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April 12, 1991
Fort St. Vrain
Unit No. 1
P-91124

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop P1-37
Washington, D.C. 20555

DOCKET NO: 50-267

SUBJECT: DEFUELING EMERGENCY RESPONSE PLAN - PLANT
PROCEDURE DISTRIBUTION

Gentlemen:

We are transmitting herein the following:

Issue 1 of DERP Plant	Section 1
Issue 1 of DERP Plant	Section 2
Issue 1 of DERP Plant	Section 3
Issue 1 of DERP Plant	Section 4
Issue 1 of DERP Plant	Section 5
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Issue 1 of DERP Plant	Section 7
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Issue 1 of DERP Plant	Section 11
Issue 1 of DERP Plant	Section 12
Issue 1 of DERP Plant	Section 13

Two copies of these procedures have also been transmitted to Region IV, Emergency Response Coordinator, in accordance with 10CFR50.54(q) (Reference P-91125).

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April 12, 1991

In accordance with 10CFR50.54(q), we have determined that the changes in these issues do not decrease the effectiveness of the Fort St. Vrain Emergency Plans and the plans, as changed, continue to meet the intent of 10CFR50.47(b) and 10CFR50 Appendix E.

If difficulties or questions arise in filing these procedures, please contact Mr. M. H. Holmes at (303) 480-6960.

Sincerely,



Charles H. Fuller
Manager, Nuclear Production
Fort St. Vrain Nuclear
Generating Station

CHF/bj

Attachments

cc: J. B. Baird
Senior Resident Inspector
Fort St. Vrain

Renee Millison
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Fort St. Vrain



FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO

03/29/91

NR-1

DEFUELING EMERGENCY RESPONSE PLAN - PLANT

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DERP Section 13	Defueling Emergency Response Plan, Section 13 Listings of Emergency Kits	1	03-29-91



TITLE: DEFUELING EMERGENCY RESPONSE PLAN: INTRODUCTION

RESPONSIBLE FOR	<i>J. Hersh</i>			
AUTHORIZED BY	<i>W. L. L. L.</i>			
PORC REVIEW	PORC 921 FEB 13 1991			EFFECTIVE DATE 3-29-91
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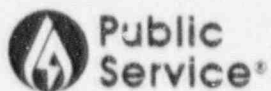
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INTRODUCTION

The Fort St. Vrain (FSV) Nuclear Generating Station is owned and operated by the Public Service Company of Colorado (PSC). It is a High Temperature Gas-Cooled Reactor (HTGR) rated at 330 Mw (net). FSV began commercial operation on July 1, 1979 and ended operations on August 29, 1989. FSV is located near Platteville, Colorado, approximately 40 miles north of Denver. The Defueling Emergency Response Plan (DERP) has been reviewed and approved by the Nuclear Regulatory Commission (NRC), and continues to be reviewed, and tested, by the NRC. PSC's Quality Assurance Division audits the DERP in accordance with NRC Regulations (i.e. 10CFR50.54(t)), and provides recommendations for improving the program.

The FSV DERP: (1) provides a mechanism to classify emergencies according to the severity of the situation; (2) describes the organization that will be established to manage the emergency; (3) defines the relationships between PSC and the various federal/state/local response organizations; (4) outlines courses-of-action and corresponding protective measures to mitigate the onsite and offsite consequences of an accident; and (5) assures a safe-shutdown mode for eventual decommissioning.

Detailed procedures have been developed to implement the plan (DERP Implementing Procedures, Emergency Operating Procedures, and Abnormal Operating Procedures). These procedures provide the foundation for the FSV Emergency Preparedness Program.



FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO

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AUTHORIZED BY:	<i>M. Fuller</i>			
PORC REVIEW	PORC 921 FEB 13 1991			EFFECTIVE DATE 3-29-91
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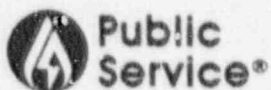
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FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO

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TITLE: DEFUELING EMERGENCY RESPONSE PLAN: SECTION 1 DEFINITIONS

RESPONSIBLE FOR	<i>J. Bors</i>			
AUTHORIZED BY	<i>A. H. H. H.</i>			
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1.0 DEFINITIONS

The following are selected terms commonly used in this Defueling Emergency Response Plan (DERP).

1.1 ASSESSMENT ACTIONS

Actions taken during, or after, an accident to obtain and process information necessary to implement specific emergency measures.

1.2 ACCOUNTABILITY

Process of identifying missing, onsite personnel.

1.3 ALERT

Events which are in process or have occurred, that involve a potential for substantial degradation of the level of safety of the plant. Any releases of radioactive material are expected to be small fractions of the EPA Protective Action Guide limits.

1.4 COLORADO DEPARTMENT OF HEALTH (CDH)

The state agency with primary responsibility for carrying out radiological emergency assessment actions and for providing Protective Action Recommendations to the Governor or his designee.

1.5 COLORADO DIVISION OF DISASTER EMERGENCY SERVICES (CODES)

The state agency assigned primary operational responsibility for command and control of offsite response actions in the event of a radiological emergency at FSV.

1.6 CONTROL ROOM (CR)

The CR operates under the direction of a Shift Supervisor. It is the primary point at which plant conditions are monitored and controlled and corrective actions taken to mitigate an abnormal occurrence. It is the location where initial assessment and classification of an incident is initiated.

1.7 CORRECTIVE ACTIONS

Measures to reduce the severity of (or terminate) an emergency situation at or near the source of the problem, to prevent an uncontrolled release of radioactive material, or to reduce the magnitude of the release.

1.8 EMERGENCY ACTION LEVELS (EAL's)

Parameters or symptoms used to designate a particular class of emergency. These parameters are indicators of the severity of an emergency, or potential severity, and are guides in determining appropriate emergency response measures.

EALs can also be referred to as "initiating events" for those events severe enough to cause an event classification.

1.9 EMERGENCY COORDINATOR

This PSC individual has the responsibility and authority to initiate emergency actions immediately and unilaterally. The on-shift Shift Supervisor initially assumes the role of Emergency Coordinator until such time as the emergency organization is activated and he is relieved by the Control Room Director or the Technical Support Center Director. The Technical Support Center Director ultimately assumes the duties of the onsite Emergency Coordinator and is responsible for classification and notification.

1.10 EMERGENCY PLANNING ZONE (EPZ)

An area around FSV for which provisions are established for responding to postulated emergencies. The EPZ for FSV is a 100 meter square from the Reactor Building Stack.

1.11 EMERGENCY RESPONSE ORGANIZATION

Personnel who are assigned a specific emergency position as defined in this plan and who are trained to perform specific emergency response functions.

1.12 NOTIFICATION OF UNUSUAL EVENT

Situations where unusual events are in process, or have occurred, which indicate a potential for degradation of the level of safety of the plant. Time is available to take precautionary and constructive steps to prevent a more serious event and/or to mitigate any consequences that may occur. No releases of radioactive material requiring offsite response or monitoring are expected at this level.

1.13 PLUME

A distribution of radioactive material carried by prevailing winds.

1.14 PROTECTIVE ACTION GUIDES (PAG's)

The projected radiological dose (or dose commitment values) to individuals in the general population that would warrant Protective Action Recommendations (PAR's) following a release of radioactive material. Protective actions are warranted if the dose reduction achieved is not offset by the risks associated with taking the protective action. The PAG's used in this response plan are those recommended by the Environmental Protection Agency (EPA).

1.15 PROTECTIVE ACTION RECOMMENDATIONS (PAR's)

Recommendations made to appropriate state/local officials (i.e., shelter) to prevent or minimize radiological exposure after an actual or projected release of radioactive material.

1.16 STATE RERP

The State of Colorado FSV Radiological Emergency Response Plan, which documents specific responsibilities and procedures for state/local emergency response agencies responsible for offsite emergency operations and protection of the affected population.

1.17 TECHNICAL SUPPORT CENTER (TSC)

The TSC is located adjacent to the Reactor Building in the Technical Support Building. This building is within easy walking distance to the CR. The TSC monitors station conditions, provides information and analysis regarding reactor system problems, serves as the collection and analysis point for sampling and monitoring data, provides long and short-term guidance on corrective actions to the CR, serves as a staging area and support base for emergency personnel, and serves as the manpower marshalling point for personnel awaiting assignment to emergency repair teams, damage control teams, radiological monitoring teams, search and rescue teams, or similar activities.



FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO

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TITLE: DEFUELING EMERGENCY RESPONSE PLAN: SECTION 2
SCOPE AND APPLICABILITY

RESPONSIBLE FOR	<i>J. Borst</i>			
AUTHORIZED BY	<i>A. Hult</i>			
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2.0 SCOPE AND APPLICABILITY

PSC recognizes that there is a potential for an accident to occur at FSV. This DERP is a result of the planning process that was conducted to define and classify the various types of emergencies that may occur. After establishing the types of credible events, the planning team continued its activities and (1) defined specific corrective actions that could be taken and (2) identified specific organizational structures that should be established to ensure that these corrective actions are executed properly and effectively.

Based upon the above, the plan describes--

- 1) The PSC emergency organization that would be established to respond to an accident at FSV.
- 2) The notification process that would be used to alert the various organizations of the accident.
- 3) The communication links that would be established and the various emergency response facilities that would be manned in the event of an accident.

The DERP Implementing Procedures, which effectively implement the plan, categorize the specific type of emergency according to severity, designate responsibilities, and fully define actions to be taken by pre-assigned personnel to reduce the consequences of an accident.

In addition to the state and local support that may be made available to FSV, the federal government may also provide assistance. For example, the NRC and FEMA would, in all likelihood, provide a variety of resources in the event of an accident at FSV.



FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO

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TITLE: DEFUELING EMERGENCY RESPONSE PLAN: SECTION 3
SUMMARY OF THE FSV DERP

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AUTHORIZED BY	<i>A. Gault</i>			
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3.0 SUMMARY OF THE FSV DEFUELING EMERGENCY RESPONSE PLAN (DERP)

The FSV DERP delineates the organization for emergencies, classifies emergencies according to severity, defines and assigns responsibilities and authorities, and outlines measures to mitigate the consequences of an accident and minimize the effects on the health and safety of the public and station personnel.

Radiological emergency planning for FSV has been coordinated at the state/local government levels. The State of Colorado, PSC and local government agencies are all signatory parties to the State RERP.

The FSV emergency response organization is responsible for onsite emergency operations and for providing accurate plant status information to offsite authorities.

Sections 4.0 thru 8.0 of the FSV DERP provide specific detail on the emergency preparedness program. The contents of these sections are summarized below:

Section 4.0 - Emergency Classifications

Describes emergency classifications, initiating events, emergency action levels (EAL's), and corresponding PSC actions in response to each emergency classification. EAL's and corresponding actions noted are based upon design characteristics specific to a defueling HTGR and upon applicable NRC guidance for nuclear power stations.

Section 5.0 - Emergency Organization

Describes the PSC emergency response organization, together with details on the function and responsibilities assigned to each segment of the organization. Provision is made for two onsite emergency control centers: the Technical Support Center (TSC) and the Control Room (CR). This section also indicates specific assignments of personnel to emergency billets and notes local and contract support service arrangements.

Section 6.0 - Emergency Measures

Describes the activation of the emergency organization, activities associated with assessing the emergency condition(s) and corresponding protective action/recommendations, and measures to aid injured and/or contaminated personnel.

Section 7.0 - Emergency Facilities and Equipment

Describes onsite facilities and equipment available to assess emergency conditions, to support emergency operations, to protect and treat injured/contaminated personnel, and to control incident-related damage. This section also outlines communication links with field/plant monitoring teams.

Section 8.0 - Maintaining Emergency Preparedness

Summarizes the station emergency training program, describes emergency drills and exercises, details methods to review and update the DERP, and describes procedures to maintain an adequate inventory of emergency equipment and supplies.

Section 9.0 - Recovery

Defines, in general terms, a recovery plan and organization.

Section 10.0 - Letters of Agreement and Supporting Plans

Includes copies of Letters of Agreement with various local agencies and contract support organizations.

Section 11.0 - Maps

Includes a map of the EPZ, geographical area identification designations, and environmental dosimetry locations.

Section 12.0 - Procedures That Implement or Supplement the Plan

A listing of procedures which implement or supplement the plan.

Section 13.0 - Listings of Emergency Kits

A listing of emergency kits, protective equipment, and supplies stored and maintained for emergency purposes.



FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO

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TITLE: DEFUELING EMERGENCY RESPONSE PLAN: SECTION 4

EMERGENCY CLASSIFICATIONS

RESPONSIBLE FOR	<i>J. Bord</i>		
AUTHORIZED BY	<i>W. Fulk</i>		
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4.0 EMERGENCY CLASSIFICATIONS

Emergencies are classified into two categories. The classification system results in responses and procedures that are both timely and appropriate for each emergency condition. When determining the classification of a particular situation, the highest classification (ALERT) should be consulted first, working down through the lowest, until the appropriate level of classification is determined.

4.1 CLASSIFICATION

The following are the descriptions of the two classifications used in the system. Each classification description includes appropriate levels of station emergency response actions. The classifications given match those used in the State RERP except that the state also assigns a color code to each of the events. For completeness, these color codes are identified in parenthesis after the classification title.

4.1.1 NOTIFICATION OF UNUSUAL EVENT ("CONDITION BLUE")

This classification applies to situations where unusual events are in process, or have occurred, which indicate a potential for degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occur.

In these situations, time is available to take precautionary and constructive steps to prevent a more serious event and/or to mitigate any consequences that may occur. This event status places the plant in a readiness position for a possible cessation of routine activities and/or an augmentation of on-shift resources. State officials are promptly notified of an unusual event.

Attachments B1 through B14 outline initiating events and response actions for the NOTIFICATION OF AN UNUSUAL EVENT class of incident.

4.1.2 ALERT ("CONDITION GREEN")

This classification comprises events which are in process, or have occurred, which involve an actual or potential, substantial degradation of the level of safety of the plant. Any releases of radioactive materials are expected to represent small fractions of the EPA Protective Action Guide limits.

The purpose of the ALERT category is to assure that emergency personnel are readily available and to provide offsite authorities with comprehensive status information. Operator modification of plant operating status is a probable corrective action if such modification has not already been accomplished by automatic protective systems.

Declaration of an ALERT will trigger prompt initial and follow-up notification to offsite authorities. If applicable, updated meteorological information, verification of releases by surveys, and projected radiological effects on offsite areas will be provided to local and state authorities. The ALERT status is maintained until the event is declared to be terminated.

Attachments B1 through B14 outline initiating events and response actions for the ALERT class of incident.

4.2 NON-EMERGENCY EVENTS

Non-Emergency Events are classified in two categories. Items/Situations constituting Non-Emergency Events are specified in 10 CFR 50.72. The following are descriptions of the two categories. The State RERP does not assign colors to Non-Emergency Events.

4.2.1 ONE-HOUR REPORT

If not reported as a declaration of an Emergency Class, the licensee shall notify the NRC as soon as practical and in all cases within one hour of an occurrence involving any deviation from Technical Specifications, any event that poses an actual threat to the safety of the plant or significantly hampers site personnel in the performance of duties, or any event that results in a major loss of emergency assessment capability or communications capability.

Attachments B1 through B14 outline initiating events for one-hour reports.

4.2.2 FOUR-HOUR REPORT

If not reported as a declaration of an Emergency Class or as a one-hour report, the licensee shall notify the NRC as soon as practical and in all cases, within four hours of any event found while the reactor is shut down, that had it been found while the reactor was in operation, would have resulted in the plant being seriously degraded or being in an unanalyzed condition, any event that results in the automatic actuation of an Engineered Safety Feature, any airborne radioactive release that exceeds two times applicable concentrations, any liquid effluent release that exceeds two times applicable concentrations, any event requiring transportation of a radioactively contaminated person, or any event for which a news release is planned or notifications to other government agencies have been or will be made.

4.3 SPECTRUM OF POSSIBLE ACCIDENTS AND INITIATING EVENTS

The accidents which might occur at FSV have been analyzed in Section 14 of the FSV Updated FSAR and the Defueling SAR for their severity of consequence and probability of occurrence. These accidents reflect the design characteristics of an HTGR and are addressed in Attachments B1 through B14 from the viewpoint of initiating events, alarm actuation and/or associated readings, and consequent incident classification.

ALERT

CLASS DESCRIPTION:

Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any radiological releases are expected to be limited to small fractions of the EPA Protective Action Guideline (PAG) exposure levels.

PURPOSE:

- (1) assure that emergency personnel are readily available to respond if situation becomes more serious or to perform confirmatory radiation monitoring if required, and
- (2) provide offsite authorities current status information.



NOTIFICATION OF UNUSUAL EVENT (NOUE)

CLASS DESCRIPTION:

Unusual events are in process or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

PURPOSE:

- (1) assure that the first step in any response later found to be necessary has been carried out,
- (2) bring the operating staff to a state of readiness, and
- (3) provide systematic handling of unusual event information and decision-making.



NON-EMERGENCY EVENT: ONE-HOUR REPORT

CLASS DESCRIPTION:

If not reported as a declaration of an Emergency Class, the licensee shall notify the NRC as soon as practical and in all cases within one hour of the occurrence of any of the items/situations identified within this procedure as 1 Hour Reports.

PURPOSE:

- (1) To ensure compliance with 10CFR Part 50.72(b)(1) "One-hour reports".



NON-EMERGENCY EVENT: FOUR-HOUR REPORT

CLASS DESCRIPTION:

If not reported as a declaration of an Emergency Class or as a One-Hour Report, the licensee shall notify the NRC as soon as practical and in all cases within four hours of the occurrence of any of the items/situations identified within this procedure as 4 Hour Reports.

PURPOSE:

- (1) To ensure compliance with 10CFR Part 50.72(b)(2) "Four-hour reports".



REACTIVITY

ALERT

Emergency Action Level

Typical Indication/
Initiating Event

E1.1 Hazards being experienced
or projected, such as:

As observed by or reported
to station personnel.

a) aircraft crash affecting
vital structures;

b) severe damage to fire
protection cooldown
equipment.

c) entry of toxic/flammable
gas into vital areas.

B1.2 Evacuation of control
room accompanied by
inability to locally
control shutdown systems
within 1 hour.

Inability to monitor shutdown
count rate.



REACTIVITY

NOTIFICATION OF UNUSUAL EVENT

Emergency Action Level

Typical Indication/
Initiating Event

B1.3 Evacuation of Control Room
anticipated or required
with control of shutdown
systems established from
local stations.

As deemed necessary by
Shift Supervisor.

REACTIVITYONE HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B1.4 Any deviation from Technical Specifications authorized pursuant to 10 CFR 50.54(x).

Any deviation from a Technical Specification, when the action is immediately needed to protect the public health and safety, and no action consistent with Technical Specifications which can provide adequate or equivalent protection is immediately apparent. (The action should be approved, as a minimum, by a senior licensed operator.)

B1.5 Any event or condition that results in the condition of the plant, including its principle safety barriers being seriously degraded; or results in the plant being:

- a) In an unanalyzed condition that significantly compromises plant safety;
- b) In a condition that is outside the design basis of the plant; or,
- c) In a condition not covered by the plant's operating and emergency operating procedures.

- a) As determined.
- b) Winds experienced in excess of FSAR design levels.
- c) As determined.



REACTIVITY

ONE HOUR NON-EMERGENCY EVENT(s)

Emergency Action Level

Typical Indication/
Initiating Event

B1.6 Any event that compromises safety of the plant, or significantly hampers site personnel in the performance of duties necessary for the safe conduct of plant activities, including fires, toxic gas releases, or radioactive releases.

- a) Fire posing undue personnel hazard.
- b) Accidental gaseous radiological release resulting in onsite concentrations in excess of 10 CFR 20, Appendix B, Table I, Column 1.

REACTIVITYFOUR HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B1.7 Any unanticipated event or condition, i.e., not part of a preplanned sequence, that results in manual or automatic actuation of an Engineered Safety Feature, including the Plant Protective System.

Reactor scrams and automatic starting and loading of diesel generators only.

EXCEPTIONS.

- a) Only one of three channels tripped manually or automatically, but no final protective action takes place, nor is required.
- b) Actuation of the aforementioned systems which result from, and are a part of, the planned sequence during surveillance testing.

B1.8 Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to:

- a) Maintain the reactor in a safe shutdown condition.

- a) During defueling operations, a $.01\Delta p$ shutdown margin is not maintained due to incorrect rod removal sequence.

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PRIMARY SYSTEMALERT

<u>EAL Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B2.1 Calculated bulk core temperature reaches 760 °F without PCRV liner cooling.	CMG-4.
B2.2 Non-isolable primary coolant leakage through a steam generator REHEAT or EES section.	Shift Supervisor determination that leakage is non-isolable.
B2.3 Fire affecting or potentially affecting equipment, components, or instrumentation required to maintain a safe shutdown condition.	a) Fire pump 1A start; b) Fire Control Alarm Panel; c) Various alarms according to affected safety system. d) Shift Supervisor determines fire beyond capability of station staff.
B2.4 High radiation levels or high airborne contamination which indicates severe degradation in control of radioactive materials. (Increase by factor of 1,000 over normal.)	CAM(s) alarm RIS 6212 RIS 6213 RIS 93252-12 Area Monitors Alarms with corresponding meter readings on area or process monitors.

PRIMARY SYSTEMALERTEAL Emergency Action LevelTypical Indication/
Initiating Event

B2.5 Radiological effluents
exceed 10 times technical
specifications instantan-
eous limits.

- a) RIS 7324-1 indicating
 $\geq 2.5 \times 10^{-2} \mu\text{Ci/cc}$
- b) RIS 7324-2 indicating
 $\geq 2.5 \times 10^{-2} \mu\text{Ci/cc}$
- c) RIS 7325-1 indicating
 $\geq 7.0 \times 10^{-8} \mu\text{Ci/cc}$
- d) RIS 7325-2 indicating
 $\geq 7.0 \times 10^{-8} \mu\text{Ci/cc}$
- e) RIS 73437-1 indicating
 $\geq 7.0 \times 10^{-8} \mu\text{Ci/cc}$ I-131.
- f) RIS 4802 indicating
 $\geq 7.0 \times 10^{-8} \mu\text{Ci/cc}$ I-131.
- g) RIS 4803 indicating
 $\geq 2.5 \times 10^{-2} \mu\text{Ci/cc}$

B2.6 Evacuation of control
room accompanied by
inability to locally
control shutdown systems
within 1 hour.

Inability to monitor shutdown
count rate.

Page 3 of 5

PRIMARY SYSTEMNOTIFICATION OF UNUSUAL EVENT

<u>EAL Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B2.7 Any radiological release resulting in offsite effluent in excess of Technical Specification limits.	Alarms on: RIS 7324-1 RIS 7324-2 RIS 7325-1 RIS 7325-2 RIS 4801 RIS 4802 RIS 4803 RIS 73437-1, 2
B2.8 Indication of minor fuel damage detected in primary coolant.	a) 25% increase in circulating activity from previous conditions.
B2.9 Evacuation of Control Room anticipated or required, with control of shutdown systems established from local stations.	As deemed necessary by Shift Supervisor

PRIMARY SYSTEMONE HOUR NON-EMERGENCY EVENT(s)EAL Emergency Action LevelTypical Indication/
Initiating Event

B2.10 Any event or condition that results in the condition of the plant, including its principle safety barriers being seriously degraded; or results in the plant being:

- a) In an unanalyzed condition that significantly compromises plant safety;
- b) In a condition that is outside the design basis of the plant; or,
- c) In a condition not covered by the plant's operating and emergency operating procedures.

- a) As determined.
- b) Winds experienced in excess of FSAR design levels.
- c) As determined.

B2.11 Any event that compromises safety of the plant, or significantly hampers site personnel in the performance of duties necessary for the safe conduct of plant activities, including fires, toxic gas releases, or radioactive releases.

- a) Fire posing undue personnel hazard.
- b) Accidental gaseous radiological release resulting in onsite concentrations in excess of 10 CFR 20, Appendix B, Table I, Column 1.

PRIMARY SYSTEMFOUR HOUR NON-EMERGENCY EVENT(s)EAL Emergency Action LevelTypical Indication/
Initiating Event

B2.12 Any unanticipated event or condition, i.e., not part of a preplanned sequence, that results in manual or automatic actuation of an Engineered Safety Feature, including the Plant Protective System.

Reactor scrams and automatic starting and loading of diesel generators only.

EXCEPTIONS:

- a) Only one of three channels tripped manually or automatically, but no final protective action takes place, nor is required.
- b) Actuation of the aforementioned systems which result from, and are a part of, the planned sequence during surveillance testing

B2.13 Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to:

- a) Remove residual heat
- b) Mitigate the consequences of an accident.

- a) Incorrect valve lineup which results in isolation of all reactor decay heat removal.

SECONDARY SYSTEMALERT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B3.1 Calculated bulk core temperature reaches 760 °F without PCRV liner cooling.	CMG-4.
B3.2 Non-isolable primary coolant leakage through a steam generator REHEAT or EES section.	Shift Supervisor determination that leakage is non-isolable.
B3.3 Fire affecting or potentially affecting equipment, components, or instrumentation required to maintain a safe shutdown condition.	a) Fire pump 1A start; b) Fire Control Alarm Panel; c) Various alarms according to affected safety system. d) Shift Supervisor determines fire beyond capability of station staff.
B3.4 Evacuation of control room accompanied by inability to locally control shutdown systems within 1 hour.	Inability to monitor shutdown count rate.



SECONDARY SYSTEM

NOTIFICATION OF UNUSUAL EVENT

Emergency Action Level

Typical Indication/
Initiating Event

B3.6 Evacuation of control
room anticipated or
required, with control
of shutdown systems
established from local
stations.

As deemed necessary by
Shift Supervisor

SECONDARY SYSTEMONE HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B3.7 Any event or condition that results in the condition of the plant, including its principle safety barriers being seriously degraded; or results in the plant being:

- a) In an unanalyzed condition that significantly compromises plant safety;
- b) In a condition that is outside the design basis of the plant; or,
- c) In a condition not covered by the plant's operating and emergency operating procedures.

- a) As determined.
- b) Winds experienced in excess of FSAR design levels.
- c) As determined.

SECONDARY SYSTEMFOUR HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B3.8 Any unanticipated event or condition, i.e., not part of a preplanned sequence, that results in manual or automatic actuation of an Engineered Safety Feature, including the Plant Protective System.

Reactor scrams and automatic starting and loading of diesel generators only.

EXCEPTIONS:

- a) Only one of three channels tripped manually or automatically, but no final protective action takes place, nor is required.
- b) Actuation of the aforementioned systems which result from, and are a part of, the planned sequence during surveillance testing

B3.9 Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to:

- a) Remove residual heat
- b) Mitigate the consequences of an accident.

- a) Incorrect valve lineup which results in isolation of all reactor decay heat removal.

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SECONDARY SYSTEMFOUR HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B3.10 Any unplanned radiological release which does not constitute classification of a NOUE will require notification to the Colorado Department of Health as a "State Advisory". This in turn requires a 4 hour Non-Emergency event per 10CFR50.72(b)(2)(vi).

As determined by analysis and evaluation.

NOTE: Immediate notifications made under this paragraph also satisfy the requirements of paragraphs (a)(2) and (b)(2) of 10CFR20.403.

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PCRV INTEGRITYALERT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B4.1 Non-isolable primary coolant leakage through a steam generator REHEAT or EES section.	Shift Supervisor determination that leakage is non-isolable.
B4.2 Fire affecting or potentially affecting equipment, components, or instrumentation required to maintain a safe shutdown condition.	a) Fire pump 1A start; b) Fire Control Alarm Panel; c) Various alarms according to affected safety system. d) Shift Supervisor determines fire beyond capability of station staff.
B4.3 High radiation levels or high airborne contamination which indicates severe degradation in control of radioactive materials. (Increase by factor of 1,000 over normal.)	CAM(s) alarm RIS 6212 RIS 6213 RIS 93252-12 Area Monitors Alarms with corresponding meter readings on area or process monitors.

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PCRV INTEGRITYALERTEmergency Action LevelTypical Indication/
Initiating Event

B4.4 Radiological effluents
exceed 10 times technical
specifications instantan-
eous limits.

- a) RIS 7324-1 indicating
 $\geq 2.5 \times 10^{-2} \mu\text{Ci/cc}$
- b) RIS 7324-2 indicating
 $\geq 2.5 \times 10^{-2} \mu\text{Ci/cc}$
- c) RIS 7325-1 indicating
 $\geq 7.0 \times 10^{-2} \mu\text{Ci/cc}$
- d) RIS 7325-2 indicating
 $\geq 7.0 \times 10^{-2} \mu\text{Ci/cc}$
- e) RIS 73437-1 indicating
 $\geq 7.0 \times 10^{-2} \mu\text{Ci/cc I-131}$
- f) RIS 4802 indicating
 $\geq 7.0 \times 10^{-2} \mu\text{Ci/cc I-131}$
- g) RIS 4803 indicating
 $\geq 2.5 \times 10^{-2} \mu\text{Ci/cc}$



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PCRV INTEGRITY

NOTIFICATION OF UNUSUAL EVENT

Emergency Action Level

Typical Indication/
Initiating Event

NONE IDENTIFIED

Page 4 of 6

PCRV INTEGRITYONE HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B4.5 Any event or condition that results in the condition of the plant, including its principle safety barriers being seriously degraded; or results in the plant being:

- a) In an unanalyzed condition that significantly compromises plant safety;
- b) In a condition that is outside the design basis of the plant; or
- c) In a condition not covered by the plant's operating and emergency operating procedures.

- a) As determined.
- b) Winds experienced in excess of FSAR design levels.
- c) As determined.

PCRV INTEGRITYFOUR HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B4.6 Any unanticipated event or condition, i.e., not part of a preplanned sequence, that results in manual or automatic actuation of an Engineered Safety Feature, including the Plant Protective System.

Reactor scrams and automatic starting and loading of diesel generators only.

EXCEPTIONS:

- a) Only one of three channels tripped manually or automatically, but no final protective action takes place, nor is required.
- b) Actuation of the aforementioned systems which result from, and are a part of, the planned sequence during surveillance testing

PCRV INTEGRITYFOUR HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

- B4.7 a) Any unplanned radio-logical release which does not constitute classification of a NOUE will require notification to the Colorado Department of Health as a "State Advisory". This in turn requires a 4 hour Non-Emergency event per 10CFR50.72(b)(2)(vi). As determined by analysis
- b) Any airborne radioactive release that exceeds 2 times the applicable concentrations of the limits specified in Appendix B, Table II of 10CFR20 in unrestricted areas when averaged over a time period of one hour.
- c) Any liquid effluent release that exceeds 2 times the limiting combined MPC (see Note 1 of Appendix B of 10CFR20) at the point of entry into the receiving water (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases, when averaged over a time period of one hour.

NOTE: Immediate notifications made under this paragraph also satisfy the requirements of paragraphs (a)(2) and (b)(2) of 10CFR20.403.

RADIOACTIVITY CONTROLALERT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B5.1 Non-isolable primary coolant leakage through a steam generator REHEAT or EES section.	Shift Supervisor determination that leakage is non-isolable.
B5.2 Damage to spent fuel resulting in release of radioactivity to plant environs.	a) Visual observation. b) Area radiation monitor alarms.
B5.3 High radiation levels or high airborne contamination which indicates severe degradation in control of radioactive materials. (Increase by factor of 1,000 over normal.)	CAM(s) alarm RIS 6212 RIS 6213 RIS 93252-12 Area Monitors Alarms with corresponding meter readings on area or process monitors.

RADIOACTIVITY CONTROLALERT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B5.4 Radiological effluents exceed 10 times Technical Specifications instantan- eous limits.	a) RIS 7324-1 indicating $\geq 2.5 \times 10^{-2}$ $\mu\text{Ci/cc}$ b) RIS 7324-2 indicating $\geq 2.5 \times 10^{-2}$ $\mu\text{Ci/cc}$ c) RIS 7325-1 indicating $\geq 7.0 \times 10^{-8}$ $\mu\text{Ci/cc}$ d) RIS 7325-2 indicating $\geq 7.0 \times 10^{-8}$ $\mu\text{Ci/cc}$ e) RIS 73437-1 indicating $\geq 7.0 \times 10^{-8}$ $\mu\text{Ci/cc}$ I-131. f) RIS 4802 indicating $\geq 7.0 \times 10^{-8}$ $\mu\text{Ci/cc}$ I-131. g) RIS 4803 indicating $\geq 2.5 \times 10^{-2}$ $\mu\text{Ci/cc}$

RADIOACTIVITY CONTROLNOTIFICATION OF UNUSUAL EVENT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B5.5 Any radiological release resulting in offsite effluent in excess of Technical Specification limits.	1. Alarms on: RIS 7324-1 RIS 7324-2 RIS 7325-1 RIS 7325-2 RIS 4801 RIS 4802 RIS 4803 RIS 73437-1, 2
B5.6 Any liquid waste release resulting in offsite effluent in excess of Technical Specification limits.	a) RIS 6212 or 6213 alarm with inability to prevent discharge offsite. b) As determined by station personnel.
B5.7 Indication of minor fuel damage detected in primary coolant.	a) 25% increase in circulating activity from previous conditions.

RADIOACTIVITY CONTROLNOTIFICATION OF UNUSUAL EVENT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B5.8 Serious fire at the plant lasting more than 30 minutes which could result in the release of radiological or toxic materials.	a) Any of various alarms on Fire Control Alarm Panel; b) Fire Pump 1A auto start; c) Verbal reports.
B5.9 Any serious radiological exposure of plant personnel or the transportation to offsite facilities of contaminated personnel who may have been injured. (Probably cannot be determined within two hours - call to be made in a timely manner.)	As occurring.
B5.10 Accidents that may involve plant spent fuel shipments or plant radioactive waste shipments.	a) Abnormal radiation levels reported from cask. b) Cask breached. c) As occurring or reported by shipper.

RADIOACTIVITY CONTROLNOTIFICATION OF UNUSUAL EVENT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B5.11 Indication or alarms on radiological effluent monitors not functional.	Data Logger Alarm/Alarm Summary indication of non- operational alarm or indication on: a) RIS 7324-1, -2 <u>AND</u> RIS 4803; or b) RIS 7325-1, 2, RIS 4802, <u>AND</u> RIS 73437-1; or c) RIS 73437-2 <u>AND</u> RIS 4801; or d) RIS 6212 <u>AND</u> RIS 6213.

NOTE: Use ELCO 8.1.1 Technical Specification Limits
as basis.

RADIOACTIVITY CONTROLONE HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B5.12 Any event that compromises safety of the plant, or significantly hampers site personnel in the performance of duties necessary for the safe conduct of plant activities, including fires, toxic gas releases, or radioactive releases.

- a) Fire posing undue personnel hazard.
- b) Accidental gaseous radiological release resulting in onsite concentrations in excess of 10 CFR 20, Appendix B, Table I, Column 1.

RADIOACTIVITY CONTROLFOUR HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B5.13 Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to:

- a) Control the release of radioactive material; or,
- b) Mitigate the consequences of an accident.

a) Liquid waste monitor setpoints raised for liquid waste release completed. Reactor building sump release started. Setpoints not reset.

B5.14 Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.

As occurring.

B5.15 Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made.

- a) On-site fatality for which a news release will be made.
- b) Inadvertent release of radioactive material not in excess of 10CFR20 limits for an unrestricted area, but requiring report to the State.

RADIOACTIVITY CONTROLFOUR HOUR NON-EMERGENCY EVENT(s)

<u>Emergency/ Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B5.16 a) Any unplanned radio- logical release which does not constitute classification of a NOUE will require notification to the Colorado Department of Health as a "State Advisory". This in turn requires a 4 hour Non-Emergency event per 10CFR50.72(b)(2)(vi).	As determined by analysis and evaluation
b) Any airborne radioactive release that exceeds 2 times the applicable concentrations of the limits specified in Appendix B, Table II of 10CFR20 in unrestricted areas when averaged over a time period of one hour.	
c) Any liquid effluent release that exceeds 2 times the limiting combined MPC (see Note 1 of Appendix B of 10CFR20) at the point of entry into the receiving water (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases, when averaged over a time period of one hour.	

NOTE: Immediate notifications
made under this
paragraph also satisfy
the requirements of
paragraphs (a)(2) and
(b)(2) of 10CFR20.403.



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FUEL

ALERT

EAL Emergency Action Level

Typical Indication/
Initiating Event

- | | | |
|------|---|---|
| B6.1 | Calculated bulk core temperature reaches 760 °F without PCRV liner cooling. | CMG-4 |
| B6.2 | Damage to spent fuel resulting in release of radioactivity to plant environs. | a) Visual observation.
b) Area radiation monitor alarms. |
| B6.3 | Actual or attempted loss, theft, diversion, or sabotage of shipments of irradiated spent fuel that have the potential to degrade public health and safety (10 CFR 73.71). | As reported and/or confirmed by shipper, LSO, Control Room or any member of the Security force. |



FUEL

NOTIFICATION OF UNUSUAL EVENT

<u>EAL Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B6.4 Indication of minor fuel damage detected in primary coolant.	a) 25% increase in circulating activity from previous conditions.
B6.5 Accidents involving plant spent fuel shipments or plant radioactive waste shipments.	a) Abnormal radiation levels reported from cask. b) Cask breached. c) As occurring or reported by shipper.



FUEL

ONE HOUR NON-EMERGENCY EVENT(s)

EAL Emergency Action Level

Typical Indication/
Initiating Event

B6.6 Any deviation from
Technical Specifica-
tions authorized
pursuant to
10 CFR 50.54(x).

Any deviation from a Tech-
nical Specification, when
the action is immediately
needed to protect the
public health and safety,
and no action consistent
with Technical Specifica-
tions which can provide
adequate or equivalent
protection is immediately
apparent. (The action should
be approved, as a minimum,
by a senior licensed
operator.)

B6.7 Fire involving
shipping cask, breach
not determined.

As occurring or reported
by shipper.



FUEL

ONE HOUR NON-EMERGENCY EVENT(s)

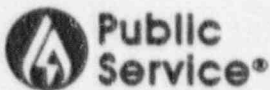
EAL Emergency Action Level

Typical Indication/
Initiating Event

86.8 Any event or condition that results in the condition of the plant, including its principle safety barriers being seriously degraded; or results in the plant being:

- a) In an unanalyzed condition that significantly compromises plant safety;
- b) In a condition that is outside the design basis of the plant; or,
- c) In a condition not covered by the plant's operating and emergency operating procedures.

- a) As determined.
- b) Winds experienced in excess of FSAR design levels.
- c) As determined.



FUEL

FOUR HOUR NON-EMERGENCY EVENT(s)

<u>EAL Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B6.9 Spent fuel shipping vehicle delayed WITH media coverage.	As occurring or reported by shipper.
B6.10 Public protest of spent fuel shipment WITH media coverage.	As occurring or reported by shipper.
B6.11 Cask out of position, breach not determined.	As occurring or reported by shipper.



MOISTURE INGRESS

ALERT

<u>EAL Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B7.1 High radiation levels or high airborne contamination which indicates severe degradation in control of radioactive materials. (Increase by factor of 1,000 over normal.)	CAM(s) alarm RIS 6212 RIS 6213 RIS 93252-12 Area Monitors Alarms with corresponding meter readings on area or process monitors.



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MOISTURE INGRESS

NOTIFICATION OF UNUSUAL EVENT

EAL Emergency Action Level

Typical Indication/
Initiating Event

NONE IDENTIFIED



MOISTURE INGRESS

ONE HOUR NON-EMERGENCY EVENT(s)

EAL Emergency Action Level

Typical Indication/
Initiating Event

B7.2 Any deviation from
Technical Specifica-
tions authorized
pursuant to
10 CFR 50.54(x).

Any deviation from a Tech-
nical Specification, when
the action is immediately
needed to protect the
public health and safety,
and no action consistent
with Technical Specifica-
tions which can provide
adequate or equivalent
protection is immediately
apparent. (The action should
be approved, as a minimum,
by a senior licensed
operator.)

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MOISTURE INGRESSFOUR HOUR NON-EMERGENCY EVENT(s)EAL Emergency Action LevelTypical Indication/
Initiating Event

B7.3 Any unanticipated event or condition, i.e., not part of a preplanned sequence, that results in manual or automatic actuation of an Engineered Safety Feature, including the Plant Protective System.

Reactor scrams and automatic starting and loading of diesel generators only.

EXCEPTIONS:

- a) Only one of three channels tripped manually or automatically, but no final protective action takes place, nor is required.
- b) Actuation of the aforementioned systems which result from, and are a part of, the planned sequence during surveillance testing



PLANT PROTECTIVE SYSTEM

ALERT

Emergency Action Level

Typical Indication/
Initiating Event

B8.1 Evacuation of control
room accompanied by
inability to locally
control shutdown systems
within 1 hour.

Inability to monitor shutdown
count rate.



PLANT PROTECTIVE SYSTEM

NOTIFICATION OF UNUSUAL EVENT

Emergency Action Level

Typical Indication/
Initiating Event

B8.2 Evacuation of Control
Room anticipated or
required, with control
of shutdown systems
established from local
stations.

As deemed necessary by
Shift Supervisor

PLANT PROTECTIVE SYSTEMONE HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B8.3 Any deviation from
Technical Specifications authorized
pursuant to
10 CFR 50.54(x).

Any deviation from a Technical Specification, when the action is immediately needed to protect the public health and safety, and no action consistent with Technical Specifications which can provide adequate or equivalent protection is immediately apparent. (The action should be approved, as a minimum, by a senior licensed operator.)

B8.4 Any event that results
in a major loss of
emergency assessment
capability, offsite
response capability,
or communications
capability.

- a) Loss of significant
portion of Control Room
indication.
- b) Loss of Emergency
Notification System.
- c) Loss of all offsite
communication systems.



PLANT PROTECTIVE SYSTEM

FOUR HOUR NON-EMERGENCY EVENT(s)

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B8.5 Any event, found while the reactor is shutdown, that, had it been found while the reactor was in operation, would have resulted in the plant, including its principal safety barriers, being seriously degraded or being in an unanalyzed condition that significantly compromises plant safety.	Determination as result of surveillance testing of Plant Protective Systems (PPS) that failure of PPS modules would have prevented a required reactor scram from occurring.



FIRE

ALERT

Emergency Action Level

Typical Indication/
Initiating Event

B9.1 Fire affecting or potentially affecting equipment, components, or instrumentation required to maintain a safe shutdown condition.

- a) Fire pump 1A start;
- b) Fire Control Alarm Panel;
- c) Various alarms according to affected safety system.
- d) Shift Supervisor determines fire beyond capability of station staff.

B9.2 Evacuation of Control Room accompanied by inability to locally control shutdown systems within 1 hour.

Inability to monitor shutdown count rate.



FIRE

NOTIFICATION OF UNUSUAL EVENT

Emergency Action Level

Typical Indication/
Initiating Event

B9.3 Fire within the
plant lasting more
than 30 minutes.

a) Any of various alarms
on Fire Control Alarm
Panel;

b) Fire Pump 1A auto
start;

c) Verbal reports.

B9.4 Evacuation of Control
Room anticipated or
required, with control
of shutdown systems
established from local
stations.

As deemed necessary by
Shift Supervisor

FIREONE HOUR NON-EMERGENCY EVENT(s)

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B9.5 Any event that results in a major loss of emergency assessment capability, offsite response capability, or communications capability.	a) Loss of significant portion of Control Room indication. b) Loss of Emergency Notification System. c) Loss of all offsite communication systems.
B9.6 Any event that compromises safety of the plant, or significantly hampers site personnel in the performance of duties necessary for the safe conduct of plant activities, including fires, toxic gas releases, or radioactive releases.	a) Fire posing undue personnel hazard. b) Accidental gaseous radiological release resulting in onsite concentrations in excess of 10 CFR 20, Appendix B, Table I, Column 1.
B9.7 Fire involving shipping cask, breach not determined.	As occurring or reported by shipper.



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FIRE

FOUR HOUR NON-EMERGENCY EVENT(s)

Emergency Action Level

Typical Indication/
Initiating Event

NONE IDENTIFIED

Page 1 of 4

ELECTRIC POWERALERTEmergency Action LevelTypical Indication/
Initiating Event

B10.1 Fire affecting or potentially affecting equipment, components, or instrumentation required to maintain a safe shutdown condition.

- a) Fire pump 1A start.
- b) Fire Control Alarm Panel.
- c) Various alarms according to affected safety system.
- d) Shift Supervisor determines fire beyond capability of station staff.

B10.2 Loss of offsite power AND vital onsite AC power for up to 24 hours.

230 KV OCB trips AND RAT undervoltage/loss of power alarm accompanied by 4 KV bus undervoltage, 480V bus undervoltage, AND Diesel Trouble alarms.

B10.3 Loss of all vital DC power for up to 24 hours.

I-06F (2-5) alarm and DC bus 1 and DC bus 2 showing no voltage.



ELECTRIC POWER

NOTIFICATION OF UNUSUAL EVENT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B10.4 Loss of offsite power <u>OR</u> onsite AC power capability.	230 KV OCB trips <u>AND</u> RAT undervoltage/loss of power alarm accompanied by 4 KV bus undervoltage, <u>OR</u> both Diesel Generators <u>AND</u> the ACM Diesel inoperable.
B10.5 Indication or alarms on radiological effluent monitors not functional.	Data Logger Alarm/Alarm Summary indication of non- operational alarm or indication on: a) RIS 7324-1, -2 <u>AND</u> RIS 4803; or b) RIS 7325-1, 2, RIS 4802, <u>AND</u> RIS 73437-1; or c) RIS 73437-2 <u>AND</u> RIS 4801; or d) RIS 6212 <u>AND</u> RIS 6213.

NOTE: Use ELCO 8.1.1 Technical Specification Limits
as basis.



ELECTRIC POWER

ONE HOUR NON-EMERGENCY EVENT(s)

Emergency Action Level

Typical Indication/
Initiating Event

B10.6 Any event or condition that results in the condition of the plant, including its principle safety barriers being seriously degraded; or results in the plant being:

- a) In an unanalyzed condition that significantly compromises plant safety;

- a) As determined.

B10.7 Any event that results in a major loss of emergency assessment capability, offsite response capability, or communications capability.

- a) Loss of significant portion of Control Room indication.
b) Loss of Emergency Notification System.
c) Loss of all offsite communication systems.



ELECTRIC POWER

FOUR HOUR NON-EMERGENCY EVENT(s)

Emergency Action Level

Typical Indication/
Initiating Event

B10.8 Any unanticipated event or condition, i.e., not part of a preplanned sequence, that results in manual or automatic actuation of an Engineered Safety Feature, including the Plant Protective System.

Reactor scrams and automatic starting and loading of diesel generators only.

EXCEPTIONS:

- a) Only one of three channels tripped manually or automatically, but no final protective action takes place, nor is required.
- b) Actuation of the aforementioned systems which result from, and are a part of, the planned sequence during surveillance testing.



Page 1 of 4

NATURAL PHENOMENON

ALERT

Emergency Action Level

Typical Indication/
Initiating Event

B11.1 Severe natural phenomenon being experienced or projected, such as:

- | | |
|---|---|
| a) earthquake exceeding Operating Basis Earthquake levels; (probably cannot be determined within two hours - call to be made in a timely manner.) | a) Seismic recorder operate ($\geq .05$ g) |
| b) flood near design level; or, | b) As Reported |
| c) tornado striking facility. | c) As Reported |

Page 2 of 4

NATURAL PHENOMENONNOTIFICATION OF UNUSUAL EVENTEmergency Action LevelTypical Indication/
Initiating Event

B11.2 Natural phenomenon that
may be experienced
or threatened that
represent risks beyond
normal levels:

a) earthquake

a) Seismic Recorder operates

b) floods

b)-d) As visually observed
by, or reported to,
station personnel.

c) tornados

d) extremely high winds

NATURAL PHENOMENONONE HOUR NON-EMERGENCY EVENT(s)

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B11.3 Any event or condition that results in the condition of the plant, including its principle safety barriers being seriously degraded; or results in the plant being: a) In a condition that is outside the design basis of the plant; or,	a) Winds experienced in excess of FSAR design levels.
B11.4 Any natural phenomenon or other external condition that compromises the safety of the plant or significantly hampers site personnel in the performance of duties necessary for the safe conduct of plant activities.	Extremely high winds or severe storm preventing plant personnel from completing requisite assignments.
B11.5 Any event that compromises safety of the plant, or significantly hampers site personnel in the performance of duties necessary for the safe conduct of plant activities including fires, toxic gas releases, or radioactive releases.	a) Fire posing undue personnel hazard. b) Accidental gaseous radiological release resulting in onsite concentrations in excess of 10 CFR 20, Appendix B, Table I, Column 1.



Page 4 of 4

NATURAL PHENOMENON

FOUR HOUR NON-EMERGENCY EVENT(s)

Emergency Action Level

Typical Indication/
Initiating Event

NONE IDENTIFIED



SECURITY

ALERT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B12.1 Complete or imminent loss of physical control of facility.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.2 Actual acts of sabotage that results in or have the imminent potential to release radioactive material.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.3 Explicit confirmed threats that an act of sabotage or theft will be attempted within 48 hours.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.4 Any act which has the apparent intent of destroying or disrupting operation.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.5 Actual or attempted loss, theft, diversion, or sabotage of shipments of irradiated spent fuel that actually have the potential to degrade public health and safety (10 CFR 73.71).	As reported and/or confirmed by shipper, LSO, Control Room, or any member of the Security force.
B12.6 Actual acts of sabotage that have the potential for affecting the safe or routine operation of a facility.	As reported and/or confirmed by the LSO or by any member of the Security Force.

SECURITYALERTEmergency Action LevelTypical Indication/
Initiating Event

- | | | |
|--------|---|---|
| B12.7 | Mass demonstration or civil disturbances at or near a facility that hold the confirmed or suspected potential for affecting the routine or safe operations of the facility. | As reported and/or confirmed by the LSO or by any member of the Security Force. |
| B12.8 | Major loss of the physical security system that provides the opportunity for undetected access from outside the facility to vital areas that is not or cannot be compensated. | As reported and/or confirmed by the LSO or by any member of the Security Force. |
| B12.9 | Unavailability of the minimum number of security personnel for periods exceeding 2 hours. | As reported and/or confirmed by the LSO or by any member of the Security Force. |
| B12.10 | Unexplained explosion or fire within the protected or vital areas that could effect plant safety. | As reported and/or confirmed by the LSO or by any member of the Security Force. |
| B12.11 | Loss of Central and Secondary Alarm Stations resulting from a known or suspected malevolent act. | As reported and/or confirmed by the LSO or by any member of the Security Force. |
| B12.12 | A kidnapping with a demand for SNM as ransom. | As reported and/or confirmed by the LSO or by any member of the Security Force. |

SECURITYNOTIFICATION OF UNUSUAL EVENT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B12.13 Actual, potential, or unconfirmed acts of sabotage that do not have the potential, or have not adversely affected the routine or operations of the facility.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.14 Attempted or actual theft of Special Nuclear Material (SNM).	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.15 Attempted or actual intrusions of unauthorized persons, weapons, explosives or other devices into the protected area due to a failure of equipment or procedures when no malevolent intent is confirmed or suspected.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.16 Unsubstantiated or potential threats, such as bomb threats or extortion.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.17 Loss of a major portion of a physical security system that is compensated.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.18 Confirmed tampering with security equipment that results in a minor degradation of the system.	As reported and/or confirmed by the LSO or by any member of the Security Force.



SECURITY

NOTIFICATION OF UNUSUAL EVENT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B12.19 Theft or loss of documents containing classified information.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.20 Sickouts or labor problems affecting the readiness of the security forces.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.21 Unauthorized or inadvertent discharge of a firearm.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.22 Loss of both central and secondary alarm station when cause is known and is not considered sabotage.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.23 Known fraudulent records and accounts of SNM.	As reported and/or confirmed by the LSO or by any member of the Security Force.
B12.24 Any security/safeguards event which the Lead Security Officer deems necessary to take NOUE precautions.	As reported and/or confirmed by the LSO or by any member of the Security Force.



SECURITY

ONE HOUR NON-EMERGENCY EVENT(s)

Emergency Action Level

Typical Indication/
Initiating Event

B12.25 As Reported By a
Lead Security Officer (LSO)
or the Security Supervisor



SECURITY

FOUR HOUR NON-EMERGENCY EVENT(s)

Emergency Action Level

Typical Indication/
Initiating Event

B12.26 As Reported By a
Lead Security Officer (LSO)
or the Security Supervisor

Page 1 of 4

OTHER HAZARDSALERT

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B13.1 Damage to spent fuel resulting in release of radioactivity to plant environs.	a) Visual observation. b) Area radiation monitor alarms.
B13.2 Severe natural phenomenon being experienced or projected, such as: a) earthquake exceeding Operating Basis Earthquake levels; b) flood near design level; or, c) tornado striking facility.	a) Seismic recorder operate (≥ 0.05 g) b) As Reported c) As Reported
B13.3 Other hazards being experienced or projected such as: a) aircraft crash on facility; b) missile impact on facility; c) explosion damage affecting plant operation; or, d) entry into facility environs of toxic or flammable gas.	As reported by, or to, station personnel.
B13.4 Other plant conditions warranting precautionary activation of the TSC.	As deemed necessary by Shift Supervisor.



OTHER HAZARDS

NOTIFICATION OF UNUSUAL EVENT

Emergency Action Level

Typical Indication/
Initiating Event

B13.5 Unusual Hazards
Experienced:

As visually observed by,
or reported to, station
personnel.

- a) Aircraft crash on site or near the site that is subject to public concern because of possible detrimental effect on the plant;
- b) Onsite explosions or near site explosions that may be subject to public concern because of possible detrimental effect on the plant; or,
- c) Onsite or near site plant related accidents that could result in the uncontained release of toxic material or spills of flammable materials.

B13.6 Accidents involving plant spent fuel shipments or radioactive waste shipments.

- a) Abnormal radiation levels reported from the cask.
- b) Cask breached.
- c) As occurring or reported by shipper.

OTHER HAZARDSONE HOUR NON-EMERGENCY EVENT(s)Emergency Action LevelTypical Indication/
Initiating Event

B13.7 Any natural phenomenon or other external condition that poses an actual threat to the safety of the plant or significantly hampers site personnel in the performance of duties necessary for the safe conduct of plant activities.

Extremely high winds or severe storm preventing plant personnel from completing requisite assignments.

B13.8 Any event that results in a major loss of emergency assessment capability, offsite response capability, or communications capability.

- a) Loss of significant portion of Control Room indication.
- b) Loss of Emergency Notification System.
- c) Loss of all offsite communication systems.

B13.9 Any event that compromises safety of the plant, or significantly hampers site personnel in the performance of duties necessary for the safe conduct of plant activities including fires, toxic gas releases, or radioactive releases.

- a) Fire posing undue personnel hazard.
- b) Accidental gaseous radiological release resulting in onsite concentrations in excess of 10 CFR 20, Appendix B, Table I, Column 1.

Page 4 of 4

OTHER HAZARDSFOUR HOUR NON-EMERGENCY EVENT(s)

<u>Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B13.10 Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made.	<ul style="list-style-type: none">a) On-site fatality for which a news release will be made.b) Inadvertent release of radioactive material not in excess of 10CFR20 limits for an unrestricted area, but requiring report to the State.c) Oil or chemical spill which is reportable to the EPA.
B13.11 Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.	As occurring.



Page 1 of 4

PERSONNEL INJURY

ALERT

EAL Emergency Action Level

Typical Indication/
Initiating Event

NONE IDENTIFIED



PERSONNEL INJURY

NOTIFICATION OF UNUSUAL EVENT

EAL Emergency Action Level

Typical Indication/
Initiating Event

B14.1 Any serious radiological exposure of plant personnel or the transportation to offsite facilities of contaminated personnel who may have been injured. (Probably cannot be determined within two hours - call to be made in a timely manner.)

As occurring.



Page 3 of 4

PERSONNEL INJURY

ONE HOUR NON-EMERGENCY EVENT(s)

EAL Emergency Action Level

Typical Indication/
Initiating Event

NONE IDENTIFIED

PERSONNEL INJURYFOUR HOUR NON-EMERGENCY EVENT(s)

<u>EAL Emergency Action Level</u>	<u>Typical Indication/ Initiating Event</u>
B14.2 Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made.	a) On-site fatality for which a news release will be made. b) Inadvertent release of radioactive material not in excess of 10CFR20 limits for an unrestricted area, but requiring report to the State.
B14.3 Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.	As occurring.



FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO

DEF Section 5
Issue 1
Page 1 of 13

TITLE: DEFUELING EMERGENCY RESPONSE PLAN: SECTION 5
EMERGENCY ORGANIZATION

RESPONSIBLE FOR	<i>zyborst</i>			
AUTHORIZED BY	<i>Albush</i>			
PORC REVIEW	PORC 921 FEB 13 1991			EFFECTIVE DATE 3-29-91
DCCF NUMBER (S)	90-1229			

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CONTROL CENTER PRIOR
TO USE

5.0 EMERGENCY ORGANIZATION

5.1 NORMAL STATION ORGANIZATION

The Normal Shift Organization is depicted in Attachment 5.1. Additional information is provided in the station Technical Specifications. Duties and responsibilities of operating personnel are set forth in station administrative procedures.

5.2 ONSITE EMERGENCY RESPONSE ORGANIZATION

The onsite Emergency Response Organization (ERO) for the two emergency classifications is depicted in Attachments 5.2 and 5.3. In the event of an emergency, the on-duty Shift Supervisor has the responsibility to initiate immediate actions to limit the consequences of the emergency and to return the plant to a safe and stable condition. He is also assigned the responsibility of Emergency Coordinator and retains this authority until relieved by the Control Room Director or Technical Support Center Director. (If during an event the Shift Supervisor is unable to perform as Emergency Coordinator, the most senior Reactor Operator assumes that role.)

In this interim capacity as Emergency Coordinator, he is responsible for: 1) classification and declaration of the emergency event; 2) initial notification of appropriate governmental agencies; 3) initiation of protective actions for station personnel; 4) initiation of any required corrective actions to mitigate the consequences of the event; 5) diagnosing the accident condition and estimating radiological exposures based on radioactive material releases and prevailing meteorological conditions; and, 6) making protective action recommendations (PARs) to appropriate offsite authorities.

He may confer with FSV and PSC management for advice or concurrence with initial accident classification. However, contacting management should not delay in making an event classification and declaration, nor should it delay the required offsite notifications. The notification time requirements start upon event declaration, regardless of whether management contact is desired or accomplished.

The Emergency Coordinator is responsible for initially classifying the incident, providing PARs, initiating corresponding emergency actions, notifying offsite authorities of the incident, and establishing communications with the TSC. The responsibility of ensuring that event classification, offsite notifications, and protective action recommendations are completed MAY NOT be delegated.

The FSV ERO operates from two onsite emergency centers, the Control Room (CR) and the Technical Support Center (TSC), and will be manned and operational within 90 minutes after classification of an ALERT level incident.

Attachment 5.3 shows emergency personnel assignments by function. For clarity, normal job titles are also indicated. Qualification requirements (per the normal titles) are given in corporate job descriptions.

5.2.1 Direction and Coordination

Initial direction and coordination of onsite emergency operations will be the responsibility of the Shift Supervisor, as shown in Attachment 5.2 and discussed previously. This responsibility will remain with the Shift Supervisor until such time as the ERO is activated (Attachment 5.3).

During an ALERT, overall command of PSC emergency operations will be exercised by the TSC Director. He will provide direction to, and coordination for, the emergency response organization.

A description of the duties and responsibilities of the key members of the FSV emergency response organization is provided below:

NOTE: Only primary positions are indicated. A complete listing of qualified personnel for the various positions may be obtained from the FSV Emergency Phone Book maintained by the Emergency Planning Coordinator.

- a. The TSC Director - (Vice President, Nuclear Operations) is in command of PSC emergency operations. Duties and responsibilities include direction and coordination of:

1. Emergency response functions.



FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO

DERP Section 5
Issue 1
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2. Transmitting plant status updates and radiological release data to appropriate offsite agencies.
3. Ensuring adequate administrative, technical, and logistic support is available.
4. Ensuring continuity of emergency organization resources.

NOTE The decisions associated with items 5 and 6 can not be delegated.

5. Notifying the state and local agencies of any PARs.
 6. Declaring a particular class of emergency, terminating the emergency or de-escalating the event classification.
 7. The TSC staff, which is responsible for collecting and analyzing the technical information necessary for assessment of plant operational aspects.
 8. Providing technical counsel in support of the CR.
 9. Assessment of radiological release consequences.
 10. Continued personnel accountability.
 11. Assembling personnel for repair/damage control, radiological monitoring, and search and rescue teams.
 12. Assembling personnel for reserve operating staff.
 13. Ensuring PSC property residents have been contacted.
 14. Establishing radiological control areas as directed.
- b. The CR Director - (Operations Manager), is responsible for control of plant operations, assessing plant operational aspects, and implementing recommended corrective actions.

5.2.2 Plant Staff Emergency Assignments

As previously discussed there are two principal onsite groups, the CR and the TSC, which comprise the station emergency response organization. Both groups operate under the supervision of a director located at the emergency center. Each center director is responsible for center communications and for assigning an individual to keep a record of important events, decisions, and actions that occurred in response to the emergency situation.

A description of the duties of the staff groups located in the CR and TSC are provided below:

a. CONTROL ROOM (CR)

1. Plant Control

The Shift Supervisor is responsible for overall plant control and directs plant operations to terminate the incident, regain plant control, and minimize accident consequences.

2. Plant Operations

The Reactor Operators have been trained to assist the Shift Supervisor in implementing plant corrective actions. The normal onsite shift operations staff will be augmented by other operations personnel as dictated by the particular emergency situation.

3. Communications

The CR communicator maintains continued communications with the NRC via the Emergency Notification System (ENS) or a back-up of commercial telephone lines. A competent, plant-knowledgeable individual will be assigned to the communicator position. If available, a licensed operator is utilized.

4. Technical Assistance

The Technical Advisor (TA) provides technical analysis/advice and recommends corrective actions necessary to bring the plant to a safe and stable condition. The TA may also perform dose assessment evaluations in support of the plant operations staff.

5. Health Physics

The onshift HP technician will provide HP, radiological assessment, and hazards control support to the Control Room. Once the TSC is activated he will be supported by additional HP personnel, and will coordinate activities with the TSC HP Coordinator.

b. TECHNICAL SUPPORT CENTER

1. Engineering & Technical Analysis Team

Personnel in this group perform core physics analyses, provide electrical and mechanical engineering, procedures development, determine alternative I&C capabilities or configurations and repair/install/modify instrument and control equipment, system analysis support, collect technical data for status board updates, and maintain communications with the NRC. The Engineering and Technical Analysis Coordinator (ETAC) is responsible for the activities of this group. He is also responsible for informing the LSO of any emergency situations that may impact the FSV security force.

2. Health Physics

This group performs assessment of onsite radiological doses, directs radiation surveys and minimal, onsite decontamination actions as required, and ensures that the habitability of the TSC area is being monitored.

3. Dose Assessment

This group performs radiological assessment activities and confirms that offsite dose consequences are limited to a small fraction of the EPA guidelines.

4. Administrative & Logistics Support

This group will provide needed technical documents, communications and analytical equipment, clerical assistance, and other support for the ERO.

5. Computer Services

Technical support in the areas of computer hardware and software development/modification will be provided.

6. TSC Core

This group is responsible for maintaining personnel accountability, including personnel contamination surveys/exposure records, and formation/dispatch of corrective action teams, search and rescue teams, and monitoring teams.

5.2.3 PSC Media Center

In the event of an ALERT declaration, a PSC Media Center may be established at the FSV Visitor Center located on PSC owner controlled land to the west of FSV. Media Relations personnel responding to this center will prepare and provide news and related media releases and control rumors in accordance with the FSV Public Information Manual.

5.2.4 PSC Headquarters Support

Public Service Company of Colorado maintains the capability to provide corporate support in the event of an emergency at Fort St. Vrain. Headquarters Support includes senior corporate personnel with the authority to activate PSC personnel, facilities, and equipments as well as financial resources which may be needed in an emergency situation.



5.3 OFFSITE EMERGENCY SUPPORT

5.3.1 Local Services Support

In emergency situations, assistance from outside companies and services may be required. Assistance available from outside companies includes ambulance service to transport injured and/or contaminated personnel, medical treatment, and hospital facilities for station personnel who require such assistance. In addition, a specific agreement has been developed with the Platteville Volunteer Fire Department for onsite fire protection assistance.

Letters of agreement for these services are contained in Section 9. Attachment 5.4 lists these agencies by the type of service.

5.3.2 Contract Support

Specialized assistance from contractors may also be requested in an emergency situation. Contract support may include construction, dosimetry and laboratory analysis, and decontamination and rad-waste disposal assistance. Provisions have been made for selected contract support firms to provide this assistance, on request.

5.3.3 Federal Assistance

In addition to coordination with state/local governmental entities, technical assistance from certain federal agencies in the area of communications, radiological monitoring and laboratory analysis, transportation, and weather forecasts may be requested. The State of Colorado will officially request federal assistance. PSC will, therefore, channel contacts with federal agencies (except NRC) through the state. The following agencies will be notified/requested to provide assistance, as necessary:

- a. The Nuclear Regulatory Commission, Office of Inspection and Enforcement, Region IV, via the NRC Incident Response Center in Bethesda, MD.
- b. The Department of Energy (DOE) - Radiological Assistance Teams (RAT), Idaho Falls, Idaho and Rocky Flats, Colorado; Aerial Monitoring System (AMS), Las Vegas, Nevada. DOE will activate the Interagency Radiological Assistance Plan (IRAP) as necessary.

- c. Federal Emergency Management Agency (FEMA),
Region VIII, Denver, Colorado.
- d. Upon request by the State of Colorado, the
Federal Radiological Emergency Response Plan
(FRERP) will be activated, with response from
numerous federal agencies with emergency
resources.

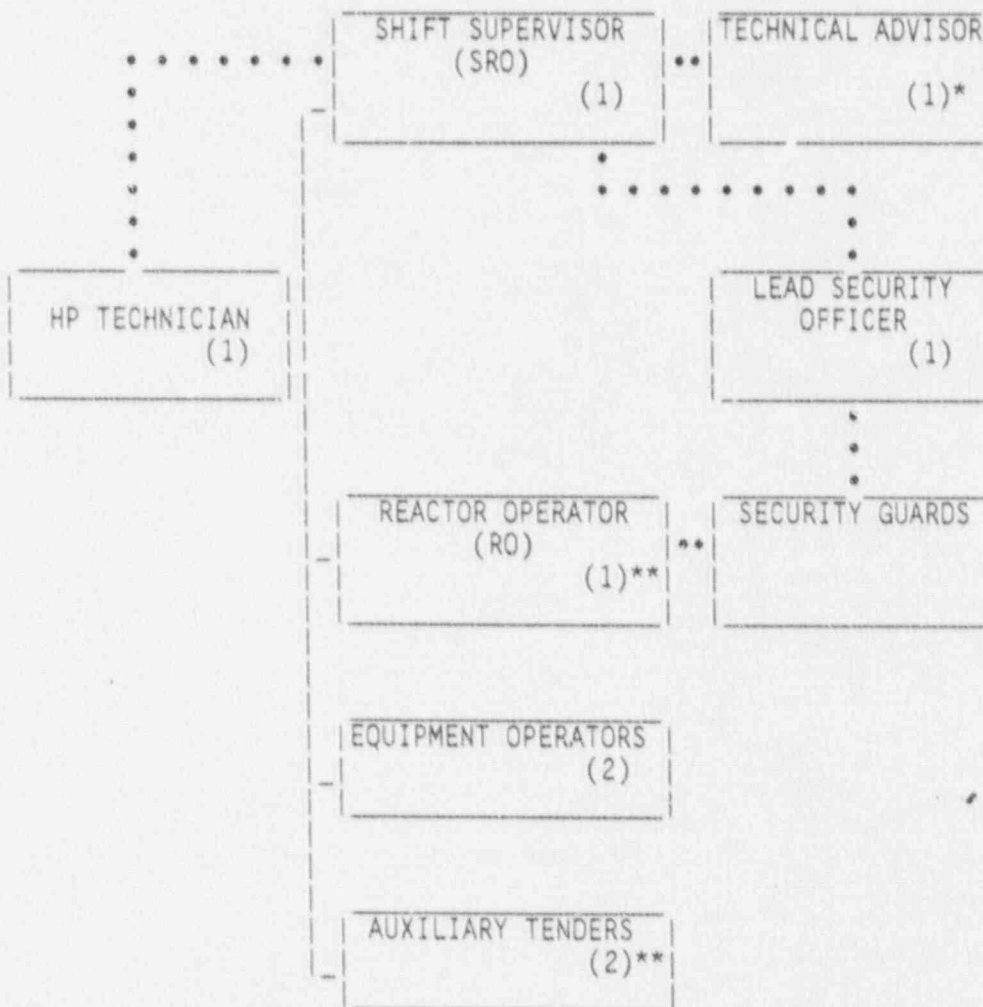
5.4 COORDINATION WITH PARTICIPATING GOVERNMENT AGENCIES

The State of Colorado, through the Division of Disaster Emergency Services (DODES), has responsibility for control of offsite actions. The concept of operations for discharging this responsibility, together with a discussion of action responsibilities assigned to various state/local governmental agencies is contained in the State RERP. For a complete discussion of authority, assigned responsibilities, capabilities, and activation and communication arrangements, refer to the State RERP.

Based on the remaining, credible defueling accidents, offsite dose consequences will be negligible and PSC does not anticipate emergency classifications above an ALERT. With no offsite consequences, PSC does not expect/rely upon activation of the State RERP to support a Fort St. Vrain emergency.



NORMAL SHIFT ORGANIZATION
Fort St. Vrain Nuclear Generating Station



NOTES:

SRO

SENIOR REACTOR OPERATOR.

RO

REACTOR OPERATOR.

HP

HEALTH PHYSICS TECHNICIAN

*

TECHNICAL ADVISOR IS ON CALL 24 HOURS PER DAY

**

AND WILL REPORT TO THE CONTROL ROOM WITHIN 1 HOUR.

DURING COLD SHUTDOWN ONLY ONE RO IS REQUIRED TO BE ON DUTY. AN INDIVIDUAL WITH AN SRO LICENSE OTHER THAN THE ON-DUTY SHIFT SUPERVISOR IS NOT REQUIRED, NOR IS AN AUXILIARY TENDER.

LINE OF AUTHORITY

.....

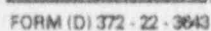
COMMUNICATION



- ```

**
**
EMERGENCY COORDINATOR
ON CALL 24 HOURS A DAY, ONE HOUR
MAXIMUM RESPONSE TIME
1 PLANT OPERATIONS AND CONTROL
2 OFFSITE NOTIFICATION
3 PLANT CONDITION ASSESSMENT
4 HEALTH PHYSICS & DEFUELING ASSESSMENT
5 REPAIR AND DAMAGE CONTROL
6 HAZARDS CONTROL
7 PERSONNEL ACCOUNTABILITY
8 TECHNICAL ASSISTANCE
----- LINE OF AUTHORITY
***** COMMUNICATION

```



**LOCAL AGENCY AND CONTRACT SUPPORT SERVICES****Fort St. Vrain Nuclear Generating Station**Local Agency

Volunteer Fire Department  
Platteville, Colorado

Volunteer Fire Departments  
Milliken, Johnstown, Gilcrest,  
Colorado

St. Luke's Hospital  
Denver, Colorado

Contract Support

Colorado State University  
Fort Collins, Colorado

Controls For Environmental  
Pollution, Inc.  
Santa Fe, New Mexico

EBASCO Services, Inc.  
Golden, Colorado

General Atomic Corporation  
San Diego, California

Dr. Hilding G. Olson  
San Angelo, Texas

R. S. Landauer, Jr. & Co.  
Glenwood, Illinois

Stone & Webster Engineering Corp.  
Denver, Colorado

Western Radiation Consultants, Inc.  
Fort Collins, Colorado

Support Service

Onsite Fire Protection  
Assistance/Ambulance Service

Mutual Aid Fire Protection  
Assistance

Medical Treatment/Decon-  
tamination Assistance

Support Service

Environmental Monitoring  
Assistance

Chemical-Radiochemical  
Laboratory Analysis

Engineering, Construction,  
Procurement Assistance

NSSS, Reactor Physics, and  
Systems Modification  
Assistance

Nuclear Engineering  
Consultant

Environmental Monitoring,  
Dosimetry Processing

Engineering/Construction/  
System Modification  
Assistance

Radiation Protection





FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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TITLE: DEFUELING EMERGENCY RESPONSE PLAN, SECTION 6  
EMERGENCY MEASURES

|                 |                      |  |  |                        |
|-----------------|----------------------|--|--|------------------------|
| RESPONSIBLE FOR | <i>J. Boerst</i>     |  |  |                        |
| AUTHORIZED BY   | <i>AK Fulch</i>      |  |  |                        |
| PORC REVIEW     | PORC 921 FEB 13 1991 |  |  | EFFECTIVE DATE 3-29-91 |
| DCCF NUMBER (S) | 90-1230              |  |  |                        |

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## 6.0 EMERGENCY MEASURES

Station emergency measures will be initiated upon, and according to, incident classification. This section identifies segments of the station emergency response organization that will be activated by class of emergency, details methods and procedures for assessment actions, specifies actions to correct or minimize the emergency situation, describes protective actions to prevent or minimize radiological exposure, and sets forth measures to assist persons injured or exposed to radiation and radioactive material.

### 6.1 ACTIVATION OF EMERGENCY RESPONSE ORGANIZATION

The two classes of emergency defined in Section 4 require a varying degree and scope of emergency responses. The emergency organization activated in each emergency classification is shown in Section 5. The Shift Supervisor will immediately initiate action to limit the consequences of the event and to return the plant to a safe and stable condition. The emergency organization for a NOTIFICATION OF UNUSUAL EVENT consists of normal shift personnel. No augmentation is required. For ALERT level accidents, onsite emergency response facilities will be manned and activated. The plant radiological emergency alarm is sounded for ALERT level accident classifications. The plant fire alarm will be sounded to indicate all emergency conditions involving a fire, regardless of event classification. The location and extent of the event is announced over the station Gai-tronics system, or public address system. If the emergency occurs during a back shift period, the Shift Supervisor in the role of Emergency Coordinator, establishes the plant emergency response organization per Section 5.2.

NOTE: Activation of the FSV Emergency Response Organization is not required in a NOUE.

Classification of an incident as a NOTIFICATION OF UNUSUAL EVENT (NOUE) or higher event requires notification consisting of the following telephone contacts, as indicated in Attachment 6.1. The state and local emergency response organization is notified by two telephone calls: the first to Weld County Communications Center, and then directly to the Colorado Department of Health. Notification is authenticated by either a call-back or the fact that the microwave link was used. The Nuclear Regulatory Commission's Operations Center is notified via the Emergency Notification System or commercial telephone service. The NRC Resident Inspector is contacted as well as the on-duty Technical Advisor (TA) and a plant management contact (optional). If the event is classified as an ALERT, a telephone call is made to initiate the Emergency Pager System (primary) or to plant management to initiate the Notification Fanout Call Lists in the event that the Emergency Pager System is inoperable.

Personnel/equipment augmentation may vary according to specific circumstances. The functions of the Emergency Response Facilities (ERFs) include:

Control Room

Assessment of Plant Operating Conditions

Implementing Corrective Actions

Fire Fighting Direction

Personnel Accountability (Initial)

Technical Support Center

Command

Plant Systems Assessment

Reactor Engineering

Recommendation of Corrective Actions

Dose Projections

Health Physics Assessment

Notification/Communications

Protective Action Recommendations

Offsite Communications

Personnel Accountability (Continued)

Emergency Response

Emergency Repair/Damage Control

Radiological Surveys

Radiation Protection (Personnel Monitoring/Dosimetry/  
Decontamination/Access/Reentry Control)

Search and Rescue/First Aid

Fire Brigade backup

**6.2** ASSESSMENT ACTIONS

The assessment of plant conditions, radiation levels, and offsite consequences is initially coordinated by the Shift Supervisor (Emergency Coordinator). As the Emergency Response Organization is activated, the assessment functions are conducted by personnel working in the Control Room and TSC. Coordination of these efforts is done by the Directors in each center. Overall management is provided by the Technical Support Center Director in the TSC. The different types of assessment actions are described in Attachment 6.2. Assessment will continue throughout the emergency period. Continued assessment may result in reclassification of the incident and consequent alteration in emergency response actions.

Incidents involving potential or actual release of radioactive materials to the environment require special methods of assessment to ensure that responses are appropriate for protection of the population-at-risk and station personnel. Post-accident sampling is described in appropriate Health Physics and Radiochemistry procedures. FSV also has an extensive system for monitoring radioactive materials released to the environment (e.g., gaseous, process liquid, and reactor building ventilation exhaust). The station is equipped with process and system monitors capable of initiating appropriate alarms and/or actuating control equipment for containment of radioactive materials if pre-established limits are reached.

These systems will monitor activity releases during accident conditions. In any accident where releases are not monitorable, emergency procedures provide "theoretical" worst-case release rates corresponding to the Design Base Accidents outlined in Section 14 of the FSV Updated FSAR and the Defueling SAR.

The site has a permanent meteorological installation which indicates and records wind speed and direction and temperature differentials on a continuous basis in the Control Room. Additional readout capability is provided in the TSC via plant computer links. In the event that meteorological information in the Control Room and TSC is unavailable, arrangements and procedures have been developed to secure necessary meteorological information from the 10 meter National Oceanic and Atmospheric Administration (NOAA) tower located on PSC property to the north of the plant.

The methodology and technique used to predict offsite concentrations of radioactive noble gases and iodine are contained in DERP-DOSE.

Air concentration levels are verified by a field monitoring team consisting of an HP Technician/Training Instructor and an assistant deployed in a vehicle with portable emergency radiological instrumentation including an air sampler with silver zeolite cartridges, radiation survey meters, and portable radios on PSC frequencies. These teams are deployed from the TSC, and have the capability to sample radioiodine concentrations as low as  $1 \times 10^{-7}$   $\mu\text{Ci/cc}$  under field conditions. Information so developed will assist offsite emergency response authorities to reach appropriate decisions on modification of emergency protective actions initiated as a result of previous estimates of exposure levels (see DERP implementing procedure DERP-FIELD, Field Monitoring Procedure).



Unmonitored releases are described in detail in DERP implementing procedure DERP-DOSE, Offsite Dose Calculation Methodology.

\*\*\* 6.6.1 \*\*\* Due to Fort St. Vrain's core design and design base accident analyses, PSC field monitoring teams do not sample and analyze all radionuclides identified in Table 3 of NUREG 0654/FEMA-REP-1, Rev. 1. PSC field monitoring teams primarily conduct air and ground surface radiation sampling. Environmental monitoring, as contracted with Colorado State University, provides more in-depth radiological monitoring concerning ground/water deposition and food chain impact.

### 6.3 CORRECTIVE ACTIONS

Station procedures contain steps for preventive and/or corrective actions to avoid or mitigate serious consequences of an incident. Control and display of information is centralized in the Control Room. The information provided by this instrumentation forms the basis for declaration of emergency classes.

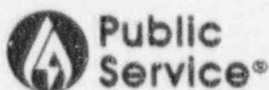
Corrective actions will also involve response by the following organizations:

- Fire Fighting

The Fire Brigade will respond to station fire calls. If outside assistance is required, a call is made to the Weld County Emergency Communications Center who then dispatches appropriate fire departments, normally the Platteville Volunteer Fire Department (VFD). Upon arrival, the fire department will be escorted to the fire scene by security personnel.

- Damage Control, Repair, and Decontamination

For minor emergencies, station personnel will handle cleanup, repair, and damage control. For more major site emergencies, the support of company personnel, or specialized outside contractors, may be required to assist in damage control, cleanup, and repair operations.



#### 6.4 PROTECTIVE ACTIONS

Actions to protect station personnel, visitors, and residents on FSV company property are the responsibility of the Shift Supervisor (as Emergency Coordinator) until he is relieved. Measures for the protection of the general public are detailed in the State RERP.

##### 6.4.1 Protective Cover and Personnel Accountability

###### a. Onsite

Protective actions for personnel on FSV company property will be taken whenever a radiological emergency has occurred, or may occur, which results in concentrations of airborne activity, or radiation levels, in excess of normal limits for a specified area or areas, that cannot be readily controlled.

In addition, protective actions will be taken for these personnel in other emergency situations such as fires, floods, and tornadoes where personnel safety is threatened. Notification of these personnel will be by actuation of plant alarm systems, telephone calls, and Gai-tronics announcements as applicable.

Property residents are notified via telephone. If no one answers, a PSC representative is sent to verify/notify applicable residences. Notification will be accomplished as soon as assessment actions permit a determination of the emergency class and corresponding actions. Station personnel will be notified of appropriate actions to be taken at their respective personnel accountability stations or by appropriate supervisory personnel.



1. Personnel Accountability

FSV performs a "positive" accountability, meaning that only personnel present in the protected area are accounted for. This method is accomplished utilizing the security computer system which provides a listing of all badges presently within the protected area at any given time.

Site visitors inside the protected area will be escorted by their escort personnel to the Security Building where they will be monitored for contamination and normally depart the site, or be told to report to a specific location. Their escorts will then report to their predesignated personnel accountability stations.

Visitor Center personnel will be notified and advised of appropriate protective actions, as needed.

Personnel response for accountability will not differ, regardless of time of day. The majority of personnel will exit via the security building, where they will be monitored for contamination, and report to the Visitor's Center to await further instruction. All personnel within the protected area will report to their assigned accountability stations indicated on their badges.

Security personnel will conduct the accountability process. The protected area accountability stations are contacted by a Security Officer with a list of personnel who should be present at the station. If a person is missing from the accountability station, this will be noted by the Security Officer.

The Security Officer will also record and report any personnel with the Visitor Center as their designated accountability station which are shown as still being within the protected area. The number and/or names of missing individuals will be reported to the Shift Supervisor by Security. This initial accountability process will be completed within 30 minutes of the activation of the alarm.

The TSC Director has responsibility for maintaining personnel accountability after the initial accountability process has been completed. Refer to Administrative Procedure G-5, Personnel Emergency Response, for specific details of the personnel accountability process.

2. Security and Access Control

Support personnel reporting to the station during an emergency report to the badge cube. Any necessary instructions relative to entering the plant will be posted at the badge cube entrance.

3. Rescue Operations

The search and rescue function is handled by trained Fire Brigade, Health Physics, or auxiliary plant personnel. When station personnel are unaccounted for in the initial or subsequent emergency accountability, the Shift Supervisor assigns, or requests from the TSC, a search and rescue team to locate and, if necessary, rescue personnel. The teams will utilize DERP implementing procedure DERP-TEAMS, Emergency Team Formation and Direction, and will observe the emergency exposure limits outlined in Attachment 6.4.

b. Offsite

The Emergency Coordinator will recommend appropriate initial protective actions to offsite authorities, to include sheltering, based upon consideration of relative benefits of the alternatives. The action which affords the greatest amount of dose avoidance for accidents (where projected or measured offsite doses are expected to exceed Protective Action Guides - Attachment 6.3) will generally be preferred. Evacuation of members of the public is not necessary. With FSV permanently shutdown and in the defueling mode of operation, engineering analysis has been performed to document that no accident potential exists that will result in offsite releases greater than 1 Rem at the EPZ boundary.

The TSC Director will recommend any additional appropriate protective actions once he has assumed control of the emergency response organization.

Protective actions for offsite areas are initiated by state/local emergency response organizations as detailed in the State RERP. The State of Colorado has adopted the EPA Protective Action Guides for initiating actions to protect the general public. Plans for activating state/local emergency response agencies and performing various protective actions and services are specified in the State RERP.

6.4.2 Use of Onsite Protective Equipment and Supplies

A variety of protective equipment is available onsite to minimize radiological exposures, contamination problems, and fire fighting hazards. The types of equipment, their criteria for issuance, location, and means of distribution are noted in Attachment 6.5.

#### 6.4.3 Contamination Control Measures

Measures will be taken to prevent, or minimize, direct or subsequent ingestion of radioactive materials deposited within the exclusion area. As necessary, affected areas will be identified and isolated. Details of contamination control measures for onsite areas are contained in station procedures. The following is an outline of those procedural controls:

##### 1. Radioactive Contamination of Personnel

- Controls have been established to ensure that levels of removable contamination outside radiologically controlled areas will be maintained at less than allowable limits. Emergency decontamination limits are established in DERP implementing procedure DERP-DECON, Emergency Decontamination Practices.
- The environment of personnel working within radiological control areas are supervised by Health Physics (HP) personnel. Radiation Work Permits (RWPs) may be required for personnel in such areas. Specific instructions, precautions, and limitations are listed on RWPs.
- Protective clothing is required for individuals entering contaminated areas. Individuals leaving radiological control areas are monitored for contamination upon departure.
- Quarterly integrated accumulations of radionuclides in the body will not exceed accumulation levels which would result from exposure to the maximum permissible concentrations (MPC) of radionuclides in air or drinking water for occupational exposure as indicated in 10CFR20.103. Food for emergency personnel will be provided from offsite sources.

- Exposure to airborne concentrations higher than the MPC will be prevented or avoided. If exposures are necessary, wearing appropriate, properly fitted respiratory protective equipment will be required, as determined by HP. Periodic air samples will be taken in selected operational and work areas to ensure that MPC levels are not exceeded.

## 2. Radioactive Contamination of Equipment

- Tools and equipment used in radiological control areas will be checked for contamination before they are taken outside the control area. If any equipment is found to be contaminated and decontamination is not practical, the item will remain controlled. Emergency decontamination limits are established in DERP implementing procedure DERP-DECON, Emergency Decontamination Practices.
- Equipment and tools will be unconditionally released for use outside the area only if removable contamination and radiation levels are less than the allowable limits.
- Removal of material from radiological control areas with radiation and contamination levels in excess of specified limits must be approved for release by HP personnel. Any contaminated material approved for release will be packaged, sealed, and labeled with a properly executed radioactive material tag and handled in accordance with approved procedures.



## 6.5 AID TO AFFECTED PERSONNEL

### 6.5.1 Emergency Personnel Exposure Criteria

Exposure records are maintained for station personnel at the TSC, as required. This information will be utilized in determining emergency team assignments. Criteria used for limiting doses to emergency workers are based on recommendations of the EPA and are shown in Attachment 6.4. Emergency workers will carry self-reading dosimeters in addition to film badges. Emergency dosimetry services will be provided through the services of an outside contractor.

Emergency dosimetry service response is provided on a 24-hour basis. Every effort will be made to minimize emergency worker doses through the use of protective equipment and supplies. The TSC Director is responsible for emergency team assignments and may authorize emergency workers to receive doses in excess of 10CFR20 limits. This authorization to exceed occupational exposure limits shall be performed in accordance with DERP implementing procedure DERP-EXP, Emergency Exposure Guidelines, and shall be given only after consultation with the senior HP Representative at the TSC.

The TSC Director will be notified of accidental or emergency exposure in excess of occupational limits. Those individuals will not be assigned to further emergency team operations. Decisions to accept doses in excess of occupational limits in life saving situations will be on a volunteer basis. In no case will doses be permitted to exceed 75 Rem Whole Body. The TSC Director is also responsible for assuring the distribution of film badges and self-reading dosimetric devices to emergency personnel and assuring the ongoing accountability of each worker's dose.



#### 6.5.2 Decontamination and First Aid

Provisions have been made to assist personnel who are injured, or who may have received high radiation doses. There are station personnel who are trained in first aid and decontamination procedures. In addition, onsite decontamination areas are equipped with decontamination supplies and other specialized equipment. Personnel found to be contaminated (any detectable activity above background) will undergo decontamination in accordance with the appropriate HP Procedures. Where contamination of large or open wounds is involved, personnel will be immediately transported to designated offsite medical facilities where they will receive prompt medical attention in accordance with the FSV Medical Emergency Plan, MEP-FSV.

Each emergency team will include members trained in first aid. First aid kits are available at station locations in accordance with PSC policy specified in the General Instructions.

#### 6.5.3 Medical Transportation

Injured/contaminated personnel who require medical attention will be transported to St. Luke's Hospital by helicopter, or Weld County Ambulance Service. A personal vehicle may be utilized if appropriate. Ambulance crews are provided training to handle contamination cases. PSC health physics trained personnel will accompany contaminated patients to the hospital, if possible. Communications between FSV and emergency medical vehicles will be channeled through the Weld County Communications Center.

#### 6.5.4 Medical Treatment

Arrangements for treating contaminated patients have been made with St. Luke's Hospital in Denver. In situations where there isn't time to transport a patient to St. Luke's, North Colorado Medical Center, Greeley, may be utilized. In these cases, FSV Health Physics personnel will respond to assist in contamination control at the hospital.

Hospital staff at St. Luke's are trained to treat contaminated patients. Following decontamination, personnel suspected to have ingested radionuclides will undergo whole body counting at PSC or CDH facilities.

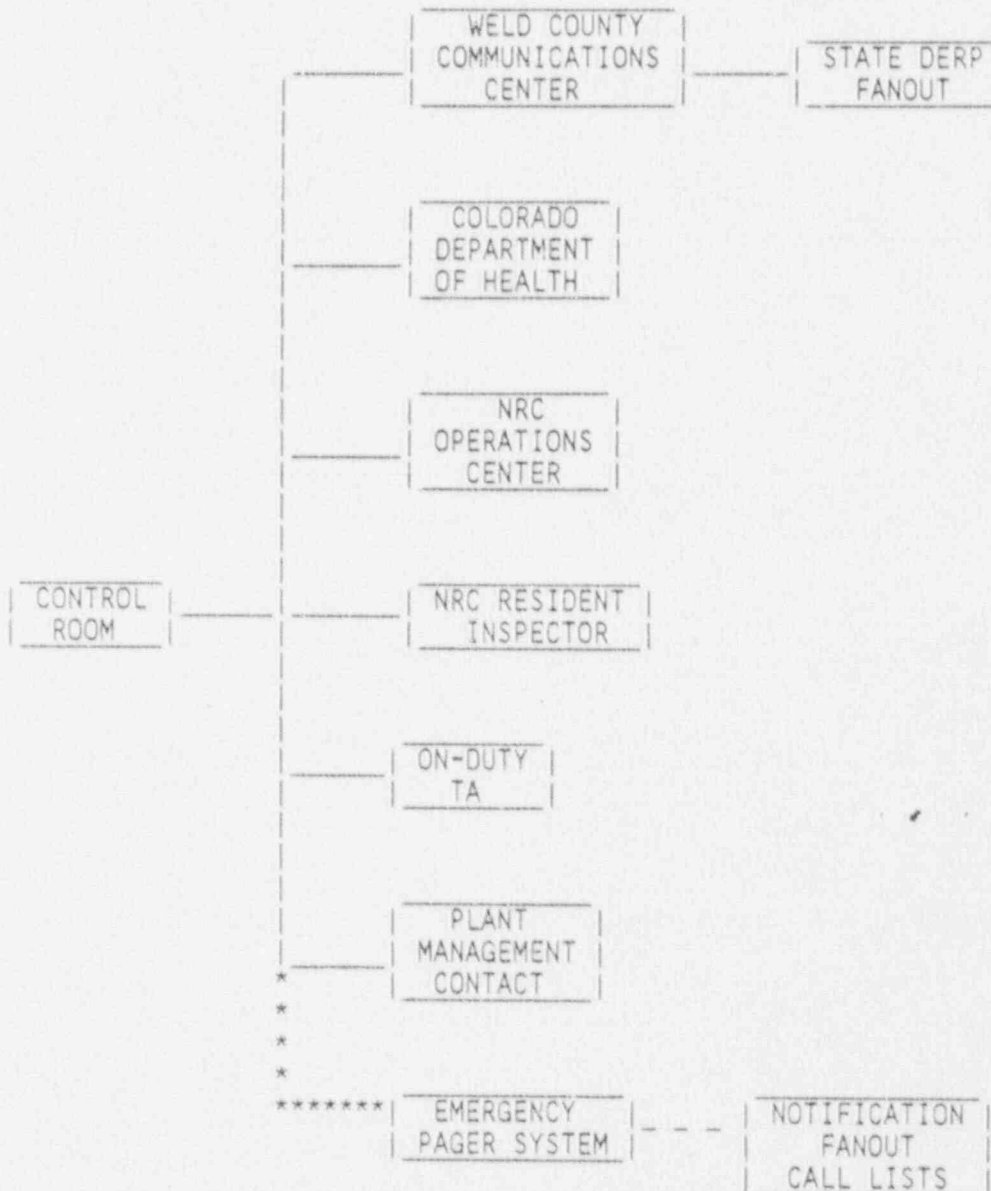
Communications between FSV and fixed medical facilities are via commercial telephone and are handled in accordance with the MEP-FSV.

#### 6.6 COMMITMENTS

The step(s) and section(s) listed below may not be deleted without issuance of comparable controls. The procedure itself, if initiated as a result of commitment corrective action, may not be deleted without issuance of comparable controls.

- 6.6.1 The statements concerning field monitoring sampling and applicable isotopes from NUREG 0654/FEMA-REP-1, Rev. 1, Table 3, is a result of QDR 87-083.

NOTIFICATION CALL SEQUENCE REQUIRED IN THE EVENT OF A NOUE OR ALERT



\*\*\*\*\* Not required for a NOUE

- - - - Alternate to the Emergency Pager System

ASSESSMENT ACTIONS

| <u>Action</u>                                   | <u>Description</u>                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Surveillance of Control Room Instrumentation | Plant radiation levels, pressures, temperatures, flows and meteorological data are monitored. The control room operators can assess plant status by observing sensor readout. Most sensors have visual and audio alarms. Data will be provided to the Emergency Coordinator as necessary for his assessment. Control room operators will take corrective actions as necessary. |
| 2. Personnel Accountability                     | Accountability of all personnel within the protected area is made utilizing the station's security system. Security printouts and verbal contacts assist in this assessment.                                                                                                                                                                                                   |
| 3. Inplant Radiological Surveys                 | Radiation monitoring teams will perform these surveys. The radiation levels on the station's fixed area and ventilation monitoring systems will be obtained from the control room to assist in these evaluations. Contamination surveys of equipment and personnel are done with portable equipment from the emergency kits or at routine personnel monitoring stations.       |
| 4. Site Boundary Surveys                        | Handled in same fashion as inplant surveys by radiation monitoring teams.                                                                                                                                                                                                                                                                                                      |
| 5. Offsite Consequence Assessment               | Radiological Assessment personnel will be using effluent monitors, meteorological data, field monitoring results, and computer models to calculate doses to make assessments of offsite consequences.                                                                                                                                                                          |
| 6. Environmental Monitoring                     | For less immediate actions, samples of various environmental media are collected and analyzed by an outside contract laboratory. Results will be evaluated by company personnel and the contract laboratory.                                                                                                                                                                   |
| 7. Assessment Reporting                         | In the case of actual or potential offsite consequences, the state and local authorities are immediately notified in accordance with the State RERP. Predetermined criteria are used to initiate various protective actions for the public by the local authorities.                                                                                                           |

Recommended protective actions to avoid/reduce whole body  
and thyroid dose from exposure to a gaseous plume

General Public  
Recommended Actions (a)      Comments

Projected Avoidable Dose (Rem)  
to the Population

Previously recommended  
protective actions may  
be reconsidered or  
terminated.

No planned protective actions  
(b). State may issue an  
advisory to seek shelter and  
await further instructions.  
Monitor environmental  
radiation levels.

If constraints exist,  
special consideration  
should be given for  
evacuation of children  
and pregnant women.

Seek shelter as a minimum.  
Consider evacuation. Evacuate  
unless constraints make  
it impractical.  
Monitor environmental  
radiation levels. Control  
access.

Seeking shelter would be  
an alternative if  
evacuation were not  
immediately possible.

Conduct mandatory evacuation.  
Monitor environmental  
radiation levels  
and adjust area for  
mandatory evacuation based on  
these levels. Control access.

(a) These actions are recommended limits for planning purposes. Protective action decisions at the time of the incident must  
take existing conditions into consideration (refer to DERP implementing procedure).

(b) At the time of the incident, officials may implement low-impact protective actions in keeping with the principle of  
maintaining radiation exposures as low as reasonably achievable.



Recommended protective actions to avoid/reduce whole body  
and thyroid dose from exposure to a gaseous plume

Emergency Workers

Projected Avoidable Dose (Rem)  
to Emergency Team Workers

Recommended Actions (a)

Comments

Whole body 25

Control exposure of emergency  
teams members to these levels  
except for lifesaving missions.  
(Appropriate controls for  
emergency workers, include  
time limitations, respirators,  
and stable iodine.)

Although respirators and  
stable iodine should be  
used where effective to  
control dose to emergency  
team workers, thyroid  
dose may not be a limiting  
factor for lifesaving  
missions.

Thyroid 125

Whole Body 75

Control exposure of emergency  
team members performing  
lifesaving missions to this  
level. (Control of time  
of exposure will be most  
effective.)

(a) These actions are recommended limits for planning purposes and any exposures in excess of occupational (10CFR20) limits must be handled in accordance with DERP implementing procedure DERP-EXP, "Emergency Exposure Guidelines." Protective action decisions at the time of the incident must take existing conditions into consideration.



Exposure Criteria for Emergency Workers\*

| <u>Situation</u>                                                                                                           | <u>Whole Body</u>                      | <u>Thyroid**</u> |
|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------|
| 1. Emergency duties not related to protecting equipment, personnel, or the public.***                                      | 5 Rem                                  | 25 Rem           |
| 2. Prevent extensive equipment damage, further escape of effluents, or control fires.                                      | 25 Rem (planned)<br>12 Rem (unplanned) | 125 Rem          |
| 3. Lifesaving missions, e.g., search and rescue of injured people, prevent conditions that would injure numbers of people. | 75 Rem                                 | Unlimited****    |

\* Administered in accordance with DERP Implementing procedure DERP-XP, "Emergency Exposure Guidelines".

\*\* Respiratory protection will be provided as necessary.

\*\*\* Includes performing accident assessment, providing first aid, performing personnel decontamination, providing ambulance service, and providing medical treatment services.

\*\*\*\* Although respirators should be used where effective to control dose to emergency team workers, thyroid dose may not be a limiting factor for a lifesaving mission.

Use of Protective Equipment and Supplies

| <u>Equipment</u>                                         | <u>Criteria for Issuance</u>                                                                                                           | <u>Location</u>                                                                     | <u>Means of Distribution</u>                                                                 |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 1) Full Face Canister Respirator                         | As needed by Emergency Teams in areas of high airborne radioactivity                                                                   | a) Selected Emergency Monitoring Kits<br>b) Respiratory Issue Lockers-Turbine Deck. | a) Issued at TSC<br>b) Picked up at nearest station as directed by Health Physics Personnel. |
| 2) Self-Contained Breathing Apparatus                    | a) Inhalation hazard during fire fighting<br>b) Airborne radioactivity in excess of administratively set levels<br>c) Toxic gas hazard | a) Control Room<br>b) Various Areas in Station                                      | a) Used as needed by operators.<br>b) Issued as needed by Health Physics Personnel.          |
| 3) Protective Clothing (Coveralls, Hoods, Boots, Gloves) | As needed in areas of known contamination                                                                                              | a) Various Areas of the station.<br>b) Emergency Kits                               | a) Issued as needed by Health Physics Personnel.<br>b) Issued at TSC                         |
| 4) Air-Fed Respirator                                    | Airborne radioactivity in excess of administratively set levels.                                                                       | a) Control Room<br>b) Respiratory Issue Lockers-Turbine Deck.                       | a) Used as required by operators.<br>b) Issued by Health Physics Personnel.                  |



TITLE: DEFUELING EMERGENCY RESPONSE PLAN: SECTION 7  
EMERGENCY FACILITIES AND EQUIPMENT

RESPONSIBLE  
FOR

*J. J. Borst*

AUTHORIZED  
BY

*W. H. Fulk*

PORC  
REVIEW

**PORC 921 FEB 13 1991**

EFFECTIVE  
DATE

**3.29.91**

DCCF  
NUMBER (S)

**90-1231**

**FT. ST. VRAIN  
NON-CONTROLLED  
COPY**

VERIFY ISSUE STATUS  
WITH SITE DOCUMENT  
CONTROL CENTER PRIOR  
TO USE

## 7.0 EMERGENCY FACILITIES AND EQUIPMENT

This section describes: emergency response facilities; onsite and offsite communication systems links; assessment facilities and equipment; protective facilities and equipment; first aid and medical facilities; and damage control equipment and supplies.

### 7.1 EMERGENCY RESPONSE FACILITIES

#### 7.1.1 Technical Support Center (TSC)

FSV emergency command activities are centered in the TSC located immediately adjacent to the Reactor Building and within short walking distance from the Control Room (CR). The TSC will be manned within 90 minutes of a declaration of an ALERT classification.

The TSC is equipped with telephones, NRC Emergency Notification System (ENS) and Health Physics Network (HPN) telephones, telecopier, and radios for communications with the CR.

The TSC is equipped with a CDC-1700 terminal for visualization of plant parameters and dose calculations. Additionally, essential drawings, specifications, and procedures are maintained in the TSC. Radiation monitoring equipment, protective clothing, communications equipment, protective breathing apparatus, and first-aid equipment are located in an Emergency Kit which is sealed and inventoried on a regular basis by HP.

The habitability requirements for the TSC are similar to those imposed upon the CR. In the event the TSC becomes uninhabitable, senior management personnel would relocate to the CR. The remainder of the TSC staff would be relocated to another convenient location, as directed.

### 7.1.2 Control Room (CR)

Emergency assessment and control is initially directed from the CR by the Shift Supervisor prior to activation of the TSC. The CR, located adjacent to the Reactor Building, is designed to be habitable during Design Basis Accidents. The CR contains full plant instrumentation, technical drawings, radio, telephone, and intercom systems. Emergency radiological monitoring equipment, protective breathing apparatus, and protective clothing are located nearby.

### 7.1.3 Media Briefings

If necessary, briefings with the media can take place at the FSV Visitor Center, located to the west of the plant.

## 7.2 COMMUNICATIONS SYSTEMS

Communications between onsite and offsite consist of commercial telephones and dedicated microwave links. From the TSC, messages are relayed to designated agencies via Weld County, DODES, and Colorado National Guard radio communication systems. Two-way radios will be used to maintain communications between the TSC and inplant teams. Primary telephone and radio communication links between the TSC and the CR shown in Attachment 7.1. State and County Communications facilities are manned on a 24-hour basis. These are the principle entities involved in the notification fanout process.

## 7.3 ASSESSMENT FACILITIES AND EQUIPMENT

Emergency measures described in Section 6 depend upon the availability of the monitoring instruments and laboratory facilities necessary for proper assessment of the emergency situation. This section describes the equipment used in the assessing situation.

### 7.3.1 Onsite Systems and Equipment

- a. Geophysical data collection/analysis equipment is grouped into two categories: meteorological and seismic.

1. Meteorological Monitors

Information is obtained from installed instrumentation on the primary 60 meter meteorological tower with readout in the CR. The following information is available: wind direction, windspeed, standard deviation of wind direction (sigma theta), precipitation, dewpoint, temperature, and temperature differential with height. Backup meteorological data is readily accessible on a round-the-clock basis from the 10 meter National Oceanic and Atmospheric Administration (NOAA) meteorological tower located north of the plant in the same general area as the primary 60 meter meteorological tower.

2. Seismic Instruments

Information is obtained from passive and active instruments giving absolute peak acceleration in three orthogonal directions. The system determines whether operating basis or safe shutdown maximum accelerations are exceeded in any of three directions.

b. Area and process radiation monitoring systems  
are divided into seven basic groups as  
described below:

1. Area Monitors

There are 21 area monitors, 17 in the reactor building and 4 in the turbine building. Each area monitor uses a Geiger-Mueller tube as a detector and has a self-contained check source. The area monitors share two common annunciators, one which may be cleared before the problem is resolved (readout in Control Room), and another in conjunction with local annunciators which may not be cleared until the problem is resolved. In addition, there is an area monitor located in the TSC with remote readout and local alarm.



2. Equipment Monitors

These monitors determine radiation levels in specific effluent streams. Redundant monitors are provided separate power sources.

3. Liquid Monitors

These devices are specifically designed to monitor liquid effluents. They utilize gamma scintillation detectors consisting of an NaI(Tl) crystal optically coupled to a photomultiplier tube.

4. Gas Monitors

These monitors consist of a plastic beta scintillator which is coupled to a photomultiplier tube to monitor effluents in the gaseous phase.

5. Particulate and Iodine Monitors

These monitors continuously draw a portion of the airborne effluent through a filter assembly. Any buildup of radioactivity on the filter is measured with a gamma scintillation detector. The filter is backed by an activated charcoal cartridge for adsorption of iodine and may be removed to be counted and isotopically analyzed on a multichannel analyzer.

6. Emergency Stack Monitor (PING)

This device is a single unit containing particulate, iodine, and noble gas monitors to measure Reactor Building ventilation exhaust effluent during a loss of power to the normal operating stack monitors.

7. Reactor Building Ventilation Exhaust Stack Monitors

This system monitors exhaust air from the reactor building for particulates, noble gas, and Iodine-131 contaminants.



- c. System Monitors detect and/or control problems within plant systems. These may be pressure detectors, heat detectors, flow elements, heat rise detectors, or similar devices designed to monitor plant parameters. Many of these detectors are capable of initiating control actions to prevent or mitigate damage or release of radioactive material.
- d. Fire Protection Systems have been designated to meet the criteria of 10CFR50 Appendix R. Specific information regarding Fire Detection/Suppression at FSV is contained in the FSV Fire Protection Program Plan.
- e. Radiation Analysis is accomplished using radiochemical laboratory equipment, radiation monitoring stations, and fixed air sampling stations to provide the capability for detailed, isotopic analysis.
- f. Portable Survey Instruments provide flexibility and backup capability for radiation measurements in areas not served by installed monitors or where installed monitors may be inoperative.

Specific equipment and their locations for FSV onsite radiological assessment is summarized in Attachment 7.2.

#### 7.3.2 Offsite Systems and Equipment Support

The environmental radiological monitoring program for the FSV environs is provided by Colorado State University (CSU). It consists of a comprehensive sampling system to monitor radioactivity in the ecosystems and atmosphere near the station. The contractual agreement with CSU also includes provisions for environmental monitoring in the event of an emergency. CSU can respond within four (4) hours, and has facilities for radiochemistry and gamma spectrometry analyses.

Weather observations and forecasting may also be obtained through the National Weather Service (NWS) radio or from the Stapleton Airport National Weather Service Station. Offsite facilities are summarized in Attachment 7.3.



#### 7.4 PROTECTIVE FACILITIES AND EQUIPMENT

CR shielding and ventilation are designed to allow personnel habitability at all times. The TSC is located to the east of the Reactor Building in close proximity to the CR and is provided shielding and HVAC similar to the CR. Portable radiation monitoring instrumentation, protective breathing apparatus, protective clothing, and portable lighting are available near the CR.

#### 7.5 FIRST AID AND MEDICAL FACILITIES

Necessary treatment supplies are contained in a Trauma Kit located in the Fire Brigade bunker on level 7 of the turbine building. In the event of an emergency, another first-aid area is provided in the HP access area. First-aid treatment of injured individuals will be administered by trained personnel. Advanced medical care, if required, will be obtained by transporting the individual(s) to St. Luke's Hospital and/or North Colorado Medical Center.

#### 7.6 DAMAGE CONTROL EQUIPMENT AND SUPPLIES

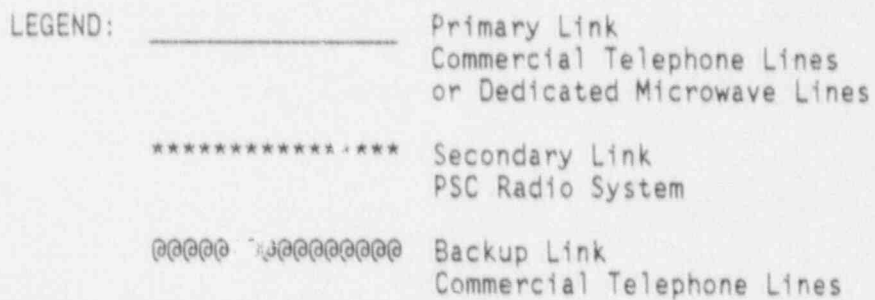
Fire hose stations, extinguishers, and hydrants are strategically located throughout the station for use in the event of fire. Self-contained breathing apparatus (SCBA) equipment is located strategically throughout the station to be used as necessary for fire fighting, entry into airborne radioactivity areas, or entry into toxic gas areas. Selected equipment spare parts are stored in the warehouse for equipment repair.

#### 7.7 DEDICATED EMERGENCY RESPONSE VEHICLES

A four-wheel drive vehicle has been procured for use during an incident in which EPZ monitoring capabilities are required. The vehicle is capable, at all time, of responding to the site within 60 minutes, regardless of weather or road conditions and is under the direct control of Emergency Planning personnel.

#### 7.8 COMMITMENTS

None



FORM (D) 372-22-3843

### ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

| Instrument System              | Description and Location                                                                          | Functional Applicability                                                                                                                                           |
|--------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>1. Geophysical Monitors</u> |                                                                                                   |                                                                                                                                                                    |
| Meteorological                 | Wind Speed Indicators located on 60m tower north of the plant.                                    | Measures wind speed @ 58m above ground level and 10m above ground level.                                                                                           |
|                                | Wind Speed Indicator located on 60m tower north of the plant-Same Instrument as previous listing. | Measures wind direction @ 58m and 10m above ground level                                                                                                           |
|                                | Delta Temperature Sensors located on 60m tower north of the plant.                                | Measures temperature differential between 10m and 58m elevation.                                                                                                   |
|                                | Rain Gauge on 60m tower.                                                                          | Measure precipitation                                                                                                                                              |
| Ten Meter Tower                | Windspeed, Wind direction, Temperature, Solar Radiation, etc. located North of plant.             | Provide backup meteorological parameters (Operated by NOAA)-available via data logger, modem dial-up or via remote readouts at tower.                              |
| Strong Motion Accelerographs   | 1 Detector Below PCRV<br>1 Detector on Top of PCRV<br>1 Detector at N.W. Corner of Visitor Center | Record ground accelerations in three mutually or orthogonal directions with respect to time. Ground motion activates the SMA's and trips an annunciator in the CR. |





ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

| Instrument<br>System | Description and<br>Location                        | Functional<br>Applicability                                                                                          |
|----------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Seismoscopes         | 1 detector below PCRV<br>1 detector on top of PCRV | Smoked glass supported<br>on a pendulum. As<br>relative motion occurs,<br>a stylus scribes a<br>record on the glass. |





## ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

NOTE: For monitor setpoints refer to the FSV Master Setpoint List.

| Channel and<br>Radiation<br>Transmitter<br>Number | Description and<br>Location | Control<br>Action |
|---------------------------------------------------|-----------------------------|-------------------|
|---------------------------------------------------|-----------------------------|-------------------|

### 2. Radiation Monitors

#### Liquid Monitors

|                    |                                                                                     |                                                                                                                                                                                                                                                                                                                                          |
|--------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RT6212 &<br>RT6213 | Radioactive liquid<br>effluent monitors.<br>Reactor bldg. -<br>Elev. 4771'          | $10^{-6}$ $\mu\text{Ci/ml}$ (also, if<br>cooling tower blowdown<br>drops to $< 1100$ gpm),<br>closes HV-6212 &<br>HV-62249, trips transfer<br>pump P-6202 & 6202S,<br>and trips reactor<br>building sump pumps<br>to prevent $1 \times 10^{-7}$ $\mu\text{Ci/ml}$<br>MPC value at site<br>perimeter from being<br>exceeded. (ELCO 8.1.2) |
| RT46211<br>RT46212 | Gas waste<br>compressor cooling<br>water monitor.<br>Reactor bldg. -<br>Elev. 4740' | No control action                                                                                                                                                                                                                                                                                                                        |

**ONSITE ASSESSMENT EQUIPMENT AND FACILITIES**

NOTE: For monitor setpoints refer to the FSV Master Setpoint List.

Channel and  
Radiation  
Transmitter  
Number

Description and  
Location

Control  
Action

Gas Monitors (Plastic Beta Scintillators)

|                      |                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                            |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RT7324-1<br>RT7324-2 | Reactor building<br>ventilation exhaust<br>monitors. The<br>monitors are<br>located on the<br>Turbine Deck<br>Elev. 4829'                                                                 | Close block valve<br>FV-6351, divert ex-<br>haust from filters to<br>gas waste vacuum tank,<br>shutdown turbine building<br>and service building<br>ventilation and begin<br>recirculation of control<br>room ventilators. Also,<br>closes reactor supp.<br>inlet dampers.<br>(ELCO 8.8.1) |
| RT6314-2             | Gas Waste Exhaust<br>Monitor. Operated<br>in series with the<br>iodine and particu-<br>late monitors.<br>Located on Elev. 4781'<br>on the east wall<br>outside the gas waste<br>cubicles. | High alarm diverts the<br>flow to the gas waste<br>vacuum tank.<br>(ELCO 8.8.1)                                                                                                                                                                                                            |

Particulate and Iodine Monitors (NaI gamma scintillation detectors)

|          |                                                                                                                                                               |                                                             |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| RT6314-1 | Monitor the gas<br>waste effluent<br>stream up stream<br>of the gas monitor<br>RT6314-2. Located<br>inside the gas waste<br>blower cubicle on<br>Elev. 4781'. | Has the same control<br>action as RT6314-2.<br>(ELCO 8.8.1) |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|



### ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

NOTE: For monitor setpoints refer to the FSV Master Setpoint List.

Channel and  
Radiation  
Transmitter  
Number

Description and  
Location

Control  
Action

RT73437-1

Reactor Plant  
Ventilation Exhaust  
Iodine-131  
Monitor Loc:  
Sampler/Detector:  
E1. 4916  
Turbine Side  
Readout  
E1. 4829  
Control Room

ELCO 8.8.1 -Close valve  
FV6351, divert flow to  
gas waste vacuum tank.  
Shutdown turbine building  
ventilation and place  
the control room vent-  
ilation on recirculation.

This iodine monitor consists of two single channel analyzers, one window being set for the photopeak energy of interest (i.e.  $^{131}\text{I}$ ), and one being set for an adjacent energy region. The adjacent region window provides a background subtraction capability, thus allowing the monitor to discriminate  $^{131}\text{I}$  from noble gas radioisotopes. A 2 inch by 2 inch NaI(Tl) crystal is utilized as the detector for this monitor.

RT73437-2

Reactor Plant  
Ventilation  
Exhaust Beta  
Particulate Monitor  
Loc:  
Samples/Detector:  
E1. 4916  
Turbine Side  
Readout  
E1. 4829  
Control Room

Same automatic action  
as RT73437-1.

This particulate monitor consists of an alpha detector and a plastic beta scintillation detector viewing a fixed filter for particulate radioactivity. The alpha channel provides a live measurement of radon concentration which is subtracted from the beta measurement.



ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

NOTE: For monitor setpoints refer to the FSV Master Setpoint List.

Channel and  
Radiation  
Transmitter  
Number

Description and  
Location

Emergency Stack Monitors ("PING" - Particulates, Iodine, Noble Gases)

Provided to Monitor Reactor Building Ventilation exhaust effluent during loss of power to the normal operating stack monitor.

RT 4801                      Reactor Plant Ventilation  
Exhaust Beta Particulate Monitor  
Loc: E1. 4885, turbine side

RT 4802                      Reactor Plant Ventilation  
Exhaust Iodine Monitor  
Loc: E1. 4885, turbine side

RT 4803                      Reactor Plant Ventilation  
Exhaust Noble Gas Monitor  
Loc: E1. 4881, turbine side

Reactor Building Ventilation Exhaust Stack Monitor

RT 7325-1                      Reactor Plant Ventilation  
  
Exhaust Iodine and Particulate Monitor  
Loc:  
Samples/Detector: E1. 4921  
Turbine Side  
Readout                      E1. 4829  
Control Room

RT 7325-2                      Reactor Plant Ventilation  
Exhaust G-M Detector  
Loc:  
Sampler/Detector: E1. 4921  
Turbine Side  
Readout                      E1. 4829  
Control Room



ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

NOTE: For monitor setpoints refer to the FSV Master Setpoint List.

Channel and  
Radiation  
Transmitter  
Number

Description and  
Location

TSC Ventilation Monitor

RIT 7937

TSC Ventilation Inlet  
and TSC Ambient Atmosphere  
Particulate, Iodine, Noble Gas  
Loc:

Sampler/Detector: E1. 4791  
TSC Building  
Readout E1. 4791  
TSC Building





ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

NOTE: For monitor setpoints refer to the FSV Master Setpoint List.

Channel and  
Radiation  
Transmitter  
Number

Location

Elevation

Reactor Building Area Radiation Monitors

|            |                                                |      |
|------------|------------------------------------------------|------|
| RT93250-1  | Refueling Machine<br>Control Room              | 4881 |
| RT93252-1  | Northeast Refueling Floor                      | 4881 |
| RT93250-2  | East Walkway Outside HSF                       | 4854 |
| RT93252-2  | South Stairwell                                | 4864 |
| RT93250-3  | Hot Service Facility<br>Platform               | 4856 |
| RT93251-3  | Hot Service Blower Section                     | 4868 |
| RT93250-4  | Outside HSF Door                               | 4839 |
| RT93252-4  | Instrument Room-Analytical<br>Instrument Board | 4829 |
| RT93251-5  | Gas Waste Filters                              | 4781 |
| RT93251-6  | Truck Bay                                      | 4791 |
| RT93252-6  | Near South Stairwell                           | 4791 |
| RT93251-7  | Core Support Filter                            | 4781 |
| RT93252-7  | East Walkway                                   | 4781 |
| RT93250-8  | North East Walkway                             | 4771 |
| RT93251-8  | Decontamination Laundry                        | 4771 |
| RT93251-9  | Buffer Helium Dryer Loop I                     | 4740 |
| RT93250-14 | Refueling Floor/<br>East Wall                  | 4881 |



## ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

NOTE: For monitor setpoints refer to the FSV Master Setpoint List.

Channel and  
Radiation  
Transmitter  
Number

Location

Elevation

Control  
Action

### Turbine Building Area Radiation Monitors

|            |                                      |      |  |
|------------|--------------------------------------|------|--|
| RT93250-13 | Near Condensate Demin-<br>eralizers  | 4791 |  |
| RT93251-1  | Reactor Plant Exhaust<br>Filter Room | 4864 |  |
| RT93251-4  | General Office Area                  | 4816 |  |
| RT93250-5  | Control Room                         | 4829 |  |

### Technical Support Center Area Radiation Monitor

|          |                          |      |  |
|----------|--------------------------|------|--|
| RIA-7951 | Technical Support Center | 4811 |  |
|----------|--------------------------|------|--|

### 3. System Monitors

Process Monitors affecting the Assessment of Radiological Accidents are shown in Attachments C1-C14 of DERP Section 4.

### 4. Fire Detection

|                               |                                      |
|-------------------------------|--------------------------------------|
| Smoke Detectors               | Detect products of<br>combustion     |
| Rate of Heat Rise<br>Detector | Detects quick rise of<br>temperature |
| Fixed Heat Detector           | Detects a set temperature            |



## ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

| Instrument System                     | Description and Location                                                                | Functional Applicability                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 5. <u>Facilities</u>                  |                                                                                         |                                                                                            |
|                                       | Whole Body Counter                                                                      | Detect, identify, and quantify internal deposition of radio-activity                       |
|                                       | Radiochemistry Laboratory                                                               | Equipped for radiological analysis                                                         |
|                                       | Radiation TLD Monitoring Stations<br>Outside Security Fence,<br>inside owner controlled | Measure radiation dose rates (operated by contract with Colorado State University) area.   |
|                                       | 4 Fixed Air Sampling Stations-Just Outside Security Fence                               | Sample particulates and radioiodines (operated by contract with Colorado State University) |
|                                       | Emergency Lab                                                                           | Ge-Li Detector<br>Multi-Channel Analyzer                                                   |
| 6. <u>Portable Survey Instruments</u> |                                                                                         |                                                                                            |
|                                       | Airborne Particulate Monitors                                                           | Detect airborne contamination                                                              |
|                                       | Beta-Gamma Air Monitor                                                                  | Detect airborne radioactivity                                                              |
|                                       | Alpha Survey Meters                                                                     | Detect surface contamination                                                               |
|                                       | Neutron Detectors                                                                       | Determine neutron flux rate                                                                |
|                                       | Ion Chambers                                                                            | Determine gamma dose rate                                                                  |
|                                       | Beta-Gamma Geiger-Mueller Survey Meters                                                 | Surface and area radiation and contamination levels                                        |



ONSITE ASSESSMENT EQUIPMENT AND FACILITIES

| Instrument System | Description and Location                | Functional Applicability                             |
|-------------------|-----------------------------------------|------------------------------------------------------|
|                   | SAM-II Portable Multi-Channel Analyzers | Verification of airborne I-131 levels in the field   |
|                   | Scintillation Counters                  | Determine gamma dose rate                            |
|                   | Pancake Geiger-Mueller Monitors         | Determine surface contamination levels               |
|                   | Proportional Counter                    | Determine alpha-beta-gamma contamination             |
|                   | Hi and Lo Vol Air Samplers              | Detect airborne iodine and particulate contamination |

## OFFSITE ASSESSMENT EQUIPMENT AND FACILITIES

Individual  
DetectorFunctional  
Applicability1. Geophysical Monitoring

## Meteorological

National Weather Service Denver  
Stapleton Airport

Weather forecasting

2. Radiological MonitorsEnvironmental Monitoring  
Radiation monitoring  
stations (12 TLD locations  
between one and ten miles  
from reactor; 12 locations  
between ten and fourteen  
miles from reactor)Measure radiation dose  
rate (operated by  
contract with  
Colorado State  
University)

Fixed Air Sampling Stations

Measure particulates and  
radioiodines (operated  
by contract with  
Colorado State  
University)

## Colorado State University

Ge-Li Detector

Gamma spectrometry for  
isotopic identification  
and analysis

NaI(Tl) Detector

Gamma spectrometry for  
isotopic identification  
and analysis

Radiochemistry Laboratory

Chemical and radiological  
analysis





OFFSITE ASSESSMENT EQUIPMENT AND FACILITIES

Individual  
Detector

Functional  
Applicability

Colorado Department of  
Health

Whole Body Counter

Identification and  
quantification of  
inhaled or ingested  
radioisotopes.  
Serves as backup  
to FSV System.



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Issue 1  
Page 1 of 8

TITLE: DEFUELING EMERGENCY RESPONSE PLAN: SECTION 8  
MAINTAINING EMERGENCY PREPAREDNESS

|                 |                      |  |  |                        |
|-----------------|----------------------|--|--|------------------------|
| RESPONSIBLE FOR | <i>J. Borst</i>      |  |  |                        |
| AUTHORIZED BY   | <i>Bill Fulk</i>     |  |  |                        |
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## 8.0 MAINTAINING EMERGENCY PREPAREDNESS

### 8.1 ORGANIZATIONAL PREPAREDNESS

To ensure that the FSV Emergency Response Organization is prepared, a program comprised of: (1) personnel training; (2) participation in scheduled drills and exercises; and, (3) regular emergency plan review and evaluation by company specialists and PSC management has been established.

#### 8.1.1 Training

A training and annual retraining program is in effect to ensure that station personnel who actively participate in emergency situations are familiar with the contents and responses set forth in this DERP.

Training Procedure - Defueling Emergency Response Plan (TP-DERP) identifies specific training requirements for each major emergency position/function. These training requirements are reflected by appropriate FSV training lesson plan numbers. The general requirements of the program are summarized in matrix form in TP-DERP. A brief discussion of the type of training being provided follows.

##### a. Basic Training and Indoctrination

Each employee receives general instructions on the DERP and supporting emergency procedures. Training sessions consisting of a review of the purpose, scope, emergency classifications, and required emergency response actions are conducted annually.

##### b. Specialized Training for Key Emergency Organization Personnel

Specialized training, designed to cope with such uncertainties as an emergency occurrence during backshift hours, is provided to key personnel involved in emergency response actions. This training includes instruction and review in the technical and practical aspects of response activities, as well as "cross-subject" training to ensure the familiarity and flexibility necessary for personnel who could be assigned to a diversity of emergency response functions.

For example, training for the Emergency Coordinator emphasizes: review of emergency procedures, resources, and assignments; monitoring team functions; effects of meteorology on radiation exposure, and dose estimation techniques. The specific training matrix is fully presented in TP-DERP.

c. Training for Participating Agencies

Station personnel are available to describe the special conditions and constraints involved in dealing with FSV emergency situations. The station conducts special training for members of the Platteville Volunteer Fire Department including familiarization with the station layout, the location and nature of fire hazards, the location, type, and availability of extinguishing equipment, and the special radiological considerations associated with fire fighting at the FSV. Training is also made available for the Weld County Ambulance Service, Weld County Sheriff's Department personnel, St. Luke's Hospital personnel, and others who may be called upon to render assistance. Such training for non-PSC personnel includes site access procedures, identification of station emergency personnel who will control such support forces, and a general DERP overview, as applicable. A similar DERP overview is made available to local media representatives as well.

d. Training for Emergency Preparedness Staff

**\*\*8.5.1\*\*** Personnel assigned to the emergency planning effort attend various industry short courses and seminars to maintain current information concerning Emergency Planning (EP) activities, whenever feasible.



#### 8.1.2 Drills and Exercises

Regular participation by station personnel in drills and exercises is scheduled to maintain emergency preparedness and test specific aspects of emergency plans, procedures, and equipment. Evaluation of these drills and exercises is conducted, and changes found necessary to improve the DERP are adopted.

\*\*\*8.5.2\*\*\* Drills and exercises will be conducted in varying weather conditions whenever possible. Documentation of drills and exercises will include weather conditions present to provide auditable records.

##### a. Drills

Instructional emergency drills are conducted on a scheduled basis with emphasis placed upon orderly implementation of activities prescribed within the DERP and its implementing procedures. General schedule requirements are outlined in TP-DERP.

Drill performance is critiqued by personnel acting as drill instructors who offer on-the-spot corrections to erroneous performance. Each observer is assigned a specific area for evaluation and receives written instructions for detailing response checks. The Vice President, Nuclear Operations and station supervisory personnel are provided written evaluations of drill performance based on the results of these critiques, including participant's comments, if available. \*\*\*8.5.5\*\*\* These evaluation reports are normally submitted within 30 days of exercise/drill completion, and no later than 90 days following completion. Followup action is then delineated to upgrade areas where deficiencies are noted.





Drills for the station staff are conducted periodically throughout the year to: (1) test response timing and familiarity with implementing procedures and methods; (2) test emergency equipment; and, (3) ensure that emergency organization personnel are familiar with their duties. Certain drills, i.e., fire, communications and notification, and medical emergency, are coordinated with offsite participating agencies.

Fire drills are conducted quarterly in accordance with plant technical specifications. These drills include instruction in the handling of fire and rescue apparatus. Additional instruction is provided in fire prevention, fire safety, pre-fire planning, fire fighting, fighting electrical fires, and the use of emergency breathing apparatus. Special fire drills with the Platteville Volunteer Fire Department are conducted annually to assure effective, coordinated action. All fire drills are coordinated and conducted by Nuclear Training and Support Department personnel.

Communication links and notification procedures with offsite agencies are tested on a monthly basis.

\*\*8.5.3\*\* Verification of personnel, emergency organization assignments, telephone numbers, and outside assistance contacts, are performed quarterly. Phone numbers are updated, as needed, in the FSV Emergency Phone Book. Verification of emergency response facility communication links is accomplished quarterly.

Medical Emergency Drills with St. Luke's Hospital for treatment of contaminated persons are conducted on an annual basis. In addition to these annual drills, the hospital conducts regular in-house emergency drills on the treatment and care of injured and contaminated persons. Drills involving Weld County Ambulance Service are conducted on a semi-annual basis.

Radiological Monitoring Drills are conducted annually for personnel assigned to Radiological Monitoring Teams. These drills include operation of instruments, tests of field communications equipment, and interpretation of radiation readings.

Health Physics Drills are conducted semi-annually, generally in connection with joint exercises or radiation monitoring drills. The HP drills involve analysis of simulated or actual samples (including the drawing and analysis of primary coolant) with elevated radiation levels, both liquid and airborne, as well as direct radiation measurements in the environment.

b. Exercises

An annual exercise of the DERP will be conducted to test the adequacy of implementing procedures and methods, test emergency equipment and communications networks, and ensure that emergency response personnel are familiar with their duties.

8.1.3 Emergency Planning Coordinator

The Nuclear Training and Support Manager has overall responsibility and authority for emergency response planning. An Emergency Planning Coordinator (EPC) maintains continued coordination with state and local emergency planners on the status of emergency plans. The EPC participates in meetings aimed at maintaining plans current and accurate. The EPC coordinates plan revisions based on evaluations resulting from exercises/drills.

8.2 REVIEW AND UPDATING OF THE DERP

The FSV DERP is reviewed and updated annually. The Nuclear Documents Unit maintains documentation pertaining to the annual review and updating. Special attention is devoted to maintaining effective communication channels, and ensuring up-to-date contact and notification lists.

PSC emergency planning personnel review the DERP annually (or more frequently) and make recommendations for updating, as appropriate. In addition, independent audits (see Section 8.4) of the various aspects of the emergency preparedness program are conducted annually. The results are considered by PSC management in modifying aspects of the DERP. Audit documentation is maintained for at least five years.

Revised or updated emergency plans and procedures are handled in accordance with existing station document control procedures. These include making physical changes in text and distributing revised or new material to document holders.

#### 8.3 MAINTENANCE AND INVENTORY OF EMERGENCY EQUIPMENT AND SUPPLIES

Quarterly inspections of the operational readiness of items of emergency equipment and supplies are conducted on a departmental basis. Deficiencies noted during inspections are programmed for correction within specified time periods. The use of inspection procedures with checkoffs and followup actions ensures that equipment is ready for use. Sufficient reserves of instruments/equipment are maintained to replace those undergoing calibration or repair. Calibration of equipment is conducted at intervals recommended by suppliers, or PSC guidelines. In addition, planned utilization of communications, first aid, fire fighting, and radiation detection equipment during scheduled drills further ensures the availability and operability of emergency equipment.

#### 8.4 INDEPENDENT REVIEW OF THE EMERGENCY PREPAREDNESS PROGRAM

\*\*\*8.5.4\*\*\* In accordance with the Code of Federal Regulations, Part 10, Section 50.54 (t), the Quality Assurance Division, in conjunction with the site's Nuclear Facility Safety Committee, will conduct audits on an annual basis (more frequently, if needed) of the Defueling Emergency Response Plans for the site.



## 8.5 COMMITMENTS

The step(s) and section(s) listed below may not be deleted without issuance of comparable controls. The procedure itself, if initiated as a result of commitment corrective action, may not be deleted without issuance of comparable controls.

8.5.1 Section 8.1.1.d is in response to CAR 86-068.

8.5.2 Section 8.1.2, "drills and exercises", is in response to CAR 86-068.

8.5.3 Section 8.1.2, "communication links and notification", is in response to CAR 86-066.

8.5.4 Section 8.4 is in response to CAR 86-067.

8.5.5 Section 8.1.2, exercise/drill report time requirements are in response to QDR 87-077.



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Page 1 of 7

TITLE: DEFUELING EMERGENCY RESPONSE PLAN: SECTION 9, RECOVERY

|                 |                             |  |  |                               |
|-----------------|-----------------------------|--|--|-------------------------------|
| RESPONSIBLE FOR | <i>J. Boerst</i>            |  |  |                               |
| AUTHORIZED BY   | <i>M. Fulk</i>              |  |  |                               |
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## 9.0 RECOVERY

Recovery operations for FSV consist of those operations associated with the long term post-emergency efforts that follow a major incident. These operations will be performed by station and other PSC personnel, contract experts and specialists, and qualified engineers-constructors under the direction of the PSC Recovery Organization.

After termination of the emergency, (i.e., the plant is in a safe and stable condition) recovery actions are designed to: (1) identify the extent of plant damage; (2) prepare specific plans and programs for station repair; (3) implement specific corrective action plans and programs; and, (4) return the plant to a defueling/decommissioning status.

The following general guidelines assist in determining whether the Emergency Response Organization should be terminated and the Recovery Organization established.

- Radiation levels are stable or decreasing with time.
- Releases of radioactive materials to the environment have ceased or are controlled within permissible license limits.
- Fire, flooding, or similar emergency conditions no longer constitute a hazard to the plant or station personnel.
- Overall plant is in a stable condition.
- Measures have been successfully instituted to correct or compensate for malfunctioning equipment.
- NRC and State/local officials have been notified of intent to terminate the Emergency Response Organization.
- TSC Director has authorized transition from the Emergency Response Organization configuration to the Recovery Organization and notifies personnel accordingly.

The Recovery Organization described in the following section will be activated following the termination of the emergency. Manpower and equipment resources supporting the individual functional segments of the recovery organization will vary according to the severity of damage and specific situational needs.

## 9.1 RECOVERY ORGANIZATION

Activation of an effective recovery operation will involve the transition of selected key technical personnel from emergency to recovery operations. In a similar manner, management personnel involved in the emergency will be assigned to direct and coordinate recovery operations.

Function managers and technical personnel who served in Control Room and TSC positions during the emergency will typically form the nucleus of the Recovery Organization.

The Recovery Organization will be established to respond to a particular situation. As such a precise organization can not be fully defined. A general Recovery Organization is depicted in Attachment 9.2. The responsibilities and functions of these recovery managers are summarized as follows:

- The Recovery Director - (Vice President, Nuclear Operations) has overall corporate responsibility for restoring the station to a normal defueling/decommissioning configuration and is vested with the authority to commit corporate resources to accomplish the recovery.
- The Plant Operations Manager - (Manager, Nuclear Production Division/Station Manager) responsible for ensuring that repairs and modifications will optimize plant safety and providing analyses, plans, and procedures in support of defueling/decommissioning.
- The Radcon/Waste Manager - (Superintendent of Radiation Protection and Chemistry) develops plans and procedures to process and control liquid, gaseous, and solid wastes to minimize adverse effects on the health and safety of the public and station recovery personnel. In addition, the Radcon/Waste Manager coordinates the activities of staff health physicists and personnel engaged in waste treatment operations.
- The Quality Assurance Manager - (Manager, Quality Assurance Division) assures that the overall conduct of recovery operations is performed in accordance with corporate policy and rules and regulations governing activities which may affect public health and safety.



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- The Recovery News Director - (Director, Media Services) coordinates the flow of media information concerning recovery operations and acts as corporate spokesman concerning recovery activities.

An overview of topics which can be addressed during establishment of recovery operations is presented in Attachment 9.1.

#### 9.2 RECOVERY EXPOSURE CONTROL

The Manager, Nuclear Production Division/Station Manager will designate a technical group responsible for evaluating the advisability of initiating recovery and reentry. Information on existing conditions, interviews with employees evacuated during the emergency, regulatory exposure guidelines, and counsel from recognized experts will be utilized in formulating decisions on reentry and recovery.

During recovery operations, actions will be preplanned to limit exposures. Access to affected areas will be controlled and exposure to personnel documented. Contaminated areas will be posted with radiation levels and stay times based on results of surveys.

#### 9.3 COMMITMENTS

None

### RECOVERY PLANNING TOPICS

The following is an outline of suggested topics to be discussed while entering into recovery operations. This outline is not all inclusive, rather it is provided for general guidance.

#### I. SUMMARY OF ACCIDENT

- A. Causes
- B. Initiating Events
- C. Accident Chronology

#### II. STATUS OF PLANT AND PERSONNEL

- A. Injuries/Contamination Cases
- B. Radiation Exposure Summary
- C. On-Site Contamination
- D. Status of Plant Systems/Facilities
- E. Extent of Core Damage

#### III. SAFETY CONCERNS

- A. Re-Entry Requirements
- B. Maintaining Stable Plant Conditions

#### IV. TENTATIVE REPAIR PLAN AND SCHEDULE

- A. Major Steps Necessary to Restore to a Defueling/Decommissioning Phase
- B. Evaluation of PSC Resources
- C. Licensing Considerations
- D. Quality Assurance Considerations
- E. Administrative Concerns
- F. Logistics/Scheduling





V. OFFSITE COORDINATION

- A. Long Term Environmental Monitoring
- B. Rad Waste Disposal and Considerations
- C. Media Relations Coverage/Control

VI. CORPORATE RECOVERY ACTIVITIES

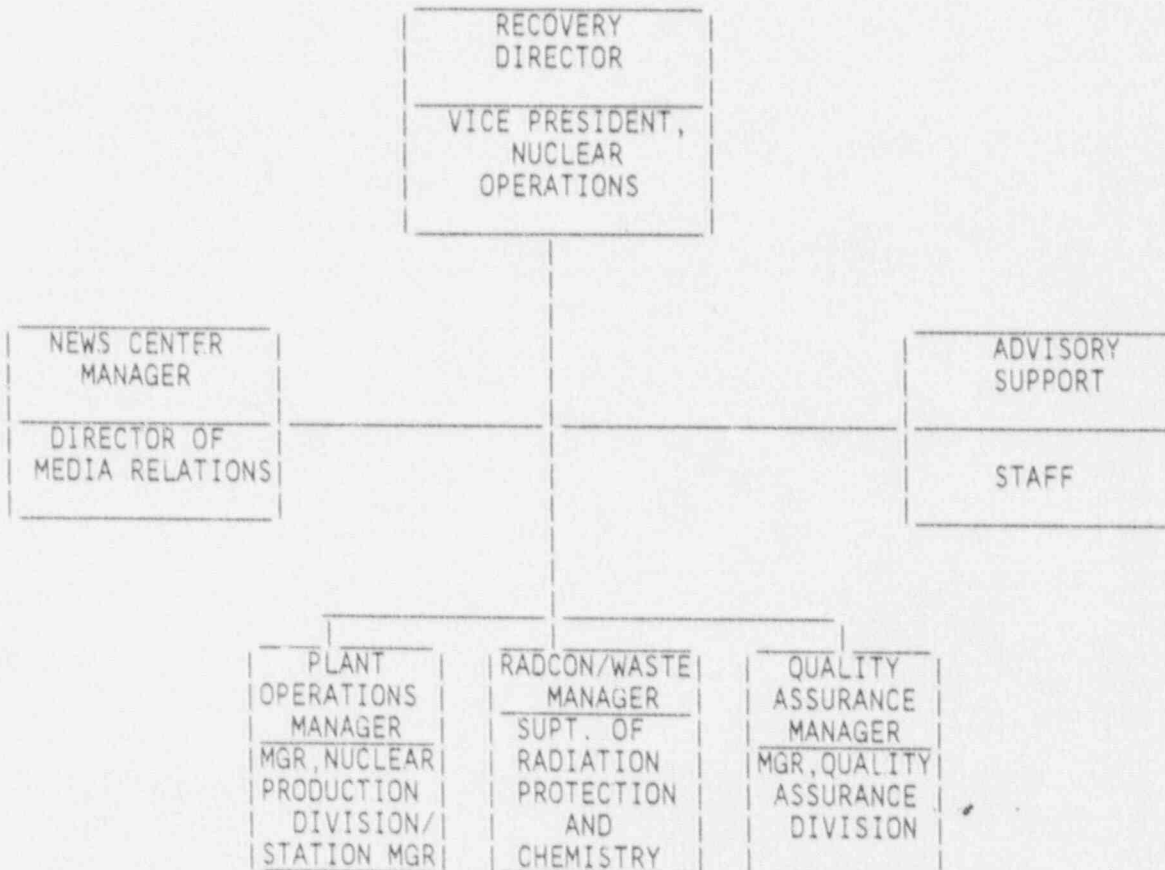
- A. Replacement Power Requirements
- B. Insurance Coverage/Contacts
- C. Reportability

VII. SHORT TERM ASSIGNMENTS

- A. Project Definition
- B. Project Assignments
- C. Location and Time of Next Organization Meeting



RECOVERY ORGANIZATION





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TITLE: DEFUELING EMERGENCY RESPONSE PLAN, SECTION 10  
LETTERS OF AGREEMENT AND SUPPORTING PLANS

|                 |                      |  |  |                        |
|-----------------|----------------------|--|--|------------------------|
| RESPONSIBLE FOR | <i>J. Boist</i>      |  |  |                        |
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#### 10.1 LETTERS OF AGREEMENT

This section contains copies of Letters of Agreement with the various local agencies and contract support organizations. The current, up-to-date letters are filed in the FSV Records Retention Center; copies of the current documents, are also located in the FSV Emergency Planning files.

- 10.2 Hydrology and seismic data can be obtained through the U.S. Department of Interior, Denver, CO. The phone number is available in the FSV Emergency Phone Book.
- 10.3 Colorado State University will conduct environmental monitoring per WS-60-0001, Radiological Environmental Monitoring Program (REMP).

TABLE 10-1

## LIST OF INTERFACING PLANS

| <u>AGENCY</u>                                                            | <u>DOCUMENT TITLE</u>                                                                                               |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| State of Colorado, Division of<br>Disaster Emergency<br>Services (DODES) | Fort St. Vrain Radiological<br>Emergency Response Plan<br>(State RERP)                                              |
| Weld County                                                              | Weld County Emergency<br>Operations Plan and<br>Weld County RERP                                                    |
| Colorado Department of Health                                            | (in State RERP)                                                                                                     |
| Platteville Fire Protection District                                     | Fort St. Vrain Emergency<br>Response Plan                                                                           |
| Weld County Sheriff's Department                                         | Weld County Sheriff's Office                                                                                        |
| Colorado State Patrol                                                    | Emergency Response Plan<br>for a Radiological Emergency<br>at Fort St. Vrain Nuclear<br>Electric Generating Station |
| Weld County Office of Emergency<br>Management                            | Weld County Emergency<br>Operations Plan and<br>Weld County RERP                                                    |
| Weld County Health Department                                            | Health Department's Response<br>to Emergency at Fort St. Vrain                                                      |
| USNRC                                                                    | Federal Radiological Emergency<br>Response Plan and Region IV<br>Incident Response Supplement<br>to NUREG-0845      |
| FEMA                                                                     | Federal Radiological Emergency<br>Response Plan                                                                     |



FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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PPS-88-0132



Department of Radiology  
and Radiation Biology  
Fort Collins, Colorado 80523  
(303) 491-5380

January 5, 1988

Mr. Owen J. Clayton  
Emergency Planning Coordinator  
Fort St. Vrain  
16805 WCR 19½  
Platteville, CO 80651

Dear Mr. Clayton:

In response to your letter to me dated December 28, 1987, I am pleased to confirm that the staff and facilities of this department would be available to Public Service Company in the event of a radiological emergency at the Fort St. Vrain Nuclear Generating Station.

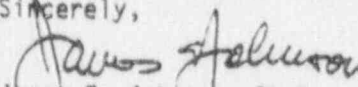
Colorado State University has conducted the radiation environmental surveillance program at the FSV reactor since 1969. This period includes the entire preoperational phase as well as the current operational phase. This program has been on a contractual basis with the University.

All personnel and facilities that are currently under contractual obligation to the Radiological Environmental Monitoring Program have been trained in procedures to immediately respond to a non-normal radioactivity release. The details of this contractual response can be found in WS-60-001 Section 4.0.

A principle teaching program of the department is radiation protection and major research programs are in the areas of environmental radioactivity and personal radiation dosimetry. The personnel in the radiation protection areas include three certified health physicists as well as two radioecologists. These would be available for assistance to reactor, state or governmental groups. In addition, the department has a full range of monitoring equipment which is continuously available. A whole-body counter is in operation at the department main building which is less than 30 miles from FSV. The department also has expertise in agricultural considerations of food chain transport of any environmental radioactivity and the biological effects of ionizing radiation.

The personnel and resources of the department would be available to assist and or direct any radiation protection effort upon request by Public Service Company or the Colorado Department of Health.

Sincerely,

  
James E. Johnson, Ph.D.  
Professor

JEJ:nb





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FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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PPS-88-0128

## Controls for Environmental Pollution, Inc.

1925 Rosina • P. O. Box 5351 • Santa Fe, New Mexico 87502 • Telephone 505 982-9841

January 7, 1988

Public Service Co. of Colorado  
16805 WCR 19 1/2  
Platteville, CO 80651

Attn: Owen J. Clayton

Dear Mr. Clayton:

I would like to introduce to you and your staff our full analytical capabilities. We have been serving the nuclear industry for over two decades. Our laboratory provides complete environmental, bioassay and waste characterization programs for your type of industry. In order to give you further background on our company, we are enclosing a brochure which outlines our power plant analytical capabilities.

I have enclosed our Letter of Agreement for 1988 for technical assistance for your company.

We are pleased to have this opportunity of introducing you to Controls for Environmental Pollution, Inc., and if we can be of any assistance in the future, please feel free to call upon us for information or assistance at 1-800-545-2188.

Very truly yours,

CONTROLS FOR ENVIRONMENTAL POLLUTION, INC.

James J. Mueller  
President

JJM/jjs

Enclosures



FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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Public Service Company of Colorado  
January 21, 1987

Dear Mr. Clayton:

This letter will confirm that Controls for Environmental Pollution, Inc., has agreed to assist Public Service Company of Colorado in the event of an emergency situation with Fort St. Vrain Nuclear Generating Station.

This assistance will be in the form of direct participation by CEP employees both off-site and on-site on an "as needed basis". Availability will be immediate for any assistance which can be performed at CEP's home office and within 8 hours for assistance requiring travel to Fort St. Vrain or other Public Service Company of Colorado facilities.

We would expect to provide assistance in the following general areas:

1. Collecting and analyzing radiological environmental samples.
2. Receiving and analyzing samples on an emergency basis.
3. Assistance with health physics monitoring.
4. Providing monitoring assistance and radiological monitoring.
5. Analyzing urine and feces samples from Fort St. Vrain personnel.
6. Post emergency write-up reports.

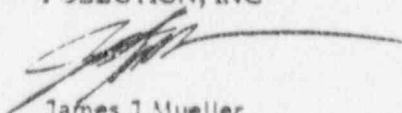
Following are the names and telephone numbers, both home and office, for persons who may be contacted to respond to a request for emergency assistance:

|                                             |                                             |
|---------------------------------------------|---------------------------------------------|
| James J. Mueller                            | Bob Bates                                   |
| Office: (505) 982-9841 or<br>1-800-545-2188 | Office: (505) 982-9841 or<br>1-800-545-2188 |
| Home: (505) 471-0311                        | Home: (505) 982-2316                        |
| Ellen LaRiviere                             | Lisa Wilburn                                |
| Office: (505) 982-9841 or<br>1-800-545-2188 | Office: (505) 982-9841 or<br>1-800-545-2188 |
| Home: (505) 983-5131                        | Home: (505) 473-9220                        |

You are hereby authorized to use this letter in support of any of your applications for licenses or approvals from federal, state or local agencies who may be involved with, or affected by, your emergency planning activities.

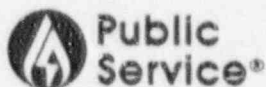
Very truly yours,

CONTROLS FOR ENVIRONMENTAL  
POLLUTION, INC.



James J. Mueller  
President

JJM:dl



FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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**R. S. Landauer, Jr. & Co.**

Division of Tech/Ops, Incorporated

2 Science Road

Glenwood, Illinois 60425-1586

Telephone (312) 755-7000

PPS-88-0131

**Tech Ops**

**Landauer**

January 6, 1988

Mr. Owen J. Clayton  
Emergency Planning Coordinator  
Public Service Co. of Colorado  
16805 WCR 19 1/2  
Platteville, Colorado 80651

Dear Mr. Clayton:

Tech/Ops Landauer, Inc. has the capability of providing 24 hour,  
7 days a week emergency processing.

There are various methods available to send the film to us.  
Federal Express and Emery Airborne guarantee 24 hour delivery.  
In addition most of the major airlines provide a special delivery  
from airport to airport.

Upon receipt of the film(s) at our facility it is a matter of a  
couple of hours to process, read and evaluate the dose.

We also have emergency processing available at our El Segundo  
sales office. The girl in the office has been thoroughly  
trained to process and compute exposures for film and TLD's.

We, at Tech/Ops Landauer, Inc. are eager to help you in the event  
of a shut down or any other emergency condition.

If you have any further questions concerning these procedures,  
please do not hesitate to contact me.

Sincerely,

Tech Ops Landauer, Inc.

Jeannine MacDonald  
Technical Assistant  
Quality Assurance

JMD/yls



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PPS-88-0129

## STONE & WEBSTER ENGINEERING CORPORATION



5555 GREENWOOD PLAZA BOULEVARD  
ENGLEWOOD, COLORADO 80111-2113

BOSTON  
CHERRY HILL, N.J.  
DENVER  
HOUSTON  
NEW YORK  
DALLAS  
PORTLAND, OR  
RICHLAND, WA  
WASHINGTON, D.C.

ADDRESS ALL CORRESPONDENCE TO P. O. BOX 5408, DENVER, COLORADO 80217-5408

TELEPHONE: 303-741-7700  
W. U. TWX: 910-228-0108  
W. U. TELEX: 45-4481  
RCA TELEX: 289251

Mr. R. O. Williams  
Vice President, Nuclear Operations  
Public Service Company of Colorado  
2420 West 26th Avenue  
Suite 100D  
Denver, Colorado 80211

January 7, 1988

J. O. No. 13569.XX  
Ltr. No. S-F-23

### AGREEMENT TO PROVIDE EMERGENCY SUPPORT AND RECOVERY ASSISTANCE FORT ST. VRAIN NUCLEAR GENERATING STATION

In the event of an emergency at Public Service Company of Colorado's (PSCC) Fort St. Vrain Nuclear Generating Station, Stone and Webster Engineering Corporation (SWEC) will provide engineering and/or operations support personnel to assist in accident mitigation, emergency plan implementation, and/or recovery activities, within the categories described in Attachment No. 1.

PSCC and SWEC have already established the appropriate terms and conditions applicable to services identified in Attachment No. 1. These terms and conditions are contained in our existing Continuing Services Agreement (PSCC Document No. 37754), dated January 2, 1980, amended on January 2, 1986.

In order to obtain the support listed in Attachment No. 1, please contact Mr. R. S. Unks (home phone 303-841-5060) or Mr. P. F. Ervin (home phone 303-690-8701). Their office numbers are 303-741-7516 and 303-741-7444 respectively.

*RS Unks*

for  
J. J. M. Plante  
Vice President

Enclosure

JJMP:RSU:DSM

cc: F. J. Novachek  
O. J. Clayton





ATTACHMENT NO. 1

Emergency Support Available From SWEC  
For Fort St. Vrain, Under the Terms and Conditions  
Of Existing Contract (PSC) Document No. 37754

1. Assessment

SWEC Personnel assist PSC, NSSS vendor, other A/E personnel, or state/local agencies in off-site dose assessment, and assist PSC in assessing plant equipment damage, performance, or operability.

2. Engineering/Design

SWEC Personnel assist PSC, NSSS vendor or other A/E personnel in engineering evaluations of accident consequences and in design of plant modifications or temporary plant systems for mitigation or recovery.

3. Procurement

SWEC, acting as an agent for and on behalf of PSC, would assist in procurement of equipment required to mitigate or recover from an emergency.

4. Operations/Maintenance Support

SWEC Personnel assist PSC Operations and Maintenance personnel in rapid planning/procedure writing for emergency operations and maintenance activities.

SWEC personnel assist PSC Operations Personnel in planning and procedure writing for testing and operation of temporary systems during the mitigation and initial recovery stages. Also could provide similar support on permanent systems when in the final recovery stages.

5. Radiation Protection

In addition to assisting in radiological dose assessments item 1, above, SWEC personnel could assist PSC in executing control and minimization of personnel exposures for operations requiring access or re-entry during accident mitigation or recovery. SWEC Rad Protection activities could also include engineering for temporary shielding as may be required for minimizing personnel exposures.

6. Quality Assurance

SWEC personnel can be assigned to assist PSC in assuring an appropriate level of quality control is exercised over engineering, operations and maintenance activities during the recovery phase.

7. Planning and Scheduling

SWEC personnel would assist the PSC Recovery Manager in execution of overall and day to day scheduling and tracking of recovery activities.





FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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### Platteville Fire Protection District

P.O. Box 122 • Platteville, CO 80651  
(303) 785-2232

PPS-88-0546

2/4/88

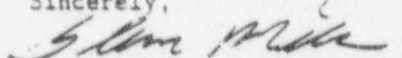
Mr. Owen J. Clayton  
Fort St. Vrain  
16805 WCR 19 $\frac{1}{2}$   
Platteville, Co. 80651

Dear Mr. Clayton:

This Letter is to update the present agreement between Public service and the Platteville Fire District. We have reviewed the present agreement and find it to be correct. The Platteville Fire Department agrees to continue response to Fort St. vrain for medical emergencies, fire emergencies and to assist as outlined in the emergency response plan.

If you need any additional information please feel free to contact us at 785-2232

Sincerely,

  
Glenn Miller, Fire Marshal  
Platteville Fire District



FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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PPS-88-0180

## Johnstown Volunteer Fire Dept.

P.O. Box F  
Johnstown, Colo. 80534

January 14, 1988

Mr. Owen J. Clayton  
Emergency Planning Coordinator  
Fort St. Vrain Nuclear Generating Station  
16805 Weld County Road 19½  
Platteville, CO 80651

Dear Mr. Clayton:

This letter is to serve as notice that the Johnstown Volunteer Fire Department will be available to assist Fort St. Vrain Nuclear Generating Station either for routine operations or during an emergency. Please do not hesitate to notify us if we can be of service.

A handwritten signature in cursive script, reading "James C. Young, Jr.", written in dark ink.

James C. Young, Jr., Chief  
Johnstown Volunteer Fire Department



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PUBLIC SERVICE COMPANY OF COLORADO

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PPS-88-0300



## ST ANTHONY HOSPITAL SYSTEMS

CENTRAL 4231 WEST 16TH AVENUE • DENVER COLORADO • 80204 • (303) 629-3511  
NORTH 2551 WEST 84TH AVENUE • WESTMINSTER COLORADO • 80030 • (303) 426-2151  
SUMMIT MEDICAL CENTER P.O. BOX 738 • FRISCO COLORADO • 80443 • (303) 668-3300  
EMERGENCY MEDICAL CENTER P.O. BOX 952 • GRANBY COLORADO • 80446 • (303) 887-2503

DOUGLAS R. COOK  
President & Chief Executive Officer

January 20, 1988

Owan J. Clayton  
Emergency Planning Coordinator  
Public Service Company  
16805 WCR 19 1/2  
Platteville, CO 80651

Dear Mr. Clayton:

In response to your letter of December 28, 1987, St. Anthony Hospital Systems' Flight For Life agrees to continue with our commitment to assist the Public Service Company of Colorado at the Fort St. Vrain Nuclear Generating Station as stated below.

St. Anthony Hospital Systems' Flight For Life agrees to respond to the Fort St. Vrain Facility in Platteville, Colorado, at the request of the Weld County Communications Center for emergency medical assistance. Our Communications Dispatcher will verify to your Shift Supervisor that Flight For Life is (or is not) responding to the request by calling 571-7436.

Per your policy, patients who have potential contamination or radiological complications will be transported to St. Luke's Hospital. However, it is the attending Flight Nurse's decision to deviate to another medical facility if the medical condition warrants.

A Health Physics Technician from Fort St. Vrain may accompany the patient on the helicopter if conditions allow as determined by the pilot and flight nurse.

Sincerely,

Daniel R. Raich  
Director, Flight Operations

DRR/jk

cc: Barbara Lockwood  
Dr. Sharbaro  
Dr. Dracon  
Dr. Cromer

Anne Goshco  
Communications Center  
Operations Manual  
Files





FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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TELEPHONE  
915-846-8971

PPS-88-0243

2742 PALO DURO DRIVE  
SAN ANGELO TEXAS  
76904

**H.G. OLSON**  
NUCLEAR ENGINEER

January 13, 1983

Mr. R. O. Williams, Jr.  
Vice President Nuclear Operations  
Fort St. Vrain Nuclear Generating Station  
Public Service Company of Colorado  
16305 Weld County Road 19 1/2  
Platteville, CO 80651

Dear Mr. Williams:

In the event of a radiological emergency at Fort St. Vrain, I will be available to assist the plant's staff on problems relating to nuclear engineering and health physics.

I have been associated with Fort St. Vrain as a consultant since initiation of the project. Through my membership on the Nuclear Facility Safety Committee (NFSC) and my participation in numerous NFSC audits, I have remained current on the operational status of the plant.

Very truly yours,

*H. G. Olson*  
H. G. Olson

HGO:slw





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PUBLIC SERVICE COMPANY OF COLORADO

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PPS-88-0130



WESTERN RADIATION CONSULTANTS, INC.

Radiation Protection / Evaluation  
Industrial Hygiene  
Employee / Management Training

1306 Winfield Drive  
Fort Collins, Colorado 80526  
303-482-3029

1702 Mill Street  
Laramie, Wyoming 82070  
307-742-7127

January 6, 1988

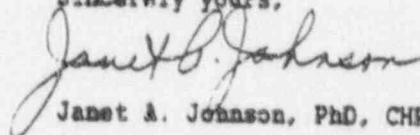
Mr. Owen J. Clayton  
Emergency Planning Coordinator  
Public Service Company of Colorado  
16805 WCR 19 1/2  
Platteville, CO 80651

Dear Mr. Clayton,

In the event of a radiological emergency at the Fort St. Vrain Nuclear Generating Station I will be available to serve as "radiation specialist" for Public Service Company at the State Emergency Operations Center.

My current home and office telephone number is: (303) 482-3029.

Sincerely yours,

  
Janet A. Johnson, PhD, CHP





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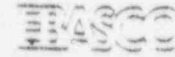
FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

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**EBASCO CONSTRUCTORS INC.**

A Subsidiary of EBASCO SERVICES INCORPORATED

3000 W. MacArthur Blvd., Santa Ana, CA 92704. (714) 662-4055



Robert E. Pester  
Vice President

PPS-88-0550

February 12, 1988

Public Service Company of Colorado  
16805 WCR 19 1/2  
Platteville, Colorado 80651

Attention: Mr. Frank Novachek

Dear Mr. Novachek:

Ebasco Constructors Inc. is a subsidiary of Ebasco Services Incorporated, which is a full services engineering/construction firm with the capability of furnishing to Public Service Company of Colorado nuclear engineering, design, purchasing, procurement, and construction personnel.

Ebasco Constructors Inc. will be willing to assist Public Service Company of Colorado in the event of a radiological emergency at the Fort Saint Vrain Nuclear Station.

In case of emergency, contact:

Mr. Robert E. Pester  
3000 W. MacArthur Blvd.  
Santa Ana, California 92704  
(714) 662-4055

Sincerely,

cc: File  
R. Schwarz  
R. Craun  
O. J. Clayton



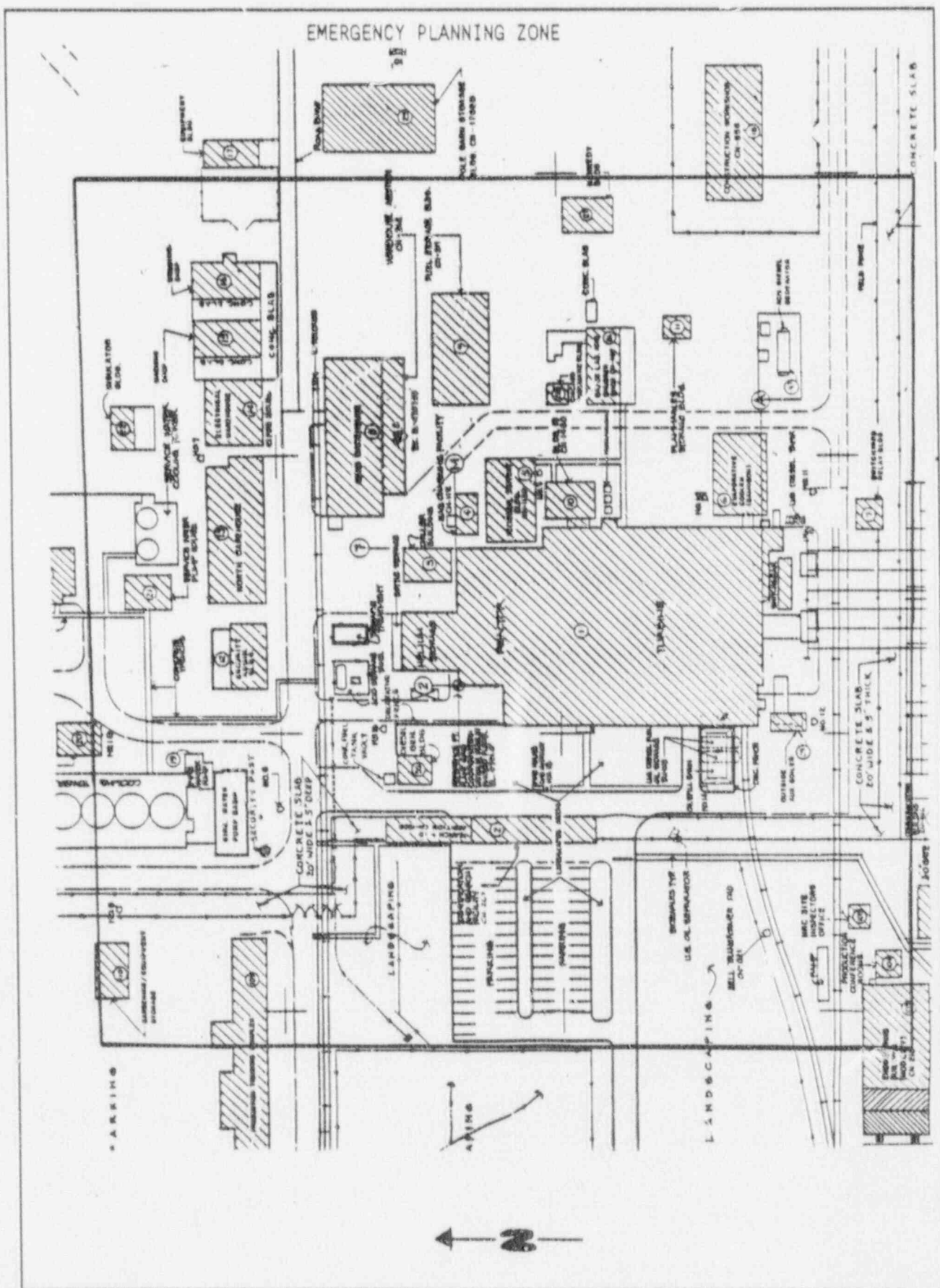
FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

DERP Section 11  
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|                                                              |                      |  |                        |
|--------------------------------------------------------------|----------------------|--|------------------------|
| TITLE: DEFUELING EMERGENCY RESPONSE PLAN, SECTION 11<br>MAFS |                      |  |                        |
| RESPONSIBLE FOR                                              | <i>J. Boist</i>      |  |                        |
| AUTHORIZED BY                                                | <i>M. Falk</i>       |  |                        |
| PORC REVIEW                                                  | PORC 921 FEB 13 1991 |  | EFFECTIVE DATE 3-29-91 |
| DCCF NUMBER (S)                                              | 90-1235              |  |                        |
|                                                              |                      |  |                        |

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PUBLIC SERVICE COMPANY OF COLORADO

DERP Section 12  
Issue 1  
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TITLE: DEFUELING EMERGENCY RESPONSE PLAN, SECTION 12  
PROCEDURES THAT IMPLEMENT OR SUPPLEMENT THE PLAN

|                 |                      |  |  |                        |
|-----------------|----------------------|--|--|------------------------|
| RESPONSIBLE FOR | <i>J. Borst</i>      |  |  |                        |
| AUTHORIZED BY   | <i>M. Fulk</i>       |  |  |                        |
| PORC REVIEW     | PORC 921 FEB 13 1991 |  |  | EFFECTIVE DATE 3-29-91 |
| DCCF NUMBER (S) | 90-1236              |  |  |                        |

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APPENDIX D

| <u>Procedure Designation<br/>and Title</u> | <u>Implements/<br/>Supplements RERP<br/>Section No.</u> |
|--------------------------------------------|---------------------------------------------------------|
|--------------------------------------------|---------------------------------------------------------|

FSV Administrative Procedures

|      |                                                              |     |
|------|--------------------------------------------------------------|-----|
| G-5  | Personnel Emergency Response                                 | 6   |
| G-7  | FSV Project Personnel Training<br>and Qualification Programs | 8   |
| P-8  | Fire Fighting and Prevention                                 | 5,6 |
| Q-18 | QA Monitoring and Audit Program                              | 8   |

Health Physics Procedures

|         |                     |     |
|---------|---------------------|-----|
| HPP-915 | RERP Inventory List | 6,7 |
|---------|---------------------|-----|

Health Physics activities are described within  
the Health Physics Procedures (HPPs).

Radiochemistry Procedures

Radiochemistry activities are described within  
the Radiochemistry Procedures (RCPs).





APPENDIX D

| <u>Procedure Designation<br/>and Title</u>                             | <u>Implements/<br/>Supplements RERP<br/>Section No.</u> |
|------------------------------------------------------------------------|---------------------------------------------------------|
| <u>Surveillances</u>                                                   |                                                         |
| SR-EP-3-Q Backup Meteorological Data Collection<br>and Evaluation      | 6,7                                                     |
| SR-EP-4-M Emergency Communication System Test                          | 4,5,8                                                   |
| SR-EP-5-Q DERP Phone List Verification -<br>Outside Company            | 4,5,8                                                   |
| SR-EP-6-Q DERP Phone List Verification -<br>Company                    | 4,5,8                                                   |
| SR-EP-7-Q Emergency Communication Equipment<br>Check                   | 4,5,8                                                   |
| SR-EP-9-Q Maintenance of Radiological Emergency<br>Preparedness        | ALL                                                     |
| SR-EP-10-Q Personnel Accountability System Test                        | 6,8                                                     |
| SR-EP-11-Q DERP Emergency Organization<br>Augmentation - Working Hours | 4,5,6,7,8                                               |
| SR-EP-12-SA DERP Emergency Organization<br>Augmentation - Off-hours    | 4,5,6,7,8                                               |
| <u>Procedure Manuals and Plans</u>                                     |                                                         |
| TP-DERP Training Procedure - Defueling<br>Emergency Response Plan      | 8                                                       |
| Emergency Operating Procedures (EOPs)<br>All Sections                  | 4,5,6                                                   |
| Abnormal Operating Procedures (AOPs)<br>All Sections                   | 4,5,6                                                   |
| Station DERP Implementing Procedures<br>All Procedures                 | All                                                     |



APPENDIX D

| <u>Procedure Designation<br/>and Title</u>                                               | <u>Implements/<br/>Supplements RERP<br/>Section No.</u> |
|------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Medical Emergency Plan - FSV                                                             | 5,6,7                                                   |
| Technical/Administrative Services Manager's<br>Administrative Procedures (TASMAPs)       |                                                         |
| TASMAP-8 Personnel Emergency Response<br>Accountability                                  | 6                                                       |
| TASMAP-10 Scenario Development of Emergency<br>Preparedness Exercises                    | 8                                                       |
| Public Service Company RERP<br>Public Information Plan                                   | 5,7,8,9                                                 |
| State of Colorado Fort St. Vrain<br>Radiological Emergency Response Plan<br>(State RERP) | 5,6,7,8                                                 |
| Weld County Radiological Emergency<br>Response Plan                                      | 5,6,7,8                                                 |
| Operations Order Book                                                                    | All                                                     |



FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

DERP Section 13  
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Page 1 of 7

TITLE: DEFUELING EMERGENCY RESPONSE PLAN, SECTION 13  
LISTINGS OF EMERGENCY KITS

|                 |                      |  |  |                        |
|-----------------|----------------------|--|--|------------------------|
| RESPONSIBLE FOR | <i>J. Borst</i>      |  |  |                        |
| AUTHORIZED BY   | <i>M. Fulmer</i>     |  |  |                        |
| PORC REVIEW     | PORC 921 FEB 13 1991 |  |  | EFFECTIVE DATE 3-29-91 |
| DCCF NUMBER (S) | 90-1237              |  |  |                        |

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LISTINGS OF EMERGENCY KITS, PROTECTIVE EQUIPMENT  
AND SUPPLIES STORED AND MAINTAINED FOR EMERGENCY PURPOSES\*

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| Technical Support Center Emergency Kits    | 3           |
| Drum Decon Supplies and Anti-D's           | 4           |
| Survey Truck                               | 4           |
| Control Room Emergency Supplies            | 4           |
| Health Physics Area Emergency Supplies     | 5           |
| Decon Area Equipment List                  | 5           |
| First Aid Room Equipment List              | 6           |
| Emergency Respiratory Protective Equipment | 7           |

\*NOTE: This section contains general categories of equipment and supplies available. The most current issue of HPP-915 provides specific information on the contents of the Emergency Kits.



TECHNICAL SUPPORT CENTER EMERGENCY KITS

- Keys - Survey Vehicle
- Recording materials
- Portable radio
- Protective clothing
- Dosimetry
- Sample bottles and plastic bags
- Exposure Records
- Radiological Health Handbook
- Calculator with battery
- Polyethylene sheets
- Survey equipment and supplies
- Tapes and ribbons, i.e., masking, radiation
- Signs, i.e., warning, road
- Respiratory equipment
- First aid kit
- Yellow Ro, e
- Film Badges
- Flashlights/with batteries
- Miscellaneous Tools (screwdriver, allen wrench, wrenches)
- Masslin Cloth





DRUM DECON SUPPLIES AND ANTI-C'S

- Protective clothing
- Decontamination supplies
- Sample bottles and plastic bags
- Tape, i.e., masking, radiation
- Wipe Envelopes

SURVEY TRUCK

- Survey equipment and supplies
- Recording material
- Calculator with battery
- Stopwatch
- Radiation Boundary Tape
- Flashlight with batteries
- Maps
- Copies of procedure DERP-FIELD
- Compass

CONTROL ROOM EMERGENCY SUPPLIES

- Dosimetry
- Respiratory equipment
- Implementing documents
- Controlled Distribution Set of station piping and instrument (P&I) drawings
- Controlled Distribution Set of station floor plan drawings (located in the drawing file outside of the Control Room)
- First aid kit



HEALTH PHYSICS AREA EMERGENCY SUPPLIES

- Dosimetry
- Respiratory equipment
- Protective clothing
- Survey equipment
- Flashlights
- Batteries
- Flashlight bulbs
- Poly bags, tape, survey sheets, clipboard, pencils, chalk, radiation warning signs, barrier tape, and wipes preloaded in envelopes
- Implementing documents

DECON AREA EQUIPMENT LIST\*

- Protective clothing
- Decontamination supplies
- Sample bottles and plastic bags
- Exposure Records
- Tapes, i.e., masking, radiation
- Bandages
- Film Badges
- First Aid Kit

\* NOTE: Located in Health Physics Area



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FIRST AID ROOM EQUIPMENT LIST\*

- Instrument and first aid supply cabinet
- Trauma kit (located in Shift Supervisor's Office)
- Canvas stretcher
- Wire basket stretcher
- Crutches

\*NOTE: Located on Level Five (5), adjacent to West Entrance.  
Health Physics does not inventory this equipment.



EMERGENCY RESPIRATORY PROTECTIVE EQUIPMENT\*

- Health Physics
  - Four Scott air packs
- Turbine Deck, E1 4829, Fire Station
  - Six Scott air packs
- Building 10, E1 4839, Offices
  - Five Scott air packs
- Outside Auxiliary Electric Room
  - Two Scott air packs
- E1 4791, Fire Station
  - Six Scott air packs
- Central Alarm Station
  - Two Scott air packs
- Search and Identification Building
  - Five Scott air packs
- Technical Support Center
  - Five Scott air packs

\* NOTE: Scott air packs may be shown on individual center inventory lists also.