



# KERR-MCGEE NUCLEAR CORPORATION

KERR-MCGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

*Central File*

July 6, 1978

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Karl V. Seyfrit, Director  
U. S. Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

RE: Docket No. 40-8027

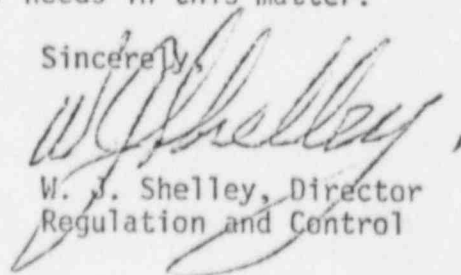
Dear Mr. Seyfrit:

Your letter of June 12, 1978 includes IE Bulletin No. 78-07. This bulletin asks that we reply to certain questions concerning our respiratory protection program; specifically regarding the use of supplied air respirators operated in the demand mode and supplied air hoods. While we do not actually use the demand mode type of respiratory protective equipment at this time, our program permits its use if desired.

Our respiratory protection program is described in Appendix A to our Corporate Radiation Health and Safety Standards. Copies of the appropriate appendices as revised June 15, 1978, are enclosed. Please note that the revisions comply with the new requirements as found in your IE Bulletin No. 78-07.

We hope this information fulfills your needs in this matter.

Sincerely,



W. J. Shelley, Director  
Regulation and Control

WJS:hw

Enclosures

cc: Director, Division of Fuel Facilities  
and Materials Safety Inspection,  
U. S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
Washington, D. C. 20555

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## APPENDIX A

## REQUIREMENTS FOR USE OF RESPIRATORY PROTECTIVE EQUIPMENT

1. In circumstances in which adequate limitation of the inhalation of radioactive materials by use of process or other engineering controls is impracticable, an individual may be exposed to average concentrations of airborne radioactive materials in excess of the limits specified in Table 2, Section 3.2, provided:
  - a. the individual uses respiratory or other appropriate protective equipment such that the total intake, in any period of seven consecutive days by inhalation, ingestion, or absorption, would not exceed that intake which would result from breathing the concentrations specified in Table 2, Section 3.2, for period of 40 hours,
  - b. the individual is advised that he may leave the area 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, and
  - c. a respiratory protective program exists which is adequate to assure that the objective of Item "a" above is met, and includes:
    - (1) Air sampling and other surveys sufficient to identify the hazard, to evaluate individual exposure, and to permit proper selection of the respiratory protective equipment;
    - (2) Procedures to assure proper selection, supervision, and adequate training of personnel using such protective equipment;
    - (3) Procedures to assure the adequate fitting of respirators and the testing of equipment for operability;
    - (4) Procedures for maintenance to assure full effectiveness of respiratory protective equipment, including issuance, cleaning and decontamination, inspection, repair and storage;
    - (5) Bioassays of individuals and other surveys as may be appropriate to evaluate individual exposures and to assess protection actually provided; and
    - (6) Records sufficient to permit periodic evaluation of the adequacy of the respiratory protective program.

- d. The protective equipment supplied and used is capable of providing a degree of protection at least equal to the protection factors listed in Table 1, following.

TABLE I

PROTECTION FACTORS FOR RESPIRATORS<sup>(1)</sup>

<u>Description</u>	<u>Modes</u> <sup>(2)</sup>	<u>Protection Factors</u>
<u>I. AIR-PURIFYING RESPIRATORS</u>		
Facepiece, half-mask	NP	10
Facepiece, full	NP	50
Facepiece, half-mask, full or hood	PP	1,000
<u>II. ATMOSPHERE-SUPPLYING RESPIRATOR</u>		
<u>1. Air-line respirator</u>		
Facepiece, half-mask	CF	1,000
Facepiece, half-mask	D	5
Facepiece, full	CF	2,000
Facepiece, full	D	5
Facepiece, full	PD	2,000
Suit	CF	(3)
Hood	CF	(4)
<u>2. Self-contained breathing apparatus (SCBA)</u>		
Facepiece, full	D	50
Facepiece, full	PD	10,000
Facepiece, full	R	50
<u>3. Combination respirator</u>		
Any combination of air-purifying and atmosphere supplying respirator.		Protection factor for type and mode of operation as listed above.

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

- (2) These factors may apply to protection against all particulates, vapors and gases except tritium oxide; however,
- a) For purposes of this standard, 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 airborne concentration to determine the concentration inhaled by the wearer, according to the following formula:  
$$\text{Concentration Inhaled} = \frac{\text{Airborne Concentration}}{\text{Protection Factor}}$$
  - b) The protection factors apply:
    - (i) only for individually fitted respirators worn by trained individuals and used and maintained under supervision in a well-planned respiratory protection program.
    - (ii) for air purifying respirators only when high efficiency particulate filters and/or sorbents appropriate to the hazard are used.
    - (iii) for atmosphere supplying respirators only when supplied with adequate respirable air.
- (3) Appropriate protection factors must be determined, taking into account the permeability of the suit to the contaminant under conditions of use. No protection factor greater than 1000 shall be used except as authorized by the Commission.
- (4) a) A protection factor of no more than 1,000 should be utilized for approved supplied-air hoods when the air flow is maintained at 6 cubic feet per minute and calibrated air-line pressure gauges or flow measuring equipment is used.
- b) A protection factor of 2,000 should be utilized for approved supplied-air hoods only when the air flow is maintained at the manufacturer's recommended maximum rate, this rate is greater than 6 cfm, and calibrated air-line pressure gauges or flow measuring equipment is used.