

Occurrence Reporting Criteria Crosswalk /DOE M 231.1-2 CRITERIA (8-7-03, Rev. 19)

GROUP 1 – OPERATIONAL EMERGENCIES

- (1) *OE An Operational Emergency not needing further classification, as defined in DOE 151.1A, Chap. 5, Para. 2.
- (2) *OE An Alert, as defined in DOE 151.1A, Chapter 5, Paragraph 3a.
- (3) *OE A Site Area Emergency, as defined in DOE 151.1A, Chapter 5, Paragraph 3b.
- (4) *OE A General Emergency, as defined in DOE 151.1A, Chapter 5, Paragraph 3c.

GROUP 2 – PERSONNEL SAFETY

Group 2, Subgroup A, Sequence (1), SC *1

Any occurrence due to DOE operations resulting in a fatality or terminal injury/illness. For fatalities caused by overexposures, the intent of this criterion is to report those caused by acute rather than chronic effects.

Group 2, Subgroup A, Sequence (2), SC *1

Any single occurrence requiring in-patient hospitalization of three or more personnel.

Group 2, Subgroup A, Sequence (3), SC 2

Any single occurrence resulting in three or more personnel having Days Away, Restricted or Transferred (DART) cases per 29 CFR Part 1904.7.

Group 2, Subgroup A, Sequence (4), SC *2

Personnel exposure to chemical, biological or physical hazards above limits established by the Occupational Safety and Health Administration (refer to 29 CFR Part 1910) or American Conference of Governmental Industrial Hygienists, whichever is lower, and that requires the administration of medical treatment beyond simple first aid on the same day as the exposure. (29 CFR 1904.7(b)(5)(i) and (ii) define “medical treatment” and “first aid.”)

Group 2, Subgroup A, Sequence (5), SC 3

Personnel exposure to chemical, biological or physical hazards above limits established by the Occupational Safety and Health Administration (refer to 29 CFR Part 1910) or American Conference of Governmental Industrial Hygienists.

Group 2, Subgroup A, Sequence (6), SC 3

Any single occurrence resulting in a serious occupational injury. A serious occupational injury is an injury that:

- (a) Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received;
- (b) Results in a fracture of any bone (except simple fractures of fingers, toes, or nose, or a minor chipped tooth);
- (c) Causes severe hemorrhages or severe damage to nerves, muscles, or tendons;
- (d) Damages any internal organ; or
- (e) Causes second- or third-degree burns, affecting more than five percent of the body surface.

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Group 2, Subgroup B, Sequence (1), SC *1

Any unplanned fire or explosion within primary confinement/containment boundaries for nuclear or hazardous material within a facility.

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

Group 2, Subgroup B, Sequence (2), SC *2

Any unplanned fire or explosion in a nuclear facility that activates a fire suppression system (e.g., halon discharge, sprinkler heads activating), is extinguished by a fire department, or disrupts normal facility operations.

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

Group 2, Subgroup B, Sequence (3), SC *3

Any unplanned fire or explosion in a non-nuclear facility that

- a) Activates a fire suppression system,
- b) Takes longer than 10 minutes to extinguish following the arrival of fire protection personnel, or
- c) Disrupts normal operations in a high hazard facility.

Group 2, Subgroup B, Sequence (4), SC *4

Any unplanned wild land fire (e.g., forest fire, grassland fire) that has the potential to threaten a DOE facility.

Group 2, Subgroup C, Sequence (1), SC 2

Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or disturbance of a previously unknown or mislocated hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas) resulting in a person contacting (burn, shock, etc.) hazardous energy.

Group 2, Subgroup C, Sequence (2), SC 3

Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

GROUP 3 – NUCLEAR SAFETY BASIS

Group 3, Subgroup A, Sequence (1), SC *1

Any violation of a Hazard Category 1, 2, or 3 nuclear facility's Technical Safety Requirement (or Operational Safety Requirement) Safety Limit.

[Note: Safety Limits are high-level Technical Safety Requirement controls, used infrequently across the DOE Complex. As defined in 10 CFR 830.3, a Safety Limit is a limit on process variables associated with those safety class physical barriers, generally passive, that are necessary for the intended facility function and that are required to guard against the uncontrolled release of radioactive materials.]

Group 3, Subgroup A, Sequence (2), SC 2

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Any violation or noncompliance of a Hazard Category 1, 2, or 3 nuclear facility's Technical Safety Requirement (or Operational Safety Requirement) Limiting Control Setting, Limiting Condition for Operation, Administrative Control, or Surveillance Requirement.

Exception: An event consisting solely of a surveillance test performed after the prescribed surveillance period, and in which the equipment was found to be capable of performing its specified safety function. (See separate criterion for late surveillance tests below).

Group 3, Subgroup A, Sequence (3), SC 3

Any violation or noncompliance of a hazard control specified in a Hazard Category 1, 2, or 3 nuclear facility's DOE approved Documented Safety Analysis (issued pursuant to 10 CFR 830.204 and including Basis for Interim Operation (BIO), etc.), or DOE issued Safety Evaluation Report that are not addressed by Criteria 3A(1) and 3A(2).

Exceptions:

(a) An event consisting solely of a violation of a safety management program (e.g., quality assurance, personnel training) cited in the Documented Safety Analysis.

(b) An event consisting solely of a surveillance test performed after the prescribed surveillance period, and in which the equipment was found to be capable of performing its specified safety function. (See separate criterion for late surveillance tests below).

Group 3, Subgroup A, Sequence (4), SC 4

An event consisting solely of a surveillance test performed after the prescribed surveillance period and the equipment was found to be capable of performing its specified safety function.

Group 3, Subgroup B, Sequence (1), SC 2

Determination of a positive Unreviewed Safety Question (USQ) that reveals a currently existing inadequacy in the documented safety analysis [e.g., Safety Analysis Report (SAR) or Basis for Interim Operation (BIO)].

Group 3, Subgroup B, Sequence (2), SC 3

Declaration of a potential inadequacy of the documented safety analysis (a potential positive USQ), per 10 CFR 830.203(g).

Group 3, Subgroup C, Sequence (1), SC *1

A loss of multiple nuclear criticality process-condition controls, where processes include operation, transport, and storage of fissionable materials, such that no valid controls are available to prevent a criticality accident.

Group 3, Subgroup C, Sequence (2), SC 2

A loss of one or more nuclear criticality process-condition controls such that an accidental criticality is possible from the loss of an additional process-condition control, where processes include operation, transport, and storage of fissionable materials.

GROUP 4 – FACILITY STATUS

Group 4, Subgroup A, Sequence (1), SC 3

Performance degradation of any Safety Class or Safety Significant Structure, System, or Component (SSC) that prevents satisfactory performance of its design function when it is required to be operable.

Group 4, Subgroup A, Sequence (2), SC 4

Performance degradation of any Safety Class SSC when not required to be operable.

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Group 4, Subgroup B, Sequence (1), SC *2

A Stop Work Order issued by a DOE office.

Group 4, Subgroup B, Sequence (2), SC 2

Actuation of a Safety Class Structure, System, or Component (SSC), or its alarms, resulting from an actual unsafe condition. Spurious alarms (e.g., due to electronic noise, radon/thoron decay) should not be reported.

Group 4, Subgroup B, Sequence (3), SC 3

Actuation of a Safety Significant SSC or its alarms resulting from an actual unsafe condition. Spurious alarms (e.g., due to electronic noise, radon/thoron decay) should not be reported.

Group 4, Subgroup B, Sequence (4), SC 3

Any facility evacuation, not including a precautionary evacuation, in response to an actual event. If the event fell under another reporting criterion, then evacuation should be reported as well by noting multiple reporting criteria for the single occurrence.

Group 4, Subgroup B, Sequence (5), SC 4

A facility operational event caused by deviating from a written procedure or using an inadequate procedure resulting in an adverse effect on safety, such as: an inadvertent facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes), facility or operations shutdown due to alarm response procedures, inadvertent process liquid transfer, or inadvertent release of hazardous material from its engineered containment.

Group 4, Subgroup B, Sequence (6), SC *4

A facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes) directed by management for safety reasons.

Group 4, Subgroup B, Sequence (7), SC 4

A facility or site stand-down resulting from safety reasons reportable as an occurrence or occurrences.

Note: This is a secondary reporting criterion, and does not require a separate occurrence report.

Group 4, Subgroup B, Sequence (8), SC 4

Any event or condition that would prevent immediate facility or offsite emergency response capabilities.

Group 4, Subgroup C, Sequence (1), SC 3

Discovery of any suspect/counterfeit item or material found in a Safety Class or Safety Significant Structure, System, or Component (SSC).

A suspect item or material is one whose documentation, appearance, performance, material, or other characteristics may have been misrepresented by the vendor, supplier, distributor, or manufacturer. A counterfeit item or material is one for which sufficient evidence exists that deliberate misrepresentation has occurred.

Group 4, Subgroup C, Sequence (2), SC 4

Discovery of any suspect/counterfeit item or material other than office supplies, office equipment, or household products.

Group 4, Subgroup C, Sequence (3), SC 4

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Discovery of any defective item or material, other than a suspect/counterfeit item or material, in any application whose failure could result in a loss of safety function, or present a hazard to public or worker health and safety.

A defective item or material is any item or material that does not meet the commercial standard or procurement requirements as defined by catalogues, proposals, procurement specifications, design specifications, testing requirements, contracts, or the like. It does not include parts or services that fail or are otherwise found to be inadequate because of random failures or errors within the accepted reliability level.

GROUP 5 - ENVIRONMENTAL

Group 5, Subgroup A, Sequence (1), SC *2

Any release (onsite or offsite) of a hazardous substance, material, waste, or radionuclide from a DOE facility, that is above permitted levels and exceeds the reportable quantities specified in 40 CFR 302 or 40 CFR 355.

Group 5, Subgroup A, Sequence (2), SC 2

Any discharge that exceeds 100 gallons of oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. For operations involving oil field crude or condensate, any discharge of 100 barrels or more is reportable under this criterion.

Group 5, Subgroup A, Sequence (3), SC 4

Any release (onsite or offsite) of a hazardous substance, material, waste, or radionuclide from a DOE facility that is above permitted levels and exceeds 50 percent of the reportable quantities specified in 40 CFR 302 or 40 CFR 355.

Group 5, Subgroup A, Sequence (4), SC 4

Any release (onsite or offsite) of a hazardous substance, material, waste, or radionuclide from a DOE facility that must be reported to outside agencies in a format other than routine periodic reports. (However, oil spills of less than 10 gallons and with negligible environmental impact need not be reported in ORPS.)

Group 5, Subgroup B, Sequence (1), SC 2

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

GROUP 6 – CONTAMINATION / RADIATION CONTROL

Group 6, Subgroup A, Sequence (1), SC 2

Identification of radioactive material offsite due to DOE operations/activities that exceeds applicable DOE-approved authorized limits (pursuant to DOE O 5400.5). This applies to items/areas consisting of radioactive material. This does not apply to items with surface radioactive contamination. See Criterion 6B(1) below for criteria for identification of items with surface radioactive contamination.

Group 6, Subgroup A, Sequence (2), SC 2

Loss of radioactive material that exceeds 100 times the quantities specified in 10 CFR Part 835, Appendix E (excluding consumer products such as smoke detectors), or loss of accountability of such material for more than 24 hours. The 24-hour time period begins when the loss of accountability is discovered.

Group 6, Subgroup A, Sequence (3), SC 3

Loss of radioactive material which exceeds 1 times and no greater than 100 times the quantities specified in 10 CFR Part 835, Appendix E (excluding consumer products such as smoke detectors) or loss of accountability of such material for more than 24 hours. The 24-hour time period begins when the loss of accountability is discovered.

Group 6, Subgroup B, Sequence (1), SC 2

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Identification of radioactive contamination offsite due to DOE operations/activities that exceeds applicable DOE-approved authorized limits (pursuant to DOE Order 5400.5) or, if there are none, the values found in 10 CFR Part 835, Appendix D.

[Note: All releases of property containing or potentially containing residual radioactivity are subject to requirements in DOE Order 5400.5. Compliance with 10 CFR Part 835, Appendix D values does not necessarily satisfy the requirements in DOE Order 5400.5.]

Group 6, Subgroup B, Sequence (2), SC 2

Identification of onsite radioactive contamination greater than 100 times the total contamination values in 10 CFR 835 Appendix D and that is found outside of the following locations: Contamination Areas, High Contamination Areas, Airborne Radioactivity Areas, Radiological Buffer Areas, and areas controlled in accordance with 10 CFR 835.1102(c). For tritium, the reporting threshold is 100 times the removable contamination values in 10 CFR Part 835, Appendix D.

[Notes:

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

(b) This also does not apply to legacy radioactive contamination, which will be reported under a separate criterion below.

(c) The exclusion from reporting contamination in a Radiological Buffer Area applies only when the area has been established next to a Contamination Area, High Contamination Area or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD-1098-99.]

Group 6, Subgroup B, Sequence (3), SC 3

Identification of onsite radioactive contamination greater than 10 times the total contamination values in 10 CFR 835 Appendix D and that is found outside of the following locations: Contamination Areas, High Contamination Areas, Airborne Radioactivity Areas, Radiological Buffer Areas, and areas controlled in accordance with 10 CFR 835.1102(c). For tritium, the reporting threshold is 10 times the removable contamination values in 10 CFR Part 835, Appendix D.

[Notes:

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

(b) This also does not apply to legacy radioactive contamination, which will be reported under a separate criterion below.

(c) The exclusion from reporting contamination in a Radiological Buffer Area applies only when the area has been established next to a Contamination Area, High Contamination Area or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD-1098-99.]

Group 6, Subgroup B, Sequence (4), SC 4

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Identification of onsite legacy radioactive contamination greater than 10 times the total contamination values in 10 CFR 835 Appendix D and that is found outside of the following locations: Contamination Areas, High Contamination Areas, Airborne Radioactivity Areas, Radiological Buffer Areas, and areas controlled in accordance with 10 CFR 835.1102(c). For tritium, the reporting threshold is 10 times the removable contamination values in 10 CFR Part 835, Appendix D.

[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 next to a Contamination Area, High Contamination Area or Airborne Radioactivity Area and its exit requirements have adopted guidance from Article 338.2 of DOE-STD -1098-99.]

Group 6, Subgroup C, Sequence (1), SC *1

Determination of a dose that exceeds the limits specified in 10 CFR Part 835, Subpart C, Occupational Radiation Protection or DOE O 5400.5, Chapter II, Item 1 (i.e., 100 mrem Total Effective Dose Equivalent (TEDE) for offsite exposures to a member of the public).

Group 6, Subgroup C, Sequence (2), SC 2

Any unmonitored exposure that exceeds the values for providing personnel dosimeters and bioassays as stated in 10 CFR 835.402(a) or 10 CFR 835.402(c).

Group 6, Subgroup C, Sequence (3), SC 3

Any single occupational exposure that exceeds an expected exposure or dosimetry result by: (1) 500 mrem Committed Effective Dose Equivalent (CEDE), or (2) the greater of 10% or 100-mrem effective dose equivalent due to external exposure.

Group 6, Subgroup C, Sequence (4), SC 3

Determination of an estimated annual dose that exceeds 10 mrem Total Effective Dose Equivalent (TEDE) for offsite exposures to a member of the public from air pathways only.

Group 6, Subgroup D, Sequence (1), SC *2

Any occurrence requiring offsite medical assistance for contaminated personnel, including transporting a person to an offsite medical facility or bringing offsite medical personnel onsite to perform treatment or decontamination.

Group 6, Subgroup D, Sequence (2), SC 2

Identification of personnel or clothing contamination offsite due to DOE operations that exceeds the values for total contamination found in 10 CFR 835, Appendix D. For tritium use the values for removable contamination found in 10 CFR 835, Appendix D.

Group 6, Subgroup D, Sequence (3), SC 4

Any onsite contamination of personnel or clothing (excluding site-provided protective clothing) that exceeds 10 times the values for total contamination identified in 10 CFR Part 835, Appendix D. The contamination level must be based on direct measurement and not averaged over any area. This criterion does not apply to tritium contamination.

GROUP 7 – NUCLEAR EXPLOSIVE SAFETY

Group 7, Sequence (1), SC *1

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Damage to a nuclear explosive that results in a credible threat to nuclear explosive safety.

Group 7, Sequence (2), SC 2

The unauthorized introduction of electrical energy into a nuclear explosive.

Group 7, Sequence (3), SC 2

The unauthorized compromise of a nuclear explosive safety feature when installed on a nuclear explosive.

Group 7, Sequence (4), SC 2

Inadvertent substitution of a nuclear explosive for a nuclear explosive-like assembly (NELA) or vice versa.

Group 7, Sequence (5), SC 2

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

Group 7, Sequence (6), SC 2

Damage to a training unit during training operations indicative of a hazard to a nuclear explosive.

Group 7, Sequence (7), SC 3

The use of uncertified personnel or unauthorized equipment/tooling during a nuclear explosive operation.

Group 7, Sequence (8), SC 3

A violation of the two-person concept of operations.

Group 7, Sequence (9), SC 3

Revocation of the Personnel Assurance Program (PAP) certification of an individual (for cause).

GROUP 8 - TRANSPORTATION

Group 8, Sequence (1), SC *1

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Any offsite transportation incident involving hazardous materials that would require immediate notice pursuant to 49 CFR Part 171.15, namely:

- (a) As a direct result of hazardous materials:
 - (i) a person is killed,
 - (ii) a person receives injuries requiring hospitalization,
 - (iii) estimated property damage exceeds \$50,000,
 - (iv) an evacuation of the general public occurs lasting 1 hour or more,
 - (v) one or more transportation arteries or facilities are closed or shut down for 1 hour or more, or
- (b) Fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive materials, or
- (c) Fire, breakage, spillage, or suspected contamination occurs involving shipment of infectious substances (etiologic agents), or
- (d) There has been a release of a marine pollutant in a quantity exceeding 450 liters (119 gallons) for liquids or 400 kilograms (882 pounds) for solids, or
- (e) The operational flight pattern or routine of an aircraft is altered.

Group 8, Sequence (2), SC 3

Any offsite transport of hazardous material, including radioactive material, whose quantity or nature (e.g., physical or chemical composition) is different than intended, such that the receiving organization's operations were impacted/disrupted, or the transport resulted in the initiation of corrective actions by the originating organization.

Group 8, Sequence (3), SC 4

Any onsite transport of hazardous material, including radioactive material, whose quantity or nature (e.g., physical or chemical composition) is different than intended, such that the receiving organization's operations were impacted/disrupted, or the transport resulted in the initiation of corrective actions by the originating organization.

Group 8, Sequence (4), SC 4

Any packaging or transportation activity involving the onsite release of radioactive materials, etiologic agents, hazardous substances, hazardous waste, or marine pollutants.

GROUP 9 – NONCOMPLIANCE NOTIFICATIONS

Group 9, Sequence (1), SC 3

Any enforcement action (other than associated with the Price Anderson Amendment Act) involving 10 or more cited violations, and/or an assessed fine of \$10,000 or more.

[Note: This criterion applies to the enforcement action as initially received from the regulator. Thus the enforcement action would still be reportable even if the fine is later reduced below \$10,000 or the number of violations reduced below 10.]

Group 9, Sequence (2), SC 4

Any written notification from an outside regulatory agency that a site/facility is considered to be in significant noncompliance with a schedule or requirement (e.g., Notice of Violation, Notice of Intent to Sue, Notice of Noncompliance, Warning Letter, Finding of Violation, Finding of Alleged Violation, Administrative Order, or a similar type of notification or enforcement action).

GROUP 10 – MANAGEMENT CONCERNS / ISSUES

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Group 10, Sequence (1), SC 2

Any event resulting in the initiation of a Type A or B accident investigation as categorized by DOE O 225.1A, *Accident Investigation*.

[Note: This reporting criterion may raise the significance category of an occurrence already reported under separate criteria. Multiple reporting criteria should be noted when appropriate.]

Group 10, Sequence (2), SC 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 to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken.

[[†] Note: An SC 1 occurrence report requires Prompt Notification.]

Group 10, Sequence (3), SC 1-4

A near miss, where no barrier or only one barrier prevented an event from having a reportable consequence. One of the four significance categories should be assigned to the near miss, based on an evaluation of the potential risks and the corrective actions taken.

[[†] Note: An SC 1 occurrence report requires Prompt Notification.]

Group 10, Sequence (4), SC *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.

Group 10, Sequence (5), SC *4

Any occurrence of such significant immediate interest to offsite personnel and organizations that it warrants prompt notification to the DOE Headquarters Operations Center (DOE HQ OC), and which is not already designated elsewhere in this set of reporting criteria to have prompt notification [denoted by having an asterisk (*) next to the significance category].