William J. Cahill, Jr.
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

September 18, 1978

Re: Indian Point Unit No. 2
Docket No. 50-247

Rec'd 9/26/78

Director of Nuclear Reactor Regulation
ATTN: Mr. Victor Stello, Jr., Director
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Stello:

By letter dated August 31, 1978, you requested additional information regarding our facility fire protection program. We are providing in Enclosures 1, 2 and 3 of this letter responses to the questions and staff positions contained in Enclosures 1, 2 and 4 of your letter. As discussed with members of your staff, our response to Enclosure 3 of your letter is in preparation and will be provided shortly.

In order to be fully responsive to the staff questions on fire protection we have included, as Enclosure 3 to this letter, a detailed description of certain plant modifications presently underway to upgrade plant security and physical protection in accordance with 10 CFR 73.55. Enclosure 3 is sufficiently detailed such that if placed in the Public Document Room, it would make available information that could compromise the effectiveness of the new system for plant security.

Therefore, in accordance with 10 CFR 2.790(d), Con Edison requests that Enclosure 3 to this letter be withheld from public disclosure. In addition, we understand that in accordance with 10 CFR 2.790, Enclosure 3 will not be placed in the Public Document Room and will receive limited distribution.

Should you or your staff have any additional questions regarding our fire protection program, we would be pleased to discuss them with you.

Very truly yours,

William J. Cahill, Jr.

William J. Cahill, Jr.
Vice President

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ENCLOSURE 1

Responses to Questions for Additional Information

Consolidated Edison Company of New York, Inc.

Indian Point Unit No. 2

Docket No. 50-247

September, 1978

Question No. 11

Provide the results of an analysis to substantiate that fires in radwaste material at the storage locations will not cause loss of equipment used to prevent releases to the environment, or will not result in excessive releases to the environment. In addition, describe how inhalation and exposure doses to firefighters are kept within acceptable limits.

Response

(a) IP2-Drumming Station & Storage Area (PAB-El.80')

The drumming station is used to store high and low specific activity solid waste (evaporator bottoms, spent resin, spent filter cartridges, etc.). This area is ventilated by the PAB ventilation system and, therefore, any releases from the area will be contained and controlled.

The drumming station does not contain any ventilation equipment and a further review has determined that there are no power supplies, power cables or control cables for any plant ventilation equipment used to contain radioactive releases within the area.

In summary, a fire in the drumming station will not result in excessive releases to the environment and will not cause the loss of equipment used to prevent releases to the environment.

(b) Integrated Liquid Waste Handling Building (ILWHB) - Solidification Room

The solidification room of the ILWHB is used to solidify and drum evaporator "bottoms" from the integrated liquid waste handling system. The ventilation system for this area consists of a roof-mounted, motorized, thermostatically-controlled damper and vent for fresh air intake and an exhaust duct with fire dampers. The exhaust duct is an extension of the existing Indian Point 1 Chemical

Systems Building exhaust duct. Should a fire occur in the solidification room, the exhaust fans will stop and the exhaust duct fire dampers will close thus isolating the area. If the postulated fire results in a positive pressure buildup within the room, the potential exists for some release of smoke and inside air from the room to the atmosphere via the ventilation intake vent and/or the solidification room roll-up door. An evaluation of possible releases from fires affecting evaporator "bottoms" has been performed and it has been determined that such postulated fires would not result in excessive releases to the environment and any releases that could occur would, in fact, be well within acceptable limits.

Furthermore, a review of the area has determined that no equipment, power cables or control cables for any equipment used to prevent radioactive releases is contained within the solidification room area.

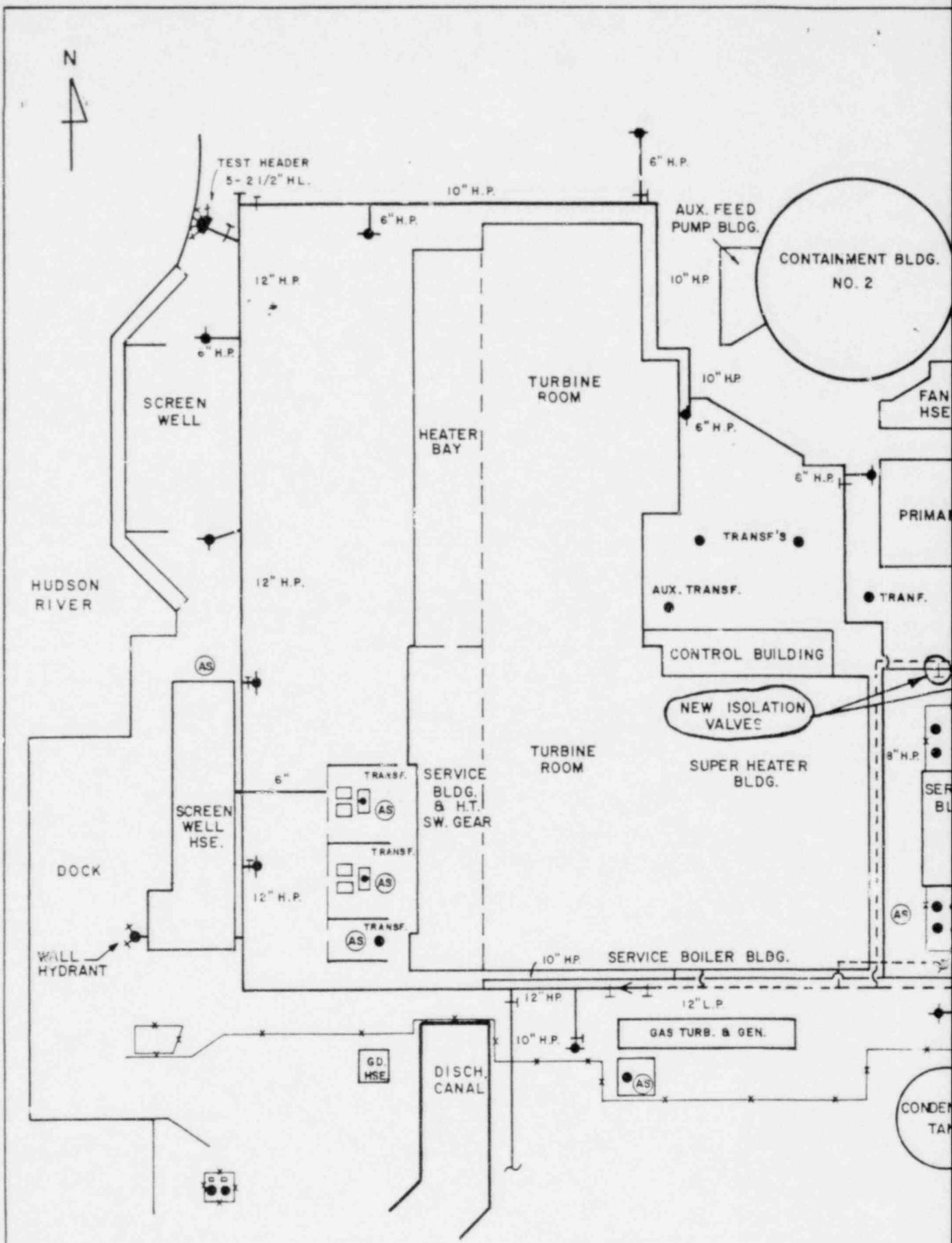
(c) For those individuals fighting fires in radwaste material storage locations, health physics monitoring and the use of breathing apparatus maintain inhalation and exposure doses within acceptable limits.

Question No. 12

Provide a P&ID of the fire water system overlaid on the plant lay-out, including the yard loop and showing where the new isolation valve is to be located.

Response

A physical layout of the fire water system is shown in Figure Q12-1.


N
TEST HEADER
5 - 2 1/2" H.L.
6" H.P.
10" H.P.
6" H.P.
AUX. FEED
PUMP BLDG.
CONTAINMENT BLDG.
NO. 2
12" H.P.
10" H.P.
6" H.P.
SCREEN
WELL
TURBINE
ROOM
10" H.P.
HEATER
BAY
6" H.P.
6" H.P.
TRANSF'S
HUDSON
RIVER
12" H.P.
AUX. TRANSF.
TRANF.
CONTROL BUILDING
AS
NEW ISOLATION
VALVES
TURBINE
ROOM
SUPER HEATER
BLDG.
8" H.P.
6"
TRANSF.
SERVICE
BLDG.
& H.T.
SW. GEAR
SCREEN
WELL
HSE.
TRANSF.
DOCK
12" H.P.
TRANSF.
WALL
HYDRANT
10" H.P.
SERVICE BOILER BLDG.
12" H.P.
12" L.P.
GAS TURB. & GEN.
10" H.P.
GD.
HSE.
DISCH.
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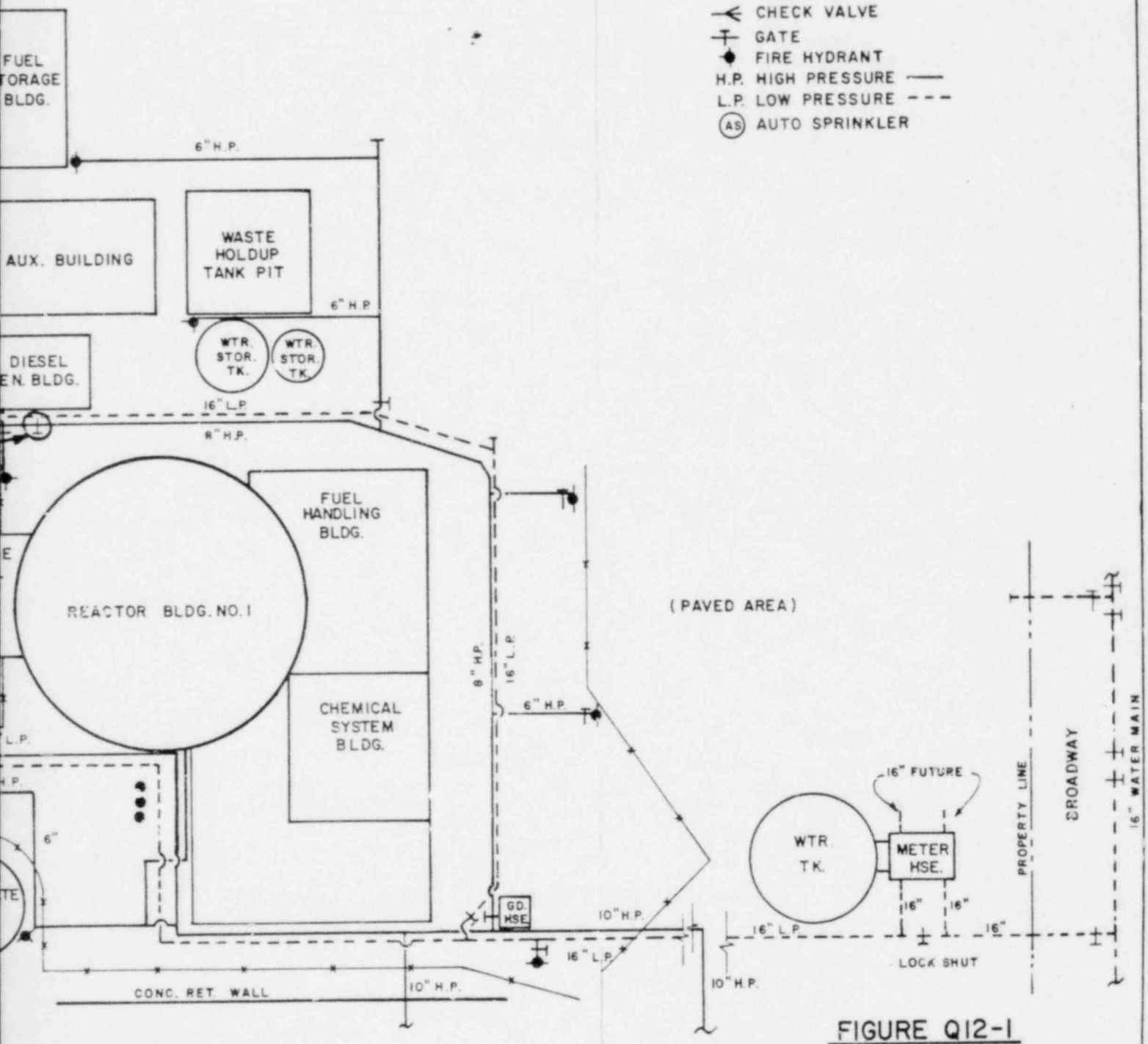

FIGURE Q12-1

INDIAN POINT STATION
FIRE PROTECTION SYSTEM

SEPTEMBER, 1978

Question No. 13

Identify the quantity and type of hydraulic oil in the cranes in containment.

Response

There are two cranes inside containment, namely the Polar Crane and the Manipulator Crane. The hydraulic oil in each crane is as follows:

(a) Polar Crane:

Two gear cases with 5 to 7 gallons of Dorcia Type 150 oil in each case.

(b) Manipulator Crane:

The manipulator crane manual calls for 2-3/4 quarts of SAE-30 type oil in the speed reducer and 3-16 pints of Mobil DTEBB SAE-90 type oil in the hoist. These oils or equivalents are used in the manipulator crane.

Question No. 14

The response to Staff Position P-1 in the Con Ed letter of May 26, 1978 references zone 46 for additional detectors to be added in containment. However zone 46 is not located in containment. Identify where these five detectors are to be located in containment.

Response

The smoke detectors which will be installed inside of containment are in Zone 75A.

ENCLOSURE 2

Responses to Staff Positions

Consolidated Edison Company of New York, Inc.

Indian Point Unit No. 2

Docket No. 50-247

September, 1978

Staff Position P3

Normal and emergency lighting could potentially be damaged for fires in various areas. To preclude loss of lighting required in a fire situation fixed lighting units consisting of eight hour battery packs should be provided for access lighting to safety related areas and in the control room.

Response

Thirty (30) emergency power failure lighting units are available, and will be installed at various locations throughout the plant to provide lighting for access to all areas containing safe shutdown equipment. The units have two (2) PAR 36 sealed beam lamps with a minimum operating time of 8 hours on a self-contained lead acid storage battery.

Staff Position P4

To preclude undetected loss of battery room ventilation flow and potential resultant hydrogen buildup, alarms or flow indication in conjunction with a required periodic flow check should be provided to monitor the loss of battery room ventilation air flow for each battery room.

Response

A pressure instrument capable of measuring static pressure will be installed in the exhaust duct from Battery Rooms 21 & 22. This instrument will provide a positive flow indication.

The new Battery Room (No. 23) has a similar instrument already installed in its exhaust duct.

Staff Position P5

Cable penetration firestops in critical fire barriers should be qualified to a rating equal to the required rating of the fire barrier. At a minimum, critical fire barriers should include those which separate redundant safe shutdown systems, and those which separate safety related areas from large oil hazard areas, such as turbine building or diesel generator areas. Firestop qualification may be accomplished by performing tests of the IP-2 firestop design to show conformance with the following position and providing the results of such testing, or by providing the results of tests on equivalent designs which have already been qualified and the basis for the equivalency. The tests should be performed in accordance with ASTM E-119, with the following exceptions:

(a) The cables used in the test should include the cable insulation materials used in the facility.

(b) The test sample should be representative of the worst case configuration of cable loading, cable tray arrangement and anchoring, and penetration firestop size and design. The test sample should also be representative of the cable sizes in the facility. Testing of the penetration fire stop in the floor configuration will qualify the firestop for use in the the wall configuration also.

(c) Cable penetrating the firestop should extend at least three feet on the unexposed side and at least one foot on the exposed side.

(d) The firestop should be tested in both directions unless the firestop is symmetrical.

(e) The firestop should be tested with a pressure differential across it that is equivalent to the maximum pressure differential a firestop in the plant is expected to experience.

(f) Temperature levels of the cable insulation, cable conductor, cable tray or conduit, and firestop material should be recorded for the unexposed side of the firestop.

(g) Acceptance criteria - the test is successful if:

(1) The cable penetration firestop has withstood the fire endurance test without passage of flame or ignition of cables on the unexposed side for a period equal to the required fire rating, and

(2) The temperature levels recorded for the unexposed side are analyzed and demonstrate that the maximum temperatures are sufficiently below the cable insulation ignition temperature, and

(3) The firestop remains intact and does not allow projection of water beyond the unexposed surface during the hose stream test.

Response

In Unit 2, firestops are provided where cable trays pass through walls and floors, and enter switchgear or other equipment. Three types of firestops are used according to the function of the cable in the tray (control, power, etc.) and ventilation requirements of the areas involved. The first type of firestop is used in trays containing control cables passing through walls, floors, or into equipment where an air seal is not required. It is composed of two alumina-silica ceramic fiber blankets, 36 inches long, laid in the tray and compressed around the cables by the cable tray cover. An ignited cable would be extinguished by this firestop because the ceramic fiber blanket limits the oxygen supply. The blanket has a low thermal conductivity and can be used at temperatures up to 2300°F, without showing any physical change. Even beyond that temperature, it retains its fire retardant characteristics.

Because of its low thermal conductivity and the fact that it covers three feet of cable surface area, this blanket cannot be used with power cables, which generate considerable amounts of heat. In addition, it cannot easily be installed in control trays, where an air seal of the wall or floor opening is required for ventilation purposes. The firestop used for these configurations consists of (1) a transite sheet to substantially close the opening, (2) Flamemastic 71A Mastic sprayed on the cables for 6 inches on either side of this sheet, and (3) Flamemastic 71A Mastic trowelled into the cable tray on top of the cables to seal any remaining air passage

between rooms. Flamemastic 71A has been accepted and used by a number of utilities for this purpose. It is non-toxic, not damaging to cable insulation, and requires no derating of cables when applied over a one-foot section. Tests by various power companies and cable manufacturers have shown that a 1/16" coating of Flamemastic 71A will not burn through after 15 minutes exposure to a propane torch at 2050°F.

The third type of firestop is used only for openings in the floor where control or power cables enter switchgear, motor control centers, supervisory cabinets, or other equipment from the tray below. This configuration combines packed fiberglass with a 1/4" coating of Flamemastic 71A sprayed on either side of the closure. It provides both protection and separation of cables as they pass through the floor. This type of firestop is used where control cables enter the panels in the Control Room.

The details of construction for the Indian Point Unit No. 2 firestops are shown on UE&C drawing 9321-F-3107 (previously provided). These firestops are very similar to cable firestops in use at Florida Power and Light Company's Turkey Point Units as described in their FSAR Figures 8.2-19 and 8.2-20 and discussed in Section 3.2, pages 3-9 through 3-19, of their submittal for Turkey Point Units 3 & 4, "Fire Protection - A Reevaluation of Existing Plant Design Features and Administrative Controls".

The qualification of the Turkey Point firestops to ASTM E119-73 as indicated on page 3-11 of their Fire Protection submittal applies

equally to the fire stops in use at Indian Point Unit No. 2 for the following reasons:

1) The materials used to construct the firestops are identical - Flamemastic 71A, fiberglass, and 1/4" transite.
2) The lack of transite top and bottom covers for trays in the Indian Point 2 firestops is not considered significant, since an extra margin of protection is provided in the Indian Point 2 firestops by each cable's individual asbestos jacket.

It should be noted that in the November 11, 1975 test described in Section 3.2.1 of the Turkey Point Fire Protection Document, penetrations #1 & #5 had no marinite or transite sleeves clamped around the tray, penetrations #2 and #6 had sleeves only on the cold side of the penetration and penetration #6 had a marinite collar on the cold side only of the penetration.

The successful results of the tests for all 8 of the penetration types tested, demonstrated that the flamastic/fiberglass combination would maintain its integrity as a fire barrier under direct flame impingement and that elimination of the transite or marinite covers and/or flashing would not lead to failure of the fire barrier.

The inspections following the Primary Auxiliary Building fire at Indian Point 2 which occurred on November 4, 1971 affirmed the effectiveness of the firestop design in preventing the spread of fire through firestopped floor slots below motor control centers 26A and 26B which were located immediately above the fire source.

In summary, the fire stops in use at Indian Point Unit No. 2 are demonstrated to be qualified to their required ratings as fire barriers. To provide even further assurance, however, that critical fire barriers will perform up to their required rating, all critical fire barriers will be upgraded to include marinite collars and sleeves. Critical fire barriers include those between the Indian Point 2 Control Building and Turbine Hall and the Indian Point 2 Diesel Generator Building and Electrical Tunnel.

Staff Position P6

Section 8.5 of the "Review of Indian Point Station Fire Protection Program" is not clear as to the effects on safety systems of water sprays resulting from cracks in fire water piping or inadvertent system operation. Shields should be provided to prevent water from significantly impairing the function of safety related equipment. Additionally, where new suppression systems or piping are installed, protection of safety systems from water spray or flooding damage due to suppression system failure or inadvertent operation should be provided.

Response

There are presently only two (2) fixed fire water systems in areas that contain safe shutdown equipment. Both systems (north side sprinklers and south side sprinklers) are located in the Electrical Tunnel (Zone 32A). Each system is a dry pipe, pre-action type requiring the actuation of a heat detector to open the deluge valve and the fusing of a sprinkler head to release water. The mains for the system enter the west end of the Control Building (Zone 14) through the north wall at elevation 30'. The pipes rise into the Cable Spreading Room and then enter the tunnel. There is no safe shutdown equipment at the west end of the Control Building so that a failure in the piping would not have an adverse effect on the shutdown capability. In addition, since the systems are dry pipe, loss of water could only occur if the deluge valve opened or leaked. Such a condition would be detected by a pressure switch on the upstream side which would transmit an alarm to the Control Room.

Additional fire water systems, which are to be installed as part of our commitments to meet the guidelines of B.T.P. 9.5-1, will be designed such that an inadvertent actuation or piping failure will not degrade the shutdown capability of the plant.

Staff Position P7

Closure of valves in the fire water flow path could result in loss of suppression water or delay in application of suppression water, potentially resulting in a larger fire. All valves in the fire water system should be locked, electrically supervised, or provided with tamper indication seals and periodic checks, for valves whose closure could cause loss of water to hose stations or sprinkler systems serving safety related areas.

Response

Most of the critical valves in the fire water system are either electrically supervised or locked. Any valves without a means of tamper indication, whose closure could result in the loss of suppression water or a delay in its application, will be provided with tamper indication seals. The checking of the seals will be included in the test procedure developed for the inspection of the valves in the fire protection system.

Staff Position P8

A control room cabinet or cable spreading room fire may result in the loss of redundant safe shutdown systems. To assure safe shutdown can be achieved in the event of a fire in one of these areas, a capability should be provided, independent of the cable spreading room and control room, to reach and maintain hot-shutdown for at least 72 hours without repairs. This capability should include: instrumentation for pressurizer pressure and level and steam generator level; control and power for auxiliary feedwater; and control and power for primary system makeup. In addition, a manual or automatic fixed gas or water suppression system should be provided in the cable spreading room.

Response

Additional power supply systems, which will be independent of the Cable Spreading Room, Switchgear Room, Electrical Tunnel (Zones 32A & 1A) and the Control Room, will be installed to provide independent instrumentation and provide power for safe shutdown equipment. The details of these proposed plant modifications are described in Enclosure 3.

We do not agree with the staff position on the need for additional fixed fire protection in the Cable Spreading Room. Defense-in-depth is provided as follows:

(a) As stated in our previous submittals, no fire sources or combustibles are maintained in the safety-related areas discussed above.

(b) The type of cable used in these safety-related areas is highly fire retardant having been subjected to the testing described in the response to Question No. 10 contained in our May 17, 1978 submittal. The specified cable bonfire test (which is one of the tests described) actually exposes the cable to a heat load equal to 252,000 BTU/hr. In addition to the forementioned cable tests, cable types now being purchased for

use at Indian Point Unit No. 2 have recently been subjected to the additional IEEE-383 flame testing now required for complete qualification of electrical cable. Furthermore, our Company's electrical cable specification has been revised to require the additional IEEE-383 flame tests on samples of all cable purchased for use at Indian Point Unit No. 2

(c) Notwithstanding the design features described in (a) and (b), above, diverse, physically independent, power systems will be installed as described in Enclosure 3.

In our judgement, the above design features and proposed modifications satisfy the intent of the staff positions and preclude the need for additional fixed fire protection in the Cable Spreading Room or any of the other areas discussed.

Staff Position P9

Power cables for the charging pump are routed together such that a fire in certain of the charging pump cubicles or in the waste drumming area could potentially result in loss of redundant charging pumps. Safety injection pump capacity requires some depressurization of the primary system. To assure the capability to provide makeup and boration of the primary system, protection should be provided for the charging pump power cables in the charging pump rooms and in the waste drumming room so that a fire in one of these rooms does not result in the loss of more than one charging pump, or an analysis should be performed showing that for a fire in these areas, makeup can be provided by the safety injection system prior to loss of inventory in the pressurizer. Protection for the charging pump power cables in the charging pump and waste drumming area could include: (a) installing sprinkler protection in each area; (b) providing insulation on at least two of the cables for the charging pumps; or (c) rerouting the power cables for the charging pumps so that each charging pump cubicle and the waste drumming area contain cabling associated with only one charging pump.

Response

The plant modifications described in Enclosure 3 will meet the intent of alternative (c) of the staff position. The new cable will not be located in the Waste Storage and Drumming Station Area or in any of the Charging Pump Rooms.

Staff Position P10

To prevent an electrical cable fire inside of containment from resulting in loss of vital instrumentation required for safe shutdown, barriers or insulation should be provided where redundant cabling for steam generator level and pressurizer pressure and level instrumentation are routed in proximity to each other. Marked-up drawings showing the routing of pressurizer pressure and level and steam generator level instrumentation cabling outside of containment should be provided.

Response

The plant modifications described in Enclosure 3 will provide pneumatic indication of pressurizer pressure and level and steam generator level independent of the present electrical indication systems.

Staff Position P11

The floor drain system may present a pathway for fire to be transmitted between areas. Backflow prevention devices should be provided in the floor drains for each diesel generator sump, unless the drain system is designed to prevent backflow between sumps. Such devices should also be provided for drains from safety related areas that are tied in to the turbine building drains.

Response

Backflow prevention check valves will be installed in the drain lines from each of the diesel generator sumps.

In addition, the turbine building drains are being reviewed and where it is found that backflow through a drain system may provide a pathway for fire to a safety-related area, a backflow prevention device will be provided.

Staff Position P12

The reactor coolant pump oil collection system should be improved where required to provide capability for collecting leakage from the following points: flanged connections; drain plugs; fill points; upper and lower reservoirs; sight glasses; lift pump; external oil cooler. The leakage should be collected and drained to a closed container.

Response

The oil splash shields and drip pans which have already been added to the pumps will protect the most vulnerable areas of the pumps. We believe that the next logical step is not the addition of more shields and drip pans for collection but rather significant improvements in the design of the lubrication system to reduce the potential for leakage. Con Edison is actively investigating the latter concept to determine if it is a viable course of action.

Staff Position 13

To assure that primary system makeup and boration capability is maintained for fires in the 480 V switchgear room, barriers should be provided to protect at least two charging pump power and control cables from each other and from air compressor lube oil fire exposure, or to protect any safety injection pump if the analysis described in staff position P9 shows that use of a safety injection pump is acceptable. An alternative to this protection would be to provide a capability independent of the area to provide primary system makeup.

Response

The plant modifications described in Enclosure 3 will provide power to the Charging Pumps through cable which will not be located in the Switchgear Room.

Staff Position P14

Fires in the electrical cable tunnel potentially may affect certain redundant safe shutdown systems. Protection for most of the tunnel is provided by a sprinkler system at multi-levels; however, certain areas are not protected. Additional protection should be provided as follows:

(a) Provide automatic sprinkler protection on the power cables entering the electrical tunnel at the east end of the cable spreading room. The design should include adequate drainage provisions.

(b) Provide automatic sprinkler protection for all cable trays in the area containing power cables for the charging pumps and the safety injection pumps in the primary auxiliary building at the upper end of the electrical tunnel.

(c) Provide either one hour fire resistive insulation or automatic sprinkler protection for electrical conduits containing cabling for instrumentation providing indication of pressurizer level and pressure and steam generator level in the electrical penetration area and passageway to the electrical tunnel.

Response

The plant modifications described in Enclosure 3 will provide independent instrumentation and provide power for safe shutdown equipment. The proposed power systems will be independent of the Electrical Tunnel and Electrical Penetration Areas as well as the Control Room, Cable Spreading Room and 480V Switchgear Room Areas.

We do not agree with the staff position on the need for additional fixed fire protection (i.e., automatic sprinklers) in these areas.

The defense-in-depth discussion presented in response to Staff Position P8 applies equally to this staff position. The lack of fire source and combustibles in these areas, the high fire retardancy and qualification by testing of the cable utilized, and the diverse, physically independent power systems described in Enclosure 3, in our judgement, satisfies the intent of the staff

position (i.e., prevent loss of redundant safe shutdown systems) and precludes the need for additional fixed fire protection (e.g., automatic sprinklers) in these areas.

Staff Position P15

The protection presently provided in the diesel generator room does not protect against oil spray fires from failures in oil piping. With the diesel generators in a common room, a spray fire may affect adjacent diesel generator units. In this room, one of the following should be met:

(a) An adequate shield between the engine-generator units should be provided to prevent a pressurized oil leak fire on one unit from damaging adjacent units, and one-hour fireproofing of the building structure should also be provided; or

(b) Technical Specification requirements should be proposed for the on-site gas turbine generator unit to serve as an emergency power source.

Response

Shields will be provided between each of the diesel generators to prevent a pressurized oil leak fire on one unit from damaging the adjacent units. A preliminary conceptual design for the shields is presently being prepared.

To provide a one-hour fireproofing for the building, all of the structural steel will be covered with an intumescent mastic such as Albiclad 890.

Staff Position P16

Manual hose stations should be provided inside containment for suppressing fires that may occur. Sufficient hose outlets, lengths of hose, and capacity should be provided to reach all areas containing electrical cables in trays and the reactor coolant pump areas with an effective fire fighting hose stream.

Response

A standpipe system for NFPA Class II Service will be installed inside of containment.

Because of the requirements of maintaining containment integrity the water supply will have two manual isolation valves. These valves will be kept in the closed position except during a fire emergency or when there are other needs for water inside of containment.

As presently conceived, there will be two (2) hose stations on elevation 46' and two (2) hose stations on elevation 95'.

Staff Position P17

The barrier between the control room and turbine building presently has glass doors and viewing windows in it. To provide an adequate barrier to protect the control room from turbine building fires, this barrier should be upgraded to be three-hour fire-rated, including all penetrations.

Response

The glass doors and viewing windows in the west wall of the Control Room will be replaced with a three-hour fire-rated barrier.

The doors will be approved three-hour rated types that have been modified by the addition of armor plate and an optical view port.

The remaining portions of the barrier will be masonry construction.

Staff Position P18

Existing carbon dioxide portable extinguishers may not be effective in extinguishing deep-seated fires in wiring or paper combustibles. To preclude having to use a manual fire hose in such a situation, a portable fire extinguisher with "A" rated extinguishing capability should be provided for the control room.

Response

"A" rated extinguishing capability will be provided and will be located just outside the Control Room.

Staff Position P19

Presently, a break in the high pressure fire loop may result in loss of both sprinklers and hose hydrants for the diesel generator building. To preclude loss of primary and backup suppression capability to this building, an additional sectionalizing valve should be installed in the high pressure fire loop between the hydrant serving the diesel generator building and the takeoff for the header supplying diesel generator building sprinkler systems.

Response

A sectionalizing valve will be added to the yard main loop on each side of the take-off for the Diesel Generator Building. The use of two (2) valves will ensure that a break in any portion of the loop (except for the short distance between the two valves) will not incapacitate the sprinkler system. The location of valves is shown on Figure Q12-1 provided in response to Question No. 12 (Enclosure 1).

Staff Position P20

Ductwork penetrations of the fire barrier separating the battery rooms from the cable spreading room are not protected with dampers at the fire barrier. To preclude a potential cable spreading room fire from affecting the batteries, three-hour fire dampers should be provided in the duct openings in the walls between the battery rooms and the cable spreading room.

Response

Three-hour rated fire dampers will be installed in the duct openings between the Battery Rooms 21 & 22 and the Cable Spreading Room.

The exhaust duct in the new Battery Room (No. 24) has a three-hour rated fire damper in it.

Staff Position P21

To reduce the potential for fires in the control room kitchen, a self-contained kitchen range hood appliance with filters to collect fat vapors should be provided.

Response

A new range hood with a built-in grease filter has been installed in the Control Room kitchen.

Staff Position P22

Self-closing door mechanisms should be installed on the control room kitchen and locker room doors, and the doors should be kept normally closed.

Response

Self-closing door mechanisms will be installed on the doors from the Control Room to the kitchen and to the locker room.

Staff Position P23

The combustible table and chart stand in the control room should be replaced with a map table and chart stand of either metal or pressure treated fire retardant wood.

Response

The table and chart stand in the Control Room will be replaced with metal units.

Staff Position P24

Certain hydrants and post indicator valves were noted during the staff's site-visit as not being protected from damage by vehicular traffic. All hydrants and post indicator valves vulnerable to motor vehicle damage should be barricaded.

Response

We will comply with the staff position and install barricades where necessary.

Staff Position P25

Obstructions to the rotation of the hydrant stem nut wrench through 360° should be removed or relocated, including those hydrants where "SNOW SIGN" Standards are too close to the fire hydrant.

Response

All obstructions to the rotation of the hydrant stem nut wrench for any hydrant will be removed and/or relocated as required.

Staff Position P26

Certain hydrant hose houses were noted during the staff's visit as having insufficient hose and equipment to fight fires in certain safety-related areas. To provide adequate equipment in these areas, the following should be met:

(a) The hydrant hose house south of the diesel generator building should contain a 2 1/2" x 1 1/2" x 1 1/2" Gated Wye attached to the male end of 100 ft. of 2 1/2" hose, at least 150 feet of 1 1/2" fire hose in two lengths, and two 1 1/2" spray nozzles.

(b) The hose house south of the auxiliary feed pump building at elevation 15 feet should contain at least 50 feet of 2 1/2" fire hose equipped with one 2 1/2" x 1 1/2" x 1 1/2" gated wye, 150 feet of 1 1/2" hose, and two 1 1/2" hose nozzles.

Response

The two hose houses identified above will be equipped with the following items as required by the staff position:

(a) 100 feet of 2 1/2" fire hose.

(b) 2 1/2" x 1 1/2" x 1 1/2" gated wye.

(c) Additional 1 1/2" fire hose so that there is at least 150 feet.

(d) A second 1 1/2" hose nozzle so that there are at least two (2) nozzles.

Staff Position P27

Water left in fire hydrant barrels may freeze and damage hydrants. To preclude such damage, all fire hydrants which may be used to fight fires in safety-related areas, or where isolation of the hydrant may cause loss of sprinkler or hose station water to safety-related areas should be tested for proper drainage of their dry barrels each fall prior to freezing weather and again each spring for freeze damage after the freezing season.

Response

The testing of fire hydrants for proper drainage of their dry barrels in the spring after the freezing season and in the fall prior to freezing weather is part of Con Edison's normal company-wide operating procedure.

Staff Position P28

To provide a centralized location for fire brigade equipment, a fire equipment and supply room accessible to fire brigade leaders on all shifts should be provided. Additionally, the following equipment should be available on-site for fire fighting activities:

(a) ten (10) sealed beam hand held electric lanterns;

(b) a fire-fighter's emergency breathing air capability sufficient to provide safe breathing air for ten men for six hours (if 30-minute rated air bottles are used, needs should be based on three bottles per man per hour);

(c) three portable smoke exhausters with flexible ductwork, with a combined capacity of 17,500 to 20,000 cfm; and

(d) ten sets of fire fighter's protective clothing, including turnout coats and pants, and helmets.

Response

All of the items listed in the staff position will be provided in a centralized location for use by the fire brigade.

Staff Position P29

The system should be improved to readily distinguish between the full and expended air storage bottles for use in the air mask bottle cascade refilling assembly.

Response

All high pressure air storage cylinders, which are part of the cascade refilling assembly, will be equipped with the three part tag illustrated on Figure P29-1 or an equivalent tag which will provide a method of distinguishing between full and empty cylinders.

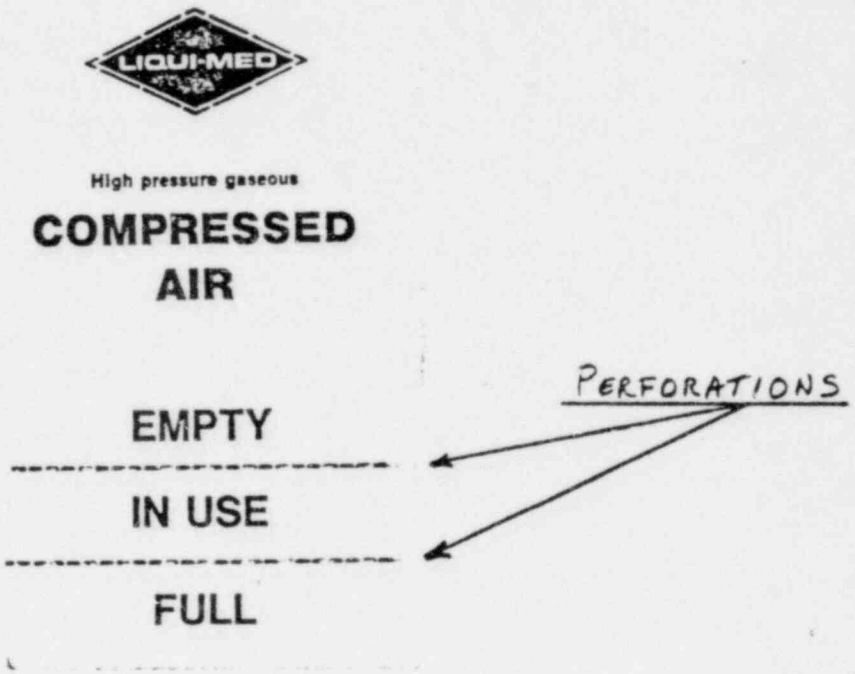
LIQUI-MED
High pressure gaseous
COMPRESSED
AIR
EMPTY
IN USE
FULL
PERFORATIONS

Figure P29-1

Staff Position P30

The wall separating control building areas from the transformers in the yard is being upgraded to improve its fire resistance. However, fire dampers are not provided in ventilation penetrations of this wall. To provide an adequate barrier to isolate control building areas from potential transformer fires, three-hour fire-rated dampers should be provided in the ventilation openings in the new wall.

Response

All ventilation openings in the wall separating control building areas from the transformers in the yard will be fitted with two (2) one and one half-hour rated fire dampers. In addition, the door from the Switchgear Room to the transformer yard will be replaced with one having a three-hour fire rating.

The above modifications are shown on Drawing SK No. 2682 contained in Enclosure 3 of our submittal dated May 26, 1978.

Staff Position P31

An emergency power supply for the fire detection and signaling system should be provided that is available on loss of normal a.c. power.

Response

The new fire detectors, which are presently being installed, will be powered from an existing heat tracing panel fed from MCC 26A with a back-up supply from MCC 26B via a manual transfer switch. Both MCC 26A and 26B are on the diesel generator busses which will provide emergency power should normal a.c. power be lost. The existing detectors are presently powered from a lighting circuit which becomes unavailable on loss of normal a.c. power and will, therefore, be modified to incorporate the emergency power supply described above for the new detectors.

Staff Position P32

Fire doors separating safety-related areas from the turbine building should be locked or alarmed.

Response

Fire doors separating safety-related areas from the turbine building will be maintained locked.

Staff Position P33

In various areas fire barrier penetrations are being upgraded, however certain penetrations are not being upgraded. To provide adequate protection for fire barrier penetrations, the following additional changes should be made:

(a) Replace the non-labelled doors between the cable spreading/switchgear and the turbine building with three-hour fire-rated doors and frames.

(b) Replace the non-labelled doors between the battery rooms and cable spreading room with three-hour fire-rated doors and frames.

(c) Where fire doors, dampers, and wall construction are to be provided as a result of the fire hazards analysis or comparison to BTP 9.5-1, these should be three-hour fire-rated doors.

(d) Verify that three-hour fire dampers will be provided in all ventilation penetrations between the cable spreading/switchgear rooms and the turbine building. (The response to staff request #7 and sections 8.75 and 8.77 and pages 10-30/31 of the Indian Point fire protection program review are not clear as to whether the above position is met.)

Response

(a) The doors and frames between the Turbine Building and the Switchgear Room and the Cable Spreading Room will be replaced with three-hour fire-rated assemblies.

(b) The doors and frames between Battery Rooms 21 and 22 and the Cable Spreading Room will be replaced with three-hour fire-rated assemblies. The door and frame in the new Battery Room (No. 23) have three-hour fire ratings.

(c) Where fire doors, dampers and wall construction are to be provided to protect safe shutdown systems, they will have three-hour fire ratings. Barriers which do not protect safe shutdown systems will be constructed with a fire rating equal to the hazard, NFPA codes or insurance company requirements.

(d) All ventilation openings between the Cable Spreading Room and the Turbine Building and between the Switchgear Room and the Turbine Building will be provided with three-hour rated fire dampers.

Staff Position P34

Fire detectors should be provided on the reactor coolant pumps. Temperature monitors and alarms on cooling air discharge would be an acceptable alternative to this position.

Response

Three (3) ionization type smoke detectors will be installed at each pump. The detectors will annunciate at a local station just outside of containment (at the personnel hatch) and will category alarm at a remote station located in the Control Room.

Staff Position P35

Curbing should be provided between the circulating water pumps and service water pumps, and fire detectors should be provided on the service water pumps.

Response

The staff position is directed toward providing protection for the Service Water Pumps (SWPs) against a Circulating Water Pump (CWP) motor oil fire.

Curbing to separate the Circulating Water Pumps from the Service Water Pumps and fire detectors are not considered necessary for the following reasons:

(a) The CWPs are not required for safe shutdown.

(b) A fire in a CWP motor would be contained within the housing as a result of pump design and would not affect any of the SWPs.

(c) There could not be a spray of oil from the CWPs to the SWPs.

(d) The amount of oil contained within each CWP motor is small (approx. 25 gallons) and any leakage of oil from the CWPs would be at a low rate.

(e) The natural drainage route for leakage from the CWPs is not in the direction of the SWPs as evidenced by past experience with water leakage from CWP seals.