



**Energy Facility Contractors Group**

*Dedicated to Promoting Excellence in DOE Operations*

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## **Guidance on Performance Analysis**

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## **The Performance Analysis Task Team started writing this guide in spring 2005**

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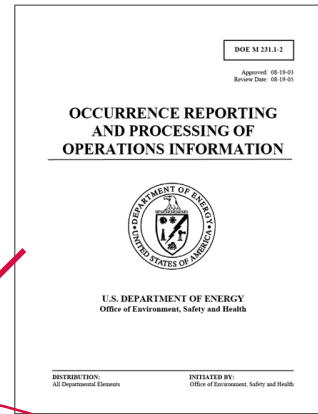
- **Goal of the EFCOG guidance document is to supplement the existing DOE manuals and guidance**
- **Initially, the guide was written to apply to occurrence reports only**
- **Presently, it provides guidance for performance analysis appropriate for occurrences and for conditions identified under nuclear and worker safety rules**
- **Attendees at the spring 2006 meeting indicated that they needed more information on conducting the analysis; this draft includes this guidance**
- **The draft guide is consistent with analysis methods used by INPO**

**Tuesday, the task group completed the guidance**



# DOE requires performance analysis of occurrences

- DOE Order 231.1A requires implementation of DOE Manual 231.1-2
- DOE Manual 231.1-2, Section 5.8 requires quarterly analysis



5.8 Performance Analysis and Identification of Recurring Occurrences. Each contractor at a site and managers at DOE owned and operated sites must perform ongoing, but as a minimum quarterly, analyses of events during a 12-month period to look for trends. This periodic performance analysis must evaluate occurrences of all significance categories plus contractor-/operator-determined non-reportable events in order to prevent serious events from occurring. Quarterly performance analysis results must be reported to contractor and DOE line management in order to achieve improvements.

Occurrences identified as recurring require a new occurrence report to be submitted for notification of the recurring issue, with investigation, root cause analysis, and corrective actions subsequently required. Previous individual Occurrence Report Numbers associated with the recurring issue must be provided in the Similar Occurrence Report Numbers field. The reporting organization should select the appropriate reporting criteria associated with the recurring issue. If no specific reporting criteria can be identified, the Reporting Criteria should be listed as Group 10, Criteria #2.

Recurring occurrences must be categorized and reported collectively as a Significance Category R occurrence, even if each individual occurrence had been originally categorized at a higher or lower significance level (e.g., as Significance Category 1 or 4 or even as non-reportable occurrences). See the Occurrence Reporting Model (Section 11) to learn the requirements for a Significance Category "R" occurrence. More information on the performance analysis process for all occurrence reports and specifics on recurring occurrences are provided in DOE G 231.1-1, *Occurrence Reporting and Performance Analysis Guide*.

DOE Headquarters' Office of Environment, Safety and Health must perform a semiannual analysis of all reportable occurrences during a 12-month period to look for trends. In those cases where recurring events are discovered, these events must promptly and formally be brought to the attention of the Program Office(s) for identification of appropriate corrective actions.



# DOE requires performance analysis of occurrences

DOE G 231.1-1  
08-20-03

Attachment 5  
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## Attachment 5

### Criteria to be Used in the Determination of an ORPS Recurring Problem

There will be few cases where it will be obvious that a series of events are recurring. Typically each event is a little bit different; therefore, this guidance is provided to apply judgment that is uniform across the complex.

There is one group of events that is straightforward. That is events similar to previous significant category 1 or 2 events where the completed actions to prevent recurrence have failed. An example would be: one year ago a category 2 contamination (personnel uptake) occurred. One of the corrective actions to prevent recurrence was an upgraded procedure and associated training to limit access to a specific area of a facility. This corrective action was completed and verified four months earlier. During this ORPS Performance Analysis review period, another personnel uptake occurred that was caused by the employee/supervision not using the updated procedure. This would be a recurring event.

A second group is much less straightforward. This consists of a series of Significance Category 3 or 4 events. The action is to take the results from the analysis and make a determination if this series of events constitutes a recurring problem. If so, then it would be reported as a separate occurrence (R) in ORPS.

The following are questions that should be considered as indicators or contributing attributes to a recurring event.

- Did the trending data for the series/group of events indicate a significant negative trend?
- Were there a significant number or percentage of implementation failures discovered to indicate that one or more components of the program were not effective in ensuring successful completion of the task or activity?
- Have multiple control failures within the boundaries of a single occurrence taken place indicating a common breakdown in a program or area of a program?
- Have small and apparently isolated series/groups of events been seen within various aspects of an overall program that collectively indicate a program weakness when viewed from a site perspective?
- Have failures been discovered that indicate during implementation of a particular program, or portion of a program, that one or more components of the program were not effective in ensuring successful completion of the task or activity?
- Was there a common underlying cause or weakness in controls that necessitated corrective actions?
- Did the group of related events indicate a series of common work process breakdowns or a series of common quality criteria issues?

- **DOE Guide 231.1-1, Attachment 5, describes the criteria to be used in the determinations of an ORPS Recurring Problem**

Attachment 5  
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DOE G 231.1-1  
08-20-03

- Did related series/groups of events breach multiple, but not necessarily all, barriers protecting workers, the public, or the environment from potential or actual adverse impacts of an event?
- Did related series/groups of events, having the same underlying cause or having contributed to or were the unavoidable consequence of the underlying problem, occur within a single facility or operation?
- Did a causal factor of the series/group of events indicate a lack of management involvement, or breakdown in management controls, or errors in decisions/directions by managers that resulted in systemic problems or violation of safety rules?



## **Performance Analysis is used to meet the requirements of PAAA and 10CFR 851**

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- **For nuclear safety and worker safety, DOE requires**
  - **“Effective and timely identification of recurring deficiencies”**
  - **Contractors to identify repetitive and programmatic noncompliances for reporting in the DOE Noncompliance Tracking System (NTS)**



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# **EFCOG Performance Analysis Guide includes five steps**

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- 1. Gather data**
  - a) Collect and compile data**
  - b) Determine elements and groups of data for analysis**
- 2. Analyze the data**
- 3. Identify potential recurring occurrences (ORPS) or repeated noncompliances (PAAA and WSHP)**
- 4. Document the results of the performance analysis**
- 5. Review results with senior management**



# Performance analysis uses common analysis tools to identify recurring occurrences or repeated non-compliances

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- **Pareto Charts:**
  - To display the major contributors and to identify areas for further analysis
- **Trend Charts:**
  - To compare the number of events over time
- **Control Charts:**
  - To identify changes that are significantly different from the normal variation in a process
- **Relationship Analysis:**
  - To compare the apparent causes of identified events or conditions and look for common causes



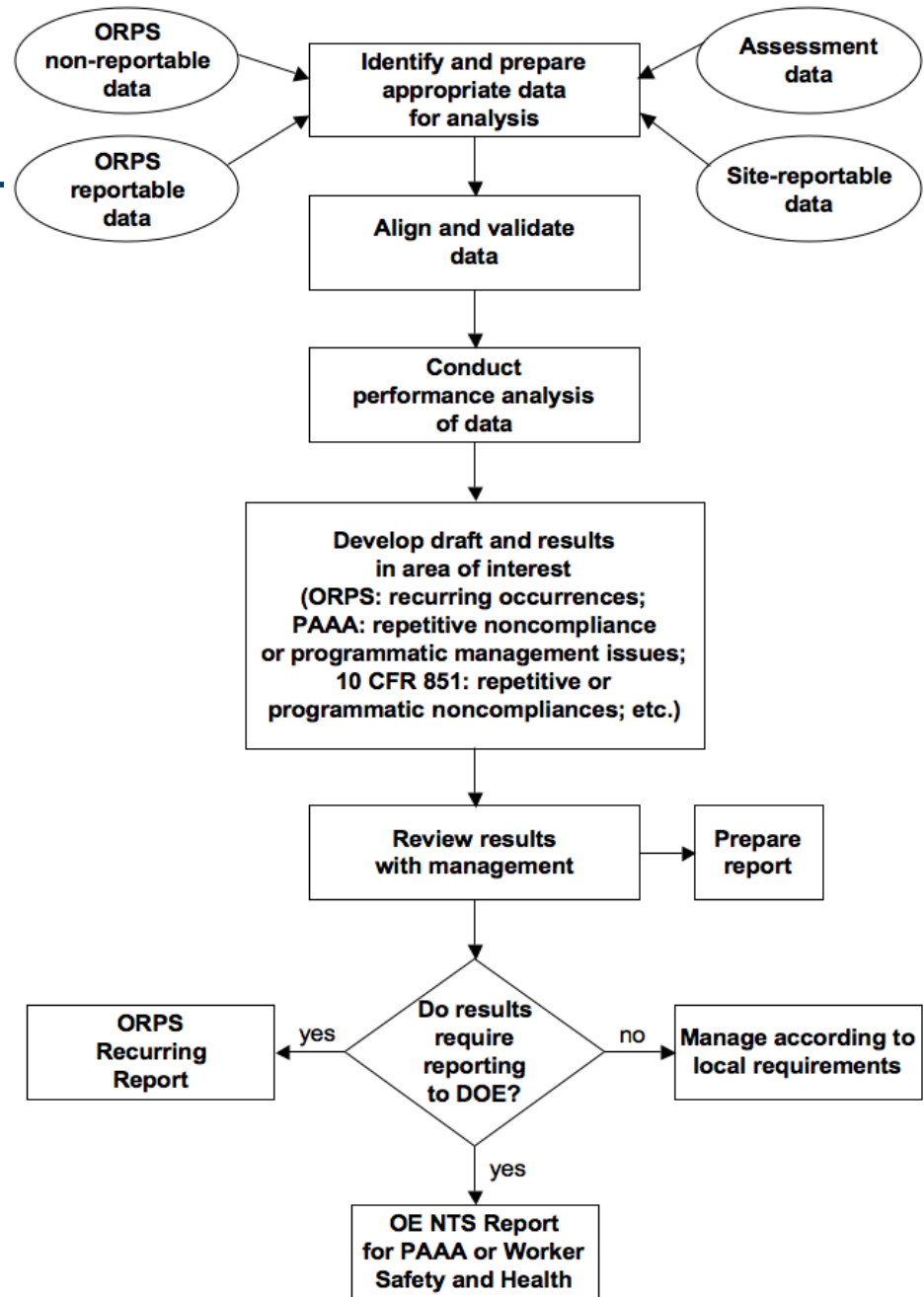
## **The performance analysis guide is consistent with the INPO process**

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- **Guide follows the INPO two-stage process for analyzing events and conditions**
  - **Each event or condition is analyzed for apparent cause**
    - **Corrective actions should fix the event or condition**
  - **Collections of events or conditions are analyzed to identify recurring events and repeated noncompliances**
- **If recurring events or repeated noncompliances are identified then analyze for common cause or root cause and develop corrective actions to prevent recurrence (CAPR)**



# Performance Analysis flow diagram



# **Performance Analysis Guide is close to completion**

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- **Appendices will be updated with changes from this meeting**
- **Other working groups will be asked to provide their input in November/ December**
- **EFCOG will post the final guide in January**

**The task group requests the opportunity to work with DOE-HQ to improve the usability of the data retrieved from ORPS for analysis**

