

SEP 9 1971

Docket Nos. 50-237
and 50-249

Commonwealth Edison Company
ATTN: Mr. Byron Lee, Jr.
Assistant to the President
P. O. Box 767
Chicago, Illinois 60690

Change No. 13
License No. DPR-19

Change No. 5
License No. DPR-25

Gentlemen:

Your letter dated June 1, 1971, requested authority to make allowance for the use of respiratory protective equipment in determining whether individuals in restricted areas at the Dresden Nuclear Power Station are exposed to concentrations of airborne radioactive material in excess of the limits specified in 10 CFR Part 20. This authority would supersede a similar authorization given you on February 4, 1965, which applied only to Unit No. 1 and would provide an identical authorization for the three units at the Dresden station. We have designated your request as Proposed Change No. 13 for Dresden Unit 2 and Proposed Change No. 5 for Dresden Unit 3.

During our review of your request, we informed you that modifications were necessary to meet regulatory requirements. After discussion with you, these modifications have been made.

On the basis of our review of your request, as modified, we have concluded that the change does not present significant hazards considerations not described or implicit in the Dresden Units 2 and 3 Safety Analysis Report and that there is reasonable assurance that the health and safety of the public will not be endangered.

Accordingly, the pages in Enclosures 1 and 2 are replacements or additions to the Technical Specifications for Units 2 and 3, respectively.

Sincerely,

Original Signed by
Frank Schroeder, Jr.

Peter A. Morris, Director
Division of Reactor Licensing

REF ID: A50237
Enclosures and cc: See second page

SURNAME ►

DATE ►

7217.1
06

SEP 9 1971

Enclosures:

1. Change 13 to Tech. Spec.
for DRP-19
2. Change 5 to Tech. Spec.
for DRP-25

cc: Arthur C. Gehr, Esquire
Isham, Lincoln & Beale
Counselor at Law
72 West Adams Street
Chicago, Illinois 60690

Distribution:

Docket File
AEC PDR
DR Reading
DRL Reading
Branch Reading
E. B. Case
P. Wallig, OGC
CO (2)
R. S. Boyd
N. Dube (5 cys)
R. C. DeYoung
D. Jo Skovholt
P. Collins
M. J. Wetterhahn
G. C. Lainas
S. Kari
BWR Branch Chiefs

w/bcc: H. J. McAmuff, ORO
H. I. Mueller, GMR/P
J. A. Harris, PI
R. Leith, OC
J. R. Buchanan, ORNL
T. W. Laughlin, DTIE
A. A. Wells, ASLB
S. Robinson, SECY
E. B. Tremmel, IP

GRESS OFFICE ▶	DRL:BWR-2	DRL:BWR-2	DRL:BWR-2	DRL:BWRs	DRL:DDIR	DRL:DIR
TELETYPE	MJWetterhahn/pj	GLainas	R Tedesco	R Boyd	FSchroeder	PAMorris
T24 R FURNAME ▶						
Linda						
DATE ▶	9/17/71	9/17/71	9/17/71	9/17/71	9/17/71	9/17/71

6.2 Plant Operating Procedures

A. Detailed written procedures, including applicable check-off tests and instructions, covering areas listed below shall be prepared, approved as specified in Section 6.1, and adhered to for operation of all systems and components involving nuclear safety.

1. Normal start-up, operation, and shutdown of systems and components involving nuclear safety of the facility.
2. Refueling.
3. Abnormal and emergency operations.
4. Emergency conditions involving potential or actual release of radioactivity - "Generating Stations Emergency Plan" and station emergency and abnormal procedures.
5. Instrumentation operation which could have an effect on the safety of the plant.
6. Preventative and corrective maintenance operations which could have an effect on the safety of the reactor.
7. Specific and foreseen potential malfunctions of systems or components, including alarms and abnormal activity.
8. Surveillance and testing as required by Section 4 of these Specifications.

* B. Radiation control procedures shall be maintained and made available to all station personnel. These procedures shall show permissible radiation

exposure, and shall be consistent with the requirements of 10 CFR 20. This radiation protection program shall be organized to meet the requirements of 10 CFR 20.

1. Pursuant to 10 CFR 20.103(c)(1) and (3), allowance can be made for the use of respiratory protective equipment in conjunction with activities authorized by the operating license for this plant in determining whether individuals in restricted areas are exposed to concentrations in excess of the limits specified in Appendix B, Table I, Column 1 of 10 CFR 20, subject to the following conditions and limitations:
 - a. The limits provided in Section 20.103(a) and (b) are not exceeded.
 - b. If the radioactive material is of such form that intake through the skin or other additional route is likely, individual exposures to radioactive material shall be controlled so that the radioactive content of any critical organ from all routes of intake averaged over 7 consecutive days does not exceed that which would result from inhaling such radioactive material for 40 hours at the pertinent concentration values provided in Appendix B, Table I, Column 1 of 10 CFR 20.
 - c. For radioactive materials designated "Sub" in the "Isotope" column of Appendix B, Table I, Column 1 of 10 CFR 20, the concentration value specified is based upon exposure to the

material as an external radiation source. Individual exposures to these materials shall be accounted for as part of the limitation on individual dose in K20.101. These materials shall be subject to applicable process and other engineering controls.

2. In all operations in which adequate limitation of the inhalation of radioactive material by the use of process or other engineering controls is impracticable, the licensee may permit an individual in a restricted area to use respiratory protective equipment to limit the inhalation of airborne radioactive material, provided:
 - a. The limits specified in paragraph 6.2.B.1 above are not exceeded.
 - b. Respiratory protective equipment is selected and used so that the peak concentrations of airborne radioactive material inhaled by an individual wearing the equipment does not exceed the pertinent concentration values specified in Appendix B, Table I, Column 1 of 10 CFR 20. For the purposes of this subparagraph, the concentration of radioactive material that is inhaled when respirators are worn may be determined by dividing the ambient airborne concentration by the protection factor specified in Table 6.2.1, appendix to this specification for the respirator protective equipment worn. If the intake of of radioactivity is later determined by other measurements to have been different than that initially estimated, the later quantity shall be used in

evaluating the exposures.

- c. The licensee advises each respirator user that he may leave the area at any time for relief from respirator use in case of equipment malfunction, physical or psychological discomfort, or any other condition that might cause reduction in the protection afforded the wearer.
- d. The licensee maintains a respiratory protective program adequate to assure that the requirements above are met and incorporates practices for respiratory protection consistent with those recommended by the American National Standards Institute (ANSI-Z88.2-1969). Such a program shall include:
 - 1) Air sampling and other surveys sufficient to identify the hazard, to evaluate individual exposures, and to permit proper selection of respiratory protective equipment.
 - 2) Written procedures to assure proper selection, supervision, and training of personnel using such protective equipment.
 - 3) Written procedures to assure the adequate fitting of respirators, and the testing of respiratory protective equipment for operability immediately prior to use.
 - 4) Written procedures for maintenance to assure full effectiveness of respiratory protective equipment,

*

including issuance, cleaning and decontamination, inspection, repair, and storage.

- 5) Written operational and administrative procedures for proper use of respiratory protective equipment including provisions for planned limitations on working times as necessitated by operational conditions.

- 6) Bioassays and/or whole body counts of individuals (and other surveys, as appropriate) to evaluate individual exposures and to assess protection actually provided.

*

- e. The licensee uses equipment approved by the U.S. Bureau of Mines under its appropriate Approval Schedules as set forth in Table 6.2.1 below. Equipment not approved under U.S. Bureau of Mines Approval Schedules may be used only if the licensee has evaluated the equipment and can demonstrate by testing, or on the basis of reliable test information, that the material and performance characteristics of the equipment are at least equal to those afforded by U.S. Bureau of Mines approved equipment of the same type, as specified in Table 6.2.1 below.

*

- f. Unless otherwise authorized by the Commission, the licensee does not assign protection factors in excess of those specified in Table 6.2.1 below in selecting and using respiratory protective equipment.

- * 3. These specifications with respect to the provisions of §20.103 shall be superseded by adoption of proposed changes to 10 CFR 20, Section 20.103, which would make this specification unnecessary.

- C. Standing Orders to the operating staff shall require that the procedures in A and B above are to be followed in conducting activities identified therein.
- D. Work instructions or special test procedures to the operating or maintenance staff shall require that the procedures in A and B above are to be followed in conducting activities identified therein.
- E. All procedures described in A and B above, and changes thereto shall be reviewed by the SRB and approved by the Station Superintendent or Assistant Station Superintendent prior to implementation, except as provided for in F below.
- F. Temporary changes to procedures described in A and B above, which do not change the intent of the original procedure may be made with the concurrence of two individuals holding senior operator licenses. Such changes shall be documented and subsequently reviewed by the SRB and approved by the Station Superintendent.
- G. Drills on portions of the emergency procedures described in A.7 and A.4 shall be conducted quarterly.

*

*

TABLE 6.2.1
PROTECTION FACTORS FOR RESPIRATORS

DESCRIPTION	MODES ^{1/}	PROTECTION FACTORS 2/	GUIDES TO SELECTION OF EQUIPMENT
		PARTICULATES AND VAPORS AND GASES EXCEPT TRITIUM OXIDE ^{3/}	BUREAU OF MINES APPROVAL SCHEDULES* FOR EQUIPMENT CAPABLE OF PROVIDING AT LEAST EQUIVALENT PROTECTION FACTORS *or schedule superseding for equipment of type listed
I. AIR-PURIFYING RESPIRATORS			
Facepiece, half-mask <u>4/</u> <u>7/</u>	NP	5	21B 30 CFR § 14.4(b)(4)
Facepiece, full <u>7/</u>	NP	100	21B 30 CFR § 14.4(b)(5); 14F 30 CFR 13
II. ATMOSPHERE-SUPPLYING RESPIRATOR			
1. Airline respirator			
Facepiece, half-mask	CF	100	19B 30 CFR § 12.2(c)(2) Type C(i)
Facepiece, full	CF	1,000	19B 30 CFR § 12.2(c)(2) Type C(i)
Facepiece, full <u>7/</u>	D	500	19B 30 CFR § 12.2(c)(2) Type C(ii)
Facepiece, Full	PD	1,000	19B 30 CFR § 12.2(c)(2) Type C(iii)
Hood	CF	<u>5/</u>	<u>6/</u>
Suit	CF	<u>5/</u>	<u>6/</u>
2. Self-contained breathing apparatus(SCBA)			
Facepiece, full <u>7/</u>	D	500	13E 30 CFR § 11.4(b)(2)(i)
Facepiece, full	PD	1,000	13E 30 CFR § 11.4(b)(2)(ii)
Facepiece, full	R	1,000	13E 30 CFR § 11.4(b)(1)
III. COMBINATION RESPIRATOR			
Any combination of air- purifying and atmosphere- supplying respirator		Protection factor for type and mode of operation as listed above	19B CFR § 12.2(e) or applicable schedules as listed above

1/, 2/, 3/, 4/, 5/, 6/, 7/ - [These notes are on the following pages]

*

1/ See the following symbols:

CF: continuous flow
D: demand
NP: negative pressure (i.e., negative phase during inhalation)
PD: pressure demand (i.e., always positive pressure)
R: recirculating (closed circuit)

- 2/ (a) For purposes of this specification, the protection factor is a measure of the degree of protection afforded by a respirator, defined as the ratio of the concentration of airborne radioactive material outside the respiratory protective equipment to that inside the equipment (usually inside the facepiece) under conditions of use. It is applied to the ambient airborne concentration to estimate the concentration inhaled by the wearer according to the following formula:

$$\text{Concentration Inhaled} = \frac{\text{Ambient Airborne Concentration}}{\text{Protection Factor}}$$

(b) The protection factors apply:

- (i) only for trained individuals wearing properly fitted respirators used and maintained under supervision in a well-planned respiratory protective program.
- (ii) for air-purifying respirators only when high efficiency [above 99.9% removal efficiency by U. S. Bureau of Mines type dioctyl phthalate (DOP) test] particulate filters and/or sorbents appropriate to the hazard are used in atmospheres not deficient in oxygen.
- (iii) for atmosphere-supplying respirators only when supplied with adequate respirable air.

3/ Excluding radioactive contaminants that present an absorption or submersion hazard. For tritium oxide approximately half of the intake occurs by absorption through the skin so that an overall protection factor of not more than approximately 2 is appropriate when atmosphere-supplying respirators are used to protect against tritium oxide. Air-purifying respirators are not recommended for use against tritium oxide. See also footnote 5/, below, concerning supplied-air suits and hoods.

4/ Under chin type only. Not recommended for use where it might be possible for the ambient airborne concentration to reach instantaneous values greater than 50 times the pertinent values in Appendix B, Table I, Column 1 of 10 CFR, Part 20.

*

- 5/ Appropriate protection factors must be determined taking account of the design of the suit or hood and its permeability to the contaminant under conditions of use. No protection factor greater than 1,000 shall be used except as authorized by the Commission.
- 6/ No approval schedules currently available for this equipment. Equipment must be evaluated by testing or on basis of available test information.
- 7/ Only for shaven faces.

NOTE 1: Protection factors for respirators, as may be approved by the U. S. Bureau of Mines according to approval schedules for respirators to protect against airborne radionuclides, may be used to the extent that they do not exceed the protection factors listed in this Table. The protection factors in this Table may not be appropriate to circumstances where chemical or other respiratory hazards exist in addition to radioactive hazards. The selection and use of respirators for such circumstances should take into account approvals of the U. S. Bureau of Mines in accordance with its applicable schedules.

NOTE 2: Radioactive contaminants for which the concentration values in Appendix B, Table I of this part are based on internal dose due to inhalation may, in addition, present external exposure hazards at higher concentrations. Under such circumstances, limitations on occupancy may have to be governed by external dose limits.

6.2 Plant Operating Procedures

A. Detailed written procedures, including applicable check-off tests and instructions, covering areas listed below shall be prepared, approved as specified in Section 6.1, and adhered to for operation of all systems and components involving nuclear safety.

1. Normal start-up, operation, and shutdown of systems and components involving nuclear safety of the facility.
2. Refueling.
3. Abnormal and emergency operations.
4. Emergency conditions involving potential or actual release of radioactivity - "Generating Stations Emergency Plan" and station emergency and abnormal procedures.
5. Instrumentation operation which could have an effect on the safety of the plant.
6. Preventative and corrective maintenance operations which could have an effect on the safety of the reactor.
7. Specific and foreseen potential malfunctions of systems or components, including alarms and abnormal activity.
8. Surveillance and testing as required by Section 4 of these Specifications.

* B. Radiation control procedures shall be maintained and made available to all station personnel. These procedures shall show permissible radiation

exposure, and shall be consistent with the requirements of 10 CFR 20. This radiation protection program shall be organized to meet the requirements of 10 CFR 20.

1. Pursuant to 10 CFR 20.103(c)(1) and (3), allowance can be made for the use of respiratory protective equipment in conjunction with activities authorized by the operating license for this plant in determining whether individuals in restricted areas are exposed to concentration in excess of the limits specified in Appendix B, Table I, Column 1 of 10 CFR 20, subject to the following conditions and limitations:
 - a. The limits provided in Section 20.103(a) and (b) are not exceeded.
 - b. If the radioactive material is of such form that intake through the skin or other additional route is likely, individual exposures to radioactive material shall be controlled so that the radioactive content of any critical organ from all routes of intake averaged over 7 consecutive days does not exceed that which would result from inhaling such radioactive material for 40 hours at the pertinent concentration values provided in Appendix B, Table I, Column 1 of 10 CFR 20.
 - c. For radioactive materials designated "Sub" in the "Isotope" column of Appendix B, Table I, Column 1 of 10 CFR 20, the concentration value specified is based upon exposure to the

9-9-71

*
material as an external radiation source. Individual exposures to these materials shall be accounted for as part of the limitation on individual dose in §20.101. These materials shall be subject to applicable process and other engineering controls.

2. In all operations in which adequate limitation of the inhalation of radioactive material by the use of process or other engineering controls is impracticable, the licensee may permit an individual in a restricted area to use respiratory protective equipment to limit the inhalation of airborne radioactive material, provided:
 - a. The limits specified in paragraph 1 above are not exceeded.
 - b. Respiratory protective equipment is selected and used so that the peak concentrations of airborne radioactive material inhaled by an individual wearing the equipment does not exceed the pertinent concentration values specified in Appendix B, Table I, Column 1 of 10 CFR 20. For the purposes of this subparagraph, the concentration of radioactive material that is inhaled when respirators are worn may be determined by dividing the ambient airborne concentration by the protection factor specified in Table IV, appended to this specification for the respirator protective equipment worn. If the intake of radioactivity is later determined by other measurements to have been different than that initially estimated, the later quantity shall be used in

evaluating the exposures.

- c. The licensee advises each respirator user that he may leave the area at any time for relief from respirator use in case of equipment malfunction, physical or psychological discomfort, or any other condition that might cause reduction in the protection afforded the wearer.
- d. The licensee maintains a respiratory protective program adequate to assure that the requirements above are met and incorporates practices for respiratory protection consistent with those recommended by the American National Standards Institute (ANSI-Z88.2-1969). Such a program shall include:
 - 1) Air sampling and other surveys sufficient to identify the hazard, to evaluate individual exposures, and to permit proper selection of respiratory protective equipment.
 - 2) Written procedures to assure proper selection, supervision, and training of personnel using such protective equipment.
 - 3) Written procedures to assure the adequate fitting of respirators, and the testing of respiratory protective equipment for operability immediately prior to use.
 - 4) Written procedures for maintenance to assure full effectiveness of respiratory protective equipment,

* including issuance, cleaning and decontamination, inspection, repair, and storage.

5) Written operational and administrative procedures for proper use of respiratory protective equipment including provisions for planned limitations on working times as necessitated by operational conditions.

6) Bioassays and/or whole body counts of individuals (and other surveys, as appropriate) to evaluate individual exposures and to assess protection actually provided.

* e. The licensee uses equipment approved by the U.S. Bureau of Mines under its appropriate Approval Schedules as set forth in Table 6.2.1 below. Equipment not approved under U.S. Bureau of Mines Approval Schedules may be used only if the licensee has evaluated the equipment and can demonstrate by testing, or on the basis of reliable test information, that the material and performance characteristics of the equipment are at least equal to those afforded by U.S. Bureau of Mines approved equipment of the same type, as specified in Table 6.2.1 below.

* f. Unless otherwise authorized by the Commission, the licensee does not assign protection factors in excess of those specified in Table 6.2.1 below in selecting and using respiratory protective equipment.

* 3. These specifications with respect to the provisions of §20.103 shall be superseded by adoption of proposed changes to 10 CFR 20, Section 20.103, which would make this specification unnecessary.

C. Standing Orders to the operating staff shall require that the procedures in A and B above are to be followed in conducting activities identified therein.

D. Work instructions or special test procedures to the operating or maintenance staff shall require that the procedures in A and B above are to be followed in conducting activities identified therein.

E. All procedures described in A and B above, and changes thereto shall be reviewed by the SRB and approved by the Station Superintendent or Assistant Station Superintendent prior to implementation, except as provided for in F below.

F. Temporary changes to procedures described in A and B above, which do not change the intent of the original procedure may be made with the concurrence of two individuals holding senior operator licenses. Such changes shall be documented and subsequently reviewed by the SRB and approved by the Station Superintendent.

G. Drills on portions of the emergency procedures described in A.7 and A.4 shall be conducted quarterly.

*

TABLE 6.2.1
PROTECTION FACTORS FOR RESPIRATORS

DESCRIPTION	MODES ^{1/}	PROTECTION FACTORS 2/	GUIDES TO SELECTION OF EQUIPMENT
		PARTICULATES AND VAPORS AND GASES EXCEPT TRITIUM OXIDE ^{3/}	BUREAU OF MINES APPROVAL SCHEDULES* FOR EQUIPMENT CAPABLE OF PROVIDING AT LEAST EQUIVALENT PROTECTION FACTORS *or schedule superseding for equipment of type listed
I. <u>AIR-PURIFYING RESPIRATORS</u>			
Facepiece, half-mask <u>4/</u> <u>7/</u>	NP	5	21B 30 CFR § 14.4(b) (4)
Facepiece, full <u>7/</u>	NP	100	21B 30 CFR § 14.4(b) (5); 14F 30 CFR § 14.4(b) (5)
II. <u>ATMOSPHERE-SUPPLYING RESPIRATOR</u>			
1. <u>Airline respirator</u>			
Facepiece, half-mask	CF	100	19B 30 CFR § 12.2(c) (2) Type C(i)
Facepiece, full	CF	1,000	19B 30 CFR § 12.2(c) (2) Type C(i)
Facepiece, full <u>7/</u>	D	500	19B 30 CFR § 12.2(c) (2) Type C(ii)
Facepiece, Full	PD	1,000	19B 30 CFR § 12.2(c) (2) Type C(iii)
Hood	CF	<u>5/</u>	<u>6/</u>
Suit	CF	<u>5/</u>	<u>6/</u>
2. <u>Self-contained breathing apparatus (SCBA)</u>			
Facepiece, full <u>7/</u>	D	500	13E 30 CFR § 11.4(b) (2) (i)
Facepiece, full	PD	1,000	13E 30 CFR § 11.4(b) (2) (ii)
Facepiece, full	R	1,000	13E 30 CFR § 11.4(b) (1)
III. <u>COMBINATION RESPIRATOR</u>			
Any combination of air-purifying and atmosphere-supplying respirator		Protection factor for type and mode of operation as listed above	19B CFR § 12.2(e) or applicable schedules as listed above

1/, 2/, 3/, 4/, 5/, 6/, 7/ - [These notes are on the following pages]

* Change #5, p. 167C

1/ See the following symbols:

CF: continuous flow
 D: demand
 NP: negative pressure (i.e., negative phase during inhalation)
 PD: pressure demand (i.e., always positive pressure)
 R: recirculating (closed circuit)

- 2/ (a) For purposes of this specification, the protection factor is a measure of the degree of protection afforded by a respirator, defined as the ratio of the concentration of airborne radioactive material outside the respiratory protective equipment to that inside the equipment (usually inside the facepiece) under conditions of use. It is applied to the ambient airborne concentration to estimate the concentration inhaled by the wearer according to the following formula:

$$\text{Concentration Inhaled} = \frac{\text{Ambient Airborne Concentration}}{\text{Protection Factor}}$$

(b) The protection factors apply:

- (i) only for trained individuals wearing properly fitted respirators used and maintained under supervision in a well-planned respiratory protective program.
- (ii) for air-purifying respirators only when high efficiency [above 99.9% removal efficiency by U. S. Bureau of Mines type dioctyl phthalate (DOP) test] particulate filters and/or sorbents appropriate to the hazard are used in atmospheres not deficient in oxygen.
- (iii) for atmosphere-supplying respirators only when supplied with adequate respirable air.

3/ Excluding radioactive contaminants that present an absorption or submersion hazard. For tritium oxide approximately half of the intake occurs by absorption through the skin so that an overall protection factor of not more than approximately 2 is appropriate when atmosphere-supplying respirators are used to protect against tritium oxide. Air-purifying respirators are not recommended for use against tritium oxide. See also footnote 5/, below, concerning supplied-air suits and hoods.

4/ Under chin type only. Not recommended for use where it might be possible for the ambient airborne concentration to reach instantaneous values greater than 50 times the pertinent values in Appendix B, Table I, Column 1 of 10 CFR, Part 20.

*

- 5/ Appropriate protection factors must be determined taking account of the design of the suit or hood and its permeability to the contaminant under conditions of use. No protection factor greater than 1,000 shall be used except as authorized by the Commission.
- 6/ No approval schedules currently available for this equipment. Equipment must be evaluated by testing or on basis of available test information.
- 7/ Only for shaven faces.

NOTE 1: Protection factors for respirators, as may be approved by the U. S. Bureau of Mines according to approval schedules for respirators to protect against airborne radionuclides, may be used to the extent that they do not exceed the protection factors listed in this Table. The protection factors in this Table may not be appropriate to circumstances where chemical or other respiratory hazards exist in addition to radioactive hazards. The selection and use of respirators for such circumstances should take into account approvals of the U. S. Bureau of Mines in accordance with its applicable schedules.

NOTE 2: Radioactive contaminants for which the concentration values in Appendix B, Table I of this part are based on internal dose due to inhalation may, in addition, present external exposure hazards at higher concentrations. Under such circumstances, limitations on occupancy may have to be governed by external dose limits.