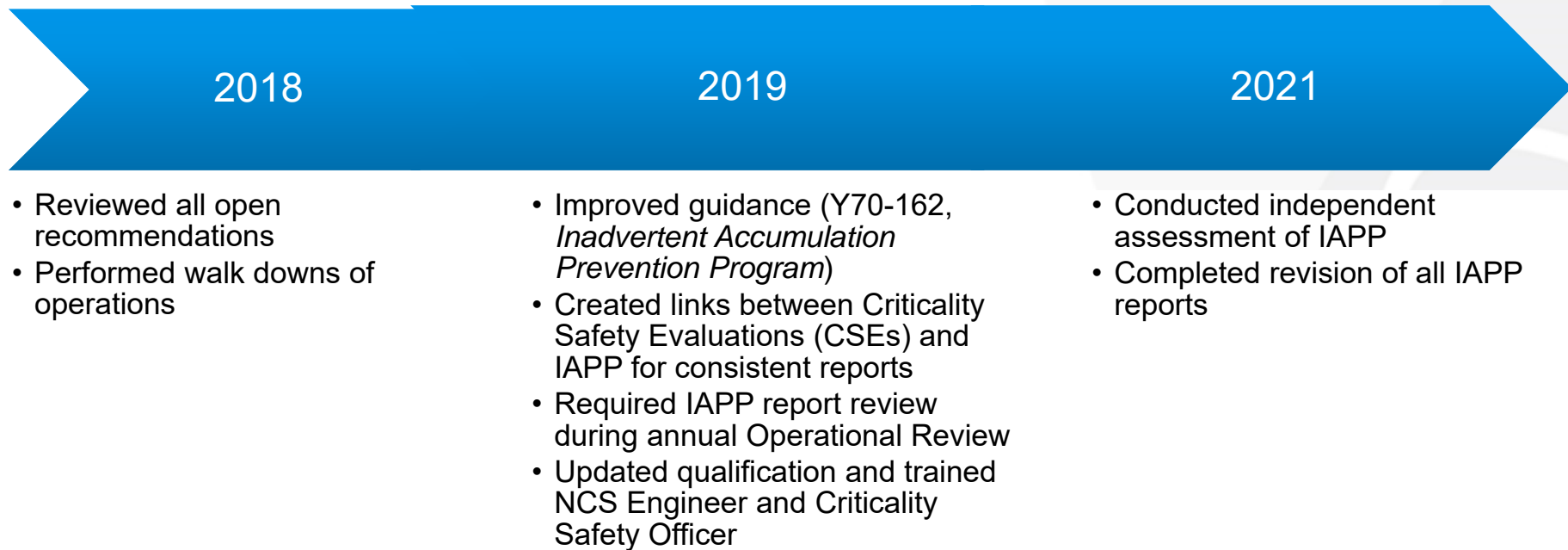
Actions in Progress:

- Complete improvements to the general handling procedure (Jul 2021)
- Conduct an independent assessment of the improved general handling procedure (Sep 2021)

Improved planning and execution of work

Inadvertent Accumulation Prevention Program (IAPP) Revitalization

Completed Actions:



Revitalization and institutionalization support program endurance

Large Geometry Exclusion Area (LGEA)

Completed Actions:



2020

- Updated database of equipment items in Large Geometry Exclusion Area (LGEA)
- Performed surveillances

Actions in Progress:

- Completion of self-identified weaknesses in LGEA program (Jun 2021)
- Establish site level uranium solution control program preventing collection of concentrated uranium solution in unfavorable geometry equipment and containers (Jun 2021)
- Address identified issues with work execution and non-compliant items entering LGEAs (Oct 2021)
- Establish long-term requirements in the maintenance command media to address the concerns addressed by SO-Y-12-21-0004 (Dec 2021)

New documented standards ensure early detection and swift response

Out of Service (OOS) Equipment

Completed Actions:

2019

- Updated qualification and conducted training for NCSE & CSO
- Established formal criteria for cleanout and isolation
- Removed 5 systems per modern criteria

2020

- Initiated disposition of legacy OOS equipment
- Reviewed uranium hold-up in OOS equipment
- Included disposition of legacy OOS equipment in extended life program
- Removed 11 systems per modern criteria

Actions in Progress:

- Complete activities to bring OOS equipment into compliance with formal criteria established as part of NCS program updates (May 2021)

Enhanced OOS program requirements establish NCS compliance

CSE Updates & Implementation

Completed Actions:

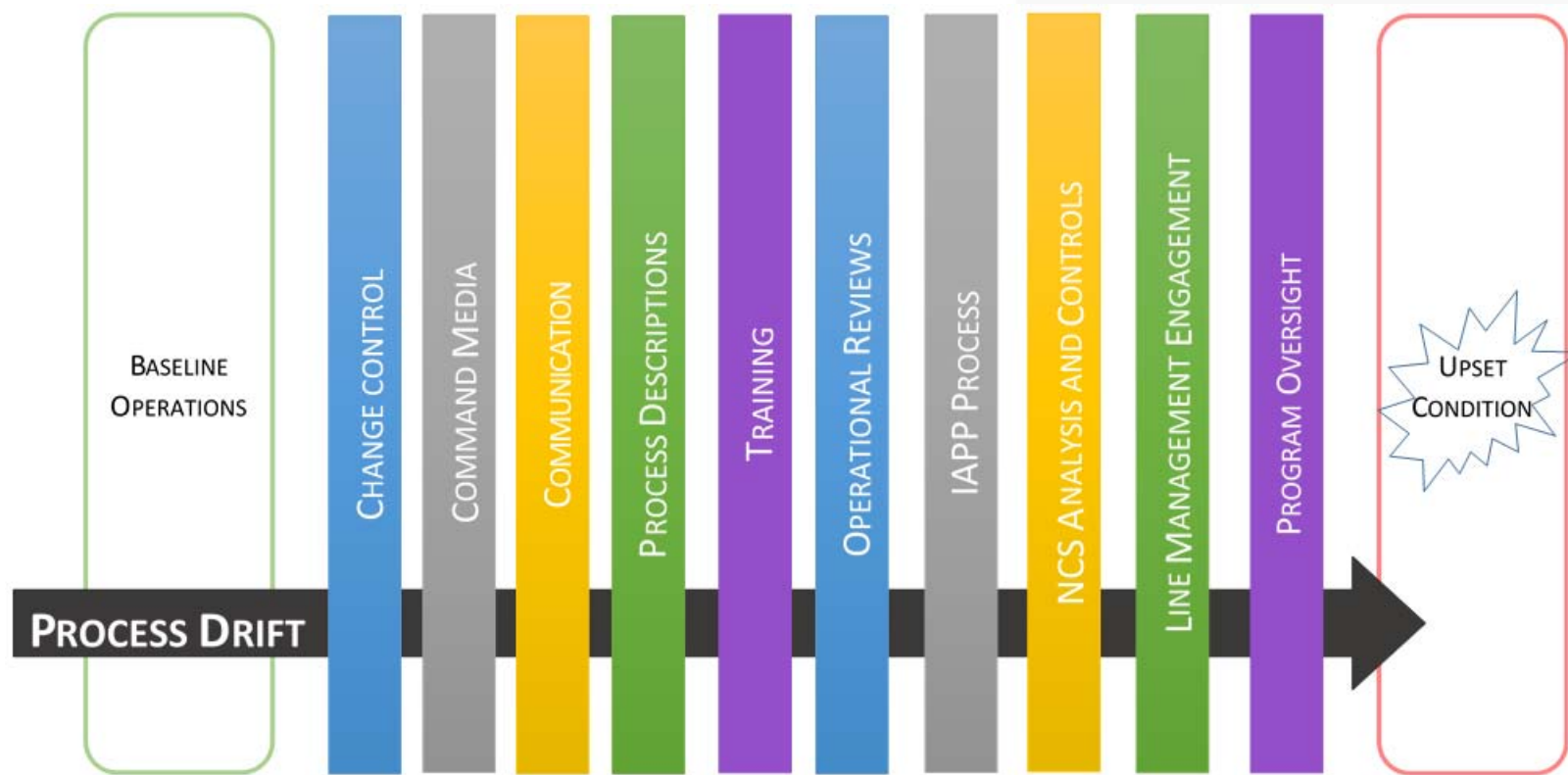


Actions in Progress:

- Eliminate implementation backlog for FY 2019 and FY 2020 Criticality Safety Evaluation (CSE) updates (Sep 2021)
- Complete 25 Criticality Safety Evaluation (CSE) updates to prove-in 5 year cycle (Sep 2021)
- Implement a Non-Special Nuclear Material CSE to provide consistency across multiple buildings (Aug 2021)

CSE Updates + Implementation enable consistent field execution

Change Management: Unintended Process Change (drift)



Strengthened recognition and barriers to reduce unintended process change

Actions to Address Unintended Process Change

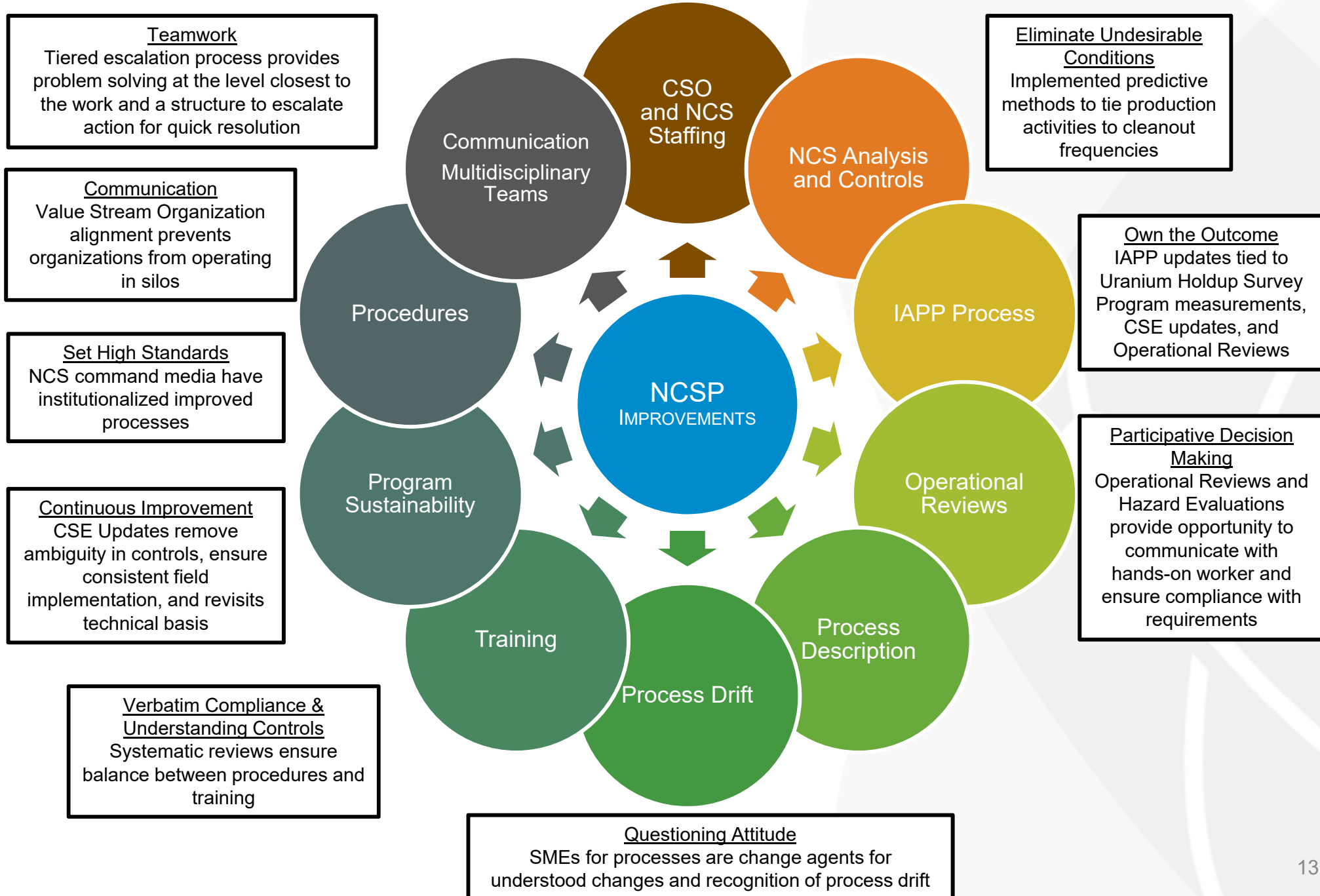
Completed Actions:

- ✓ Established collaborative hazards analysis evaluation process to support development/update of CSEs (2018)
- ✓ Included hands-on worker as part of the Operational Review Process (2018)
- ✓ Improved maintenance, update, and control of IAPP reports and established links to CSEs, UHSP monitoring reports, and Operational Reviews(2019)
- ✓ Conducted Statistical Process Control training and initiated control charts (2020)
- ✓ Updated command media for Process Descriptions (2020)
- ✓ Completed ANSI 8.19 NCS training for supervisors and support personnel (2020)
- ✓ Established training for why behind the NCS controls (2021)

Actions in Progress:

- Update all process descriptions (May 2021)
- Initiate changes to the Integrated Safety and Change Control Process and the Technical Procedure Process to strengthen process drift recognition (Jun 2021)
- Benchmark high-reliability chemical process facilities (Aug 2021)
- Complete unintended process drift training (Sep 2021)

Floor Level Improvements



NCS Program Continuous Improvement

- Actions are focused on improvement and sustainability
 - ✓ We have improved oversight resulting in assessments and walk downs that have self-identified issues and set high standards
 - ✓ We have updated CSEs that improved/clarified control sets, incorporated operator feedback, and provided flexibility to production
 - ✓ We have changed procedures or processes that broke down stove pipes resulting in improved communications across organization reducing the likelihood of unanticipated process change
 - ✓ We have improved Production engagement and ownership of NCS Program
- While individual issues may still occur, the NCS program is in place to minimize their occurrence and respond appropriately when they do occur and CNS operations are safe to continue
- Continued management engagement and oversight will insure high standards are maintained

CNS is committed to institutionalizing long-term improvements to the NCS program