



"Implementing an Approachable User Program for Causal Analysis."

Chelsea Hedges-Chou
Senior Performance Improvement Officer
Pickering Nuclear Generating Station
Ontario Power Generation

ONTARIO **POWER**
GENERATION



Ensuring quality while managing quantity

- At Ontario Power Generation Nuclear there are Root Cause and Apparent Cause Evaluators that are based both in the Performance Improvement Department and throughout the broader organization.
 - 3 Divisions within Nuclear (Darlington, Pickering and Center)
 - 13 Root Cause Evaluators
 - 272 Apparent Cause Evaluators
- In 2016 Ontario Power Generation Nuclear completed:
 - 21 Root Cause Evaluations completed
 - 435 Apparent Cause Evaluations completed



What has changed at OPG?



PROCESS



PROCESS

✓ Manager Pre-Job Briefing

- Prior to each significant event evaluation the EO manager is given a standardized PJB.

✓ Terms of Reference

- Scope of the evaluation
- Accountabilities
- Timeline
- Team support



PROCESS

✓ Evaluation Process

- Report templates for significant event evaluations
- Mandatory requirements for significant event evaluations
 - Extent of condition
 - Operating experience
 - Human Performance Review
 - Extent of Cause
 - Corrective Actions for all identified causes



PROCESS

✓ Quality Check

Upon completion of the Evaluation:

- Challenge Meetings
 - ▶ Must include one Corrective Action Review Board quorum member
- Department Corrective Action Review Boards
 - ▶ Maintenance
 - ▶ Engineering
 - ▶ Operations



PROCESS

✓ Developing Corrective Actions

The Evaluating Organization (EO) Manager is accountable for the creation and completion of the Corrective Action Plan (CAP) and determining ownership of corrective actions.

A collaborative approach is taken and evaluators may make recommendations for corrective actions and aid the EO manager to craft actions.



PROCESS

✓ Developing Corrective Actions

- Reoccurrence Control actions are required for all Apparent and root causes identified in the evaluation. RC actions always include the following to ensure clear and SMART actions are developed:
 - ✓ Intent
 - ✓ Completion criteria
 - ✓ Success criteria



PROCESS

✓ Developing Corrective Actions

Specific
Measurable
Achievable
Reasonable
Timely



PROCESS

✓ Developing Corrective Actions

Actions to address Human Performance

- Guide developed to help EO managers develop actions for Human Performance causes.
- Human Performance training for the Fleet Root Cause Team
- EO manager training workshops



PROCESS

✓ Corrective Action Review Board

Once an evaluation is completed it must be reviewed by the Corrective Action Review Board. CARB reviews all Significant Event evaluations to ensure:

- ▶ The identified causes are logical and supported by analysis of evidence
- ▶ The process was followed
- ▶ The corrective action plan matches the causes and is achievable
- ▶ Action are effective to address the cause



PROCESS

✓ Corrective Action Review Board

- For all CARB reviewed CAPs, an Evaluating Organization Effectiveness Review is scheduled to be completed by the EO, 6 months after the last Recurrence Control action.
 - ▶ Outcome of the EOER must be reviewed/approved by CARB
 - ▶ If the EOER deems the CAP ineffective, a second evaluation is completed to determine why the actions were not effective and the correct path forward to prevent reoccurrence



PROCESS

✓ Corrective Action Review Board

CARB is the final quality gate for all evaluations. Each evaluation is graded and comments on how to improve the evaluation are provided to the EO manager. A report must be accepted by CARB to exit the process.

- The Corrective Action Review Board is chaired by the Site Senior Vice President and quorum includes all site Directors (Engineering, Operations, Maintenance and Work Management)



TRAINING



Training

✓ Classroom

Causal Analysis

- Taught by the OPGN Fleet Root Cause Team
- Run on an annual basis
- 5 day in-depth course introducing the user to different analysis types with a full practical

Apparent Cause Analysis

- Taught by the OPGN Fleet Root Cause Team
- Run 3 times a year
- 2 day in-depth course introducing the user to different analysis types



Training

✓ Qualifications

Causal Analysis

- Completion of a full RC report with a qualified mentor to become fully qualified
- Annual grading to remain qualified

Apparent Cause Analysis

- Completion of an apparent cause report with a qualified mentor to become fully qualified
- Bi-annual grading to remain qualified



SUPPORT

✓ Fleet Root Cause Team

Team subject matter experts

Causal analysis SMEs support the fleet by:

- Leading Significant Causal Analysis Investigations
- Mentoring other process users to ensure understanding and maintain quality
- Facilitate Causal and Apparent Cause Analysis Courses
- Continuous improvement of the program



SUPPORT

✓ Fleet Root Cause Team

➤ Lead Evaluator

- Lead team of subject matter experts to complete analysis
- Develop causes from analysis
- Support EO managers to create effective and sustainable Corrective Action Plans

➤ Mentoring

- Mentor Root/Apparent Cause Evaluators to ensure high quality evaluations are being completed across the fleet



SUPPORT

✓ Fleet Root Cause Team

➤ Drive for Process Continuous Improvement

- Human Performance analysis techniques have changed to help simplify and make more effective for evaluators and Evaluating Organization managers
- Kepner Tregoe Analysis © is currently being used as a strong tool for Problem Analysis to support evaluations
- Benchmarking – Using practices from other sites to improve
 - Recent update of Latent Organizational Weakness tools based on methods used at Duke Energy



SUPPORT

✓ Fleet Root Cause Team

➤ Team Alignment

The Fleet Team meets bi-weekly to ensure that there is continuous learning amongst the team and practice/review evaluation techniques:

- Help with analysis techniques for current/on-going evaluations
- Work through previously completed evaluations that serve as examples
- Discuss the program direction and actions required by the team for improvements



SUPPORT

✓ Community of Practice

➤ Quarterly Evaluators meetings

These meetings provide all Root Cause qualified evaluators the opportunity to:

- Discuss difficulties
- Share lessons learned
- Provide users the opportunity to recommend improvements to the program and process.
 - The fleet Performance Improvement Director and both site Managers attend this meeting to provide and receive feedback.



INFLUENCE