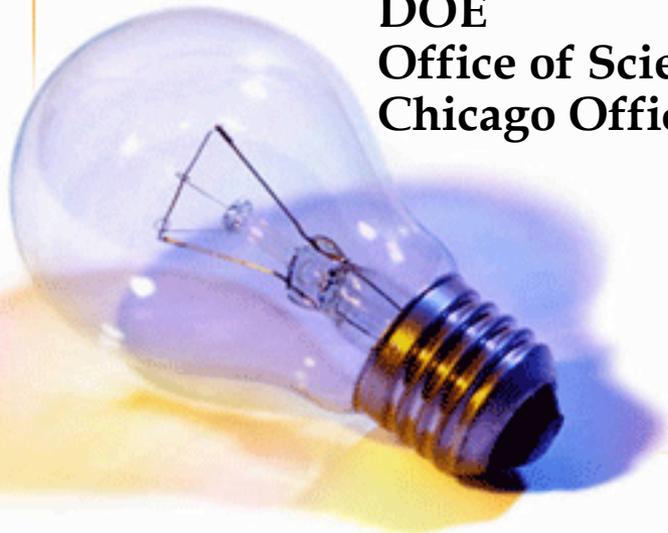


Determining the Effectiveness of An Operating Experience (OPEX) Program

August 2008

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Those who do not learn from history are doomed to repeat it.

George Santanya

LEARN FROM EXPERIENCE



Repeat errors are costly. Previous experience is a valuable resource in their prevention.



Learning From Others



Otto von Bismarck

Fools say that they learn by experience.

I prefer to profit by the experience of others.



The Goal of This Study

DOE O 210.2 - DOE CORPORATE OPERATING EXPERIENCE PROGRAM

Metrics/Effectiveness Committee Benchmark Project Goal-benchmark OE/LL to identify “effective” components that result in the OE program truly assisting in building mission success.

- **What is the effectiveness of your OPEX/LL Program?**
 - Establish metrics to measure program performance & evaluate effectiveness of actions implemented from lessons learned.



Our Process

1. Benchmark nuclear power plants
2. Evaluate metrics for applicability for DOE facilities
3. Use as-is and/or modify metrics
4. Test metrics with historical data from a DOE facility
5. Evaluate metrics against criteria
6. Establish new metrics

Criteria:

Are we a learning organization?



Benchmark nuclear power plants

1. Contacted 6 nuclear utilities/plants.
2. *How do you measure effectiveness of your OPEX/LLP?*
3. Received list of metrics, procedures and permitted use without reference to plant or utility.
4. Agreed to share results of our study.



A Few Key Points from INPO

Guidelines for the Use of Operating Experience

Goals:

- Effectively & efficiently to improve plant safety and reliability
- Reduce the number and consequence of events.

Culture:

- OPEX is considered vital component
- Internalize OPEX & apply at every reasonable opportunity

Line management:

- Periodically assess how effectively OPEX is used



Identified Common Components of Mission Successful Entities per INPO

Based on INPO developed “Warning Flags”

- Improvement in “Rating” of Root Cause Analysis
- Equipment Reliability
- PM Effectiveness
- Human Performance Index
- Self-Assessment Program Index
- Corrective Action Program Health Index
- Procedure Health Index
- Training Health Index
- Production Milestone Status
- Design Basis Index
- Work Management Health Index
- Benchmarking Index
- Reactivity Management
- Effective Supervision/Leadership



Benchmark Highlights

Key findings:

- Root Cause & Apparent Cause Evaluation quality criteria
 - + OPEX Preventable Events
 - + OPEX condition & root cause
 - + Extent of Condition
 - + Extent of Cause
- Repeat events
- Effectiveness review of closed OPEX/LL
- Routine incorporation of LL into briefings
- Percent participation & Number of Error Likely Situations from OPEX



The WIPP Experience Basic Metrics Comparison

- **Processing external LL**
- **LL incorporation into programs already included corrective, preventive, and improvement focus**
- **Addressing Events**
 - **Event Critiques**-utilized the benchmarking info to develop a new critique process,
 - **Root Causes**- we had already self-identified some areas for improvement and raised our already high standards and expectations much higher including multiple tool approach, extent of cause, cause of extent.
 - **Corrective Action Program tied to Issues Managemeng and already met the metrics.**



The WIPP Experience

Event Driven

- **Formal Event Critique**
 - **When-**
 - Accidents resulting in injury
 - Damage to equipment
 - Apparent violation of procedures/conduct of operations principles
 - (e.g. Lockout/Tagout)
 - Violated Design Limits
 - Abnormal or unexplained facility safety conditions
 - Improperly positioned safety or system features
 - Equipment failure that could affect safety or facility capability
 - Unplanned shutdown or loss of operation
 - Release of radioactive or toxic material
 - Repetitive problems
 - Events that require notification per DOE O 231.1A or NMED Permit



The WIPP Experience Event Driven

- **Formal Event Critique**
 - **What**
 - **Immediate**
 - **Barrier/mitigate, individuals state what happened, event scene preservation (& pictures), data collection**
 - **Within 24 hours**
 - **Critique**
 - **Establish chronology, conditions, facts, verify adequacy of immediate actions, determine ISM issues, environmental factors, PPE, Work Practices, Behavior Factors, Barriers in place (or that failed).**
 - **Establish probable cause – determine further investigation/formal root cause analysis needs.**



The WIPP Experience

Root Cause Analysis Foundation

- **Root Cause when...**
 - anything reportable in PAAA-Noncompliance Tracking System,
 - ANY ORPS reportable (not just 2),
 - ALL Significant Conditions Adverse to Quality per our QAPD, and
 - at management discretion
 - For trends – Big Picture analysis
- **Root Cause how...**
 - Use at least 3 tools -Tap-Root, Barrier Analysis, HPI evaluation, comparative time line, etc.
 - Identify Precursors – Latent Organizational Weaknesses
 - Identify Missed Opportunities
 - Use the Event Critique information gathered
 - Lead has advanced root cause training
 - Team includes technical, floor workers (based on subject being evaluated).



The WIPP Experience

Basic Metrics Comparison (cont)

- **Repeat Events**
 - WIPP does a quarterly analysis determining whether effective investigation and appropriate identification of operating event causes were conducted, whether root causes or recurring issues were identified and addressed.
- **Effectiveness Reviews**
 - Annually as part of ISMS review,
 - Quarterly analyses includes occurrence or recurrence of an event after a lessons learned was issued related to the event.
 - Issues management program includes distribution for LL for each issue. Issues and LL are part of the quarterly analyses.
 - QA audits include a line of inquiry on ISMS integration and LL with each audit conducted.



The WIPP Experience Basic Metrics Comparison (cont)

- **Incorporation of LL into briefings**
 - Red Alerts – same day, urgent LL applicable to WIPP.
 - Based on external LL and areas of focus, we develop the next week's pre-job briefing LL notes based on Plan of the Week for work, or finding in management walk-arounds, etc. (Example – clear path to eyewash station, high wind warnings, etc.) Immediate, Relevant
 - Specialty Research for incorporating into planning – going to shiftwork, pipeline replacement, etc.
 - Safety focus area for general awareness – Porcelain Press
 - Internal and External LL to specific managers.
- **Percent participation & Number of Error Likely Situations**
 - Percent participation is included in WIPP metrics
 - Number of Error Likely Situations is not part of the current WIPP OE metrics, but is being evaluated by our HRO committee to consider incorporation.



The WIPP Experience

- **Additional WIPP areas –**
 - The quarterly analyses
 - Root Cause for the big pictures
 - Researching for LL for specific planning needs
 - LL from Continuous Improvement Assessments & Benchmarking
- **Recent Challenges at WIPP-**
 - Multiple Events
 - Management Review/ISM Annual Review
 - OE Effectiveness Review
- **Resulting LL related to ISM & OE**

The Management Review identified the same areas senior management had identified and were already incorporating tools from the benchmarking project – our HRO committee was establishing a path forward. These were not compliance issues – it is going above and beyond for continuous improvement!



Luck is not a robust barrier.



William R. Corcoran



Bertha's & Joe's Top 10 Recommendations

- 10. Use the benchmark metrics**
- 9. Establish High standards for Root Cause as key to effective OE/LL program and thus to ISMS Feedback & Improvement.**
- 8. Use special research of OPEX in planning to prevent events.**
- 7. Perform rigorous Effectiveness Reviews-were LL issued that if more effectively implemented would change the results**
 - + DOE-wide significant events**
 - + Site significant events**
- 6. Encourage personnel to inform management of OPEX learning situations**



Bertha's & Joe's Top 10 Recommendations

5. OE Quarterly Analysis – resulting improvement focus
4. Contractor Assurance System/Issues Management LL
3. Benchmarking/Continuous Improvement
2. OE should be a vital foundation to ISMS continuous improvement.
1. Verify that personnel have *internalized* those **Lessons To Be Learned** have **indeed been learned** leading to Mission Success!

