



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING PROPOSED REVISION TO EMERGENCY RESPONSE PLAN

AND EXEMPTION FROM 50.54g REQUIREMENTS

LICENSE NO. DPR-34

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

DOCKET NO. 50-267

1.0 INTRODUCTION

By letter dated June 15, 1990, Public Service Company of Colorado (PSC) submitted a Defueling Emergency Response Plan (DERP) for the Fort St. Vrain Nuclear Generating Station (FSV). The Emergency Plan was revised to reflect the permanently shutdown and partially defueled status of the reactor. The submittal also included several attachments to justify the changes in the proposed plan and a request for an exemption to cease offsite emergency response and preparedness activities. FSV was permanently shutdown on August 18, 1989. FSV License No. DPR-34 was modified by Confirmatory Order dated May 1, 1990 to prohibit PSC from taking the FSV reactor to criticality and prohibit operations at any power level.

The NRC staff used the same acceptance criteria for the review of the FSV DERP as is used to evaluate the adequacy of onsite emergency plans for operating nuclear power reactors, with consideration for the permanent shutdown status and inherent low risk of FSV as described in this safety evaluation. The acceptance criteria includes the planning standards of 10 CFR 50.47(b), the requirements of Appendix E to 10 CFR Part 50, and the guidance criteria of NUREG-0654/FEMA-REP-1, "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated November 1980. The scope of the review is limited to the proposed changes of the DERP.

The potential for emergency events to occur and their possible consequences are discussed in the DERP. One third of the irradiated fuel has been removed from the reactor vessel and is being stored in the fuel storage wells. Boron poisoned defueling elements (without fuel) have been inserted in all locations where fuel has been removed. The Technical Specifications (TS) limit the number of control rods that can be unlocked and withdrawn such that the reactor can not be made critical. Control rods must be withdrawn during defueling from those fuel elements being removed from the reactor. All other control rods are locked out so that they can not be accidentally moved. The removal of one-third

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of the fuel combined with the additional boron in defueling elements and the TS restriction on control rod movement prevents accidental criticality and planned critical operations.

The radioactive source terms for accidental release have been greatly reduced by radioactive decay of the fission products in the spent fuel since final shutdown at FSV. Based on the analysis of possible events at FSV, PSC states in the DERP that there are no postulated accidents which could result in the release of radioactive materials to the environment in quantities which would require protective actions for the public. Therefore, PSC proposes to delete offsite emergency response capabilities.

The NRC staff independently evaluated the offsite radiological consequences of potential accidents involving a fuel handling accident where a loaded spent fuel shipping cask was dropped. The analysis was based upon the assumptions and parameters in the NRC Standard Review Plan, FSV Updated Safety Analysis Report and the licensee's submittal dated June 15, 1990. The two hour calculated doses at 100 meters were 0.3 mrem whole body dose and  $8 \times 10^{-7}$  mrem thyroid dose. The whole body dose is in substantial agreement with the licensee's projected two hour dose of 0.19 mrem whole body. These calculated doses are well below the Environmental Protection Agency's (EPA) Protective Action Guides (PAG) for protecting the public from exposure, i.e., 1-5 rem whole-body dose and 5-25 rem thyroid.

## 2.0 STAFF EVALUATION

### 2.1 Assignment of Responsibility (Organization Control)

The NRC staff has reviewed the FSV DERP and concludes that the planning standard regarding responsibilities for emergency response are adequately addressed in the plan.

The FSV DERP describes the onsite and offsite organizations that are intended to be part of the overall response organization in the event of an emergency at FSV. In support of the normal shift organization, PSC maintains the capability to provide corporate support, including senior personnel, facilities, equipment and financial resources. Local agency and contract support services are identified as well as copies of letters of agreement listing individual responsibilities and arrangements.

### 2.2 Onsite Emergency Organization

The planning standard regarding on-shift facility licensee responsibilities for emergency response is adequately addressed in the DERP considering the partially defueled status of the FSV facility.

The FSV DERP describes the normal station organization, the transition to the emergency organization, and the full emergency response covering the Technical Support Center (TSC) and the Control Room (CR). The onsite emergency organization chart lists the individuals by their normal titles for each position. The plan identifies the Emergency Coordinator responsibilities that can't be delegated including event classification, offsite notifications, and protective action recommendations.

### 2.3 Emergency Response Support and Resources

The planning standard regarding arrangements for requesting and utilizing assistance resources has been adequately addressed in the DERP considering the partially defueled status of the FSV facility.

PSC has arrangements with local support agencies for ambulance services, hospital facilities and with the local Platteville Volunteer Fire Department for onsite fire protection assistance. Agreements have been made with contractors for a variety of support services including dosimetry, decontamination, monitoring and radiological waste disposal assistance. Letters of agreement are found in Section 10 of the DERP.

Requests for Federal assistance are channeled through the State of Colorado. DOE has Radiological Assistance Teams in Idaho Falls, Idaho and Rocky Flats, Colorado, that are available through the Interagency Radiological Assistance Plan.

The Division of Disaster Emergency Services of the State of Colorado, has responsibility for control of offsite activities. However, based on the status of the facility and the remaining credible accidents, it is expected that the no emergency classification above an Alert will be declared and no activation of the State Radiological Emergency Response Plan will occur.

### 2.4 Emergency Classification System

The FSV DERP adequately addressed the emergency classification and action levels associated with the FSV facility in the partially defueled configuration.

Incidents at nuclear power plants are categorized into one of four emergency classes according to a graduated level of severity: Notification of Unusual Event (NOUE), Alert, Site Area Emergency, and General Emergency. The licensee has evaluated the potential consequences of a spectrum of postulated accidents and states that there is no postulated accident for FSV during the defueling or after the permanent shutdown which could result in an emergency classification more severe than an Alert. A list of initiating conditions and emergency action levels associated with possible events at FSV which would result in the declaration of a NOUE or Alert is given in Section 4 of the Emergency Plan. The licensee's proposed Emergency Action Level scheme demonstrates a comprehensive and anticipatory approach to emergency classifications.

### 2.5 Notification Methods and Procedures

The FSV DERP adequately addressed the methods and procedures for notification of emergency response personnel, State and local organizations and the public, considering the partially defueled status of the FSV facility.

The DERP identifies notification call sequence in the event of an NOUE or an Alert. It also describes the reporting for one hour and four hour reports for non-emergencies. Since there is negligible potential for offsite releases, the State and local authorities will receive initial notification but will receive

periodic rather than continuous information or updates. In addition, the annual dissemination of basic emergency preparedness information will no longer be provided under the DERP.

## 2.6 Emergency Communications

The planning standard for prompt communications among response organizations is adequately addressed in the DERP.

The licensee uses commercial telephones over dedicated microwave lines as the primary communications link between onsite and offsite. Several radio communications systems are available in the TSC to communicate with designated offsite agencies. Two-way radios are used in-plant between the TSC and in-plant teams. A Gai-Tronics telephone paging system is also available in-plant to link the TSC, CR and in-plant teams.

## 2.7 Public Education and Information

The planning standard for public information is adequately addressed in the DERP considering the permanent shutdown and partially defueled condition of FSV.

Under the DERP, the licensee will not disseminate emergency planning information in the five mile Emergency Planning Zone or maintain the emergency warning system consisting of tone-alert radios and the Platteville siren.

## 2.8 Emergency Facilities and Equipment

The planning standard for adequate emergency facilities and equipment to support an emergency response effort is adequately addressed in the DERP considering the shutdown and partially defueled status of the FSV facility.

In the revised plan, offsite emergency response facilities have been deleted. They include the Executive Command Post, State Emergency Operations Center, Personnel Control Center, and Forward Command Post. The remaining emergency response facilities are the TSC and the CR. Their physical layout and capability remains as before including personnel habitability.

## 2.9 Accident Assessment

The planning standard for methods, systems and equipment to be used in accident assessment and radiological monitoring is adequately addressed in the DERP.

The onsite systems and equipment used for assessing the emergency situation continues to be maintained and available for the proper assessment of an emergency situation. Offsite radiological monitoring continues to be provided by the Colorado State University under contract to PSC.

## 2.10 Protective Response

The planning standard for protective actions is adequately addressed in the DERP considering the reduced risk associated with FSV partially defueled condition.

In the early phase of the emergency, the Shift Supervisor as Emergency Coordinator has the responsibility to protect the station personnel, visitors and any contractors. Once the TSC is activated, the TSC Director assumes control of the emergency response organization. Notification of the onsite staff, accountability, classification and recommendations of protective actions are some of the protective response actions that can be taken in the event of an emergency. Based on the licensee's and NRC accident analysis no offsite protective actions for the public are required.

#### 2.11 Radiological Exposure Control

The planning standard requiring means to control the radiological exposure of emergency workers is adequately addressed in the DERP.

The TSC Director is responsible for emergency team assignments and may authorize emergency workers to receive doses in excess of 10 CFR Part 20 limits. This authorization to exceed limits would be made only after consultation with the senior HP representative in the TSC. All emergency workers will carry self-reading dosimeters in addition to film badges. Radiation Work Permits may be required in radiological control areas.

#### 2.12 Medical and First Aid Support

The planning standard for medical services is adequately addressed in the DERP.

First aid and other treatment aids are located in several areas throughout the plant. St. Luke's Hospital and/or North Colorado Medical Center has committed to assist FSV for more serious injuries. Letters of agreement with these support organizations are included in the plan.

#### 2.13 Recovery and Reentry Planning

The planning standard for general plans for recovery and reentry is adequately addressed in the DERP.

The DERP describes the recovery organization including the position/title of each of the key members. It also outlines a series of planning topics as guidance during recovery operations. Measures to control personnel exposure are also addressed.

#### 2.14 Exercises and Drills

The planning standard for periodic exercises and drills is adequately addressed in the DERP considering the partially defueled condition of FSV.

Annual exercises of the DERP will continue to be conducted, however, the biennial full participation with State and local authorities will not be performed.

#### 2.15 Radiological Emergency Response Training

The standard for radiological response training is adequately addressed in the DERP.

PSC maintains a training program to ensure that station personnel and participating agencies involved in emergency response are trained or retrained on an annual basis. The training covers basic, as well as specialized training, including some cross-subject training to provide flexibility in staff utilization. Other participating agencies include the Platteville Volunteer Fire Department, the Weld County Ambulance Service, the Weld County Sheriff's Department, and St. Luke's Hospital.

#### 2.16 Plan Development and Review

The planning standard for plan development and review is adequately addressed in the DERP.

The DERP is reviewed and updated annually. The emergency response program is independently audited annually and audit documentation is maintained for five years.

#### 3.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact has been prepared and published in the Federal Register (55 FR 53215) on Dec. 27, 1990. The Commission determined that the issuance of the exemption will not have a significant effect on the quality of the human environment.

#### 4.0 CONCLUSIONS

The proposed FSV Defueling Emergency Response Plan has been reviewed by the NRC staff against the acceptance criteria included in 10 CFR 50.47(b), Appendix E to 10 CFR Part 50, and NUREG-0654/FEMA-REP-1, Revision 1. The staff review took into consideration the non-operating and partially defueled condition of the FSV plant including the negligible amount of decay heat being generated by the spent fuel.

Based on a review of PSC analysis of possible events at FSV, the staff concurs with the analysis and concludes that there is no credible accident for FSV in its partially defueled condition which could result in the release of radioactive materials to the environment in quantities that would require protective actions for the public.

The staff concludes that the FSV DERP provides an adequate basis for an acceptable state of emergency preparedness for FSV in its non-operating and partially defueled condition, and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at FSV. It is therefore concluded that FSV may cease all offsite emergency preparedness activities, except to the extent discussed above, and implement the DERP upon granting of the proposed exemption from the requirements of 10 CFR 50.54(q). This determination applies only to FSV in its partially defueled condition and is not considered to be an irreversible step toward decommissioning in that emergency preparedness can be reestablished if required.

The staff has also concluded, based on the considerations discussed above, that pursuant to 10 CFR 50.12, (1) the exemption requested by the licensee's letter dated June 15, 1990, is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security, and (2) special circumstance is present as described in 10 CFR 50.12(a)(2)(ii). Therefore, the proposed exemption may be granted.

Dated: December 31, 1990

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