

Approved: 1-17-2017

SUBJECT: OCCURRENCE REPORTING AND PROCESSING OF OPERATIONS
INFORMATION

1. OBJECTIVE. To notify Department of Energy (DOE) personnel, including National Nuclear Security Administration (NNSA) personnel, 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. This Order also promotes 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. Upon completion of the actions described in Paragraph 4.g., this Order (O) supersedes DOE O 232.2, Chg 1, *Occurrence Reporting and Processing of Operations Information*, dated 3-12-14. 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throughout the term of the contract unless and until the contract is modified to either eliminate requirements that are no longer applicable or substitute a new set of requirements.
3. APPLICABILITY.
 - a. Departmental Elements. Except for the exemptions in paragraph 3.c., 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 into 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, or the most recent successor Order.

Equivalency. In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at Title 50 United States Code (U.S.C.) 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.

4. REQUIREMENTS.

a. General.

- (1) Occurrences resulting from activities performed at DOE facilities or in support of facility operations must be reported in accordance with the provisions of this Order.
- (2) 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 classified information or Controlled Unclassified Information (CUI) must use procedures described in the Occurrence Reporting Model (Attachment 4).

c. Event or Condition Identification and Response.

DOE O 422.1 Chg 2, *Conduct of Operations*, dated 12-3-14, and DOE O 151.1D, *Comprehensive Emergency Management System*, dated 8-11-16, 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. Occurrence Report Processing. Occurrence reports must be processed in accordance with the requirements outlined in the attachments on Occurrence Report Preparation (Attachment 3) and Occurrence Reporting Model (Attachment 4).
- f. Occurrence Investigation and Analysis. Reportable occurrences must be investigated and analyzed in accordance with local procedures, as indicated in the Occurrence Reporting Model (Attachment 4).
- g. Implementation. Full implementation of this Order will begin three months after the Office of Primary Interest (OPI) certifies that required updates to the database have been tested and are working as planned. During the ensuing three months, the OPI will conduct user training on compliant data collection, categorization and entry techniques.

5. RESPONSIBILITIES.

- a. Secretarial Officers/Deputy Administrators (NNSA).
 - (1) Make integrated risk decisions on behalf of the Department, including delegating authority for implementing this Order.
 - (2) Review activities related to reportable occurrences, including reporting and the development of programs and procedures consistent with a risk informed approach.
 - (3) Ensure that a system for notification and categorization of reportable occurrences has been established for DOE programs and 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) Ensure that DOE and contractor personnel are trained in the requirements of this directive.
 - (6) Ensure the requirements in the CRD are included in applicable contracts.
- b. Associate Under Secretary for Environment, Health, Safety and Security.
 - (1) Proposes policy and guidance, and provides assistance in implementing policy and guidance in the field to develop and sustain an effective Occurrence Reporting Program.

- (2) Works with the network of subject matter experts, Program Offices, and contractor partners to monitor reporting activities at DOE facilities to assess implementation of this Order, identify needed improvements, and efficiently address operational actions. Any recommendations from non-federal or non-management and operating contractor employees must be provided on an individual basis.
 - (3) Works with the Program Offices and, as requested, periodically analyzes occurrence reporting data to identify significant issues and trends across the Department and formally brings such issues or trends to the attention of the applicable Program Office(s).
 - (4) In conjunction with the Chief Information Officer, operates, maintains, and further develops the supporting data system, the Occurrence Reporting and Processing System (ORPS).
- c. Office of Enterprise Assessments.
- Monitors and assesses implementation of this Order.
- d. NNSA Associate Administrator for Emergency Operations.
- (1) Develops and maintains policies related to reporting criteria, classifications, definitions, and requirements for Operational Emergencies.
 - (2) Monitors 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.
- e. Heads of Field Elements.
- (1) Integrate and balance contract requirements with risk and 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 or Designated DOE Representatives 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 contracts properly flow down the requirements of the CRD to subcontracts, as applicable.
 - (5) Ensure that operational information with potential for broader implications in DOE are identified and communicated to the HQ Program Office with timeliness commensurate with HQ's information needs.

- (6) 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.
 - (7) If the nature of the operational events has broader implications, prompt notification to the HQ Emergency Operations Center is required.
- f. Facility Representatives or Designated DOE Representatives (as defined in this Order; see definition in Attachment 5). In addition to other requirements prescribed in this Order, Facility Representatives or Designated DOE Representatives will:
- (1) Evaluate facility implementation of the notification and reporting process to ensure that it is compatible with and meets the requirements of this Order and that facility personnel involved in these operations perform the related functions.
 - (2) Be readily available to operating contractor personnel to facilitate the notification and reporting of occurrences.
 - (3) Ensure that occurrences that may have generic or programmatic implications are identified and elevated for appropriate action.
 - (4) Review and assess reportable occurrence information from facilities under their cognizance, both to determine the acceptability of the evaluation of the significance and approach taken, and to evaluate that facility personnel involved in these operations perform the related functions. For High Level Reports, review, and approval or rejection of Final Reports on the basis of compliance with the Order is required.
 - (5) Elevate any unresolved issues regarding actions or determinations on a reportable occurrence for resolution and direction.
- g. Facility Managers (as defined in this Order; see definition in Attachment 5). In addition to other requirements prescribed in this Order, Facility Managers will:
- (1) Ensure that procedures implemented for notification and reporting meet the requirements of this Order.
 - (2) Determine causes and generic implications for reportable occurrences and implement corrective actions and closeout activities.
 - (3) Review and assess reportable occurrence information for their facilities to assess generic implications and corrective action implementation, closeout, and effectiveness, as required, 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 is disseminated to appropriate facility personnel within their cognizance, is reviewed for generic implications, and is 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 and in accordance with instructions from Heads of Field Element instructions.

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. 32 CFR Part 2002, Controlled Unclassified Information.
- 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 151.1D, Comprehensive Emergency Management System, dated 8-11-16.](#)
- 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 414.1D, Chg 1, Quality Assurance, dated 4-25-11.](#)
- q. [DOE O 422.1, Chg 2, Conduct of Operations, dated 12-3-14.](#)

- r. [DOE 440.1B, Chg 2, Worker Protection Program for DOE \(Including The National Nuclear Security Administration\) Federal Employees, dated 3-14-13.](#)
 - s. [DOE O 458.1 Chg 3, Radiation Protection of the Public and the Environment, dated 1-15-13.](#)
 - t. [DOE O 460.1C, Packaging and Transportation Safety, dated 4-14-10.](#)
 - u. [DOE O 461.1C, Packaging and Transportation for Offsite Shipment of Materials of National Security Interest, dated 7-20-16.](#)
 - v. [DOE O 470.4B Chg 1, Safeguards and Security Program, dated 2-15-13.](#)
 - w. [DOE STD-1066-2012, Fire Protection.](#)
 - x. [DOE STD-1098-2008, Radiological Control.](#)
 - y. [DOE-STD-1197-2011, Occurrence Reporting Causal Analysis.](#)
 - z. Executive Order 12333, United States Intelligence Activities.
 - aa. National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65.
 - bb. Executive Order 12344, Naval Nuclear Propulsion Program.
7. DEFINITIONS. See Attachment 5.
8. CONTACT. Questions concerning this order should be addressed to the Office of ES&H Reporting and Analysis, Office of Environment, Health, Safety and Security, at 301-903-7010.

BY ORDER OF THE SECRETARY OF ENERGY:



ELIZABETH SHERWOOD-RANDALL
Deputy Secretary

CONTRACTOR REQUIREMENTS DOCUMENT

DOE O 232.2A, *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, and 5, 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 using DOE's centralized unclassified operational database, the 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 classified information or Controlled Unclassified Information must use procedures described in the Occurrence Reporting Model (Attachment 4).

3. SPECIFIC REQUIREMENTS.

- a. Event or Condition Identification and Response.
 - (1) Identify abnormal or emergency conditions based on local processes and procedures that implement requirements of DOE O 422.1, Chg 2, *Conduct of Operations*, dated 6-29-10, and DOE O 151.1D, *Comprehensive Emergency Management System*, dated 8-11-16.
 - (2) Ensure that the requirements of this CRD for reporting are initiated for events specified in the Occurrence Reporting Criteria (Attachment 2).

- (3) 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. Occurrence Report Processing.

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

d. Occurrence Investigation and Analysis.

Reportable occurrences must be investigated and analyzed in accordance with local procedures, as indicated in the Occurrence Reporting Model (Attachment 4).

4. RESPONSIBILITIES.

Facility Managers (as defined in this Order; see definition in Attachment 5). In addition to other requirements prescribed in this Order, Facility Managers are responsible for the following:

- a. Ensure that procedures implemented for notification and reporting meet the requirements of this Order.
- b. Determine causes and generic implications, and implement corrective actions and closeout activities for reportable occurrences.
- c. Review and assess reportable occurrence information for their facilities to assess generic implications and corrective action implementation, closeout, and effectiveness, as required; and to ensure that facility personnel involved in these operations perform the related functions.
- d. 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.
- e. Prepare and transmit Occurrence Reports in accordance with Order requirements.

5. DEFINITIONS. See Attachment 5.

OCCURRENCE REPORTING CRITERIA DOE O 232.2A

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

The following are Report Levels and the Reporting Criteria, which are categorized into ten groups and appropriate subgroups related to DOE operations. The Reporting Criteria provide a set of requirements that must be used to identify reportable occurrences.

Report Levels provide a means to reflect the impact associated with a given occurrence in terms of health, safety and security to personnel, the public, the environment, and the operational mission. The three report levels are: High (H), Low (L), and Informational (I). Determination of Report Levels for each specific Reporting Criteria is based on the conditions listed below. Informational Level Reporting can be tailored per Program Office direction to only be captured in local issues management systems. Program Offices have the authority to determine which Informational Level Reports will be submitted to the ORPS database.

1. Report Levels (RL).

- a. High Level Report. Occurrences in this category meet any of the following conditions:
 - (1) Impacted worker or public safety and health, including significant personnel injuries, environmental harm, regulatory compliance, or public/business interests;
 - (2) Constituted a noncompliance with regulatory requirements that created the potential for actual harm;
 - (3) Posed the potential for mission interruption and require prompt mitigative action; or
 - (4) Involved circumstances that reflected degraded safety necessitating prompt management attention along with modified normal operations to prevent an adverse effect on safe facility operations.
- b. Low Level Report. Occurrences are those that do not meet High Level Report occurrences but involve personnel injury, environmental releases, equipment damage, or hazardous circumstances, and additional time is appropriate for Written Notifications.
- c. Informational Level Report. Occurrences are those that do not meet High or Low Level Report occurrences and generally meet the following conditions:
 - (1) Determined to be a safety, environmental, or mission concern; or
 - (2) Provides potential learning opportunities for others.

- d. Safeguards and security events are not reported in ORPS unless they involve other consequences that meet the ORPS reporting criteria presented herein.
 - e. This Order does not absolve the cognizant parties from making required reports to other agencies.
2. Reporting Criteria Groups. The 10 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 and Issues
3. Categorizing Instructions.
- a. Each reporting criterion is denoted by its Group, Subgroup (if applicable), sequence number (#), and Report Level, thus, for example, the violation or noncompliance of a Technical Safety Requirement is denoted as Group 3, Subgroup A, Sequence (1) or “3A(1), High.” An event can meet multiple reporting criteria.
 - b. All of the specific reporting criteria applicable for an occurrence must be identified. In these cases, the event is categorized at the highest report level, but all of the applicable reporting criteria must be recorded.
4. Occurrence Reporting Criteria.
- Group 1 - Operational Emergencies**
- | <u>#</u> | <u>RL</u> | <u>Criterion</u> |
|----------|-----------|--|
| (1) | H | An Operational Emergency, Alert, Site Area Emergency, or General Emergency as defined in DOE O 151.1D. |

Group 2 - Personnel Safety and Health

Subgroup A Occupational Injuries and Exposures.

[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.]

<u>#</u>	<u>RL</u>	<u>Criterion</u>
(1)	H	Any occurrence due to DOE operations resulting in a fatality or terminal injury/illness.
(2)	H	Any single occurrence, injury, or exposure requiring in-patient hospitalization of three or more personnel.
(3)	H	Any single occurrence, injury, or exposure resulting in an occupational injury that requires in-patient hospitalization for five or more days, commencing within seven days from the date the injury.
(4)	L	Any single occurrence, injury, or exposure resulting in three or more personnel having Days Away, Restricted or Transferred (DART) cases per 29 CFR Section 1904.7, <i>Recordkeeping Forms and Recording Criteria</i> .
(5)	L	Any single occurrence resulting in an occupational injury or exposure that: <ul style="list-style-type: none">(a) Requires in-patient hospitalization for more than 48 hours, commencing within seven days from the date the injury or exposure 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.

[Notes: The intent of Group 2A(5) reporting criterion is to report injuries based on the initial or first-line diagnosis and treatment. Events reported in this category are those for which the diagnosis was obtained within 21 calendar days after the event occurred. If changes occur from the initial diagnosis, resulting in revised treatment plans (i.e., misinterpretation of initial test results, additional evaluations performed), then reporting will need to be re-evaluated based on corrected diagnosis.]

- (6) H Personnel exposure to chemical, biological, or physical hazards that exceed 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 exceed levels deemed Immediately Dangerous to Life and Health (IDLH).
- (7) L Personnel exposure to chemical, biological or physical hazards 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 IDLH.

Subgroup B Fires.

RL Criterion

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

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

- (2) H Any fire that:
 - (a) Activates a fixed automatic fire suppression system (e.g., clean agent or wet-pipe automatic sprinkler protection),
 - (b) Takes longer than ten minutes to extinguish following the initiation of firefighting efforts by the emergency response organization, or

- (c) Disrupts normal operations in the facility for more than four hours.

[Note: The activation or degradation of Safety Class and Safety Significant fire suppression systems should also be reported under Group 4 Criteria.]

- (3) I Any fire in a nuclear facility.
- (4) I 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 C Explosions.

RL Criterion

- (1) H Any unplanned explosion that disrupts normal operations.

Subgroup D Hazardous Energy.

RL Criterion

- (1) H Any unexpected or unintended personal contact (e.g., burn, shock, injury, etc.) with a hazardous energy source (e.g., live electrical power circuit, mechanical hazards, steam, pressurized gas, etc.).
- (2) L Any failure to follow a prescribed hazardous energy control process that results in potential worker exposure to uncontrolled hazardous energy (e.g., live electrical power circuit, powered mechanical hazards, steam, pressurized gas, etc.); OR any discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, powered mechanical hazards, steam, pressurized gas, etc.). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

Group 3 - Nuclear Safety Basis

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

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

RL Criterion

- (1) H Any violation or noncompliance of a Technical Safety Requirement (or Operational Safety Requirement) Safety Limit, 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 Documented Safety Analysis 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.)

- (2) L 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, etc.], or DOE issued Safety Evaluation Report that are not addressed by Criterion 3A(1).

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 Documented Safety Analysis 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) I An event consisting solely of a surveillance test (to include any periodic activity explicitly captured in the Documented Safety Analysis 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 Analyses.

<u>#</u>	<u>RL</u>	<u>Criterion</u>
(1)	H	Identification of a radioactive material inventory that causes a nuclear facility to exceed its current approved/authorized Hazard Category.
(2)	L	Determination of a positive Unreviewed Safety Question (USQ) that reveals a currently existing inadequacy in the Documented Safety Analysis.

Subgroup C Nuclear Criticality Safety Control Violations.

<u>#</u>	<u>RL</u>	<u>Criterion</u>
(1)	H	A criticality accident occurs.
(2)	H	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)	H	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)	L	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).

[Notes:

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

- This subgroup applies even if all actions and completion times of the Limiting Condition for Operations are met, with no compromise to the authorization basis.]

<u>#</u>	<u>RL</u>	<u>Criterion</u>
(1)	L	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)	I	Performance degradation of any SC SSC when not required to be operable.

Subgroup B Operations.

<u>#</u>	<u>RL</u>	<u>Criterion</u>
(1)	H	A formal shutdown of an activity or operation for safety reasons, directed by the DOE Field Element Manager, Contracting Officer or senior contractor management requiring corrective actions prior to continuing operations (e.g., a Stop Work Order).
(2)	H	Actuation of a Safety Class (SC) 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)	L	Actuation of a Safety Significant (SS) 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)	L	A facility operational event which resulted in an adverse effect on safety, such as, but not limited to: <ul style="list-style-type: none">(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.

- (5) I Any event or condition that would prevent immediate facility or offsite emergency response capabilities.

Subgroup C Suspect/Counterfeit and Defective Items or Material.

[Notes:

- Include the detailed information identified in Attachment 3.
- Any suspect/counterfeit or defective item or material found in receipt inspection is exempt from this Subgroup.]

#	RL	Criterion
(1)	L	Discovery of any suspect or counterfeit item or material found in a Safety Class (SC) or Safety Significant (SS) Structure, System, or Component (SSC).
(2)	I	Discovery of any other suspect or counterfeit item or material [i.e., not found in a SC or SS SSC] 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)	I	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.

[Note: See Group 1, for situations under which releases of hazardous or extremely hazardous substances would be reported under “Operational Emergencies.”]

#	RL	Criterion
(1)	L	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, <i>Designation, Reportable Quantities, and Notification</i> ; 40 CFR Part 355, <i>Emergency Planning and Notification</i> ; and CERCLA Section 101(10), <i>Federally Permitted Releases.</i>)

- (2) I 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: This criterion does not apply to the following:

- Discharges (including potable water) that do not result in leaching or erosion of contaminated material from a known or suspected boundary of a Potential Release Site.
- Discharges (including potable water) capable of reaching surface or groundwater that do not require remediation/repair. (The contractor's environmental subject matter experts make the determination of environmental impact and the need for remediation/repair activities.)]

- (3) I 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.

- (4) I Any discrete release of sulfur hexafluoride (SF₆) 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 SF₆ 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.

RL Criterion

- (1) H 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) H 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).

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.]

- | <u>#</u> | <u>RL</u> | <u>Criterion</u> |
|----------|-----------|--|
| (1) | H | Identification of radioactive material offsite due to DOE operations/activities that exceeds applicable DOE limits (pursuant to DOE O 458.1 Chg 3, <i>Radiation Protection of the Public and the Environment</i> , dated 1-15-13). |
| (2) | H | Loss or unexpected discovery of radioactive material that exceeds 100 times the values in 10 CFR Part 835, <i>Occupational Radiation Protection</i> , 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) | L | Loss or unexpected discovery of radioactive material which exceeds one 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 Part 835 may be summarized in a single occurrence 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.

RL Criterion

- (1) H Identification of offsite radioactive contamination due to DOE operations/activities that exceeds applicable DOE approved authorized limits (pursuant to DOE O 458.1 Chg 3, *Radiation Protection of the Public and the Environment*, dated 1-15-13) or, if there are none, the total contamination values in 10 CFR Part 835, Appendix D.

[Note: Release or clearance of property containing or potentially containing residual radioactive material is subject to requirements in DOE O 458.1 Chg 3. Compliance with 10 CFR Part 835, Appendix D values does not necessarily satisfy the requirements in DOE O 458.1 Chg 3.]

- (2) H Identification of onsite radioactive contamination greater than 100 times the total contamination value 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 10 CFR 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:

- This does not apply to surface contamination from residual radioactive material meeting applicable DOE approved authorized limits.
- This does not apply to legacy contamination that is to be reported under a separate criterion below.
- The discovery of radioactive contamination from a past DOE/NNSA operation that may have caused, is causing, or may reasonably be expected to cause an uncontrolled personnel exposure exceeding

protective action criteria may be reportable as an Operational Emergency under Group 1, Criterion 1.]

- (3) L 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 10 CFR 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:

- This does not apply to surface contamination from residual radioactive material meeting applicable DOE approved authorized limits.
- This does not apply to legacy contamination that is to be reported under a separate criterion below.
- 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) I 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 10 CFR 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:

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

- This does not apply to contamination from residual radioactive material meeting applicable DOE approved authorized limits.
- Legacy contamination identified through a routine radiological monitoring program, compliant with 10 CFR 835 may be summarized in a single occurrence 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.]

#	RL	Criterion
(1)	H	Determination of a dose that exceeds the limits specified in 10 CFR Part 835, " <i>Occupational Radiation Protection</i> ," Subpart C, " <i>Standards for Internal and External Exposure</i> ," or in DOE O 458.1 Chg 3, <i>Radiation Protection of the Public and the Environment</i> , dated 1-15-13, paragraph 4.b(1)(a) [paragraph 2.b(1)(a) of the CRD], "Public Dose Limit."
(2)	H	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)	L	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) 100-mrem effective dose due to external exposure.
(4)	L	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) [and paragraphs 2.f.(2), 2.f.(5), 2.g.(4), 2.g.(5)(a), 2.g.(7), 2.g.(8)(a)(4) or 2.i.(1) of the CRD] of DOE O 458.1 Chg 3, <i>Radiation Protection of the Public and the Environment</i> , dated 1-15-13 or exceeds the 40 CFR Section 61.92 requirements.

Subgroup D Personnel Contamination.

#	RL	Criterion
(1)	H	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 Part 835, Appendix D to an offsite medical facility or bringing offsite medical personnel onsite to perform treatment or decontamination.
(2)	H	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)	L	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

#	RL	Criterion
(1)	H	Damage to a nuclear explosive that results in a credible threat to nuclear explosive safety.
(2)	H	An event where the potential for nuclear explosive safety consequences was substantially increased, such as: <ul style="list-style-type: none">(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) L An event that resulted in an adverse effect on nuclear explosive safety, such as:
 - (a) Use of uncertified personnel or presence of unauthorized/unanalyzed equipment/tooling;
 - (b) Violation of the Two-Person Concept (TPC) of operations (such as open locks, loss of TPC for nuclear explosives, and Category 1 electrical equipment, etc.); or
 - (c) Discovery of any other condition that results in an adverse effect on nuclear explosive safety (e.g., mis-designed, mis-fabricated, or damaged tooling, equipment, or components which could lead to unanalyzed application of energy to a nuclear explosive). Discovery of such conditions prior to introduction into a nuclear explosive area need not be reported in this category.

Group 8 – Packaging and Transportation

- | <u>#</u> | <u>RL</u> | <u>Criterion</u> |
|----------|-----------|--|
| (1) | H | <p>Any offsite transportation incident involving hazardous materials that would require immediate notice pursuant to 49 CFR Section 171.15(b).</p> <p>[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. Group 8 will be a secondary reporting criterion.]</p> |
| (2) | L | <p>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 461.1C), namely:</p> <ul style="list-style-type: none">(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) L 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.
- (4) L 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 Part 302 or 40 CFR Part 355.
- (5) I 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.

[Note: For reporting under this criterion, the occurrence report belongs to the party that initiated the shipment (i.e., the occurrence report belongs to the shipper of record). Exemption from this criterion applies when the shipper is external to DOE.]

- (6) I 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).
- (7) I 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) I 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) I 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

- | <u>#</u> | <u>RL</u> | <u>Criterion</u> |
|----------|-----------|--|
| (1) | I | Any written notification from an outside regulatory agency that a site/facility is considered to be in noncompliance with a schedule or requirement. |

[Note: This criterion is not applicable to DOE Office of Enforcement actions.]

Group 10 - Management Concerns and Issues

- | <u>#</u> | <u>RL</u> | <u>Criterion</u> |
|----------|-----------|--|
| (1) | I | 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. |
| (2) | I | A near miss to an injury, where something physically happened that was unexpected or unintended AND where no barrier prevented an event from having a reportable consequence (i.e., happenstance was the main reason the event did not result in a reportable injury). |
| (3) | I | 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. |

OCCURRENCE REPORT PREPARATION

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

Occurrence Reports must be written clearly and concisely so the general reader can understand the basic “who, what, when, where, how” of the event and safety issues involved. The following instructions apply:

1. For Written Notifications for all Report Levels, the Title of Occurrence and the first paragraph of the Description of Occurrence must relay the essential nature of the event.
2. Final High Level Reports must also contain the following:
 - a. The Description of Occurrence 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.
 - b. Identified causes and corrective actions must be included in the final report’s “Description of Cause” and “Corrective Actions” fields or may be uploaded as an attachment.
 - c. Applicable causal codes must be selected, refer to DOE STD 1197-2011.
 - d. Any extent of condition (if performed) must be included in the “Description of Cause” field or uploaded as an attachment.
3. Informational Level Reporting can be tailored per Program Office direction to only be captured in local issues management systems. Program Offices have the authority to determine which Informational Level Reports will be submitted to the ORPS database.
4. 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., craft inspection prior to installation, in-service inspection, or failure) and identify any resulting consequences, along with any photos via attachments, as appropriate. In some instances, the information may be considered sensitive (such as contact names and phone numbers). In those instances, the information need not be included in the occurrence report but may be obtained by contacting the Originator of the occurrence report.
5. 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.
6. Information in different formats (e.g., photos, sketches, drawings, and supporting documents) may be uploaded as attachments.

OCCURRENCE REPORTING MODEL

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

Report Level	Timelines	Initial Notification	Final Report Approval	Causal Analysis and Corrective Actions
High (H)	Categorize: 2 hours Initial Notification: 2 hours Written Notification: COB 2 business days Update/Final Report: COB 60 calendar days	To Facility Representative or Designated DOE Representative	By Facility Representative or Designated DOE Representative	Per local procedures. Any identified causes and corrective actions must be included in the final report.
Low (L)	Categorize: 2 hours Initial Notification: 2 hours Written Notification/Final Report: 10 business days	To Facility Representative or Designated DOE Representative	Per local procedures	Per local procedures
Informational (I)	Categorize: 2 hours Initial Notification: COB next business day Written Notification/Final Report: 10 business days	To Facility Representative or Designated DOE Representative	Per local procedures	Per local procedures

Notes:

- Categorization Time is no later than two hours from the Discovery Time.
- Initial Notification is from Categorization Date and Time.
- Written Notification (Occurrence Report) is from Categorization Date and Time.
- All time requirements are as listed or as soon thereafter as reasonably possible.
- Informational Level Reporting can be tailored per Program Office direction to only be captured in local issues management systems. Program Offices have the authority to determine which Informational Level Reports will be submitted to the ORPS database.

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 or Controlled Unclassified Information (CUI) must not be entered in the ORPS database. Final occurrence reports should be reviewed by the Originator for public release prior to final entry into the ORPS database. Final Occurrence Reports are automatically posted for public release.
- b. For occurrences with classified information, an unclassified version of the Occurrence Report that has been sanitized of all CUI must be submitted to ORPS within the time frames specified in this Order.
- 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 categorization for the incident must be reevaluated and changed as new information becomes available.

3. Initial Notification.

- a. Initial Notification to the Facility Representative or Designated DOE Representative must be in accordance with approved local site processes.
- b. The Initial Notification must include information on the following items, as available:
 - (1) Categorization
 - (2) All of the applicable Reporting Criteria (i.e., including the Group, Subgroup and Sequence Numbers) associated with the occurrence
 - (3) Location and description of the event
 - (4) Date and time of discovery
 - (5) Impact of event on activities and operations
 - (6) Immediate actions taken
- c. Follow-up notifications must be made for any occurrence that is re-categorized and/or upon 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.

- d. Written Notification Report. A Written Notification Report must be submitted into the ORPS database within the timeframe specified in this Order, or as soon thereafter as reasonably possible (refer to the table above).
 - e. Updating Reports. If a change in categorization or correction of information is needed, information must be provided in the “Updated Report Information” field. Any other updates for Low or Informational Level Reports are optional.
4. Finalizing Reports. Final High Level Reports must be submitted within 60 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).
 5. Report Closure.
 - a. Within 14 calendar days after finalizing a High Level Report, the Facility Representative or Designated DOE Representative must review the report with regard to the requirements of this Order and approve, reject, and add comments, as necessary.
 - b. If the Final High Level Report is rejected by the applicable Facility Representative or Designated DOE Representative, the Representative must provide the reason for rejection in the report’s “Facility Representative Comment” field. A revised Final Report must be resubmitted within 21 calendar days of the rejection. If the revised report cannot be resubmitted within this time, an update to the Occurrence Report must be submitted explaining the delay and providing an estimated date for resubmittal.
 6. Occurrence Investigation and Analysis.
 - a. General. 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 of the event when choosing the scope and tools to use in the investigation.
 - b. For High Level Reports, identified causes, corrective actions, and any extent of condition (if performed) must be included in the Final Report’s “Description of Cause” field. Alternatively, description of cause and corrective actions may be uploaded as an attachment.
 - c. For all reports, attachments may be included.
 - d. 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.

DEFINITIONS

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

1. **BARRIER**. A physical or administrative control used to provide separation between a person and a hazard. Common types of barriers include equipment (including personal protective equipment), administrative procedures and processes, supervision/management, warning devices, and physical objects.
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. **CRITICALITY**. Condition in which a nuclear fission chain reaction becomes self-sustaining.
5. **DEFECTIVE ITEMS**. Any item or material that does not meet the commercial standard or procurement requirements as defined in such sources as catalogues, proposals, procurement specifications, design specifications, testing requirements, or contracts. 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.
6. **DISCHARGE**. Includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil. Does not include discharges in compliance with a permit under Section 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 Section 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 Section 402 of the CWA, that are caused by events occurring within the scope of relevant operating or treatment systems.
7. **DISCOVERY DATE AND TIME**. The point at which facility staff discover or become aware of an event or condition. Discovery date is NOT the date and time when the event or condition is determined to be reportable. Note: Facility staff includes personnel assigned to a facility and cognizant of the area in which the event or condition is identified.

8. DISRUPTION OF NORMAL OPERATIONS. The point at which alarms, emergency response, evacuation, or shelter in place results in a suspension of an activity or activities for any length of time.
9. EQUIVALENT DOSE.
 - a. Committed Effective Dose (E_{50}). Refer to 10 CFR Section 835.2 or to DOE O 458.1 Chg 3, *Radiation Protection of the Public and the Environment*, dated 1-15-13, Attachment 2 (Definitions).
 - b. Committed Equivalent Dose ($H_{T,50}$). Refer to 10 CFR Section 835.2 or to DOE O 458.1 Chg 3, *Radiation Protection of the Public and the Environment*, dated 1-15-13, Attachment 2 (Definitions).
 - c. Effective Dose (E). Refer to 10 CFR Section 835.2 or to DOE O 458.1 Chg 3, *Radiation Protection of the Public and the Environment*, dated 1-15-13, Attachment 2 (Definitions).
 - d. Total Effective Dose (TED). Refer to 10 CFR Section 835.2 or to DOE O 458.1 Chg 3, *Radiation Protection of the Public and the Environment*, dated 1-15-13, Attachment 2 (Definitions).
10. EVENT. Something significant and real-time that happens (e.g., pipe break, valve failure, loss of power, environmental spill, earthquake, tornado, flood, injury).
11. EXPLOSION. A sudden, rapid release of energy that produces potentially damaging pressures. Explosions can result from ignition events involving energetic materials, a pressurization event, or a chemical reaction.
12. 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.
13. 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.
14. FACILITY REPRESENTATIVE or DESIGNATED DOE 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.

15. FIRE. Unplanned destructive and uncontrolled burning, including detonation and deflagration, as manifested by any or all of the following: flame, heat, or smoke. Fire does not include the following unless they cause a fire or occur as a consequence of a fire: lightning or electrical discharge; rupture of a pressure vessel not caused by internal combustion; detonation of munitions; or overheat (without damage to initiating material).
16. FISH KILL. A localized die-off of fish populations which may also be associated with more generalized mortality of aquatic life.
17. HAZARDOUS ENERGY SOURCE. Any source that could cause harm to personnel or equipment by generating or transferring energy or potential (voltage); hydraulic, pneumatic, gas, or steam pressure; vacuum; high temperature; cryogenic temperature; potentially reactive chemicals; or stored mechanical energy.
18. 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 Sections 1910.1000 and 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.
19. INITIAL NOTIFICATION. Timely reporting of the occurrence to the Facility Representative or Designate DOE Representative as required by the Report Level and the reporting criteria of the occurrence.

20. IN-PATIENT HOSPITALIZATION. Admission to a hospital requiring at least one overnight stay. This would include admission for purposes of observation only.
21. 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, 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.
22. 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.
23. 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 Part 830.
24. OCCURRENCES. 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.
25. 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.
26. OFFSITE. Property or location that is not DOE/NNSA or DOE/NNSA contractor-owned, leased, or otherwise directly controlled by DOE, including NNSA.
27. 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 Parts 171-180).
28. 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.
29. ONSITE. Property or location that is DOE/NNSA or DOE/NNSA contractor-owned, leased, or otherwise directly controlled by DOE, including NNSA.
30. ONSITE TRANSFER EVENT. Involves movement of material not in commerce and subject to 10 CFR Part 830 or DOE onsite procedures and safety requirements.
31. OPERATIONS. The general term to encompass the work activities accomplished by the facility or project. Examples include, but are not limited to, operating science and

technology machines; operating equipment; construction, decontamination and decommissioning; dismantlement; environmental characterization and monitoring activities; waste handling; research and development; maintenance; and laboratory analysis activities.

32. PACKAGING AND TRANSPORTATION. Packaging and Transportation activities/functions include:

- a. Packaging - Activities related to the design, manufacture, and qualification of packaging represented as qualified for use in the transportation of hazardous materials;
- b. Pre-transportation functions;
- c. Transportation functions (movement of hazardous materials and loading, unloading, and storage incidental to the movement); and
- d. 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 Parts 830, 835 and 49 CFR Parts 171-180) and DOE Packaging and Transportation Directives (e.g., DOE Order 460.1D, *Hazardous Materials Packaging and Transportation Safety*, dated 12-20-16; DOE Order 460.2A, *Departmental Materials Transportation and Packaging Management*, dated 12-22-04; DOE Manual 460.2-1A, *Radioactive material Transportation Practices Manual*, dated 6-4-08; DOE Order 461.1C, *Packaging and Transportation for Offsite Shipment of Materials of National Security Interest*, dated 7-20-16; and 10 CFR Part 830, *Nuclear Safety Management*).

33. 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 includes the absence of or deficiency with Design Features for which credit has been taken in the Documented Safety Analysis. Performance degradation does not include:

- a. 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;
- b. 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
- c. The temporary loss of a component where redundant components are maintained operable or in operation and the authorization basis is not compromised.

34. PERSONNEL EXPOSURE. An incident of an individual's contact or encounter with a hazardous chemical, radiological, physical, biological, or energetic agent at one of the exchange boundaries of the individual (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.
35. POLLUTANT. Any material requiring a permit for release into the environment.
36. 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).
37. 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.
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. SAFETY CLASS (SC) 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)
40. SAFETY SIGNIFICANT (SS) 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)
41. 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:
 - a. A Program Secretarial Officer (PSO) is an Assistant Secretary, Office Director, or NNSA Deputy Administrator. In the context of field operations, a PSO funds

- b. work at a particular site, facility or laboratory and is a “customer” of the field office.
 - c. 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.
 - d. 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.
42. 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.
43. 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)
44. UNREVIEWED SAFETY QUESTION (USQ). A situation where:
- a. 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;
 - b. the possibility of an accident or malfunction of a different type than any evaluated previously in the documented safety analysis could be created;
 - c. a margin of safety could be reduced; or
 - d. the documented safety analysis may not be bounding or may be otherwise inadequate. (10 CFR Section 830.3)
45. WRITTEN NOTIFICATION. The initial documented report to the Department of Energy of an event or condition that meets the reporting criteria defined in this Order.