U.S. Department of Energy
Washington, D.C.

ORDER

DOE O 232.2

Approved: 8-30-2011

SUBJECT: Occurrence Reporting and Processing of Operations Information

1. OBJECTIVES.

   a. To ensure that the Department of Energy (DOE) and National Nuclear Security Administration (NNSA) are informed about events that could adversely affect the health and safety of the public or the workers, the environment, DOE missions, or the credibility of the Department.

   b. To promote organizational learning consistent with DOE's Integrated Safety Management System goal of enhancing mission safety, and sharing effective practices to support continuous improvement and adaptation to change.

2. CANCELLATION. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual or regulatory obligation to comply with the directive. Contractor Requirements Documents (CRDs) that have been incorporated into a contract remain in effect throughout the term of the contract unless and until the contract is modified to either eliminate requirements that are no longer applicable or substitute a new set of requirements.

   a. DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*, dated 8-19-03.

   b. DOE G 231.1-1, *Occurrence Reporting and Performance Analysis Guide*, dated 08-20-03.

   c. DOE G 231.1-2, *Occurrence Reporting Causal Analysis Guide*, dated 08-20-03.

   d. DOE O 231.1A, Chg 1, *Environment, Safety, and Health Reporting*, dated 06-03-04.

3. APPLICABILITY.

   a. Departmental Elements. Except for the exemptions in paragraph 3c, the provisions of this Order apply to all Departmental elements.

      (1) Where a responsibility or authority is assigned to an organization that is restructured, the responsibility or authority will be reassigned to the appropriate successor organization as explicitly determined by the appropriate Lead Program Secretarial Officer.

(2) The Administrator of the NNSA must assure that NNSA employees comply with their responsibilities under this directive. Nothing in this directive will be construed to interfere with the NNSA Administrator's authority under section 3212(d) of Public Law (P.L.) 106-65 to establish Administration specific policies, unless disapproved by the Secretary.

b. DOE Contractors.

(1) Except for the equivalencies/exemptions in paragraph 3.c, the Contractor Requirements Document (CRD), Attachment 1, sets forth requirements of this Order that will apply to contracts that include the CRD.

(2) The CRD or its requirements must be inserted in site/facility management contracts.

c. Equivalencies/Exemptions. Equivalencies and exemptions to this Order are processed in accordance with DOE O 251.1C, *Departmental Directives Program*, dated 1/15/09.

(1) Equivalency. In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at Title 50 United States Code (USC) sections 2406 and 2511 and to ensure consistency through the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Directive for activities under the Director's cognizance, as deemed appropriate, with the exception of reporting required by 29 Code of Federal Regulations (CFR) Part 1960, *Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters*.

(2) Exemption. In accordance with the Department of Energy Organization Act of 1977, Section 302, the Secretary operates and maintains the Power Marketing Administration (PMAs) electric power transmission systems by and through the PMA Administrators. The PMAs are uniquely established within the Department of Energy by nature of their Administrators' obligations to meet statutory and public utility responsibilities for the safety, security, and reliability of electric power transmission; this includes statutory reporting requirements. The PMAs are exempt from this Order.

4. REQUIREMENTS.

a. General.

(1) Occurrences resulting from activities performed by facility personnel and by subcontractors in support of facility operation must be reported by facility personnel in accordance with the provisions of this Order.

(2) For reportable occurrences, facility personnel must categorize the occurrences, notify other DOE elements as required, and prepare and submit Occurrence Reports.

(3) Local implementing procedures may specify additional learning and reporting requirements beyond those stated in this Order, but must at a minimum include all of the requirements in this Order.

b. Security Requirements.

Occurrence Reports containing controlled information must use procedures described in the Occurrence Reporting Model (Attachment 4).

c. Event or Condition Identification and Response.

DOE O 422.1, *Conduct of Operations*, dated 6-29-10, and DOE O 151.1C, *Comprehensive Emergency Management System*, dated 11-2-05, provide expectations for identifying and responding to abnormal events and emergencies. Locally approved processes and procedures must ensure that the requirements of this Order for reporting are initiated for events specified in the Occurrence Reporting Criteria (Attachment 2) of this Order. However, reporting must not interfere with operations personnel taking appropriate actions to stabilize and/or place the facility/operation in a safe condition upon discovery of an abnormal event or condition.

d. Event or Condition Categorization.

Events and conditions must be categorized in accordance with the Occurrence Reporting Criteria (Attachment 2) and within the timeframes specified in the Occurrence Reporting Model (Attachment 4), or as soon thereafter as reasonably possible.

e. Prompt Notifications.

Prompt Notifications, as determined by the Occurrence Reporting Criteria (Attachment 2), must be accomplished in accordance with the Occurrence Reporting Model (Attachment 4).

f. Occurrence Report Processing. Occurrence reports must be processed in accordance with the expectations outlined in the Occurrence Report Preparation (Attachment 3) and Occurrence Reporting Model (Attachment 4).

g. Occurrence Investigation and Analysis. Occurrences must be investigated and analyzed, as described in the Occurrence Reporting Model (Attachment 4), and causes provided using the cause codes listed in the Causal Analysis Tree (Attachment 5).

h. Identifying Safety Performance Trends and Recurring Occurrences. Periodic trend analysis and reviews to identify potential recurring occurrences must be accomplished in accordance with the Occurrence Reporting Model (Attachment 4).

i. Implementation. The requirements in this Order will be effective as of January 1, 2012, to allow sufficient time to make necessary software and database changes, and to incorporate requirements into applicable contracts.

5. RESPONSIBILITIES.

a. Secretarial Officers/Deputy Administrators (NNSA).

(1) Delegate responsibilities and authority for implementing this Order, including designating Program Managers (see paragraph 5.e).

(2) Review activities related to reportable occurrences, including reporting and the development of programs and procedures.

(3) Ensure that a system for Prompt Notification and categorization of reportable occurrences has been established for their DOE programs and for facilities under their cognizance.

(4) Review occurrence reporting data and identify potential performance gaps that are indicative of the need for further study and evaluation.

(5) Provide the DOE Headquarters Operations Center (DOE HQ OC) with a prioritized list of emergency management duty officers and their contact numbers to permit notification on a 24 hour-a-day, 7 day-a-week basis.

(6) Ensure that DOE and contractor personnel are trained in the requirements of this directive.

(7) Ensure the requirements in the CRD are included in applicable contracts within 3 months after approval of this Order.

b. Chief Health, Safety and Security Officer.

(1) Develop, promulgate, and maintain policies to implement and sustain an effective Occurrence Reporting Program, including the computerized Occurrence Reporting and Processing System.

(2) Provide formal Departmental interpretation of the requirements of this Order, in coordination with the Secretarial Offices and the National Nuclear Security Administration (NNSA) for NNSA facilities.

(3) Develop, promulgate, and maintain guidance materials, and conduct workshops, as necessary, for implementing the requirements of this Order.

(4) Monitor reports relative to reporting activities at DOE facilities to assess implementation of this Order and to identify needed improvements.

(5) Monitor and audit implementation of this Order related to the Office of Health, Safety and Security.

(6) Periodically analyze occurrence reporting data to identify significant issues and trends across the Department and formally bring such issues or trends to the attention of the applicable Program Office(s).

(7) In conjunction with the Chief Information Officer, operate, maintain, and further develop the supporting computer data system, the Occurrence Reporting and Processing System (ORPS).

c. NNSA Associate Administrator for Emergency Operations.

(1) Maintain a 24-hour-a-day/7-day-a-week capability at the DOE HQ OC to receive and log Operational Emergency notifications per DOE O 151.1C, *Comprehensive Emergency Management System*, and to process Prompt Notifications of reportable occurrences.

(2) Log receipt of all Prompt Notifications and immediately conduct oral notifications to the emergency management duty officer of the Secretarial Officers/Deputy Administrators (NNSA) with responsibility for the facility, site, or activity involved in the operational emergency or occurrence.

(3) Develop, promulgate, and maintain policies related to reporting criteria, classifications, definitions, and prompt notification requirements for Operational Emergencies.

(4) Monitor reports relative to reporting activities at DOE facilities to assess implementation of the Operational Emergency portion of the Occurrence Reporting Program and to identify needed improvements.

d. Heads of Field Elements.

(1) Assess performance of facility personnel in carrying out the requirements of this Order, in accordance with established agreements with the responsible Secretarial Officers or Deputy Administrators (NNSA).

(2) Designate and direct Facility Representatives and Designees to fulfill the responsibilities required by this Order.

(3) Identify contracts to which the CRD should apply and notify the cognizant contracting officers.

(4) Ensure that initiators of procurement requests identify in procurement requests whether the requirements in the CRD for this Order are to be applied to the award or sub awards resulting from the procurement request and any special instructions for the application of the CRD.

e. Program Managers (as defined in this Order; see definition in Attachment 6).

(1) Review activities related to reportable occurrences, including reporting and the development of programs and procedures.

(2) Ensure that a system for Prompt Notification and categorization of reportable occurrences has been established for their DOE programs and for facilities under their cognizance.

(3) Ensure that the DOE HQ OC is informed of how the Headquarters Program Manager or Designees can be reached at all times.

(4) Ensure that Occurrence Reports and operations information from other organizations are disseminated to appropriate DOE and contractor activities within their cognizance, are reviewed for generic implications, and are used to improve operations.

(5) Notify the cognizant Secretarial Officer or Deputy Administrator (NNSA) of all Significance Category 1 Occurrences.

(6) Elevate any unresolved issues regarding actions or determinations on a reportable occurrence to the Secretarial Officer or Deputy Administrator (NNSA) and, if necessary, the Secretary for resolution and direction.

f. Facility Representatives (as defined in this Order; see definition in Attachment 6). In addition to other requirements prescribed in this Order, Facility Representatives or designee, or selected line management staff if a Facility Representative is not assigned, are responsible for the following:

(1) Evaluate facility implementation of the notification and reporting process to ensure it is compatible with and meets the requirements of this Order.

(2) Ensure that occurrences that may have generic or programmatic implications are identified and elevated to the Head of the Field Element for appropriate action.

(3) Review and assess reportable occurrence information from facilities under their cognizance to determine the acceptability of the Facility Manager's evaluation of the significance, causes, generic implications, and corrective action implementation and closeout, and to ensure that facility personnel involved in these operations perform the related functions.

(4) Elevate any unresolved issues regarding actions or determinations on a reportable occurrence to the Program Manager for resolution and direction.

g. Facility Managers (as defined in this Order; see definition in Attachment 6). In addition to other requirements prescribed in this Order, Facility Managers, both contractors and government-owned, government-operated personnel, are responsible for the following:

(1) Ensure procedures are implemented for notification and reporting that meet the requirements of this Order.

(2) Determine causes and generic implications, and implement corrective actions and closeout activities for reportable occurrences.

(3) Review and assess reportable occurrence information for their facilities to assess generic implications and corrective action implementation, closeout, and effectiveness, as required; to identify and report recurring events, and to ensure that facility personnel involved in these operations perform the related functions.

(4) Ensure that Occurrence Reports and operations information from other organizations are disseminated to appropriate facility personnel within their cognizance, are reviewed for generic implications, and are used to improve operations.

(5) Prepare and transmit Occurrence Reports in accordance with Order requirements.

h. Contracting Officers. Incorporate the CRD into contracts in a timely fashion upon notification of its applicability.

6. REFERENCES

a. 10 CFR Sections 205.350-353, *Report of Major Electric Utility Systems Emergencies*.

b. 10 CFR Part 830, *Nuclear Safety Management*.

c. 10 CFR Part 835, *Occupational Radiation Protection*.

d. 10 CFR Part 851, *Worker Safety and Health Program*.

e. 29 CFR Part 1904, *Recording and Reporting Occupational Injuries and Illnesses*.

f. 29 CFR Part 1910, *Occupational Safety and Health Standards*.

g. 29 CFR Part 1960, *Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters*.

h. 40 CFR Part 98, *Mandatory Greenhouse Gas Reporting*.

i. 40 CFR Part 110, *Discharge of Oil*.

j. 40 CFR Part 302, *Designation, Reportable Quantities, and Notification*.

k. 40 CFR Part 355, *Emergency Planning and Notification*.

l. 49 CFR Parts 106-180, 200-250, and 350-399, *Transportation*.

m. DOE O 151.1C, *Comprehensive Emergency Management System*, dated 11-2-05.

n. DOE O 210.2A, *DOE Corporate Operating Experience Program*, dated 4-8-11.

o. DOE O 225.1B, *Accident Investigations*, dated 3-4-11.

p. DOE O 422.1, *Conduct of Operations*, dated 6-29-10.

q. DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment*, dated 6-6-11.

r. DOE O 460.1C, *Packaging and Transportation Safety*, dated 4-14-10.

s. DOE O 461.1B, *Packaging and Transportation for Offsite Shipment of Materials of National Security Interest*, dated 12-20-10.

t. DOE/EFCOG Electrical Severity Measurement Tool, http://www.efcog.org/wg/esh_es/docs/Electrical_Severity_Measurement_Tool.pdf.

u. DOE STD-1098-2008, *Radiological Control*.

v. Executive Order 12333, *United States Intelligence Activities. w. National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65*.

w. Executive Order 12344, *Naval Nuclear Propulsion Program*.

7. DEFINITIONS. See Attachment 6.

8. CONTACT. Questions concerning this order should be addressed to the Office of Corporate Safety Analysis, Office of Health, Safety and Security, at 301-903-3393.

BY ORDER OF THE SECRETARY OF ENERGY:

DANIEL B. PONEMAN
Deputy Secretary

CONTRACTOR REQUIREMENTS DOCUMENT

DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*

Regardless of the performer of the work, the contractor (including DOE direct contractors) is responsible for compliance with the requirements of this Contractor Requirements Document (CRD) and Attachments 2, 3, 4, 5 and 6, and for flowing down these requirements to subcontractors at any tier to the extent necessary to ensure the contractor's compliance with the requirements. References to a DOE directive in this CRD or in its attachments refer to the CRD associated with the referenced DOE directive. The contractor must meet the following requirements.

1. GENERAL REQUIREMENTS.

   a. For reportable occurrences, contractors must categorize the occurrences, notify DOE as required, and prepare and submit Occurrence Reports. At sites with more than one facility management contractor, contractors may make arrangements for one of the contractors to prepare and submit reports for the entire site. However, each contractor must ensure that Occurrence Reports are submitted properly for activities within its scope of work.

   b. The documentation and distribution requirements must be satisfied by using DOE's centralized unclassified operational database, the computerized Occurrence Reporting and Processing System (ORPS).

   c. Local implementing procedures may specify additional learning and reporting requirements beyond those stated in this CRD, but must at a minimum include all requirements of this CRD.

2. SECURITY REQUIREMENTS.

   Occurrence Reports containing controlled information must use procedures described in the Occurrence Reporting Model (Attachment 4).

3. SPECIFIC REQUIREMENTS.

   a. Event or Condition Identification and Response.

      Identify abnormal or emergency conditions based on local processes and procedures that implement requirements of DOE O 422.1, *Conduct of Operations*, and DOE O 151.1C, *Comprehensive Emergency Management System*. Ensure that the requirements of this CRD for reporting are initiated for events specified in the Occurrence Reporting Criteria (Attachment 2). Ensure that reporting does not interfere with operations personnel taking appropriate actions to stabilize and/or place the facility/operation in a safe condition upon discovery of an abnormal event or condition.

b. Event or Condition Categorization.

Events and conditions must be categorized in accordance with the Occurrence Reporting Criteria (Attachment 2) and within the timeframes specified in the Occurrence Reporting Model (Attachment 4), or as soon thereafter as reasonably possible.

c. Prompt Notifications.

Prompt Notifications, as determined by the Occurrence Reporting Criteria (Attachment 2), must be accomplished in accordance with the Occurrence Reporting Model (Attachment 4).

d. Occurrence Report Processing.

Occurrence reports must be processed in accordance with the expectations outlined in the Occurrence Report Preparation (Attachment 3) and Occurrence Reporting Model (Attachment 4).

e. Occurrence Investigation and Analysis.

Occurrences must be investigated and analyzed, as described in the Occurrence Reporting Model (Attachments 4), and causes provided using the causes listed in the Causal Analysis Tree (Attachment 5).

f. Identifying Safety Performance Trends and Recurring Occurrences.

Periodic trend analysis and reviews to identify potential recurring occurrences must be accomplished in accordance with the Occurrence Reporting Model (Attachment 4).

4. DEFINITIONS. See Attachment 6.

OCCURRENCE REPORTING CRITERIA
DOE O 232.2

[This Attachment provides information and requirements applicable to DOE O 232.2 and contracts that include the associated CRD (Attachment 1 to DOE O 232.2).]

The following are the reporting criteria, categorized into 10 major groups and appropriate subgroups related to DOE operations. This list provides a minimum set of requirements that must be used to develop local procedures and report occurrences applicable to local operations. Categorization of occurrences must be done at the criterion level.

1. Significance Categories

   a. General: Significance Categories (SC) provide a means to reflect perceived risk associated with a given occurrence. Risk determinations take into consideration the potential consequence of an occurrence in terms of health, safety and security to personnel, the public, the environment, and the operational mission. Operational Emergency (OE) or Significance Category 1 (SC1) occurrences reflect management's judgment that circumstances pose an immediate or near term potential for harm unless promptly mitigated or that the occurrence meets reporting thresholds established by other regulatory requirements. Occurrences below OE or SC1 require assessment and mitigation to prevent or mitigate adverse consequences, but are not as time sensitive as OE's or SC1's. Occurrences at the lower levels, SC3 and SC4, reflect situations that require analysis and learning in order to generate measured actions to prevent potential future consequences.

   b. Operational Emergency (OE) as defined in DOE O 151.1C: Major unplanned or abnormal events or conditions that: involve or affect DOE/NNSA facilities and activities by causing, or having the potential to cause, serious health and safety or environmental impacts; require resources from outside the immediate/affected area or local event scene to supplement the initial response; and, require time-urgent notifications to initiate response activities at locations beyond the event scene. Operational Emergencies are the most serious occurrences and require an increased alert status for onsite personnel and, in specified cases, for offsite authorities.

   c. Significance Category 1: Non-OE events that caused actual harm; posed the potential for immediate harm or mission interruption due to safety system failure and required prompt mitigative action; or constituted an egregious noncompliance with regulatory requirements that created the potential for actual harm or mission interruption.

   d. Significance Category 2: Circumstances that reflected degraded safety margins—necessitating prompt management attention along with modified normal operations—to prevent an adverse effect on safe facility operations; worker or public safety and health, including significant personnel injuries; regulatory

compliance; or public/business interests.

e. Significance Category 3: Events or circumstances with localized implications including personnel injury, environmental releases, equipment damage or hazardous circumstances that were locally contained and did not immediately suggest broader systemic concerns.

f. Significance Category 4: Events or circumstances that were mitigated or contained by normal operating practices, but where reporting provides potential learning opportunities for others.

g. Significance Category R: Recurring occurrences are those identified as recurring, either directly or through periodic analysis of occurrences and other non-reportable events.

2. Safeguards and security events are not reported in ORPS unless they involve other consequences that meet the ORPS reporting criteria presented herein.

3. This Order does not absolve the cognizant parties from making required reports to other agencies.

4. Major Criteria Groups. The 10 major groups of categorized occurrences are as follows.

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 – Packaging and Transportation

Group 9 - Noncompliance Notifications

Group 10 - Management Concerns/Issues

5. Categorizing Instructions.

a. 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)." An event can meet multiple reporting criteria that establish it as an occurrence.

b. The reporting criteria presented below 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.

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**. Attachment 4 contains the prompt notification requirements.

d. DOE O 151.1C describes initiating events that are considered Operational Emergencies. DOE O 225.1B defines when Federal Accident Investigation Boards must be convened. While some Operational Emergencies and some other ORPS occurrences involve conditions that would be sufficient to initiate accident investigations, criterion 10(1) herein will report the actual initiation of a Federal Accident Investigation Board.

e. **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 and the event categorized as the higher SC reporting criterion being considered.

6. Occurrence Reporting Criteria.

Group 1 - Operational Emergencies

#	SC	Criterion
(1)	*OE	An Operational Emergency not requiring classification, as defined in DOE O 151.1C, Chapter V, Paragraph 2.
(2)	*OE	An Alert, as defined in DOE O 151.1C, Chapter V, Paragraph 3a.
(3)	*OE	A Site Area Emergency, as defined in DOE O 151.1C, Chapter V, Paragraph 3b.
(4)	*OE	A General Emergency, as defined in DOE O 151.1C, Chapter V, Paragraph 3c.

Group 2 - Personnel Safety and Health

Subgroup A Occupational Injuries.

#	SC	Criterion
(1)	*1	Any occurrence due to DOE operations resulting in a fatality or terminal injury/illness. Report fatalities or terminal illnesses caused by overexposures under Subgroup B, Occupational Exposures.
(2)	*1	Any single occurrence requiring in-patient hospitalization of three or more personnel.
(3)	2	Any single occurrence resulting in an occupational injury that requires in-patient hospitalization for 5 days or more, commencing within 7 days from the date the injury was received. Note: This criterion is similar to one of the thresholds for initiating a Federal Accident Investigation Board. If such an investigation is begun, the event must be reported under Criterion 10(1), as well as under this criterion if the injury so warrants.
(4)	2	Any single occurrence resulting in three or more personnel having Days Away, Restricted or Transferred (DART) cases per 29 CFR Section 1904.7, *Recordkeeping Forms and Recording Criteria*.
(5)	3	Any single occurrence resulting in a serious occupational injury. A serious occupational injury is an occupational injury that: a) Requires in-patient 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 bone chips, simple fractures of fingers, toes, or nose, or a minor chipped tooth); c) Causes severe hemorrhages or severe damage to nerves, muscles, tendons, or ligaments. (Note: Severe damage is generally considered to have occurred if surgery is required to correct the damage.) d) Damages any internal organ; e) Causes (1) a concussion or (2) loss of consciousness due to an impact to the head, or f) Causes second- or third-degree burns, affecting more than five percent of the body surface.

Subgroup B Occupational Exposure.

[Note: See "Personnel Exposure" in Definitions in this Order. 29 CFR Sections 1904.7(b)(5)(i) and (ii) define "medical treatment" and "first aid." For reporting ionizing radiation exposures, see Group 6 Contamination/Radiation Control, Subgroup C Radiation Exposure.]

#	SC	Criterion
(1)	*1	Any acute exposure from a chemical, biological, or physical hazard due to DOE operations resulting in a fatality or terminal injury/illness or requiring in-patient hospitalization of three or more personnel.
(2)	2	Any acute exposure resulting in an occupational injury that requires in-patient hospitalization for 5 days or more, commencing within 7 days from the date the exposure was received or any exposure event resulting in three or more personnel having Days Away, Restricted or Transferred (DART) cases per 29 CFR Section 1904.7, *Recordkeeping Forms and Recording Criteria*.
(3)	*2	Personnel exposure to chemical, biological or physical hazards that exceeds 10 times the limits established in 10 CFR Part 851, *Worker Safety and Health Program* (see 10 CFR Section 851.23 *Safety and Health Standards*) or exceeds levels deemed immediately dangerous to life and health (IDLH).
(4)	3	Personnel exposure to chemical, biological or physical hazards (e.g. noise, laser, ultraviolet light, heat, etc.) above limits established in 10 CFR Part 851, *Worker Safety and Health Program* (see 10 CFR Section 851.23, *Safety and Health Standards*), but below levels deemed immediately dangerous to life and health (IDLH), and requires the administration of medical treatment beyond first aid on the same day as the exposure.
(5)	3	Any exposure including chronic resulting in a serious occupational injury. A serious occupational injury is an occupational injury that: a) Requires in-patient hospitalization for more than 48 hours, commencing within 7 days from the date the exposure was received; b) Damages any internal organ; c) Leads to diagnosis of a debilitating disease; or

d) Causes second- or third-degree burns, affecting more than five percent of the body surface.

(6) 4 Personnel exposure to chemical, biological or physical hazards (e.g. noise, laser, ultraviolet light, heat, etc.) above limits established in 10 CFR Part 851, but below levels deemed immediately dangerous to life and health (IDLH).

Subgroup C Fires.

#	SC	Criterion

(1) *1 Any fire emergency or fire incident within primary confinement/containment boundaries of a nuclear facility, except a fire that self-extinguishes in 10 minutes or less.

[Note: Facility specific documents need to define what constitutes the primary confinement/containment boundary.]

(2) *2 Any fire emergency or fire incident in a nuclear facility that:

a) Activates a fixed automatic fire suppression system (clean agent or wet-pipe automatic sprinkler protection), or

b) Is extinguished manually by the emergency response organization, or

c) Disrupts normal operations in the facility, or

d) Is a fire within primary confinement/containment that self-extinguishes in 10 minutes or less.

[Note: The activation or degradation of Safety Class and Safety Significant fire suppression systems are addressed by Group 4 Criteria.]

(3) *3 Any fire emergency or fire incident in a non-nuclear facility that

a) Activates a fixed automatic fire suppression system, or

b) Takes longer than 10 minutes to extinguish following the arrival of the emergency response organization, or

c) Disrupts normal operations in the facility for more than eight hours.

(4) 4 Any fire in a nuclear facility.

(5)	*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.

Subgroup D Explosions.

#	SC	Criterion
(1)	*1	Any unplanned explosion within primary confinement/containment boundaries of a nuclear facility. [Note: Facility specific documents need to define what constitutes the primary confinement/containment boundary.]
(2)	*2	Any unplanned explosion in a nuclear facility that disrupts normal operations in the facility.
(3)	*3	Any unplanned explosion in a non-nuclear facility that disrupts normal operations in the facility.

Subgroup E Hazardous Electrical Energy Control.

#	SC	Criterion
(1)	2	Any unexpected or unintended personal contact (burn, injury, etc.) with an electrical hazardous energy source (e.g., live electrical power circuit, etc.).
(2)	3	Any unexpected discovery of an uncontrolled electrical hazardous energy source (e.g., live electrical power circuit, etc.). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.
(3)	4	Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).

Subgroup F Hazardous Energy Control **(**Other than electrical**)**.

#	SC	Criterion
(1)	2	Any unexpected or unintended personal contact (burn, injury, etc.) with a hazardous energy source (e.g., powered mechanical hazards, steam, pressurized gas).
(2)	3	Any unexpected discovery of an uncontrolled hazardous energy source (e.g., powered mechanical hazards, steam, pressurized gas). This criterion does not include discoveries made by zero-energy

checks and other precautionary investigations made before work is authorized to begin.

(3) 4 Any failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout, hazardous energy control program).

Group 3 - Nuclear Safety Basis

Subgroup A Technical Safety Requirement and Other Hazard Control Violations (excluding nuclear criticality).

[Note: Report nuclear criticality events under Group 3, Subgroup C below]

#	SC	Criterion
(1)	*1	Any violation of a nuclear facility's Technical Safety Requirement (or Operational Safety Requirement) Safety Limit.
(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, Specific Administrative Control, or Surveillance Requirement. Exception: An event consisting solely of a surveillance test (to include any periodic activity explicitly captured in the DSA that is used to ensure operability or viability of a structure, system, or component) performed after the prescribed surveillance period, and in which the Structure, system, or component 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 credited hazard control specified in a Hazard Category 1, 2, or 3 nuclear facility's DOE approved Documented Safety Analysis [issued pursuant to 10 CFR Section 830.204, *Documented Safety Analysis*, 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 (to include any periodic activity explicitly captured in the DSA that is

used to ensure operability or viability of a structure, system, or component) performed after the prescribed surveillance period, and in which the structure, system, or component 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 (to include any periodic activity explicitly captured in the DSA that is used to ensure operability or viability of a structure, system, or component) performed after the prescribed surveillance period, and in which the structure, system, or component was found to be capable of performing its specified safety function.

Subgroup 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.
(2)	3	Declaration of a potential inadequacy of the documented safety analysis (a potential positive USQ), per 10 CFR Section 830.203(g). [Note: When a potential inadequacy of a documented safety analysis is found, it would be initially reported under Criterion 3B(2). If further analysis results in a positive USQ determination, then the occurrence report should be updated to recategorize it under Criterion 3B(1). If the analysis results in a negative USQ determination, the occurrence report should be updated to recategorize it under Criterion 3B(3).]
(3)	4	Determination of a negative Unreviewed Safety Question (USQ).

Subgroup C Nuclear Criticality Safety Control Violations.

#	SC	Criterion
(1)	*OE	A criticality accident occurs.
(2)	*1	A condition in which no documented controls are available to prevent a criticality accident. An accident has not occurred due to other, non-documented barriers or controls.

(3) 2 A loss of one or more nuclear criticality documented controls such that an accidental criticality is possible from the loss of one additional documented control.

(4) 3 A deficiency in criticality safety analysis or degradation of a documented criticality control (or controls) such that adequate controls were not in place for a credible criticality accident scenario.

Group 4 - Facility Status

[Note: The criteria below apply to both nuclear and non-nuclear facilities. However, criteria specific to Safety Class or Safety Significant Structures, Systems, or Components would apply only to nuclear facilities.]

Subgroup A Safety Structure/System/Component Degradation (Nuclear Facilities).

[Note: Performance degradation includes the absence of or deficiency with Design Features for which credit has been taken in the Documented Safety Analysis.]

#	SC	Criterion
(1)	3	Performance degradation of any Safety Class (SC) or Safety Significant (SS) Structure, System, or Component (SSC), or any support system that is required for safety operation of the SC or SS SSCs, which 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.

Subgroup B Operations.

#	SC	Criterion
(1)	*2	A formal change of operational mode or curtailment of work or processes) directed by a DOE Field Element Manager or Contracting Officer for safety reasons (e.g., a Stop Work Order).
(2)	2	Actuation of a Safety Class Structure, System, or Component (SSC), or its alarms as a result of 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 as a result of an actual unsafe condition.

Spurious alarms (e.g., due to electronic noise, radon/thoron decay) should not be reported.

(4) 3 A facility evacuation, other than a precautionary evacuation or an evacuation due to false alarms or spurious alarms (e.g., due to electronic noise, radon/thoron decay). 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 which resulted in an adverse effect on safety, such as, but not limited to:

a) an inadvertent facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes),

b) a manual facility or operations shutdown due to alarm response procedures,

c) an inadvertent process liquid transfer, or

d) an 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 senior contractor or senior DOE management for safety reasons, and requiring a corrective action(s) prior to continuing operations.

(7) 4 Any event or condition that would prevent immediate facility or offsite emergency response capabilities.

Subgroup C Suspect/Counterfeit and Defective Items or Material

[Note: Include the detailed information identified in Attachment 3.]

#	SC	Criterion
(1)	3	Discovery of any suspect or counterfeit item or material found in a Safety Class or Safety Significant Structure, System, or Component (SSC).
(2)	4	Discovery of any other suspect or counterfeit item or material (i.e., not found in a Safety Class or Safety Significant Structure, System, or Component) that is found in any application whose failure could result in a loss of safety function, or present a hazard to public or worker health and safety.

(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.

Group 5 - Environmental

Subgroup A Releases.

#	SC	Criterion
(1)	*3	Any release (onsite or offsite) of a hazardous or extremely hazardous substance, including radionuclides from a DOE facility above federally permitted releases in a quantity equal to or exceeding the federal reportable quantities specified (See specifications in 40 CFR Part 302, *Designation, Reportable Quantities, and Notification*, 40 CFR Part 355, *Emergency Planning and Notification, and CERCLA Section 101(10), Federally Permitted Releases*.) [Note: See Group 1, Criterion 1, for situations under which releases of hazardous or extremely hazardous substances would be reported under "Operational Emergencies."]
(2)	4	Any release (onsite or offsite) of a pollutant from a DOE facility that is above levels or limits specified by outside agencies in a permit, license, or equivalent authorization, when reporting is required in a format other than routine periodic reports. [Note: See Group 1, Criterion 1, for situations under which releases of pollutants into the environment exceeding permit limits would be reported under "Operational Emergencies."]
(3)	4	Any release (onsite or offsite) 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 that must be reported to outside agencies in a format other than routine periodic reports is reportable under this criterion. [Note: See Group 1, Criterion 1, for situations under which releases of oil would be reported under "Operational Emergencies."]
(4)	4	Any discrete release of sulfur hexafluoride (SF_6) due to an event or DOE operation equal to or exceeding 115 pounds (1,247 metric

tons of CO2e according to 40 CFR Part 98, Subpart A, Table A-1, *Global Warming Potentials*) or 115 pounds more than the normal release quantity if the SF_6 release is a common byproduct of the operation.

[Note: For this criterion, discrete means the event or operation has defined start and stop points less than seven full days apart.]

Subgroup B Ecological and Cultural Resources

#	SC	Criterion
(1)	2	Any occurrence including releases causing significant impact to ecological or cultural resource for which DOE has responsibility under applicable laws, regulations, and Executive Orders. For example, extensive damage to, or destruction of: a) Ecologically preserved areas, or pristine or protected wetlands; b) Threatened or protected flora or fauna or critical habitats; c) Potable drinking water intake or well usage; or d) Historical/archeological sites.
(2)	*2	Any occurrence, including releases, resulting in extensive environmental degradation (e.g., fish kill, notable loss or relocation of native species, need for interdiction of crop sales, or restriction to human access). [Note: See Group 1, Criterion 1, for situations under which occurrences affecting ecological or cultural resources would be reported under "Operational Emergencies."]

Group 6 - Contamination/Radiation Control

Subgroup A Loss of Control of Radioactive Materials

[Note: Subgroup 6A criteria apply to bulk radioactive materials, sealed sources, and property containing radioactive materials, including discovered legacy radioactive materials, but do not apply to surface radioactive contamination on property. Surface radioactive contamination is addressed in Subgroup 6B.]

#	SC	Criterion
(1)	*2	Identification of radioactive material offsite due to DOE operations/activities that exceeds applicable DOE limits (pursuant

to DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment*, dated 6-6-11).

(2) 2 Loss or unexpected discovery of radioactive material that exceeds 100 times the values in 10 CFR Part 835, *Occupational Radiation Protection*, Appendix E (excluding consumer products such as smoke detectors, if they are handled in accordance with manufacturer's instructions), 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 and must include one business day.

(3) 3 Loss or unexpected discovery of radioactive material which exceeds 1 times and no greater than 100 times the values in 10 CFR Part 835, Appendix E (excluding consumer products such as smoke detectors, if they are handled in accordance with manufacturer's instructions) 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 and must include one business day.

[Note: Legacy radioactive material discovered through a routine radiological monitoring program, compliant with 10 CFR 835 may be summarized in a single short form report, for example, on a quarterly basis. Each instance of legacy radioactive material must be identified in the report and contain the details required for reporting in accordance with this Order.]

Subgroup B Spread of Radioactive Contamination

SC Criterion

(1) *2 Identification of offsite radioactive contamination due to DOE operations/activities that exceeds applicable DOE-approved authorized limits (pursuant to DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment*, dated 6-6-11) or, if there are none, the total contamination values in 10 CFR Part 835, Appendix D.

[Notes:

a) Release or clearance of property containing or potentially containing residual radioactive material is subject to requirements in DOE O 458.1. Compliance with 10 CFR Part 835, Appendix D values does not necessarily satisfy the requirements in DOE O 458.1.

b) The discovery of radioactive contamination from past DOE/NNSA operations that may have caused, is causing or may reasonably be expected to cause exposures exceeding protective action criteria may be reportable as an Operational Emergency under Group 1, Criterion 1.]

(2) 2 Identification of onsite radioactive contamination greater than 100 times the total contamination values in 10 CFR Part 835 Appendix D, exclusive of footnote 3 to Appendix D, and that is found outside of the following locations: areas routinely posted, controlled and monitored for contamination, areas controlled in accordance with 10 CFR Section 835.1102(c), and, per Section 835.604(a), any non-posted area that is under the continual observation and control of an individual knowledgeable of and empowered to implement required access and exposure control measures. For tritium, the reporting threshold is 100 times the removable contamination values in 10 CFR Part 835, Appendix D.

[Notes:

a) This does not apply to surface contamination from residual radioactive material meeting applicable DOE-approved authorized limits.

b) This does not apply to legacy radioactive contamination, which is to 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 for a Contamination Area, High Contamination Area, or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD-1098-2008.

d) The discovery of radioactive contamination from past DOE/NNSA operations that may have caused, is causing, or may reasonably be expected to cause uncontrolled personnel exposures exceeding protective action criteria may be reportable as an Operational Emergency under Group 1, Criterion 1.]

(3) 3 Identification of onsite radioactive contamination greater than 10 times and no greater than 100 times the total contamination values in 10 CFR Part 835, Appendix D, exclusive of footnote 3 to Appendix D, and that is found outside of the following locations: areas routinely posted, controlled and monitored for contamination, areas controlled in accordance with 10 CFR

Section 835.1102(c), and, per Section 835.604(a), any non-posted area that is under the continual observation and control of an individual knowledgeable of and empowered to implement required access and exposure control measures. For tritium, the reporting threshold is 10 times the removable contamination values in 10 CFR Part 835, Appendix D.

[Notes:

a) This does not apply to contamination from residual radioactive material meeting applicable DOE-approved authorized limits.

b) This does not apply to legacy radioactive contamination, which is to 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 for a Contamination Area, High Contamination Area or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD-1098-2008.

d) This reporting criterion does not apply to packages monitored in accordance with 10 CFR Section 835.405 that meet DOT contamination limits specified in 49 CFR Section 173.443(a).]

(4) 4 Identification of onsite legacy radioactive contamination greater than 10 times the total contamination values in 10 CFR Part 835 Appendix D, exclusive of footnote 3 to Appendix D, and that is found outside of the following locations: areas routinely posted, controlled and monitored for contamination, and areas controlled in accordance with 10 CFR Section 835.1102(c), and, per Section 835.604(a), any non-posted area that is under the continual observation and control of an individual empowered to implement access and exposure control measures. For tritium, the reporting threshold is 10 times the removable contamination values in 10 CFR Part 835, Appendix D.

[Notes:

a) Legacy radioactive contamination is radioactive contamination resulting from historical operations that are unrelated to current activities.

b) This does not apply to contamination from residual radioactive material meeting applicable DOE-approved authorized limits.

c) The exclusion from reporting contamination in a Radiological Buffer Area applies only when the area has been established for a Contamination Area, High Contamination Area or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD-1098-2008.

d) Legacy contamination identified through a routine radiological monitoring program, compliant with 10 CFR 835 may be summarized in a single short form report, for example, on a quarterly basis. Each instance of legacy contamination must be identified in the report and contain the details required for reporting in accordance with this Order.]

Subgroup C Radiation Exposure

[Note: For all of Subgroup C, reportability should be determined promptly following an event, using field indicators when dosimetry results are not available. Quantitative dose estimates should only be reported using the site's established dosimetry, dose assessment, and modeling processes. Resulting confirmed dose estimates may overturn initial reportability determinations.]

#	SC	Criterion
(1)	*1	Determination of a dose that exceeds the limits specified in 10 CFR Part 835, Subpart C, "Occupational Radiation Protection" or in DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment*, dated 6-6-11, paragraph 4.b(1)(a) [paragraph 2.b(1)(a) of the CRD], "Public Dose Limit."
(2)	2	Failure to provide the required monitoring for an exposure estimated to exceed the values for providing personnel dosimeters and bioassays as stated in 10 CFR Section 835.402(a) or 10 CFR Section 835.402(c).
(3)	3	Determination of a single occupational dose, attributable to an identified event that exceeds an expected dose by: (1) 500 mrem Committed Effective Dose (CED), or (2) the greater of 10 percent or 100-mrem effective dose due to external exposure.
(4)	3	A radiological release that exceeds any limit contained in paragraphs 4.f.(2), 4.f.(5), 4.g.(4), 4.g.(5)(a), 4.g.(7), 4.g.(8)(a)4 or

4.i.(1) of DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment,* dated 6-6-11 or exceeds the 40 CFR Section 61.92 requirements.

Subgroup D Personnel Contamination

#	SC	Criterion
(1)	*2	Any occurrence requiring offsite medical assistance for contaminated personnel, including transporting a person with personnel or clothing contamination due to DOE operations/activities that exceeds 1 times the total contamination values in 10 CFR 835, Appendix D to an offsite medical facility or bringing offsite medical personnel onsite to perform treatment or decontamination.
(2)	2	Identification of offsite personnel or clothing contamination due to DOE operations/activities that exceeds 1 times the total contamination values in 10 CFR Part 835, Appendix D. For tritium, the reporting threshold is 1 times the removable contamination value found in 10 CFR Part 835, Appendix D.
(3)	4	Identification of onsite personnel or clothing contamination (excluding anti-contamination clothing provided by the site for radiological protection) that exceeds 10 times the total contamination values 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

#	SC	Criterion
(1)	*1	Damage to a nuclear explosive that results in a credible threat to nuclear explosive safety.
(2)	2	A near miss event during nuclear explosive operations where the potential for significant consequences was substantially increased, such as: a) unauthorized introduction of electrical, mechanical, chemical, thermal, or electromagnetic energy into a nuclear explosive, b) unauthorized compromise of a nuclear explosive safety feature when installed on a nuclear explosive,

c) inadvertent substitution of a nuclear explosive for a nuclear explosive-like assembly (NELA) or vice versa, or

d) violation of a nuclear explosive safety rule (NESR).

(3) 3 An event during nuclear explosive operations that resulted in an adverse effect on safety, such as:

a) use of uncertified personnel or unauthorized equipment/tooling, or

b) violation of the two-person concept of operations.

Group 8 – Packaging and Transportation

#	SC	Criterion
(1)	*2	Any offsite transportation incident involving hazardous materials that would require immediate notice pursuant to 49 CFR Section 171.15(b). [Note: Any occurrence involving an offsite DOE/NNSA shipment containing hazardous materials that causes the initial responders to initiate protective actions at locations beyond the immediate/affected area should also be reported as an Operational Emergency under Group 1, Criterion 1; Group 8 will be a secondary reporting criterion.]
(2)	3	Any deviation that would require a written report to the Nuclear Regulatory Commission (per 10 CFR Section 71.95) or to DOE HCO/NNSA CO (per DOE O 460.1C or DOE O 461.1B), namely: a) Instance in which there is a significant reduction in the effectiveness (as defined by the certificate holder) of any approved fissile or Type B packaging during use. b) Discovery of a defect with safety significance (as determined by the certificate holder) in a fissile or Type B packaging, after first use (by any shipper). c) Instance in which the conditions of approval in the Certificate of Compliance (or equivalent) were not performed in making a shipment.
(3)	*3	Any offsite "accident" (per 49 CFR Section 390.5) involving a motor vehicle carrying DOE hazardous materials operating on a highway in interstate or intrastate commerce.

[Note: Prompt notification is not required if the accident does not involve personnel injuries.]

(4) 3 Any offsite transportation incident involving DOE hazardous materials that requires submission of a Hazardous Materials Incident Report on DOT Form F 5800.1 pursuant to 49 CFR Section 171.16.

(5) 3 Any offsite transportation of hazardous material, including radioactive material, whose quantity or nature (e.g., physical or chemical composition) is such that it is noncompliant with the receiving facilities Waste Acceptance Criteria (WAC) or other receipt requirements and the receiving organization's operations were significantly impacted or disrupted (e.g., material cannot be accepted, possessed, or stored at that facility; must be treated or repackaged to be accepted; or exceeds a license or permit limit).

(6) 3 Any transportation activity for onsite transfer resulting in onsite release of radioactive materials, hazardous materials, hazardous substances, hazardous waste, or marine pollutants that is above permitted levels and exceeds the reportable quantities (RQ) specified in 40 CFR Section 302 or 40 CFR Section 355.

[Note:

a) This occurrence may be reportable under Group 1, Criteria 2, 3, or 4.

b) Any release of a quantity of hazardous materials greater than five (5) times the Reportable Quantity (RQ) specified for such material in 40 CFR § 302; of greater than 1,000 gallons (24 barrels) of oil to inland waters; or greater than 10,000 gallons (238 barrels) of oil to coastal waters should also be reported as an Operational Emergency under Group 1, Criterion 1; Group 8 will be a secondary reporting criteria.]

(7) 4 Violation of applicable Hazardous Materials Regulations requirements for activities listed in 49 CFR Section 171.1(b) performed during the preparation of offsite hazardous materials shipments and discovered during shipment in commerce or at the receiving site.

(8) 4 Any onsite transfer of hazardous material, including radioactive material, whose quantity or nature (e.g., physical or chemical composition) is such that it is noncompliant with the receiving facilities Waste Acceptance Criteria (WAC) or other receipt

requirements and the receiving organization's operations were significantly impacted or disrupted (e.g., material cannot be accepted, possessed, or stored at that facility; must be treated or repackaged to be accepted; or exceeds a license or permit limit).

(9) 4 Unauthorized deviation from DOE instructions to commercial motor carriers for DOE hazardous materials shipments (e.g., designated route, prohibited route, designated time of the day).

Group 9 - Noncompliance Notifications

#	SC	Criterion
(1)	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 equivalent notification or enforcement action). [Note: This criterion is not applicable to DOE Office of Enforcement actions.]
(2)	4	Any packaging or transportation violation of regulations discovered by DOT during onsite inspections or Compliance Reviews results in fines greater than $5,000 or Unsatisfactory/Conditional Satisfactory ratings. [Note: Noncompliance occurrence reports are to be updated to reflect fines or penalties levied or corrective actions imposed by the outside regulatory agency upon final settlement of any enforcement action undertaken.]

Group 10 - Management Concerns and Issues

#	SC	Criterion
(1)	2	Any event resulting in the initiation of a Federal Accident Investigation Board, as categorized by DOE O 225.1B, *Accident Investigation.* [Note: This reporting criterion may raise the significance category of an occurrence already reported under separate criteria. Multiple reporting criteria should be assigned, when appropriate.]
(2)	1-4[†]	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 for that facility or other facilities or activities in the DOE complex.

The significance category assigned to the management concern should be based on an evaluation of the potential risks and impact on safe operations.

[† Note: Follow the Prompt Notification requirements identified in the Occurrence Reporting Model (Attachment 4).]

(3) 1-3† A near miss to an otherwise ORPS reportable event, where something physically happened that was unexpected or unintended, or where no or only one barrier prevented an event from having a reportable consequence. .

The significance category assigned to the near miss must be based on an evaluation of the potential risks and extent of personnel exposure to the hazard.

[† Note: Follow the Prompt Notification requirements identified in the Occurrence Reporting Model (Attachment 4).]

(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 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].

Occurrence Report Preparation

[This Attachment provides information and requirements applicable to DOE O 232.2 and contracts that include the associated CRD (Attachment 1 to DOE O 232.2).]

Notification, Update, and Final Reports must be written clearly and concisely so the general reader can understand the basic "who, what, when, where, how" of the event; the safety issues involved; and the actions taken. The following instructions apply:

1. The Subject or Title of Occurrence and the first paragraph of the Description of Occurrence must relay the essential nature of the event (i.e., a summary of the occurrence in newspaper style). Subsequent paragraphs must contain the background and description of the event at a sufficient level of detail for the reader to understand what happened and the resulting consequences and actions.
2. Final Reports must contain the significance, nature, and extent of the event or condition if this information is not already in the Notification or Update Report.
3. Final Reports must contain the causes of the event or condition (including the root cause, as required) using the codes provided in the Causal Analysis Tree (Attachment 5).
4. Final reports must also include the immediate actions taken (if not already in the Notification Report), the corrective action(s) to be taken, and any lessons learned developed for the event, as required by the Occurrence Reporting Model (Attachment 4).
5. Reports on suspect/counterfeit and defective items or material, must provide the manufacturer/supplier/vendor (including a contact, phone number, and website), the model and part numbers, the quantity found, why the item/material is suspect/counterfeit or defective, and how the item/material is being used. Reports must also include the method of detection (i.e., receipt inspection, craft inspection prior to installation, in-service inspection, or failure) and identify any resulting consequences, along with any photos via hyperlink, as appropriate (see 7 below).
6. Reports must quantify the level of contamination, dose, exposure, release, and damage (e.g., estimate the acres of wild land burned) when possible, instead of merely stating a reportable limit was exceeded.
7. Photos, sketches, drawings, and witness statement interview notes must be maintained with the occurrence report record when appropriate for clarification. In addition, sites are encouraged, but not required, to make photos, sketches, and drawings available via a Webpage, with the Webpage address included in the ORPS report.

Occurrence Reporting Model

[This Attachment provides information and requirements applicable to DOE O 232.2 and contracts that include the associated CRD (Attachment 1 to DOE O 232.2).]

Significance Category	Timelines*	Prompt Notification	Final Report Approval	Causal Analysis
Operational Emergencies (defined by DOE O 151.1C)+	Categorize: ASAP Prompt Notification: 30 min (15 min if further classified) Written Notification: COB next business day not to exceed 90 hrs Final Report: 45 calendar days	To Facility Representative (FR) and DOE Headquarters Operations (HQ) Center	By Facility Representative and Program Manager	Root Cause or Locally Approved Procedure
Significance Category 1	Categorize: 2 hrs Prompt Notification: 2 hrs Written Notification: COB next business day not to exceed 90 hrs Final Report: 45 calendar days	To FR and DOE HQ Center	By Facility Representative and Program Manager	Root Cause or Locally Approved Procedure
Significance Category R	Categorize: Time of SC R determination Written Notification: COB 2 business days Final Report: 45 calendar days		By Facility Representative	Root Cause or Locally Approved Procedure
Significance Category 2	Categorize: 2 hrs Prompt Notification: 2 hrs Written Notification: COB next business day Final Report: 45 calendar days	To FR (When required, DOE HQ Center)†	By Facility Representative	Apparent Cause or Locally Approved Procedure
Significance Category 3	Categorize: 2 hrs Prompt Notification: 2 hrs Written Notification: COB 2 business days Final Report: 45 calendar days	To FR (When required, DOE HQ Center)†	By Facility Manager (local/program option for Facility Representative)	Apparent Cause or Locally Approved Procedure
Significance Category 4	Categorize: 2 hrs Prompt Notification: 2 hrs (as required) Short Form Report: COB 2 business days	When required, to FR and DOE HQ Center†	Per local procedures	Locally Approved Procedure

+ Categorization and Prompt Notification requirements are in accordance with DOE O 151.1C, Emergency Management

* Categorization Time is from Discovery Date and Time. Prompt Notification is from Categorization Date and Time. Written Notification is from Categorization date and Time.

† Specific Significance Category 2, 3, and 4 occurrences (identified with an asterisk in Attachment 2, Reporting Criteria) also require Prompt Notification to the DOE HQ EOC.

Reportable occurrences, as defined by the criteria in Attachment 2, must be processed according to the following requirements.

1. Security Requirements

   a. Occurrence Reports containing any classified information, Unclassified Controlled Nuclear Information (UCNI), or other controlled information must not be entered into the ORPS database.

   b. All reports determined to be classified or controlled by current classification or control guidance must be submitted in hard copy in accordance with established security requirements and using the appropriate secure transmission means. In addition, an unclassified version of the Occurrence Report that has been sanitized of all controlled information must be submitted to ORPS within the time frames specified in this Order. Specific instructions on the reporting of occurrences via hard copy or the electronic database, the Occurrence Reporting and Processing System (ORPS), are available on the Occurrence Reporting and Processing System homepage.

   c. Occurrence reports involving incidents of counterintelligence concern (e.g., foreign persons, governments, organizations, entities or influence) must not be entered or referenced in the ORPS database.

2. Event or Condition Categorization.

   Events or conditions must be initially categorized according to the Reporting Criteria in Attachment 2. The occurrence criterion and/or Significance Category for the incident must be reevaluated and changed as new information becomes available.

3. Prompt Notifications.

   When a Prompt Notification is required according to the Reporting Criteria in Attachment 2:

   a. The local Field/Site Emergency Operations Center may be used to expedite establishing the communication link required and to record and archive conversations.

   b. The prompt notification process must accomplish the following:

      1) The prompt notification must be e-mailed to the DOE HQ OC and receipt must be confirmed.

      2) The Prompt Notification must include information on the following items, as applicable:

         - Occurrence Significance Category

- All of the reporting criteria (i.e., including the Group, Subgroup and Sequence Numbers) associated with the occurrence
- Location and description of the event
- Date and time of discovery
- Damage and casualties
- Impact of event on activities and operations
- Protective actions taken or recommended
- Weather conditions at the scene
- Level of media interest at scene/facility/site
- Other notifications made

c. If the occurrence is recategorized, then the occurrence must be reconsidered for prompt notification and, as appropriate, the same prompt notification process stated above must be followed.

d. Follow-up notifications must be made 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 initial notification.

4. Written Notification Report. A written Notification Report must be submitted into the computerized Occurrence Reporting and Processing System (ORPS) within the timeframe specified in this Order, or as soon thereafter as reasonably possible.

5. Update Report.

a. Any changes to the occurrence reporting criteria that result in a change to the Significance Category, either lower or higher, must be documented in an Update Report and submitted within the timeframe required for the Notification Report under the new Significance Category as described in this Order. A discussion of the change in category must be included in the Update Report at the end of the "Description of Occurrence" field.

b. An Update Report must be submitted for all occurrences, with the exception of Significance Category 4 occurrences, if there is any significant and new information about the occurrence. The status of occurrence inquiries, recurring consequences, and the identification of additional component defects must be included in the update.

c. If the required analysis (see paragraph 8, this attachment) 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 in the "Facility Manager's Evaluation" field of the

Occurrence Report and provide an estimated date for submittal of the Final Report.

6. Final Reports. The Final Report must be prepared and submitted as soon as practical. The Final Report or an Update Report to extend the Final Report submission, as discussed in 5.c, must be submitted within 45 calendar days after initial categorization of the occurrence. The Final Report must be prepared using the writing instructions provided in Occurrence Report Preparation (Attachment 3).

7. Report Closure.

   a. For occurrences resulting in the appointment of a Federal Accident Investigation Board (see DOE O 225.1B, *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.

   b. Within 14 calendar days after receipt of the report, the Facility Representative must review, approve or reject, and add comments, as necessary for Operational Emergencies and Significance Category 1, R, and 2 Final Reports. Local implementing procedures may specify additional approval requirements beyond those stated in this Order.

   c. Within 14 calendar days after the Facility Representative has approved the Final Report, the Program Manager must review, approve or reject, and add comments, as necessary, to any Operational Emergencies and Significance Category 1 Final Reports.

   d. If the Final Report is not approved by the applicable Facility Representative or the Program Manager, the Facility Representative or Program Manager must formally reject the report and provide the reason for disapproval in the report's "Facility Representative/Program Manager Comment" field when 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 explaining the delay and providing an estimated date for resubmittal. This information must be reported in the "Facility Manager's Evaluation" field of the Occurrence Report.

8. Occurrence Investigation and Analysis

   a. General. The purpose of occurrence investigation and analysis is to understand and identify the causes (both individual and organizational) that contributed to the occurrence so those deficiencies can be addressed and corrected. Analyzing occurrence reports promotes the values and concepts of a learning organization envisioned in the Integrated Safety Management (ISM) Feedback and Improvement function, including performance monitoring; identifying deviations or questionable conditions; self-assessing; and using quality analysis to improve.

In order to achieve the ISM goal, organizations must learn from occurrences and near misses by going beyond surface level causal analysis to understand how the underlying sources of operational vulnerability combined to produce unintended or undesired results. An occurrence analysis must explain how failure(s) emerged from a normally safe and reliable system to provide the understanding required to improve systems and processes and prevent future accidents.

b. Graded Approach. Occurrences must be investigated and analyzed using a graded approach in accordance with locally approved quality and issues management procedures. Facility Managers must consider the significance or potential significance (e.g., Significance Category) of the event when choosing the scope and tools to use in the investigation. The investigation and analysis methodology(ies) must be included in the report's "Description of Cause" field.

c. Causal Analysis Documentation. Causes must be identified and appropriately documented in accordance with the Causal Analysis Tree (Attachment 5). The "Description of Cause" field must include a brief discussion that clearly links the event to the cause code(s) and resulting corrective actions. In addition, any discussion of the facility's implementation of the ISM program must be identified and entered in the "Description of Cause" field.

d. Generic Implications. Generic implications including the need for extent-of-condition review must be assessed and results documented in the "Description of Cause" field.

e. Corrective Action Documentation. Corrective actions status must be tracked to closure in a locally approved tracking system or in the ORPS database. In both cases, the approved corrective actions must be entered into the ORPS database. Facilities that use locally approved systems must document the corrective action tracking number from the local tracking system and the expected corrective action completion date in ORPS. Any expected completion date changes must follow the site's approved change process.

9. Lessons Learned. Lessons learned must be considered in accordance with DOE O 210.2A, *DOE Corporate Operating Experience Program*, dated 4-8-11. Any lessons learned developed from the event must be entered in the "Lessons Learned" field.

10. Identifying Safety Performance Trends and Recurring Occurrences.

a. Ongoing analyses, considering all reportable and non-reportable occurrences and events, must be performed to look for trends and determine if occurrences are recurring. At a minimum, these analyses must be performed quarterly and must consider at least the previous 12-months. The analysis results must be reported to line management. Trending of ORPS data may be conducted as part of integrated analyses within the organization's issue management or contractor assurance systems.

b. Recurring occurrences and events must be categorized and reported collectively as a Significance Category R occurrence no matter what the previous individual categorizations were, even if they were previously non-reportable. Previous individual Occurrence Report Numbers associated with the recurring issue must be provided in the "Similar Occurrence Report Number" field. Significance Category R reports must include the results of subsequent analyses and corrective actions, as described in paragraph 8 of this attachment.

[This Attachment provides information and requirements applicable to DOE O 232.2 and contracts that include the associated CRD (Attachment 1 to DOE O 232.2).]

Causal Analysis Tree Rev. 1

START HERE

A1 Design / Engineering Problem

B1 DESIGN INPUT LTA
- C01 Design input cannot be met
- C02 Design input obsolete
- C03 Design input not correct
- C04 Necessary design input not available

B2 DESIGN OUTPUT LTA
- C01 Design output scope LTA
- C02 Design output not clear
- C03 Design output not correct
- C04 Inconsistent design output
- C05 Design input not addressed in design output
- C06 Drawing, specification, or data error
- C07 Error in equipment or material selection
- C08 Error not detectable
- C09 Errors not recoverable

B3 DESIGN/ DOCUMENTATION LTA
- C01 Design/ documentation not complete LTA
- C02 Design/ documentation not up-to-date
- C03 Design/ documentation not controlled

B4 DESIGN/ INSTALLATION VERIFICATION LTA
- C01 Independent review of design/documentation LTA
- C02 Testing of design/ installation LTA
- C03 Independent inspection of design / installation LTA
- C04 Acceptance of design / installation LTA

B5 OPERABILITY OF DESIGN/ ENVIRONMENT LTA
- C01 Ergonomics LTA
- C02 Physical environment LTA
- C03 Natural environment LTA

A2 Equipment / Material Problem

B1 CALIBRATION FOR INSTRUMENTS LTA
- C01 Calibration LTA
- C02 Equipment found outside acceptance criteria

B2 PERIODIC / CORRECTIVE MAINTENANCE LTA
- C01 Preventive maintenance for equipment LTA
- C02 Predictive maintenance LTA
- C03 Corrective maintenance LTA
- C04 Equipment history LTA

B3 INSPECTION / TESTING LTA
- C01 Start-up testing LTA
- C02 Inspection / testing LTA
- C03 Post-maintenance / post modification testing LTA

B4 MATERIAL CONTROL LTA
- C01 Material handling LTA
- C02 Material storage LTA
- C03 Material packaging LTA
- C04 Material shipping LTA
- C05 Shelf life exceeded
- C06 Unauthorized material substitution
- C07 Marking / labeling LTA

B5 PROCUREMENT CONTROL LTA
- C01 Control of changes to procurement specifications / purchase order LTA
- C02 Fabricated item did not meet requirements
- C03 Incorrect item received
- C04 Product acceptance requirements LTA

B6 DEFECTIVE, FAILED OR CONTAMINATED
- C01 Defective or failed part
- C02 Defective or failed material
- C03 Defective weld, braze or soldering point
- C04 End of life failure
- C05 Electrical or instrument noise
- C06 Contamination

A3 Human Performance LTA

B1 SKILL BASED ERROR
- C01 Check of work was LTA
- C02 Step was omitted due to mental lapse
- C03 Incorrect performance due to mental lapse
- C04 Infrequently performed steps were performed incorrectly
- C05 Delay in time caused LTA actions
- C06 Wrong action selected based on similarity with other actions
- C07 Omission / repeating of steps due to assumptions for completion

B2 RULE BASED ERROR
- C01 Strong rule incorrectly chosen over other rules
- C02 Signs to stop were ignored and step performed incorrectly
- C03 Too much activity was occurring and error made in problem solving
- C04 Previous success in use of rule reinforced continued use of rule
- C05 Situation incorrectly identified or represented resulting in wrong rule used

B3 KNOWLEDGE BASED ERROR
- C01 Attention was given to wrong issues
- C02 LTA Conclusion based on sequencing of facts
- C03 Individual justified action by focusing on biased evidence
- C04 LTA review based on assumption that process will not change
- C05 Incorrect assumption that a correlation existed between two or more facts
- C06 Individual underestimated the problem by using past event as basis

B4 WORK PRACTICES LTA
- C01 Individual's capability to perform work LTA [Examples include: Sensory/perceptual capabilities LTA, Motor/ physical capabilities LTA, and Attitude/ psychological profile LTA.]
- C02 Deliberate violation

A4 Management Problem

B1 MANAGEMENT METHODS LTA
- C01 Management policy guidance/ expectations not well-defined, understood or enforced
- C02 Job performance standards not adequately defined
- C03 Management direction created insufficient awareness of impact of actions on safety/ reliability
- C04 Management follow-up or monitoring of activities did not identify problems
- C05 Management assessment did not determine causes of previous event or known problem
- C06 Previous industry or in-house experience was not effectively used to prevent recurrence
- C07 Responsibility of personnel not well-defined or personnel not held accountable
- C08 Corrective action responses to a known or repetitive problem was untimely
- C09 Corrective actions for previously identified problem or event was not adequate to prevent recurrence

B2 RESOURCE MANAGEMENT LTA
- C01 Too many administrative duties assigned to immediate supervisor
- C02 Insufficient supervisory resources to provide necessary supervision
- C03 Insufficient manpower to support identified goal/ objective
- C04 Resources not provided to assure adequate training was provided / maintained
- C05 Needed resource changes not approved / funded
- C06 Means not provided for assure procedures/ documents/ records were of adequate quality and up-to-date
- C07 Means not provided for assuring adequate availability of appropriate materials / tools
- C08 Means not provided for assuring adequate equipment quality, reliability, or operability
- C09 Personnel selections did not assure match of worker motivations / job descriptions
- C10 Means / method not provided for assuring adequate quality of contract services

B3 WORK ORGANIZATION & PLANNING LTA
- C01 Insufficient time for worker to prepare task
- C02 Insufficient time allotted for task
- C03 Duties not well-distributed among personnel
- C04 Too few workers assigned to task
- C05 Insufficient number of trained or experienced workers assigned to task
- C06 Planning not coordinated with inputs from walk-downs/ task analysis
- C07 Job scoping did not identify potential task interruptions and/or environmental stress
- C08 Job scoping did not identify special circumstances and/or conditions
- C09 Work planning not coordinated with all departments involved in task
- C10 Problem performing repetitive tasks and/or subtasks
- C11 Inadequate work package preparation

B4 SUPERVISORY METHODS LTA
- C01 Tasks and individual accountability not made clear to worker
- C02 Progress/status of task not adequately tracked
- C03 Appropriate level of in-task supervision not determined prior to task
- C04 Direct supervisory involvement in task interfered with overview role
- C05 Emphasis on schedule exceeded emphasis on methods/doing a good job
- C06 Job performance and self-checking standards not properly communicated
- C07 Too many concurrent tasks assigned to worker
- C08 Frequent job or task "shuffling"
- C09 Assignment did not consider worker's need to use higher-order skills
- C10 Assignment did not consider worker's previous task
- C11 Assignment did not consider worker's ingrained work patterns
- C12 Contact with personnel too infrequent to detect work habit/attitude changes
- C13 Provided feedback on negative performance but not on positive performance

B5 CHANGE MANAGEMENT LTA
- C01 Problem identification did not identify need for change
- C02 Change not implemented in a timely manner
- C03 Inadequate vendor support of change
- C04 Risks/consequences associated with change not adequately reviewed/ assessed
- C05 System interactions not considered
- C06 Personnel/ department interactions not considered
- C07 Effects of change on schedules not adequately addressed
- C08 Change-related training/ retraining not performed or not adequate
- C09 Change-related documents not developed or revised
- C10 Change-related equipment not developed or revised
- C11 Changes not adequately communicated
- C12 Change not identifiable during task
- C13 Accuracy/ effectiveness of change not verified or not validated

A5 Communication LTA

B1 WRITTEN COMMUNICATIONS METHODS OF PRESENTATION LTA
- C01 Format deficiencies
- C02 Improper referencing or branching
- C03 Checklist LTA
- C04 Deficiencies in user aids (charts, etc.)
- C05 Recent changes not made apparent to user
- C06 Instruction step/ information in wrong sequence
- C07 Unclear/ complex wording or grammar

B2 WRITTEN COMMUNICATION CONTENT LTA
- C01 Limit inaccuracies
- C02 Difficult to implement
- C03 Data/ computations wrong/ incomplete
- C04 Equipment identification LTA
- C05 Ambiguous instructions/ requirements
- C06 Typographical error
- C07 Facts wrong/ requirements not correct
- C08 Incomplete/ situation not covered
- C09 Wrong revision used

B3 WRITTEN COMMUNICATION NOT USED
- C01 Lack of written communication
- C02 Not available or inconvenient to use

B4 VERBAL COMMUNICATION LTA
- C01 Communication between work groups LTA
- C02 Shift communications LTA
- C03 Correct terminology not used
- C04 Verification/ repeat back not used
- C05 Information sent but not understood
- C06 Suspected problems not communicated to supervision
- C07 No communication method available

A6 Training Deficiency

B1 NO TRAINING PROVIDED
- C01 Decision not to train
- C02 Training requirements not identified
- C03 Work incorrectly considered "skill of the craft"

B2 TRAINING METHODS LTA
- C01 Practice or hands-on experience LTA
- C02 Testing LTA
- C03 Refresher training LTA
- C04 Inadequate presentation

B3 TRAINING MATERIAL LTA
- C01 Training objectives LTA
- C02 Inadequate content
- C03 Training on new work methods LTA
- C04 Performance standards LTA

A7 Other Problem

B1 EXTERNAL PHENOMENA
- C01 Weather or ambient conditions LTA
- C02 Power failure or transient
- C03 External fire or explosion
- C04 Other natural phenomena LTA

B2 RADIOLOGICAL / HAZARDOUS MATERIAL PROBLEM
- C01 Legacy contamination
- C02 Source unknown

B3 LEGACY
- C01 Legacy issues that are not related to radiological or hazardous material

B4 NO CAUSE IS APPLICABLE
- C01 No cause is known for this event

USED ONLY FOR ORPS CODING

Level A nodes are underlined.
Level B nodes are in ALL CAPS.
Level C nodes are in "Sentence case."
LTA – Less than adequate

Definitions

[This Attachment provides information and requirements applicable to DOE O 232.2 and contracts that include the associated CRD (Attachment 1 to DOE O 232.2).]

1. APPARENT CAUSE. The most probable cause(s) that explains why the event happened, that can reasonably be identified, that local or facility management has the control to fix, and for which effective recommendations for corrective action(s) to remedy the problem can be generated, if necessary.

2. BUSINESS DAY. The normal administrative day of the reporting organization (e.g., Monday through Friday, 0800 to 1700 local time) 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.

3. 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.

4. DEFECTIVE ITEMS. 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.

5. 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.

6. DISCOVERY DATE AND TIME. The discovery date and time is when the facility staff discovered or became aware of the event or condition. Discovery date is NOT the date and time when the event or condition is determined to be reportable. The facility staff is those personnel assigned to the facility and cognizant of the area in which the event or condition is identified.

7. ELECRICALY SAFE WORK CONDITION. A state in which the conductor or circuit part to be worked on or near has been disconnected from energized parts, locked/tagged in accordance with established standards, tested to ensure the

absence of voltage, and grounded if determined necessary.

8. EQUIVALENT DOSE

   a. Committed Effective Dose (E_{50}) — Refer to 10 CFR 835.2 or to DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment*, dated 6-6-11, Attachment 2 (Definitions).

   b. Committed Equivalent Dose ($H_{T,50}$) — Refer to 10 CFR 835.2 or to DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment*, dated 6-6-11, Attachment 2 (Definitions).

   c. Effective Dose (E) — Refer to 10 CFR 835.2 or to DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment*, dated 6-6-11, Attachment 2 (Definitions).

   d. Total Effective Dose (TED) — Refer to 10 CFR 835.2 or to DOE O 458.1 Chg 2, *Radiation Protection of the Public and the Environment*, dated 6-6-11, Attachment 2 (Definitions).

9. EVENT. Something significant and real-time that happens (e.g., pipe break, valve failure, loss of power, environmental spill, earthquake, tornado, flood, injury).

10. 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 un-irradiated components.

11. FACILITY MANAGER. A federal (including government-owned, government-operated sites) or contractor individual, or designee, 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 Order, a Facility Manager could also be responsible for a program or activity.

12. 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 Order.

13. HAZARDOUUS ELECTRICAL ENERGY EXPOSURE. Within the Limited Approach Boundary (LAB) of an energized part not suitably guarded, isolated, or insulated. This includes de-energized parts for which a safe work condition has not been established, e.g. lockout/tagout.

14. 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 Sections 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 Part 302).

    d. Occupational Safety and Health Administration (OSHA) Hazardous Chemical (see 29 CFR Section 1910.1000 and 29 CFR Section 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 Part 355). These are not defined but appear on lists in Appendix A and Appendix B of 40 CFR Part 355.

15. IN-PATIENT HOSPITALIZATION. Admission to a hospital requiring at least one overnight stay. This would include admission for purposes of observation only.

16. 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.

17. LESSONS LEARNED. A “good work practice” or innovative approach that is identified and shared, or an adverse work practice or experience that is captured and shared to prevent recurrence.

18. NON-REPORTABLE EVENT. An event that falls within the ORPS Reporting Groups, does not meet any of the specific ORPS Reporting Criteria, and the reporting organization has determined to be included in the required ORPS Performance Analysis activity.

19. NOTIFICATION REPORT. The initial documented report to the Department of an event or condition that meets the reporting criteria defined in this Order.

20. NUCLEAR FACILITY. A reactor or nonreactor nuclear facility where an activity is conducted for or on behalf of DOE and includes any related area, structure, facility, or activity to the extent necessary to ensure proper implementation of the requirements of 10 CFR Section 830.

21. 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 Order or determined to be recurring through performance analysis are occurrences.

22. OCCURRENCE INVESTIGATION. An investigation conducted according to site-specific procedures and/or when determined by DOE procedures that an investigation by a Federal Accident Investigation Board is required.

23. OCCURRENCE REPORT. A documented evaluation of a reportable occurrence 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.

24. OFFSITE. Property or location that is not DOE/NNSA or DOE/NNSA contractor owned, leased, or directly controlled.

25. OFFSITE TRANSPORTATION EVENT. Involves movement of materials that are considered to be in commerce, thus requiring compliance with Department of Transportation Hazardous Materials Regulations. (49 CFR Sections 171 – 180)

    Transportation events with injuries or fatalities may also require reporting in accordance with Group 2 criteria.

26. 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.

27. ONSITE. Property or location that is DOE/NNSA or DOE/NNSA contractor owned, leased, or directly controlled.

28. ONSITE TRANSFER EVENT. Involves movement of material not in commerce and subject to regulations in 10 CFR Section 830 or DOE onsite procedures and safety requirements.

Onsite transfer events with injuries or fatalities may also require reporting in accordance with Group 2 criteria.

29. OPERATIONS. The act, process, or method of operating. This can apply to facilities regardless of mode (shutdown, standby, operational) or state (construction, operational, deactivated, decommissioning).

30. PACKAGING AND TRANSPORTATION. Packaging and Transportation activities/functions include: (1) Packaging - Activities related to the design, manufacture, and qualification of packaging represented as qualified for use in the transportation of hazardous materials; (2) Pre-transportation functions; (3) Transportation functions (movement of hazardous materials and loading, unloading, and storage incidental to the movement); and (4) Shipping in accordance with applicable international, Federal, state, local, and tribal laws, rules, and regulations governing materials transportation that are consistent with Federal regulations (e.g., 10 CFR and 49 CFR) and DOE Packaging and Transportation Directives (e.g., DOE Order 460.1C, DOE Order 460.2A, DOE Manual 460.2-1A, DOE Order 461.1B, and 10 CFR Section 830, *Nuclear Safety Management*).

31. 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 that 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.

32. PERSONNEL EXPOSURE. An incident of contact or encounter with a hazardous chemical, radiological, 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.

33. POLLUTANT. Any material requiring a permit for release into the environment.

34. PRE-TRANSPORTATION FUNCTION. A function specified in the Hazardous Materials Regulations (HMR) that is required to assure the safe transportation of a hazardous material in commerce, including: materials classification, packaging, marking, labeling, shipping paper preparation, loading, blocking, bracing, segregating, securing, and placarding (49 CFR Section 171.8).

35. 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.

36. PROGRAM MANAGER. The individual designated for this Order, 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 is authorized to provide technical direction through Heads of Field Elements/Operations Offices (including NNSA) to operating personnel for these facilities.

37. 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.

38. 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.

39. REPORTABLE OCCURRENCE. Occurrence to be reported in accordance with the criteria defined in this Order.

40. ROOT CAUSE. The causal factor(s) that, if corrected, would prevent recurrence of the occurrence. It is the most basic cause that explains why the event happened, that can reasonably be identified, that senior management has the control to fix, and for which effective recommendations for corrective actions to remedy the problem, prevent specific recurrence of the problem, and preclude occurrence of similar problems can be generated, if necessary. This is typically one level further in analysis beyond the Apparent Cause(s) (i.e., one level beyond the Level C node of the CAT).

41. 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 Section 830.3)

42. 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 Section 830.3)

43. 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.

44. SUSPECT/COUNTERFEIT ITEMS (S/CIs). An item which is suspect when inspection or testing indicates that it may not conform to established Government or industry-accepted specifications or national consensus standards or whose documentation, appearance, performance, material, or other characteristics may have been misrepresented by the vendor, supplier, distributor, or manufacturer. A counterfeit item is one that has been copied or substituted without legal right or authority or whose material, performance, or characteristics have been misrepresented by the vendor, supplier, distributor, or manufacturer. Items that do not conform to established requirements are not normally considered S/CIs if non-conformity results from one or more of the following conditions (which must be controlled by site procedures as nonconforming items):

    a. defects resulting from inadequate design or production quality control;

    b. damage during shipping, handling, or storage;

    c. improper installation;

    d. deterioration during service;

    e. degradation during removal;

    f. failure resulting from aging or misapplication; or,

    g. other controllable causes. (IAEA-TECDOC-1169).

45. 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 Section 830.3)

46. 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 Section 830.3)