Conduct of Operations Workshops for Nuclear Operators At Ontario Power Generation

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Executive Summary:

This presentation gives a brief overview at one of the initiatives we undertook as a training department to help the stations address weaknesses in operator fundamentals. The two day interactive workshop was designed to help Field Operators internalize lessons learned from previous operating experience and highlight the importance of monitoring plant conditions and indications closely. The Workshops were also designed to help the staff reaffirm their bias for a conservative approach to plant operations and to help Field Operators work effectively as a team. All OPG Field Operators and supervision from all field Operator streams at our Pickering and Darlington plants attended the workshops in 2006. Feedback from participants and in-plant results of this initiative has proved positive.

Purpose of the Workshops

The purpose of the workshops was to address weaknesses in Operator Fundamentals that have been identified as both an internal issue and an industry wide problem. We set out to help field operators internalize:

- Lessons learned from previous operating experience.
- The importance of monitoring plant conditions and indications closely.
- The importance of having a bias for a conservative approach to plant operations.
- And working effectively as a team.

Design of the Workshops

The Workshops were designed to be a two-day interactive workshop consisting of presentations from Subject matter Experts, reviews of OPEX, discussions, field work and practice. We kept the class size to a maximum of 12 participants with a mixture of Operating Streams (Generating Unit, Unit 0, Common Services, Fuel Handling). All Non Licensed Operators were rostered into the program along with their front line supervision. Senior Management opened each session to ensure that a strong management commitment was perceived by all participants.

Issues Addressed in the Workshops:

The workshops were designed to address both local and industry-wide Operator Fundamental issues.

Local Issues:

- Experienced operators involved in plant construction and initial start-up are retiring or moving to other positions
- Experience levels of operating crews are diminishing.
- Events analyzed are representative of many events at our Stations.
- Events indicate weaknesses in key operator fundamental areas
- Operator engagement is diminishing over time.

Industry Wide Issues:

- Monitoring plant conditions and indications closely
- Controlling plant evolutions precisely
- Establishing a bias for a conservative approach to plant operations
- Working effectively as a team
- Having a solid understanding of plant design and system interrelationships

Highlighted Principles

The principles that were emphasized during the workshops included:

- Small Things Make a Big Difference – Employees need to see the results of their efforts. Plant material condition plays a significant role in motivating employees. Small continuous improvements are easier to accomplish and more effective at causing change than the big home run.
- Value the Work – Operators and Station Managers need to value the work that Operators perform. Operators need to understand the impact their work has on the safe operation of the plant and the work that gets done in the plant. Operators need to understand how work gets done in the plant and how issues are resolved.
- Learn from Others & Share Your Experience – We need the more experienced operators to share their experience with the junior staff.
- Take Action

Workshop Lesson Plan

Day 1

- Pre Job Briefing and Context Setting by Station Management.
- Presentation: Operator Rounds & Routines (P-INS-09100-0004)
- Video – Operator Rounds & Routines
- Review of Internal Audits on Operations Code of Conduct.
- Presentation: WANO – Weaknesses in Operator Fundamentals
- OPEX review on Code of Conduct Issues
- Industrial Operator Handbook – Case Studies
- Presentation: Work Request: Life Cycle from Initiation to 13 Week rolling Schedule.
- Field Assignment: Work Request (WR) Tag Audit: Go into the Station and find several plant deficiencies (Existing WR's or New Issues). Follow up on existing

WR and find out where they are in Passport. If WR tag is no longer required, then remove it and return the tag to the classroom.
Points stressed in Field Assignment: Key actions when monitoring the plant Continuously observe parameters & communicate status of parameters by describing parameter values, trends, and actions taken. Validate parameters through multiple independent means. Seek reasons for unexpected trends and ask for assistance. Verify automatic system actuations/response

Day 2

- Post job Debrief on Day 1 Field Assignment
- Presentation: The SCR Process
- Field Assignment: Peer to Peer Rounds evaluation and Duty Crew evaluation of Operator Rounds.
- Post Job Debrief – Day 2 Field Assignment: Lessons Learned, Good & Bad practices observed.
- Presentation: Operational Decision Making
- Handout: WANO Reference GL 2002-01 Principles for Effective Operational Decision Making.
- Session Wrap-up – Feedback from participants and Station Managers.

Keys to Success

The keys to success for a workshop of this nature are:

- To ensure there is active and noticeable Management response to issues identified during the workshops. The more immediate the response the more effective the results.
- To record the results of the Workshop. In order to evaluate the effectiveness of the workshop we recorded all of the items that were brought back from the field assignments.
- Management needs to look for signs of Operator engagement including such things as SCR & Work Request Quantity & Quality, improvements to plant material condition and housekeeping and communicate the successes back to the field operators. For example Pickering A reported in their Operations newsletter a 25% increase in Operator initiated SCRs in the latter half of 2006 and also a noted much improvement in Operator generated work requests.

Lessons Learned

- Many Operator burdens and work-arounds need to be addressed at our stations. For example manual interventions on automatic control systems (i.e. pump outs) are common place – equipment is not designed for multiple manual operations over time and contribute to equipment breakdowns and poor material condition.
- We need Operators to trust the administrative systems. The lack of trust issue needs to be further addressed – there are perceived issues with SCR & Work Request processes. New administrative processes are not effectively rolled out – i.e. new WR tagging kiosk,

Passport, Preventive Maintenance Living Program (PLMP). Operator concerns are perceived as low priority (Most Operator SCRs are D4'd for trending).

- Small things do make a big difference. Managers need to be seen as problem solvers and people of action and leadership. Operator issues and concerns need to be addressed effectively and noticeably.
- Duty Supervising Nuclear Operators (SNO) are active working Operators – not focusing in on supervising, mentoring & sharing their knowledge and experience.
- Future Workshops should be based upon feedback from these workshops, Curriculum Review Committees, OPEX, Management Focus, etc. We're not stopping here. We need to take the next step that will focus on Operator troubleshooting and diagnostics.
- We need more focus on successes. We have a tendency in this industry to focus on errors. We need to highlight our successes more.