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PDR  
✓ Docket File  
DR Reading  
DRL Reading  
Branch Reading  
ACRS (3)  
F. Schroeder, R. Scheme  
R. Boyd, R. Woodruff  
R. DeYoung, S. Teets  
D. Skovholt  
R. Vollmer

APR 12 1971

Docket No. 50-231

General Electric Company  
ATTN: Dr. Karl Cohen, General Manager  
Breeder Reactor Development Operation  
310 DeGuigne Drive  
Sunnyvale, California 94086

Change No. 3  
License No. DR-15

Gentlemen:

In an application dated June 12, 1970, and subsequently amended on July 30, 1970, you submitted Proposed Change No. 2 to the Technical Specifications attached to Provisional Operating License No. DR-15 for the Southwest Experimental Fast Oxide Reactor. The proposed change would: (a) revise qualification requirements for key personnel, (b) clarify limits for release of radioactive effluents from the plant stack, and (c) increase allowable flow in the pump-around-loop. We have deferred our review of Item (c) per your request of March 5, 1971; and we have redesignated Items (a) and (b) as Change No. 3.

During our review of Change No. 3, we informed your staff that certain modifications to Item (a) were necessary to meet our regulatory requirements. These modifications have been made. We conclude that Change No. 3, as modified, does not present significant hazards considerations not described or implicit in the Safety Analysis Report and that there is reasonable assurance that the health and safety of the public will not be endangered. Accordingly, Change No. 3 is hereby authorized and, except for the requirement that the Operations Manager be licensed as a Senior Reactor Operator, Change No. 3 is effective immediately. The licensing requirement for the Operations Manager shall be effective October 1, 1971. Replacement pages 3.7-1, 3.7-3 and 6.1-2 through 6.1-5 are attached. The changes are indicated by brackets.

Sincerely,

Peter A. Morris, Director  
Division of Reactor Licensing

Enclosure:  
Replacement pages

cc: Jules Pearlman, General Counsel  
General Electric Company

SEE ATTACHED YELLOW FOR OTHER CONCURRENCES

OFFICE ▶	DRL	DRL	DRL	DRL	DRL	DRL
SURNAME ▶	RWoodruff:pd1	SATeets	RJSchemel	DJSkovholt	FSchroeder	PAMorris
DATE ▶	4/9/71	4/ /71	4/ /71	4/ /71	4/ /71	4/12/71

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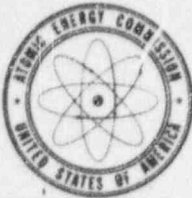
During our review of Change No. 3, we informed your staff that certain modifications to Item (a) are necessary to meet our regulatory requirements. Your staff indicated that these modifications are acceptable to General Electric. We conclude that Change No. 3, as modified, does not present significant hazards considerations not described or implicit in the Safety Analysis Report and that there is reasonable assurance that the health and safety of the public will not be endangered. Accordingly, Change No. 3 is hereby authorized and, except for the requirement that the Operations Manager be licensed as a Senior Reactor Operator, Change No. 3 is effective immediately. The licensing requirement for the Operations Manager shall be effective October 1, 1971. Replacement pages 3.7-1, 3.7-5 and 6.1-2 through 6.1-5 are attached. The changes are indicated by brackets.

Sincerely,

Peter A. Morris, Director  
Division of Reactor Licensing

Enclosure:  
Replacement pages

cc: Jules Pearlman, General Counsel	DRL	DRL	DRL	DRL		
OFFICE ▶	DRL	DRL	DRL	DRL		
SURNAME ▶	RWoodruff:pd1	SATeet	RJSchemel	DJSkovholt	FSchroeder	PAMorris
DATE ▶	4/6/71	4/6/71	4/2/71	4/7/71	4/7/71	4/ /



UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON, D.C. 20545

April 12, 1971

Docket No. 50-231

General Electric Company  
ATTN: Dr. Karl Cohen, General Manager  
Breeder Reactor Development Operation  
310 DeGuigne Drive  
Sunnyvale, California 94086

Change No. 3  
License No. DR-15

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During our review of Change No. 3, we informed your staff that certain modifications to Item (a) were necessary to meet our regulatory requirements. These modifications have been made. We conclude that Change No. 3, as modified, does not present significant hazards considerations not described or implicit in the Safety Analysis Report and that there is reasonable assurance that the health and safety of the public will not be endangered. Accordingly, Change No. 3 is hereby authorized and, except for the requirement that the Operations Manager be licensed as a Senior Reactor Operator, Change No. 3 is effective immediately. The licensing requirement for the Operations Manager shall be effective October 1, 1971. Replacement pages 3.7-1, 3.7-5 and 6.1-2 through 6.1-5 are attached. The changes are indicated by brackets.

Sincerely,

A handwritten signature in cursive script, reading "Peter A. Morris", is positioned above the typed name.

Peter A. Morris, Director  
Division of Reactor Licensing

Enclosure:  
Replacement pages

cc: Jules Pearlman, General Counsel  
General Electric Company

### 3.7 Radioactive Waste Control System

#### Applicability

Applies to those components which control the collection, storage, and release of radioactive waste materials.

#### Objective

To assure the capability for safe control of radioactive waste materials and to define the limiting conditions for release of effluents from the reactor system.

#### Specification

- A. At least one of the three waste gas compressors shall be operable.
- B. For reactor startup, at least two waste gas compressors shall be operable.
- C. The rate of discharge,  $Q_x$ , of radioactive effluent,  $x$ , from the plant stack shall be limited in accordance with the following equations: (1)

1. Annual average release rate, except halogens and particulates with half-lives greater than 8 days;

$$\sum_x \frac{Q_x}{MPC_x} \leq 4.0 \times 10^{10} \frac{cc}{sec}$$

2. For periods less than 48 hours in any seven consecutive days, hourly average release rate, except halogens and particulates with half-lives greater than 8 days;

$$\sum_x \frac{Q_x}{MPC_x} \leq 1.7 \times 10^{11} \frac{cc}{sec}$$

3. Annual average release rate of radioactive halogens and particulates with half-lives greater than 8 days;

$$\sum_x \frac{Q_x}{MPC_x} \leq 5.6 \times 10^7 \frac{cc}{sec}$$

4. For periods less than 48 hours in any seven consecutive days, hourly average release rate of radioactive halogens and particulates with half-lives greater than 8 days;

$$\sum_x \frac{Q_x}{MPC_x} \leq 5.6 \times 10^8 \frac{cc}{sec}$$

## References

- (1) 10 CFR 20, Appendix B, Table II.
- (2) SEFOR FDSAR, Volume I, Para. 9.3.1.2, pp. 9-2 and 9-3.
- (3) SEFOR FDSAR, Supplement 19, Appendix A. Summary of SEFOR Meteorological Data Final Report, May 15, 1967 to May 15, 1968.
- (4) A Brief Survey of the Meteorological Aspects of Atmospheric Pollution, H.E. Cramer, Bulletin of the American Meteorological Society 40 (4): 165-171.
- (5) Watson, E.C. and Gamertsfelder, C.C., "Environmental Radioactive Contamination as a Factor in Nuclear Plant Siting Criteria," HW-SA-2809, February, 1963.
- (6) SEFOR FDSAR, Supplement 21, p. 32.





- d. Personnel requiring Part 55 licenses shall be as indicated in Figure 6-1.
3. Qualifications with regard to education and operating experience for key supervisory personnel shall be as follows:
- a. SEFOR Facility Manager
- B.S. in Engineering or Science or equivalent in experience. Seven years experience in the design, construction, installation, operation, development, and maintenance of nuclear facilities.
- Demonstrated detailed and comprehensive knowledge in related technical fields, including reactor physics, radiological hazards control, nuclear engineering and instrument engineering.
- Five years experience or one year experience at SEFOR plus two years experience elsewhere in the supervision and management of the construction and operation of reactor facilities. Demonstrated ability to plan, organize, and direct reactor plant operations.
- b. Manager, Plant Engineering
- B.S. in Engineering or Science or equivalent in experience. Five years experience or equivalent in the operation and maintenance of power-generation facilities, including a minimum of one year in responsible supervisory positions in the operation or maintenance of such facilities, and one year of nuclear plant experience. Ability to plan, program, and direct activities of engineering and craft personnel.
- Demonstrated ability in the design and application of equipment and devices, with a thorough understanding of process equipment such as pumps, fans, heat exchangers and generators, heaters, etc., as applicable to nuclear facilities.
- c. Manager, Operations
- B.S. in Engineering or Science or equivalent in experience. Five years experience in the operation and maintenance of reactor or nuclear power facilities, including minimum of one year in supervisory positions in the operation and maintenance of such facilities.

Demonstrated ability to organize and coordinate plant operations. Comprehensive knowledge of problems associated with startup and initial operation of reactor facilities, including knowledge of radiological hazards, technical aspects of reactor operation of control systems, radiation shielding, contamination control, etc. Demonstrated good judgment necessary to make correct decisions under rapidly changing conditions. Licensed as a Senior Reactor Operator.

d. Manager, Programs and Analysis

B.S. in Engineering or Science or equivalent in experience. Five years experience in the design, operation, analysis and programming of a variety of reactor types or nuclear power facilities, including at least one year in responsible supervisory position in such organizations.

Comprehensive knowledge of reactor physics, reactor design, reactor operation, radiation shielding, fluid flow, thermodynamics, instrumentation, and related technologies.

Demonstrated capability for directing the efforts of physicists and engineers.

Ability to develop techniques and test procedures to carry out a reactor experimental program.

Demonstrated knowledge of the practical aspects of the operation of reactors, including their characteristics, limitations, and safe operating requirements.

e. Specialist, Radiation and Industrial Safety

B.S. in Engineering or Science or equivalent in experience.

Three years experience in analytical chemistry or radiochemistry and health physics, including one year of experience in radiation protection.

Demonstrated ability in evaluation of radiation hazards, design and development of radiation monitoring equipment, and in conducting health-physics studies.



Thorough understanding of radiation dosimetry and a working knowledge of design of radiation facilities, shielding calculations and design of ventilation control, radioactive waste processing, calibration of radiation measuring instrumentation, maximum permissible radiation exposure levels, and good radiological safety and health protection practices. Must be cognizant of local and state industrial safety requirements. Demonstrated ability in teaching, lecturing, and implementing safe practices and procedures.

f. Supervisor, Mechanical Maintenance

B.S. in Engineering or Science, or equivalent in experience with a high school education and apprenticeship training.

Five years of experience with power generating equipment, including one year of nuclear experience and one year of experience as a supervisor in the maintenance of associated equipment for reactors or power generating equipment.

Familiarity with non-destructive testing, and understanding of pressure vessel and piping codes.

Knowledge of craft techniques and mechanical maintenance procedures applicable to nuclear facilities.

Cognizance of radiation and safety procedures and regulations, as applicable to nuclear facilities.

g. Instrumentation Engineer

B.S. in Engineering or Science, or equivalent in experience. Three years experience in design, installation, calibration and maintenance of process instrumentation, including a minimum of one year of nuclear instrumentation experience and an understanding of electrical codes. Cognizance of significance of control and instrumentation systems with respect to reactor operation and safety. Demonstrated ability to analyze systems for adequacy to meet system requirements and to conceive, assemble, and install necessary modifications to meet systems requirements.

h. Shift Supervisor

B.S. in Engineering or Science, or equivalent in experience. Three years experience in the operation of reactor or nuclear facilities.