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OCCURRENCE REPORTING AND PERFORMANCE ANALYSIS GUIDE

[This Guide describes suggested nonmandatory approaches for meeting requirements. Guides are not requirements documents and are not to be construed as requirements in any audit or appraisal for compliance with the parent Policy, Order, Notice, or Manual.]



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1. INTRODUCTION

This guide is meant to supplement DOE Manual 231.1-2, *Occurrence Reporting and Processing of Operations Information*, dated 08-19-2003, by meeting identified needs for added occurrence reporting guidance, clarification, or interpretations. This guide will be a living document that will be expanded and updated as guidance needs are defined and can be addressed.

For the first issuance of this guide, the two guidance areas addressed herein will consist of defining ORPS reporting fields and also providing the methodology for the periodic review of performance data to determine the presence of recurring events. After the redesigned ORPS system is implemented in CY 2003, experience will undoubtedly identify the need for further guidance. Self-assessments of the ORPS redesign will be made 90 days and six months after implementation, and may become the first milestones for adding additional guidance to this document.

2. OCCURRENCE REPORTING

DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*, sets forth the minimum set of occurrence reporting requirements for Department of Energy (DOE) Departmental Elements, including the National Nuclear Security Administration (NNSA), and contractors responsible for the management and operation of DOE-owned and DOE-leased facilities, including NNSA facilities. These requirements include categorizing occurrences related to safety, environment, health, or operations (“Reportable Occurrences”); notifying DOE of these occurrences; and developing and submitting documented follow-up reports. The Manual further requires that the notifications be timely in accordance with the significance of the occurrence, and that the written reports contain appropriate information describing the occurrence, significance, causal factors, and corrective actions. This Guide does not provide instructions on submitting Prompt Notifications. In addition, this Guide is not applicable to occurrences resulting from activities with foreign involvement. In accordance with DOE M 231.1-2, the following instructions apply to the reporting of occurrences via hard copy or via the electronic database, the Occurrence Reporting and Processing System (ORPS).

2.1 ORPS Security Requirements

All reports containing classified information, Unclassified Controlled Nuclear Information (UCNI), or other controlled information must be submitted in hard copy in accordance with established security requirements (see Chapter 7 in DOE M 231.1-2). In addition, an unclassified version of the occurrence report that has been sanitized of all controlled information must be entered into the ORPS database.

2.2 Instructions on Reporting

Attachment 1 lists all of the ORPS reportable fields. Those fields marked with an asterisk (*) preceding them are required for all (notification, update, final, and short

form) reports. Fields marked with a pound sign (#) are required under certain conditions, for example, depending on occurrence type, report type, or the answer to a previous question.

Items 1 through 13, 16 through 20, 22, 23, 26 through 28, and 32 of the Occurrence Report are required fields for the Notification Report, with some of these fields computer generated. Short Form Reports require all of the Notification Report required fields plus Item 35. In both the Notification Report and the Short Form Report, additional fields may be required depending on the circumstances (e.g., Items 14 and 15). For all reports, data may be entered in the remaining fields when known. For the Update and Final Reports, information on the Notification Report should be retained and updated as better and additional information becomes available. The Facility Representative and Program Manager may provide comments in Items 38 and 39, respectively, for all reports, except reports that have already been finalized (which includes Short Form Reports).

3. PERFORMANCE ANALYSIS

3.1 Background

The analysis of occurrence-related data is necessary to ensure that recurring events are identified, and, more importantly, that both DOE and DOE Contractors are focused on analyzing events of lower significance to prevent more serious events from occurring. This portion of the Guide was developed to provide an acceptable approach for conducting performance analyses. Organizations should use this Guide, existing internal processes, or a combination of the two in completion of their analyses.

3.2 Performance Analysis Process

A model for the performance analysis process is provided as Attachment 2. ORPS Performance Analysis Key Terms and Definitions are provided in Attachment 3. The model for performance analysis includes five basic steps: 1) gathering DOE ORPS data and site-specific data for non-reportable events, as applicable, 2) reviewing various elements and groupings of the data, 3) identifying potential areas of recurring problems, 4) analyzing potential areas for recurrence, and 5) documenting the results of the performance analysis activity, and, if any recurring problems are identified, submitting an occurrence report into the DOE ORPS database. A description of each of these steps is provided below.

3.3 ORPS Performance Analysis Model Description

3.3.1 The organization should identify all events as listed in the Occurrence Reporting and Processing System (ORPS) for at least the previous one-year

period. Site-specific data for non-reportable events should also be used in the analysis, as available.

- 3.3.2 ORPS reports should be searched and sorted based on a selected “grouping” of elements (e.g., cause code, keyword, facility, etc). Attachment 4 lists example groupings that can be used for specific types of analyses. The organization determines which grouping (element or combination of elements) should be used based on management direction, current status, or previous analyses.
- 3.3.3 Results should be analyzed as a whole to determine if significant distributions exist. These indicate potential areas of recurring problems (see Attachments 5 and 6). If none are noted, the search, sort, and analysis should be repeated on the remaining groupings. The analysis should be repeated in this manner until all desired sorts have been analyzed. If none exist, skip to 3.3.6.
- 3.3.4 Techniques, such as those found in Attachments 5 and 6, should be used to determine if any recurring problems exist. These techniques typically involve statistically significant trend analysis or an analysis of data distribution.
- 3.3.5 Problems identified as recurring should be processed according to DOE M 231.1-2 as a significance category “R” recurring problem. For recurring events, 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 – an occurrence determined to be reportable by the Facility Manager.
- 3.3.6 The results of the Performance Analysis activity should be documented in a Performance Analysis Report. See Attachment 7 for a recommended report structure for reporting the results of the performance analysis activity.

Attachment 1

Occurrence Reporting Fields

Field Name	Instructions
Facility/Personnel Information	
*1. Occurrence Report Number	<p>The occurrence report number is automatically generated by the system. It consists of the following:</p> <ul style="list-style-type: none"> • DOE Field Office • Area Office (if applicable) • DOE contractor • Facility • Calendar Year the occurrence was first reported • Sequential number of the occurrence by facility <p>Items are separated from each other by a dash.</p> <p>A temporary number is assigned when a Notification Report is first created. When the Notification Report is successfully transmitted, a permanent number will be automatically generated by the ORPS system, and may not be modified.</p>
*2. Facility Name	<p>Select the Facility Name from the drop-down menu. Note, only facilities that you have authority with will show up in this drop-down menu.</p>
*3. Facility Function Code	<p>Select the Facility Function code from the drop-down menu that best describes the activity/function performed at the facility selected. Only one selection is allowed.</p> <p>Facility Functions are listed below:</p> <ul style="list-style-type: none"> 01 - Plutonium Processing and Handling 02 - SNM Storage 03 - Explosive 04 - Uranium Enrichment 05 - Uranium Conversion/Processing and Handling 06 - Irradiated Fissile Material Storage 07 - Reprocessing 08 - Nuclear Waste Operations/Disposal 09 - Tritium Activities 10 - Fusion Activities 11 - Environmental Restoration Operations 12 - Category "A" Reactors 13 - Category "B" Reactors 14 - Solar Activities 15 - Fossil and Petroleum Reserves 16 - Accelerators 17 - Laboratory (For search only) 17A - Laboratory - Analytical 17B - Laboratory - Research & Development 18 - Power Marketing Administration 99 - Balance-of-Plant (For search only) 99A - Balance-of-Plant - Offices

Field Name	Instructions
	99B - Balance-of-Plant - Machine shops 99C - Balance-of-Plant - Site/outside utilities 99D - Balance-of-Plant - Safeguards/security 99E - Balance-of-Plant - Storage (except SNM) 99F - Balance-of-Plant - Laundries 99G - Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)
*4. Site Name	This field is automatically generated by the system, and indicates the logged users' site. This field may not be modified.
*5. Manager/Designee	Enter the name, title, and phone number of the responsible facility manager or designee who approved this report, either by personally transmitting the electronic report or by signing the hard copy report. By selecting a facility manager name from the drop-down menu, the title and phone number fields will be filled in automatically, but may be overridden if necessary. Only Facility Managers that are registered ORPS users will appear in the drop down menu. If the appropriate facility manager's name does not appear in the list, you may alternatively enter a name in the input box next to the drop-down menu. You will also have to fill in the phone number and title as well. A selection made from the drop-down menu will override any information entered in the input box. This field is required for all reports.
*6. Manager Phone	Enter a telephone number, including area code, for this person. Telephone number format is AAAPPPNNNN, where AAA is the area code, PPP is the prefix, and NNNN is the number. Any amount of punctuation may be included in any way desired, as long as 10 numeric digits are included and the field does not exceed 15 characters in total length. Phone numbers are displayed as (AAA) PPP-NNNN. Example: 208/555-1212 --> (208) 555-1212 This field is required for all reports.
*7. Job Title	Enter the specific job title of the Manager/Designee.
*8. Originator/Transmitter	This field is automatically generated by the system, and displays the user ID of the logged in user.
*9. Originator Phone	This field is automatically generated by the system, and displays the telephone number of the logged in user.
*10. Originator/Title	This field is automatically generated by the system, and displays the title of the logged in user.
*11. Division/Project	Identify the project or the contractor organization responsible for the facility at which the occurrence took place. This field is required for all reports.
*12. Secretarial Office	Select the DOE Secretarial/Power Administration Office to which this facility is operationally responsible from the drop-down menu. BV – Bonneville Power Administration EE - Energy Efficiency and Renewable Energy EH - Environment, Safety & Health EI - Energy Information Administration EM - Environmental Management FE - Fossil Energy ME – Management, Budget and Evaluation NA – National Nuclear Security Administration

Field Name	Instructions
	<p>NE - Nuclear Energy, Science and Technology NP - New Production Reactor (no new reports) RW - Civilian Radioactive Waste Management SC - Science SE – Southeastern Power Administration SO - Security SW – Southwestern Power Administration UE - Uranium Enrichment (no new reports) WA – Western Area Power Administration</p> <p>Only one Secretarial Office/Power Administration may be selected. If the facility is operationally responsible to more than one Secretarial Office, enter the Secretarial Office that is most directly involved in the specific work activity during which the occurrence took place. This field is required for all reports.</p>
*13. System/Building/Equipment	<p>Identify all systems, equipment, or structural items involved in the occurrence, as applicable. In addition, in the case of component failures or defective parts or materials, provide such information as the manufacturer, model number, and size. The most significant item(s) should be listed here. Additional information can be provided in the Description of Occurrence.</p>
#14. Authorized Classifier/ Reviewing Official	<p>Enter the name of the authorized classifier who reviewed this report and determined that it was unclassified, or the name of the reviewing official who determined that there was no Unclassified Controlled Nuclear Information (UCNI) or other controlled information included in the report. Classified, UCNI, and controlled information MUST NOT be transmitted to ORPS. For reports containing classified, UCNI, or controlled information, a sanitized version of the report shall be submitted to ORPS.</p> <p>For facilities where classified operations are conducted, classified information is generated, or UCNI or other controlled information is available, this field is required for all reports.</p>
#15. Classification Date	<p>Enter the date when the authorized classifier or reviewing official reviewed this report and determined that it was appropriate for entry into ORPS.</p> <p>The date must be entered in MM/DD/YYYY format. If the date is entered in MM/DD/YY format, you will receive an error message.</p> <p>Examples: 06/03/1996, not June 3, 1996</p> <p>For facilities where classified operations are conducted, classified information is generated, or UCNI or other controlled information is available, this field is required for all reports.</p>
*16. UCNI	<p>When required and when appropriate UCNI guidance is available, a reviewing official needs to make a final determination that the report contains (enter "Y" for Yes) or does not contain (enter "N" for No) UCNI. Where appropriate guidance is not available, a reviewing official should make a preliminary review determination that the report may contain UCNI (enter "Y" for Yes) or does not contain UCNI (enter "N" for No). Reports with UCNI = Y can not be transmitted to the database.</p>
*17. Plant Area	<p>Indicate the name of the site-specific plant area (e.g., F-Area, M-Area) where the occurrence took place. This field is required for all</p>

Field Name	Instructions
	reports.
Important Date and Time Information	
*18. Discovered Date/Time	<p>Enter the date and time when the facility staff discovered the event or condition being reported. Date format is MM/DD/YYYY. Example: June 3, 1996 --> 06/03/1996 The time format is military time: hhmm, with midnight represented as 0000 on the second day. Examples: 6:30 AM - 0630 6:30 PM - 1830 These fields are required for all reports.</p>
*19. Categorized Date/Time	<p>Enter the date and time when the Facility Manager determined that the event or condition constituted a Reportable Occurrence and determined its category (Significance Category OE or 1-4). Date format is MM/DD/YYYY. Example: June 3, 1996 --> 06/03/1996 The time format is military time: hhmm, with midnight represented as 0000 on the second day. Examples: 6:30 AM - 0630 6:30 PM - 1830 These fields are required for all reports.</p>
Occurrence Description	
*20. Subject/Title of Occurrence	<p>Enter a brief title or description (140 characters or less) that best details the nature, cause, and result of the occurrence. This field is required for all reports.</p>
*21. Reporting Criteria	<p>Select one or more Reporting Criterion/Criteria as discussed in Section 6 of DOE Manual 231.1-2. All of the specific reporting criteria applicable for an occurrence should be identified. NOTE: The Significance Category field will contain the highest significance category associated with the selected criteria. For example, if criteria with significance categories 4, 3, and 1 were selected, then the significance category would be 1.</p>
*22. Significance Category	<p>This field is automatically assigned by the system and is dependent on the Reporting Criterion/Criteria. Significance Categories include OE (emergency), 1, R, 2, 3, and 4, with OE being the most significant and 4 the least significant. The Significance Categories are defined as follows:</p> <p>Category OE: Operational Emergency Occurrences are the most serious occurrences and require an increased alert status for onsite personnel and, in specified cases, for offsite authorities.</p> <p>Category 1: Occurrences in this category are those that are not Operational Emergencies and that have a <i>significant impact</i> on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests</p> <p>Category R: Occurrences in this category are those identified as <i>recurring</i>, as determined from the periodic performance analysis of occurrences across a site.</p>

Field Name	Instructions
	<p>Category 2: Occurrences in this category are those that are not Operational Emergencies and that have a <i>moderate impact</i> on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.</p> <p>Category 3: Occurrences in this category are those that are not Operational Emergencies and that have a <i>minor impact</i> on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.</p> <p>Category 4: Occurrences in this category are those that are not Operational Emergencies and that have <i>some impact</i> on safe facility operations, worker or public safety and health, public/business interests.</p>
23. Recurring Event	<p>If this is a recurring event, check this box. Otherwise leave it blank. When this box is checked, the significance category will be set to "R" automatically regardless of what significance category is derived from the selected reportable criteria.</p>
*24. Subcontractor Involved	<p>If a subcontractor is involved in this occurrence, choose <i>Yes</i>. Otherwise choose <i>No</i>. If <i>Yes</i> is selected, enter the name of the subcontractor(s). This field is required for all reports.</p>
*25. Description of Occurrence	<p>The following instructions should be followed when entering the description of the occurrence:</p> <ol style="list-style-type: none"> a. The first paragraph of the Occurrence Description should relay the essential nature of the event (i.e., a summary of the occurrence in newspaper style). b. All information should be clear and succinct. Avoid redundant and unnecessary text, and lengthy "log book" accounts, unless a discussion of the event in chronological order is considered essential to understanding the event. c. Complex and more significant occurrences should warrant a greater level of detail. Significance Category 4 occurrences would likely need only a short paragraph under Occurrence Description. However, all reports should present enough information so that the general reader understands why the event needs to be reported and what the effect is. d. Avoid jargon and uncommon or site/facility-specific abbreviations and acronyms. If used, acronyms should be initially spelled out. e. Unless necessary to record and explain the event (e.g., suspect/counterfeit items or material), use general descriptions of equipment, procedures, etc., rather than presenting lengthy detailed titles and the numbers and letters assigned to those items. f. Quantify the level of contamination, dose, release, and damage (e.g., estimate the acres of wild land burned) when possible,

Field Name	Instructions
	<p>instead of merely stating a reportable limit was exceeded.</p> <p>g. Use active rather than passive voice whenever possible. For example, write, “<i>the electrician</i> severed the conduit” rather than “the conduit was severed.”</p> <p>The type of information to be provided in the description includes, but is not limited to, the following:</p> <ul style="list-style-type: none"> • The method of discovery; • Any component failures and the failure mode; • Any personnel errors involved, including the type and result of the error; • Any procedural problem encountered; • The response of any automatic or manual safety systems and the signals which initiated and terminated their operation; • The duration of any failures; • Operator actions that affected the course of events; and • The loss of any safety equipment. <p>When appropriate for clarification, photos, sketches, and drawings should be maintained with the occurrence report record. In addition, sites are encouraged but not required to make photos, sketches, and drawings available via a Web page, with the Web page address included as a hyperlink in the ORPS report.</p> <p>For recurring events, include all pertinent information to describe how the event was determined to be recurring.</p> <p>This field is required for all reports.</p>
Notifications Made	
#26. DOE HQ OC Notifications	<p>Enter the date and time when the DOE HQ Operations Center was notified and the name and organization of the person notified. Date format is MM/DD/YYYY.</p> <p>Example: June 3, 1996 --> 06/03/1996</p> <p>The time format is military time: hhmm, with midnight represented as 0000 on the second day.</p> <p>Examples: 6:30 AM - 0630 6:30 PM - 1830</p> <p>These fields are required for all reports that are categorized as Operational Emergencies and Significance Category 1 occurrences. The field is also required for Significance Category 2 occurrences as directed by the Field Office. In addition, the field is required for specific Significance Category 2, 3, and 4 occurrences identified</p>

Field Name	Instructions
#27. Other Notifications	<p>with an asterisk next to the reporting criterion.</p> <p>Enter the dates(s) and time(s) of notification of state and local officials or other agencies and the name(s) and organization(s) of the individual(s) notified. Additional information can be provided in the Immediate Actions Taken field. Date format is MM/DD/YYYY. Example: June 3, 1996 --> 06/03/1996</p> <p>The time format is military time: hhmm, with midnight represented as 0000 on the second day.</p> <p>Examples: 6:30 AM - 0630 6:30 PM - 1830</p>
Facility Information at Time of Occurrence	
*28. Operating Conditions	<p>Describe the operational status of the facility or equipment at the time of the occurrence including, for example, pertinent temperatures, pressures, or other parameters necessary for evaluation of the occurrence and its consequences. If said information is not applicable, enter "Does not apply". This field is required for all reports.</p>
*29. Activity Category	<p>Select the activity that best describes the ongoing activity at the time of the occurrence. This field is required for all reports.</p> <p>01 - Construction 02 - Maintenance 03 - Normal Operations (other than Activities specifically listed in this Category) 04 - Start-up 05 - Shutdown 06 - Facility/System/Equipment Testing 07 - Training 08 - Transportation (For search only) 08A - Transportation Onsite 08B - Transportation Offsite 09 - Emergency Response 10 - Inspection/Monitoring 11 - Facility Decontamination/Decommissioning 12 - Research</p>
*30. Immediate Actions Taken	<p>Describe the immediate or remedial actions taken to return the facility, system, or equipment item to service; to correct or alleviate the anomalous condition; and to record the results of those actions. These may include temporary measures to keep the facility in a safe standby condition or to permit continued operation of the facility without compromising safety until a more thorough investigation or permanent solution can be affected. This field is required for all reports.</p>
Cause Information	
#31. Causes	<p>Select all of the codes from the Causal Analysis Tree that best represent the causes of the occurrence. If you select A3 (Human Factors) as the Cause Code, select any associated causes (couplets) from the couplet selection list or choose a better couplet for the associated occurrence. This field is required for Final reports and optional for Short Form Reports.</p>
#32. Description of Cause	<p>Discuss the causes of the occurrence to include all causes and the</p>

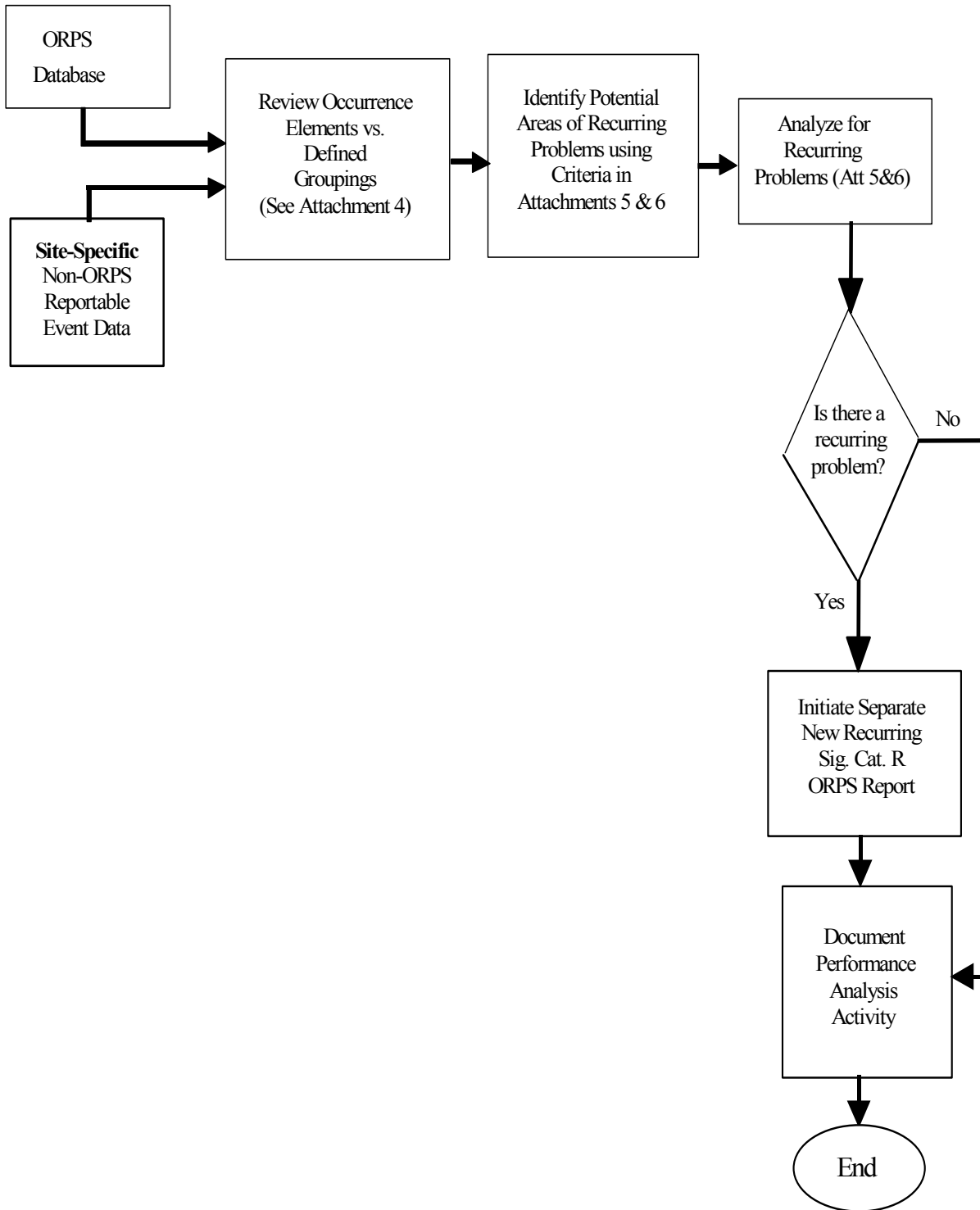
Field Name	Instructions
	corrective actions identified, including causal analysis contributing to a recurring event. Do not repeat a description of the occurrence, but discuss the results of the causal analysis. The root cause analysis methodology used should be identified. A detailed description of the corrective actions is required to demonstrate that the identified actions will adequately address the cause(s) of the problem. This field is required for all Final reports, except Short Form Reports.
Evaluations	
#33. Evaluation by Facility Manager	With the information available, the Facility Manager should provide his or her evaluation of the occurrence and its effect or possible effect on the plant, system, program, etc. The Facility Manager may later supplement this evaluation with additional entries in Update reports or in the Update/Final report. This field is required for all Notification reports where "Further Evaluation Required" is "Yes" and "Before Further Operation" is "Yes". It is also required for all Update and Final reports, but it is optional for Short Form Reports.
*34. Further Evaluation Required	<p>If this occurrence will require further evaluation, choose "Yes". Otherwise choose "No". For Cancelled and Update/Final Reports, "Further Evaluation Required" should be "No". This field is required for Notification, Update, Final, and Short Form Reports.</p> <p>If further evaluation is required, specify if this occurrence will require further evaluation before further operation. For Cancelled and Update/Final Reports, "Before Further Operation?" should be "No". This field is required for all reports where "Further Evaluation Required" is "Yes".</p> <p>If further evaluation is required before further operation, enter the name of the person who will perform further evaluation on this occurrence and the date when the further evaluation will be completed. Date format is MM/DD/YYYY. Example: June 3, 1996 --> 06/03/1996 These fields are required for all reports where "Further Evaluation Required" is "Yes" and "Before Further Operation" is "Yes".</p>
Deficiencies, Lessons Learned, and Corrective Actions	
#35. Integrated Safety Management (ISM)	<p>Enter one or more ISM codes from the following list to identify an observed weakness(es) in the facility's implementation of the ISM program (e.g., failure to properly define the work scope, or failure to perform an adequate activity level hazards analysis).</p> <p>Available ISM codes are:</p> <ol style="list-style-type: none"> 1 – Define Scope of Work - Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated. 2 – Analyze the Hazards - Hazards are associated with the work identified, analyzed, and categorized. 3 – Develop and Implement Hazard Controls - Applicable standards and requirements are identified and agreed-upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented. 4 – Perform Work Within Controls - Readiness is confirmed and work is performed safely. 5 – Provide Feedback and Continuous Improvement - Feedback

Field Name	Instructions
	<p>information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur.</p> <p>6 – N/A (Not applicable to ISM Core Functions as determined by management review) - Items that do not fall into the realm of ISM Core Functions; e.g., Natural Phenomena, Wild Fires, Counterfeit/Suspect Parts, Notifications of non-compliance (Federal, State, Local), Legacy Issues that could not have been anticipated, End of Life equipment failures where maintenance is not an issue, etc.</p> <p>This field is required for all Final reports, including Short Form Reports.</p>
#36. Lessons Learned	<p>Describe what lessons can be learned from this occurrence, in order to help prevent similar events from happening.</p> <p>This field is required for Final reports and optional for Short Form Reports.</p>
#37. Similar Occurrence Reports	<p>Indicate by their report numbers any similar occurrence(s) of which you are aware for this facility or other facilities, including similar occurrences contributing to a recurring event. A discussion describing the analysis of similar occurrence reports should be included in Field 30 or Field 31, as appropriate. Also, identify any known commercial reactor Licensee Event Reports (LER) or other related documents that describe similar occurrences. The purpose of this item is to identify, if recognized, occurrences that might suggest a generic problem. It also serves to identify generic problems that may result in single or common lessons learned.</p> <p>This field is required for Final reports and optional for Short Form Reports.</p>
#38. User Defined Fields (two of them)	<p>These optional fields can be used to store facility-specific information (e.g., a cross-reference to performance indicator data or a site-specific number or name). They cannot exceed 124 characters in length for each field.</p>
#39. Corrective Actions	<p>A facility may choose to use ORPS or its own local corrective action system to track and close out corrective actions (CA). However, in either case, enter a complete description of the CA and the target date when completion of the CA is anticipated. A complete list of corrective actions should be included in the report to ensure it can stand on its own (i.e., reviewers do not have to search for other reports, etc). For facilities using ORPS to track and closeout the corrective actions, the Actual Completion date is entered when the CA is completed and closed. For facilities that choose to use their local CA tracking systems, the Actual Completion Date is not required. However, the reference number of the CA stored in the local corrective action tracking system needs to be entered. All CA items entered in ORPS with local CA reference numbers are considered closed.</p> <p>Corrective Actions are required for Final reports and optional for Short Form Reports.</p>
Line Management Comments	
#40. Facility Representative	The Facility Representative or designee can provide his or her

Field Name	Instructions
Comments	evaluation of the occurrence, including an evaluation of the initial and proposed corrective actions and any follow-up by the facility personnel, and can describe any other actions that DOE has taken since the occurrence. The Facility Representative may supplement such information with subsequent additional entries, as appropriate. After completing the input, the Facility Representative's name and date will be automatically entered by ORPS. If a Final Report is being rejected, the Facility Representative should use this space to indicate why. This field is optional on all occurrence report types except for reports that are already Final, including Short Form Reports. This field is required only on Final Reports rejected by the Facility Representative.
#41. Program Manager Comments	The Program Manager or designee can provide his or her evaluation of the occurrence, including an evaluation of the initial and proposed corrective actions and any follow-up, and can describe any other actions that DOE has taken since the occurrence. The Program Manager may include additional information, as appropriate. After completing the input, the Program Manager's name and date will be automatically entered by ORPS. If a Final Report is being rejected, the Program Manager should use this space to indicate why. This field is optional on all occurrence report types except for reports that are already Final, including Short Form Reports. This field is required only on Final Reports rejected by the Program Manager.

Attachment 2

ORPS Performance Analysis Model



Attachment 3

ORPS Performance Analysis Key Terms and Definitions

The definitions and terms listed below are commonly used when performing an ORPS Performance Analysis and are used throughout this Guide.

Couplet – The result of an analysis of a “human performance problem” (A3 node on the Causal Analysis Tree) and the appropriate apparent causes from other nodes in the Causal Analysis Tree that may have led to the human performance problem. Each applicable cause code from the other nodes is combined with the A3 node to form a couplet. A list of predetermined potential associated couplets is shown in the Causal Analysis Guide.

Elements – Data fields included in ORPS reports that provide fundamental specific pieces of information related to each individual occurrence. Some specific elements are shown in Attachment 4.

Groupings – Selected elements on which data searches and sorts are performed. Groupings can be made up of one or more elements.

Attachment 4

ORPS Occurrence Report Element Grouping Guidance

1.0 Element Groupings

Elements can be grouped in any way to suit the Performance Analysis process. The ORPS data elements can be grouped in certain ways to determine typical parameters useful in the analysis. These are:

- WHO's involved
- WHAT happened
- WHERE did it happen
- WHEN did it happen
- HOW did it happen

The following list provides guidance on how to determine important combination of elements for analysis.

- WHO was involved?
 1. Facility
 2. Site
 3. PSO
 4. Contractor
 5. Keywords to describe work groups, etc.
- WHAT happened?
 1. Reporting Criterion/Criteria
 2. Significance Category
 3. Keywords to describe additional detail
- WHERE/WHEN did it happen?
 1. Date/Time of Discovery/Categorization
 2. Facility
 3. Facility Function
 4. Keywords to describe systems, components, etc.
- HOW did it happen?
 1. Cause Code
 2. If Human Performance is involved, then include the associated cause code couplet
 3. Keywords to describe additional details
 4. ISM function(s)

2.0 Guidance on How to Determine Major Contributors

The number of combinations of all the ORPS data elements (including keywords) is several thousand. Doing a Pareto analysis of the data can provide a useful tool to determine what combination of the above data elements needs to be considered for further analysis. While the details on how to perform a Pareto Analysis will differ depending on the specific application, there are some general industry concepts that can be followed for analyzing this type of data.

Since the main goal of the ORPS Performance Analysis is to define recurring events, the following sequence below is suggested for completing the analysis:

- A. Define the grouping of data elements to be used for further analysis, for example:
 - Personnel Injuries (Reporting Criterion/Criteria xx) – due to (Cause Code yy) – in (Facility zz)
 - Contamination cases (Reporting Criterion/Criteria xx)
 - Procedure errors (Cause Code nn) resulting in Lockout/Tagout issue (Reporting Criterion/Criteria xx)
 - Diesel failures (Keyword nn) due to improper maintenance (Cause Code yy)
- B. Search, sort, and analyze the grouping of data elements as follows:
 1. Review the elements associated with WHAT happened individually.
 - ◆ The Reporting Criterion/Criteria can be reviewed at either the ORPS Category Groups (1-10) level or the specific criterion level within each group and subgroup, depending on the number of reports in the specific time period.
 2. Take the major contributors from the above and do a cross cutting or drill down against the other types of data. For example, if the majority of events were reported using the Reporting Criterion/Criteria of Group 2, then look at all the Group 2 data combined with various Who's involved (facility), etc.
 - ◆ This type of review can yield typically three types of results:
 - a) Results for which there is a significant contributor that can be explained or that cannot be explained. For instance, having a large percentage Lockout/Tagout events associated with the ISM code for “Perform Work” is to be expected, whereas a large percentage of Lockout/Tagout events associated with a cause dealing with inadequate supervision would be of interest.
 - b) Results for which there is no significant contributor but the results indicate that the events have a potential cross cutting issue. For example, Transportation issues are being evaluated and reviewed against WHERE/WHEN they occurred. While no particular facility, time, or date may be dominant (WHERE/WHEN), it was noted, however, that the majority of the facilities had a large concentration of a certain type of issues (or HOWs), indicating a potential cross cutting pattern.
 - c) Results for which no patterns are revealed.

3. It is recommended that the analyst repeat step 2 comparing the top contributor against yet another data element.
 - ◆ This provides additional review of the data. Typically this would answer the question of Transportation Events – Involving Facility xyz – having a Cause Code of YYY.
4. If the data warrants, repeat step 3 for another level of review.
5. Repeat steps 1-4 but start with a different group of the data elements to the extent that the data sample can support the analysis. The key to this part of the review is to start with the Cause Code and then review that against other data elements.

Notes: - Any common spreadsheet software and/or database software makes this analysis straightforward.
- The reliability of the review results is dependent on the number of events being considered.

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?

- 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?

Attachment 6

ORPS Performance Analysis Analytical Techniques

The goal of the Performance Analysis is to determine if there are recurring events that need to be addressed collectively in order to preclude more serious events from occurring. The techniques shown below provide a framework to assist in making this determination. While there are many ways that the data can be analyzed, the techniques below coupled with other site-specific processes can be used to support the analysis activity. The techniques include:

1. Statistical Analysis.

Statistical analysis is a powerful tool for analyzing the data to determine statistically significant trends (SST) both positive and negative. The use of control charts can show if the process is 'controlled' so that overreaction to single events can be avoided.

The use of control charts and their generation are described in many references and are outside the scope of this attachment. Likewise, the criteria for a statistically significant trend are well documented (for examples, refer to the work of either Lloyd Nelson or W. Edward Deming).

The use of a statistical analysis is best suited for those processes where there is an adequate number of events for each time period being considered and data is available for the last 12 months. If the mean of the number of events per time period is 5 or greater, the tests for statistical significance are meaningful. If the mean is between 2 and 5 events per time period, the statistical tests should be viewed as only a potential indicator. If the mean is below 2 events, control charts have little value in determining trends. Since control charts are being used to define statistical trends, there needs to be adequate data collected. Also, since many trends take several time periods to be revealed, the data should represent an extended period of time

2. Distribution / Cross Cutting Issues / Drill Down

These terms all relate to looking at various combinations of the source data to determine if patterns emerge. Typically, the use of Pareto analysis can determine the major contributions and the distribution of the contributors.

A limitation of this technique is that it needs to have a large enough data sample to allow for a meaningful analysis.

In cases where the cause of a problem involves human performance, it is necessary to examine additional data (couplets) to determine what caused the human performance problem.

3. Causal Analysis

The same techniques that are used to define the "Cause" for a single event can be used similarly for groupings of events, such as when several dissimilar events have the same "Cause." This "Cause"

recurrence then becomes the problem being considered and the analysis is directed as to why the identified set of cause codes continued to appear.

Attachment 7

Typical ORPS Performance Analysis Review Report Structure

The Performance Analysis Report should contain the following information:

1. Executive Summary of Analysis Results
2. Background
 - Time period of data used in the analysis
 - Quantification of Events included in the analysis
3. Analysis
 - Identification of Repetitive Groupings/Elements used to determine potential recurring problems
 - Elements with a large concentration when compared to all others (list these elements, if any)
 - Elements with a large concentration when compared to all others that were analyzed for recurring problems (list these elements, if any)
4. Conclusion
 - Identify New ORPS reports generated as a result of the review
 - Identify any referenced ORPS reports used in determining your conclusions
 - Include a conclusion statement that no recurring problems were noted, if appropriate