ENTERGY ENGINEERING HUMAN PERFORMANCE APPARENT CAUSE DLA

July 2007

OBJECTIVES

- Evaluate Engineering Personnel Skills in Preparing and Reviewing Apparent Cause Evaluation (ACE) Reviews.

- Evaluate Engineering Personnel use of Human Performance Tools and Trap Identification during an ACE Review.

WHY APPARENT CAUSE EVALUATION DLA?

Engineering Product Quality Review Results

- Inconsistent ACE Product Quality
  - Problem Statement and Extent of Condition
- Vague/Interpretative Guidance
  - Inconsistent Format
- Change Management
  - New Fleet ACE Procedure

DLA DEVELOPMENT

- Pre DLA Training
- Exercise Scenario Selection
- Task Development
- Proctor Script Development
- DLA HU Observation Card Design
- Proctor Assignment Schedule
- DLA HU Tool Usage Results
- Post DLA Effectiveness Assessment

PRE DLA Training

Change Management - New ACE Procedure

Class Room Training Objectives

- ACE Section Requirements
- Effective Problem Statements (WHAT)
- Explanation of Problem (HOW)
- Apparent Cause Analysis Techniques (WHY)
- Extent of Condition Development (WHAT ELSE)
- Corrective Actions (RESOLUTION)

DLA EXERISE SCENARIO SELECTION

Activity Selection Considerations:

- Completion Time Approximately 1 Hour
- Typical Engineering Personnel Task
- Reference Material Available
- HU Traps embedded Inconspicuously
- Specific Technical expertise not required

SCENARIO - ACE REVEW

TASK DEVELOPMENT

- Modify Actual Condition Report Description for Exercise Scope
  - Single Train (B) Repetitive Valve Packing leaks vs Both Trains (A)&(B)
- Modify Apparent Cause for Review to Match CR Scope/Work History w/HU Taps
  - ACE written for A train not B train
  - No references for Work History

TASK DEVELOPMENT

- Prepare Pre Job Brief
  - Brief Check List (Level Determination)
  - INPO HU Tools for Engineers
  - List of Relevant ACE Term Definitions
  - Current Relevant Valve Data

TASK DEVELOPMENT

- Assemble Reference Information
  - ACE Relevant Procedures
  - Valve Partial Work History w/references
  - Valve Complete Work History w & w/o references
  - Referenced Drawings,
  - Referenced Vendor Information

DLA HU TRAPS

- Phonetic Alphabet Not Used to Present ACE To Student
- Product Quality Check or CR are not Provided To Reviewer With ACE
- ACE Specified Valve Train A, CR Train B
- No Pre-Job Brief Offered by Proctor
- Initial Work History w/ACE Contained no Reference Document Information

DLA HU TRAPS

- 2nd Work History Incomplete w/References
- 3rd Work History Complete w/o References
- Referenced Vendor Information not Provided
- Referenced Calculation not Provided
- ACE Problem Statement Not Concise
- Corrective Actions Assigned to Wrong Disciplines, Some Not Related to Cause, Long Term Actions Not Approved

Proctor Script Development

- Provide Brief Description of the Exercise Scenario
- List Required Skills Student Are Required to Demonstrate in Exercise
- Describe Simulated Work Area and Required Equipment
- Instructions Prior to Start of Task – Introduction
- Explanation of Exercise – Student Task Overview

Proctor Script Development

Task Initiation Tab Contents

- Exercise Start Instructions
- Initial Task Document (ACE)
- Task Assignment Description/Deliverable
- Proctor ACE Prep Role
- Associated HU Trap Descriptions

Proctor Script Development

Pre-Job Brief Tab (If Requested)

- Job Briefing Expectations/Level Selection
- Pre-Job Brief Checklist
- Task Taps and Tools - INPO HU Tools
- Definitions of Terms
- Current Technical Data

Proctor Script Development

Procedure Tab –(If Requested)

- Expected Behavior Description
  - Demonstrate How to Find Procedures
  - Verify Procedure Requirements
- Copies of Procedures

Proctor Script Development

Additional DLA Tabs w/ Trap Descriptions

- Valve History Tab
- Drawing Tab
- Vendor Information Tab
- Calculation Tab

Proctor Script Development

HU Tap Descriptions

- Problem Statement Trap Description
  - Not Concise – Non Condition Information
- Extent of Condition Trap Description
  - No Extent of Condition Selection Justification
  - Extent of Condition CR Question
- Corrective Action Trap Description
  - Assignment Errors & Long Term CA Approval

DLA HU Observation Card Design

Observation Card HU Tool Categories

- Job Briefing
- Coaching
- Self Checking
- Effective Communication
- Procedure Use
- Knowledge
- Place Keeping
- Questioning Attitude

DLA HU TOOL USE RESULTS

DLA HU Observation Card Data

- 48% Did Not Request a Pre-Job Brief
- 71% Did Review ACE Procedure
- 56% Did Not Review CA procedure
- 62% Acceptable Knowledge Tool Use
- 53% Acceptable Questioning Attitude

DLA HU TOOL USE RESULTS

DLA HU Observation Card Data

Knowledge HU Tool Use NI Categories

- Identify Extent of Condition CR
- Challenge Qualifications
- Verify CA Due Date Requirements
- Problem Statement Description Deficiencies
- Check for Calculation Change Notices
- Extent of Condition/CR Reviews

DLA HU TOOL USE RESULTS

DLA HU Observation Card Data

Questioning Attitude Tool Use NI Categories

- Calculation Update
- Extent of Work History Review
- Source/References of Work History
- Repetitive Lower Packing Bolt Torque Use
- Verification of Vendor Information
- Product Quality Check List Review
- Recognition of CR/ACE Valve ID Discrepancy

DLA EFFECTIVENESS ASSESSMENT

- ACE PI Metric = Avg. EPQR ACE Grade
- PI Goal = Avg. ACE EPQR Grade < 2.0
- Evaluation period - 8 Month After Start of Training
- ACE EPQR PI reached < 2.0 (GREEN) In 3 months
- ACE EPQR Grades Remain within Goal for 21Months After Training Completed

Proctor DLA Exercise Schedule

- Assign 1 Proctor per 4 – 5 Students
  - WF 3 used 9 proctors
- Performs DLA w/ 1 – 2 students per week
  - completed all DLA training in 3 weeks
- Schedule had minimal work load impact for proctors and students

Questions?