

NUCLEAR REGULATORY COMMISSION

10 CFR Chapter I

[NRC-2015-0176]

Abnormal Occurrence Reports

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed revision to policy statement; request for comments.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is proposing revisions to its policy statement on reporting abnormal occurrences (AO) to Congress. The proposed revisions would clarify and restructure the criteria used by the NRC and Agreement States for determining whether to consider an incident or event as an AO. The proposed revisions to the policy statement would ensure consistency with current NRC guidance and regulations. The NRC is requesting public comments on the proposed revision to the policy statement at this time.

DATES: Submit comments by **[INSERT DATE 90 DAYS FROM DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before this date.

ADDRESSES: You may submit comments by any of the following methods (unless this document describes a different method for submitting comments on a specific subject):

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2015-0176**. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **Mail comments to:** Cindy Bladey, Office of Administration, Mail Stop: OWFN-12-H08, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

For additional direction on obtaining information and submitting comments, see “Obtaining Information and Submitting Comments” in the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: Luis A. Benevides, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; telephone: 301-415-2457; e-mail: Luis.Benevides@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments.

A. Obtaining Information.

Please refer to Docket ID **NRC-2015-0176** when contacting the NRC about the availability of information for this action. You may obtain publicly-available information related to this action by any of the following methods:

- **Federal rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2015-0176**.

- **NRC's Agencywide Documents Access and Management System (ADAMS):**

You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public Documents](#)" and then select "[Begin Web-based ADAMS Search](#)." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in the SUPPLEMENTARY INFORMATION section.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

B. Submitting Comments.

Please include Docket ID **NRC-2015-0176** in the subject line of your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at <http://www.regulations.gov> as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment into ADAMS.

II. Background.

Section 208 of the Energy Reorganization Act of 1974, as amended (Public Law 93-438), defines an AO as an unscheduled incident or event that the NRC determines to be significant from the standpoint of public health or safety. The Federal Reports Elimination and Sunset Act of 1995 (Public Law 104-66) requires that AOs be reported to Congress annually. As required by Section 208, the discussion for each event includes the date and place, the nature and probable consequences, the cause or causes, and the action taken to prevent recurrence. The Commission must also widely disseminate the AO report to the public within 15 days of publishing the AO report to Congress.

Abnormal Occurrence Reporting

The Commission has developed the AO policy statement to comply with Section 208 of the Energy Reorganization Act of 1974, as amended. The intent of the act is to keep Congress and the public informed of unscheduled incidents or events that the Commission considers significant from the standpoint of public health and safety. The policy reflects a range of health and safety concerns and applies to incidents and events involving a single individual, as well as those having an overall impact on the general public. The AO criteria use a high reporting threshold so that only those events considered significant from the standpoint of public health and safety are reported to Congress.

Applicability

Implementation of Section 208 of the Energy Reorganization Act of 1974, as amended, “Abnormal Occurrence Reports,” involves the conduct of Commission business and does not impose requirements on licensees or certified facilities. The reports cover certain unscheduled incidents or events related to the manufacture, construction, or operation of a facility or conduct

of an activity subject to the requirements of parts 20, 30 through 37, 39, 40, 50, 61, 70, 71, 72, or 76 in chapter I of Title 10 of the *Code of Federal Regulations* (10 CFR).

Agreement States provide information to the NRC on incidents and events involving applicable nuclear materials in their States. Agreement States are those States that have entered into formal agreements with the NRC, pursuant to Section 274 of the Atomic Energy Act of 1954, as amended (AEA) (Public Law 83-703), to regulate certain quantities of AEA material at facilities located within their borders. Events reported by Agreement States that reach the threshold for reporting as AOs are also published in the “Report to Congress on Abnormal Occurrences.”

Proposed Revisions

The NRC is proposing revisions to the AO criteria to clarify the criteria for determining events that are significant from the standpoint of public health and safety and should therefore be considered AOs. The proposed revisions would also make the criteria consistent with NUREG-1614, Volume 6, “U.S. Nuclear Regulatory Commission’s Strategic Plan for Fiscal Years 2014–2018,” issued August 2014 (ADAMS Accession No. ML14246A439), and new NRC requirements in 10 CFR part 37, “Physical protection of category 1 and category 2 quantities of radioactive material.” Further, the NRC proposes to revise the AO criteria to separate “Other Events of Interest” from the AO criteria to clearly delineate that events considered “Other Events of Interest” are not AOs, but do represent significant events that the Commission deems appropriate to report to Congress. Finally, restructuring and minor editorial changes are proposed to some sections for clarity.

The NRC is requesting public comments on the proposed revision to the policy statement at this time. The NRC is specifically seeking public comments on screening all reports for exposures to embryo/fetus or nursing child as an AO under Criteria I.A.2, unintended radiation exposure, versus screening reports required by 10 CFR 35.3047 for exposures to

embryo/fetus or nursing child resulting from treatment to a patient as an AO under Criteria III.C, “Events Involving the Medical Use of Radioactive Materials in Patients or Human Research Subjects.”

The entire text of the proposed revision of the policy statement is available as an attachment to this document.

Licensee Reports

The proposed changes to the general policy statement would not change the reporting requirements for NRC licensees in Commission regulations, license conditions, or technical specifications. The NRC licensees will continue to submit required reports on a wide range of events, including instrument malfunctions and deviations from normal operating procedures that may not be significant from the standpoint of the public health and safety but provide data useful to the Commission in monitoring operating trends of licensed facilities and in comparing the actual performance of these facilities with their design and/or licensing basis.

III. Paperwork Reduction Act.

This policy statement does not contain information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

Public Protection Notification.

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting documents displays a currently valid Office of Management and Budget control number.

Dated at Rockville, Maryland, this 10th day of August, 2015.

For the Nuclear Regulatory Commission.

/RA/

Annette L. Vietti-Cook,
Secretary of the Commission.

Attachment – Abnormal Occurrence Statement of Policy

The Commission will apply the following policy in determining whether an incident or event at a facility or involving an activity that is licensed or otherwise regulated by the Commission or an Agreement State is an abnormal occurrence (AO)¹.

An incident or event is considered an AO if it involves a major reduction in the protection of public health or safety. The incident or event has a moderate or severe impact on public health or safety and could include, but need not be limited to, the following:

- (1) moderate exposure to, or release of, radioactive material licensed by or otherwise regulated by the Commission or Agreement States;
- (2) major degradation of essential safety-related equipment;
- (3) major deficiencies in design, construction, use of, or management controls for facilities or radioactive material licensed by or otherwise regulated by the Commission or Agreement States; or
- (4) substantiated case of actual loss, theft, or diversion of risk significant radioactive material licensed by or otherwise regulated by the Commission or Agreement States.

The criteria for determining whether to consider an incident or event for reporting as an AO are set forth in Appendix A of this policy statement.

Commission Dissemination of Abnormal Occurrence Information

The Commission widely disseminates the AO reports to the public. The Commission will submit an annual report to Congress on AOs that occur at or are associated with any facility or activity that is licensed or otherwise regulated pursuant to the Atomic Energy Act of 1954, as

¹ Events reported to the U.S. Nuclear Regulatory Commission (NRC) by Agreement States that reach the threshold for reporting as AOs will be reported as such by the Commission.

amended, or the Energy Reorganization Act of 1974, as amended. This report gives the date, place, nature, and probable consequences of each AO; the cause or causes of each AO; and any action taken to prevent recurrence.

Appendix A: Abnormal Occurrence Criteria.

An accident or event is considered an abnormal occurrence (AO) if it involves a major reduction in the degree of protection of public health or safety. This type of incident or event has a moderate or severe impact on public health or safety and could include, but need not be limited to, the following:

- (1) moderate exposure to, or release of, radioactive material licensed by or otherwise regulated by the Commission or Agreement States;
- (2) major degradation of essential safety-related equipment;
- (3) major deficiencies in design, construction, use of, or management controls for facilities or radioactive material licensed by or otherwise regulated by the Commission or Agreement States; or
- (4) substantiated case of actual loss, theft, or diversion of risk-significant radioactive material licensed by or otherwise regulated by the Commission or Agreement States.

Abnormal Occurrence Criteria.

The following presents the criteria, by types of events, used to determine which events will be considered for reporting as AOs.

I. All Licensees.²

A. Human Exposure to Radiation from Licensed Material.

1. Any unintended radiation exposure to an adult (any individual 18 years of age or older) resulting in:

(a) an annual total effective dose equivalent (TEDE) of 250 millisievert (mSv) (25 rem) or more;

(b) an annual sum of the deep dose equivalent (external dose) and committed dose equivalent (intake of radioactive material) to any individual organ other than the lens of the eye, the bone marrow, and the gonads of 2,500 mSv (250 rem) or more;

(c) an annual dose equivalent to the lens of the eye of 1 Sv (100 rem) or more;

(d) an annual sum of the deep dose equivalent and committed dose equivalent to the bone marrow of 1 Sv (100 rem) or more;

(e) a committed dose equivalent to the gonads of 2,500 mSv (250 rem) or more; or

(f) an annual shallow dose equivalent to the skin or extremities of 2,500 mSv (250 rem) or more.

2. Any unintended radiation exposure to any minor (an individual less than 18 years of age) resulting in an annual TEDE of 50 mSv (5 rem) or more, or to an embryo/fetus resulting in a dose equivalent of 50 mSv (5 rem) or more.

3. Any radiation exposure that has resulted in unintended permanent functional damage to an organ or a physiological system as determined by an independent physician³ deemed qualified by the NRC or Agreement State.

² Medical patients are excluded from consideration under this criterion and these criteria do not apply to medical events defined in § 35.3045 of Title 10 of the *Code of Federal Regulations* (10 CFR), which are considered in AO Criteria III.C, "Events Involving the Medical Use of Radioactive Materials in Patients or Human Research Subjects."

³ Independent physician is defined to be a physician not on the licensee's staff and who was not involved in the care of the patient involved.

B. Discharge or Dispersal of Radioactive Material from its Intended Place of Confinement.

The release of radioactive material to an unrestricted area in concentrations that, if averaged over a period of 24 hours, exceeds 5,000 times the values specified in Table 2 of appendix B, “Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage,” to 10 CFR part 20, “Standards for protection against radiation,” unless the licensee has demonstrated compliance with 10 CFR 20.1301, “Dose limits for individual members of the public,” using 10 CFR 20.1302(b)(1) or 10 CFR 20.1302(b)(2)(ii). This criterion does not apply to transportation events.

C. Theft, Diversion, or Loss of Licensed Material; Sabotage; or Security Breach.^{4,5,6}

1. Any stolen, diverted, abandoned, or unrecovered lost radioactive material that meets or exceeds the thresholds listed in appendix A of 10 CFR part 37, “Physical protection of category 1 and category 2 quantities of radioactive material.” Excluded from reporting under this criterion are those events involving sources that are lost or abandoned under the following conditions: sources that have been lost and for which a reasonable attempt at recovery has been made without success or irretrievable well logging sources as defined in 10 CFR 39.2, “Definitions.” These sources are only excluded if there is reasonable assurance that the doses from these sources have not exceeded and will not exceed the reporting thresholds specified in

⁴ Information pertaining to certain incidents may be either classified or under consideration for classification because of national security implications. Classified information will be withheld when formally reporting these incidents in accordance with Executive Order 13526, as amended (“Classified National Security Information” (75 FR 707), or any predecessor or successor order to require protection against unauthorized disclosures. Any classified details about these incidents would be available to the Congress, upon request, under appropriate security arrangements.

⁵ Information pertaining to certain incidents may be Safeguards Information as defined in 10 CFR 73.2 because of safety and security implications. The AO report would withhold specific safeguards information in accordance with Section 147 of the Atomic Energy Act of 1954, as amended. Any safeguards details regarding these incidents would be available to the Congress, upon request, under appropriate security arrangements.

⁶ Reporting lost or stolen material is based on the activity of the source at the time the radioactive material was known to be lost or stolen. If, by the time the AO report is due to Congress, the radioactive material has decayed to below the thresholds listed in appendix A of 10 CFR part 37, the report will clarify that the radioactive material has decayed below the thresholds.

AO Criteria I.A.1 and I.A.2 and the agency has determined that the risk of theft or diversion is acceptably low.

2. An act that results in radiological sabotage as defined in 10 CFR 73.2, "Definitions."

3. Any substantiated⁷ case of actual theft, diversion, or loss of a formula quantity of special nuclear material⁸ or an inventory discrepancy of a formula quantity of special nuclear material⁸ that is judged to be caused by theft or diversion.

4. Any substantial breakdown⁹ of physical security, cyber security, or material control and accountability programs that significantly weakens the protection against loss, theft, diversion, or sabotage.

5. Any significant unauthorized disclosures (loss, theft, and/or deliberate) of classified information that harms national security or safeguards information that threatens public health and safety.

*D. Initiation of High-Level NRC Team Inspection.*¹⁰

II. Commercial Nuclear Power Plant Licensees.

A. Malfunction of Facility, Structures, or Equipment.

1. Exceeding a safety limit of license technical specification (TS) (10 CFR 50.36(c)).

2. Serious degradation of fuel integrity, primary coolant pressure boundary, or primary containment boundary.

⁷ "Substantiated" means a situation in which there is an indication of loss, theft, or unlawful diversion, such as: an allegation of diversion, report of lost or stolen material, or other indication of loss of material control or accountability that cannot be refuted following an investigation; and requires further action on the part of the agency or other proper authorities.

⁸ Formula quantity of special nuclear material is defined in 10 CFR 70.4, "Definitions."

⁹ A substantial breakdown is defined as a red finding under the Reactor Oversight Process (ROP) in the physical security inspection program or any plant or facility determined to have overall unacceptable performance.

¹⁰ This item addresses initiation of any incident investigation teams, as described in NRC Management Directive (MD) 8.3, "NRC Incident Investigation Program" (see <http://www.internal.nrc.gov/policy/directives/toc/md8.3.htm>), or initiation of any accident review groups, as described in MD 8.9, "Accident Investigation" (see <http://www.internal.nrc.gov/policy/directives/toc/md8.9.htm>).

3. Loss of plant capability to perform essential safety functions so that a release of radioactive materials, which could result in exceeding the dose limits of 10 CFR part 100, "Reactor Site Criteria," or five times the dose limits of General Design Criteria (GDC) 19 in appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR part 50, "Domestic licensing of production and utilization facilities," could occur from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod system).

B. Design or Safety Analysis Deficiency, Personnel Error, or Procedural or Administrative Inadequacy.

1. Discovery of a major condition not specifically considered in the safety analysis report or TS that requires immediate remedial action.

2. Personnel error or procedural deficiencies that result in loss of plant capability to perform essential safety functions so that a release of radioactive materials, which could result in exceeding the dose limits of 10 CFR part 100 or five times the dose limits of GDC 19 in appendix A to 10 CFR part 50, could occur from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod drive mechanism).

C. Any operating reactor events or conditions evaluated by the NRC Reactor Oversight Process (ROP) to be the result of or associated with licensee performance issues of high safety significance.¹¹

D. Any operating reactor events or conditions evaluated by the NRC Accident Sequence Precursor (ASP) program to have a conditional core damage probability (CCDP) or change in

¹¹ The NRC ROP uses four colors to describe the safety significance of licensee performance. As defined in NRC MD 8.13, "Reactor Oversight Process" (see <http://www.internal.nrc.gov/policy/directives/toc/md8.13.htm>), green is used for very low safety significance, white is used for low to moderate safety significance, yellow is used for substantial safety significance, and red is used for high safety significance. Reactor conditions or performance indicators evaluated to be red are considered AOs.

core damage probability (ΔCDP) of greater than or equal to 1×10^{-3} .¹²

*E. Any operating reactor plants that are determined to have overall unacceptable performance or are in a shutdown condition as a result of significant performance problems and/or operational event(s).*¹³

III. Events at Facilities Other Than Nuclear Power Plants and All Transportation Events.

A. Events Involving Design, Analysis, Construction, Testing, Operation, Transport, Use, or Disposal.

1. An accidental criticality.
2. A major deficiency in design, construction, control, or operation having significant safety implications that require immediate remedial action.
3. A serious safety-significant deficiency in management or procedural controls.
4. A series of events (in which the individual events are not of major importance), recurring incidents, or incidents with implications for similar facilities (generic incidents) that raise a major safety concern.

¹² Results from the NRC ASP program are used to monitor agency performance against the agency's strategic safety goal (e.g., ensure the safe use of radioactive materials) and objectives (e.g., prevent and mitigate accidents and ensure radiation safety). A precursor event with a CCDP or ΔCDP of greater than or equal to 1×10^{-3} is used as a performance indicator for the strategic safety goal by determining that there have been no significant precursors of a nuclear reactor accident and that there have been no more than one significant adverse trend in industry safety performance.

¹³ Any plants assessed by the ROP to be in the unacceptable performance column, as described in NRC Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program" (see <http://pbadupws.nrc.gov/docs/ML1508/ML15089A315.pdf>), or under the NRC IMC 0350, "Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns" (see <http://pbadupws.nrc.gov/docs/ML0634/ML063400076.pdf>). This assessment of safety performance is based on the number and significance of NRC inspection findings and licensee performance indicators.

*B. Fuel Cycle Facilities.*¹⁴

1. Absence or failure of all safety controls (engineered and human) such that conditions were present for the occurrence of a high-consequence event involving an NRC-regulated hazard (radiological or chemical).¹⁵
2. An NRC-ordered safety-related or security-related immediate remedial action.

*C. Events Involving the Medical Use of Radioactive Materials in Patients or Human Research Subjects.*¹⁶

1. A medical event, as defined in 10 CFR 35.3045, which results in a dose that:
 - (a) is equal to or greater than 1 Gray (Gy) (100 rad) to a major portion of the bone marrow or to the lens of the eye; or equal or greater than 2.5 Gy (250 rad) to the gonads; or
 - (b) exceeds, by 10 Gy (1,000 rad), the expected dose to any other organ or tissue from the administration defined in the written directive; and
2. A medical event, as defined in 10 CFR 35.3045, which involves:
 - (a) a dose or dosage that is at least 50 percent greater than that prescribed, or
 - (b) a prescribed dose or dosage that
 - (i) uses the wrong radiopharmaceutical or unsealed byproduct material; or
 - (ii) is delivered by the wrong route of administration; or
 - (iii) is delivered to the wrong treatment site; or

¹⁴ Criterion III.A also applies to Fuel Cycle Facilities.

¹⁵ High-consequence events for facilities licensed under 10 CFR part 70 are those that could seriously harm the worker or a member of the public in accordance with 10 CFR 70.61. The integrated safety analysis (ISA) conducted and maintained by the licensee or applicant of 10 CFR part 70 fuel cycle facilities identifies such hazards and the safety controls (10 CFR 70.62(c)) applied to meet the performance requirements in accordance with 10 CFR 70.61(b) through (d). Fuel cycle facilities licensed under 10 CFR part 40 or certified under 10 CFR part 76 have licensing basis documents that describe facility specific hazards, consequences, and those controls utilized to prevent or mitigate the consequences of such accidents. For these facilities, a high-consequence event would be a release that has the potential to cause acute radiological or chemical exposures to a worker or a member of the public similar to that defined in NUREG-1520, Revision 2, Appendix A to Chapter 3, Section A.2, under "Consequence Category 3 (High Consequences)" (see <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1520/>).

¹⁶ Criteria III.A.2, III.A.3, and III.A.4 also apply to medical licensees.

- (iv) is delivered by the wrong treatment mode; or
- (v) is from a leaking source or sources; or
- (vi) is delivered to the wrong individual or human research subject.

Appendix B: Other Events of Interest.

This appendix discusses other events of interest that do not meet the AO criteria in Appendix A. The Commission may determine that events, other than AOs, may be of interest to Congress and the public and should be included in an appendix to the AO report as “Other Events of Interest.” Such events may include, but are not necessarily limited to, events that do not meet the AO criteria but that have been perceived by Congress or the public to be of high health and safety significance, have received significant media coverage, or have caused the NRC to increase its attention to or oversight of a program area, or a group of similar events that have resulted in licensed materials entering the public domain in an uncontrolled manner.