

U.S. NUCLEAR REGULATORY COMMISSION

DIRECTIVE TRANSMITTAL

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To: NRC Management Directives Custodians

Subject: Transmittal of Management Directive 8.9, "Accident Investigation"

Purpose: Management Directive and Handbook 8.9 provide guidance on the policy, objectives, organizational responsibilities and authorities for the establishment, conduct, documentation, and followup activities of Accident Review Groups (ARGs) reporting to the Commission. An ARG provides the NRC's fact-finding investigatory response to an event of extraordinary safety significance at an NRC-licensed facility. Directive and Handbook 8.9 provide the structure and process to promptly initiate and provide support for an ARG once chartered. The specific event characteristics that describe the threshold for consideration of a possible ARG response are included and are appropriate for an operational event of extreme safety significance and with profound regulatory implications. Once established and chartered, an ARG will be independent and self-directed, subject only to oversight by the Commission.

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Accident Investigation

Directive 8.9

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Accident Investigation Directive 8.9

Policy (8.9-01)

It is the policy of the U.S. Nuclear Regulatory Commission (NRC) to investigate significant operational events involving reactor or nonreactor facilities licensed by the NRC. An operational event of extraordinary safety significance that poses a significant hazard to public health and safety, or the environment, or involves high public, media, congressional, or executive branch interest, at the discretion of the Commission, may involve a response by an Accident Review Group (ARG). Once established and chartered, an ARG will function in an independent and self-directed manner, subject only to the oversight of the Commission.

Objectives (8.9-02)

- To promote public health and safety and provide for the common defense and security by preventing the recurrence of accidents at licensed facilities. (021)
- To ensure that an accident is investigated in a manner that is timely, objective, systematic, credible, and technically sound; that factual information pertaining to the accident is documented; and that probable causes are ascertained. (022)
- To increase the effectiveness of NRC regulatory programs and licensee safety by the prompt dissemination of the facts, conditions, circumstances, and probable causes of the accident and the identification of appropriate followup actions. (023)
- To improve regulatory oversight of licensee activities by uncovering facts that could show whether the regulatory framework or regulatory process contributed directly or indirectly to the cause or the course of an accident. (024)

Organizational Responsibilities and Delegations of Authority (8.9-03)

The Commission (031)

Approves the investigation of an event of extraordinary safety significance by an ARG and approves the followup actions assigned as a result of the investigation.

The Director, Accident Review Group (ARG) (032)

Directs and manages the ARG and ensures that the objectives for the investigation are met. The Director, ARG, reports directly to the Commission.

The Executive Director for Operations (EDO) (033)

As requested by the Commission, ensures support for the activation and conduct of an accident investigation by an ARG and ensures that followup actions are taken as a result of the investigation.

The Director, Office for Analysis and Evaluation of Operational Data (AEOD) (034)

Maintains responsibility for the establishment and maintenance of an ARG investigatory capability.

Office Directors and Regional Administrators (035)

As requested by the Director, ARG, and the Commission, support the conduct of an ARG investigation.

Definitions

(8.9-04)

Accident Investigation

(041)

A formal process conducted for the purpose of preventing accident recurrence that involves the gathering and analysis of information; the determination of findings and conclusions of fact, including the determination of probable cause(s) of the accident; and dissemination of the investigation results for review by NRC, the nuclear industry, the licensee, and the public.

Accident Review Group

(042)

A group of experts who perform the NRC's investigation of the accident and who do not and have not had previous significant involvement with licensing, inspection, or enforcement activities at the affected facility or with facility operational or response aspects directly bearing on the cause or course of the accident. An individual outside the NRC usually leads the ARG. The members of the ARG are composed of NRC staff experts and experts from outside the NRC. Because the ARG reports directly to the Commission, the activities of the ARG are independent of regional and headquarters office management.

Event of Extraordinary Safety Significance

(043)

Any radiological, safeguards, or other safety-related operational event at an NRC-licensed facility that poses a significant hazard to public health and safety, or the environment, or involves high public, media, congressional, or executive branch interest. An event of extraordinary safety significance may be referred to as an accident. Such an event generally has very serious safety implications and may have profound regulatory implications.

Characteristics of an event for which an ARG response might be considered may include one or more of the following:

- The event led to a general emergency at a reactor facility. (1)
- The event involved an external release of radioactive material that resulted in at least partial implementation of radiologically justified protective measures for the public. (2)

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Event of Extraordinary Safety Significance
(043) (continued)

- The event involved severe damage to a significant fraction of the core of a power reactor, a major criticality accident, or a major fire or explosion releasing large quantities of radioactive materials within the facility. (3)
- The event involved sufficiently serious circumstances, including security or safeguards concerns, or involved characteristics of great national or international interest, the investigation of which would best serve the needs and interests of the Commission. (4)

Applicability
(8.9-05)

Employees
(051)

This directive and handbook apply to the Commission and staff employees of NRC headquarters and regional offices.

Handbook
(8.9-06)

Handbook 8.9 establishes responsibilities and functions of the Commission and NRC offices for an ARG response; provides objectives and authorities for a nuclear accident investigation; outlines the ARG response; establishes ARG support and followup responsibilities; and provides general guidance.

References
(8.9-07)

1. NUREG-1303, Rev. 2, "Incident Investigation Manual," September 1992.
2. NRC Management Directive 8.2, "NRC Incident Response Plan" (formerly MC 0502).
3. Office for Analysis and Evaluation of Operational Data Procedure No. 12, "Incident Investigation Team Administrative Requirements," March 1992.



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Part I

Accident Investigation

General (A)

This part outlines the responsibilities of the Commission and the responsibilities and support functions of NRC headquarters and regional offices in the activation, conduct, and followup for an accident investigation.

Responsibilities (B)

The Commission (1)

- Determines whether an event of potentially extraordinary safety significance is to be investigated by an Accident Review Group (ARG). (a)
- Selects the Director of the ARG and approves the members of the ARG, provides policy and overall direction to the ARG, and ensures the independence of the ARG. (b)
- Approves the NRC followup actions to address the findings documented in the ARG report. (c)

The Executive Director for Operations (EDO) (2)

- Identifies the potential health and safety issues and provides recommendations to the Commission on events that may warrant an accident investigation response. (a)
- As requested, identifies and provides staff to be members of an ARG. (b)

Responsibilities (B) (continued)

The Executive Director for Operations (EDO) (2) (continued)

- As requested by the Commission, provides resources for an accident investigation support organization that reports directly to the Commission to support ARG activation, investigation, and report preparation activities, and development of NRC followup actions. (c)

The Director, Office for Analysis and Evaluation of Operational Data (AEOD) (3)

- Maintains, with the assistance of other NRC offices, an accident investigation capability to meet the objectives set forth in this directive. (a)
- Ensures that investigation procedures that are used for incident investigations and may be used for an accident investigation are developed and maintained. (b)
- Provides to the Executive Director for Operations (EDO), in consultation with the appropriate regional administrator and the Director, Office of Nuclear Reactor Regulation (NRR), or the Director, Office of Nuclear Material Safety and Safeguards (NMSS), potential safety issues and recommendations on events that may warrant an ARG response. (c)
- As requested, identifies and provides staff to be members of an ARG. (d)
- As requested, provides staff for the administrative, technical, and accident investigation methods requirements of an ARG and an ARG support organization. (e)
- Establishes and maintains rosters of potential NRC staff members who are certified through formal training in incident investigation to participate in an accident investigation. (f)
- Establishes and maintains rosters of industry groups and non-NRC personnel that may be appropriate sources of experts who may be nominees to participate in an accident investigation. (g)

Responsibilities (B) (continued)

The Director, Office for Analysis and Evaluation of Operational Data (AEOD) (3) (continued)

- Identifies needed training and coordinates training requirements for incident investigation and accident investigation through the Technical Training Center. (h)

The Director, Office of Nuclear Reactor Regulation (NRR) (4)

- Provides to the EDO, in consultation with the appropriate regional administrator and the Director, AEOD, potential safety issues and recommendations on reactor facility events that may warrant an ARG response. (a)
- As requested, identifies and provides staff to be members of an ARG involving a reactor facility. (b)
- As requested, provides staff for the administrative and technical needs of an ARG and an ARG support organization. (c)
- Identifies industry groups and non-NRC personnel that may be appropriate sources of experts who may be nominees to serve on an ARG involving a reactor facility. (d)

The Director, Office of Nuclear Material Safety and Safeguards (NMSS) (5)

- Provides to the EDO, in consultation with the appropriate regional administrator and the Director, AEOD, potential nuclear materials or safeguards issues and recommendations on fuel cycle facility or materials-related events that may warrant an ARG response. (a)
- As requested, identifies and provides staff to be members of an ARG involving a fuel cycle facility or a materials licensee. (b)
- As requested, provides staff for the administrative and technical needs of an ARG and an ARG support organization. (c)

Responsibilities (B) (continued)

The Director, Office of Nuclear Material Safety and Safeguards (NMSS) (5) (continued)

- Identifies industry groups and non-NRC personnel that may be appropriate sources of experts who may be nominees to serve on an ARG involving a fuel cycle facility or a materials licensee. (d)

Regional Administrators (6)

- Provide to the EDO, in consultation with Director, NRR, or the Director, NMSS, and the Director, AEOD, potential safety, nuclear materials, or safeguards issues and recommendations on events that may warrant an ARG response. (a)
- As requested, identify and provide staff to be members of an ARG. (b)
- As requested, provide staff for the administrative and technical needs of an ARG, including staff to monitor licensee troubleshooting activities to assess equipment performance, and an ARG support organization. (c)
- Assist in identifying industry groups and non-NRC personnel that may be appropriate sources of experts who may be nominees to serve on an ARG. (d)
- Make appropriate State notifications of an ARG response. (e)
- For an ARG response, issue a Confirmatory Action Letter, as appropriate, to the affected licensee requiring that, within the constraints of ensuring safety, relevant failed equipment and areas are quarantined and subject to agreed-upon controls for troubleshooting; and that information and data related to the event is protected. (f)
- As Director of Site Operations, whose responsibilities are described in Management Directive 8.2, "NRC Incident Response Plan," approve the initiation of the ARG's onsite activities. (g)

Responsibilities (B) (continued)

Regional Administrators (6) (continued)

- As requested, provide assistance in briefing and providing background information to the ARG when it arrives onsite. (h)
- As requested, coordinate with the Director, ARG, to identify, add, and remove equipment and areas from the quarantined list, within the constraints of ensuring plant safety, equipment testing, maintenance requirements, and determining causes for equipment anomalies, until the Director, ARG, assumes responsibility. (i)

The Director, Office of Administration (ADM) (7)

- As requested, provides staff for the administrative needs of an ARG and an ARG support organization. (a)
- As requested, provides staff to assist in writing, editing, word processing, printing, and distributing an ARG report. (b)
- As requested, provides advice and assistance on the protection of classified or sensitive unclassified information related to an accident investigation. (c)
- Provides advice and assistance in the procurement of management, technical, and administrative resources needed to implement an accident investigation. (d)

The Director, Office of Public Affairs (OPA) (8)

- Follows established NRC public affairs policies for keeping the press and public informed of information related to an accident investigation. (a)
- As requested, identifies and provides staff to support the public affairs needs of an ARG. (b)

Responsibilities (B) (continued)

The Director, Office of Public Affairs (OPA) (8) (continued)

- Arranges for press releases and briefings and informs the public of exit meetings, as appropriate. Coordinates these activities with the appropriate headquarters offices, regional administrator, and the Director, ARG. (c)

The Director, Office of Nuclear Regulatory Research (RES) (9)

- As requested, identifies and provides staff to be members of an ARG. (a)
- As requested, provides staff for the administrative and technical needs of an ARG and an ARG support organization. (b)
- Identifies industry groups and non-NRC personnel that may be appropriate sources of experts who may be nominees to serve on an ARG. (c)

The Office of the General Counsel (OGC) (10)

- As requested, identifies and provides staff to be members of an ARG. (a)
- As requested, provides staff for the administrative and legal needs of an ARG and an ARG support organization. (b)
- Identifies outside groups and non-NRC personnel that may be appropriate sources of experts who may be nominees to serve on an ARG. (c)

The Director, Office of Congressional Affairs (OCA) (11)

Makes congressional notification of an ARG response.

The Director, Office of Investigations (OI) (12)

As requested, identifies and provides staff to be members of an ARG.

Responsibilities (B) (continued)

Office of the Inspector General (OIG) (13)

May provide staff to participate as an observer of an ARG investigation in coordination with the Commission.

The Director, Office of State Programs (OSP) (14)

- Assists in identifying State agency personnel that may be appropriate sources of experts who may be nominees to serve on an ARG. (a)
- Coordinates NRC interactions with State agencies for an ARG response upon notification of the State by the regional administrator that there is an ARG response. (b)

The Director, Office of International Programs (OIP) (15)

Coordinates interaction with Department of State and foreign governments when an ARG response involves entities such as manufacturers in foreign countries.

Part II

Accident Review Groups

This part provides guidance on the investigatory response by an Accident Review Group (ARG).

Objectives of an Accident Review (A)

The objectives of an ARG are as follows:

- To conduct a timely, thorough, systematic, formal, and independent investigation of the facts of an accident occurring at a facility licensed by the NRC. (1)
- To collect, analyze, and document factual information and evidence sufficient to determine the conditions, circumstances, and probable causes of the accident. (2)

Scope of an Accident Investigation (B)

The investigation performed by an ARG involves fact-finding, including the determination of probable causes, for an event of extraordinary safety significance (as defined in this directive). The scope of the investigation must be sufficient to ensure that the following is accomplished: (1)

- The accident is clearly understood (a)
- The relevant facts and circumstances are determined and collected (b)
- The probable causes and contributing causes and findings and conclusions are determined and substantiated by the evidence associated with the accident (c)

Scope of an Accident Investigation (B) (continued)

The scope of the investigation includes conditions preceding the accident, accident chronology, systems response, equipment performance, human factors, licensee management and organizational factors, precursors to the accident, emergency response, safety significance, and radiological considerations. The ARG must consider whether licensee activities preceding and during the accident were timely and adequate and whether NRC actions or inactions contributed to the cause or the course of the accident. Additionally, the ARG must determine whether any one or a combination of the following played a role in the accident: (2)

- Institutional conditions such as the regulatory framework, including the NRC regulatory process, organization, management, and interactions (a)
- External conditions such as the licensee's financial circumstances (b)
- Industry or supplier circumstances (c)

The scope of the ARG investigation may also include an assessment of the offsite emergency response of State, local, and other Federal agencies, if directed by the Commission. (3)

The scope of the ARG investigation is established in a charter mutually agreed upon and approved by the Commission and the Director, ARG. The scope of the investigation does not include a specific assessment of violations of NRC rules and requirements. (4)

Schedule (C)

The ARG should be activated as soon as practicable after the safety significance of the operational event is determined and will begin its investigation as soon as practicable after the emergency has been downgraded to the point where the facility at which the accident occurred is placed in a safe, secure, and stable condition and radiological conditions permit safe site access. If there is an NRC incident response, the ARG investigation will begin only after the NRC Director of Site Operations, in consultation with the licensee,

Schedule (C) (continued)

approves the initiation of onsite activities. The ARG should provide periodic reports to the Commission outlining the status, plans, and significant safety findings. (1)

The Commission and the Director, ARG, shall agree upon the schedule for completing the investigation and submitting the ARG's final written report. As a guideline, the final report should be transmitted to the Office of the Secretary (SECY) for distribution to the Commission and the EDO about 75 days after completion of the field investigation. (2)

After distribution of the final report, SECY should normally schedule a meeting for the ARG to brief the Commission on the results of the investigation. Information contained in the report will not be released until a copy of the final report is placed in the Public Document Room (PDR), which usually occurs during the day of the Commission briefing. If deemed necessary, SECY should forward a copy of the final report to the affected licensee before the Commission briefing and should promptly forward a copy of the final report to the PDR. Following the Commission briefing, SECY will transmit a copy of the final report to the licensee and the EDO for staff review and comment before the Commission defines and assigns NRC followup actions. (3)

Group Composition and Membership (D)

The number of members and the areas of expertise required for the ARG will be determined on the basis of the type of facility involved, the characteristics of the accident, and the ARG charter. Areas of expertise will include the requisite technical, legal, and management disciplines and such other areas of specialization as may be necessary, such as financial expertise. ARG members are selected on the basis of their expertise, their potential contributions to the investigation, and their freedom from significant involvement in the licensing or inspection activities of the facility involved or facility operational aspects directly bearing on the cause or course of the accident. (1)

Group Composition and Membership (D) (continued)

The membership of the ARG should be composed, in part, of expert staff from the NRC. Appropriate outside individuals will be requested to participate as members in the investigation. The Director, ARG, will usually be an individual from outside NRC. Other outside individuals will be selected on the basis of their unique knowledge and expertise. The ARG should consist of a larger proportion of non-NRC representation than is normally the case for an Incident Investigation Team. (2)

The background of each candidate member of the ARG will be carefully evaluated before selection to ensure impartiality and independence. Individuals possessing a high degree of ingenuity and resourcefulness should be selected to ensure that the investigation is conducted in a timely, professional, thorough, and coordinated manner. (3)

Duties (E)

The ARG carries out the NRC fact-finding investigation of the accident and is authorized and responsible for pursuing all aspects of an accident that are within its scope as defined in this directive and the ARG charter. NRC response personnel onsite shall provide support as needed to ensure the efficient and effective transition from response to investigation of the accident in a manner that will not interfere with safety at the site of the event. (1)

The following duties of the Director, ARG, are in addition to the duties defined elsewhere in this directive and handbook: (2)

- Selects the members and concurs on the charter and schedule of the ARG. (a)
- Directs and manages the ARG in its investigation and ensures that the objectives and schedules are met for the investigation as defined in this directive and handbook and the ARG charter. (b)
- Receives general direction and supervision from the Commission. (c)

Duties (E) (continued)

- Ensures the identification, addition, and removal of equipment and areas from the quarantined list, within the constraints of ensuring plant safety, equipment testing, maintenance requirements, and determining causes for equipment anomalies, after arriving onsite. (d)
- Serves as principal spokesperson for the ARG activities in interacting with the licensee, the Commission, NRC offices, the Advisory Committee on Reactor Safeguards (ACRS), the Advisory Committee on Nuclear Waste (ACNW), or the Advisory Committee on Medical Uses of Isotopes (ACMUI), the news media, and other organizations on matters involving the investigation. (e)
- Provides status reports, as requested, documenting ARG activities and significant safety findings that may require timely remedial actions or issuance of information notices, bulletins, or orders. (f)
- Identifies and requests that the Commission provide additional ARG resources (e.g., additional members, consultants, contractor assistance), as needed. (g)
- Ensures, in cooperation with the ARG members and the technical writer/editor, preparation of the final report within the timeframe agreed upon by the Commission. (h)
- Works with the Office of Public Affairs in providing the news media with information on ARG activities. (i)

Conduct of an Accident Investigation (F)

The investigation process used by the ARG must be structured to maintain independence, objectivity, and thoroughness. The ARG may use as guidance the investigation principles and practices of incident

Conduct of an Accident Investigation (F) (continued)

investigation training programs that are described in NUREG-1303, "Incident Investigation Manual," and AEOD Procedure No. 12, "Incident Investigation Team Administrative Requirements." These procedures provide guidance for the following:

- Activating an investigation, including responsibilities, coordination, communication, group composition, and guidance (1)
- Outlining an investigation, including responsibilities, communication, interactions, scope, and schedule (2)
- Interviewing personnel (3)
- Collecting and maintaining records, documents, data, and other information (4)
- Treating quarantined equipment and areas (5)
- Preparing and reviewing all data for classified or sensitive unclassified information and distributing an investigation report and related documents (6)
- Defining administrative support requirements for an investigation (7)

Accident Review Group Report and Individual Member Recommendations (G)

The ARG shall prepare a written NUREG-series report to formally document its findings and conclusions of fact. The report should provide a description of the conditions preceding the accident, accident chronology, systems response, equipment performance, human factors, licensee management and organizational factors, precursors of the accident, emergency response, safety significance, and radiological considerations. The report should document whether and how NRC actions or inactions contributed to the cause or the course of the accident and whether and how institutional aspects

Accident Review Group Report and Individual Member Recommendations (G) (continued)

played a role in the accident. The report must include appropriate findings and conclusions relating to the conditions, circumstances, and probable causes of the accident. (1)

Because the ARG is not chartered under rules related to advisory committees, it will not deliberate upon or make recommendations as a group for NRC action or inaction; however, individual ARG members may submit their individual recommendations to the Commission at the option of the member. (2)

Followup (H)

Following the Commission briefing on the ARG results and review and comment by the NRC staff and the licensee on the ARG report, the Commission shall determine the NRC followup actions that will be taken as a result of the investigation. The EDO shall assign office or regional responsibility for the generic and facility-specific followup actions identified by the Commission. Office directors shall provide a plan to resolve each of their assigned actions and periodic written status reports on the disposition of each assigned action. (1)

The memorandum assigning followup actions should address all ARG findings that are judged to require followup. The resolution of each assigned action will be documented and each generic item will be individually tracked by the EDO Work Item Tracking System (WITS). AEOD will prepare a single closeout report with input from other NRC offices to formally document the resolution of each finding. (2)

Part III

Investigation Support Staff

The Commission may establish an Investigation Support Staff (ISS) that shall be proposed by the Executive Director for Operations (EDO). If established by the Commission, the ISS coordinates the Accident Review Group (ARG) and the NRC staff support activities for the Commission for the duration of the investigation. The ISS is supervised by the Director, ISS, who is appointed by and receives direction and supervision from the Commission. (1)

The responsibilities of the Director, ISS, include the following: (2)

- Supports the Commission in its selection of the Director, ARG, and its approval of the members, including individuals outside the NRC, and supports development of the ARG charter. (a)
- Coordinates with headquarters and regional offices to provide the administrative and technical support necessary for the ARG to meet its objectives and schedule. (b)
- Coordinates with the Director, Office of Administration, to provide support necessary to publish an ARG report as a document in the NUREG series. (c)
- Coordinates with headquarters and regional offices to support development and Commission approval of NRC followup actions to address the findings of the ARG report. (d)