



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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MEMORANDUM FOR: Norman Moseley, Director
Division of Program Development and Appraisal

FROM: Richard K. Hoefling, Attorney
Rulemaking and Enforcement Division, OELD

SUBJECT: APPLICATION OF 10 CFR 20.403 TO THE TMI-2 INCIDENT

On March 21, 1980, the Commission directed the Office of Inspection and Enforcement to further examine the events of March 28, 1979 which occurred at the Three Mile Island Unit 2 (TMI-2) facility to determine whether further enforcement action was warranted regarding the information transfer which occurred on that day. An extensive factual record with respect to what information was and was not reported on March 28, 1979 has been developed. In this effort, a question has been raised as to the reach of the reporting requirement codified as 10 CFR 20.403. As is discussed below, a serious legal obstacle precludes the application of Section 20.403 to utilization facility incidents which took place on March 28, 1979 at TMI-2.

The regulation reads as follows:

Section 20.403. Notification of incidents.

- (a) Immediate notification. Each licensee shall immediately notify by telephone and telegraph, mailgram, or facsimile, the Director of the appropriate NRC Regional Office listed in Appendix D of any incident involving byproduct, source, or special nuclear material possessed by him and which may have caused or threatens to cause:
- (1) Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual of 150 rems or more of radiation; or exposure of the feet, ankles, hands or forearms of any individual to 375 rems or more of radiation; or
 - (2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limits specified for such materials in Appendix B, Table II; or
 - (3) A loss of one working week or more of the operation of any facilities affected; or

(4) Damage to property in excess of \$200,000.

The legal analysis of the application of Section 20.403 to the events of March 28, 1979 centers upon a distinction between "utilization facility incidents" and "incidents involving byproduct, source, or special nuclear material" hereafter called "material incidents".

The rulemaking history of Part 20 makes clear that it applies only to material incidents, i.e., incidents involving byproduct, source, or special nuclear material which may have or threatens to cause either a significant exposure, a significant release of radioactivity, down time of a facility of one week or more, or property damage in excess of \$200,000. A material incident under Section 20.403 involves byproduct, source, or special nuclear material very directly. The regulation was not intended to apply to incidents involving these materials only indirectly. Such indirect involvement of byproduct, source, or special nuclear material can be postulated for almost any serious incident occurring at a utilization facility which consists basically of a complex machine designed to control the material present. Such incidents can be referred to as "utilization facility incidents" and are not subject to the reporting requirements of Section 20.403.

The rulemaking history of Section 20.403 makes clear that this reporting requirement was meant to deal only with material incidents relative to Part 30, 40 or 70 license holders, i.e., holders of byproduct, source, or special nuclear material licenses. The intent originally was to limit reports to overexposures. See Proposed Regulations of July 11, 1955 and January 24, 1956. The Proposed Regulations of October 1, 1956 make clear that the regulation was meant to deal with "...the release of radiation or radioactive substances from normal location..." The proposed regulation was modified to require a report whenever releases or exposures exceeded the permissible limits of Part 20. See Proposed Regulations of November 1, 1956.

In a significant memorandum of November 16, 1956, Curtis N. Nelson, Director of the Division of Inspection, advised Harold Price that the reporting requirement proposed required additional Staff consideration before promulgation. As a consequence, the reporting requirement was deleted from the regulations issued on January 29, 1957. Accordingly, the November 16, 1956 memo from the Division of Inspection provides good indication of the agency's thinking on this subject. The following language drawn from that memorandum is instructive:

Serious or major radiation incidents should be reported immediately, preferably by telephone. Although reports or notification of the serious incident may be sketchy, it is

1/ The rulemaking historical materials referred to in this Memorandum are attached along with certain other materials to provide the reader with an overview of the development of § 20.403.

quite possible that an AEC Inspection team will be dispatched to observe the scene and actual conditions that contributed to the incident before they are altered materially. (Emphasis supplied.)

The reporting requirement contemplated a single incident which was to be reported immediately after its occurrence and a sketchy or "gross" report would be acceptable. The notification was to alert the AEC as to the incident's occurrence and place the agency in a position to respond.

The rulemaking history just prior to the regulation's issuance verifies this reading. In the May 1, 1957 Report by the Director, Division of Civilian Application, the purpose of the regulation is identified to be "Sufficiently rapid notification of the occurrence ... to allow where necessary prompt inspection and institution of measures to mitigate the consequences of the incident." The rulemaking materials attached support an agency intent for a "gross" reporting requirement. See also the Federal Register Notice of May 14, 1957 (Statement of Considerations) which equates "incident" with "accident."

In addition, Part 20, as originally promulgated, explicitly stated in both its original scope and in its definition of "licensee" that it was applicable to holders of Part 30, 40 or 70 licenses only. Consequently, the term "incident" in Section 20.403 reasonably must be limited to incidents directly involving Part 30, 40 or 70 material. This conclusion is mandated by a reading of AEC Manual Chapter 0707 wherein a radiation incident is defined as:

...one involving byproduct, source or special nuclear materials held under AEC license, in which there has been or believed to have been a release of radiation or radioactive substance...
(Emphasis Supplied)

In summary then, this regulation was intended for material license holders to deal with overexposures and releases related rather directly to the use of byproduct, source and special nuclear material. The reporting requirement was a gross one. The emphasis was on speed and not detail.

In 1975 (40 Fed. Reg. 8783, March 3, 1975), the scope section of Part 20 was amended to include reference to Part 50 license holders. This brought Part 20 into congruence with the Part 50 licenses issued by this agency. Such licenses, and specifically the TMI-2 license (DPR-73), authorize the licensee to receive, possess and use byproduct, source and special nuclear material pursuant to 10 CFR Parts 30, 40 and 70 and invoke the requirements of Part 20 on the licensee. In effect, the Part 50 licensee is effectively a licensee under Parts 30, 40 and 70 with respect to byproduct, source and special nuclear material and, as Part 20 applies to such licensees, Part 20

applies to the Part 50 licensee also. However, Part 20 applies only to activities to which it is applicable, that is material activities.^{2/}

This background of rulemaking history supports the application of Section 20.403 only to material incidents, *i.e.*, those involving directly byproduct, source or special nuclear material. This background cannot support the application of this regulation to utilization facility incidents, *i.e.*, incidents which involve, or may involve, byproduct, source, or special nuclear material only indirectly.

This conclusion is supported by other considerations as well. Explicit reporting requirements for utilization facility incidents are imbedded in utilization facility Technical Specifications. This, in effect, is agency recognition that additional explicit reporting requirements are needed to deal with utilization facility incidents which can be related only indirectly to byproduct, source, or special nuclear material. The conclusion that Section 20.403 is not a utilization facility incident reporting requirement is further supported by this agency's action in expeditiously enhancing reporting requirements for utilization facilities shortly after TMI-2, *i.e.*, the development of a new Part 50 section, 10 CFR Section 50.72, rather than amendment of Section 20.403.

With respect to the particulars of March 28, 1979, the licensee should, at some point, have recognized that it had a material incident which required reporting under Section 20.403. One could postulate that reporting was required when the licensee became aware, or should have become aware, that byproduct, source, or special nuclear material had become directly involved in the utilization facility incident which occurred in the early hours of March 28, 1979. When such recognition should have been made is debatable. It could be argued that such a material incident should have been recognized when radiation monitors began seeing excessive radiation. This apparently occurred sometime between 6:00 and 7:00 a.m. of the morning of March 28, 1979. Allowing for a period of time for event recognition and analysis, *i.e.*, to determine whether the incident involving byproduct, source, or special nuclear material may have caused or threatened to cause excessive exposure, excessive releases of radioactive material, facility down time, or property damage, the initial efforts for reporting to NRC Region I offices, initiated at shortly after 7:00 a.m. in the morning, do not appear unreasonable. It must be recognized that the law permits reasonable period of time for event recognition.^{3/}

^{2/} The application of Part 20 in the past to Part 50 license holders is consistent with this interpretation. Computer printouts involving Section 20.403 citations against Part 50 license holders identify only three citations, all of which are individual overexposures.

^{3/} B&B Insulation Inc. v. Occupational Safety and Health Review Commission and F. Ray Marshall, Secretary of Labor, 585 F2d 1364 (5th Cir. 1978).

Once the initial report was made to Region I with regard to the material incident, i.e., that the radiation monitors were reading high, the licensee had complied with the requirements of Section 20.403. This occurred shortly before 8:00 a.m. in the morning. Consequently, the regulation cannot be relied on to support citations for any presumed failures to report anything following this point in time. A citation against this regulation could only lie based upon some theory that the licensee failed to promptly report the initial indications that indeed a "material incident" had occurred at the facility. The facts do not appear to support such a citation.

In conclusion, Section 20.403 will not support a citation against the licensee for a "utilization facility incident." This is a materials license requirement and applies only to "material incidents". Utilization facility incident reporting is dealt with via plant Technical Specifications. A different application of Part 20 to TMI-2 would violate due process in that it would involve an application of a regulation to unintended incidents without proper notice to the licensee.^{4/}

Richard Hoefling, Attorney
Rulemaking and Enforcement Division

Attachments: As stated

cc: Terry Harpster, I&E w/encl.
John Craig, I&E w/encl.

^{4/} Diebold, Inc. v. F. Marshall, Secretary of Labor and Occupational Safety & Health Review Commission, 585 F2d 1327, 1335-1339 (6th Cir. 1978).

Washington, Tuesday, May 14, 1957

TITLE 10—ATOMIC ENERGY

Chapter I—Atomic Energy Commission

PART 20—STANDARDS FOR PROTECTION AGAINST RADIATION

REPORTING REQUIREMENTS

The following amendments add reporting requirements to this regulation. They are designed, among other things, to give the AEC prompt notice of potentially serious accidents involving licensed material in order that appropriate steps may be taken to protect against further hazard to life or property. For these reasons the Atomic Energy Commission has found that general notice of proposed rule-making and public procedure thereon are impracticable and that good cause exists why these amendments should be made effective without the customary period of notice. The Commission will, however, give consideration to any comments or suggestions concerning these reporting requirements. All interested persons who desire to submit written comments and suggestions relating to the following amendments should send them to the United States Atomic Energy Commission, Washington 25, D. C., Attention: Director, Division of Civilian Application.

Effective upon publication Title 10, Chapter I, Part 20, Code of Federal Regulations entitled "Standards for Protection Against Radiation" is amended in the following respects:

1. Section 20.402 is amended to read as follows:

§ 20.402 Reports of theft or loss of licensed material. Each licensee shall report by telephone and telegraph to the Manager of the nearest Atomic Energy Commission Operations Office listed in Appendix D immediately after its occurrence becomes known to the licensee, any loss or theft of licensed material in such quantities and under such circumstances that it appears to the licensee that a substantial hazard may result to persons in unrestricted areas.

2. The following new section is added:

§ 20.403 Notifications and reports of incidents—(a) Immediate notification. Each licensee shall immediately notify the Manager of the nearest Atomic Energy Commission Operations Office listed in Appendix D by telephone and telegraph of any incident involving licensed material possessed by him and which may have caused or threatens to cause:

(1) Exposure of any individual to 25 rems or more of radiation, including any radioactive material taken into the body; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5000 times the limits specified for such materials in Appendix B, Table 2; or

(3) A loss of one working week or more of the operation of any facilities affected; or

(4) Damage to property in excess of \$100,000.

(b) Twenty-four hour notification. Each licensee shall within 24 hours notify the Manager of the nearest Atomic Energy Commission Operations Office listed in Appendix D by telephone and telegraph of any incident involving licensed material possessed by him and which may have caused or threatens to cause:

(1) Exposure of any individual to 3 rems or more of radiation, including any radioactive material taken into the body; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limits specified for such materials in Appendix B, Table 2; or

(3) A loss of one day or more of the operation of any facilities affected; or

(4) Damage to property in excess of \$1,000.

(c) Thirty-day reports. Each licensee shall make a report in writing within 30 days to the Director, ~~Division of Civilian Application~~, United States Atomic Energy Commission, Washington 25,

TYPE
"A"
INCIDENT

TYPE
"B"
INCIDENT

TYPE
"C"
INCIDENT
DLR

D. C., of each incident involving licensed material possessed by him which appears to have resulted in the exposure of an individual to radiation or to concentrations of radioactive material, or to have resulted in levels of radiation or concentrations of radioactive material, in excess of any applicable limits set forth in these regulations or in the licensee's license. Each report required under this paragraph shall describe the nature of the incident, the extent of exposure of persons to radiation or to radioactive material, the levels of radiation and concentrations of radioactive material involved, the cause of the incident, and corrective steps taken or planned to assure against a recurrence of the incident. A copy of each report shall be transmitted to the Manager of the nearest Atomic Energy Commission Operations Office listed in Appendix D.

3. Appendix "D" is added to read as follows:

APPENDIX D

UNITED STATES ATOMIC ENERGY COMMISSION OPERATIONS OFFICES

	Mail address	Telegraph address
Albuquerque Operations Office.....	D. O. Box 5400, Albuquerque, N. Mex.	Albuquerque, N. Mex.
Chicago Operations Office.....	P. O. Box 30, Lemont, Ill.	Lemont, Ill.
Grand Junction Operations Office.....	Grand Junction, Colo.	Grand Junction, Colo.
Hanford Operations Office.....	P. O. Box 550, Richland, Wash.	Richland, Wash.
Idaho Operations Office.....	P. O. Box 1221, Idaho Falls, Idaho.	(Telegram) 550 Second St., Idaho Falls, Idaho.
New York Operations Office.....	70 Columbus Ave., New York 23, N. Y.	(Teletype), Idaho Falls, Idaho. (Telegram), 70 Columbus Ave., New York 23, N. Y.
Oak Ridge Operations Office.....	P. O. Box E, Oak Ridge, Tenn.	(Teletype), New York, N. Y.
San Francisco Operations Office.....	518 17th St., Oakland 12, Calif.	Oak Ridge, Tenn.
Savannah River Operations Office.....	P. O. Box A, Aiken, S. C.	518 17th St., Oakland 12, Calif.
Schenectady Operations Office.....	P. O. Box 1069, Schenectady, N. Y.	Angusta, Ga. (Telegram), Knolls Atomic Power Laboratory, Schenectady, N. Y.
		(Teletype), Schenectady, N. Y.

(Sec. 161, 68 Stat. 948; 42 U. S. C. 2201)

Dated at Washington, D. C., this 9th day of May 1957.

For the Atomic Energy Commission.

K. E. FIELDS,
General Manager.

[F. R. Doc. 57-3254; Filed, May 10, 1957;
5:00 p. m.]

FEDERAL REGISTER

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TITLE 10—ATOMIC ENERGY

Chapter I—Atomic Energy Commission

PART 20—STANDARDS FOR PROTECTION AGAINST RADIATION

In July 1955 the Commission issued for public comment a proposed regulation to establish general standards for protection of licensees, their employees, and the public against radiation hazards arising out of the possession or use of special nuclear, source, or byproduct material under license issued by AEC. In preparing the effective regulation published below, the Commission has had the benefit of numerous comments and suggestions received since publication of the proposed rules. A number of changes suggested by those comments have been incorporated in the following regulation.

The regulation establishes standards which must be followed in handling radioactive materials which are subject to the licensing authority of the Commission and provides procedures whereby deviations from such standards may be authorized on a case-to-case basis. The regulation prescribes limits which govern exposure of personnel to radiation and concentrations of radioactive material, concentrations of radioactive material which may be discharged into air and water, and disposal of radioactive wastes. It also establishes certain precautionary procedures and administrative controls.

The standards established by this regulation will be found to agree substantially with those published by the National Committee on Radiation Protection in N. B. S. Handbook 52 "Maximum Permissible Amounts of Radioisotopes in the Human Body and Maximum Permissible Concentrations in Air and Water," and N. B. S. Handbook 59 "Permissible Dose from External Sources of Ionizing Radiation." The National Committee on Radiation Protection has under review recommendations to limit cumulative doses over periods of years. The Commission is giving consideration to appropriate amendments to its regulations to deal with this cumulative

exposure problem.

Limitations upon levels of radiation and concentrations of radioactive material in areas affected by but not controlled by the licensee are contained principally in § 20.102 ("Permissible Levels of Radiation in Unrestricted Areas"), § 20.103 ("Concentrations in Effluents to Unrestricted Areas"), and the sections on waste disposal. The sections are designed to assure that individuals in "unrestricted areas" do not receive exposure in excess of 10 percent of the limits established for persons exposed in restricted areas. For this purpose, the sections limit levels of radiation and concentrations of radioactive material which may be created in unrestricted areas by licensees, without special authorization from the AEC, to extremely low levels. These levels are believed to be sufficiently low to assure that there is no reasonable probability of individuals in unrestricted areas receiving exposures in excess of 10 percent of the permissible levels for restricted areas. Procedures are incorporated in those sections, however, under which the Commission may authorize licensees in specific cases to create higher levels in unrestricted areas where the circumstances of the particular case are such as to provide reasonable assurance that individuals in the unrestricted areas will not receive exposures in excess of 10 percent of the limitation established for restricted areas.

It is believed that the standards incorporated in these regulations provide, in accordance with present knowledge, a very substantial margin of safety for exposed individuals. It is believed also that the standards are practical from the standpoint of licensees. It should be emphasized that the standards are subject to change with the development of new knowledge, with significant increase in the average exposure of the whole population to radiation, and with further experience in the administration of the Commission's regulatory program.

Pursuant to the Administrative Procedures Act, Public Law 404, 79th Congress, 2d Session, the following rules are published as a document subject to codi-

fication to be effective 30 days after publication in the FEDERAL REGISTER.

GENERAL PROVISIONS

Sec.	
20.1	Purpose.
20.2	Scope.
20.3	Definitions.
20.4	Units of radiation dose.
20.5	Units of radioactivity.
20.6	Interpretations.
20.7	Communications.

PERMISSIBLE DOSES, LEVELS, AND CONCENTRATIONS

20.101	Exposure of individuals in restricted areas.
20.102	Permissible levels of radiation in unrestricted areas.
20.103	Concentrations in effluents to unrestricted areas.
20.104	Medical diagnosis, therapy, and research.
20.105	Measures to be taken after excessive exposures.

PRECAUTIONARY PROCEDURES

20.201	Surveys.
20.202	Personnel monitoring.
20.203	Caution signs, labels, and signals.
20.204	Exceptions from posting requirements.
20.205	Exemptions for radioactive materials packaged for shipment.
20.206	Instruction of personnel.
20.207	Storage of licensed material.

WASTE DISPOSAL

20.301	General requirement.
20.302	Method for obtaining approval of proposed disposal procedures.
20.303	Disposal by release into sanitary sewerage systems.
20.304	Disposal by burial in soil.

RECORDS, REPORTS, AND NOTIFICATION

20.401	Records of surveys, radiation monitoring, and disposal.
20.402	Reports of theft or loss of licensed material.

EXCEPTIONS AND ADDITIONAL REQUIREMENTS

20.501	Applications for exemptions.
20.502	Additional requirements.

ENFORCEMENT

20.601	Violations.
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AUTHORITY: §§ 20.1 to 20.601 issued under sec. 161 (b), 68 Stat 948, 42 U. S. C. 2201.

GENERAL PROVISIONS

§ 20.1 Purpose. (a) The regulations

H Myers 11/7/80

Need plain English statement with regard to the following:

1. Miller's understanding on March 28 of the significance of superheat.
2. Is Miller's understanding on March 28 as to the fact that the PORV had been stuck open for approximately 20 minutes?
3. Miller's awareness on March 28 that reactor core was being cooled by methods not specified in the emergency procedures.
4. Miller's uncertainty or lack thereof prior to 9 a.m. on March 28 as to whether core cooling was adequate.

Question:

5. Did Miller in his conversation on March 28 prior to 10 a.m. with State and Federal officials inform them that the core was in a condition not covered by emergency procedures, that PORV had been opened for more than two hours during which time HPI had been throttled, that there was superheated conditions in a hot leg and pressure vessel, that he was uncertain as to adequacy of core cooling.