

APPENDIX A
NOTICE OF VIOLATION

Public Service Company of Colorado (PSC)
Fort St. Vrain Nuclear Generating Station

Docket: 50-267
Operating License: DPR-34

During an NRC inspection conducted on February 26 through March 2, 1990, a violation of NRC requirements was identified. The violation involved inadequate training of personnel assigned to the emergency response organization. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1989) (Enforcement Policy), the violation is listed below:

10 CFR 50.54(q) requires that a licensee shall follow and maintain in effect emergency plans which meet the standards in 10 CFR 50.47(b) and the requirements of 10 CFR 50, Appendix E, to provide reasonable assurance that adequate protective measures can and will be taken in the event of an emergency.

10 CFR 50.47(b)(15) requires that radiological emergency response training be provided to those who may be called on to assist in an emergency.

Contrary to the above, certain emergency training was determined to be ineffective, in that during interviews performed during the period February 26 through March 2, 1990, three control room teams exhibited the following weaknesses:

- ° Two of the four teams made errors in manually calculating offsite dose projections.
- ° One team made errors in calculating exhaust stack flow and in determining the correct atmosphere dilution factor.
- ° Two of the teams did not make the proper protective action recommendations (PARs) when notifying offsite authorities.
- ° One team failed to make a PAR when notifying offsite authorities.
- ° One team failed to communicate the affected downwind sectors when notifying offsite authorities of a general emergency.
- ° Three of the teams were generally unfamiliar with the site evacuation criteria.
- ° Three of the teams were generally unfamiliar with emergency radiation exposure criteria and limits.
- ° One team underclassified an event when an error was made in using a posted operator aid.

This is a Severity Level IV violation. (Supplement VI)

Pursuant to the provisions of 10 CFR 2.201, Public Service Company of Colorado is hereby required to submit to this office, within 30 days of the date of the letter transmitting this Notice, a written statement or explanation in reply, including: (1) the reason for the violation if admitted, (2) the corrective steps which have been taken and the results achieved, (3) the corrective steps which will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Where good cause is shown, consideration will be given to extending the response time.

Dated at Arlington, Texas,
this 27th day of April 1990

APPENDIX B

PUBLIC SERVICE COMPANY OF COLORADO - NRC
ENFORCEMENT CONFERENCE ATTENDEES

APRIL 16, 1990

Public Service Company of Colorado

C. Crawford, Vice President - Nuclear Operations
P. Tomlinson, Sr., Manager, Quality Assurance
C. Fuller, Manager, Nuclear Production
F. Borst, Manager, Nuclear Training and Support
J. Brey, Manager, Nuclear Licensing and Resources
R. Millison, Senior Emergency Planning Specialist

NRC

S. Collins, Director, Division of Reactor Projects (DRP)
L. Yandell, Deputy Director, Division of Radiation Safety & Safeguards (DRSS)
D. Powers, Chief, Security and Emergency Preparedness Section, DRSS
J. Baird, Technical Assistant, DRP
D. B. Spitzberg, Emergency Preparedness Analyst, DRSS
R. Wise, Enforcement Staff

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

ENFORCEMENT CONFERENCE

APRIL 16, 1990

ARLINGTON, TEXAS

AGENDA

INTRODUCTION AND OPENING REMARKS A.C. CRAWFORD

REVIEW AND ANALYSIS OF EMERGENCY PREPAREDNESS CONCERNS

F.J. BORST

REVIEW AND ANALYSIS OF EMPLOYEE ATTITUDES AND MORALE

C.H. FULLER

CONCLUSION **A.C. CRAWFORD**

INTRODUCTION AND OPENING REMARKS

A.C. CRAWFORD

**PSC CORE VALUES ARE SAFETY, EXCELLENCE AND FIND A BETTER
WAY**

**PSC WILL CONTINUE TO COMPLY WITH LICENSE CONDITIONS
AND REGULATORY REQUIREMENTS**

**SAFETY AND QUALITY WILL NOT BE COMPROMISED
THROUGHOUT DEFUELING AND DECOMMISSIONING**

**REVIEW AND ANALYSIS OF EMERGENCY
PREPAREDNESS CONCERNS**

F.J. BORST

OVERVIEW

REVIEW OF SPECIFIC FINDINGS

Inspection 90-06

Inspections 85-29 and 88-11

EFFECTIVENESS OF PREVIOUS CORRECTIVE ACTIONS

ROOT CAUSE ASSESSMENT

FINDING A BETTER WAY

SUMMARY

OVERVIEW

PSC ACKNOWLEDGES THAT A PROBLEM EXISTS AND BELIEVES THAT IT IS SYNERGISTIC IN NATURE

PSC IS CONFIDENT THAT THE ACTUAL ROOT CAUSE HAS BEEN IDENTIFIED

ACTIONS HAVE BEEN TAKEN AND FURTHER ACTIONS ARE PLANNED TO CORRECT THIS SITUATION AND PREVENT RECURRENCE

THE EMERGENCY PLANNING COORDINATOR FUNCTION HAS BEEN IN PLACE CONTINUOUSLY

PSC IS COMMITTED TO AN EXCELLENT EMERGENCY PREPAREDNESS PROGRAM

REVIEW OF SPECIFIC FINDINGS

INSPECTION 90-06

WEAKNESSES IDENTIFIED IN FOLLOWING AREAS:

- * Manual dose calculations*
- * Protective action recommendations*
- * Familiarity with site evacuation and emergency exposure criteria*
- * Event classification*

REVIEW OF SPECIFIC FINDINGS (Continued)

INSPECTIONS 85-29 AND 88-11

WEAKNESSES IDENTIFIED:

- * *Notification sequence improperly implemented*
- * *Inability to correctly determine habitability and plume content*
- * *Groups not given adequate functional training*
- * *Operators unable to adequately perform dose calculations and related mathematical manipulations*

PREVIOUS CORRECTIVE ACTIONS TAKEN:

- * *Procedure changes to improve notification process*
- * *Improved lesson plans dealing with habitability, plume sampling and tracking, and HP practices during a radiological emergency*
- * *Annual training requirements established for functional responsibilities*
- * *Comprehensive training on use of plant computer for dose calculations and on event classification*
- * *Preparation of an Operator Aid with key dose assessment information*
- * *increased frequency of drills*

EFFECTIVENESS OF PREVIOUS CORRECTIVE ACTIONS

INSPECTION 85-29

- * *Concerns related to notification sequence and habitability determinations have not recurred*
- * *Concern related to functional group training has not recurred*

INSPECTION 88-11

- * *Computer supported dose calculation method effective*
- * *Event classification concerns not adequately resolved*
- * *Training did not result in retained operator proficiency in the area of dose assessment parameters*

FOSAVEX EXERCISES

- * *1987, 1988 and 1989 exercises conducted without weaknesses exhibited in emergency preparedness training*

ROOT CAUSE ASSESSMENT

PSC METHOD OF INTENSIVE TRAINING PRIOR TO EXERCISES DOES NOT MAINTAIN PROFICIENCY

- * *Operating crew performance strong during exercises, but weaknesses demonstrated during unannounced inspections*
 - *Specific remedial actions from inspection findings were effective but not recognized for their synergistic relationship (85-29, 88-11)*
 - *Root cause of training concerns identified during inspections was not recognized*
- * *Strong exercise performance created overconfidence in ability*
- * *Quarterly and on-going training was primarily targeted at personnel outside the Control Room*

CONTRIBUTING FACTOR

- * *Crew reliance on plant computer resulted in training focused in this area*
 - *Manual dose calculations not emphasized*
 - *Human factors deficiencies exist in manual dose calculation procedures*

FINDING A BETTER WAY

ACTIONS TAKEN TO DATE:

- * *Dose calculation procedure revised and enhanced to address human factors*
- * *Training has been provided to all operating crews on revised dose calculation procedure*
- * *All crews have successfully performed manual and computer supported dose calculations*
- * *Emergency Planning Coordinator duties assumed by Senior Technician in February, 1990 - formally assigned April 2, 1990*

ACTIONS PLANNED:

- * *Revise training requirements for personnel required to perform dose assessment*
 - *Successful performance of calculations during operator rotational training beginning in April, 1990*
 - *Extensive retraining on RERP implementing procedures beginning in May, 1990*
 - *Walk-through RERP training of operating crews will be incorporated into requalification training beginning July, 1990*
- * *Evaluations of training effectiveness will be performed*

FINDING A BETTER WAY (Continued)

RELATED FUTURE ACTIONS PLANNED:

- * *Submit revised RERP Plan to State of Colorado and NRC Staff*
 - *Reflect actual plant shutdown conditions*
 - *May reduce highest level of Emergency Action Level to an ALERT*
 - *Submittals planned for June, 1990*
- * *Additional RERP submittal as part of Proposed Decommissioning Plan planned for October 31, 1990*

SUMMARY

PREVIOUS APPROACH TO RESOLVING TRAINING CONCERNS DID NOT ENSURE RETENTION OF MATERIAL AND ONGOING PROFICIENCY

METHOD OF CONDUCTING TRAINING WAS EFFECTIVE FOR ADDRESSING SPECIFIC CONCERNS BUT INEFFECTIVE TO MAINTAIN PROFICIENCY

REPETITIVE TRAINING - REQUIRING DEMONSTRATED PERFORMANCE - WILL BE CONDUCTED IN CONJUNCTION WITH QUALIFICATION ROTATIONS

WALK-THROUGH EVALUATIONS, SIMILAR TO NRC TECHNIQUE, WILL PROVIDE OBJECTIVE EVIDENCE OF TRAINING EFFECTIVENESS

RERP PLAN REVISIONS WILL BE SUBMITTED TO REFLECT ACTUAL PLANT CONDITIONS

PSC REMAINS COMMITTED TO AN EXCELLENT EMERGENCY PREPAREDNESS PROGRAM

REVIEW OF EMPLOYEE ATTITUDES AND MORALE C.H. FULLER

BACKGROUND

PROACTIVE ACTIONS

Provide continuity to the organization

Define work activities to be performed

Enhance communications

SUMMARY

BACKGROUND

OPERATIONAL EXPERIENCE

- * *At time of final shutdown, Fort St. Vrain was achieving new operations records daily*
- * *Morale was very high*
- * *End of operations date (June, 1990) well known*

MANAGEMENT ACTIVITIES

- * *Personnel programs prepared for planned termination of operations*
- * *Potential impact upon employees was identified*
- * *Needs of employees during defueling and decommissioning defined*
 - *Morale and motivation expected to be impacted*
 - *Remaining staff would have continued employment concerns*
 - *PSC could lose valuable expertise*
- * *Proactive actions needed to:*
 - *Provide continuity to organization*
 - *Define work activities to be performed*
 - *Enhance communications*

PROVIDE CONTINUITY TO ORGANIZATION

RETENTION PLAN DEVELOPED

- * *Purpose is to retain employees and provide psychological stability and economic incentives for staff*
- * *Plan was based upon input from employees*
- * *Offered employees three options*
 - *Career continuation*
 - *Early retirement*
 - *Severance pay*
- * *Bonus program for selected personnel in operations*
- * *Plan implemented effective February 2, 1989, retroactive to January 1, 1989*
- * *Corporate commitment to support Nuclear Operations personnel*
 - *Employment assistance and counseling*
 - *Employee Assistance Program (EAP) available to all employees*
- * *Results*
 - *Only nineteen resignations since Plan inception*
 - *Seventy-seven employees successfully placed within PSC*

DEFINE WORK ACTIVITIES TO BE DONE

DEFINE THE SCOPE OF WORK IN ORDER TO:

- * *Demonstrate that there is meaningful work to be done*
- * *Demonstrate that there is longevity to further employment at Fort St. Vrain*
- * *Obtain employee participation and ownership of defueling and decommissioning activities*

PROVIDE FOCUS ON SPECIFIC WORK ACTIVITIES

- * *Maintain operation of required systems and equipment*
- * *Improve fuel handling machine reliability*
- * *Resolve licensing issues*
- * *Evaluate actions necessary to optimize defueling*
- * *Ensure regulatory compliance*
- * *Preserve equipment*
- * *Conduct procedural reviews*
- * *Plan and prepare for decommissioning and conversion*

ENHANCE COMMUNICATIONS

INFORMATIONAL MEETINGS

- * *Chief Executive Officer and other corporate officers discussed strategic direction*
- * *Regular employee meetings are conducted by Vice President, Nuclear Operations*
 - *Stress safety and quality as top priority during defueling*
 - *Provide continual updates of current issues*
 - *Provide recent information on staffing plans*
 - *Provide direct access to executive management*

MANAGEMENT MEETINGS

- * *Executive Leadership Team (ELT)*
 - *Defines strategic direction*
 - *Meeting minutes are published to the Nuclear organization*
 - *Other personnel are invited*
- * *Senior Planning Team (SPT) and Divisional level meetings*
 - *Communicate consistent management direction*
 - *Provide forum for addressing rumors*
 - *Provide status on specific issues*
 - *Implement executive emphasis on enhanced communications*

ENHANCE COMMUNICATIONS (Continued)

IMPROMPTU MEETINGS

- * *Best way to get pulse of organization*
- * *Frequently results in follow-up action items*
- * *Demands responsiveness to be effective*

UNION/MANAGEMENT MEETINGS

- * *Ensures union management is fully aware of Fort St. Vrain issues and status*
- * *Ensures PSC is aware of union issues and concerns*

OTHER ENHANCEMENTS

- * *Shift Supervisor's office moved into Control Room to improve communication and oversight*
- * *Shift Supervisor attends Morning Meeting*
- * *Implementation of new communications programs*
 - *Service Excellence*
 - *Top Ten Issues List*
 - *Notable Successes List*

ENHANCE COMMUNICATIONS (Continued)

SERVICE EXCELLENCE

- * *Key elements include communication, trust and customer focus*
- * *Training is to be provided to all Nuclear Operations personnel*
- * *Action items identified from ELT Service Excellence Retreat:*
 - *Celebrate successes at ELT and SPT meetings*
 - *Change verbal habits to "we" and "our"*
 - *Just say no and explain position to reduce false expectations*
 - *Continue to improve Senior Planning Team (SPT)*
 - *Recognize employee performance*
 - *Champion Service Excellence and encourage Service Excellence at every level*
 - *Establish a more effective scheduling system*
 - *Ensure all personnel know and understand direction of Nuclear Operations*
 - *Include Service Excellence in Performance Appraisals*
 - *Hold union/management meetings*
 - *Display Top Ten Issues and Notable Successes throughout Nuclear Operations*
 - *Establish Service Excellence training for remaining management*
 - *Target five benchmarks that can be used as accountability indicators*
 - *Prepare one page issues list for distribution at SPT*
 - *Management attend subordinate staff meetings*

ENHANCE COMMUNICATIONS (Continued)

TOP TEN ISSUES LIST DEVELOPED

- * Reviewed and revised every two weeks
- * Published and posted at Fort St. Vrain and Diamond Hill
- * Top Ten Issues for Week of April 2, 1990:
 - Resolution of spent fuel shipping constraints
 - Resolution of NRC enforcement concerns
 - ISFSI
 - Plant Closure Activities White Paper (NUMARC)
 - Implementation of D/D Program controls and matrix management
 - Continue to maintain safety, regulatory and quality compliance
 - Budget and schedule compliance required
 - Service Excellence
 - Public relations
 - Program re-definition

NOTE - Issues are NOT listed in order of priority

ENHANCE COMMUNICATIONS (Continued)

NOTABLE SUCCESSES

- * *Recognize organizational and individual successes*
- * *Acknowledge that progress is being made*
- * *Notable Success List for week of April 2, 1990*
 - *Washington State approval of bill permitting shipment of FSV low level waste to Washington*
 - *NRC Commissioners and Staff briefings*
 - *Accelerated hiatus schedule being met*
 - *PSC receives good marks from Oversight Committee*
 - *NUMARC paper on plant closure activities submitted to NRC*
 - *Spent fuel transport accident exercise successfully completed with States of Colorado and Wyoming*
 - *Mr. Rob Rowell received SSLO license*

SUMMARY

COMPLIANCE WITH STANDARDS AND PROCEDURES IS EXPECTED AND
REQUIRED

CHANGES IN MORALE AND MOTIVATION WERE ANTICIPATED

EMPLOYEE ATTITUDE IS A TOP PRIORITY

KEYS TO SUCCESS ARE CONTINUED STABILITY AND ENHANCED
COMMUNICATION

EFFECTIVE PROGRAMS ARE IN PLACE

CONTINUED MANAGEMENT FOCUS IS PROVIDED

CONCLUSION

A.C. CRAWFORD

PSC WILL CONTINUE TO COMPLY WITH LICENSE CONDITIONS AND
REGULATORY REQUIREMENTS

SAFETY AND QUALITY WILL NOT BE COMPROMISED THROUGHOUT
DEFUELING AND DECOMMISSIONING

ROOT CAUSE OF EMERGENCY PREPAREDNESS CONCERNS HAS BEEN
IDENTIFIED

APPROPRIATE CORRECTIVE ACTIONS HAVE BEEN TAKEN AND
FURTHER ACTIONS ARE PLANNED

EMPLOYEE ATTITUDE AND MORALE IS A TOP PRIORITY AT FORT ST.
VRAIN

EFFECTIVE PROGRAMS ARE IN PLACE TO MANAGE DEFUELING AND
DECOMMISSIONING ISSUES

FREQUENT, OPEN COMMUNICATIONS BETWEEN THE NRC AND PSC IS
VERY IMPORTANT