

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

SHIELDS L. DALTROFF
VICE PRESIDENT
ELECTRIC PRODUCTION

(215) 841-5001

December 20, 1978

Re: Docket Nos. 50-277
50-278

Thomas A. Ippolito, Chief
Operating Reactors Branch #3
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Ippolito:

Enclosed are responses to many of your staff positions stated in your letter of November 17, 1978, regarding the Fire Protection Program at Peach Bottom. Those positions not addressed in this response are designated in the enclosure by an appropriate note for each item. It is our intention to address the remainder of the staff positions in a 90 day response. A schedule for completion of the modifications committed to in the attached enclosure will also be included in the 90-day response.

Should you have any questions on the above, please do not hesitate to contact us.

Very truly yours,



Enclosure

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ENCLOSURE 1

Responses to NRC Staff Positions
Peach Bottom Fire Protection Program
Docket Nos. 50-277 and 50-278

Reference: Letter from Thomas A. Ippolito, Nuclear Regulatory Commission to Edward Bauer, Philadelphia Electric Company; dated November 17, 1978.

Staff Positions PF-16a(1) Cables above Control Room Ceiling

All exposed cables above the suspended ceiling should be covered with a fire retardant material which has been demonstrated effective by testing or install smoke detectors in this space which are located in accordance with the applicable NFPA standards.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-16a(2)

Provide a stepladder adequate to reach the cables in this space. This ladder should be stored at a dedicated location within the control room complex with a sign affixed reading "FOR EMERGENCY USE - DO NOT REMOVE FROM CONTROL ROOM."

Response

A stepladder will be stored within the control room complex of sufficient length to reach the space above the suspended ceiling. A sign will be provided with the requested designation.

Staff Position PF-16a(3)

Provide two 2 1/2 gallon pressurized water portable extinguishers in the control room complex such that they are available for use in all rooms of the control room complex.

Response

Two 2 1/2 gallon pressurized water portable extinguishers will be installed in one or more of the enclosed rooms within the control room complex.

Staff Position PF-16b(1) - Control Room Panels and Consoles

Propose modifications as necessary to assure that no redundant equipment (including cables) required for safe shutdown is located in a single panel without a solid fire barrier between compartments containing the redundant equipment. The functional requirements for a safe shutdown are discussed in staff position PF-26.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-16b(2)

All enclosed panels containing redundant safety-related equipment should be provided with an early warning smoke detection system.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-16b(3)

The licensee should verify that there is sufficient hose on the CO2 hose reels in the control room to reach all areas of the control room that contain electrical equipment.

Response

There is a 100 foot CO2 hose reels located at the north and one at the south end of the control room. Our investigation confirms the ability of the CO2 hoses to reach all areas of the control room.

Staff Positions PF-16c(1) Enclosed Rooms Within Control Room Complex

All enclosed rooms within the control room complex should be provided with an early warning fire detection system.

Response

Smoke detectors will be provided in the enclosed rooms within the control room complex.

Staff Positions PF-16c(2)

No unnecessary combustible material should be stored in these rooms.

Response

The housekeeping administrative control procedure will require that unnecessary combustible material should not be stored in the control room complex.

Staff Position PF-16c(3)

The hose stations located in the turbine building adjacent to the control room complex should be equipped with sufficient hose length to apply a water fog stream to all areas for the control room complex. In addition these hose stations should be equipped with a variable gallonage fog nozzle with a ball-type shut off.

Response

The hose stations located in the turbine building adjacent to the control room complex are equipped with sufficient hose length to apply a water fog stream to all areas for the control room complex. Refer to reply to staff position PF-49 regarding the type of nozzle.

Staff Positions PF-16c(4)

All doors to enclosed rooms should be automatically closed in the event of a fire or maintained closed at all times by administrative procedures. Ventilation ducts and openings in the walls and doors between these enclosed rooms and the main control room should be fitted with dampers that are equipped with either a manual or automatic closing device to prevent smoke and heat from entering the main control room. If a manual closing device is used it should be capable of being operated from within the main control room at the opening to the room and a permanent sign should be posted at the device stating that it should be operated in the event of a fire in an adjacent area.

Response

A reply to your staff position will be presented in the 90-day response.

Staff Position PF-18 Fire Barrier Electrical and Mechanical Penetration Seal Qualification

As stated in the initial NRC staff position PF-18 all electrical penetrations in fire barriers surrounding fire zones and fire areas containing safety-related equipment (including cables) should be sealed by methods demonstrated effective by testing. In addition, mechanical penetrations in these fire zones and fire areas should also be sealed when significant quantities of combustible material are present in the vicinity of the penetration on both sides, or where the barrier separates safety-related equipment from fire zones or areas with a heavy combustible loading (e.g., cable spreading rooms, control room, zones or areas containing combustible liquids, HPCI and RCIC rooms and MG set rooms).

The licensee should provide a detailed description (including drawings and materials lists) for each of the types of electrical and mechanical penetration seals that are used at the plant. A description of the test procedure and test results which are relied upon as proof of each type of seal's qualification should be provided.

Any new penetration seals that are installed in the future or existing seals which must be replaced, should be qualified by an independent testing laboratory in accordance with ASTM E-119 and the following conditions.

1. The cables used in the test should include the cable insulation materials used in the facility.
2. The test sample should be representative of the worst case configuration of cable tray arrangement, anchoring, and penetration fire barrier size and design. The test sample should also be representative of the cable sizes in the facility. Testing of the penetration fire barrier in the floor configuration will qualify the fire stop for use in the wall configuration also.
3. Cables penetrating the fire barrier should extend at least three feet on the unexposed side and at least one foot on the exposed side.
4. The fire barrier should be tested in both directions unless the fire barrier is symmetrical.

5. The fire barrier should be tested with a pressure differential across it that is equivalent to the maximum pressure differential a fire barrier in the plant is expected to experience.
6. The temperature levels of the cable insulation, cable conductor, cable tray, conduit, and fire stop material should be recorded for the unexposed side of the fire barrier.
7. Acceptance Criteria - The test is successful if:
 - a. The cable penetration fire barrier has withstood the fire endurance test without passage of flame or ignition of cables on the unexposed side for a period of three hours,
 - b. The temperature levels recorded for the unexposed side are analyzed and demonstrate that the maximum temperature is sufficiently below the cable insulation ignition temperature, and
 - c. The fire barrier remains intact and does not allow projection of water beyond the unexposed surface during the hose stream test.

Response

The type of mechanical penetrations utilized for which documentation is available were described in our response to question 19 (letter Hankins to Lear, dated August 12, 1977). A formal test program has not been performed on these specific mechanical penetrations. We are currently reviewing all plant barriers given "0" ratings in the safety analysis, and following the evaluation we will upgrade the penetration if required. New penetration seals that are installed or existing seals which must be replaced will be qualified by testing currently in progress in accordance with ASTM E-119 once these tests are successfully completed. The detailed description of the electrical penetration seals (including drawings, materials lists, and test procedures and results) will be provided in the 90-day response. We are presently working with Bechtel Corporation in developing a suitable electrical penetration seal for use at our Limerick Generating Station. When this design becomes available, we will use it for future installations at Peach Bottom.

Staff Position PF-21a Cable Spreading Room

The licensee should proceed with its plan to upgrade the existing fire detection system. The upgraded system should be demonstrated effective by testing as discussed in NRC staff position PF-27.

Response

The PECO Engineering and Research Department is presently investigating the installation of smoke detectors in the cable spreading room. The results of the investigation will be reported in the 90-day response. Refer to the reply to staff position PF-27 regarding smoke detector testing.

Staff Position PF-21b

The existing manually-initiated total flooding CO2 system should be converted to an automatically-initiated system.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-21c

Hose stations located in the turbine building adjacent to the cable spreading room should be equipped with sufficient hose length to apply a water fog stream to all areas of the cable spreading room. In addition, these hose stations should be equipped with a variable gallonage fog nozzle with a ball-type shut off.

Response

Refer to the reply to staff position PF-49 for a discussion of this matter.

Staff Position PF 21d

Provide modifications as necessary (e.g., relocate one redundant division of safe shutdown equipment to outside of the room) to assure that both plants can be safely shutdown regardless of damage to any equipment (including cables) located in the cable spreading room. The following functions should be considered required for safe shutdown:

1. Placing the reactor in a subcritical condition and maintaining the reactor subcritical indefinitely.
2. Bringing the reactor to hot shutdown conditions and maintaining it at hot shutdown for an extended period of time (i.e., longer than 72 hours) using only normal sources of cooling water.

3. Maintaining the reactor coolant system inventory indefinitely using only normal sources of makeup water.
4. Bringing the reactor to cold shutdown conditions within 72 hours.

No credit should be taken for actions by plant personnel to repair damage to equipment required for functions 1., 2., and 3. The capability to perform all control actions necessary for functions 1., 2., and 3. must be maintained in the control room or at the remote shutdown panels, and all power requirements for these functions must be satisfied by onsite sources.

In lieu of assuming that redundant equipment required for safe shutdown will be damaged by a single fire in the cable spreading room, the licensee may elect to demonstrate by test or analysis that the separation of redundant equipment is (or can be made to be) sufficient to prevent such an occurrence. Any assumptions used in an analysis must be verified by test data for materials and equipment arranged in a configuration similar to that installed in the plant. The possible deleterious affects of combustion products and water or other fire suppression agents must be considered. External ignition sources and transient combustibles must also be considered.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-24a Radwaste Building Fire Zones 4B, 4C, 12B, and 12C - Fire Protection

The licensee should provide sprinkler protection in fire zones 4C and 12C.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-24b

The open pipe penetrations through the floor slabs separating zones 4B and 4C from 12B and 12C should be sealed with a water tight, 3-hour fire rated sealant method (See PF-34).

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-24c

Curbing should be provided within the rooms (fire zones 4B, 4C, 12B and 12C) to contain the oil from a leak at the oil reservoir or oil lines to the room of origin.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-26 Safe Shutdown Analysis

The licensee should reconsider its safe shutdown analysis assuming that offsite electrical power is not available in the event of a fire in any area of the plants. The following should be considered functional requirements for a safe shutdown:

1. Placing the reactor in a subcritical condition and maintaining the reactor subcritical indefinitely.
2. Bringing the reactor to hot shutdown conditions and maintaining it as hot shutdown for an extended period of time (i.e. longer than 72 hours) using only normal sources of cooling water.
3. Maintaining the reactor coolant system inventory indefinitely using only normal sources of makeup water.
4. Bringing the reactor to cold shutdown conditions within 72 hours.

If all of the redundant equipment (including cable in conduit) available to perform any of the above functions (assuming a loss of offsite electrical power) is located in a single fire area, the specific separation that exists and any combustible material between the redundant equipment should be identified. No credit should be taken for actions by plant personnel to repair damage to equipment required for functions 1., 2., and 3. The capability to perform all control actions necessary for functions 1., 2., and 3. must be maintained in the control room or at the remote shutdown panels and all power requirements for these functions must be satisfied by onsite sources.

The specific results of the above reanalysis should be reported separately for each area in each unit.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-27 Smoke Detection System Tests

In situ tests should be conducted with suitable smoke generation device to verify that the products of combustion from a fire would be promptly detected by installed smoke detectors and the ventilation air flow patterns in the area do not significantly reduce or prevent detection response. Bench tests should be conducted to verify that smoke detectors will provide prompt response and have adequate sensitivity to the products of combustion for the combustibles in the area where smoke detectors are installed. If any fire detection systems are found to be inadequate, appropriate modifications should be made to provide adequate detection.

Response

The ionization type smoke detectors at Peach Bottom were manufactured by Pyrotronics Inc. They are Factory Manual and Underwriters Laboratories tested and approved. We do not know of an recognized method for performing "in situ" test on an installed smoke detection system. We believe that the state of the art utilized in the engineering design of smoke detection systems ensures effective early warning protection.

Staff Position PF-28(a) Supervision of Fire Doors

Fire doors should be inspected semi-annually to verify that self-closing mechanisms and latches are in good working order.

Response

A semi-annual inspection program will be implemented as requested.

Staff Position PF-28(b)

Fire doors should be provided with electrical supervision from the control room or maintained closed by one of the following

- (1) Locked closed and inspected weekly to verify that the doors are in the closed position. The fire brigade commander should have ready access to keys for all locked doors.
- (2) Provide with automatic release mechanisms and inspected monthly to verify that doorways are free of obstructions.
- (3) Provide with self-closing mechanisms and inspected daily to verify that they are in the closed position.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-28(c)

Areas protected by automatic total flooding, gas suppression systems should have electrically supervised self-closing fire doors.

Response

The doors to all the areas protected by gas suppression systems (diesel generator building, cable spreading room, and HPCI room) will be electrically supervised by the security system from the control room, except for one door associated with the HPCI area. The practicality of including supervision at this door in the security system will be investigated and reported in the 90 day response. All doors subject to this requirement have self-closing devices except for the water tight doors to the diesel generator building. The security supervisory system will ensure closure of these doors.

Staff Position PF-29(a) Emergency Switchgear Rooms

Portable CO2 extinguishers should be installed in the corridor on the west side of the area and in the turbine building such that at least two are visible from the entrance to each of the switchgear rooms.

Response

Two portable CO2 extinguishers will be installed in both the corridor on the west side of the switchgear rooms, and in the turbine building on the east side of this area (total of four CO2 extinguishers) in accordance with your criteria.

Staff Position PF-29(b)

The hose stations located in the turbine building and the corridor on the east side of the area adjacent to the switchgear rooms should be equipped with sufficient hose length to apply a water fog stream to all of the rooms. In addition these hose stations should be equipped with a variable gallonage fog nozzle with a ball type shut off.

Response

Refer to the reply to staff position PF-49 for a discussion of this matter.

Staff Position PF-29(c)

The supervision of the fire doors between adjacent switchgear rooms should be in accordance with PF-23.

Response

Refer to reply to staff position 28a. A reply to 28b will be presented in the 90-day response.

Staff Position PF-30(a) Station Battery Rooms

An early warning fire detection system which alarms in the control room should be installed in each battery room. The installed system should be demonstrated to be effective by testing as discussed in NRC staff position PF-27.

Response

A smoke detector system with alarms in the control room will be installed in each battery room.

Staff Position PF-30(b)

The existing ventilation air flow detection system should be upgraded to include an air flow detector in each battery room upstream of the exhaust damper for the room.

Response

The existing ventilation air flow detection system will be upgraded to include air flow detection for each battery room.

Staff Position PF-30(c)

The supervision of the fire doors between adjacent battery rooms should be in accordance with PF-28.

Response

Refer to reply to staff position 28a. A reply to 28 b will be presented in the 90-day response.

Staff Position PF-31(a) Emergency Diesel Generator Building

A curb should be provided to prevent the flow of combustible liquids under the doors between the individual diesel generator rooms at the 127' elevation. The self-closing and latching devices on all the doors at all elevations should be inspected and repaired or replaced as necessary. The supervision of these doors should be as stated in PF-28.

Response

A curb or door sill will be installed to prevent the flow of combustible liquids under the doors between the individual diesel generator rooms at the 127 foot elevation. Refer to the reply to staff position PF-28 a and c regarding supervision of these doors. Defective devices on all doors will be repaired as necessary.

Staff Position PF-31(b)

The licensee should verify that all penetrations in the walls between individual rooms in the diesel generator building are sealed to a three hour rating at all elevations and that any ventilation ducts in the walls have three hour fire dampers.

Response

The requirement to trip the auxiliary boiler fuel oil transfer pump manually from outside the area will be included in the pre-fire strategy plan. The control station for this pump is located outside the area in the auxiliary boiler house.

Staff Position PF-32 Emergency Lighting

Fixed emergency lighting consisting of fixed sealed beam units with individual battery power supplies should be provided for access to and egress from the control room, the cable spreading room, the emergency switchgear and battery rooms, and the ground floor below via stairway No. 9.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-33 Emergency Communication

Portable two-way radio units capable of communicating with all areas of the plants should be maintained available for the fire brigade. One unit should be available for each on-duty member of the fire brigade.

Response

There are two fixed communication systems at Peach Bottom: the Private Automatic Branch Exchange system, and the Public Address system. The first system has an independent power source (48 v battery), and the PA/Party line system is fed from a regular and an automatic alternate feed (both sources are from the emergency power buses). This ensures a high level of reliability and redundancy in the plant communication system. The reactor would be scrammed during a major fire that would jeopardize safety related equipment, substantially reducing overall plant background noise. This would further enhance the effectiveness of the fixed communication system for fire fighting operations.

As a backup to the above mentioned systems, at least 6 two-way radio units will be maintained available for the fire brigade. These units will be under the administrative control of the Shift Supervisor (Fire Brigade Leader), or Shift Superintendent.

Staff Position PF-34a Safe Shutdown Requirements

The licensee should re-evaluate the effects on safe shutdown of a fire in the primary containment. This re-evaluation should be made in accordance with NRC staff position PF-26.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-34b

The existing fire detection system should be demonstrated to be effective as an early warning system in accordance with NRC staff position PF-27.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-34c

The licensee should verify that a hose from the existing hose stations in the secondary containment can reach the areas where oil from the recirculation pumps would flow.

Response

The existing hose stations located on the 135 foot elevation of the reactor building contain sufficient length to eject a stream of water onto the 119 foot elevation below the recirculation pumps where the oil would accumulate.

Staff Position PF-35 Emergency Diesel Generator Fuel Oil Transfer Pumps

In response to NRC staff question Q-48, the licensee stated that the transfer pump could be turned off by tripping the load center which supplies power to the MCC located within the diesel generator compartment. The licensee's response is acceptable provided: (1) no other equipment required for safe shutdown is supplied from the same load center, and (2) the requirement to trip the load center is included in a written pre-fire strategy plan for the area to be used in fire brigade training.

Response

Our initial response to staff question Q-48 was not clear on this subject. The MCC located in the diesel generator compartment can be tripped at the load center by opening the MCC feeder breaker and not by tripping the entire load center. The safe shutdown analysis already assumed the loss of this MCC for a fire in a diesel generator compartment. Therefore, there is no other equipment required for safe shutdown that is affected by the tripping of this MCC. The requirement to trip the load center will be included in the pre-fire plan.

Staff Position PF-36a Combustible Liquid Curbs

The dikes in the main turbine lube oil storage tank rooms should be upgraded to contain the full contents of all tanks in the room plus the quantity of fire suppression water needed to suppress a postulated fire. This may be accomplished by increasing the height of the existing curbs or by adding curbs at the room doors. If curbs are added at the doors, verification should be provided that an oil fire in this room will not spread to other areas via the floor drains outside the existing curb.

Response

The area is protected by a sprinkler system, and the existing dike is sized in accordance with NFPA (i.e. contents of largest single tank). A fire in this area would not jeopardize the nearest safety related cable, which is located approximately 300 feet away. Therefore we believe that further modifications in this area are not necessary.

Staff Position PF-36b

Verification should be provided that the reactor feed turbine lube oil reservoir room curbs are adequate to contain the full contents of the reservoir plus an added margin for fire suppression water. If inadequate, the curbs should be upgraded to provide the necessary capacity.

Response

The curbs installed at the 150 foot elevation are sufficient to contain the full contents of the RFPT and 19 minutes of sprinkler flow. We believe the present design is satisfactory. Curbs at the 135 foot elevation will be raised to contain the entire contents and a 20 minute sprinkler flow.

Response

The curb around the seal oil units will be upgraded.

Staff Position PF-39a Torus Compartments - Fire Protection

Early warning fire detectors should be provided in the torus compartments.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-39b

In each torus compartment, the ladders to the catwalk should be relocated so that there are four ladders with each one adjacent to a different door from the pump rooms to the torus compartment. The ladders should be designed to permit access to the catwalk by fire brigade members wearing emergency breathing units.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-39c

In each torus compartment, four fire hose stations should be provided on the catwalk, one at the head of each ladder. Because the catwalk is in close proximity to the cable trays, a cable fire could render a hose station inaccessible even with early detection of the fire. Therefore, sufficient hose should be provided at each hose station such that all parts of the cable tray system are accessible from two hose stations. The fire hose stations should have 1-1/2-inch hose equipped with combination spray/straight stream nozzles.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-39d Torus Compartments

Portable smoke removal equipment should be provided with the capability to exhaust smoke outside the building in the event of a fire in either torus compartment (See also PF-41.)

Response

Refer to the reply to staff position PF-41 for a discussion of this matter.

Staff Position PF-40a Floor Drains - Combustible Liquid Areas

Oil from a leak in either motor generator set room will not spread to the associated motor generator set lube oil room via the floor drain system.

Response

The M-G set oil pump room drains will be plugged, separated, or provided with backwater valves to prevent an oil pathway via the M-G set room drainage system.

Staff Position PF-40b

Oil from a leak in a diesel generator room, the diesel generator building auxiliary bay or diesel fire pump room will not spread to other safety-related areas.

Response

Refer to the reply to staff position 31a and b.

Staff Position PF-41 Portable Smoke Removal Equipment

Portable air handling units should be provided consisting of three fire service, explosion-proof smoke ejectors (5000 cfm each) and flexible ducting for smoke removal throughout the plant. Procedures should be developed for use of this equipment by the fire brigade in all areas of the plant with particular emphasis on compartments with difficult access in the reactor, radwaste and control buildings.

Response

Three portable air handling units, as described, will be provided for smoke removal in those areas of the plant where they would be effective. Procedures will be developed for the use of this equipment by the fire brigade in these areas.

Staff Position PF-42 Fire Hazards Analysis

The potential for an unmitigated fire in the recombiner building to cause an unacceptable release of radioactivity to the site boundary should be evaluated. The evaluation should be performed in accordance with guidelines in Regulatory Guide 1.98. The releases from both off-gas recombiner trains as well as the ventilation system charcoal filters should be used in the evaluation unless it can be demonstrated that an unmitigated fire would not involve all of this equipment. The potential for gas explosions and the spread of fire via cables and other combustibles should be considered.

Response

This staff position will be addressed to in the 90-day response to permit completion of our evaluation.

Staff Position PF-44a Reactor Buildings

Early warning fire detection should be provided in the following reactor building fire zones:

Unit 2 fire zones 5H, 5J, 5K, 19, 20, 21, 23

Unit 3 fire zones 13H, 13J, 13K, 27, 29, 30, 31

Response

The need for early warning fire detectors in zones 5 H, 5J, 13H, 13J will be evaluated and reported in the 90-day response. The remaining zones have a minimal fire load and numerous methods of safe shutdown as evidenced by the safe shutdown analysis. Therefore, detectors are not required in these areas.

Staff Position PF-44b

The storage of combustibles in safety-related areas of the reactor buildings should be discontinued.

Response

Administrative control procedures will be established to implement this requirement.

Staff Position PF-48(d)

The yard hydrant located in the middle of the yard on the west side of the plant should be turned to allow both 2-1/2-inch outlets to be utilized. At present one outlet faces a wall about 18 inches away.

Response

The yard hydrant in question will be rotated or relocated to ensure that both 2 1/2 inch outlets can be utilized.

Staff Position PF-48(e)

The hydrant located at the southeast corner of the turbine building is leaking and needs repair. Additionally, this same hydrant is too low and should be raised so that the outlets are at least 18 inches above ground

Response

The leak on this hydrant has been repaired. An inspection of the hydrant's serviceability revealed that there is sufficient clearance between the outlets and the ground to easily facilitate connection of hoses.

Staff Position PF-48(f)

A maintenance program should be established for the hydrants which will require that each hydrant have the caps removed, threads lubricated and the hydrant barrel checked to be sure there is no water in the barrel in the fall of the year.

Response

A maintenance program will be established for the hydrants which will require that each hydrant have the caps removed threads lubricated and the hydrant barrel checked in the fall of the year.

Staff Position PF-48(g)

Each hose cart should be provided with the following additional equipment

- (1) One 2-1/2-inch hydrant gate valve
- (2) One forcible entry tool (halligan or similar)
- (3) One 2-1/2-inch fog nozzle

Response

- (1) One 2 1/2 inch hydrant gate valve will be installed in each hose cart.
- (2) The availability of forcible entry tools on site presents a potential internal security problem. In the event of a fire, control room personnel can establish accessibility by the fire brigade to all areas of the plant. In addition, shift supervision possess the necessary keys to unlock any door within the plant. It is our opinion that the disadvantages of such a tool far outweigh the advantages.
- (3) The 2 1/2 inch fog nozzle is applicable for use only by professional fire fighters. We will make these nozzles available to the offsite fire departments by providing them with the hose carts. To improve the reach of the hose equipment, a 1 1/2 inch fog nozzle with applicator will be provided with each hose cart for use by the fire brigade members.

Staff Position PF-48(h)

Two hose houses should be provided at the east side of the plant located at the hydrants nearest the northeast and southeast corners of the turbine building. Each house should contain, as a minimum, the following equipment

- (1) 150 feet of 2-1/2-inch hose
- (2) Two 75-foot lengths of 1-1/2-inch hose
- (3) One gated wye having a female 2-1/2-inch inlet and two 1-1/2-inch male outlets
- (4) Two 1-1/2-inch and one 2-1/2 inch adjustable spray nozzles
- (5) One forcible entry tool (Halligan or similar)
- (6) Hydrant and hose coupling spanner wrenches
- (7) One 2 1/2 inch hydrant gate valve.

