

Evaluating Operational Discipline in PSM Audits

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Evaluating OD in PSM Audits

- DuPont PSM Program
- Why Audit OD?
- Evaluating OD in PSM Audits

James A. Klein, Operational Discipline in the Workplace
Process Safety Progress, Vol. 24, No. 4, p. 228-35, December, 2005

James A. Klein & Bruce K. Vaughen, A Revised Model for Operational Discipline
Process Safety Progress, Vol. 27, No. 1, p. 58-65, March, 2008

DuPont PSM Program

Step 1 – Establishing a safety culture

Step 2 – Providing management leadership and commitment

Step 3 – Implementing a comprehensive PSRM program

Step 4 – Achieving operating excellence through operating discipline

Process Safety and Risk Management Model



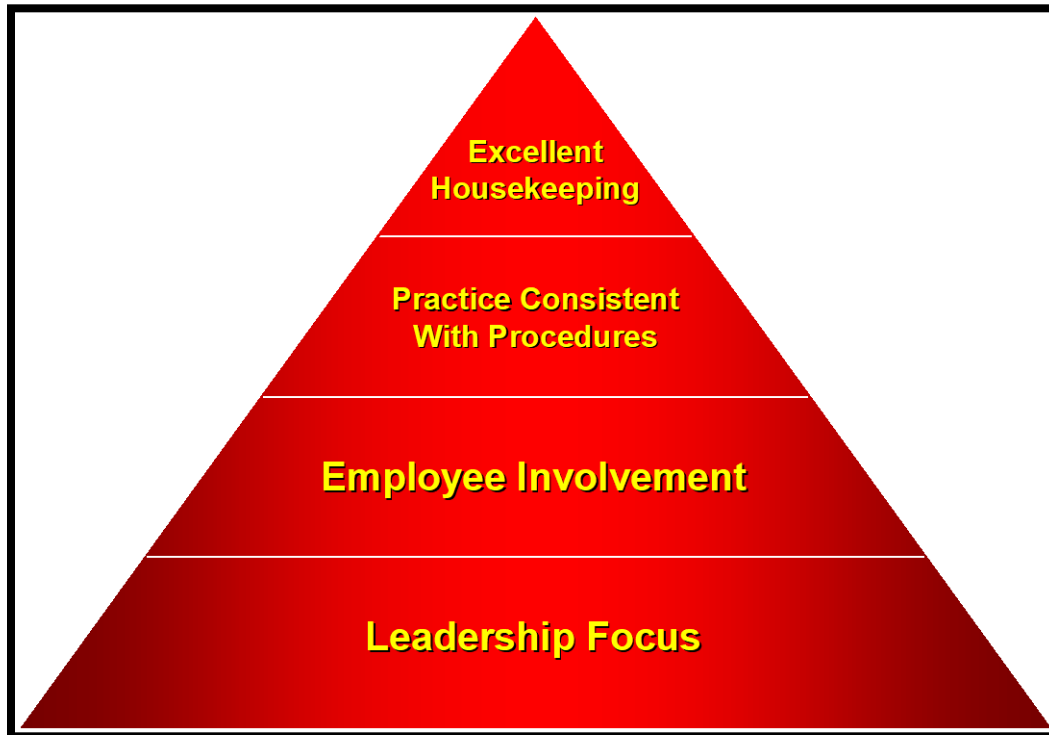
PSM Standard Requirement for OD

- Sites shall implement and maintain programs and systems to achieve and maintain a high degree of OD for all PSM elements in a manner that supports business and operating objectives.

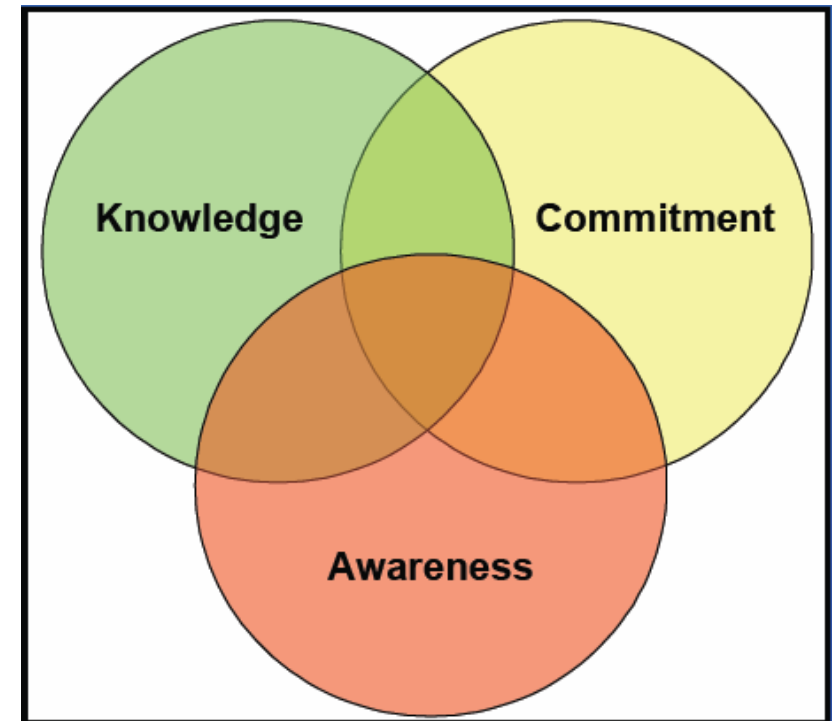
➤ Basis for auditing

DuPont OD Program

The deeply rooted dedication and commitment by every member of an organization to carry out each task, the right way, each time.



Organizational



Individual

DuPont PSM Audit Program

- **Scope**
 - Higher hazard processes (HHP) - includes OSHA 1910:119
 - Lower hazard operations (LHO)
- **Frequency**
 - Second party every 3 years (HHP) or 6 years (LHO)
 - First party every 3 years
- **Audit teams (second party)**
 - Typically 3-5 auditors, independent of site
 - Subject specialists (MI, PT, PHA), as appropriate
 - Trained in PSM and PSM Auditing

DuPont PSM Audit Protocol

- **Audit checklists**
 - Available for both HHP and LHO
 - >300 questions that are evaluated and scored for system compliance and implementation
 - Supplemental questions that provide additional considerations to auditors and can be used to examine the depth and degree of compliance to the primary question
 - Additional audit guidance being developed
 - Includes cross-scoring of PSM element questions to also help evaluate OD

PSM Audit Question Example

- Are the PHA study teams multi-disciplined with membership including individuals with the following skills?
 - a. Knowledge of the basic science and technology involved in the operation of the process and equipment as well as the equipment design basis.
 - b. Hands-on operating experience in the process or system
 - c. Hands-on maintenance experience in the process or system
 - d. In-depth training in the selection and application of hazards evaluation methods or prior in-depth experience with the specific method(s) being used.
 - e. Other appropriate knowledge or expertise needed to accomplish the aims of the study (e.g., instrumentation, process control, SIS, mechanical integrity and quality assurance skills)

Did the teams have representatives from manufacturing (including an operator), technical or engineering, and maintenance, as a minimum?

- Check several recent PHA reports to verify that team makeup requirements were met and documented.

Evaluating OD in PSM Audits

- DuPont PSM Program
- **Why Audit OD?**
- Evaluating OD in PSM Audits

Why Audit OD?

- PSM Audits are intended as a leading indicator to help prevent injuries and incidents
 - Quality audits help prevent injuries and incidents, BUT
 - Data suggests audits are not a very good leading indicator!
- PSM Performance = $f(\text{systems, OD})$
 - Common key factor ("cause") of many incidents is OD
- PSM Audits do a good job of evaluating system quality / performance and compliance with regulations and corporate requirements
- PSM Audits do not do as good a job of evaluating OD
 - Harder to measure and evaluate

Conclusion

Improving the value of PSM Audits for helping to avoid injuries and incidents . . .

. . . benefits from improving evaluation of OD in audits.

Evaluating OD in PSM Audits

- DuPont PSM Program
- Why Audit OD?
- Evaluating OD in PSM Audits

Evaluating OD in PSM Audits

- Site management audit checklist
- OD audit checklist
- OD interviews
- OD scoring
- Review of audit findings

- Typically, 3-4 hour evaluation for 1-2 auditors
 - OD audit checklist plus OD interviews
 - Scoring and review done at end of audit

Site Management Audit Checklist

- Review of site management leadership of PSM program must include a discussion of OD
 - Has the area/site established systems to achieve and maintain a high degree of operational discipline across the PSM program elements?
- Best done late in the audit, after auditors have had a chance to evaluate site systems and performance

OD Audit Checklist

- **Specific consideration of OD**
 - New audit checklist, being piloted in several audits
 - Only part of "PSM Wheel" that did not have a checklist
- **Example Topics**
 - OD programs and training
 - Management leadership by example
 - Evaluation of resource needs and staffing
 - Measurement of OD performance
 - Site communications
 - Expectations for involvement and following procedures

OD Audit Checklist Examples

- How does site leadership evaluate resource needs and turnover as a part of business planning efforts? Does staffing and experience appear appropriate, based on feedback during the audit?
 - How frequently are staffing levels evaluated and what process is used?
 - Has an effective change process been used to manage turnover of SHE personnel?
 - Have there been long gaps where key roles have not been filled?
 - Is SHE-related work being done on time and with high quality results?
 - Have transferring or retiring employees been replaced in key roles?
 - Does turnover seem excessive?

OD Audit Checklist Examples

- How does site leadership continually provide visible (“felt”) leadership reinforcing the importance of OD and SHE, including demonstration of the priority of SHE in their daily decision-making?
 - Are goals set for visible leadership?
 - Is visible leadership evaluated in performance reviews?
 - During visits, does senior management reinforce SHE programs and goals?
 - How has SHE been emphasized during daily decision-making?

OD Audit Checklist Examples

- Has the site clearly set and communicated expectations that all employees are accountable for following procedures?
 - Does site leadership tolerate “saving the batch” via unauthorized practices?
 - How have employees been told that they can stop a task if it may be unsafe or deviate from site procedures?
 - Is there a process for reporting problems with procedures? What process is used and how responsive is the site for making changes when problems are reported?
 - Are management of change systems used to revise procedures when problems are observed?
 - Is training on procedures effective? Is it periodically evaluated or revised?

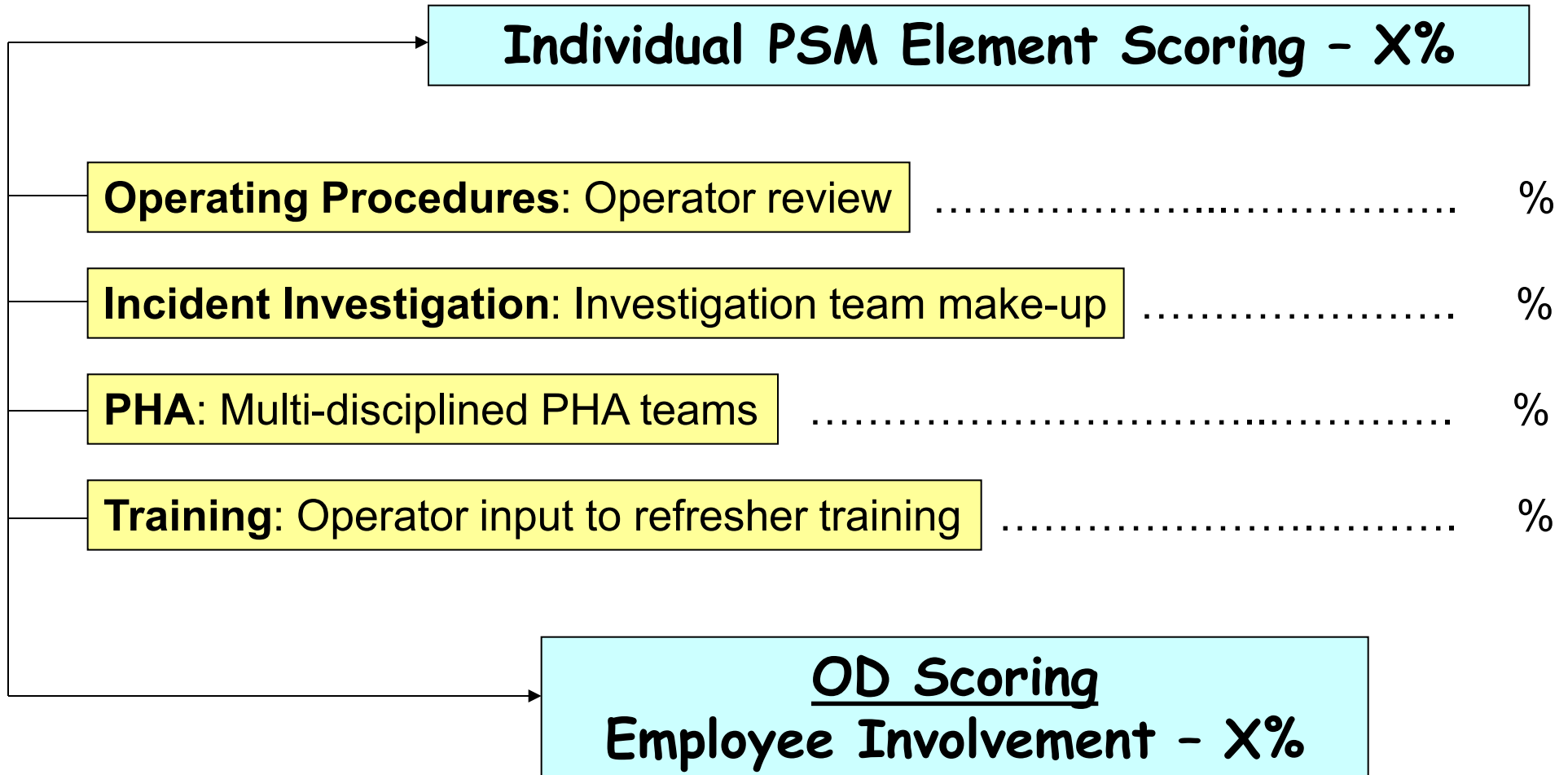
OD Audit Checklist Examples

- How has the site reinforced the individual awareness of OD, based on Knowledge, Commitment, and Awareness?
 - Talk to several employees: Do they know what this is? Do they feel they have the necessary knowledge to do their work safely and correctly every time? Do they feel they take personal responsibility to plan their work to get it done safely and correctly every time? Do they feel they are aware that things may not go as planned and that they are prepared to recognize and respond to unusual situations?

OD PSM Interview Protocol

- Questions for use in typically 4 to 6 interviews during a PSM audit, covering a cross section of site employees
- Sample questions:
 - Is site management providing opportunities for employee involvement in each of the elements of PSM?
 - Do you have the knowledge to complete your job tasks correctly and safely all the time?
 - How do you suggest changes if you think procedures could be done in a better way?
 - How do you anticipate problems that might occur when working on a job task?

OD Scoring



PSM Audit Scoring

PSM Element 1 - X %

PSM Element 2 - X %

PSM Element 3 - X %

PSM Element 4 - X %

...

PSM Score - X %

OD Characteristic 1 - X %

OD Characteristic 2 - X %

OD Characteristic 3 - X %

OD Characteristic 4 - X %




...

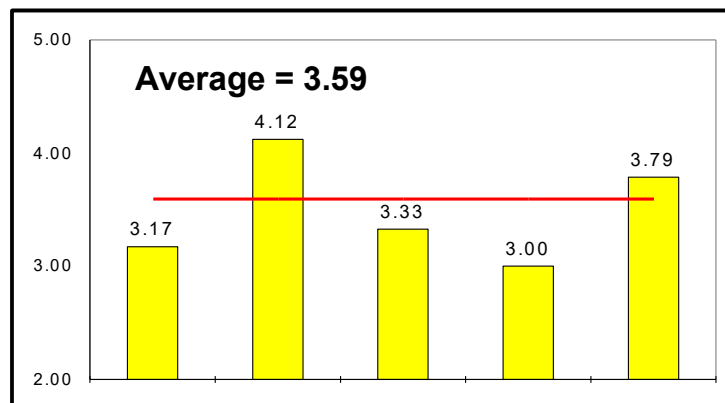
OD Score - X %

OD Self-Assessment Survey

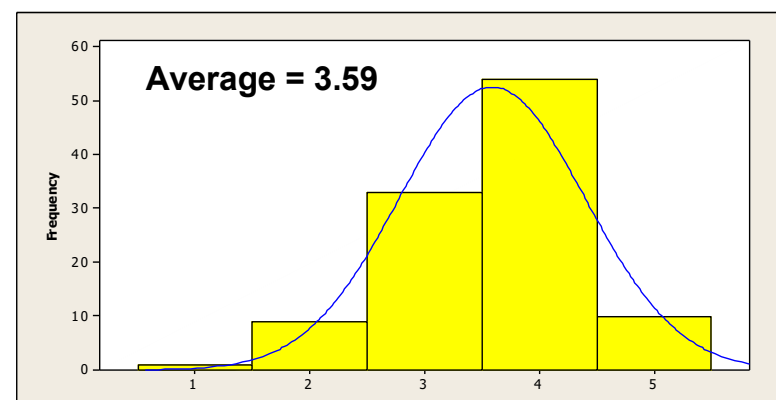
- **Optional 30-minute internet survey**, but can be used to provide data for evaluating OD performance during audit

22. Does site leadership periodically schedule and/or require use of management of change systems to review and authorize equipment or procedure changes prior to use? Are site employees involved in the review and revision of site procedures? Is there a way for employees to suggest when new procedures are necessary or existing procedures should be modified?

	Response Percent	Response Total
5 = excellent performance 	48.5%	16
4 = minor opportunities to improve 	42.4%	14
3 = many opportunities to improve 	9.1%	3
2 = significant gaps in performance	0%	0
1 = not being done	0%	0



Group responses



Distribution of all responses

Evaluating OD and Communicating Results

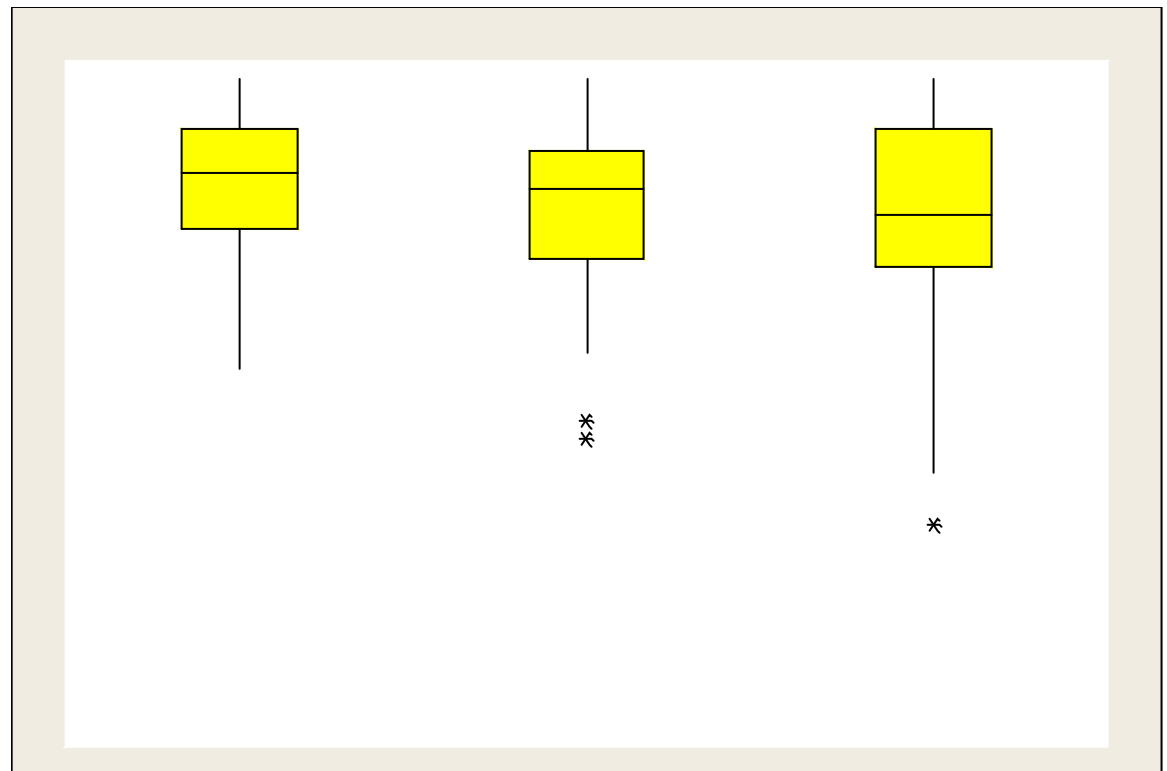
- **Assessing OD performance and potential issues**
 - Audit checklists (specific gaps)
 - Audit interviews (common themes, issues)
 - Audit scoring (compare previous audit)
 - OD self-assessment survey, if done
 - Overall view of audit, e.g., if there are many findings relating to activities not being done on time or overdue action items, this reflects on OD performance.
- **Communicate team evaluation (results and improvement suggestions) during audit closing conference**
 - Maintain confidentiality of sources (e.g., interviews)
 - Review potentially controversial findings with site management before the closing conference

Recommending OD Improvements

- **Possible findings**
 - Provide OD focus and training at site
 - Reinforce requirements for following procedures
 - Review staffing for PSM activities
 - Increase use of operators/mechanics in developing or reviewing procedural changes
 - Evaluate ways to improve process troubleshooting expectations and guidance
 - Clarify housekeeping standards and audit for improvement

Management Review

- Periodic review of OD results from PSM Audits to identify trends, common issues, and potential improvement programs
 - Common findings
 - OD audit scores



Year, business, region, sites, etc.

Summary

- **Evaluating OD in PSM Audits includes**
 - OD, Leadership checklist questions
 - OD interviews
 - OD scoring
 - OD survey (optional)
- **Evaluating OD in PSM Audits is desirable**
 - Improve PSM Audit quality
 - Develop better leading indicator metric
 - Help prevent injuries and incidents!