





concern related to the potential failure of inadvertently pressurized CO<sub>2</sub> hoses.

As reported in Licensee Event Report 2-88-08 dated April 26, 1988, the hoses on the CO<sub>2</sub> hose reels located in the Turbine Building (elevation 165') and the Control Room were observed to be pressurized and blistered. A hose nozzle in the southwest corner of the Control Room was discovered to have been dislodged from its wall mount resulting in the pressurization of the CO<sub>2</sub> hose reel system. Upon discovery of the degraded hoses, the CO<sub>2</sub> system was removed from service on October 1, 1987 by the installation of a blank flange at the pilot valve located at the CO<sub>2</sub> storage tanks. Following the replacement of the hoses, an operational verification test was attempted. During the test, a rupture occurred at a CO<sub>2</sub> hose station in the Turbine Building (elevation 165'). Due to the potential safety consequences to Control Room personnel resulting from a rupture of the hose in the Control Room, the CO<sub>2</sub> hose reels of the CO<sub>2</sub> Fire Protection System were again taken out of service and have remained out of service in the Turbine Building (elevation 165') and Control Room. A subsequent revision to Licensee Event Report 2-88-08 was submitted which provided the conclusions of a Control Room habitability study considering a discharge of the CO<sub>2</sub> Fire Protection System into the Control Room. Licensee has concluded that based on the results of this study, the CO<sub>2</sub> Fire Protection System should be removed from the Control Room.

CO<sub>2</sub> fire suppression capability is supplied to the Control Room, Turbine Building (elevation 165'), Cable Spreading Room, Computer Room, High Pressure Coolant Injection (HPCI) System Pump Rooms, and the Diesel Generator Rooms. CO<sub>2</sub> fire suppression for the Cable Spreading

Room, Computer Room, HPCI Pump Rooms and the Diesel Generator Rooms are total flooding CO<sub>2</sub> systems in that upon initiation, a flooding of the atmosphere inside these areas occurs. In the case of the Control Room and Turbine Building (elevation 165'), CO<sub>2</sub> fire suppression is provided by the use of CO<sub>2</sub> hose reels which can be utilized to control and terminate the flow of CO<sub>2</sub> directed at a fire located in these areas.

The hose reels of the CO<sub>2</sub> Fire Protection System in the Control Room and Turbine Building (elevation 165') are supplied CO<sub>2</sub> via a common header connected to two six ton carbon dioxide storage tanks. The CO<sub>2</sub> hose reels are pressurized by removing the CO<sub>2</sub> hose nozzle from a U-hook holder. A microswitch located in the U-hook holder, actuates a control valve to allow CO<sub>2</sub> to pressurize the hoses in the Control Room and Turbine Building (elevation 165') at the same time. The hose nozzle enables the Operator to control the flow of the CO<sub>2</sub> discharge. Upon removal of the CO<sub>2</sub> Fire Protection hose reels in the Control Room or Turbine Building (elevation 165'), an indication light at the hose stations goes out.

#### Description of Changes

The existing Limiting Condition for Operation of Technical Specification 3.14.B (p. 240g) states that: "The CO<sub>2</sub> Fire Protection System serving the Control Room, Cable Spreading Room, and Computer Room shall be operable..." It is proposed to delete the words "Control Room" from the Technical Specification to allow the removal of the portion of the CO<sub>2</sub> Fire Protection System serving the Control Room. The proposed Technical Specification would state that: "The CO<sub>2</sub> Fire Protection

System serving the Cable Spreading Room and Computer Room shall be operable..."

The existing Section 3.14 BASES currently states that "The CO<sub>2</sub> Fire Protection Systems provide fire suppression capability for the Cable Spreading Room, Computer Room, Control Room, HPCI Rooms, and the Diesel Generator Rooms." It is proposed to eliminate the words "Control Room" to allow for the removal of the portion of CO<sub>2</sub> Fire Protection System servicing the Control Room. The proposed Technical Specification would state: "The CO<sub>2</sub> Fire Protection Systems provide fire suppression capability for the Cable Spreading Room, Computer Room, HPCI Rooms, and the Diesel Generator Rooms."

#### Safety Assessment

A Control Room habitability study has been performed based upon a discharge of the CO<sub>2</sub> Fire Protection System in the Control Room. Licensee has concluded that based on the results of this study, the CO<sub>2</sub> Fire Protection System should be removed from the Control Room.

The failure scenarios postulated in the study included both an accidental and planned discharge. The accidental discharge scenario was postulated whereby a CO<sub>2</sub> hose reel located in the Control Room disengages at the coupling. Based upon the piping size and the piping configuration from the storage tank to the hose reel, CO<sub>2</sub> would discharge at a rate of 436 lbs./min. until the master pilot valve located at the CO<sub>2</sub> tank was manually closed. The atmosphere within the Control Room would become uninhabitable in approximately two minutes and, therefore, would pose a potential hazard to Control Room personnel.

A planned discharge would be initiated in the event of a fire. The worst case for a planned discharge scenario would be a fire difficult to extinguish. Based upon the piping size, hose size and configuration, CO<sub>2</sub> would discharge at a rate of 350 lbs./min. until the hand line valve was closed. The atmosphere within the Control Room would become uninhabitable in approximately 2 1/2 minutes.

The fire loading in the Control Room is composed of paper, plastic and cable insulation. The cable insulation accounts for 98% of the heat potential in the room. Cable is located in the Control Room panels and in the trays above the suspended ceiling. The Control Room panels are relatively small and are internally divided into subcompartments in such a manner to provide segregation of the two primary shutdown systems. The panel partitions are sufficient to withstand heat flux that could be generated by the combustible loading within the panel. Therefore, a panel fire cannot result in the loss of shutdown capability. If a fire occurred in a panel, it could be easily handled with a portable halon extinguisher. The Control Room fire hazard is classified as a "moderate hazard", as defined on pages 10-5 and 6 of the 1984 edition of NFPA-10, "Standard for Portable Fire Extinguishers". The area of the Control Room is 7224 sq. ft. The minimum fire extinguisher requirement for a "moderate hazard" as defined on page 10-8 of the 1984 edition of NFPA-10, is three extinguishers with a Class 2A rating. Presently, there are nine, 14 lb. Class 2A halon extinguishers in the Control Room. Additionally, two water hose reels are located outside the entrance to the Control Room. Additional fire hose has been installed to permit the use of these hose reels for fighting a fire in the Control Room.

For larger fires above the suspended ceiling, Control Room Operators would not have access to the area and the fire brigade would be notified. Water hose reels and portable extinguishers are available to the fire brigade. A portable extinguisher is located in the area above the suspended ceiling. Located in the cable trays above the suspended ceiling is a linear type heat detection system which would detect a fire in the cable trays. No credit is assumed in the Fire Protection Program for the use of the CO<sub>2</sub> in extinguishing a fire located above the suspended ceiling.

All of the Control Room extinguishers are Halon 1211 extinguishers rather than water extinguishers. Halon extinguishers (14 lb.) provide the equivalent fire suppression capability as compared to 2 1/2 gallon water extinguishers. Furthermore, the halon extinguishers greatly reduce the potential presented with water extinguishers of short circuiting electrical equipment when water impinges on energized electrical equipment which may not be directly involved with the fire. Water hose reels, located outside the Control Room entrances, provide additional fire fighting protection. Both suppression methods are more effective than the CO<sub>2</sub> hose reels. CO<sub>2</sub> acts to "starve" a fire by reducing the oxygen concentration below the point required to sustain a fire. Once the CO<sub>2</sub> discharge is stopped, oxygen levels will increase and possibly allow the fire to reignite. Halon chemically extinguishes the fire by breaking down the chemical chain reaction that occurs in a fire.

The Control Room is continuously manned and contains four smoke detectors in the vicinity of the control panels to provide prompt identification of a fire in the Control Room. The fire alarm system annunciation panel is located in the Control Room. The Control Room

ventilation system has a manually initiated purge mode and can be manually shutdown. Fire detectors are provided in all enclosed rooms within the Control Room complex. Openings in the walls separating the Main Control Room from the enclosed rooms are sealed and doors are provided with self-closing mechanisms. Penetrations through the floor are sealed to provide a hot gas and smoke barrier. The Control Room walls are sealed to provide 3-hour fire resistance.

Branch Technical Position APCSB 9.5-1, Appendix A, Item F.2 states that "hose stations adjacent to the control room with portable extinguishers in the control room are acceptable". With the removal of the CO<sub>2</sub> Fire Protection System from the Control Room, the remaining fire suppression system composed of the halon extinguishers and water hose reels located outside the entrance to the Control Room is equivalent to that discussed in the Branch Technical Position.

CO<sub>2</sub> hose stations in the Control Room are not required by the Commission's Regulations (10 CFR 50.48 and Appendix R). Appendix R, Section III.G.3 does require a fixed suppression system in the Control Room. An exemption from this requirement was provided in a letter dated March 13, 1985 due to the fact that the Control Room is continuously occupied, protected with an automatic smoke detection system, protected with portable fire extinguishers and hose stations, and has alternative shutdown capability provided outside the Control Room. The reference to "hose stations" pertains to the CO<sub>2</sub> Fire Protection System in the Control Room. Furthermore, the exemption stated that Control Room personnel constitute a continuous fire watch, the fuel load in the area is low, and that manual suppression, if a fire occurred, would be prompt and effective. Reference to the Control Room CO<sub>2</sub> hose stations also

appears in the NRC's Fire Protection Safety Evaluation Report, dated May 23, 1979 on pages 4-11 and 5-6. Considering the availability of the nine portable halon extinguishers and the two water hose reels for use in fighting Control Room fires, the removal of the CO<sub>2</sub> Fire Protection System hose stations from the Control Room will not degrade manual suppression capability, and, therefore, the basis for the exemption remains valid. 10 CFR 50.48 establishes the requirement for a fire protection plan which "shall describe the overall fire protection program for the facility". The Fire Protection Program for PBAPS will be revised to reflect the deletion of the CO<sub>2</sub> Fire Protection System from the Control Room following the issuance of the Amendment requested herein.

#### Significant Hazards Consideration

The Commission has provided guidance concerning the application standards for determining whether license amendments involve no significant hazards considerations by providing certain examples (51 FR 7751). One of the examples involving no significant hazards considerations is Example vi, "a change which either may result in some increase to the probability or consequences of a previously-analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptable criteria with respect to the system or component specified in the Standard Review Plan, e.g., a change resulting from the application of a small refinement of a previously used calculation model or design method." The proposed change to delete the CO<sub>2</sub> Fire Protection System from the Control Room is similar to this example in that this change is within all acceptable criteria and results in a small refinement to the operation of the CO<sub>2</sub> Fire Protection System in the interest of assuring Control Room habitability. The proposed changes to the Peach Bottom

operating licenses do not constitute a significant hazards consideration in that they do not:

- (i) Involve a significant increase in the probability or the consequences of an accident previously evaluated.

The proposed changes involve the removal of a redundant fire suppression system from the Control Room. The probability of a fire in the Control Room is not increased by removing the CO<sub>2</sub> hose reels of the CO<sub>2</sub> Fire Protection System.

The consequences of a fire in the Control Room are not increased because the Control Room operators are adequately equipped to handle a fire in the Control Room by means of portable halon extinguishers and water hose stations adjacent to the Control Room. The Control Room is continuously manned, automatic fire detection is provided, and alternative shutdown panels outside the Control Room will allow the plant to be safely shutdown if the fire requires the Operators to leave the Control Room or if damage results to safe shutdown equipment. Thus, the proposed changes do not involve a significant increase in the probability or consequences of an accident as previously evaluated in Chapter 14 of the PBAPS Updated Final Safety Analysis Report.

- (ii) Create the possibility of a new or different kind of accident from any accident previously evaluated.

The elimination of the redundant CO<sub>2</sub> Fire Protection System from the Control Room does not create the possibility

of a new or different type of accident. Sufficient fire suppression capability is maintained even without the use of the CO<sub>2</sub> Fire Protection System by halon extinguishers and water hose reels located outside the entrance to the Control Room. Alternative shutdown panels outside the Control Room will allow the plant to be safely shutdown if the fire forces the operators to leave the Control Room or if damage results to safe shutdown equipment.

- (iii) Involve a significant reduction in the margin of safety.

Fire suppression capability is maintained by means of portable halon extinguishers and hose stations adjacent to the Control Room which would provide the Control Room personnel with adequate fire suppression capability. As determined by the Control Room habitability study, the continued presence of the CO<sub>2</sub> hose reels in the Control Room does present a safety hazard to Control Room personnel and jeopardizes Control Room habitability. For these reasons, the change will enhance the margin of safety.

#### Environmental Impact

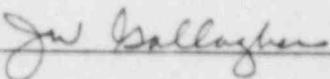
An environmental impact assessment is not required for the changes proposed by this Application because the changes conform to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 51.22(c)(9). The proposed changes do not involve any systems that have a direct relationship with the environment. Only the CO<sub>2</sub> Fire Protection System location in the Control Room is involved. The Application involves

no significant hazards consideration as demonstrated in the preceding section. The Application involves no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure.

Conclusion

The Plant Operations Review Committee and the Nuclear Review Board have reviewed these proposed changes to the Technical Specifications and have concluded that they do not involve unreviewed safety questions or involve Significant Hazards Considerations, and will not endanger the health and safety of the public.

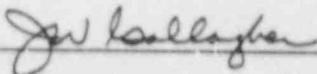
Respectfully submitted,  
PHILADELPHIA ELECTRIC COMPANY

  
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Vice President

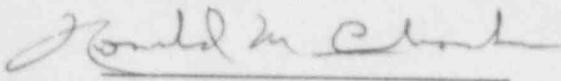
COMMONWEALTH OF PENNSYLVANIA :  
 : SS.  
COUNTY OF PHILADELPHIA :

J. W. Gallagher, being first duly sworn, deposes and says:

That he is Vice President of Philadelphia Electric Company, the Applicant herein; that he has read the foregoing Application for Amendment of Facility Operating License and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

  
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Vice President

Subscribed and sworn to  
before me this 24<sup>th</sup> day  
of August, 1988

  
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Notary Public

RONALD M. EUBANKS  
Notary Public, Philadelphia Co.  
My Commission Expires Sept. 23, 1989