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 KNIGHTON, G. Licensing Branch 3

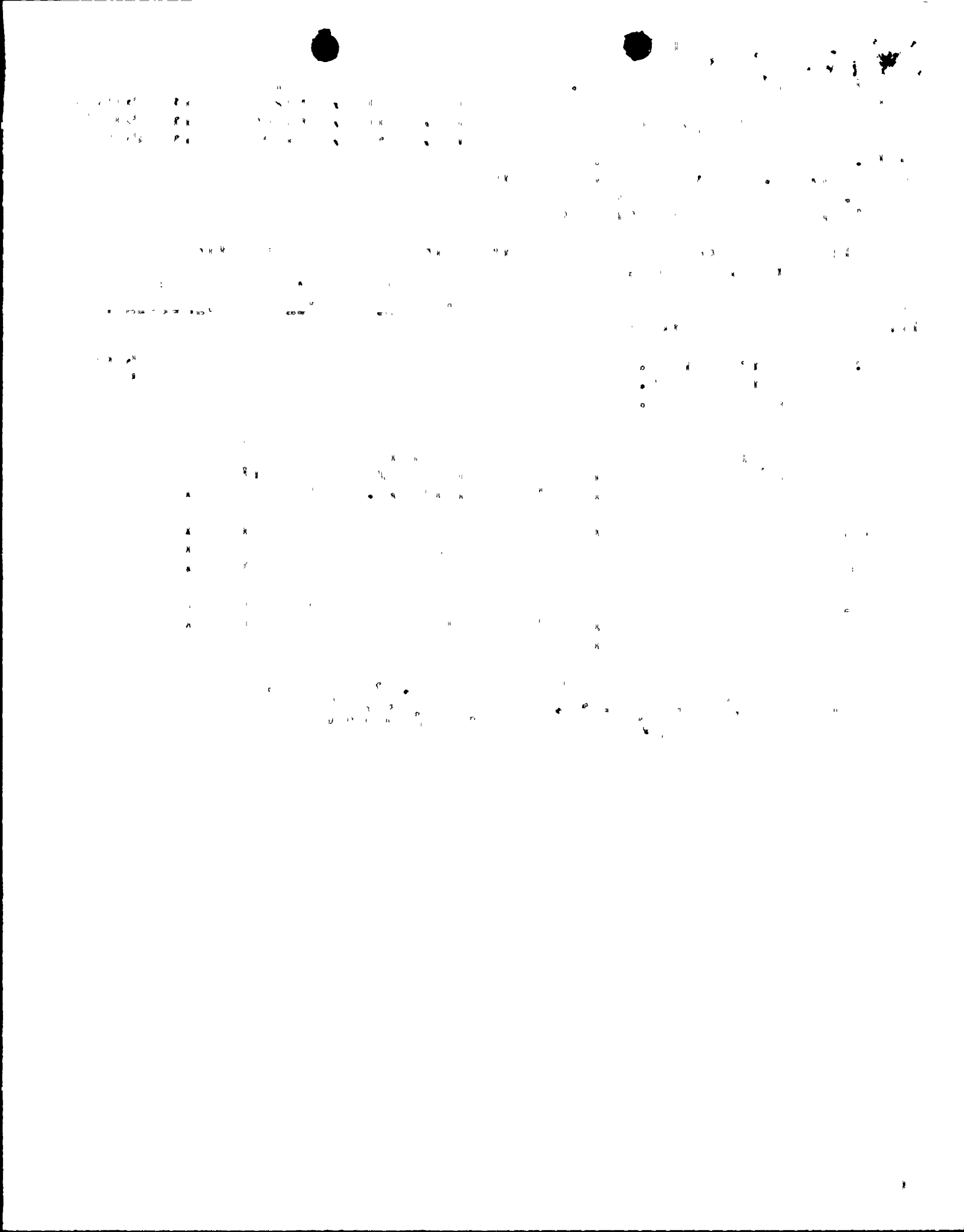
SUBJECT: Forwards responses to open items from NRC 830201-03 fire protection audit.

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All Extras to Licitra E.



Arizona Public Service Company

P.O. BOX 21666 • PHOENIX, ARIZONA 85036

June 15, 1983

ANPP-24091 - WFQ/JYM

Director of Nuclear Reactor Regulation
Attention: Mr. George Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Palo Verde Nuclear Generating Station
(PVNGS) Units 1, 2 and 3
Docket Nos. STN-50-528/529/530
File: 83-056-026; G.1.01.10

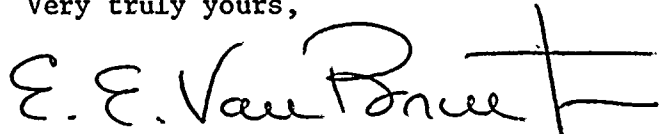
Reference: Letter from G. W. Knighton, NRC to E. E. Van Brunt, Jr., APS,
dated April 11, 1983

Dear Mr. Knighton:

Attached are our responses to the open items from the NRC Fire Protection
Audit conducted at the PVNGS site, February 1-3, 1983.

Please contact me if you have any questions on this matter.

Very truly yours,



E. E. Van Brunt, Jr.
APS Vice President,
Nuclear Projects
ANPP Project Director

EEVBJr/JYM/sp
Attachment

cc: E. Licitra (w/a)
D. Kubicki "
A. C. Gehr "

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PDR ADDCK 05000528
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Boor
11/40

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, Edwin E. Van Brunt, Jr., represent that I am Vice President Nuclear Projects of Arizona Public Service Company, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority so to do, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true.

Edwin E. Van Brunt

Edwin E. Van Brunt, Jr.

Sworn to before me this 15th day of June, 1983.

Nora E. Mendon
Notary Public

My Commission expires:

My Commission Expires April 6, 1987



1973

VERIFICATION THAT INSTALLED FIRE
PROTECTION PLANT FEATURES SATISFY
PREVIOUS COMMITMENTS

Question 1:

Verify that doors in fire rated walls and partitions are listed for use in that type of wall or partition.

Response:

All fire doors are, or will be, labeled fire doors of the fire rating required for the wall rating, (i.e., 3 hour wall: A label, 3 hr. door; 2 hour wall: B label, 1 1/2 hour door; 1 hour wall: C label, 3/4 hour door) with the exception of doors that have removable transoms and/or both louver and glass view plates. These doors will be certified by the manufacturer to be of UL or FM construction (but without label) offering the corresponding fire rating protection. These doors are:

A-102	A-204	A-320	F-105
A-104	A-213	A-323	F-201
A-110	A-216	A-327	R-107
A-118	A-302	A-335	R-121
A-201	A-317	C-111	J-143

Question 2:

Verify that the lack of structural steel fire proofing will not cause structural collapse during a postulated fire in the following plant areas:

- a. Floors and roof of Diesel Generator Building
- b. Elevation 140 feet in the Main Steam Support Structure
- c. Auxiliary Building Zones: 42A & 42B
47A & 47B
55 & 57B

Response:

- a. The reinforced concrete floors and roof of the Diesel Generator Building are self supporting. Other structural steel material is not required.
- b. The Main Steam Support Structure (MSSS) is provided with water suppression on all levels. Even an exposure fire cannot reach the roof support columns and/or structural beams. This structure is also open to the atmosphere at the roof line providing natural heat ventilation. Additionally, water spray from the spray nozzles for elevation 140 ft. are arranged such that the columns and beams will be sprayed. These features will ensure that the structure steel will not collapse.
- c. The structural beams and columns for Zones 42A and B, 47A and B, 55 and 56B are required to support the floor slabs of the wrap-around sections. Zones 42 A/B and 47 A/B have deluge sprinkler systems installed in the cable trays. The columns in these zones would only receive overspray from the nozzles. Therefore, an additional sprinkler will be added near the top of each column within Zones 42 A/B and 47 A/B. This additional sprinkler will provide adequate protection from postulated fires to assure the columns will not collapse.

(See also: NFPA 231C for guidance on column protection in areas with high-piled storage of combustibles.)

Columns in Zones 55 and 56B have adequate protection from the wet pipe water suppression system installed.

Question 3:

Verify that the fire dampers installed in the plant are listed for the following uses:

- a. Grouped dampers at floor/wall penetrations
- b. Single dampers at 3-hour fire rated wall/floor penetrations
- c. Dampers in drywall and metal lath and plaster partitions

Response:

- a. The design for ganged fire dampers is being tested by Waldinger, the damper manufacturer. The forecast date for completion of the test report is June, 1983. The results will be forwarded to the NRC for review following Waldinger's formal submittal to APS.
- b. Single dampers at 3-hour rated wall/floor penetrations are rated for 3 hours. Those dampers presently labeled with 1½ hour ratings are constructed to 3 hour standards. The labels will be upgraded to 3-hour ratings prior to operation above 5% power.
- c. Dampers installed in drywall and metal lath and plaster partitions will be rated for the rating of the partition, e.g., a three hour damper is installed in a three hour partition. (See also response for Questions 4).

Question 4:

Verify that drywall and hollow concrete block partitions are 3-hour fire rated.

Response:

The noted partitions are 3 hour fire rated because:

(1) Block Walls

- Designed per UBC-1973 (Table 43B (a) item #27 through 30)
The walls are fully grouted and reinforced throughout.
- Penetrations for conduit piping and cable trays are sealed in the same manner and with the same materials as those used for concrete walls.
- UL-rated fire dampers are installed in an approved design wherever HVAC ducting penetrates the barrier.

(2) Drywall/Metal Lath and Plaster (ML&P) Partitions

- Designed per UBC-1973 (Table 43B (a) item #61)

Notes:

- (a) All existing joints on the fire wall between the Remote Shutdown Panels will be removed and replaced with approved No. 15 closed joints.
- (b) Other ML&P walls will be downgraded to 2-hour fire barriers.
- Conduit penetration seals have been approved with a 3-hour rating by ANI for use in ML&P walls.
- Cable tray penetration seals have been approved with a 3-hour rating by ANI for use in ML&P walls.
- UL-rated fire dampers are installed in an approved design wherever HVAC ducting penetrates the barrier.

- a. Testing for UBC fire ratings was performed in accordance with ASTM Standard E-119 (equivalent to UL 263 "Fire Tests of Building Construction Materials") as noted in UBC Standard No. 43-1.

Question 5:

Verify that cable tray penetration seals will not fail upon tray collapse.

Response:

The tested cable tray/penetration seal utilized a cable tray supported on each side of a fire barrier at a distance of three feet from the fire barrier.

The as-built configurations are supported at varying distances from the fire barrier, and essentially rest (clearance equals $\frac{1}{4}$ inch) upon the fire barrier without damaging the penetration seal.

There are several as-built configurations which exceed the test configuration support distance. To make these configurations conform to the tested design, one of the following alternatives will be employed:

- (A) Conduct an additional test with greater support distances.
- (B) Coat the supports nearest the fire barrier with a 1-hour barrier of fire retardant material (e.g. THERMOLAG) to assure their integrity and that of the penetration seal. The fire retardant material will extend from the support to the fire barrier and will enclose the affected cable tray(s).
- (C) Add additional support(s) such that the as-built design is enveloped by the tested configuration.

One or more of these alternatives will be implemented prior to exceeding 5% power. This action will assure cable tray penetration seals will not fail upon tray collapse.

Question 6:

Verify that lead powder/iron powder type penetration seals are appropriate for use in a fire rated partition.

Response:

All penetration seals which have a dual purpose, (i.e. radiation shielding and fire protection) have been tested and rated for 3 hours.

Question 7:

Verify the presence of fire dampers at walls, floor, and shaft penetrations in the following areas:

- a. Control Building El. 74 ft. (Zones 1 & 2)
- b. Control Building El. 100 ft. (Zones 7)
- c. HVAC chase at Zone 18
- d. Auxiliary Building, El. 51 ft-6 in (Zone 30 and 31)

Response:

Every duct that penetrates a fire barrier has a fire damper. (As was observed during the audit, small ducting does not have access panels to allow maintenance personnel to reset fire dampers. The PVNGS design uses removable sections of duct to access the fire dampers.)

Question 8:

Verify that a single break or ground fault condition will not cause the loss of power to multiplex concentrators.

Response:.

PVNGS meets the requirements of NFPA 72D (Section 2220) and BTP APCSB 9.5-1, Section E.1 regarding power supplies.

The distribution system from the uninterruptible power system (UPS) to the power panels is common within the guardhouse. Therefore, a single break or ground fault in this area could result in the loss of power to all concentrators. This condition would be alarmed in the control rooms of each unit and in the guardhouse. The loss of power to the concentrators does not preclude actuation of the fire protection system. The loss of power does not affect the operation of the local fire panels since these are powered separately from the essential lighting system.

Any failure of an individual concentrator (e.g. due to loss of power as a result of a fire local to the concentrator) would be annunciated in the control room and in the guardhouse (i.e. the detection system complies with the requirement to be Class A, as defined in NFPA 72D-1972).

Question 9:

Verify that a trouble condition/fire alarm signal will continue to be displayed on multiplex system CRT until condition is rectified.

Response:

The trouble condition/fire alarm signal remains displayed on the CRT until the condition is rectified and cleared by an operator.

Question 10:

To meet Section E.3 of BTP ASB 9.5-1, the applicant committed to equip hose stations with not more than 100 feet of fire hose. The applicant should verify that the existing hose stations will be able to protect all of the following areas with not more than 100 feet of hose:

- a. Zones 21/22 and 24
- b. Zone 74
- c. Zone 37

Response:

The PVNGS commitment to BTP APCSB 9.5-1 stipulated that no more than 100 feet of 1-1/2 inch hose would be used for interior hose stations. That commitment has been addressed in the following manner:

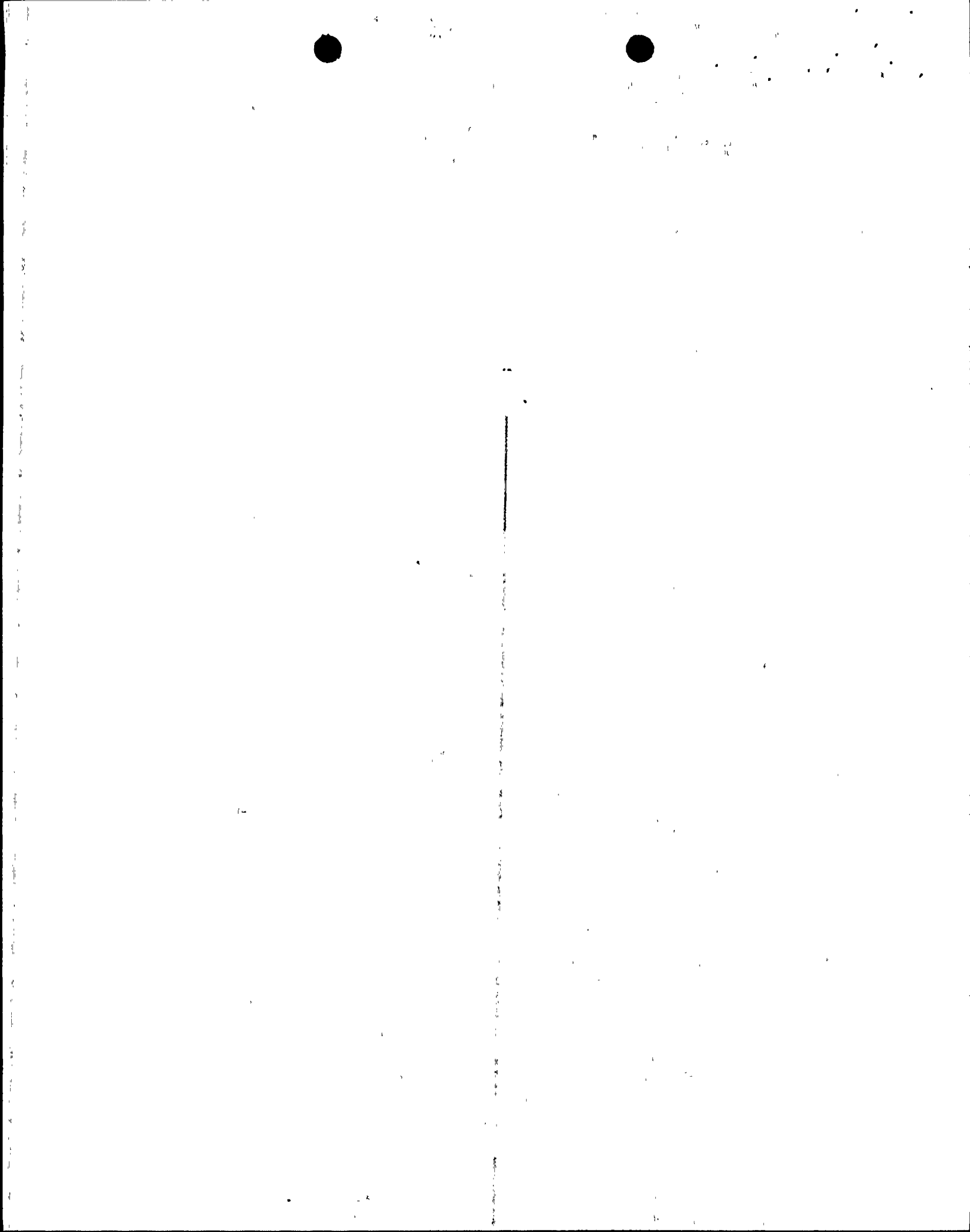
- a. Zones 21/22 and 24

The diesel generator engine room and control room at grade level (fire zones 21 and 22) may be reached readily from the yard fire hydrants #10 and #11 through a combination of 2-1/2 inch and 1-1/2 inch hoses. Fire hydrant #11 is equipped with 6 - 50 foot lengths of 2-1/2 inch hose and 2 - 50 foot lengths of 1-1/2 inch hose for a total of 400 feet. Hydrant #10 is approximately 80 feet away from the door on the south stairwell of the control building; hydrant #11 is approximately 270 feet away. (Units 2 and 3 are arranged similarly.) Hoses from hydrant #11, attached to hydrant #10, can be utilized to reach the upper level of the diesel generator building (zones 23 and 25) via the south stairwell in the control building and the lower cable spreading room.

Zones 21, 22, 23 and 25, and the diesel generator air intake filter room (zone 24) can be reached from hose station #90 (in the control building) which will be provided with a 125 foot length of hose. (The hose routing is not tortuous, and the flow resistance change from 100 feet to 125 feet is minimal. This exception to the PVNGS commitment to BTP APCSB 9.5-1 will be indicated in an upcoming FPER amendment.)

- b. Zone 74

Main Steam Support (MSSS) Zone 74 can be reached within all areas of the 100 foot (grade) level and 140 foot level from standpipe and hose stations at those levels located at the northwest corner of the turbine building. These hose reels will be equipped with 100 feet of 1-1/2 inch hose. The 120 foot level of the MSSS is entirely an open grating and hose streams can be directed at all areas of that level upward from the 100 foot level and downward from the 140 foot level (which is also an open grating). The hose nozzles will reach within 20 feet of all areas of the building.



c. Zone 37

All areas of Auxiliary Building, Zone 37, can be reached within 30 feet by a 125 foot of 1-1/2 inch hose from hose station No. 25. (Again, the hose station is not tortuous, and the change in flow resistance is minimal. This zone has only piping and normally contains no combustible material. This exception to PVNGS commitment to BTP APCSB 9.5-1 will be reflected in an upcoming FPER amendment.)

Question 11:

The applicant in the Fire Protection Evaluation committed to comply with Section E.1 of BTP ASB 9.5-1 concerning the design and installation of fire detection systems. We observed that fire detectors were absent from the following areas which contain safety related equipment.

- a. Condensate transfer pump room (Zone 83)
- b. Elevation 131 feet, Diesel Generator Building (Zone 25)
- c. Above auxiliary control cabinets (Control Room)
- d. In computer room adjacent to the control room, within the control room complex
- e. (DELETED)
- f. "Dead air space" such as in Zone 37 (Elevation 70 feet, Auxiliary Building)
- g. E.C.W. Heat Exchanger Rooms (Zone 43)
- h. Charging Pump Rooms (Zone 46)
- i. Spray chemical accumulator room
- j. Spray Chemical Storage Tank Room (Zone 51B)

Response:

The area listed as "g" contains no safety related equipment susceptible to fire damage. (The only safety-related component within zone 43 is the essential cooling water heat exchanger [i.e., the heat exchanger shell].) No cable trays or combustibles are present. Therefore, no detectors are required.

Area "d," the computer room adjacent to the control room, has fire detectors to detect fire and activate the Halon suppression system.

Potential dead air spaces between heavy beam ceiling supports have been previously identified and reviewed (through site walkdowns) by the detector supplier. Additional detectors were added based on air flow and configuration. The remaining "dead air spaces," noted as area "f," are not of sufficient size to cause appreciable delays in the response of the current detector arrangement.

To address technical specification restrictions regarding operation with only one train of safety related equipment available, additional detectors will be added to areas labeled "a," "b," "c," "h," "i," and "j." Detectors will be installed prior to operation above 5% power.

Question 12:

Penetration seals are not provided at bus duct penetration of fire walls.

Response:

A fire rated penetration seal will be installed prior to fuel load.

Question 13:

The fire wall in the control room complex is not continuous.

Response:

The fire walls in the control room generally extend from the floor slab to the ceiling. Due to overhead congestion, one small area (near the shift Supervisor's Office, kitchen, and lavatory) is capped with a one hour rated ceiling, which provides the continuity of the fire wall for that application.

Question 14:

Curbs are not provided at diesel generator rooms to contain oil spill.

Response:

Each diesel engine room contains a pipe trench with a sump and 2 sump pumps. Each trench is approximately 21 ft long, 4 ft wide and 6 ft deep. The sumps are approximately 5 ft deep x 4 ft square (with about 48 ft³ of usable volume above the pump low level cutoff). The floors are sloped to floor drains which run to the sumps. The total volume in the trench and sump for each room is approximately 550 ft³, or 4400 gal.

Each diesel generator contains approximately 1000 gal of oil, and each sprinkler system is designed for approximately 350 gal/min. Therefore, there is capacity in the sump for all the oil and approximately 10 minutes of sprinkler flow. The usual criteria for curbs is containment of all oil plus 10 minutes of sprinkler flow, which is met by the present design.

Question 15:

Removable block walls are provided throughout the plant for equipment servicing.

Response:

A typical blockout is equal to the surrounding wall thickness (exceeding 24 inches). The design requires the solid concrete blocks to be staggered, both horizontally and vertically. There are no penetrations through the blockout. This design has the fire resistance of a three-hour barrier.

Question 16:

Unprotected openings were observed in the following fire walls:

- a. Wall separating Zones 1 & 2 (Control Building elevation 74 ft.) from adjoining pipe chase.
- b. Wall opening between elevation 120 ft of the Main Steam Support Structure and the turbine building.
- c. Wall opening between elevation 88 ft of the auxiliary building and radwaste building.
- d. Seismic gap (both horizontal & vertical) at the containment building.

Response:

- a. The openings from fire zones 1 or 2 into the pipe chase area between the Control and Auxiliary Buildings is to be sealed to a three hour rating.
- b. The wall opening between fire zone 74 and the turbine building is utilized for normal exhaust from zone 74 to keep the main steam line penetrations cool. As air flow is away from the safety related equipment in zone 74, and there are negligible combustibles adjacent to the openings in the turbine building, the openings are acceptable.
- c. The openings between the pipe chase at elevation 88 of the auxiliary building and the radwaste building are to be sealed to a three hour rating prior to fuel load.
- d. The 6" (nominal) gap between the auxiliary building and containment building is required for seismic movement and pressure relief of postulated high energy pipe breaks in the auxiliary building piping penetration rooms. The gap is covered with sheet metal, but not sealed to a fire rating.

Vertical fire propagation between elevations is precluded by sprinklers installed at elevations above 100 ft. and by assuring low combustible loadings below that elevation (essentially, only piping and conduit in elevation 70 and 88 ft.). Horizontal fire propagation at elevations 70' through 140' is precluded by two 2 ft. thick concrete walls (with a 6-inch seismic gap between the wall and containment) and a 40 ft. intervening void space.

Question 17:

Fusible-link-type open devices were observed on fire doors throughout the plant.

Response:

The fusible-link hold-open devices on swinging type (hinged) fire doors will be removed prior to fuel load. Verification of the position of the doors will be performed daily in accordance with 10CFR50 Appendix R.

Question 18:

A PVC drain pipe was observed to penetrate a fire rated floor assembly.

Response:

Chlorinated polyvinyl chloride (CPVC) piping is used as vent piping from the battery room acid drain neutralizing pit. The vent piping does not pass between Trains A and B. Accordingly, adequate separation is provided. The small pipe opening is exposed by the essential chiller room elevation 74 feet which is the room below the PVC pipe opening. The essential chiller room has a 26 foot ceiling height and a total equivalent fire severity of 16 minutes consisting of charcoal contained in metal filter units. This exposure is light and does not present a significant danger of fire spread between these zones which are in the same train. Smoke detection is provided and manual fixed suppression is provided for the charcoal filters.

Question 19:

To meet Section E.3 of BTP ASB 9.5-1 the applicant committed to provide automatic sprinkler protection for the following areas. We noticed that sprinklers were missing in these areas which is contrary to the commitment:

- a. El. 140 ft., Main Steam Support Structure (Zone 74)
- b. Auxiliary Building, Elevation 51 ft-6 in, (Zone 30 & 32)
(Partial system)

Response:

- a. The sprinkler system for the Main Steam Support Structure at elevation 140 ft. will be installed both above and below elevation 140 ft. prior to fuel load.
- b. The sprinkler system for the LPSI and containment spray pump rooms have the sprinkler nozzles located below the grating in the center of the room and none on the ceiling. Combustibles, if any will be below the grating. The installation has been approved by the insurrers. Per paragraph 4-1.2 of NFPA 13-1976, a partial installation may be approved by the authorities having jurisdiction. The present design is adequate. The sprinkler system is part of the original plant design and is not required to meet BTP APCSB 9.5-1 or 10CFR50 Appendix R. The pumps are surrounded by three hour fire barriers.

Question 20:

In Amendment 3 to the Fire Protection Evaluation, the applicant committed to provide 8-hour, battery powered emergency lighting units in all areas needed for operation of safe shutdown equipment. We noticed that an emergency light was not installed in the ECW pump room (Zone 34) which is contrary to that commitment.

Response:

Emergency lighting will be installed in Zone 34 prior to fuel load.

Question 21:

In Amendment 3 to the Fire Protection Evaluation, the applicant committed to comply with Section III.0 of Appendix R concerning an oil collection system for the reactor coolant pumps. We were concerned that the piping, oil collection tank and protection for the lift pumps would not collect oil leakage after a safe shutdown earthquake. The applicant agreed to respond to our concern by providing design details of the system.

Response:

The pressurized^(a) and unpressurized portions of RCP lube oil system (for pump and motor) have been analyzed to determine whether or not the components would survive an SSE without pressurized spray or leakage. Based upon that analysis, various mechanical joints (e.g. flanges), RTD connections, and sight glasses in the unpressurized section were identified as potential leakage paths. Piping and welded joints within the pressurized section were determined to remain intact. The lift pump discharge connection flange is considered subject to failure and is shrouded. The shroud provides an envelope for the oil spray, and serves to collect and direct the oil to the collection system like any other oil leakage.

To collect any leakage from the postulated leakage points, the criteria given in Section III.0 of 10CFR50 Appendix R was applied. Postulated leakage points are provided with open "cans," catch trays, or enclosed in shields. These devices drain by gravity to a piping system. The interface point between the RCP collection devices and the piping system is an open funnel. The piping system drains by gravity to two collection tanks. Each tank can contain all the oil from two RCPs, plus 10%, and is equipped with a flame arrestor and sight glass. The tanks are located below the RCPs, and are not near any ignition sources. No flanges are provided in the collection piping, except at the collection tanks.

In addition to collecting devices, some modifications were made to eliminate leakage points by seal welding threaded joints or removing flanges and replacing the flange by a welded connection. Part of the collection system within the pump housing utilizes compression-type tube fittings. (As the drain system is not pressurized, compression-type tube fittings are justified for this application.)

- a. The external portions of the RCP lube oil system which can be considered pressurized, are only operated for about 30 minutes prior to starting the RCP, and for about 30 minutes during the RCP shutdown sequence. All other pressurized portions of the system are internal to the pump and motor. The lift pump is normally secured.

Question 22:

The applicant should commit to the reapplication of fire proofing to all sections of structural steel that have lost the original fire proofing due to construction activities.

Response:

We commit to the reapplication of fire proofing to all sections of structural steel that have lost the original fire proofing due to construction activities. Fire proofing on structural steel will be repatched prior to fuel load.

Question 23:

To comply with Section E.1 of BTP ASB 9.5-1, the applicant should clarify which fire alarm/detection circuits are Class A and Class B.

Response:

Plant Areas Protected by Detection Only

All wiring from the detectors to the local fire panels is Class "A". All wiring from the local fire panels to the Security System is Class "B". The Security System is Class "A".

Plant Areas Protected by Water Suppression, CO₂, and Halon 1301

Any areas using CO₂ and Halon 1301 are Class "B" from the detectors to the local fire panel and from the fire panel to the security system.

The following water suppression systems are wired Class "A" from the local fire panel to the Security System. The signals that are wired Class "A" are the AC Power On, Water Flow, Alarm, and Trouble. In case of a Wet Pipe System, only the Water Flow switch is Class "A".

1. Fuel Bldg Railroad Bay, El. 100', Zone 27
2. Upper Cable Spreading Room, El. 160' of Control Bldg., Zone 20
3. Lower Cable Spreading Room, El. 120' of Control Bldg., Zone 14
4. D.G. Rooms A & B, El. 100', Zone 21
5. D.G. Fuel Oil Day Tank Rooms, El. 131', Zone 131
6. Aux Bldg. Systems, El 100', Zones 42C, 42D, & 46
7. Electrical Penetration Rooms, C and B, El. 100', Zones 42A & 42B
8. Electrical Penetration Rooms, A and D, El. 120', Zones 47A & 47B
9. Aux Bldg Systems, El. 120', Zones 52A and 52D
10. Dead Space Compartments A and B. Area between Control Bldg. and Aux. Bldg. El. 100' and 120'.
11. Turbine Driven Aux. Feed Pump, El. 80' of MSSS, Zone 72
12. MSSS, Zone 74, El. 100', 120', and 140'.

Fire Pump Hose

The diesel fire pumps have Class "A" circuits for indication to the Control Room. These are "pump running", "Controller Switch Off" or "Manual Position", and "Controller Trouble". The Class "A" circuits for the motor driven fire pump are motor running and loss of power.

Question 24:

To comply with Section B.5 of BTP ASB 9.5-1, the applicant should develop a procedure to restrict the use of the emergency radio communications frequency to authorized personnel. In addition, the applicant should clarify the need to use a fixed repeater and to commit to protect it from damage if one is installed.

Response:

Procedures to restrict the use of emergency radio communications frequency to authorized personnel during a fire are developed in the Fire Response Procedure.

As stated in Section 9.5.2.1(I) of the FSAR, fixed repeaters are not utilized within PVNGS.

PVNGS utilizes a two-way radio which is designed for remote control console to portable radio via simplex base station operation.

The remote control consoles are located at major communications centers within the plant and at on-site emergency facilities. Each console has five radio channels available for internal/external building communications. These radio channels have a designated frequency for coverage in a particular area. The various locations of the antennas and radios, for each channel, provide for maximum coverage, throughout the plant.

Each base station radio has its own battery backup and is installed in areas considered to be low risk to fires (e.g., in areas of poured concrete construction or in areas located away from potential fire sources). Connecting cables are protected by conduit terminated in NEMA-12 cabinets.

The fire brigade coordinator will assume use of the appropriate channel and console, then relay messages between individuals not in direct portable contact with one another. In conjunction, the EPABX Telephone System, Public Address System, Sound and Powered Telephone are available to ensure continuous intra-communication as mentioned in FSAR 9.5.2.2.1..

Question 25:

In Amendment 3 to the Fire Protection Evaluation, the applicant proposed to utilize administrative controls to prevent fire damage to redundant shutdown division inside containment.

Administrative controls alone are insufficient to justify an exemption from the Appendix R requirements for protection of redundant safe shutdown systems in containment. The applicant should provide the technical requirements in section III.G.2 for inside containment to provide reasonable assurance that one train of equipment will be free of fire damage.

Response:

APS has reassessed areas of vulnerability within the containment, and have concluded that its current design and commitments meet the intent of 10CFR50 Appendix R.

During operating conditions, personnel access to the containment is restricted. Strict administrative controls restrict the quantities of transient combustibles inside the containment, and operating procedures require resealing the containment following personnel entry. The Reactor Coolant Pump (RCP) lube oil collecting system provides assurance that the only substantial source of flammable exposure fire material within the containment is collected, even after an SSE.

During shutdown (e.g. during refueling outages), the plant is maintained in a cold shutdown condition. Administrative controls are still in place, and manual water suppression capability is provided to the containment. Additionally, with the plant already in cold shutdown, the requirement for twenty (20) foot separation between redundant safe shutdown equipment can be met without additional design modification.

Question 26:

The applicant should document in the Fire Protection Evaluation, the fire hazards analysis for the corridor areas on elevation 40 ft and 51 ft. 6 in. of auxiliary building.

Response:

In the next FPER amendment, FPER figures 11 and 12 will be revised to show new zones 87, 88 and 89. These new zones will be documented in the text in the manner of other identified fire zones.

Question 27:

The applicant should protect the propane piping in the corridor on elevation 140 ft of the auxiliary building so as not to be subject to damage from corridor traffic.

Response:

Prior to fuel load the propane line at elevation 140 ft. will be rerouted to be above the structural framework of the drop ceiling so as to be protected from impact from personnel transiting through the corridor.

Question 28:

The applicant should assess the need for forced ventilation in the flammable gas storage room in elevation 140 ft of the auxiliary building.

Response:

Ventilation for flammable gas storage, per NFPA 51-1974, paragraph 22 (fuel gas cylinder storage) will be provided prior to fuel load.

