



Note regarding Document 4.3:

LLNL Implementing Procedures for DOE Order 231.1A and DOE Manual 231.1-2, "Occurrence Reporting and Processing of Operations Information" has been revised. The approval process has been simplified, and a new Causal Tree has been established. The criteria for an occurrence report have been reduced from 129 to 69 items, while the significance categories have been increased from three to six. Security incidents and dollar value losses are no longer reportable as occurrences.

The six Significance Categories are: Emergencies as defined in DOE O 151.1A; Category R - recurring; Category 1- significant impact; Category 2 - moderate impact, Category 3 - minor impact, and Category 4 - some impact.

The Laboratory has 15-30 minutes from discovery of an Emergency event to notify the NNSA/LSO Duty Officer and the DOE Headquarters Center. For a non-emergency, the Laboratory has two hours from discovery to categorize the event, then an additional two hours for notification of a Significance Category 1-4 occurrence.

A new causal training class is now available through LTRAIN: [EM2011](#) **"Apparent Cause Training for Occurrence Report Writing."**

ES&H manual

Environment, Safety, and Health

Volume I

Part 4: Feedback and Improvement

Document 4.3

LLNL Implementing Procedures for DOE Order 231.1A and DOE M 231.1-2 Occurrence Reporting and Processing of Operations Information

Recommended for approval by the ES&H Working Group

Approved by: Glenn L. Mara
Deputy Director for Operations

New document or new requirements

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LAWRENCE LIVERMORE NATIONAL LABORATORY
IMPLEMENTING PROCEDURES
for
DOE ORDER 231.1A and
DOE Manual 231.1-2

OCCURRENCE REPORTING AND
PROCESSING OF OPERATIONS INFORMATION

Approved:



Glenn L. Mara
Deputy Director, Operations



Date

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1. Purpose

To establish Laboratory procedures for reporting and processing of operations information in compliance with the occurrence reporting requirements set forth in DOE Order 231.1A (effective August 19, 2003).

2. Cancellation

This document supersedes Lawrence Livermore National Laboratory Implementing Procedures — DOE Order 232.1, Revision 1.2, March 1998/September 1999.

3. Scope

These procedures apply to all Laboratory employees and LLNL subcontractors performing work onsite at LLNL, or at DOE-owned or DOE-leased facilities when LLNL has the primary management responsibility for the operation. They are intended to provide the information necessary for the Laboratory to meet the requirements of DOE Order 231.1A and DOE Manual 231.1-2.

These procedures describe the requirements for categorizing, reporting, and processing information about events or conditions related to Laboratory-controlled or-managed buildings, experiments, or other activities in support of Laboratory operations that meet the Site-specific Reportable Occurrence definitions set forth in Attachment II.

4. Availability

These procedures, including *Attachment I* (Categorization of Occurrences at LLNL—Definitions), *Attachment II* (Site-specific Reportable Occurrences), *Attachment III* (Instructions for Completing an Occurrence Report), *Attachment IV* (Occurrence Report Format, LLNL), *Attachment V* (Short Form Report), and *Attachment VI* (Occurrence Reporting Model and Causal Analysis Tree) are available on a file server in the Occurrence Reporting Office (ORO) to all Assurance Managers/Officers.

To obtain the latest version of the LLNL Implementing Procedures, contact the Occurrence Reporting Office or your directorate Assurance Manager/Officer.

Assurance Managers, Assurance Officers, and other LLNL personnel can request access to folders on the ORO Server. Request your Assurance Manager to have the ORO add your name to the appropriate folder user group. If you have questions, contact the ORO on ext. 2-8966.

5. References

- A. DOE Order 231.1A, including DOE Manual 231.1-2, "Occurrence Reporting and Processing of Operations Information," effective August 19, 2003.
- B. DOE Order 151.1A, "Comprehensive Emergency Management System."
- C. *LLNL ES&H Manual*, Document 4.5, "Incidents-Notification, Analysis and Reporting".
- D. Other Federal or DOE documents referenced in these Procedures and DOE Order 231.1A:

10 CFR Part 302	DOE O 225.1
10 CFR Part 835	DOE O 360.1

G 10 CFR Part 835	DOE O 440.1
19 CFR Part 1904	DOE O 1324.5B
29 CFR 1910	DOE O 5400.5
29 CFR 1910.1000	DOE N 5400.13
29 CFR 1910.1200	DOE O 5480.19
40 CFR 117	10 CFR 830 Subpart B
40 CFR 172.101	DOE O 5480.30
40 CFR 261-262	DOE O 5632.7A
40 CFR 302	DOE-STD-3009-94
40 CFR 355	ES&H Manual Document 21.2
49 CFR 171.8	DOE-G231.1
49 CFR 173.401-476	
49 CFR 173.421.1(a)	

6. Definitions

The following key definitions are set forth for use in better understanding the essential elements of the LLNL Implementing Procedures for DOE Order 231.1A (Reference A). For a more complete and comprehensive list of definitions related to Occurrence Reporting, see *Attachment I*.

- A. **Event.** Something significant and real-time that happens (e.g., pipe break, valve failure, loss of power, environmental spill, earthquake, tornado, flood).
- B. **Condition.** Any as-found state, whether or not resulting from an *event*, which may have adverse safety, health, quality assurance, security, operational, or environmental implications. A *Condition* is more programmatic in nature; for example, an error in analysis or calculations, an anomaly associated with design or performance, or an item indicating a weakness in the management process are all *Conditions*.
- C. **Discovery.** The point in time when an *event* or *condition* is discovered. This might be the time that a sprinkler activates, an earthquake occurs, it is realized that a safety analysis is incorrect, or an injured person will be hospitalized for more than 48 hours, etc.
- D. **Categorization.** The process of verifying that an *event* or *condition* is a *reportable occurrence* and selecting at least one of the Groups and Sections from *Attachment II* of this procedure. This process may necessitate gathering additional information, consulting with the ORO, and holding discussions with Hazards Control and/or EPD.
- E. **Cognizant AD.** The Cognizant Associate Director (AD) is the AD who will determine the causes of an *event* or incident, recommend the corrective actions, and submit update and final reports. (See *Paragraph 8.A.(2), Line Management.*)
- F. **Facility.** Any equipment, structure, system, process, or activity that fulfills a specific purpose. Examples include accelerators; storage areas; fusion research devices; nuclear reactors, production or processing plants; coal conversion plants; magneto hydrodynamics experiments; windmills; radioactive waste disposal systems and burial grounds; environmental restoration activities; testing

laboratories; research laboratories; transportation activities; and accommodations for analytical examinations of irradiated and unirradiated components. For the purpose of implementing DOE Order 231.1A, LLNL, including Site 300, is considered to be one *Facility*.

- G. **DOE Facility Representative.** For each major facility or group of lesser facilities, an individual or his/her designee is assigned responsibility by the Head of the Livermore Site Office of NNSA for monitoring the performance of the facility and its operations. This individual should be the primary point of contact with the Laboratory and will be responsible to the Head of the Livermore Site Office for implementing the requirements of DOE Order 231.1A (Reference A). The Manager, Livermore Site Office (LSO/NNSA), has designated DOE Facility Representatives for all LLNL facilities. The Manager has also designated Livermore Site Office Duty Officers for LLNL, and they are the NNSA Facility Representative designees for the purpose of receiving initial LSO oral notifications and being available at all times in accordance with the requirements of Paragraph 5.b.v. of DOE Order 231.1A and Paragraph 4.5 of DOE Manual 231.1-1A.
- H. **Facility Manager.** That individual or designee who has direct line responsibility for operation of a *facility*, or group of lesser facilities, including authority to direct physical changes to the facility. The Laboratory Director is the LLNL *Facility Manager*. For Operational Emergencies the on-duty Laboratory Emergency Duty Officer (LEDO) is the duly authorized designee of the LLNL Facility Manager for ensuring that initial identification, categorization and reporting provisions of DOE O 151.1A are carried out. The on-duty Occurrence Reporting Duty Officer is the duly authorized designee of the LLNL Facility Manager for the actual submission of DOE/NNSA oral notifications and initial written notification reports as required by DOE Order 231.1A. The Occurrence Reporting Duty Officer is also responsible for assisting line management in categorization. The facility AD and his or her line managers are the duly authorized designees of the LLNL Facility Manager for the identification of abnormal *events* and *conditions*, categorization of occurrences, and preparation of the initial Notification Reports. The cognizant facility AD shall prepare Update and Final Reports for *occurrences* in his or her respective buildings, facilities, or operations. The cognizant AD is also responsible for identifying, tracking, and closing all corrective actions identified in Final Occurrence Reports. The ORO Administrator and the ORO Duty Officers are the LLNL Facility Manager designees for the transmission of all reports into the DOE Occurrence Reporting and Processing System (ORPS).
- I. **Notification Report.** The initial documented report to DOE of an *event* or *condition* that meets the site-specific reporting criteria defined in *Attachment II* to this procedure.
- J. **Occurrence Report.** A documented evaluation of an *event* or *condition* that is prepared in sufficient detail to enable the reader to assess its significance, consequences, or implications and to evaluate the actions being proposed or employed to correct the condition or avoid recurrence.
- K. **Reportable Occurrence.** *Events* or *conditions* to be reported in accordance with the criteria defined in *Attachment II* to this procedure.

7. Policy

It is the policy of the Laboratory to encourage a positive attitude toward reporting occurrences and to encourage all employees to bring to the attention of his or her line supervisor events or conditions that are not planned or typical of normal operations. Specifically, it is Laboratory policy to ensure:

- A. The timely identification, categorization, notification, and reporting to Laboratory management of all Reportable Occurrences (see *Attachment II*) at the Laboratory or resulting from Laboratory-controlled operations;
- B. The timely reporting by management to the Laboratory ORO, Occurrence Reporting Duty Officer, and the LEDO those events or conditions that meet the definition of a Reportable Occurrence (see *Attachment II*);
- C. Maintenance of a centralized Laboratory ORO for the transmission of all reports into ORPS and for maintaining a centralized file containing hard copies of all Laboratory Occurrence Reports and supporting information in consonance with the provisions of DOE Order 231.1A and DOE Manual 231.1-2;
- D. The timely submission of Notification, Update, and Final Occurrence Reports in accordance with the requirements set forth in *Section 8*, below, and the timely evaluation and implementation of appropriate corrective actions; and
- E. The review of reportable occurrences to assess significance, root causes, generic implications, and the need for corrective actions and the dissemination of applicable information throughout the Laboratory to prevent similar occurrences.

8. Implementation Requirements And Reporting Process

A. Responsibilities

- (1) Occurrence Reporting Office (ORO) — A Laboratory ORO has been established to provide a single point of contact for the Laboratory on all aspects of occurrence reporting. The ORO is responsible for providing assistance to Laboratory line management and the LEDO in the categorization of events and in making initial notifications to the LSO and/or the DOE Headquarters Operations Center (OC), and Laboratory senior management. The ORO shall maintain a Duty Officer (see the current “LLNL Emergency Contact Roster,” published weekly) who is on call 24 hours per day in order to meet the requirement of DOE Order 231.1A (Reference A), which calls for the Facility Manager or Facility Manager designee to be available at all times to carry out occurrence reporting. Further, the ORO is responsible for providing access to the DOE Occurrence Reporting and Processing System (ORPS) database. The ORO is also responsible for providing documentation of changing reporting requirements and promulgation of necessary changes to the LLNL Occurrence Reporting Implementing Procedures; providing training for designated Laboratory employees and supervision in reporting requirements and procedures; providing the centralized repository for all supporting information pertaining to each occurrence report; providing directorates with information related to due dates on written reports and corrective actions; notifying them when a Final Report has been rejected; and providing distribution of reportable occurrence information to the Environmental, Safety & Health (ES&H) Working Group for sharing and discussion, and the Laboratory Assurance Review Office for analysis and trending.
- (2) Line Management — The responsibility for initial reporting of occurrences is assigned to the facility AD having direct responsibility for the affected work area of the occurrence.
 - Within buildings/facilities, the facility AD has primary responsibility for reporting occurrences.

- Outside of buildings/facilities, the AD for Safety and Environmental Protection is responsible as the “facility AD” for Environmental Protection. The AD for Laboratory Services is the facility AD for the infrastructure including plant services and utilities.
- For vehicle occurrences, the Program AD of the driver shall make the initial report.

After initial reporting requirements have been met, the facility AD shall transfer reporting responsibility to the AD conducting the particular operation that caused the event (if that AD is different from the facility AD). It is the responsibility of every organization, in whatever capacity, to promptly report events and conditions to the facility AD’s assurance office, and to cooperate in developing the necessary information for an occurrence report. The cognizant AD, or others as delegated by him or her, will comply with the detailed reporting requirements outlined below, ensuring the timeliness and completeness of reports and the follow up and closure of action items identified in their reports.

- (3) ES&H Working Group — The ES&H Working Group will review occurrence reporting information, provided by the ORO, and trending information provided by the Laboratory Assurance Review Office. The ES&H Working Group may disseminate to appropriate Laboratory personnel operations information obtained from the ES&H Working Group’s review in order to reinforce good practices and avoid events and conditions that could lead to further reportable occurrences or degradation of operations.
- (4) Assurance Review Office — The Laboratory Assurance Review Office (ARO) will review Laboratory occurrence reporting information and occurrence reports from other similar DOE contractors (e.g., Los Alamos National Laboratory, Sandia National Laboratories, and Lawrence Berkeley Laboratory) in order to develop trending information and obtain lessons learned that may benefit Laboratory operations. Trend analysis and lessons learned information will be brought to the attention of the ES&H Working Group and appropriate Laboratory management in semi-annual reports. In addition, the ARO, in accordance with paragraph 5.8 of DOE M 231.1-2, will conduct performance analysis and identification of LLNL recurring occurrences and non-reportable events in order to prevent serious events from occurring.

B. Event or Condition Identification

- (1) Laboratory personnel shall take appropriate immediate action to stabilize and/or place the facility/operation/situation in a safe condition. In addition, actions should be taken to preserve conditions for continued investigation; however, these actions are not to interfere with establishing a safe condition.
- (2) The facility staff and operators shall, upon identification of an abnormal or suspected abnormal event or condition, promptly notify the facility line management of the event or condition and/or archive all pertinent information to include details concerning the discovery of the occurrence and actions taken to stabilize or place the facility/operation/situation in a safe condition.
- (3) Line management should contact the ORO as soon as any potential reportable occurrence is identified to alert them to the possibility that occurrence report notifications will need to be made. As soon as categorization has been made, line management will contact the LEDO and the ORO/ORO Duty Officer with the information needed to make any initial oral notifications.

- C. Event or Condition Categorization.** The facility AD's line management is responsible for ensuring that all events or conditions not categorized as Operational Emergencies, are categorized within **two hours** of discovery by the cognizant facility staff in accordance with the Site-Specific Reportable Occurrences set forth in *Attachment II*. If categorization is not clear, then the occurrence shall be categorized initially at the higher level being considered and appropriate notifications made. The occurrence categorization shall be either elevated, maintained, or lowered as further information is made available.

There are six categories of reportable occurrences that require prompt reporting to Laboratory management and NNSA/DOE: They are: Operational Emergencies (OE), Significance Category 1, Significance Category R (Recurring), Significance Category 2, Significance Category 3, and Significance Category 4. *Attachment II* contains listings of LLNL site-specific events or conditions which constitute SC1, SCR, SC2, SC3 and SC4 occurrences. These are intended to assist line management in properly categorizing a reportable occurrence. The LEDO, Laboratory ORO, or the ORO Duty Officer will assist line management, as needed, in categorizing occurrences.

Reportable occurrences are organized in ten groups. They are: Group 1, Operational Emergencies; Group 2, Personnel Safety and Health; Group 3, Nuclear Safety Basis; Group 4, Facility Status; Group 5, Environmental; Group 6, Contamination/Radiation Control; Group 7, Nuclear Explosive Safety; Group 8, Transportation; Group 9, Noncompliance Notifications; and Group 10, Management Concerns/Issues. See Attachment II, "Table of Site-Specific Reportable Occurrences by Group", for further details on what is to be reported.

NOTE: For **EMERGENCIES**, the requirements for the initial and follow-up notifications to NNSA/DOE and other agencies and the appropriate emergency responses to be taken are provided in DOE Order 151.1A (Reference B). The specific procedures on how these events are categorized and how and when DOE is notified are set forth in the LLNL Emergency Plan. If an event is declared an Emergency, the Incident Commander, LEDO/Emergency Director (ED) or the Emergency Operations Center, assisted by the ORO Duty Officer, will categorize the event and make the initial and follow-up oral notifications to NNSA/DOE and other agencies. The facility AD will be responsible for the written notification report and for the completion of all other written reporting requirements described below.

NOTE: For **Significance Category R (Recurring)**, no prompt verbal notification is required, however, written notification is required by one hour prior to the close of business the next working day.

To assist in the categorization, each AD shall develop and maintain a listing of the Safety Class Structures, Systems, and Components (SSC) for its nuclear facilities and Safety Significant SSC for its nuclear facilities based upon the definitions contained in *Attachment I* to these procedures for Safety Class SSC and Safety Significant SSC.

- D. Notifications.** The emphasis for both oral and written notification reports shall be on providing clear and succinct descriptions of the occurrence, brief and concise descriptions of the operating conditions at the time of the occurrence, and the immediate actions taken, including results, if known.

NOTE: Consider the classification implications of the information that you are developing - see *Paragraph 8.D.(4)*. Requirements for oral and written notification reports are as follows:

- (1) Oral Notifications — Line management is responsible for the timely notification of the LEDO and the ORO/ORO Duty Officer once the occurrence is categorized and for providing sufficient information to make the initial oral notification to NNSA/LSO and DOE Headquarters (HQS) as indicated below (Note: The actual calls will be made by the ORO/ORO Duty Officer.).

EMERGENCY — Notifications will be made by the Incident Commander, LEDO/ED, Emergency Management Center in accordance with the provisions of the LLNL Emergency Plan as discussed in *Paragraph 8.C*, above.

- (2) Prompt Notifications for Significance Category 1, 2, 3, and 4 Reportable Occurrences

- a. The Laboratory must notify the NNSA/LSO Duty Officer and the DOE Headquarters Operations Center (DOE HQ OC), as required, of the following reportable occurrences as soon as practical (i.e., promptly), but no later than 2 hours after categorization:
- 1) All Significance Category 1 occurrences require a prompt notification to the NNSA LSO Duty Officer, and DOE HQ OC.
 - 2) All Significance Category 2 occurrences require a prompt notification to the NNSA LSO Duty Officer and, if directed by the NNSA/LSO Duty Officer, to the DOE HQ OC.
 - 3) All Significance Category 3 occurrences require a prompt notification to the NNSA LSO Duty Officer.
 - 4) Additionally, specific Significance Category 2, 3, and 4 occurrences (identified as requiring prompt notification with an asterisk in the reporting criteria listed in *Attachment II*) require prompt notification to the NNSA LSO Duty Officer, and DOE HQ OC.

- (3) Follow-up Oral Notification. In addition to the initial oral notifications outlined in *Paragraph 8.D.(1)*, above, follow-up oral notification shall be made as follows:

- a. If the occurrence is re-categorized, then the occurrence must be reconsidered for prompt notification. If appropriate, the LLNL ORO/ORDO must notify the NNSA LSO Duty Officer and the DOE HQ OC as soon as practical, but within the prompt notification time requirements of the new Significance Category for the re-categorized occurrence and provide the Occurrence Report number. The DOE HQ OC will make any required internal DOE HQ notifications;
- b. Follow-up notifications must be made to DOE for any further degradation in the level of safety or impact on the environment, health, or operations of the facility or other worsening conditions subsequent to the previous notification. If a degradation results in upgrading the event to an Operational Emergency, the DOE HQ OC must be notified in accordance with DOE O 151.1A, *Comprehensive Emergency Management System*. (See **EMERGENCY** above).

- (4) The notification process shall be conducted as follows:

- a. The Facility Manager, or Facility Manager Designee (i.e., ORDO) must e-mail the prompt notification of the reportable occurrence to the DOE HQ OC, and follow up with a phone call to the DOE HQ OC to ensure receipt of the e-mail.

- b. The Prompt Notification must clearly state/select the Significance Category (1, 2, 3, or 4) and identify the specific reporting criteria associated with the occurrence.
 - c. Prompt Notification to the DOE HQ OC must include information on the following items:
 - 1) Occurrence Significance Category
 - 2) Location and description of the event
 - 3) Date and time of discovery
 - 4) Damage and casualties
 - 5) Impact of event on other activities and operations
 - 6) Protective actions taken or recommended
 - 7) Weather conditions at the scene
 - 8) Level of media interest at scene/facility/site.
 - 9) Other notifications made
 - d. All information should be clear and succinct. Avoid jargon. Uncommon or site/facility-specific abbreviations and acronyms should be fully described.
 - e. The Facility Manager must follow the appropriate security procedures if the notification to DOE may contain classified or sensitive information.
- (5) Written Notification Reports. For all occurrences, line management shall ensure that a written Notification Report is submitted in accordance with the following schedule:
- a. Reports for Operational Emergencies and Significance Category 1 Occurrences shall be submitted to the ORO at least one hour before the close of the next working day from the time of categorization (not to exceed 80 hours).
 - b. Reports for Significance Categories R and 2 Occurrences shall be submitted to the ORO at least one hour before the close of the next working day from the time of categorization.
 - c. Reports for Significance Category 3 Occurrences shall be submitted to the ORO at least one hour before the close of the second business day from time of categorization.
 - d. Reports for Significance Category 4 only require a Short Form Report (Items 1-30 PLUS Item 35), which shall be submitted to the ORO one hour before the close of the second business day from time of categorization. No further reports are required other than the Notification Report.

Any changes in the reporting criteria of the occurrence, which result in a change, either lower or higher, to the Significance Category, must be documented in an Update Report and submitted within the timeframe required for the Notification Report under the new Significance Category. A discussion on the change in categorization must be included in the Description of Occurrence field in the Update Report.

- (6) Classification Requirements. Occurrence reports that are the result of events or conditions in facilities/buildings or operations wherein classified information may be generated must be reviewed by an Authorized Derivative Classifier (ADC) prior to being submitted to the ORO for entry in ORPS. The ADC will check the appropriate box in item 14 and complete item 15 of the LLNL Occurrence Report Form (see *Attachment IV* of these procedures), and affix her/his signature after the statement indicating that the report has been reviewed and determined to be unclassified. Reports that contain administrative information only or originate in a Designated Unclassified Subject Area (DUSA) shall be so identified by marking the appropriate box in item 15 of the LLNL Occurrence Report Form. The originator shall affix her/his signature after the appropriate statement.

NOTE: One of the three boxes relating to the possible content of classified information on the LLNL form must be checked and a signature affixed). Field 16 must also be completed on all reports indicating that the report does not contain Unclassified Controlled Nuclear Information (UCNI). No classified or UCNI should be entered in ORPS or transmitted via unsecured communications.

If an Occurrence Report must contain classified information or UCNI, it cannot be entered in ORPS. A hardcopy report must be generated and distributed to the NNSA LSO Facility Representative and DOE/NNSA Program Manager. An unclassified version of the Occurrence Report shall then be generated, reviewed by an ADC and the LLNL Classification Office, and then entered into the ORPS. Contact the ORO for further guidance and assistance in the event a classified Occurrence Report needs to be prepared. All classified Occurrence Reports should be delivered to NNSA/LSO Classified Document Control Center (CDCC), in care of the appropriate Facility Representative.

- E. Occurrence Investigation and Analysis. The *LLNL ES&H Manual*, Document 4.5 (Reference C), sets forth LLNL policy and procedures for the notification, analysis, and reporting of all incidents. The policy and procedures outlined therein are also applicable to occurrence reporting and consistent with these implementing procedures. The procedures outlined in the *LLNL ES&H Manual* (Reference C) for preserving the incident scene and conducting incident analysis shall be followed in the investigation and analysis of all reportable occurrences. The investigative process is used to gain an understanding of the occurrence, its causes, and the corrective actions necessary to prevent recurrence.

DOE Order 5480.19, "Conduct of Operations Requirements for DOE Facilities" (Reference D), and DOE-STD 1045-93, "Guide to Good Practices for Notification and Investigation of Abnormal Events" (Reference D), should also be considered when conducting the investigation of reportable occurrences. In some occurrences, especially those requiring the establishment of an "Incident Analysis Committee," as set forth in Paragraph 3.4 of Document 4.5 of the *LLNL ES&H Manual* (Reference C), the use of one or more of the formal analytical models discussed in DOE-NE-STD-1004-92, DOE Guideline, "Root Cause Analysis Document" (Reference D), should be considered.

For Operational Emergencies, in general, the investigation, problem analysis, and corrective action process should parallel the process for Significance Category 1 occurrences. However, the Facility Manager should consider a graded approach when determining the level of effort for the investigation into the cause of the Operational Emergency. The graded approach is based on whether the Operational Emergency was directly caused by DOE operations or resulted from non-DOE operations or natural phenomena. For example, investigations of an Operational Emergency involving the release of hazardous materials might require an accident investigation or the assembly of a team of investigators and subject matter experts. Investigation of an Operational Emergency

resulting from a DOE facility being required to implement protective actions because a non-DOE activity offsite released hazardous materials or an Operational Emergency resulting from an earthquake may not require root cause determination because the initiating event was clearly beyond DOE's control.

All causes must be identified as required in the Occurrence Reporting Model (*Attachment VI*) and included in the occurrence report. The cause codes to be used for reporting are provided in the Causal Analysis Tree (*Attachment VI*). Guidance on selecting the appropriate cause code is provided in DOE G 231.1-2, *Occurrence Reporting Causal Analysis Guide*. The Cause Description field should include a brief discussion to clearly link the event to the cause code(s). For those occurrences that require a formal root cause analysis, any of the Laboratory-approved root cause analysis methodologies are permitted. The methodology used must be included in the Cause Description field of the occurrence report. In addition to determining the causes of the occurrence, any weaknesses in the facility's implementation of the ISM program must be identified and entered in the ISM field, as discussed in DOE G 231.1-1, *Occurrence Reporting and Performance Analysis Guide* (Reference D).

F. Subsequent Written Reports. Line management is responsible for the timely submission of Update and Final Occurrence Reports. These written reports shall be prepared using the occurrence report instructions and format contained in *Attachments III & IV* to these procedures. Requirements for the submission of these subsequent written reports are as follows:

- (1) Update Reports. An Update Report shall be submitted to the ORO if there is any significant and new information about the occurrence, to include the status of the investigation. Recurring consequences or the identification of additional component defects, resulting from the occurrence investigation, are activities associated with the occurrence and shall be included in Update Reports.

If the required analysis cannot be completed within 45 calendar days after initial categorization, an Update Report must be submitted within the 45 days. The Update Report must provide a detailed explanation of the delay and provide an estimated date for submittal of the Final Report. This information must be reported in the "Evaluation" block of the Occurrence Report. It is expected that the analysis of most occurrences will be completed and the Final Report submitted within the 45 calendar days. However, for certain occurrences, such as those requiring an accident investigation, it is understood that the information required for the Final Report may not be available within this time. For occurrences resulting in an accident investigation, all causes (direct, contributing, and root) identified in the accident investigation report, as well as the corrective actions developed in response to the judgments of need, must be included in the Final Report.

If the Final Report is not approved by the Facility Representative or the Program Manager, the Facility Representative or Program Manager who is rejecting the report must provide the reason for disapproval in the comment section of the report at the time the action is taken. The revised Final Report must be resubmitted within 21 calendar days of the disapproval. If it cannot be resubmitted within this time, an Update Report must be submitted within the 21 calendar days explaining the delay and providing an estimated date for resubmittal of the Final Report. This information must be reported in the "Evaluation" block of the Occurrence Report.

- (2) Final Reports. A Final Report shall be prepared when the investigation and causal analysis of the occurrence has been completed, corrective action(s) determined and scheduled, and lessons-learned identified. (Note: it is not necessary to complete corrective actions before

submitting a Final Report.) The Final Report shall be submitted to the ORO at least 1 hour before the end of the 45th calendar day from categorization. Final Reports must be signed by the cognizant AD or his/her designee prior to submission to the ORO.

If the Final Report cannot be completed within the 45 calendar day period, an Update Report must be prepared and submitted as specified in *Paragraph 8.F.(1)* above.

If a "Corrective Action" cannot be completed by the original target date, the target completion date must be extended by the ORO with the appropriate justification from the cognizant AD or his/her designee.

This extension must be requested before the original target date established in the Final Report.

Corrective Action completion dates for Final Occurrence Reports must be submitted to the ORO for updating Final Occurrence Report Corrective Actions on the ORPS database. Line Management is responsible for tracking corrective actions to completion and notifying the ORO of their status.

- (3) Classification Requirements. Update and Final Occurrence Reports shall be reviewed and marked as indicated in *Paragraph 8.D.(6)* above. All Occurrence Reports must have one of the three statements in item 14 of the format (*Attachment IV*) marked and have item 16 completed.

In addition to the above requirements, all Final Occurrence Reports must receive an additional review by the LLNL Classification Office after they have been reviewed by an ADC and determined to be unclassified, before being submitted to the ORO.

- G. Utilization of Reportable Occurrence Information.** Line management should use the information obtained in the generation of occurrence reports to identify and correct deteriorating conditions. In addition, they should share this information with other organizations at the Laboratory through the ES&H Working Group as indicated in *Paragraph 8.A.(3)* above.

The ES&H Working Group will periodically review and discuss occurrence reporting information in order to reinforce good practices and avoid events and conditions that could lead to further reportable occurrences or degradation of operations. This information will be disseminated to appropriate Laboratory personnel as necessary (see *Paragraph 8.A.[3]*).

The Assurance Review Office will review occurrence reports from this Laboratory and other DOE contractors in order to identify trends, lessons learned, and good practices which may benefit Laboratory operations. This information will be provided to the ES&H Working Group, appropriate Laboratory management, and/or specific organizations that would benefit from it. (See *Paragraph 8.A.[4]* above.)

- H. Training.** Training programs shall be established to assist in carrying out the Laboratory's Occurrence Reporting Implementing Procedures. Responsibilities for these programs are as follows:

- (1) Occurrence Reporting Office. The ORO shall establish a training course, EM-2010, which indoctrinates personnel in the philosophy of occurrence reporting as outlined in DOE Order 231.1A (Reference A) and in the requirements of these Implementing Procedures. This course will be made available to Laboratory personnel on an "as-needed" basis. Submit a completed Course Registration Form (see current edition of the LLNL Course Catalog Bulletin) to your payroll department training coordinator.

If an organization wants to have a session of EM-2010 conducted for its personnel, and has 15 or more students and a suitable facility with a viewgraph projector, the organization should contact the ORO (ext. 28966), or a memo to L-388).

The ORO is responsible for providing the Laboratory's centralized link to the DOE ORPS. However, Laboratory organizations can have access to ORPS as "General Users" in order to review occurrence reporting information, corrective action due dates, etc. Training courses are available through DOE on the ORPS. Contact the ORO for details regarding establishing an ORPS "General User" data link and/or and ORPS user training course.

Line Management. Line management is responsible for ensuring that sufficient personnel are trained in the requirements of these Implementing Procedures so that reportable occurrences can be categorized promptly, and that reports can be properly completed in the time frames specified. DOE Guide, DOE G 231.1-2, 08-20-03, "Occurrence Reporting Causal Analysis Guide," (Reference D) should be considered as the basis for analyzing cause(s); detailed training, EM2011, in causal analysis and utilization of the Causal Analysis Tree (see *Attachment VI*) is also available from Hazards Control.

For reportable occurrences in Significance Category OE, 1, R, and 2, an LLNL trained investigator must be a part of the investigation and causal analysis process.

For Significance Category 3 reportable occurrences, the determination of the apparent cause must be done by an individual who is either an LLNL Trained Investigator or has successfully completed both EM2010 and EM2011.

Attachment I

LLNL IMPLEMENTING PROCEDURES

GENERAL INFORMATION

The facility AD is responsible for ensuring that an event or condition is categorized. The categorization shall be made as soon as practical and, in all cases, within **two hours** of identification as a reportable occurrence.

The *Attachment II* listing of LLNL site-specific events or conditions is intended to assist management in properly categorizing a reportable occurrence. The listing is divided into ten major groups to assist users in quickly identifying potentially reportable occurrences. These are: (1) Operational Emergencies; (2) Personnel Safety; (3) Nuclear Safety Basis; (4) Facility Status; (5) Environmental; (6) Contamination/Radiation Control; (7) Nuclear Explosive Safety; (8) Transportation; (9) Noncompliance Notifications; and (10) Management Concerns/Issues.

If categorization is not clear, the occurrence shall be categorized initially at the higher level being considered. A change in categorization to a lower level can be made by submitting an Update Report with justification as to the change in category. For a change in categorization, an Update Report must be submitted to the ORO in accordance with paragraph 8F. of the Implementing Procedures.

For assistance in categorization, contact the LEDO, Laboratory Occurrence Reporting Office (ORO) or the ORO Duty Officer.

NOTE: For **EMERGENCIES**, the requirements for the initial and follow-up notifications to DOE and other agencies and the appropriate emergency responses to be taken are provided in DOE Order 151.1A (Reference B). See Paragraph 8.C. of the Implementing Procedures.

DEFINITIONS

The following is a list of definitions designed to avoid confusion in using *Attachments II, III, & IV* and to avoid repetition in the body of the procedures.

1. **Business Day.** The normal administrative day of the reporting organization (*e.g.*, Monday through Friday, 0800 to 1700) during which normal work activities are conducted. It is not meant to encompass the 24 hours in a day, even if the facility is operated or maintained on a 24-hour basis.
2. **Condition.** Any as-found state, whether or not resulting from an event, that may have adverse safety, health, quality assurance, operational or environmental implications. A condition is usually programmatic in nature; for example, errors in analysis or calculation; anomalies associated with design or performance; or items indicating a weakness in the management process are all conditions.
3. **Discharge.** Includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil, but excludes discharges in compliance with a permit under Chapter 402 of the Clean Water Act (CWA); discharges resulting from circumstances identified and reviewed and made a part of the public record with respect to a permit issued or modified under Chapter 402 of the CWA and subject to a condition in such permit; or continuous or anticipated intermittent discharges

from a point source, identified in a permit or permit application under Chapter 402 of the CWA, that are caused by events occurring within the scope of relevant operating or treatment systems.

4. **Discovery Date and Time.** The discovery date and time is when the facility staff discovered or became aware of the event or condition. The facility staff is those personnel assigned to the facility and cognizant of the area in which the event or condition is identified.
5. **Dose Equivalent.**
 - a. **Committed Dose Equivalent** — The predicted total dose equivalent to a tissue or organ over a 50-year period after a known intake of a radionuclide into the body. It does not include contributions from external dose. (See DOE O 5400.5 for further definitions.)
 - b. **Committed Effective Dose Equivalent (CEDE)** — The sum of the committed dose equivalents to various tissues in the body, each multiplied by the appropriate weighting factor. (See DOE O 5400.5 for further definitions.)
 - c. **Effective Dose Equivalent** — The summation of the products of the dose equivalent received by specified tissues of the body and a tissue-specific weighting factor. (See DOE O 5400.5 for further definitions.)
 - d. **Total Effective Dose Equivalent (TEDE)** — The sum of the effective dose equivalent for external exposures and the committed dose equivalent for internal exposures.
6. **Event.** Something significant and real-time that happens (e.g., pipe break, valve failure, loss of power, environmental spill, earthquake, tornado, flood).
7. **Facility.** Any equipment, structure, system, process, or activity that fulfills a specific purpose. Examples include accelerators, storage areas, fusion research devices, nuclear reactors, production or processing plants, coal conversion plants, magnetohydrodynamic experiments, windmills, radioactive waste disposal systems and burial grounds, environmental restoration activities, testing laboratories, research laboratories, transportation activities, and accommodations for analytical examinations of irradiated and unirradiated components.
8. **Facility Manager.** That individual, or designee, usually but not always, a contractor, with direct line responsibility for operation of a facility or group of related facilities, including authority to direct physical changes to the facility. For purposes of this Manual, a Facility Manager could also be responsible for a program or activity.
9. **Facility Representative.** For each major facility or group of lesser facilities, an individual or designee assigned responsibility by the Head of Field Element/Operations Organization (including NNSA) for monitoring the performance of the facility and its operations. This individual should be the primary point of contact with the facility operating personnel and will be responsible to the appropriate Secretarial Officer/Deputy Administrator (NNSA) and Head of Field Element/Operations Organization for implementing the requirements of this Manual.
10. **Federally Permitted Release.** Any release that satisfies the definition of “federally permitted release” in 40 CFR 302.3.
11. **Hazardous Substance or Material.**
 - a. **Department of Energy - Hazardous Material** — Any solid, liquid, or gaseous material that is chemically toxic, flammable, radioactive, or unstable upon prolonged storage, and that exists in quantities that could pose a threat to life, property, or the environment.

- b. Department of Transportation — Hazardous Materials (see 49 CFR 171.8 and 172.101). A substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated.
 - c. Comprehensive Environmental Response, Compensation and Liability Act Hazardous Substances (see 40 CFR 302).
 - d. Occupational Safety and Health Administration (OSHA) Hazardous Chemical (see 29 CFR 1910.1000 and 29 CFR 1910.1200). Any chemical which is a physical or a health hazard.
 - e. Superfund Amendments and Reauthorization Act Title 3 Extremely Hazardous Substances (see 40 CFR 355). These are not defined but appear on lists in Appendix A and Appendix B of 40 CFR 355.
- 12. Item.**
- a. An all-inclusive term used in place of the following: appurtenance, sample, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, system, unit, or support systems, documented concepts, or data.
 - b. When used in reference to nuclear material, a visible, single piece or container of nuclear material with a unique identification and known nuclear material mass.
- 13. Lessons Learned.** A “good work practice” or innovative approach that is identified and shared, or an adverse work practice or experience that is shared to avoid recurrence.
- 14. Member of the Public.** Persons who are not occupationally associated with DOE facilities or operations; (i.e., persons whose assigned occupational duties do not require them to enter the DOE site).
- 15. Non-Reportable Event.** An event that falls within the ORPS Reporting Groups, does not exceed any of the specific ORPS Reporting Criteria, and the reporting organization has determined to be included in the required ORPS Performance Analysis activity.
- 16. Notification Report.** The initial documented report, to the Department, of an event or condition that meets the reporting criteria defined in this Manual.
- 17. Occurrence.** One or more (*i.e.*, recurring) events or conditions that adversely affect, or may adversely affect, DOE (including NNSA) or contractor personnel, the public, property, the environment, or the DOE mission. Events or conditions meeting the criteria thresholds identified in this Manual or determined to be recurring through performance analysis are occurrences.
- 18. Occurrence Investigation.** An investigation conducted according to site-specific procedures and/or when determined by DOE procedures that a Type A or B investigation is required.
- 19. Occurrence Report.** A documented evaluation of an event or condition that is prepared in sufficient detail to enable the reader to assess its significance, consequences, or implications and to evaluate the actions being proposed or employed to correct the condition or to avoid recurrence.
- 20. Off-Site Transportation Event.** Involves movement of materials that are considered to be in commerce, thus requiring compliance with Department of Transportation Hazardous Materials Regulations.

21. **Oil.** Oil of any kind or in any form, including but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.
22. **On-Site Transportation Event.** Movement of materials not in commerce and subject to DOE onsite procedures and safety requirements.
23. **Performance Degradation.** Failure or degradation of a facility, process, system, or component that reduces the reliability of critical components of the facility whose loss or degradation prevents the system from performing its intended function. Performance degradation does not include: (1) a burned out power indicator light on a piece of radiation monitoring equipment which does not prevent the equipment from detecting elevated radiation levels and alarming as designed; (2) a piece of equipment that is determined to be out of calibration on the conservative side (such as a low level alarm that alarms at a higher value than it should); or (3) the temporary loss of a component where redundant components are maintained operable or in operation and the authorization basis is not compromised.
24. **Personnel Exposure.** An incident of contact or encounter with a hazardous chemical, physical, biological, or energetic agent at one of the exchange boundaries of the organism (*e.g.*, skin, respiratory system, eyes, ears, or digestive system). "Exposure" does not refer to a situation where personnel, protected by appropriate personal protective equipment, are subjected to an environment whose ambient conditions present a harmful level of any one, or combination of, the hazards.
25. **Primary Confinement.** Provides confinement of hazardous material to the vicinity of its processing. This confinement is typically provided by piping, tanks, glove boxes, encapsulating material, and the like, along with any off gas systems that control effluent from within the primary confinement.
26. **Program Manager.** The individual designated by and under the direction of a Secretarial Officer/Deputy Administrator (NNSA), who is directly involved in the operation of facilities under his or her cognizance, and holds signature authority to provide technical direction through Heads of Field Elements/Operations Offices (including NNSA) to operating personnel for these facilities.
27. **Prompt Notification.** Timely reporting of the occurrence to the DOE Field Office and the DOE Headquarters Operations Center as required by the Significance Category and the reporting criteria of the occurrence.
28. **Protective Clothing.** Clothing identified for radiological use such as yellow coveralls, hoods, booties, rubber overshoes, and PC gloves. These are articles designed for radiological use and are removed at the exit of the radiological area. Company supplied coveralls, laboratory coats, modesty clothing, street clothes, or other clothing not identified as anti-contamination clothing (anti Cs) are to be considered personal clothing for the purposes of ORPS reporting.
29. **Release.** Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or otherwise disposing of substances into the environment. This includes abandoning/discarding any type of receptacle containing substances in an unenclosed containment structure but does not include permitted containment structures.
30. **Reportable Occurrence.** Occurrence to be reported in accordance with the criteria defined in this Manual.
31. **Reportable Quantity.** For any Comprehensive Environmental Response, Compensation and Liability Act hazardous substance, including radionuclides and Superfund Amendments and Reauthorization Act Title 3 extremely hazardous substances, with quantities established in 40 CFR Part 302 and Part 355 respectively, release of which requires notification unless Federally permitted.

32. **Safety Class Structures, Systems, or Components (Safety Class SSCs)**. The structures, systems, or components, including portions of process systems, whose preventive or mitigative function is necessary to limit radioactive hazardous material exposure to the public, as determined from safety analyses. (10 CFR 830.3)
33. **Safety Significant Structures, Systems, or Components (Safety Significant SSCs)**. The structures, systems, or components that are not designated as safety class structures, systems, or components, but whose preventive or mitigative function is a major contributor to defense in depth and/or worker safety as determined from safety analyses. (10 CFR 830.3)
34. **Secretarial Officer**. Secretarial Officers are the Secretary, Deputy Secretary, and Under Secretaries; and the Assistant Secretaries and Staff Office Directors reporting to the Secretary either directly or through the Deputy Secretary or Under Secretary. The following designations are also used to identify Secretarial Officers with specific responsibilities in various areas. (1) A Program Secretarial Officer (PSO) is an Assistant Secretary, Office Director, or NNSA Deputy Administrator. In the context of field operations, a PSO funds work at a particular site, facility or laboratory and is a “customer” of the field office. (2) A Lead Program Secretarial Officer (LPSO) is a PSO to whom designated field offices directly report and who has overall landlord responsibilities for the assigned direct reporting elements. (3) A Cognizant Secretarial Officer (CSO) is a term used in the context of field operations to designate a PSO, not the LPSO, who is responsible for a laboratory or bounded set of facilities within a field office’s jurisdiction.
35. **Technical Safety Requirements (TSRS)**. The limits, controls, and related actions that establish the specific parameters and requisite actions for the safe operation of a nuclear facility and include, as appropriate for the work and the hazards identified in the documented safety analysis for the facility: safety limits, operating limits, surveillance requirements, administrative and management controls, use and application provisions, and design features, as well as a bases appendix. (10 CFR 830.3)
36. **Trained Investigator**. An individual who has been qualified by LLNL to investigate incidents. Individuals qualified as Trained Investigators receive the HS9200-Q “Trained Investigator Qualification” designation in their official LTRAIN training records. An individual is eligible to be designated as an LLNL Trained Investigator once they have successfully completed the following three courses (or HCD approved equivalents): EM2010 Occurrence Reporting, EM2011 Apparent Cause training for Occurrence Report Writing, and HS0007 Incident Analysis. Trained Investigators are also able to satisfactorily complete the identification of Apparent Causes associated with an occurrence using the Causal Analysis Tree.
37. **Transportation Event**. Any real-time occurrence involving any of the following transportation activities: materials classification, packaging, marking, labeling, placarding, temporary storage incident to transport, shipping paper preparation, loading/unloading, separation/segregation, securing, blocking and bracing, routing, accident reporting, driver and vehicle qualifications, movement of materials, communications and notifications.
- Transportation events with injuries or fatalities may also require reporting in accordance with Group 2 criteria.
38. **Unreviewed Safety Question (USQ)**. A situation where (1) the probability of the occurrence or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the documented safety analysis could be increased, (2) the possibility of an accident or malfunction of a different type than any evaluated previously in the documented safety analysis could be created, (3) a margin of safety could be reduced, or (4) the documented safety analysis may not be bounding or may be otherwise inadequate. (10 CFR 830.3)

Attachment II

TABLE OF SITE-SPECIFIC REPORTABLE OCCURRENCES BY GROUP

The following pages, set forth by Group, are those events and/or conditions that have been established by LLNL as reportable occurrences. Use the group headings to assist in identifying the Significance Category of the reportable event or condition. If an event or condition is not listed, but may be considered to be reportable, contact the Occurrence Reporting Office or the Occurrence Reporting Duty Officer for assistance or clarification.

NOTE: Those events or conditions that are listed with an asterisk (*) require prompt notification – see paragraph 8.D.(2) on page 6 and Attachment VI.

SITE-SPECIFIC REPORTABLE OCCURRENCES BY GROUP**GROUP 1 OPERATIONAL EMERGENCIES*****Require prompt notification to DOE HQ OC.**

#	SC	Criterion
(1)	*OE	An Operational Emergency not needing further classification. (Defined in DOE 151.1A, Chapter 5, Paragraph 2)
(2)	*OE	An Alert. (Defined in DOE 151.1A, Chapter 5, Paragraph 3a)
(3)	*OE	A Site Area Emergency. (Defined in DOE 151.1A, Chapter 5, Paragraph 3b)
(4)	*OE	A General Emergency. (Defined in DOE 151.1A, Chapter 5, Paragraph 3c)

GROUP 2 PERSONNEL SAFETY AND HEALTH

*Require prompt notification to DOE HQ OC.

A. Occupational Illnesses/Injuries

#	SC	Criterion
(1)	*1	Any occurrence due to DOE operations resulting in a fatality or terminal injury/illness. For fatalities caused by overexposures, the intent of this criterion is to report those caused by acute rather than chronic effects. For fatalities caused by overexposures, the intent of this criterion is to report those caused by acute rather than chronic effects.
(2)	*1	Any single occurrence requiring in-patient hospitalization of three or more personnel.
(3)	2	Any single occurrence resulting in three or more personnel having Days Away, Restricted or Transferred (DART) cases per 29 CFR Part 1904.7.
(4)	*2	Personnel exposure to chemical, biological or physical hazards above limits established by the Occupational Safety and Health Administration (refer to 29 CFR Part 1910) or American Conference of Governmental Industrial Hygienists, whichever is lower, and that requires the administration of medical treatment beyond simple first aid on the same day as the exposure. [29 CFR 1904.7(b)(5)(i) and (ii) define "medical treatment" and "first aid."]
(5)	3	Personnel exposure to chemical, biological or physical hazards above limits established by the Occupational Safety and Health Administration (refer to 29 CFR Part 1910) or American Conference of Governmental Industrial Hygienists.
(6)		Any single occurrence resulting in a serious occupational injury. A serious occupational injury is an occupational injury that: <ul style="list-style-type: none"> (a) Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (b) Results in a fracture of any bone (except simple fractures of fingers, toes, or nose, or a minor chipped tooth); (c) Causes severe hemorrhages or severe damage to nerves, muscles, or tendons; (d) Damages any internal organ; or Causes second- or third-degree burns, affecting more than five percent of the body surface.

***Require prompt notification to DOE HQ OC.**

B. Fires/Explosions

#	SC	Criterion
(1)	*1	Any unplanned fire or explosion within primary confinement/containment boundaries for nuclear or hazardous material within a facility. Note: Facility specific documents need to define what constitutes the primary confinement/containment boundary.
(2)	*2	Any unplanned fire or explosion in a nuclear facility that activates a fire suppression system (e.g., halon discharge, sprinkler heads activating), is extinguished by a fire department, or disrupts normal facility operations. Note: The activation or degradation of Safety Class and Safety Significant fire suppression systems are addressed by Group 4 Criteria.
(3)	*3	Any unplanned fire or explosion in a non-nuclear facility that a) Activates a fire suppression system, b) Takes longer than 10 minutes to extinguish following the arrival of fire protection personnel, or c) Disrupts normal operations in a high hazard facility.
(4)	*4	Any wild land fire (e.g., forest fire, grassland fire) or other fire outside of a DOE facility that has the potential to threaten the facility.

C. Hazardous Energy Control

#	SC	Criterion
(1)	2	Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or disturbance of a previously unknown or mislocated hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas) resulting in a person contacting (burn, shock, etc.) hazardous energy.
(2)	3	Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

GROUP 3 NUCLEAR SAFETY BASIS

***Require prompt notification to DOE HQ OC.**

A. Technical Safety Requirement Violations

#	SC	Criterion
(1)	*1	Any violation of a Hazard Category 1, 2, or 3 nuclear facility’s Technical Safety Requirement (or Operational Safety Requirement) Safety Limit. Note: Safety Limits are high-level Technical Safety Requirement controls, used infrequently across the DOE Complex. As defined in 10 CFR 830.3, a Safety Limit is a limit on process variables associated with those safety class physical barriers, generally passive, that are necessary for the intended facility function and that are required to guard against the uncontrolled release of radioactive materials.
(2)	2	Any violation or noncompliance of a Hazard Category 1, 2, or 3 nuclear facility’s Technical Safety Requirement (or Operational Safety Requirement) Limiting Control Setting, Limiting Condition for Operation, Administrative Control, or Surveillance Requirement. Exception: An event consisting solely of a surveillance test performed after the prescribed surveillance period, and in which the equipment was found to be capable of performing its specified safety function. (See separate criterion for late surveillance tests below.)
(3)	3	Any violation or noncompliance of a hazard control specified in a Hazard Category 1, 2, or 3 nuclear facility’s DOE approved Documented Safety Analysis [issued pursuant to 10 CFR 830.204 and including Basis for Interim Operation (BIO), etc.], or DOE issued Safety Evaluation Report that are not addressed by Criteria 3A(1) and 3A(2). Exceptions: (a) An event consisting solely of a violation of a safety management program (e.g., quality assurance, personnel training) cited in the Documented Safety Analysis. (b) An event consisting solely of a surveillance test performed after the prescribed surveillance period, and in which the equipment was found to be capable of performing its specified safety function. (See separate criterion for late surveillance tests below.)
(4)	4	An event consisting solely of a surveillance test performed after the prescribed surveillance period, and in which the equipment was found to be capable of performing its specified safety function.

B. Documented Safety Analysis Inadequacies

#	SC	Criterion
(1)	2	Determination of a positive Unreviewed Safety Question (USQ) that reveals a currently existing inadequacy in the documented safety analysis [e.g., Safety Analysis Report (SAR) or Basis for Interim Operation (BIO)].
(2)	3	Declaration of a potential inadequacy of the documented safety analysis (a potential positive USQ), per 10 CFR 830.203(g).

C. Nuclear Criticality Safety

#	SC	Criterion
(1)	*1	A loss of multiple nuclear criticality process-condition controls, where processes include operation, transport, and storage of fissionable materials, such that no valid controls are available to prevent a criticality accident.
(2)	2	A loss of one or more nuclear criticality process-condition controls such that an accidental criticality is possible from the loss of an additional process-condition control, where processes include operation, transport, and storage of fissionable materials.

GROUP 4 FACILITY STATUS

NOTE: The criteria below apply to both nuclear and non-nuclear facilities, where applicable.

***Require prompt notification to DOE HQ OC.**

A. Safety Structure/System/Component Degradation

#	SC	Criterion
(1)	3	Performance degradation of any Safety Class or Safety Significant Structure, System, or Component (SSC) that prevents satisfactory performance of its design function when it is required to be operable.
(2)	4	Performance degradation of any Safety Class SSC when not required to be operable.

B. Operations

#	SC	Criterion
(1)	*2	A Stop Work Order issued by a DOE office.
(2)	2	Actuation of a Safety Class Structure, System, or Component (SSC), or its alarms, resulting from an actual unsafe condition. Spurious alarms (e.g., due to electronic noise, radon/thoron decay) should not be reported.
(3)	3	Actuation of a Safety Significant Structure, System, or Component (SSC), or its alarms, resulting from an actual unsafe condition. Spurious alarms (e.g., due to electronic noise, radon/thoron decay) should not be reported.
(4)	3	Any facility evacuation, not including a precautionary evacuation, in response to an actual event. If the event fell under another reporting criterion, then evacuation should be reported as well by noting multiple reporting criteria for the single occurrence.
(5)	4	A facility operational event caused by deviating from a written procedure or using an inadequate procedure resulting in an adverse effect on safety, such as: an inadvertent facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes), facility or operations shutdown due to alarm response procedures, inadvertent process liquid transfer, or inadvertent release of hazardous material from its engineered containment.
(6)	*4	A facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes) directed by management for safety reasons.
(7)	4	A facility or site stand-down resulting from safety reasons reportable as an occurrence or occurrences. Note: This is a secondary reporting criterion and does not require a separate occurrence report.
(8)	4	Any event or condition that would prevent immediate facility or offsite emergency response capabilities.

*Require prompt notification to DOE HQ OC.

C. Suspect/Counterfeit and Defective Items or Material

#	SC	Criterion
(1)	3	Discovery of any suspect/counterfeit item or material found in a Safety Class or Safety Significant Structure, System, or Component (SSC). A suspect item or material is one whose documentation, appearance, performance, material, or other characteristics may have been misrepresented by the vendor, supplier, distributor, or manufacturer. A counterfeit item or material is one for which sufficient evidence exists that deliberate misrepresentation has occurred.
(2)	4	Discovery of any suspect/counterfeit item or material other than office supplies, office equipment, or household products.
(3)	4	Discovery of any defective item or material, other than a suspect/counterfeit item or material, in any application whose failure could result in a loss of safety function, or present a hazard to public or worker health and safety. A defective item or material is any item or material that does not meet the commercial standard or procurement requirements as defined by catalogues, proposals, procurement specifications, design specifications, testing requirements, contracts, or the like. It does not include parts or services that fail or are otherwise found to be inadequate because of random failures or errors within the accepted reliability level.

GROUP 5 ENVIRONMENTAL

***Require prompt notification to DOE HQ OC.**

A. Releases

#	SC	Criterion
(1)	*2	Any release (onsite or offsite) of a hazardous substance, material, waste, or radionuclide from a DOE facility, that is above permitted levels and exceeds the reportable quantities specified in 40 CFR 302 or 40 CFR 355.
(2)	2	Any discharge that exceeds 100 gallons of oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. For operations involving oil field crude or condensate, any discharge of 100 barrels or more is reportable under this criterion
(3)	4	Any release (onsite or offsite) of a hazardous substance, material, waste, or radionuclide from a DOE facility that is above permitted levels and exceeds 50 percent of the reportable quantities specified in 40 CFR 302 or 40 CFR 355.
(4)	4	Any release (onsite or offsite) of a hazardous substance, material, waste, or radionuclide from a DOE facility that must be reported to outside agencies in a format other than routine periodic reports. (However, oil spills of less than 10 gallons and with negligible environmental impact need not be reported in ORPS.)

B. Ecological and Cultural Resources

#	SC	Criterion
(1)	*2	Any occurrence causing significant impact to any ecological resource for which DOE is a trustee (e.g., destruction of a critical habitat, damage to an historic/archeological site, damage to wetlands).

GROUP 6 CONTAMINATION/RADIATION CONTROL

*Require prompt notification to DOE HQ OC.

A. Loss of Control of Radioactive Materials

#	SC	Criterion
(1)	2	Identification of radioactive material offsite due to DOE operations/activities that exceeds applicable DOE-approved authorized limits (pursuant to DOE O 5400.5). This applies to items/areas consisting of radioactive material. This does not apply to items with surface radioactive contamination. See Criterion 6B(1) below for criteria for identification of items with surface radioactive contamination.
(2)	2	Loss of radioactive material that exceeds 100 times the quantities specified in 10 CFR Part 835, Appendix E (excluding consumer products such as smoke detectors), or loss of accountability of such material for more than 24 hours. The 24-hour time period begins when the loss of accountability is discovered.
(3)	3	Loss of radioactive material which exceeds 1 times and no greater than 100 times the quantities specified in 10 CFR Part 835, Appendix E (excluding consumer products such as smoke detectors) or loss of accountability of such material for more than 24 hours. The 24-hour time period begins when the loss of accountability is discovered.

*Require prompt notification to DOE HQ OC.

B. Spread of Radioactive Contamination

#	SC	Criterion
(1)	2	<p>Identification of radioactive contamination offsite due to DOE operations/activities that exceeds applicable DOE-approved authorized limits (pursuant to DOE 5400.5) or, if there are none, the values found in 10 CFR Part 835, Appendix D.</p> <p>Note: All releases of property containing or potentially containing residual radioactivity are subject to requirements in DOE 5400.5. Compliance with 10 CFR Part 835, Appendix D values does not necessarily satisfy the requirements in DOE 5400.5.</p>
(2)	2	<p>Identification of onsite radioactive contamination greater than 100 times the total contamination values in 10 CFR 835 Appendix D and that is found outside of the following locations: Contamination Areas, High Contamination Areas, Airborne Radioactivity Areas, Radiological Buffer Areas, and areas controlled in accordance with 10 CFR 835.1102(c). For tritium, the reporting threshold is 100 times the removable contamination values in 10 CFR Part 835, Appendix D.</p> <p>Notes:</p> <ul style="list-style-type: none"> (a) This does not apply to contamination from residual radioactive material meeting applicable DOE-approved authorized limits. (b) This also does not apply to legacy radioactive contamination, which will be reported under a separate criterion below. (c) The exclusion from reporting contamination in a Radiological Buffer Area applies only when the area has been established next to a Contamination Area, High Contamination Area or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD-1098-99.
(3)	3	<p>Identification of onsite radioactive contamination greater than 10 times the total contamination values in 10 CFR 835 Appendix D and that is found outside of the following locations: Contamination Areas, High Contamination Areas, Airborne Radioactivity Areas, Radiological Buffer Areas, and areas controlled in accordance with 10 CFR 835.1102(c). For tritium, the reporting threshold is 10 times the removable contamination values in 10 CFR Part 835, Appendix D.</p> <p>Notes:</p> <ul style="list-style-type: none"> (a) This does not apply to contamination from residual radioactive material meeting applicable DOE-approved authorized limits. (b) This also does not apply to legacy radioactive contamination, which will be reported under a separate criterion below. (c) The exclusion from reporting contamination in a Radiological Buffer Area applies only when the area has been established next to a Contamination Area, High Contamination Area or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD-1098-99.]

(4)	4	<p>Identification of onsite legacy radioactive contamination greater than 10 times the total contamination values in 10 CFR 835 Appendix D and that is found outside of the following locations: Contamination Areas, High Contamination Areas, Airborne Radioactivity Areas, Radiological Buffer Areas, and areas controlled in accordance with 10 CFR 835.1102(c). For tritium, the reporting threshold is 10 times the removable contamination values in 10 CFR Part 835, Appendix D.</p> <p>Notes:</p> <p>(a) Legacy radioactive contamination is radioactive contamination resulting from historical operations that are unrelated to current activities.</p> <p>(b) This does not apply to contamination from residual radioactive material meeting applicable DOE-approved authorized limits.</p> <p>(c) The exclusion from reporting contamination in a Radiological Buffer Area applies only when the area has been established next to a Contamination Area, High Contamination Area or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD-1098-99.</p>
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***Require prompt notification to DOE HQ OC.**

C. Radiation Exposure

#	SC	Criterion
(1)	*1	Determination of a dose that exceeds the limits specified in 10 CFR Part 835, Subpart C, Occupational Radiation Protection or DOE O 5400.5, Chapter II, Item 1 [<i>i.e.</i> , 100 mrem Total Effective Dose Equivalent (TEDE) for offsite exposures to a member of the public].
(2)	2	Any unmonitored exposure that exceeds the values for providing personnel dosimeters and bioassays as stated in 10 CFR 835.402(a) or 10 CFR 835.402(c).
(3)	3	Any single occupational exposure that exceeds an expected exposure or dosimetry result by: (1) 500 mrem Committed Effective Dose Equivalent (CEDE), or (2) the greater of 10 percent or 100-mrem effective dose equivalent due to external exposure.
(4)	3	Determination of an estimated annual dose that exceeds 10 mrem Total Effective Dose Equivalent (TEDE) for offsite exposures to a member of the public from air pathways only.

***Require prompt notification to DOE HQ OC.**

D. Personnel Contamination

#	SC	Criterion
(1)	*2	Any occurrence requiring offsite medical assistance for contaminated personnel, including transporting a person to an offsite medical facility or bringing offsite medical personnel onsite to perform treatment or decontamination.
(2)	2	Identification of personnel or clothing contamination offsite due to DOE operations that exceeds the values for total contamination found in 10 CFR Part 835, Appendix D. For tritium use the values for removable contamination found in 10 CFR Part 835, Appendix D.
(3)	4	Any onsite contamination of personnel or clothing (excluding site-provided protective clothing) that exceeds 10 times the values for total contamination identified in 10 CFR Part 835, Appendix D. The contamination level must be based on direct measurement and not averaged over any area. This criterion does not apply to tritium contamination.

GROUP 7 NUCLEAR EXPLOSIVE SAFETY

Occurrences directly related to the nuclear explosive weapons safety efforts in support of defense programs. Any nuclear explosive occurrence at DOE-owned or-operated facilities or during onsite or offsite nuclear explosive transportation.

***Require prompt notification to DOE HQ OC.**

#	SC	Criterion
(1)	*1	Damage to a nuclear explosive that results in a credible threat to nuclear explosive safety.
(2)	2	The unauthorized introduction of electrical energy into a nuclear explosive.
(3)	2	The unauthorized compromise of a nuclear explosive safety feature when installed on a nuclear explosive.
(4)	2	Inadvertent substitution of a nuclear explosive for a nuclear explosive-like assembly (NELA) or vice versa.
(5)	2	A violation of a nuclear explosive safety rule (NESR).
(6)	2	Damage to a training unit during training operations indicative of a hazard to a nuclear explosive.
(7)	3	The use of uncertified personnel or unauthorized equipment/tooling during a nuclear explosive operation.
(8)	3	A violation of the two-person concept of operations.
(9)	3	Revocation of the Personnel Assurance Program (PAP) certification of an individual (for cause).

GROUP 8 TRANSPORTATION

Transportation occurrences in this section are incidents related to the transportation of DOE/LLNL materials. The requirements for reporting noncompliance events and violations associated with such transfers are qualified in these procedures.

Shippers are responsible for occurrences involving their shipments. LLNL facilities receiving materials from a DOE shipper that are not in compliance with appropriate regulations, as qualified by this Manual, and after review for concurrence by the LLNL Traffic Office, must report the discrepancies to the DOE shipper who will prepare an Occurrence Report and implement suitable corrective actions. If such a shipment is received from a non-DOE shipper and meets the reporting criteria of this Manual, the LLNL receiving organization will notify the LLNL Traffic Office for concurrence of the violation, who will then notify the non-DOE shipper of the apparent noncompliance. These reporting criteria are in addition to any required by DOT for LLNL transportation activities subject to applicable DOT regulations.

***Require prompt notification to DOE HQ OC.**

#	SC	Criterion
(1)	*1	Any offsite transportation incident involving hazardous materials that would require immediate notice pursuant to 49 CFR Part 171.15, namely: (a) As a direct result of hazardous materials: (i) A person is killed, (ii) A person receives injuries requiring hospitalization, (iii) Estimated property damage exceeds \$50,000, (iv) An evacuation of the general public occurs lasting 1 hour or more, (v) One or more transportation arteries or facilities are closed or shut down for 1 hour or more, or (b) Fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive materials, or (c) Fire, breakage, spillage, or suspected contamination occurs involving shipment of infectious substances (etiologic agents), or (d) There has been a release of a marine pollutant in a quantity exceeding 450 liters (119 gallons) for liquids or 400 kilograms (882 pounds) for solids, or (e) The operational flight pattern or routine of an aircraft is altered.
(2)	3	Any offsite transport of hazardous material, including radioactive material, whose quantity or nature (e.g., physical or chemical composition) is different than intended, such that the receiving organization's operations were impacted/disrupted or the transport resulted in the initiation of corrective actions by the originating organization.
(3)	4	Any onsite transport of hazardous material, including radioactive material, whose quantity or nature (e.g., physical or chemical composition) is different than intended, such that the receiving organization's operations were impacted/disrupted or the transport resulted in the initiation of corrective actions by the originating organization.
(4)	4	Any packaging or transportation activity involving the onsite release of radioactive materials, etiologic agents, hazardous substances, hazardous waste, or marine pollutants.

GROUP 9 NONCOMPLIANCE NOTIFICATIONS

*Require prompt notification to DOE HQ OC.

#	SC	Criterion
(1)	3	Any enforcement action (other than associated with the Price Anderson Amendment Act) involving 10 or more cited violations, and/or an assessed fine of \$10,000 or more. Note: This criterion applies to the enforcement action as initially received from the regulator. Thus the enforcement action would still be reportable even if the fine is later reduced below \$10,000 or the number of violations reduced below 10.
(2)	4	Any written notification from an outside regulatory agency that a site/facility is considered to be in noncompliance with a schedule or requirement (e.g., Notice of Violation, Notice of Intent to Sue, Notice of Noncompliance, Warning Letter, Finding of Violation, Finding of Alleged Violation, Administrative Order, or a similar type of notification or enforcement action).

GROUP 10 MANAGEMENT CONCERNS/ISSUES

***Require prompt notification to DOE HQ OC.**

#	SC	Criterion
(1)	2	Any event resulting in the initiation of a Type A or B accident investigation as categorized by DOE O 225.1A, <i>Accident Investigation</i> . Note: This reporting criterion may raise the significance category of an occurrence already reported under separate criteria. Multiple reporting criteria should be noted when appropriate.
(2)	1-4r	An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. r Note: An SC 1 occurrence report requires Prompt Notification.
(3)	1-4r	A near miss, where no barrier or only one barrier prevented an event from having a reportable consequence. One of the four significance categories should be assigned to the near miss, based on an evaluation of the potential risks and the corrective actions taken. r Note: An SC 1 occurrence report requires Prompt Notification.
(4)	*4	Any occurrence that may result in a significant concern by affected state, tribal, or local officials, press, or general population; that could damage the credibility of the Department; or that may result in inquiries to Headquarters.
(5)	*4	Any occurrence of such significant immediate interest to offsite personnel and organizations that it warrants prompt notification to the DOE Headquarters Operations Center (DOE HQ OC), and which is not already designated elsewhere in this set of reporting criteria to have prompt notification [denoted by having an asterisk (*) next to the significance category].

Attachment III

INSTRUCTIONS FOR COMPLETING AN OCCURRENCE REPORT

GENERAL

The following instructions apply to the reporting of occurrences via the Occurrence Reporting and Processing System (ORPS).

Categorizing Instructions

- A. An event can meet multiple reporting criteria that establish it as an occurrence. **All of the specific reporting criteria applicable for an occurrence must be identified.** Some criteria are “secondary” in that they complement other reporting criteria that require occurrence reporting. In these cases, all of the applicable criteria must be recorded. Each criterion is denoted by its Group, Subgroup (if applicable), and sequence number (#). Thus, for example, the violation of a safety limit is denoted as Group 3, Subgroup A, Sequence (1) or “3A(1).”
- B. The reporting criteria presented in Attachment II list a specific Significance Category (SC) for each criterion, between the sequence number (#) and the criterion text. Significance Categories are designated as “OE” for Operational Emergencies, “R” for recurring occurrences, or 1, 2, 3, or 4. Thus, for example, the Significance Category for a Stop Work Order issued by a DOE office, criterion 4B(1), is SC 2.
- C. Operational Emergencies, Significance Category 1, and some other occurrences in lesser significance categories require prompt notification to the DOE HQ OC. **Asterisks (*) next to the significance categories below denote those occurrences requiring prompt notification to the DOE HQ OC.**

NOTE: Categorization of Operational Emergencies is handled by the Incident Commander, LEDO/Emergency Director, or the Emergency Operations Center – see paragraph 8C (NOTE) of the Implementing Procedures.
- D. DOE O 225.1A defines when Type A or B accident investigations should be initiated. While some Operational Emergencies and some other ORPS occurrences involve conditions that would be sufficient to initiate accident investigations, criterion 10(1) in Attachment II herein will report the actual initiation of Type A or B accident investigations.

Completing Instructions

In preparing the Notification Report, and subsequently the Final Report, the following writing instructions shall be followed:

- A. The report should enable the general reader to understand the basic “what, who, when, where, how” of the event, the safety issues involved, and the actions taken.
- B. The Subject/Title and 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).

- C. 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.
- D. 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.
- E. Avoid jargon and uncommon or site/facility-specific abbreviations and acronyms. If used, acronyms should be initially spelled out.
- F. 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.
- G. Quantify the level of contamination, dose, release, and damage (e.g., estimate the acres of wild land burned) when possible, instead of merely stating a reportable limit was exceeded.
- H. Use active rather than passive voice whenever possible. For example, write, “*the electrician* severed the conduit” rather than “the conduit was severed.”
- I. When appropriate for clarification, photos, sketches, and drawings must be maintained with the ORPS 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.

OCCURRENCE REPORTING FORM FIELDS

(1) **Occurrence Report Number.** The occurrence report number is automatically generated by the system. It consists of the following:

- DOE Field Office
- Area Office (if applicable)
- DOE contractor
- Facility
- Calendar Year the occurrence was first reported
- Sequential number of the occurrence by facility

Items are separated from each other by a dash.

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.

(2) **Facility Name (LLNL)**

(3) Facility Function. Enter the type of facility or the activity/function performed by the facility. Only one function can be selected. Possible entries are listed below.

- (01) Plutonium processing and handling
- (02) Special nuclear materials storage
- (03) Explosive
- (04) Uranium enrichment
- (05) Uranium conversion/processing and handling
- (06) Irradiated fissile material storage
- (07) Reprocessing
- (08) Nuclear waste operations
- (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)
- (18) Power Marketing Administration
- (99) Balance-of-Plant
- (99A) Balance-of-Plant - Offices
- (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 (LLNL)

(5) Originator (6) Originator Phone (7) Originator Title

Enter the name, title, and telephone number of the person who originated this report. This is the person who gathers the information and is most knowledgeable about the event.

(8) Transmitter (9) Transmitter Phone (10) Transmitter Title

This field is automatically generated by ORPS to reflect the name, telephone number and title of the Occurrence Reporting Duty Officer who entered the report.

(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.

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
 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

- (13) **System/Building/Equipment.** 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.

- (14) **Authorized Classifier/Reviewing Official.** 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.

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.

- (15) **Classification Date.** Enter the date when the authorized classifier or reviewing official reviewed this report and determined that it was appropriate for entry into ORPS.

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.

- (16) **UCNI.** 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 cannot be transmitted to the database.

- (17) **Plant Area.** 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 reports.

(18) **Discovered Date/Time.** 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.

(19) **Categorized Date/Time.** 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.

(20) **Subject/Title of Occurrence.** 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.

(21) **Reporting Criteria.** 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.

(22) **Significance Category.** 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:

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.

Category 1: Occurrences in this category are those that are not Operational Emergencies and that have a *significant impact* on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests

Category R: Occurrences in this category are those identified as *recurring*, as determined from the periodic performance analysis of occurrences across a site.

Category 2: Occurrences in this category are those that are not Operational Emergencies and that have a *moderate impact* on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.

Category 3: Occurrences in this category are those that are not Operational Emergencies and that have a *minor impact* on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.

Category 4: Occurrences in this category are those that are not Operational Emergencies and that have *some impact* on safe facility operations, worker or public safety and health, public/business interests.

(23) Recurring Event. 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.

(24) Subcontractor Involved. If a subcontractor is involved in this occurrence, choose *Yes*. Otherwise choose *No*. If *Yes* is selected, enter the name of the subcontractor(s). This field is required for all reports.

(25) Description of Occurrence. The following instructions should be followed when entering the description of the occurrence:

- 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, instead of merely stating a reportable limit was exceeded.
- g. Use active rather than passive voice whenever possible. For example, write, “***the electrician*** severed the conduit” rather than “the conduit was severed.”

The type of information to be provided in the description includes, but is not limited to, the following:

- 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.

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.

For recurring events, include all pertinent information to describe how the event was determined to be recurring.

This field is required for all reports.

- (26) DOE HQ OC Notifications.** 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.

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 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 with an asterisk next to the reporting criterion.

- (27) Other Notifications.** Enter the date(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

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

- (28) Operating Conditions.** 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.

(29) Activity Category. Select the activity that best describes the ongoing activity at the time of the occurrence. This field is required for all reports.

- 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

(30) Immediate Actions Taken. 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.

(31) Causes. 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.

(32) Description of Cause. Discuss the causes of the occurrence to include all causes and the 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.

(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. 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.

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".

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".

- (35) Integrated Safety Management (ISM).** 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).

Available ISM codes are:

- 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 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.
- 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.

This field is required for all Final reports, including Short Form Reports.

- (36) Lessons Learned.** Describe what lessons can be learned from this occurrence, in order to help prevent similar events from happening.

This field is required for Final reports and optional for Short Form Reports.

- (37) Similar Occurrence Reports.** 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.

This field is required for Final reports and optional for Short Form Reports.

- (38) **User Defined Fields (two of them).** 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.
- (39) **Corrective Actions.** 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.

Corrective Actions are required for Final reports and optional for Short Form Reports.

- (40) **Facility Representative Comments.** The Facility Representative 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 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.

- (42) **Signatures.** For Final Reports that are transmitted in hard copy (*i.e.*, classified reports), all three signatures, with typed names and titles, shall be included prior to distribution. If ORPS is being used, the Facility Manager or designee's name, will automatically be entered with an indication of acceptance. The Final Report will then be available for the Facility Representative and Program Manager, or their designees, to review and accept. Once all three individuals have accepted the report, it will automatically be available to all DOE elements for their use in analysis and trending.

This field is for Final Reports only.

Notification Reports

Items 1 through 30 are required fields for the Notification Report. 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/or additional information becomes available. All fields are required for the Final Report.

Short Form Occurrence Reports

A Short Form Occurrence Report requires all the information contained in a Notification Report, *i.e.*, items 1 through 30 **PLUS** item 35.

OCCURRENCE REPORT FORM LAWRENCE LIVERMORE NATIONAL LABORATORY

NOTE: A Short Form Occurrence Report requires all the information contained in a Notification Report, i.e., items 1 through 30 **PLUS** item 35.

1. **OCCURRENCE REPORT NUMBER:** OAK—LLNL-LLNL-XXXX-XXXX

2. **FACILITY:** LLNL

3. **FACILITY FUNCTION INVOLVED:**

(pick only one code from below)

- | | |
|--|---|
| <input type="checkbox"/> (01) Plutonium Processing/Handling | <input type="checkbox"/> (16) Accelerators |
| <input type="checkbox"/> (02) SNM Storage | <input type="checkbox"/> (17) Laboratory (for search only) |
| <input type="checkbox"/> (03) Explosive | <input type="checkbox"/> (18) Power Marketing Administration |
| <input type="checkbox"/> (04) Uranium Enrichment | <input type="checkbox"/> (99) Balance of Plant (for search only) |
| <input type="checkbox"/> (05) Uranium Conversion/Processing/Handling | <input type="checkbox"/> (99A) Balance of Plant - Offices |
| <input type="checkbox"/> (06)Irradiated Fissile Material Storage | <input type="checkbox"/> (99B) Balance of Plant – Machine Shops |
| <input type="checkbox"/> (07) Reprocessing | <input type="checkbox"/> (99C) Balance of Plant – Site/Outside Utilities |
| <input type="checkbox"/> (08)Nuclear Waste Operations Disposal | <input type="checkbox"/> (99D) Balance of Plant – Safeguards & Security |
| <input type="checkbox"/> (09) Tritium Activities | <input type="checkbox"/> (99E) Balance of Plant - Storage (except SNM) |
| <input type="checkbox"/> (10) Fusion Activities | <input type="checkbox"/> (99F) Balance of Plant - Laundries |
| <input type="checkbox"/> (11) Environmental Restoration Operations | <input type="checkbox"/> (99G) Balance of Plant - Infrastructure (other functions not specifically listed in this category) |
| <input type="checkbox"/> (12) Category “A” Reactors | |
| <input type="checkbox"/> (13) Category “B” Reactors | |
| <input type="checkbox"/> (14) Solar Activities | |
| <input type="checkbox"/> (15) Fossil and Petroleum Reserves | |

4. **Site Name:** Lawrence Livermore National Laboratory (LLNL)

5. **ORIGINATOR**

Name: _____

7. Title: _____ 6. Telephone No.: _____

8. **OCCURRENCE REPORTING DUTY OFFICER**

Name: _____

10. Title: _____ 9. Telephone No.: _____

11. **NAME OF LABORATORY DIRECTORATE/ORGANIZATION:**

COGNIZANT ASSOCIATE DIRECTOR OR DESIGNEE:

12. DOE SECRETARIAL OFFICE: (check only one)

- BV EI ME NP SE UE
- EE EM NA RW SO WA
- EH FE NE SC SW

13. SYSTEM, BLDG., OR EQUIPMENT: _____

14. CHOOSE ONE OF THESE THREE STATEMENTS:

- This report has been reviewed by an authorized derivative classifier and determined to be unclassified.

Name: _____ Signature: _____
 Authorized Derivative Classifier

- This report is from a designated unclassified subject area (DUSA). Initials: _____

- This report contains administrative information only. Initials: _____

15. CLASSIFICATION DATE: _____

16. UCNI: Yes No

17. Plant Area: _____

18. DATE AND TIME DISCOVERED: _____ 19. DATE AND TIME CATEGORIZED: _____

20. SUBJECT OR TITLE OF OCCURRENCE:

21. SELECT ONE OR MORE OF THE REPORTING CRITERIA AS SET FORTH IN ATTACHMENT II:

- Operational Emergencies
- Personnel Safety
- Nuclear Safety Basis
- Facility Status
- Environmental
- Contamination/Radiation Control
- Nuclear Explosive Safety
- Transportation
- Noncompliance Notifications
- Management Concerns/Issues

Please list applicable specific criteria as noted in Attachment II of the LLNL Implementing Procedure:

Major Criteria Group	Applicable Criteria

22. SIGNIFICANCE CATEGORY: (check only one)

- OE
- SC1
- SCR
- SC2
- SC3
- SC4

23. RECURRING EVENT? Yes No

24. CONTRACTOR INVOLVED? Yes No

If Yes: _____
Name of Subcontractor

25. DESCRIPTION OF OCCURRENCE:

26. DATE AND TIME OF DOE HQ OC NOTIFICATION:

27. DATE AND TIME OF OTHER NOTIFICATIONS:

28. OPERATING CONDITIONS OF FACILITY AT TIME OF OCCURRENCE:

29. ACTIVITY CATEGORY: (check only one)

- | | |
|--|--|
| <input type="checkbox"/> Construction | <input type="checkbox"/> Transportation |
| <input type="checkbox"/> Maintenance | <input type="checkbox"/> Emergency Response |
| <input type="checkbox"/> Normal Operations | <input type="checkbox"/> Inspection/Monitoring |
| <input type="checkbox"/> Startup | <input type="checkbox"/> Facility |
| <input type="checkbox"/> Shutdown | <input type="checkbox"/> Decontamination/Decommissioning |
| <input type="checkbox"/> Facility/System/Equipment Testing | <input type="checkbox"/> Research |
| <input type="checkbox"/> Training | |

30. IMMEDIATE ACTIONS TAKEN AND RESULTS:

31. CAUSES (select all codes from the Causal Analysis Tree that best represent the causes of the Occurrence:

_____	_____
_____	_____
_____	_____
_____	_____

32. DESCRIPTION OF CAUSE:

33. EVALUATION: (By Cognizant Associate Director or Designee)

34. IS FURTHER EVALUATION REQUIRED? Yes No

IF YES, BEFORE FURTHER OPERATION?: Yes No

IF YES, BY WHOM ? : _____ WHEN? _____

35. ISM CODES: 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). Available ISM codes are:

- 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 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.
- 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.

This field (#35) is required for all Final reports, including Short Form Reports.

36. LESSONS LEARNED:

37. SIMILAR OCCURRENCE REPORT NUMBERS:

38. USER DEFINED FIELDS: (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.)

User-Defined Field #1: _____

User-Defined Field #2: _____

39. CORRECTIVE ACTIONS:

Corrective Action	Target Completion Date	Actual Completion Date
_____	_____	_____

40. NNSA LSO FACILITY REPRESENTATIVE INPUT: (leave blank)

41. PROGRAM MANAGER INPUT: (leave blank)

42. SIGNATURES:

COGNIZANT ASSOCIATE DIRECTOR/DESIGNEE

Signed by: _____

Date: _____

Type Name: _____

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?

Significance Category	Timelines ¹	Prompt Notification	Investigation	Causal Analysis	Corrective Actions	Report Approvals	Corrective Action Closures	Corrective Action Effectiveness	Lessons Learned ³
Operational Emergencies (defined by DOE O 151.1A)	Cat: ASAP PN: NLT 15 min if further classified; NLT 30 min if not further classified WN: COB next business day not to exceed 80 hrs UR: As needed FR: 45 days	DOE Facility Representative & DOE Headquarters Operations Center (OC)	Team with Trained Investigator. DOE Consider Accident Investigation.	Root Cause Determined	Remedy Problem, Prevent Recurrence, & Preclude Similar Problems	DOE Facility Representative & DOE Program Manager Approval	Contractor Document & Independently Verify	Contractor Assess Effectiveness to Prevent Recurrence	Enter into DOE LL Database & Coverage in OE Summary
Significance Category 1 Reportable Occurrence	Cat: NLT 2 hrs PN: NLT 2 hrs WN: COB next business day not to exceed 80 hrs UR: As needed FR: 45 days	DOE Facility Representative & DOE Headquarters OC	Team with Trained Investigator. DOE Consider Accident Investigation.	Root Cause Determined	Remedy Problem, Prevent Recurrence, & Preclude Similar Problems	DOE Facility Representative & DOE Program Manager Approval	Contractor Document & Independently Verify	Contractor Assess Effectiveness to Prevent Recurrence	Enter into DOE LL Database & Coverage in OE Summary.
Significance Category R. Includes All Recurring Category 1, 2, 3, and/or 4 Reportable & Non-Reportable Occurrences	Cat: NLT 2 hrs WN: COB next business day UR: As needed FR: 45 days		Trained Investigator	Root Cause Determined	Remedy Problem, Prevent Recurrence, & Preclude Similar Problems	DOE Facility Representative Approval	Contractor Document & Independently Verify	Contractor Assess Effectiveness to Prevent Recurrence	Enter into DOE LL Database & Optional Coverage in OE Summary
Significance Category 2 Reportable Occurrence	Cat: NLT 2 hrs PN: NLT 2 hrs WN: COB next business day UR: As needed FR: 45 days	DOE Facility Representative (DOE HQ OC at Field Office Discretion) ²	Trained Investigator	Apparent Cause Determined	Remedy Problem & Prevent Recurrence	DOE Facility Representative Approval	Document & Verify by Sampling	Optional	Enter into DOE LL Database & Optional Coverage in OE Summary
Significance Category 3 Reportable Occurrence	Cat: NLT 2 hrs PN: NLT 2 hrs WN: NLT 2 business days UR: As needed FR: 45 days	DOE Facility Representative (DOE HQ OC) ²	Critique/ Fact Finding	Apparent Cause Determined	Remedy Problem	Contractor Approval	Document (Verification Optional)	Optional	Per Site Specific Process
Significance Category 4 Reportable Occurrence	Cat: NLT 2 hrs PN: NLT 2 hrs (as required) Short Form Report: NLT 2 business days	(DOE Facility Representative & DOE HQ OC) ²	No reporting of causal analysis or lessons learned in ORPS. The reporting of corrective actions is optional. Reportable and non-reportable occurrences are managed per contractor-specific corrective action programs.						

Cat: Categorization Time from Discovery Date and Time	NLT: No Later Than	³ LL: Lessons Learned
PN: Prompt Notification from Categorization Date and Time	COB: Close of Business	OE: Operating Experience
WN: Written Notification from Categorization Date and Time	² <i>Specific Significance Category 2, 3, and 4 occurrences (identified with an asterisk in the reporting criteria listed in Section 6) also</i>	
UR: Update Report	<i>require Prompt Notification to the DOE HQ EOC.</i>	
FR: Final Report from Categorization Date and Time		

Causal Analysis Tree Rev. 0

