

ILLINOIS POLLUTION CONTROL BOARD
April 21, 2022

IN THE MATTER OF:)
)
AMENDMENTS TO 35 ILL. ADM. CODE) R18-28
SUBTITLE I: ATOMIC RADIATION) (Rulemaking – Atomic Radiation)

Proposed Rule. First Notice.

OPINION AND ORDER OF THE BOARD (by A. Palivos):

The Board opened this docket under Part 102 of its procedural rules (35 Ill. Adm. Code 102, Subpart B) and Sections 27 and 28 of the Illinois Environmental Protection Act (Act) (415 ILCS 5/27, 28 (2020)) to make non-substantive, clarifying amendments to its Subtitle I atomic radiation rules (35 Ill. Adm. Code 1000, 1010). After adopting a proposal for public comment and conducting two public hearings, the Board today proposes non-substantive amendments for first-notice publication in the *Illinois Register*. Publication of the proposal in the *Illinois Register* will begin a period of at least 45 days during which any person may file a public comment on the proposed amendments with the Board.

In this opinion, the Board first provides background on this rulemaking’s objectives and its procedural history. Second, the Board discusses the proposed amendments. Third, the Board addresses whether the proposed amendments have any bearing on the technical feasibility and economic reasonableness of complying with Subtitle I. Fourth, the Board requests public comment on the first-notice proposal generally and includes questions for the Illinois Environmental Protection Agency (IEPA) and the Illinois Emergency Management Agency (IEMA). Finally, the Board’s order directs the Clerk to provide first-notice publication of the proposal in the *Illinois Register*. The proposed amendments appear in the order following this opinion.

BACKGROUND

Objectives

In 2016, the Board began reviewing its rules to identify obsolete, unclear, or otherwise unnecessary language. On January 10, 2018, IEPA filed a proposal to amend numerous Board rules, including Part 1000 of the Board’s atomic radiation regulations. Clean-Up Amendments to 35 Ill. Adm. Code Parts 201, 211, 212, 214, 215, 216, 217, 218, 219, 225, 228, 232, 237, 301, 302, 303, 304, 306, 309, 401, 402, 403, 404, 405, 501, 611, 615, 616, 617, 722, 811, 813, 855, and 1000, R18-21 (Jan. 10, 2018). IEPA’s proposal cited Executive Order 2016-13, which required agencies to review existing regulations to identify provisions that are outdated, repetitive, confusing, or unnecessary and then revise or repeal them as appropriate.

The amendments proposed in this order consist of (1) a single change to Part 1000 proposed by IEPA in R18-21, (2) additional revisions identified by the Board in its own review

of Parts 1000 and 1010, and (3) amendments based on IEPA comment and IEMA testimony. The Board intends all these proposed amendments to be non-substantive.

Procedural History

On March 22, 2018, the Board opened this rulemaking docket to address non-substantive amendments to its atomic radiation regulations in Subtitle I. On December 19, 2019, the Board adopted a proposal for public comment, requesting public comment both generally and on three questions.

In a letter dated September 17, 2021, the Board requested that the Department of Commerce and Economic Opportunity (DCEO) perform an economic impact study of the Board's proposal and respond to the request by November 1, 2021. *See* 415 ILCS 5/27(b) (2020). In a letter dated October 22, 2021, DCEO respectfully declined the Board's request.

On January 27, 2020, IEPA filed responses to the Board's questions. On January 28, 2020, IEPA filed a corrected notice and certificate of service of its responses (IEPA Cmts.).

The first hearing took place as scheduled on October 12, 2021, and the Board received the transcript (Tr.1) on October 18, 2021. No testimony was offered. At that hearing, the hearing officer set November 10, 2021 as the deadline to pre-file testimony for the second hearing. On November 10, 2021, IEMA pre-filed testimony (IEMA Tst.).

Due to the unavailability of court reporters, the Board cancelled the second hearing originally scheduled for November 17, 2021. The Board re-scheduled the hearing to take place on January 6, 2022, and set a new deadline of December 20, 2021 to pre-file testimony for the re-scheduled hearing. The Board received no additional pre-filed testimony. The second hearing took place as re-scheduled on January 6, 2022, and the Board received the transcript (Tr.2) on January 14, 2022. IEMA Staff Attorney Louise Conway testified regarding IEMA's proposed amendments to Section 1000.502. At the second hearing, the hearing officer set a deadline of January 28, 2022 for post-hearing comments. The Board did not receive any post-hearing comments.

DISCUSSION OF FIRST-NOTICE PROPOSAL

Overview

Subtitle I of the Board's regulations addresses atomic radiation. Part 1000 establishes "standards for protection against certain radiological air pollutants associated with materials and activities under licenses issued by the United States Nuclear Regulatory Commission." 35 Ill. Adm. Code. 1000.102(a). Part 1010 "prescribes standards for detecting and reporting unpermitted releases of radionuclides from nuclear power plants." 35 Ill Adm. Code 1010.100. These rules also include definitions and requirements for record submittals and incident notifications. *See* 35 Ill. Adm. Code 1000, 1010.

The Board proposes amendments to Subtitle I that remove legalese and redundant or unnecessary language, replace outdated language, and provide other non-substantive clarifications. For example, the Board proposes putting all “incorporations by reference” in one section, consistent with Board practice. The amendments also change citations and regulatory language to comply with the style requirements of the Illinois Administrative Code. The Board intends all the revisions proposed for first notice to be non-substantive.

Part 1000 Radiation Hazards

Amendments Generally

Throughout Part 1000, the Board proposes non-substantive amendments, including matters of capitalization, punctuation, spelling, numerical order, gendered language, and duplication. The Board proposes additional clarifying amendments such as changing passive to active voice, avoiding unnecessary nominalizations, using “must” instead of “shall” to be more clearly mandatory and use plain English, and updating outdated formal language. For example, the phrases “with respect to” and “for purposes of” are each changed to “for,” and “pursuant to” is changed to “under.” The Board also proposes amendments to make regulatory cross-references more precise, make the form of definitions more consistent, and correct apparent inadvertent errors. In addition, the Board proposes amending Section 1000.Appendix A to present information consistently throughout the table.

Finally, in R18-21, IEPA proposes revising Section 1000.503 by striking a cross-reference to Section 201.124 of the Board’s air pollution rules. R18-21 IEPA Statement of Reasons at 12. IEPA proposes to repeal Section 201.124 in that rulemaking. *Id.* For first notice here, the Board proposes striking the cross-reference to that air pollution rule.

Adding an Incorporation-by-Reference Section

When the Board issued its proposal for public comment, the Board asked IEPA:

1. Does IEPA consider it appropriate to add an incorporation by reference section to 35 Ill. Adm. Code Part 1000?

IEPA does not oppose the Board’s proposed addition, stating that “[a]dding an incorporation by reference section would be consistent with many Board regulations.” IEPA Cmts. at 1. IEPA additionally notes that because Part 1000 has not been updated for over thirty years, “it is unclear what ‘versions’ of the incorporated documents should be identified and whether updating the incorporation by reference date will have any substantive impact on the rule provisions.” *Id.* IEPA adds that since Part 1000 was originally adopted based on a proposal made by the Illinois Department of Nuclear Safety, now part of IEMA, the Board might wish to consult with IEMA on the issue of which citation dates to use for documents incorporated by reference. *Id.*, n. 1.

The first-notice proposal includes an incorporation-by-reference section, Section 1000.202. All 11 items incorporated by reference are from the Code of Federal regulations

(CFR). On this record, however, the Board declines to update the CFR citation dates because doing so might be a substantive change outside the scope of this rulemaking. Without updating them, the citations to parts of the CFR in proposed Section 1000.202 might not be current. The Board intends to maintain rules that are identical in substance to the federal rules on which they are largely based. Therefore, the Board requests comment from IEPA and IEMA on whether the CFR citations in Section 1000.202 should be updated, in this rulemaking or otherwise, and, if so, which of those updated citations might be considered a substantive change.

Updating How to Notify IEMA of Incidents

When it issued the proposal for public comment, the Board asked IEPA:

2. Should the required modes of communication in 35 Ill. Adm. Code Section 1000.502 be updated and, if so, how?

The Board received one comment from IEPA and testimony from IEMA on this question.

IEPA proposes updating the listed modes of communication in Section 1000.502 by excluding the now-obsolete telegraph, as well as the mailgram, and including first-class mail:

All person subject to this Part shall immediately notify by telephone and by either first class mail telegraph, mailgram, or facsimile, the Manager of the Office of Nuclear Facility Safety of the Illinois Department of Nuclear Safety, 1035 Outer Park Drive, Springfield, Illinois 62704 IEPA Cmts. at 1.

IEPA further states that the Department of Nuclear Safety is now part of IEMA and suggests the Board consult IEMA regarding its preferred contacts and method of notification. *Id.* at 2.

Ms. Conway of IEMA testified that notification by telegraph, mailgram, and facsimile should be deleted while retaining telephone notification. IEMA Tst at 1. She did not propose adding first-class mail as an option but did propose adding this sentence to Section 1000.502: “IEMA’s 24-hour Operations Center can be reached for notification of incidents at 1-800-782-7860, or, if calling from outside Illinois, 1-217-782-7860.” *Id.* And she proposed substituting “Illinois Emergency Management Agency (IEMA)” for “Manager of the Office of Nuclear Facility Safety of the Illinois Department of Nuclear Safety, 1035 Outer Park Drive, Springfield, Illinois 62704.” *Id.*; Tr.2 at 8-10.

The first-notice proposal reflects the amendments to Section 1000.502 proposed by IEMA. However, the Board asks IEMA to confirm that the in-state and out-of-state phone numbers provided are correct, and, if not, to provide the correct phone number or numbers.

Updating IEMA’s Contact Information

When the Board issued its proposal for public comment, the Board asked IEPA:

3. Is the contact information in 35 Ill. Adm. Code Section 1000.502 accurate? If not, how should it be revised?

IEPA states that IEMA's address is:

Illinois Emergency Management Agency
2200 South Dirksen Parkway
Springfield, Illinois 62703

IEPA Cmts. at 2.

Ms. Conway of IEMA testified that IEMA's address "for this subject matter" is:

Illinois Emergency Management Agency
Division of Nuclear Safety
1035 Outer Park Drive
Springfield, Illinois 62704

IEMA Tst. at 1. The Board notes that due to the proposed removal of mailing as an option for notifying IEMA, neither IEPA's nor IEMA's proposed address for IEMA appears in Section 1000.502 at first notice. However, in Section 1010.204(b), the Board proposes updating IEMA's address to that provided by IEMA:

- b) The follow-up report must be submitted electronically on forms and in a format prescribed by the Agency and must be submitted to addresses prescribed by the Agency and IEMA. Within five business days after submission of the electronic follow-up report, hard copies of the follow-up report must be submitted to the Agency and IEMA at the following addresses:

Illinois Environmental Protection Agency
Bureau of Water
Groundwater Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Il 62794-9276

Illinois Emergency Management Agency
Division of Nuclear Safety
~~Bureau of Environmental Safety~~
1035 Outer Park Drive
Springfield, Il 62704

The Board asks IEMA to confirm that Section 1010.204(b), as amended, correctly reflects IEMA's mailing address for hard copies of follow-up reports.

Part 1010 Procedures for Reporting Releases of Radionuclides at Nuclear Power Plants

Throughout Part 1010, as with Part 1000, the Board proposes non-substantive amendments, including matters such as capitalization, changing passive to active voice, avoiding unnecessary nominalizations, using “must” instead of “shall,” and striking unnecessary language. For example, the phrases “including but not limited to” and “including, at a minimum,” are each changed to “including.” The Board also proposes amendments to make regulatory cross-references more precise, and provide current citations. For instance, the Board changes the citation to the Act’s definition of “groundwater” at Section 1010.106 from the former citation (415 ILCS 5/3.64) to the current citation (415 ILCS 5/3.210).

No participant proposed any revisions to Part 1010.

TECHNICAL FEASIBILITY AND ECONOMIC REASONABLENESS

As noted above, the Board requested that DCEO perform an economic impact study of the Board’s proposal. *See* 415 ILCS 5/27(b) (2020). DCEO responded that it had “conducted a preliminary review of the proposed rule changes and an initial economic analysis. The proposed rule changes are administrative in nature, with no meaningful economic impact on businesses or workers based on our initial review.” DCEO respectfully declined the Board’s request to perform a study. No participant at either hearing testified or commented on the Board’s request or DCEO’s response. *See generally*, Tr.1; Tr.2 at 12-13.

As discussed, with this proceeding, the Board intends to adopt only non-substantive amendments that clarify the existing rules. The Board has carefully considered the record, particularly IEPA’s comments and IEMA’s testimony. Based on this record, the Board concludes that its first-notice proposal does not make substantive revisions that affect complying with existing rules. Accordingly, the Board finds that the proposal is both technically feasible and economically reasonable. *See* 415 ILCS 5/27(a) (2020). The Board further finds that these proposed non-substantive amendments would not have any adverse economic impact on the people of the State of Illinois. *See* 415 ILCS 5/27(b) (2020).

PUBLIC COMMENTS

Illinois Register publication of the Board’s first-notice proposal will start a period of at least 45 days during which any person may file a public comment with the Board, regardless of whether the person has already filed a public comment. 5 ILCS 100/5-40(b) (2020) (Illinois Administrative Procedure Act).

The Board welcomes public comment from any participant on any aspect of this proposal. As noted above, the Board also specifically requests comments from IEPA and IEMA on proposed Section 1000.202 and from IEMA on proposed amendments to Sections 1000.502 and 1010.204(b). For convenience, the Board reiterates these requests below.

First, the Board is considering whether to update the citations to the incorporations by reference in proposed Section 1000.202. As proposed, all CFR citations continue referring to the 1984 version of the federal rules. The Board wishes to cite the most current version of the CFR

but without, at least in this rulemaking, making substantive changes to Part 1000. The Board therefore requests that IEPA and IEMA comment on the following:

1. Should the citations to the CFR in proposed Section 1000.202 be updated to reflect more current versions of these federal rules? If so, please provide citations to the more current federal rules that should be incorporated by reference, in this rulemaking or otherwise, and please identify which, if any, of those updated citations might be considered a substantive change.

Second, the Board would like to confirm that the phone numbers provided by IEMA in the proposed amendment to Section 1000.502 are current. Accordingly, the Board requests that IEMA comment on the following:

2. Are the (217) and (800) area code phone numbers and corresponding directions for callers accurate? If not, please propose language on how this information should be revised.

Lastly, IEMA provided a mailing address in response to a Board question about Section 1000.502. Due to the proposed removal of mail as an option for that notification, however, IEMA's mailing address would no longer be in Section 1000.502. Existing Section 1010.204(b) includes "Bureau of Environmental Safety" in IEMA's mailing address, but the address that IEMA provided in its testimony does not include "Bureau of Environmental Safety." The Board requests that IEMA comment on the following:

3. Please provide IEMA's correct mailing address for Section 1010.204(b).

Public comments must be filed electronically through the Clerk's Office On-Line (COOL) at pcb.illinois.gov. The Board requests that comments indicate this rulemaking's docket number, R18-28. Questions about electronic filing should be directed to the Board's Clerk at 312-814-3461.

CONCLUSION

The Board proposes non-substantive amendments to its atomic radiation rules for first-notice publication in the *Illinois Register*. The proposed amendments appear in the order following this opinion. Proposed deletions to the current rules are struck through. Proposed additions to the current rules are underlined. The Board invites public comments on all aspects of the proposal.

ORDER

The Board directs the Clerk to provide *Illinois Register* publication of the proposed first-notice amendments, which are set forth below.

SUBTITLE I: ATOMIC RADIATION
CHAPTER I: POLLUTION CONTROL BOARD

PART 1000
RADIATION HAZARDS

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1000.APPENDIX A Concentrations in Air Above Natural Background

AUTHORITY: Implementing Section 25(b) and authorized by Section 27 of the Environmental Protection Act 415 ILCS 5/25(b) and 27~~Ill. Rev. Stat. 1985, ch. 111 1/2, pars. 1025(b) and 1027).~~

SOURCE: Adopted in R82-2 at 9 Ill. Reg. 19391, effective December 4, 1985; amended in R82-2(B) at 10 Ill. Reg. 12938, effective July 21, 1986; amended in R18-28 at 46 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL PROVISIONS

Section 1000.101 Authority

The ~~Pollution Control Board~~ adopts the rules ~~and regulations~~ contained in this title under ~~pursuant to~~ the authority of Title VI-A of the Environmental Protection Act. [415 ILCS 5/25(b)]; (Ill. Rev. Stat. 1983, ch. 111-1/2, par. 1025(b)).

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.102 Purpose ~~and Policy~~

- a) ~~This~~The regulations in this Part ~~establishes~~ establish standards for protection against radiological air pollutants associated with materials and activities under licenses issued by the United States Nuclear Regulatory Commission (NRC) under ~~pursuant to~~ the Atomic Energy Act of 1954 (42 U.S.C. 5801 et seq.) ~~as amended~~, and the Energy Reorganization Act of 1974 (42 U.S.C. 5801 et seq.)
- b) ~~Persons~~ It is the policy of the Pollution Control Board that persons subject to this Part ~~must shall, in addition to comply~~ complying with the requirements of this Part and; make every reasonable effort to maintain radiation exposures in, and releases of radioactive materials to, unrestricted areas as low as is reasonably achievable. The term "as low as is reasonably achievable" means the lowest radiation exposure levels as low as is reasonably achievable considering taking into account the state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, in relation to the utilization of atomic energy in the public interest.
- (c) Persons licensed by the NRC ~~United States Nuclear Regulatory Commission~~ to operate light-water-cooled nuclear power reactors ~~will shall be deemed to satisfy the requirements of this subsection (b) if they achieve the design objectives and limiting conditions for operation specified set out in 10 CFR 50, Appendix I (1984), incorporated by reference in Section 1000.202. This Part incorporates no further amendments or editions to those objectives and conditions for operation.~~

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.103 Scope

~~This~~The requirements of this Part applies apply to all persons who receive, possess, use, or transfer material licensed under ~~pursuant to~~ Parts 10 CFR 30 through 35, 40, or 70 (1984), incorporated by reference in Section 1000.202 or who are licensed to operate a production or

utilization facility ~~underpursuant to 10 CFR 50 (1984), incorporated by reference in Section 1000.202. of the regulations of the United States Nuclear Regulatory Commission.~~

(Source: Amended at 46 Ill. Reg. _____, effective _____)

SUBPART B: DEFINITIONS

Section 1000.201 Definitions

Except as stated in this Section, or unless a different meaning of a word or term is clear from the context, the definition of words or terms in this Part will be the same as that applied to the same words or terms in the Environmental Protection Act [415 ILCS 5]As used in this Part:

"Act" means the Environmental Protection Act, 415 ILCS 5/1 Ill. Rev. Stat., 1983, ch. 111-1/2, pars 1001 et seq.

"Board" means the Illinois Pollution Control Board.

"Department" means the Illinois Department of Emergency Management Services Bureau of Nuclear Facility Safety.

"Dose" means the quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body. Under this Part, When these regulations specify a dose during a period of time, the dose means the total quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body during such period of time. Several different units of dose are in current use. The Definitions of units of dose as used in this Part these regulations are set forth in the definitions of "Rad" and "Rem," as defined in this Section.

"Individual" means any human being.

"Licensed activity" means any activity engaged in under a general or specific license issued by the NRC.

"Licensed facility" means any facility constructed or operated under a permit or a general or specific license issued by the NRC.

"Licensed material" means any material received, possessed, used, or transferred under a general or specific license issued by the NRC.

"Licensee" means any person to whom a permit or a general or specific license has been issued by the NRC.

"NRC" means the United States Nuclear Regulatory Commission.

"Rad" means a measure of the dose of any radiation to body tissues in terms of the energy absorbed per unit mass of the tissue. One rad is the dose corresponding to the absorption of 100 ergs per gram of tissue. (One millirad (mrad) = 0.001 rad).

"Radiation" means any or all of the following: alpha rays, beta rays, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles; but not sound or radio waves, or visible, infrared, or ultraviolet light.

"Radioactive material" and "radioactive emissions" means any dusts, particulates, fumes, mists, vapors, or gases which spontaneously emit ionizing radiation.

"Rem" means a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose received from an exposure to one roentgen of X-rays. (One millirem (mrem) = 0.001 rem). The relation of rem to other dose units depends upon the biological effect under consideration and upon the condition of irradiation. For the purpose of this Part, any of the following is considered to be equivalent to a dose of one rem:

An exposure to one roentgen of X- or gamma radiation;

A dose of one rad due to X-, gamma, or beta radiation;

A dose of 0.1 rad due to neutrons or high energy protons;

A dose of 0.05 rad due to particles heavier than protons and with sufficient energy to reach the lens of the eye. If it is more convenient to measure the neutron flux, or equivalent, than to determine the neutron dose in rads, one rem of neutron radiation may for purposes of this Part be assumed to be equivalent to 14 million neutrons per square centimeter incident upon the body; or, if there exists sufficient information is available to estimate with reasonable accuracy the approximate distribution in energy of neutrons, the incident number of neutrons per square centimeter equivalent to one rem may be estimated from the following table.

Neutron Flux Dose Equivalents

Neutron energy (Mev)	No. of Neutron per square centimeter equivalent to a dose of 1 rem (neutrons/cm ²)	Average flux to deliver 100 millirem in 40 hours (neutrons/cm ²) per second
Thermal	970 x 10 ⁶	670
0.0001	720 x 10 ⁶	500
0.005	820 x 10 ⁶	570
0.02	400 x 10 ⁶	280

0.1	120 x 10 ⁶	80
0.5	43 x 10 ⁶	30
1.0	26 x 10 ⁶	18
2.5	29 x 10 ⁶	20
5.0	26 x 10 ⁶	18
7.5	24 x 10 ⁶	17
10.0	24 x 10 ⁶	17
10 to 30	14 x 10 ⁶	10

"Restricted area" means any area access to which is controlled by the licensee to protect for purposes of protection of individuals from exposure to radiation and radioactive materials. "Restricted area" must shall not include any areas used as residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area.

"Unrestricted area" means any area access to which is not controlled by the licensee to protect for purposes of protection of individuals from exposure to radiation and radioactive materials, and any area used for residential quarters.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.202 Incorporations by Reference

The following materials are incorporated by reference. These incorporations by reference do not include any later amendments or editions:

- a) Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents, 10 CFR 50, Appendix I (1984).
- b) Rules of General Applicability to Domestic Licensing of Byproduct Material, 10 CFR 30 (1984).
- c) General Domestic Licenses for Byproduct Material, 10 CFR 31 (1984).
- d) Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material, 10 CFR 32 (1984).
- e) Specific Domestic Licenses of Broad Scope for Byproduct Material, 10 CFR 33 (1984).
- f) Licenses for Industrial Radiography and Radiation Safety Requirements for Industrial Radiographic Operations, 10 CFR 34 (1984).
- g) Medical Use of Byproduct Material, 10 CFR 35 (1984).

- h) Domestic Licensing of Source Material, 10 CFR 40 (1984).
- i) Domestic Licensing of Production and Utilization Facilities, 10 CFR 50 (1984).
- j) Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions, 10 CFR 51 (1984).
- k) Domestic Licensing of Special Nuclear Material, 10 CFR 70 (1984).

(Source: Added at 46 Ill. Reg. _____, effective _____)

SUBPART C: STANDARDS AND LIMITATIONS

Section 1000.301 Permissible Levels of Radiation in Unrestricted Areas

A No person must not is allowed to shall possess, use, receive, or transfer licensed material or engage in licensed activities in such manner as to create radiation levels in air in any unrestricted area:

- a) That could result in an Radiation levels in air such individual, would be likely; when all radioactive emissions by the licensee are taken into account, receiving to receive a dose to the whole body in excess of 0.5 rem in any one year;
- b) That could result in Radiation levels in air which, if an individual were continuously present in the area, could result, when all radioactive emissions by the licensee are taken into account, in his receiving a dose in excess of 2 millirems in any one hour; or
- c) That could result in Radiation levels in air which, if an individual were continuously present in the area, could result, when all radioactive emissions by licensee are taken into account, in his receiving a dose in excess of 100 millirems in any seven consecutive days.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.302 Radioactive Emissions to Unrestricted Areas

- a) A No person must not shall possess, use, receive, or transfer licensed material or engage in licensed activities so as to release to air in an unrestricted area radioactive material exceeding the concentration in concentrations which exceed the limits specified in Appendix A of this Part. For purposes of this Section, concentrations of radioactive material may be averaged over a period not greater than one year.

- b) For the purpose of this ~~Section~~ section, the concentration limits in Appendix A of ~~this Part~~ shall apply at the boundary of the restricted area. The concentration of radioactive material discharged through a stack, pipe or similar conduit may be determined ~~for with respect to~~ the point where the material leaves the conduit. If the conduit discharges within the restricted area, the concentration at the boundary may be determined by applying established factors for dilution, dispersion, or decay between the point of discharge and the boundary.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

SUBPART D: ADDITIONAL REQUIREMENTS

Section 1000.401 Applicability

~~The provisions of This this Subpart~~ part applies apply to radiation doses received by members of the public in the general environment and to radioactive materials introduced into the general environment due to ~~as the result of~~ operations which are part of a nuclear fuel cycle.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.402 Definitions

As used in this Subpart:

"Curie" (Ci) means that quantity of radioactive material producing 37 billion nuclear transformations per second. (One millicurie (mCi)=0.001 Ci.)

"Dose equivalent" means the product of absorbed dose and appropriate factors to account for differences in biological effectiveness due to the quality of radiation and its spatial distribution in the body. The unit of dose equivalent is the "rem." (One millirem (mrem)=0.001 rem.)

"General environment" means the total terrestrial, atmospheric and aquatic environments outside sites upon which any operation which is part of a nuclear fuel cycle is conducted.

"Gigawatt-year" refers to the quantity of electrical energy produced at the busbar of a generating station. A gigawatt is equal to one billion watts. A gigawatt-year is equivalent to the amount of energy output represented by an average electric power level of one gigawatt sustained for one year.

"Member of the public" means any ~~person individual~~ that can receive a radiation dose in the general environment, whether the person may or may not also be exposed to radiation in an occupation associated with a nuclear fuel cycle. However, ~~a person an individual~~ is not considered a member of the public during any period in which that person ~~he~~ is engaged in carrying out any operation which is part of a nuclear fuel cycle.

"Nuclear fuel cycle" means the operations ~~defined to be~~ associated with the production of electrical power for public use by any fuel cycle through utilization of nuclear energy.

"Organ" means any human organ exclusive of the dermis, the epidermis, or the cornea.

"Site" means the area contained within the boundary of a location under the control of persons possessing or using radioactive material on which is conducted one or more operations covered by this Part ~~part~~.

"Uranium fuel cycle" means the operations of milling of uranium ore, chemical conversion of uranium, isotopic enrichment of uranium, fabrication of uranium fuel, generation of electricity by a light-water-cooled nuclear power plant using uranium fuel, and reprocessing of spent uranium fuel, to the extent that these directly support the production of electrical power for public use utilizing nuclear energy, but excludes mining operations, operations at waste disposal sites, transportation of any radioactive material in support of these operations, and the reuse of recovered nonuranium special nuclear and by-product materials from the cycle.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.403 Environmental Standards for Uranium Fuel Cycle

A person conducting operations ~~Operations covered by this Subpart must shall be conducted in such a manner as to provide reasonable assurance~~ that:

- a) The annual dose equivalent does not exceed 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public as the result of exposures to planned discharges of radioactive materials, radon and its daughters excepted, to the general environment from uranium fuel cycle operations and to radiation from these operations.
- b) The total quantity of radioactive materials entering the general environment from the entire uranium fuel cycle, per gigawatt-year of electrical energy produced by the fuel cycle, contains less than 50,000 curies of krypton-85, 5 millicuries of iodine-129, and 0.5 millicuries combined of plutonium-239 and other alpha-emitting transuranic radionuclides with the halflives greater than one year.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

SUBPART E: RECORDS

Section 1000.501 Records

~~A person~~All persons subject to this Part ~~must~~shall submit to the Department, ~~with respect to~~for any material or facility permitted or licensed by the NRC or for which an NRC permit or license is sought:

- a) Preliminary Safety Analysis Report and Final Safety Analysis Report, as described in 10 CFR 50.34, incorporated by reference in Section 1000.202.
- b) Application for Construction Permit and for all amendments ~~thereto~~, including information required by 10 CFR 50.34a, 50.36, and 51.20, incorporated by reference in Section 1000.202.
- c) Environmental Impact Appraisal, Draft and Final Environmental Impact Statement, Negative Declaration, or other document prepared by the NRC under 10 CFR 51, incorporated by reference in Section 1000.202.
- d) Operating Permit and all amendments ~~thereto~~, including Technical Specifications under 10 CFR 50.36a, incorporated by reference in Section 1000.202.
- e) Application for Amendment to Operating License.
- f) All data, records, and reports submitted to the NRC ~~for~~in connection with determining or predicting radiation levels in air in unrestricted areas or the type or amount of radioactive materials emitted into air conducted by or for such persons.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.502 Notification of Incidents

~~All person~~All person subject to this Part ~~must~~shall immediately notify by telephone ~~and telegraph, or electronic mail, mailgram, or facsimile,~~ the Illinois Emergency Management Agency (IEMA) Manager of the Office of Nuclear Facility Safety of the Illinois Department of Nuclear Safety, 1035 Outer Park Drive, Springfield, Illinois 62704, of any incident or condition arising from the use or possession of licensed materials or facilities or the conducting of licensed activities which may have caused or threatens to cause emissions or radiation levels in excess of those allowed under this Part. IEMA's 24-hour Operations Center can be reached for notification of incidents at 1-800-782-7860, or, if calling from outside Illinois, 1-217-782-7860.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.503 Other Provisions

- a) The definitions specified ~~set out~~ in 35 Ill. Adm. Code 201.102 apply to this Part.
- b) All persons subject to this Part are subject to the requirements and provisions of 35 Ill. Adm. Code 201.122, 201.123, ~~201.124,~~ 201.125, 201.126, 201.141, 201.150 and 201.151.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1000.APPENDIX A Concentrations in Air Above Natural Background

Element (atomic number)	Isotope(1)		$\mu\text{Ci/ml}$
Actinium (89)	AC 227	<u>S</u> I	S 8 x 10 ⁻¹⁴ I9 x 10 ⁻¹³
	<u>AC 228</u>	<u>S</u> I	AC 228 S3 x 10 ⁻⁹ I6 x 10 ⁻¹⁰
Americium (95)	Am 241	S <u>S</u> I	2 x 10 ⁻¹³ I4 x 10 ⁻¹²
	<u>Am 242m</u>	<u>S</u> I	Am 242m S2 x 10 ⁻¹³ I9 x 10 ⁻¹²
	<u>Am 242</u>	<u>S</u> I	Am 242 S1 x 10 ⁻⁹ I2 x 10 ⁻⁹
	<u>Am 243</u>	<u>S</u> I	Am 243 S2 x 10 ⁻¹³ I4 x 10 ⁻¹²
	<u>Am 244</u>	<u>S</u> I	Am 244 S1 x 10 ⁻⁷ I8 x 10 ⁻⁷
	Antimony	Sb 122	<u>S</u> I
	<u>Sb 124</u>	<u>S</u> I	Sb 124 S5 x 10 ⁻⁹ I7 x 10 ⁻¹⁰
	<u>Sb 125</u>	<u>S</u> I	Sb 125 S2 x 10 ⁻⁸ I9 x 10 ⁻¹⁰
Argon (18)	A 37	<u>Sub</u> ²	Sub ² 1 x 10 ⁻⁴
	<u>A 41</u>	<u>Sub</u>	A 41 Sub4 x 10 ⁻⁸
Arsenic (33)	As 73	<u>S</u> I	S7 x 10 ⁻⁸ I1 x 10 ⁻⁸
	<u>As 74</u>	<u>S</u> I	As 74 S1 x 10 ⁻⁸ I4 x 10 ⁻⁹
	<u>As 76</u>	<u>S</u> I	As 76 S4 x 10 ⁻⁹ I3 x 10 ⁻⁹
	<u>As 77</u>	<u>S</u> I	As 77 S2 x 10 ⁻⁸ I1 x 10 ⁻⁸
	Astatine (85)	At 211	S I
Barium (56)	Ba 131	S I	4 x 10 ⁻⁸ 1 x 10 ⁻⁸
	Ba 140	S I	4 x 10 ⁻⁹ 1 x 10 ⁻⁹
Berkelium (97)	Bk 249	S I	3 x 10 ⁻¹¹ 4 x 10 ⁻⁹

	Bk 250	S	5×10^{-9}
		I	4×10^{-8}
Beryllium (4)	Be 7	S	2×10^{-7}
		I	4×10^{-8}
Bismuth (83)	Bi 206	S	6×10^{-9}
		I	5×10^{-9}
	Bi 207	S	6×10^{-9}
		I	5×10^{-10}
	Bi 210	S	2×10^{-10}
		I	2×10^{-10}
	Bi 212	S	3×10^{-9}
		I	7×10^{-9}
Bromine (35)	Br 82	S	4×10^{-8}
		I	6×10^{-9}
Cadmium (48)	Cd 109	S	2×10^{-9}
		I	3×10^{-9}
	Cd 115m	S	1×10^{-9}
		I	1×10^{-9}
	Cd 115	S	8×10^{-9}
		I	6×10^{-9}
Calcium (20)	Ca 45	S	1×10^{-9}
		I	4×10^{-9}
	Ca 47	S	6×10^{-9}
		I	6×10^{-9}
Californium (98)	Cf 249	S	5×10^{-14}
		I	3×10^{-12}
	Cf 250	S	2×10^{-13}
		I	3×10^{-12}
	Cf 251	S	6×10^{-14}
		I	3×10^{-12}
	Cf 252	S	2×10^{-13}
		I	1×10^{-12}
	Cf 253	S	3×10^{-11}
		I	3×10^{-11}
	Cf 254	S	2×10^{-13}
		I	2×10^{-13}
Carbon (6)	C 14	S	1×10^{-7}
	(CO(2))	Sub	1×10^{-6}
Cerium (58)	Ce 141	S	2×10^{-8}
		I	5×10^{-9}
	Ce 143	S	9×10^{-9}
		I	7×10^{-9}
	Ce 144	S	3×10^{-10}
		I	2×10^{-10}
Cesium (55)	Cs 131	S	4×10^{-7}
		I	1×10^{-7}

	Cs 134m	S	1×10^{-6}
		I	2×10^{-7}
	Cs 134	S	1×10^{-9}
		I	4×10^{-10}
	Cs 135	S	2×10^{-8}
		I	3×10^{-9}
	Cs 136	S	1×10^{-8}
		I	6×10^{-9}
	Cs 137	S	2×10^{-9}
		I	5×10^{-10}
Chlorine (17)	Cl 36	S	1×10^{-8}
		I	8×10^{-10}
	Cl 38	S	9×10^{-8}
		I	7×10^{-8}
Chromium (24)	Cr 51	S	4×10^{-7}
		I	8×10^{-8}
Cobalt (27)	Co 57	S	1×10^{-7}
		I	6×10^{-9}
	Co 58m	S	6×10^{-7}
		I	3×10^{-7}
	Co 58	S	3×10^{-8}
		I	2×10^{-9}
	Co 60	S	1×10^{-8}
		I	3×10^{-10}
Copper (29)	Cu 64	S	7×10^{-8}
		I	4×10^{-8}
Curium (96)	Cm 242	S	4×10^{-12}
		I	6×10^{-12}
	Cm 243	S	2×10^{-13}
		I	3×10^{-12}
	Cm 244	S	3×10^{-13}
		I	3×10^{-12}
	Cm 245	S	2×10^{-13}
		I	4×10^{-12}
	Cm 246	S	2×10^{-13}
		I	4×10^{-12}
	Cm 247	S	2×10^{-13}
		I	4×10^{-12}
	Cm 248	S	2×10^{-14}
		I	4×10^{-13}
	Cm 249	S	4×10^{-7}
		I	4×10^{-7}
Dysprosium (66)	Dy 165	S	9×10^{-8}
		I	7×10^{-8}
	Dy 166	S	8×10^{-9}
		I	7×10^{-9}

Einsteinium (99)	Es 253	S	3×10^{-11}
		I	2×10^{-11}
	Es 254m	S	2×10^{-10}
		I	2×10^{-10}
	Es 254	S	6×10^{-13}
		I	4×10^{-12}
Es 255	S	2×10^{-11}	
	I	1×10^{-11}	
Erbium (68)	Er 169	S	2×10^{-8}
		I	1×10^{-8}
	Er 171	S	2×10^{-8}
		I	2×10^{-8}
Europium (63)	Eu 152 (T/2=9.2 hrs) †	S	1×10^{-8}
		I	1×10^{-8}
	Eu 152 (T/2=13 yrs) †	S	4×10^{-10}
		I	6×10^{-10}
	Eu 154	S	1×10^{-10}
		I	2×10^{-10}
		S	3×10^{-9}
Eu 155	S	3×10^{-9}	
	I	3×10^{-9}	
	S	2×10^{-9}	
Fermium (100)	Fm 254	S	2×10^{-9}
		I	2×10^{-9}
	Fm 255	S	6×10^{-10}
		I	4×10^{-10}
	Fm 256	S	1×10^{-10}
		I	6×10^{-11}
Fluorine (9)	F 18	S	2×10^{-7}
		I	9×10^{-8}
Gadolinium (64)	Gd 153	S	8×10^{-9}
		I	3×10^{-9}
	Gd 159	S	2×10^{-8}
Gallium (31)	Ga 72	I	1×10^{-8}
		S	8×10^{-9}
Germanium (32)	Ge 71	I	6×10^{-9}
		S	4×10^{-7}
Gold (79)	Au 196	I	2×10^{-7}
		S	4×10^{-8}
	Au 198	I	2×10^{-8}
		S	1×10^{-8}
	Au 199	I	8×10^{-9}
Hafnium (72)	Hf 181	S	4×10^{-8}
		I	3×10^{-8}
	Hf 181	S	1×10^{-9}
Holmium (67)	Ho 166	I	3×10^{-9}
		S	7×10^{-9}
	Ho 166	I	6×10^{-9}

Hydrogen (1)	H3	S	2×10^{-7}
		I	2×10^{-7}
		Sub	$4 \times 10^{-(5)}$
Indium (49)	In 113m	S	3×10^{-7}
		I	2×10^{-7}
	In 114m	S	4×10^{-9}
		I	7×10^{-10}
	In 115m	S	8×10^{-8}
		I	6×10^{-8}
Iodine (53)	I 125	S	9×10^{-9}
		I	1×10^{-9}
		S	8×10^{-11}
	I 126	I	6×10^{-9}
		S	9×10^{-11}
	I 129	I	1×10^{-8}
		S	2×10^{-11}
	I 131	I	2×10^{-9}
		S	1×10^{-10}
		I	1×10^{-8}
	I 132	S	3×10^{-9}
		I	3×10^{-8}
	I 133	S	4×10^{-10}
		I	7×10^{-9}
		S	6×10^{-9}
I 134	I	1×10^{-7}	
	S	1×10^{-9}	
	I	1×10^{-8}	
Iridium (77)	Ir 190	S	4×10^{-8}
		I	1×10^{-8}
	Ir 192	S	4×10^{-9}
I		9×10^{-10}	
Iron (26)	Fe 55	S	8×10^{-9}
		I	5×10^{-9}
	Fe 59	S	3×10^{-8}
Krypton (36)	Kr 85m	S	3×10^{-8}
		I	2×10^{-9}
	Kr 85	Sub	1×10^{-7}
		Sub	3×10^{-7}
Lanthanum (57)	La 140	Sub	2×10^{-8}
		Sub	2×10^{-8}
Lead (82)	Pb 203	S	5×10^{-9}
		I	4×10^{-9}
	Pb 210	S	9×10^{-8}
		I	6×10^{-8}
		S	4×10^{-12}

		I	8×10^{-12}
	Pb 212	S	6×10^{-10}
		I	7×10^{-10}
Lutetium (71)	Lu 177	S	2×10^{-8}
		I	2×10^{-8}
Manganese (25)	Mn 52	S	7×10^{-9}
		I	5×10^{-9}
	Mn 54	S	1×10^{-8}
		I	1×10^{-9}
	Mn 56	S	3×10^{-8}
		I	2×10^{-8}
Mercury (80)	Hg 197m	S	3×10^{-8}
		I	3×10^{-8}
	Hg 197	S	4×10^{-8}
		I	9×10^{-8}
	Hg 203	S	2×10^{-9}
		I	4×10^{-9}
Molybdenum (42)	Mo 99	S	3×10^{-8}
		I	7×10^{-9}
Neodymium (60)	Nd 144	S	3×10^{-12}
		I	1×10^{-11}
	Nd 147	S	1×10^{-8}
		I	8×10^{-9}
	Nd 149	S	6×10^{-8}
		I	5×10^{-8}
Neptunium (93)	Np 237	S	1×10^{-13}
		I	4×10^{-12}
	Np 239	S	3×10^{-8}
		I	2×10^{-8}
Nickel (28)	Ni 59	S	2×10^{-8}
		I	3×10^{-8}
	Ni 63	S	2×10^{-9}
		I	1×10^{-8}
	Ni 65	S	3×10^{-8}
		I	2×10^{-8}
Niobium (Columbium) (41)	Nb 93m	S	4×10^{-9}
		I	5×10^{-9}
	Nb 95	S	2×10^{-8}
		I	3×10^{-9}
	Nb 97	S	2×10^{-7}
		I	2×10^{-7}
Osmium (76)	Os 185	S	2×10^{-8}
		I	2×10^{-9}
	Os 191m	S	6×10^{-7}
		I	3×10^{-7}

	Os 191	S	4×10^{-8}
		I	1×10^{-8}
	Os 193	S	1×10^{-8}
		I	9×10^{-9}
Palladium (46)	Pd 103	S	5×10^{-8}
		I	3×10^{-8}
	Pd 109	S	2×10^{-8}
		I	1×10^{-8}
Phosphorus (15)	P 32	S	2×10^{-9}
		I	3×10^{-9}
Platinum (78)	Pt 191	S	3×10^{-8}
		I	2×10^{-8}
	Pt 193m	S	2×10^{-7}
		I	2×10^{-7}
	Pt 193	S	4×10^{-8}
		I	1×10^{-8}
	Pt 197m	S	2×10^{-7}
		I	2×10^{-7}
	Pt 197	S	3×10^{-8}
		I	2×10^{-8}
Plutonium (94)	Pu 238	S	7×10^{-14}
		I	1×10^{-12}
	Pu 239	S	6×10^{-14}
		I	1×10^{-12}
	Pu 240	S	6×10^{-14}
		I	1×10^{-12}
	Pu 241	S	3×10^{-12}
		I	1×10^{-9}
	Pu 242	S	6×10^{-14}
		I	1×10^{-12}
	Pu 243	S	6×10^{-8}
		I	8×10^{-8}
	Pu 244	S	6×10^{-14}
		I	1×10^{-12}
Polonium (84)	Po 210	S	2×10^{-11}
		I	7×10^{-12}
Potassium (19)	K 42	S	7×10^{-8}
		I	4×10^{-9}
Praseodymium (59)	Pr 142	S	7×10^{-9}
		I	5×10^{-9}
	Pr 143	S	1×10^{-8}
		I	6×10^{-9}
Promethium (61)	Pm 147	S	2×10^{-9}
		I	3×10^{-9}
	Pm 149	S	1×10^{-8}
		I	8×10^{-9}

Protoactinium (91)	Pa 230	S	6×10^{-11}	
		I	3×10^{-11}	
	Pa 231	S	4×10^{-14}	
		I	4×10^{-12}	
Radium (88)	Pa 233	S	2×10^{-8}	
		I	6×10^{-9}	
	Ra 223	S	6×10^{-11}	
		I	8×10^{-12}	
Radium (88)	Ra 224	S	2×10^{-10}	
		I	2×10^{-11}	
	Ra 226	S	3×10^{-12}	
		I	2×10^{-12}	
Radium (88)	Ra 228	S	2×10^{-12}	
		I	1×10^{-12}	
	Radon (86)	Rn 220	S	1×10^{-8}
		Rn 222(3)	3×10^{-9}	$\frac{3 \times 10^{-9}}{3}$
Rhenium (75)	Re 183	S	9×10^{-8}	
		I	5×10^{-9}	
	Re 186	S	2×10^{-8}	
		I	8×10^{-9}	
	Re 187	S	3×10^{-7}	
		I	2×10^{-8}	
Rhodium (45)	Re 188	S	1×10^{-8}	
		I	6×10^{-9}	
	Rh 103m	S	3×10^{-6}	
		I	2×10^{-6}	
Rubidium (37)	Rh 105	S	3×10^{-8}	
		I	2×10^{-8}	
	Rb 86	S	1×10^{-8}	
		I	2×10^{-9}	
Ruthenium (44)	Rb 87	S	2×10^{-8}	
		I	2×10^{-9}	
	Ru 97	S	8×10^{-8}	
		I	6×10^{-8}	
	Ruthenium (44)	Ru 103	S	2×10^{-8}
			I	3×10^{-9}
Ru 105		S	2×10^{-8}	
		I	2×10^{-8}	
Samarium (62)	Ru 106	S	3×10^{-9}	
		I	2×10^{-10}	
	Sm 147	S	2×10^{-12}	
		I	9×10^{-12}	
Samarium (62)	Sm 151	S	2×10^{-9}	
		I	5×10^{-9}	
Samarium (62)	Sm 153	S	2×10^{-8}	
		I	1×10^{-8}	

Scandium (21)	Sc 46	S	8×10^{-9}
		I	8×10^{-10}
	Sc 47	S	2×10^{-8}
		I	2×10^{-8}
	Sc 48	S	6×10^{-9}
		I	5×10^{-9}
Selenium (34)	Se 75	S	4×10^{-8}
		I	4×10^{-9}
Silicon (14)	Si 31	S	2×10^{-7}
		I	3×10^{-8}
Silver (47)	Ag 105	S	2×10^{-8}
		I	3×10^{-9}
	Ag 110m	S	7×10^{-9}
		I	3×10^{-10}
	Ag 111	S	1×10^{-8}
		I	8×10^{-9}
Sodium (11)	Na 22	S	6×10^{-9}
		I	3×10^{-10}
	Na 24	S	4×10^{-8}
		I	5×10^{-9}
Strontium (38)	Sr 85m	S	1×10^{-6}
		I	1×10^{-6}
	Sr 85	S	8×10^{-9}
		I	4×10^{-9}
	Sr 89	S	3×10^{-10}
		I	1×10^{-9}
	Sr 90	S	3×10^{-11}
		I	2×10^{-10}
	Sr 91	S	2×10^{-8}
		I	9×10^{-9}
	Sr 92	S	2×10^{-8}
		I	1×10^{-8}
Sulfur (16)	S 35	S	9×10^{-9}
		I	9×10^{-9}
Tantalum (73)	Ta 182	S	1×10^{-9}
		I	7×10^{-10}
Technetium (43)	Tc 96m	S	3×10^{-6}
		I	1×10^{-6}
	Tc 96	S	2×10^{-8}
		I	8×10^{-9}
	Tc 97m	S	8×10^{-8}
		I	5×10^{-9}
	Tc 97	S	4×10^{-7}
		I	1×10^{-8}
	Tc 99m	S	1×10^{-6}
		I	5×10^{-7}

	Tc 99	S	7×10^{-8}
		I	2×10^{-9}
Tellurium (52)	Te 125m	S	1×10^{-8}
		I	4×10^{-9}
	Te 127m	S	5×10^{-9}
		I	1×10^{-9}
	Te 127	S	6×10^{-8}
		I	3×10^{-8}
	Te 129m	S	3×10^{-9}
		I	1×10^{-9}
	Te 129	S	2×10^{-7}
		I	1×10^{-7}
	Te 131m	S	1×10^{-8}
		I	6×10^{-9}
	Te 132	S	7×10^{-9}
		I	4×10^{-9}
Terbium (65)	Tb 160	S	3×10^{-9}
		I	1×10^{-9}
Thallium (81)	Tl 200	S	9×10^{-8}
		I	4×10^{-8}
	Tl 201	S	7×10^{-8}
		I	3×10^{-8}
	Tl 202	S	3×10^{-8}
		I	8×10^{-9}
	Tl 204	S	2×10^{-8}
		I	9×10^{-10}
Thorium (90)	Th 227	S	1×10^{-11}
		I	6×10^{-12}
	Th 228	S	3×10^{-13}
		I	2×10^{-13}
	Th 230	S	8×10^{-14}
		I	3×10^{-13}
	Th 231	S	5×10^{-8}
		I	4×10^{-8}
	Th 232	S	1×10^{-12}
		I	1×10^{-12}
	Th natural	S	2×10^{-12}
		I	2×10^{-12}
	Th 234	S	2×10^{-9}
		I	1×10^{-9}
Thulium (69)	Tm 170	S	1×10^{-9}
		I	1×10^{-9}
	Tm 171	S	4×10^{-9}
		I	8×10^{-9}
Tin (50)	Sn 113	S	1×10^{-8}
		I	2×10^{-9}

	Sn 125	S	4×10^{-9}
		I	3×10^{-9}
Tungsten (Wolfram) (74)	W 181	S	8×10^{-8}
		I	4×10^{-9}
	W 185	S	3×10^{-8}
		I	4×10^{-9}
	W 187	S	2×10^{-8}
		I	1×10^{-8}
Uranium (92)	U 230	S	1×10^{-11}
		I	4×10^{-12}
	U 232	S	3×10^{-12}
		I	9×10^{-13}
	U 233	S	2×10^{-11}
		I	4×10^{-12}
	U 234	S(4)	2×10^{-11}
		I	4×10^{-12}
	U 235	S(4)	2×10^{-11}
		I	4×10^{-12}
	U 236	S	2×10^{-11}
		I	4×10^{-12}
	U 238	S(4)	3×10^{-12}
		I	5×10^{-12}
	U 240	S	8×10^{-9}
		I	6×10^{-9}
	U-natural	S(4)	5×10^{-12}
		I	5×10^{-12}
Vanadium (23)	V 48	S	6×10^{-9}
		I	2×10^{-9}
Xenon (54)	Xe 131m	Sub	4×10^{-7}
	Xe 133	Sub	3×10^{-7}
	Xe 133m	Sub	3×10^{-7}
	Xe 135	Sub	1×10^{-7}
Ytterbium (70)	Yb 175	S	2×10^{-8}
		I	2×10^{-8}
Yttrium (39)	Y 90	S	4×10^{-9}
		I	3×10^{-9}
	Y 91m	S	8×10^{-7}
		I	6×10^{-7}
	Y 91	S	1×10^{-9}
		I	1×10^{-9}
	Y 92	S	1×10^{-8}
		I	1×10^{-8}
	Y 93	S	6×10^{-9}
		I	5×10^{-9}
Zinc (30)	Zn 65	S	4×10^{-9}

		I	2×10^{-9}
	Zn 69m	S	1×10^{-8}
		I	1×10^{-8}
	Zn 69	S	2×10^{-7}
		I	3×10^{-7}
Zirconium (40)	Zr 93	S	4×10^{-9}
		I	1×10^{-8}
	Zr 95	S	4×10^{-9}
		I	1×10^{-9}
	Zr 97	S	4×10^{-9}
		I	3×10^{-9}
Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radio-active half-life less than 2 hours	Sub		3×10^{-6}
Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radio- active half-life greater than 2 hours			1×10^{-10}
Any single radionuclide not listed above, which decays by alpha emission or spontaneous fission			2×10^{-14}

¹Soluble (S); Insoluble (I).

²"Sub" means that values given are for submersion in a semispherical infinite cloud of airborne material.

³These radon concentrations are appropriate for protection from radon-222 combined with its short-lived daughters. The value may be replaced by one-thirtieth (1/30) of a "working level."

(A "working level" is defined as any combination of short-lived radon-222 daughters, polonium-218, lead-214, bismuth-214 and polonium-214, in one liter of air, without regard to the degree of equilibrium, that will result in the ultimate emission of 1.3×10 MeV of alpha particle energy.)

⁴For soluble mixtures of U-238, U-234 and U-235 in air chemical toxicity may be the limiting factor. The concentration value is 0.007 milligrams uranium per cubic meter of air. The specific activity for natural uranium is 6.77×10^{-6} curies per gram U. The specific activity (SA) for other mixtures of U-238, U-235 and U-234, if not known, ~~will~~ shall be:

$SA = 3.6 \times 10^{-7}$ curies/gram U..... U-depleted

$SA = (0.4 + 0.38 E + 0.0034 E^2) 10^{-6}$ $E \geq$ than 0.72

where E is the percentage by weight of U-235, expressed as percent.

NOTE: ~~Where in any case where there is~~ a mixture in air of more than one radionuclide exists, the limiting values ~~for purposes~~ of this Appendix should be determined as follows:

1. If the identity and concentration of each radionuclide in the mixture are known, the limiting values should be derived as follows: Determine, for each radionuclide in the mixture, the ratio between the quantity present in the mixture and the limit otherwise established in Appendix A for the specific radionuclide when not in a mixture. The sum of such ratios for all the radionuclides in the mixture may not exceed "1" (i.e., "unity").

EXAMPLE: If radionuclides A, B, and C are present in concentrations C_A , C_B , C_C , and if the applicable MPC's are MPC_A , and MPC_B , and MPC_C respectively, then the concentrations ~~must~~ shall be limited so that the following relationship exists:

$$(C_A/MPC_A) + (C_B/MPC_B) + (C_C/MPC_C) \leq \text{than } 1$$

2. If either the identity or the concentration of any radionuclide in the mixture is not known, the limiting values ~~for purposes~~ of Appendix A ~~must~~ shall be 2×10^{-14} .
3. If any of the conditions specified below are met, the corresponding values specified below may be used in lieu of those specified in paragraph 2 above.
 - a. If the identity of each radionuclide in the mixture is known but the concentration of one or more of the radionuclides in the mixture is not known, the concentration limit for the mixture is the limit specified in Appendix A for the radionuclide in the mixture having the lowest concentration limit; or
 - b. If the identity of each radionuclide in the mixture is ~~not now~~ not known, but it is known that ~~certain~~ radionuclides specified in Appendix A are not present in the mixture, the concentration limit for the mixture is the lowest concentration limit specified in Appendix A for any radionuclide which is not known to be absent from the mixture; or

- c. Element (atomic number) and isotope. $\mu\text{Ci/ml}$
- | | |
|--|---------------------|
| If it is known that alpha-emitters and Sr 90, I 129, Pb 210, Ac 227, Ra 228, Pa 230, Pu 241, and Bk 249 are not present. | 1×10^{-10} |
| If it is known that alpha-emitters and Pb 210, Ac 227, Ra 228, and Pu 241 are not present. | 1×10^{-11} |
| If it is known that alpha-emitters and Ac 227 are not present. | 1×10^{-12} |
| If it is known that Ac 227, Th 230, Pa 231, Pu 238, Pu 239, Pu 240, Pu 242, Pu 244, Cm 248, Cf 249 and Cf 251 are not present. | 1×10^{-13} |
4. If a mixture of radionuclides consists of uranium and its daughters in ore dust before ~~prior to~~ chemical separation of the uranium from the ore, the following values may be used for uranium and its daughters through radium-226, instead of those from paragraphs 1, 2, or 3 above:
- 3×10^{-12} $\mu\text{Ci/ml}$ gross alpha activity; 2×10^{-12} uCi/ml natural uranium; or 3 micrograms per cubic meter of air natural uranium.
5. For ~~purposes of~~ this note, a radionuclide may be considered as not present in a mixture if:
- the ratio of the concentration of that radionuclide in the mixture ($C(A)$) to the concentration limit for that radionuclide specified in Appendix A (MPC_A) does not exceed $1/10$ (i.e., $C_A/\text{MPC}_A \leq 1/10$), and
 - the sum of such ratios for all the radionuclides considered as not present in the mixtures does not exceed $1/4$, (i.e., $(C_A/\text{MPC}_A + C_B/\text{MPC}_B + \dots) \leq 1/4$).
- (Source: Amended at 46 Ill. Reg. _____, effective _____)

TITLE 35: ENVIRONMENTAL PROTECTION
 SUBTITLE I: ATOMIC RADIATION
 CHAPTER I: POLLUTION CONTROL BOARD

PART 1010
 PROCEDURES FOR REPORTING RELEASES OF RADIONUCLIDES AT NUCLEAR
 POWER PLANTS

SUBPART A: GENERAL PROVISIONS

Section

1010.100	Purpose
1010.102	Applicability
1010.104	Scope
1010.106	Definitions
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SUBPART B: REPORTING

1010.200	Evaluation of Releases
1010.202	Reporting of Releases
1010.204	Follow-up Written Report

AUTHORITY: Implementing and authorized by Sections 13.6 and 27 of the Environmental Protection Act [415 ILCS 5/13.6 and 27].

SOURCE: Adopted at 32 Ill. Reg. 7789, effective May 2, 2008; amended in R18-28 at 46 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL PROVISIONS

Section 1010.100 Purpose

This Part prescribes standards for detecting and reporting unpermitted releases of radionuclides from nuclear power plants ~~under pursuant to~~ Section 13.6 of the Illinois Environmental Protection Act [415 ILCS 5/13.6].

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1010.106 Definitions

Except as stated in this Section, or unless a different meaning of a word or term is clear from the context, the definition of words or terms in this Part ~~will~~shall be the same as that applied to the same words or terms in the Illinois Environmental Protection Act [415 ILCS 5].

"Act" means the Illinois Environmental Protection Act [415 ILCS 5].

"Agency" means the Illinois Environmental Protection Agency.

"Curie" or "Ci" means the quantity of radioactive material producing 37 billion nuclear transformations per second.

"Groundwater" means underground water ~~which that~~ occurs within the saturated zone and geologic materials where the fluid pressure in the pore space is equal to or greater than atmospheric pressure. [415 ILCS 5/3.2103.64]

"IEMA" means the Illinois Emergency Management Agency.

"L" means liter.

"Licensee" means the holder of a license issued for a nuclear power plant under chapter I of title 10 of the Code of Federal Regulations.

"Licensee controlled area" means the land or property that is owned, leased, or otherwise controlled by the licensee.

"Picrocurie" or "pCi" means the quantity of radioactive material producing 2.22 nuclear transformations per minute. One pCi is one trillionth (10^{-12}) of one curie.

"Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, State agency, or any other legal entity, or their legal representative, agent, or assigns. [415 ILCS 5/3.315]

"Station generated liquids" means liquids used in, or as a part of, the power generation process at a nuclear power plant and that contain, or potentially could contain, radionuclides.

"Surface water" means all water that is open to the atmosphere and subject to surface runoff.

"Unpermitted release of a radionuclide" means any spilling, leaking, emitting, discharging, escaping, leaching, or disposing of a radionuclide into groundwater, surface water, or soil that is not permitted under State or federal law or regulation. [415 ILCS 5/13.6(c)]. "Unpermitted release of a radionuclide" does not include the discharge of a radionuclide from a point source at a designated process water or cooling water outfall identified in the nuclear power plant's National Pollutant Discharge Elimination System permit, ~~if provided~~ the discharge is authorized in the nuclear power plant's United States Nuclear Regulatory Commission operating license.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

1010.108 Severability

If any provision in this Part or its application to any person or under any circumstances is adjudged invalid, ~~such~~ adjudication ~~will~~ shall not affect the validity of this Part as a whole or of any portion not adjudged invalid.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

SUBPART B: REPORTING

Section 1010.200 Evaluation of Releases

Within 24 hours after an unpermitted release of a radionuclide from a nuclear power plant into groundwater, surface water, or soil, the licensee must evaluate the release in

~~compliance~~ accordance with this Section to determine whether it must be reported. The evaluation cannot take into account remedial actions taken in response to the release (i.e., the evaluation must be based on the volumes of station generated liquids and concentrations or quantities of radionuclides released, not on the volumes of station generated liquids and concentrations or quantities of radionuclides remaining after the initiation or completion of response actions). ~~The~~ If the release is required to be reported, the licensee must report the release in ~~compliance~~ accordance with Section 1010.202 if unpermitted releases of station generated liquids of this Part.

- a) ~~Licensees must report unpermitted releases of station generated liquids that result in tritium concentrations of 200 pCi/L or more outside of the licensee controlled area.~~
- b) ~~Licensees must report unpermitted releases of station generated liquids that contain tritium at quantities of 0.002 Curies or more.~~

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1010.202 Reporting of Releases

- a) ~~Reporting~~ Reports required under Section 1010.200 must be ~~done~~ given within 24 hours after the release to both the Agency and IEMA in ~~compliance~~ accordance with the following:
 - 1) Reports to the Agency must be given by telephone and electronically. The Agency's telephone number for reporting environmental emergencies is 1-217-782-3637.
 - 2) Reports to IEMA must be given by telephone and electronically. IEMA's telephone number for reporting emergencies is 1-800-782-7860, or, if calling from outside Illinois, 1-217-782-7860.
 - 3) Electronic reports must be submitted on forms and in a format prescribed by the Agency, and must be submitted to addresses prescribed by the Agency and IEMA. The Agency ~~must~~ shall consult with IEMA in developing the forms and format for electronic reports required under this Section.
- b) ~~Reporting~~ Reports required under Section 1010.200 must include, ~~at a minimum,~~ the following information using the best data available at the time of the report:
 - 1) The name and address of the nuclear power plant where the release occurred;
 - 2) The name, signature, and telephone number of the Principal Executive Officer for the nuclear power plant or the Principal Executive Officer's authorized agent;

- 3) The specific location of the release;
 - 4) The time and duration of the release;
 - 5) An estimate of the volume and radionuclide concentrations (in pCi/L) of station generated liquids released, and an estimate of the flow rate if the release is ongoing;
 - 6) Identification of the radionuclides released and an estimate of the quantities released (in Curies);
 - 7) Whether the release was to groundwater, surface water, or soil, and a description of the area into which the release occurred (e.g., field, ditch, stream, or other description) and the size of the area affected;
 - 8) The actions taken to respond to, contain, and mitigate the release;
 - 9) The known and anticipated impacts to human health and the environment, including ~~but not limited to~~ groundwater and surface water resources, due to as a result of the release;
 - 10) The names, addresses, and telephone numbers of persons at the nuclear power plant who may be contacted for further information regarding the release; and
 - 11) The name and mailing address of the licensee of the nuclear power plant.
- c) The Agency must post copies of the electronic reports it receives under this Section on the Agency's website.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

Section 1010.204 Follow-up Written Report

A licensee~~An owner or operator~~ who reports a release under this Part must provide to the Agency and to IEMA a follow-up written report of the release within five business days after reporting the release.

- a) The follow-up report must confirm and update the information provided by the licensee under Section 1010.202 utilizing the best data available and must also include the following information:
 - 1) Copies of all lab analyses used to confirm the presence of, or conducted in response to, the release if lab analyses have been conducted;

- 2) Plan view and, if available, geological cross-section maps showing, ~~at a minimum,~~ the location of the release, the locations of samples taken to confirm the release if samples have been taken, the locations of samples taken in response to the release if samples have been taken, the measured and modeled extents of the release if known, the groundwater flow direction if known, groundwater contours if known, the boundary of the licensee controlled area, and structures, roads, and other surface features;
 - 3) An estimate of the volume and radionuclide concentrations (in pCi/L) of station generated liquids released but not recovered;
 - 4) An estimate of the quantities (in Curies) of radionuclides released but not recovered;
 - 5) An updated description of activities taken in response to the release;
 - 6) If additional activities in response to the release are planned, a description of those activities; and
 - 7) The name and signature of the Principal Executive Officer for the nuclear power plant or the Principal Executive Officer's authorized agent.
- b) The follow-up report must be submitted electronically on forms and in a format prescribed by the Agency and must be submitted to addresses prescribed by the Agency and IEMA. Within five business days after submission of the electronic follow-up report, hard copies of the follow-up report must be submitted to the Agency and IEMA at the following addresses:

Illinois Environmental Protection Agency
 Bureau of Water
 Groundwater Section
 1021 North Grand Avenue East
 P.O. Box 19276
 Springfield, Il 62794-9276

Illinois Emergency Management Agency
 Division of Nuclear Safety
 Bureau of Environmental Safety
 1035 Outer Park Drive
 Springfield, Il 62704

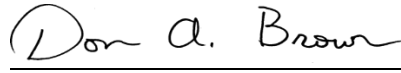
The Agency ~~must~~ shall consult with IEMA in developing the forms and format for reports required under this Section.

- c) The Agency must post copies of the follow-up reports it receives under this Section on the Agency's website.

(Source: Amended at 46 Ill. Reg. _____, effective _____)

IT IS SO ORDERED.

I, Don A. Brown, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on April 7, 2022, by a vote of 5-0.

A handwritten signature in cursive script that reads "Don A. Brown". The signature is written in black ink and is positioned above a horizontal line.

Don A. Brown, Clerk
Illinois Pollution Control Board