John D. O'Toole
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, NY 10003
Telephone (212) 460-2533

May 23, 1985

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

Mr. Hugh L. Thompson, Jr., Director
Division of Licensing
Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Thompson:

This is to confirm recent discussions with members of your staff related to the exemptions from Section III.J of 10 CFR 50, Appendix R which we requested in our July 13, 1983 and September 9, 1983 submittals associated with the emergency lighting installations at Indian Point 2 (IP-2). This letter also provides (a) clarifying information regarding other Appendix R exemptions previously approved in Mr. Eisenhut's October 16, 1984 letter and (b) supplemental information concerning our review of Generic Letter 83-33.

Attachment 1 contains information on emergency lighting which was discussed with the NRC staff on April 9, 1985 and April 16, 1985. We plan to test/walkdown and make any necessary adjustments to the two emergency lighting units in the Gas Turbine 1 (GT-1) by June 30, 1985. The GT-1 lighting will be added to our routine surveillance procedure by June 30, 1985.

Attachment 2 contains clarifying information regarding (a) exemption 4.12 of our January 10, 1983 submittal, (b) the design of the installed source range monitor, hot and cold leg temperature instrumentation, (c) our letter of March 25, 1985 concerning fire doors, (d) a statement made on page 30 of Mr. Eisenhut's October 16, 1984 letter and (e) a statement made on page 37 of Mr. Eisenhut's October 16, 1984 letter. We do not believe that the clarifying information contained in Attachment 2 changes the NRC conclusions in the August 22, 1983, March 30, 1984, and October 16, 1984 approval letters. However, we request that your staff acknowledge that the clarifications are within the scope of the approved exemptions or provide an acceptable Appendix R configuration. Accordingly, revisions or supplements to the existing NRC approvals may be necessary.

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Attachment 3 contains information regarding our evaluations of Generic Letter 83-33 and the previously submitted Appendix R evaluations of fire zones contained in our January 10, 1983 submittal. Our evaluation of Generic Letter 83-33 leads us to conclude that no additional plant modifications or fire protection upgrades are necessary at IP-2. Generic Letter 83-33 was issued after Appendix R and although its technical guidance was for the most part already included within the Appendix R evaluations we performed, the results of the NRC's Appendix R inspection program, which prompted the need for additional staff guidance letters, leads us to believe that some misunderstanding could occur on the points discussed in Attachment 3. In an effort to obviate the need for this submittal we have reviewed IE Information Notice 84-09 and Generic Letter 85-01 for explicit NRC guidance that would clarify the points in Attachment 3. While these additional NRC guidance letters helped clarify other Appendix R and Generic Letter 83-33 issues, they do not satisfactorily cover the points in Attachment 3 relative to the specific IP-2 configuration. We therefore request that your staff explicitly acknowledge that this supplemental information does not affect the previously approved fire protection configuration or exemptions from Appendix R, that no additional plant modifications are necessary, and that revisions or supplements to the existing NRC approvals be issued as necessary.

We are continuing our review of IE Information Notice 84-09 and Generic Letter 85-01. If in the course of this review we see a need to clarify and/or supplement previously submitted information or submit new information we will apprise your staff accordingly.

If you have any questions on this matter, do not hesitate to call us.

Very truly yours,

for T. O'Toole

cc: Office of Senior Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 38
Buchanan, New York 10511

ATTACHMENT 1

Emergency Lighting Information

Indian Point Unit No. 2

Attachment 1

In our July 13, 1983 submittal we requested an exemption from Section III.J of Appendix R relative to providing fixed battery powered lighting units in the following locations and in access and egress routes thereto:

1) IP-2 Screenwell Area*,

2) IP-1 Screenwell House*,

3) Refueling Water Storage Tank (RWST),

4) Condensate Storage Tank (CST),

5) IP-1 Superheater Building, and

6) Gas Turbine 1 (GT-1)**

The above locations contain equipment that is part of the IP-2 alternate safe shutdown system (ASSS). In our September 9, 1983 submittal we supplemented our exemption request for the outdoor area locations (IP-2 Screenwell Area, IP-1 Screenwell House, RWST, CST) including Gas Turbine 1 (GT-1) and its access/egress by committing to perform a survey of the available pole mounted perimeter lighting that is backed up by the security diesel.

The lighting survey was conducted and the results show that there was sufficient illumination, compared to the lighting criteria described in section 3.6 of the September 9, 1983 submittal, for the CST level gauge, RWST level gauge and for access/egress to all the outdoor area locations (IP-2 Screenwell Area, IP-1 Screenwell House, GT-1, RWST and CST). The survey results showed that there was insufficient lighting for operation of the service water pumps transfer switches in the IP-2 Screenwell Area, operation of ASSS switchgear/breakers on the IP-1 Screenwell House roof, and access/egress within the IP-1 Screenwell House. This survey did not rely on yard area lighting attached to the sides of buildings.

For the IP-2 Screenwell Area, an additional pole mounted light as part of the security system was added to illuminate the transfer switches. Fixed battery powered lighting units were added to illuminate access/egress within the IP-1 Screenwell House and the ASSS switchgear/breakers on the roof. These are listed in Attachment 1 of our January 31, 1985 submittal.

NOTES: *=IP-2 Screenwell Area and IP-2 Intake Structure are used interchangeably. IP-1 Screenwell House and IP-1 Intake Structure are used interchangeably.
**=Added in the September 9, 1983 submittal.

It should be noted that the outdoor area lighting area survey done in 1983 covered lighting levels at the ASSS equipment location. This survey supplemented an earlier October, 1979 security lighting survey. The October, 1979 survey covers lighting levels for access and egress to the ASSS equipment located outdoors using pole mounted perimeter lighting. Outdoor access/egress lighting was not repeated in the 1983 survey. Power supplies for certain pole mounted perimeter lighting, although backed up by the security diesel, are routed through IP-2 fire zones in the Primary Auxiliary Building. In the October, 1979 survey lighting measurements were taken at and between the light poles. Some lights did not function properly during this survey and for the affected outdoor location the results show measured lighting levels greater than the minimum value discussed in section 3.6 of our September 9, 1983 submittal. On this basis, it is our judgement that sufficient illumination would be available for access/egress outdoors, assuming the loss of the lighting power circuits routed in the IP-2 fire zones, without performing additional lighting surveys or circuit separation analysis per Section III.G.2 of Appendix R.

As discussed with NRC staff on April 16, 1985, for long term surveillance/ maintenance of the outdoor security lighting that is relied on for justifying exemptions from Appendix R Section III.J requirements, it was agreed that the surveillance and maintenance requirements of security provide adequate assurance for III.J purposes.

Within GT-1, illumination for monitoring the operation of the gas turbine is provided by 2 fixed battery powered lighting units. These units were inadvertently omitted from the test/walkdown reported in our January 31, 1985 submittal. To confirm their adequacy we will test/walkdown the lighting within GT-1, make any necessary adjustments, and update our routine surveillance procedure by June 30, 1985. This testing will be similar to that reported in our January 31, 1985 submittal. If additional lighting is needed we will provide an installation schedule by June 30, 1985. Additionally, it should be noted that MWR* #17940 and 17941 listed in Table 3-1 of our January 31, 1985 submittal have been replaced by Modification Package EGP-84-32098-07, Rev. 2 in order to complete those lighting installations.

As described in our July 31, 1983 submittal for operation of ASSS equipment and access/egress within the IP-1 Superheater Building, we requested an exemption to allow the use of the Superheater Building emergency lighting fixtures powered from the IP-1 station batteries in lieu of fixed battery powered lighting units. As discussed with the NRC staff on April 16, 1985, this exemption request is still pending approval and has not been withdrawn or modified by Con Edison.

As noted in our September 9, 1983 submittal and earlier discussions with members of the NRC Staff, we agreed that lighting units qualified for conditions inside containment are not commercially available and that spurious operation of valves inside containment are of sufficiently low likelihood that provision of emergency lighting for operator actions

NOTE: *MWR=Maintenance Work Request

inside containment is not necessary in order to satisfy Section III.J of Appendix R. Further, we agreed that exemption requests for emergency lighting inside containment are not necessary even though we rely on hand held lighting units for operator actions inside containment. If at this time the NRC staff determines that an exemption III.J is needed to allow the use of hand held lighting inside containment we request that we be informed so that we may file an exemption request. Otherwise we request NRC staff acceptance of the use of hand held lighting inside containment.

ATTACHMENT 2

Clarifying Information For Appendix R Configurations

Indian Point Unit No. 2

Attachment 2

This Attachment presents clarifying information regarding (a) exemption request 4.12, (b) design of source range monitor, hot and cold leg temperature instrumentation, (c) our March 27, 1985 letter concerning fire door installations, (d) a statement on page -30- of Mr. Eisenhut's October 16, 1984 letter and (e) a statement on page -37- of Mr. Eisenhut's October 16, 1984 letter.

(a) Clarification of Exemption Request 4.12:

Exemption request 4.12 in our January 10, 1983 submittal described and justified the lack of 3-hour rated penetration seals in the north wall of Auxiliary Boiler Feedpump (AFP) room (fire zone 23). This exemption request noted that the steam and feedwater piping areas do not contain ASSS components, but did not note that ASSS components and cabling are located in the IP-2/IP-1 passageway and Superheater Building at the south end of the Turbine Building which, at the north end, is connected to the feedwater bypass regulator valve area (fire zone 61A) and main boiler feedwater regulator area (Zone 62A) via a piping bridge. Upon a re-review of our exemption requests contained in our January 10, 1983 submittal based on the fire area definitions in Generic Letter 83-33, we have determined that exemption request 4.12 should be clarified since the interface barrier between fire area C (zone 23) and fire area K (zones 60A, 61A, 62A, 65A) is not 3-hour rated. This clarification is presented below. The designation of IP-2 fire areas is presented in Table 3-1 of Attachment 3.

Based on a review of staff positions pertaining to fire areas, we have determined that a clarification of the situation involving the AFP room, Exemption Request 4.12, is required. Exemption Request 4.12 primarily addresses separation/protection of redundant safe shutdown components in the AFP Room (zone 23). It also addresses separation of the room from adjacent rooms. To summarize, the west wall is an outside wall, the east wall is the containment building wall, the south wall is partially an outside wall and partially foundation area for the electrical penetration room, the north wall separates the AFP room from the steam and feedwater piping area (zone 62A), and the ceiling (3-hour rated) separates the AFP room from zone 60A. Exemption Request 4.12 notes that zone 62A does not contain sufficient combustibles to be a threat to the AFP room (zone 23). Drawing D227857 (in January 10, 1083 submittal) notes that the north wall of the AFP room contains non-rated penetrations. Fire rating of this north wall is not reuqired to separate zones 23 and 62A, since zone 62A in the AFP building does not contain safe shutdown components susceptible to fire damage.

Within the context of Appendix R, it should be noted that zone 61A in the AFP Building includes a pipe bridge to the Turbine Building between column lines 21 and 22 shown on Drawing D-227853 in the January 10, 1983 report. The wall separating the pipe bridge from the Turbine Building is

a non-rated metal panel wall. The Turbine Building contains certain cabling associated with the ASSS. Based on the fire area position contained in Generic Letter 83-33, the non-rated penetrations in the north wall of the AFP room should be covered under Exemption Request 4.12. The exemption is to the requirement for a three-hour fire barrier separating normal shutdown components in the AFP room and ASSS components in the IP-1 and IP-2 Turbine Buildings. To clarify the situation involving the AFP room barrier, penetrations in the north wall, and justification for this exemption it can be seen that there are two non-rated barriers (one a steel panel wall and the other a reinforced concrete wall with non-rated penetrations) as well as the open space of zones 61A and 652A and the 40 foot long pipe bridge separating the AFP room from the IP-2 Turbine Building. The penetrations in the north wall of the AFP room consist of a doorway with a non-labeled steel door, cable penetrations sealed with a fire stop, conduit penetrations, and 5'x6' ventilation duct penetration. The duct passes completely through zone 62A and is open to the outside. Zones 60A, 61A (including the pipe bridge), 62A and 65A contain only limited combustibles such as lubricating grease for valve motor operators. With the substantial construction of the AFP room north wall, the metal panel wall at the Turbine Building end of the pipe bridge, and the 40' length of the pipe bridge (at el. 30 feet), the effects of a Turbine Building fire involving ASSS cabling would be limited so that shutdown could be accomplished using auxiliary feedwater components in the AFP room, powered from normal IP-2 power supplies.

The intent of this information is to provide further clarification on barriers that are relied upon to separate ASSS components in the Turbine Building and auxiliary feedwater components in the AFP room. This clarifying information justifies the present configuration of the north AFP room wall, including protection of penetrations, and we believe does not change the NRC's conclusion approving the exemption of Appendix R for the AFP room in Mr. Eisenhut's October 16, 1984 letter.

(b) Design Information for the SRM, Thot & Tcold Instrumentation:

During the 1984 refueling outage we installed the SRM, T_{hot} & T_{cold} instrumentation in fulfillment of our commitment contained in our January 10, 1983 submittal. This modification required the installation of sensors inside the Containment, and routing of cabling from Containment to the instrument rack in the Fan House, passing through several fire zones and outdoor areas. Routing of these cables required passage through the Electrical Penetration Area (Zone 74A) which is one of the zones being circumvented by the ASSS per Table 2.1-1 of our January 10, 1983 submittal. To satisfy the requirements of Section III.G of Appendix R, containment penetration H-20 and these cables are contained in a separate enclosure made of 3-hour construction within the Electrical

Penetration Area. This configuration creates a separate fire zone within the Electrical Penetration Area and is an arrangement not previously described to the NRC in our various fire protection submittals. It is our intention to provide details of the ASSS instrumentation design to the NRC that the Staff concur with the methods of installation and cable routing selected.

The design information is provided below in two parts; (i) inside containment (ii) outside containment.

(i) Inside Containment:

The SRM neutron detector is installed in a spare instrument well at the 270° location. The electrical cable for the SRM is routed inside containment from the detector well into fire zone 71A in conduit as shown on Figure 2-1. A radiant energy shield (described below) was applied on the run of conduit from penetration H-20 to the junction box on the shield wall inside zone 71A. The hot and cold leg RCS temperatures are measured from strap-on RTDs installed on loops 21 and 22. The electrical cables for the hot and cold leg RTDs are routed from the RCS loops in conduit inside fire zone 71A as shown in Figure 2-2. A radiant energy shield was installed on the conduit run inside containment from penetration H-20 to the RCS loops.

The radiant energy shield used inside IP-2 containment is constructed of fiber glass flexible pipe insulation, installed in 2 inch thick insulating, cylindrical sections on the SRM and RTD conduits (see Figures 2-1 and 2-2). This insulation is then covered with a jacket of type 316 stainless steel approximately 0.01 inch thickness. This configuration is banded every 12 inches with stainless steel metal bands. Although this radiant energy shield design is not tested or fire rated, it is of non-combustible construction and should be an effective radiant energy shield because of the reflective nature of the jacket and the insulating value of the 2 inch fiber glass insulation.

(ii) Outside Containment:

As mentioned above, the electrical cables from the SRM and RTD instrumentation penetrate containment at penetration H-20 inside the Electrical Penetration Area (fire zone 74A). In order to maintain the integrity of the ASSS, a cable enclosure made of 3-hour fire rated materials was installed around penetration H-20 as shown in Figures 2-3 and 2-4. The SRM and RTD cables are routed inside this enclosure through a 3 inch conduit at the top, which then runs up to the roof of the Electrical Penetration Area. Within the Electrical Penetration Area, the 3 inch conduit is coated with TSI Thermo-Lag 330-1 to give it a 3-hour fire rating. The other plant cables connected to penetration H-20 exit

the enclosure through a penetration opening in its side into the Electrical Penetration Area. This side opening is coated with TSI Thermo-Lag 330-1 and sealed with a 12 inch thick silicone foam fire seal to maintain the integrity of the H-20 enclosure. The H-20 enclosure and its 3 inch conduit comprise its own fire zone with the Electrical Penetration Area and is of 3-hour construction. This zone has been designated as fire zone 74B containing only electrical cables, as decribed above.

The 3 inch conduit is then routed on the roof (outdoors) of the Electrical Penetration Area, over the personnel air lock enclosure, to the Fan House. This routing is shown on Figures 2-5, 2-6 and 2-7. This ASSS conduit is fire protected from the Electrical Penetration Area by the ceiling/roof which is 6 inch concrete with built up roofing, topped with 4 inch light weight concrete with no fire zones above it. The existing design of the Electrical Penetration Area ceiling/roof provides 3-hour fire protection of the ASSS conduit. As shown in Figure 2-7, the ASSS conduit is routed on top of the personnel lock enclosure. This provides added fire protection of the ASSS conduit since this enclosure contains no safe shutdown equipment or fire hazards and is an intermediate room between the conduit and the Electrical Penetration Area. The ASSS conduit then continues its outdoor run over a 6 foot wide walkway between the personnel air lock enclosure and the Fan House, through the concrete block east wall of the Fan House at elevation 91 feet, to the instrument console mounted on the elevation 90 feet platform. In this manner the ASSS instrument cables are sufficiently protected from fires occuring in the Electrical Penetration and Piping Penetration Areas by existing construction.

(c) Fire Door Installations:

In our letter of March 15, 1985 discussing the planned installation of fire doors and fire door hardware we inadvertently listed the Switchgear Room/Transformer Yard elevation 15 ft. door as requiring only replacement of fire door hardware. However, we are in fact installing a properly rated fire door in this location on the schedule discussed in the March 15, 1985 letter. The revised listing is as follows:

1) Install Fire Doors:

a) Central Control Room, West Wall,
b) Primary Auxiliary Building/Transformer Yard, elevation 15 ft.,
c) Switchgear Room, West Wall, and
d) Switchgear Room/Transformer Yard, elevation 15 ft.

2) Replace Fire Door Hardware:

a) Cable Spreading Room, elevation 33 ft.,
b) Switchgear Room, elevation 15 ft. southeast door.

(d) Statement on page -30- of Mr. Eisenhut's October 16, 1984 letter:

In discussing the approval of our exemption request for the IP-2 Screenwell Area on page -30- it is stated that;

> "An added consideration is the presence of the continually manned guard house in the area. This provides us with reasonable assurance that a significant fire in the area would be quickly discovered and the fire brigade summoned."

It can be implied from this statement that it is necessary to maintain the guard house continuously manned for fire protection purposes. It is our intention to temporarily maintain the guard house for security purposes. In fact, in our January 10, 1983 submittal on page 4-48 we stated, in part, "Although this zone is not continually manned, a guardhouse that is normally manned is located approximately 90 feet from the service water pumps." In stating that the guard house is normally manned we did not intend to require or commit to continuous manning. On this basis we request NRC concurrence and issuance of a revision to the October 16, 1984 letter which will delete the continuous manning requirement.

(e) Statement on page -37- of Mr. Eisenhut's October 16, 1984 letter:

In discussing the approval of our exemption request concerning the capacity of the holding tanks for the Reactor Coolant Pump (RCP) motor oil collection system, on page -37- it is stated that:

> "The licensee justifies the exemption on the basis that the seismic design of the RCP motor lube oil system will provide reasonable assurance that it can withstand earthquake conditions without failure. Therefore, the installation of additional oil storage capacity will not significantly increase the level of fire safety."

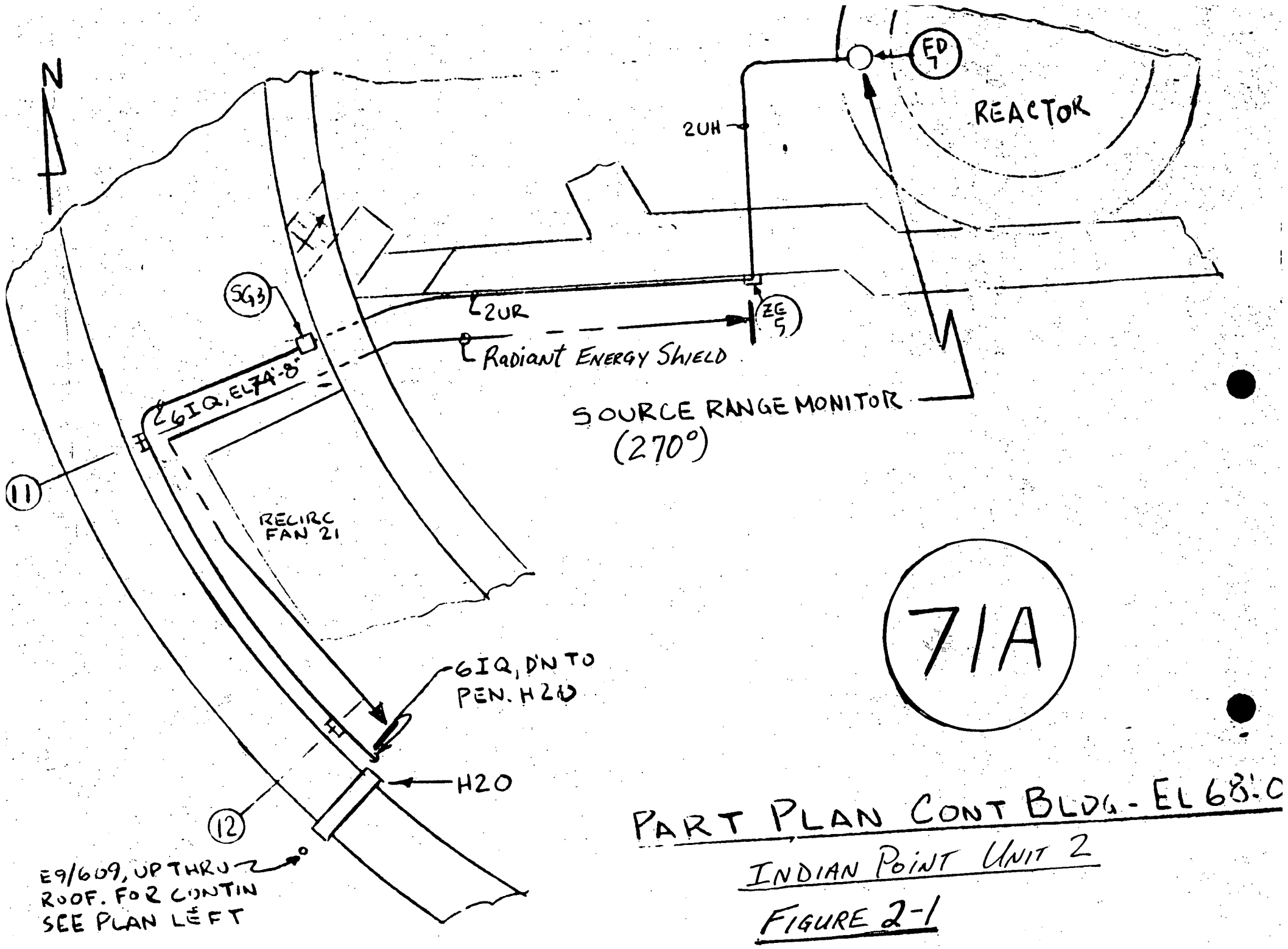
and,

> "Because the existing RCP motor lube oil system is capable of withstanding design basis earthquake conditions, only random oil leakage is anticipated, such as that which may occur at pipe joints."

The statements referring to the seismic design of the RCP motor lube oil system and its capability of withstanding design basis earthquake conditions implies that there is a quantitative seismic analysis of the RCP motor lube oil system design. We did not perform a seismic analysis of the RCP motor lube oil system. Our assessment of IP-2's RCP motor lube oil system for the January 10, 1983 submittal was based on seismic evaluations performed for the RCP motor lube oil system for other nuclear plants, the similarity in the Westinghouse RCP motor designs, and the inherent seismic capability of the RCP support structure, not a detailed IP-2 seismic analysis. On this basis, we stated in our January 10, 1983 submittal:

> "It is our judgement that there is reasonable assurance that the RCP motor lube oil system is capable of withstanding the Indian Point Unit No. 2 design basis earthquake conditions without failure."
>
> and,
>
> "The design basis for sizing the holding tanks is the non-mechanistic rupture of the RCP motor lube oil system. The presently installed system will prevent a lube oil fire since the RCP lube oil collection system design is capable of withstanding design basis earthquake conditions thereby preventing lube oil from contacting hot surfaces."

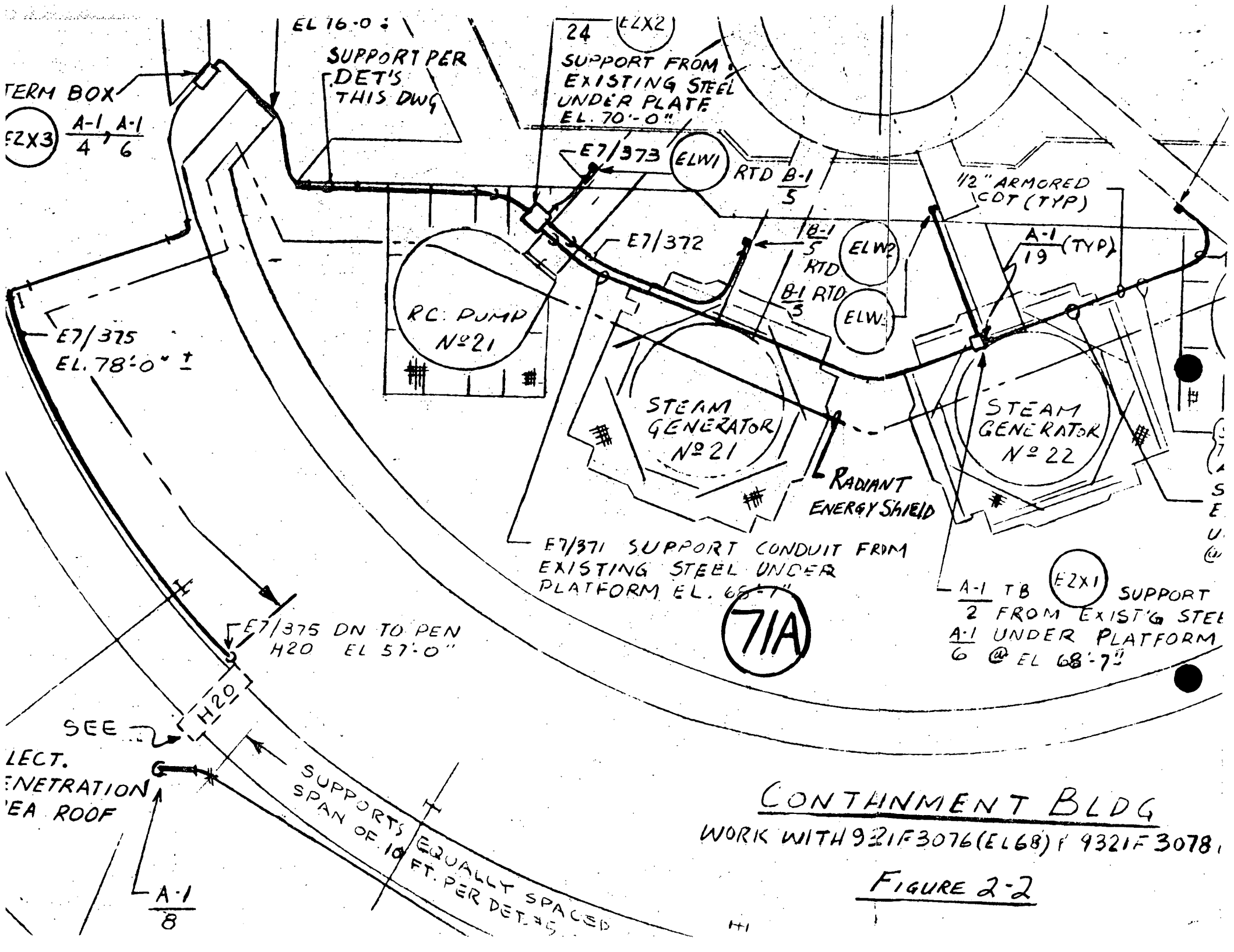
While we have performed a seismic analysis of the RCP lube oil collection system design, this is not to be misinterpreted with the RCP motor lube oil system assessment described above. We request NRC concurrence with the basis of our assessment of the RCP motor lube oil system and revision of the October 16, 1984 letter accordingly. Further, we consider that the above clarification does not affect the conclusions reached regarding our exemption request of Section III.O of Appendix R.



PART PLAN CONT BLDG - EL 68'-0"

INDIAN POINT UNIT 2

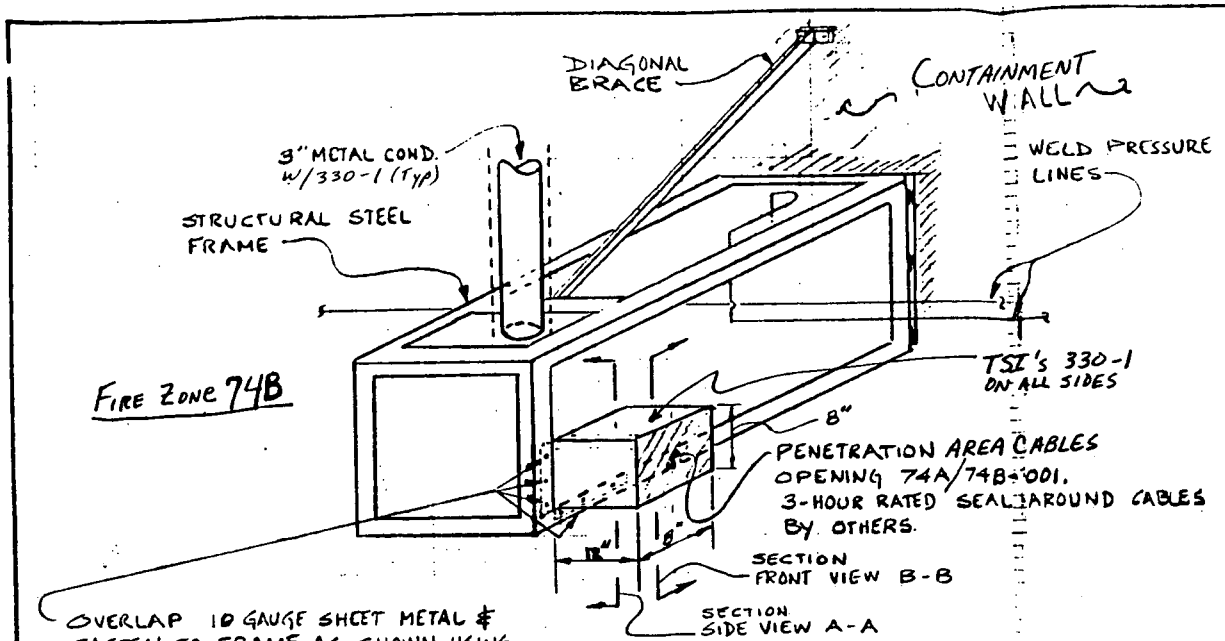
FIGURE 2-1



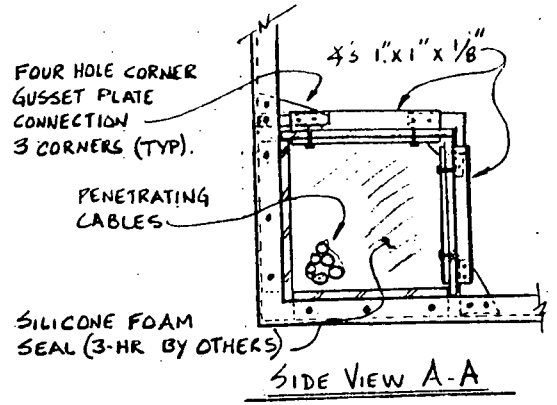
CONTAINMENT BLDG

WORK WITH 9321F3076 (EL 68) & 9321F3078

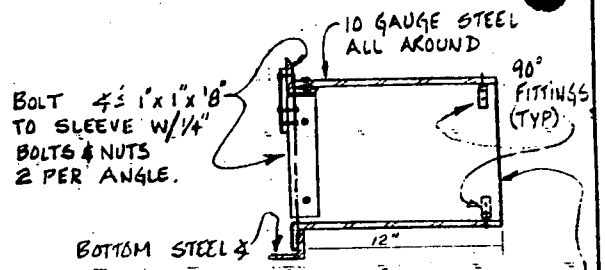
FIGURE 2-2



NOTE: PENETRATION 74A/74B-001 SHALL BE FORMED FROM 10 GAUGE SHEET METAL, EXTENDING 12" AWAY FROM STRUCTURAL STEEL OF FIRE BARRIER. PENETRATION AREA CABLES SHALL PENETRATE FIRE BARRIER THRU THIS 8"x 8" OPENING



SIDE VIEW A-A



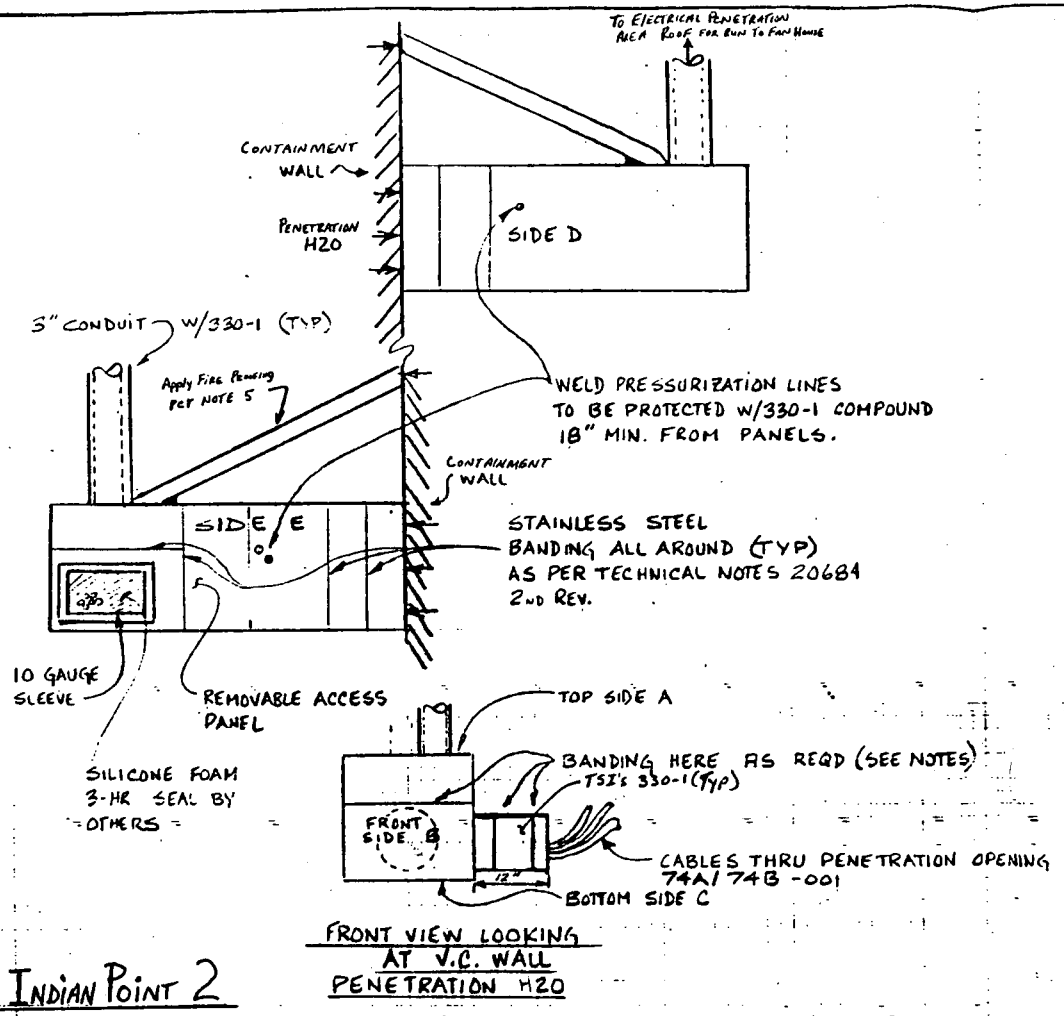
DO NOT INSTALL TSI'S 330-1 PANEL ON FACE OF OPENING

FRONT VIEW B-B

MOUNT PREFABRICATED PANELS TO SHEET METAL SLEEVE USING APPROVED STAINLESS STEEL BANDS AS PER TSI TECHNICAL NOTES 20684 SECOND REVISION APRIL 84. A CONTROLED COPY SHALL BE MAINTAINED IN Q.A. PERMANENT FILE. REFER TO FEI 840607 FOR NOTES ON TSI THERMO-LAG 330-1 3-HR. FIRE BARRIER INSTALLATION NOTES.

INDIAN POINT 2
STRUCTURAL STEEL FRAMING
PENETRATION H2O FIRE BARRIER
3-HOUR RATED USING TSI THERMO-LAG 330-1

FIGURE 2-3



FRONT VIEW LOOKING AT V.C. WALL PENETRATION H20

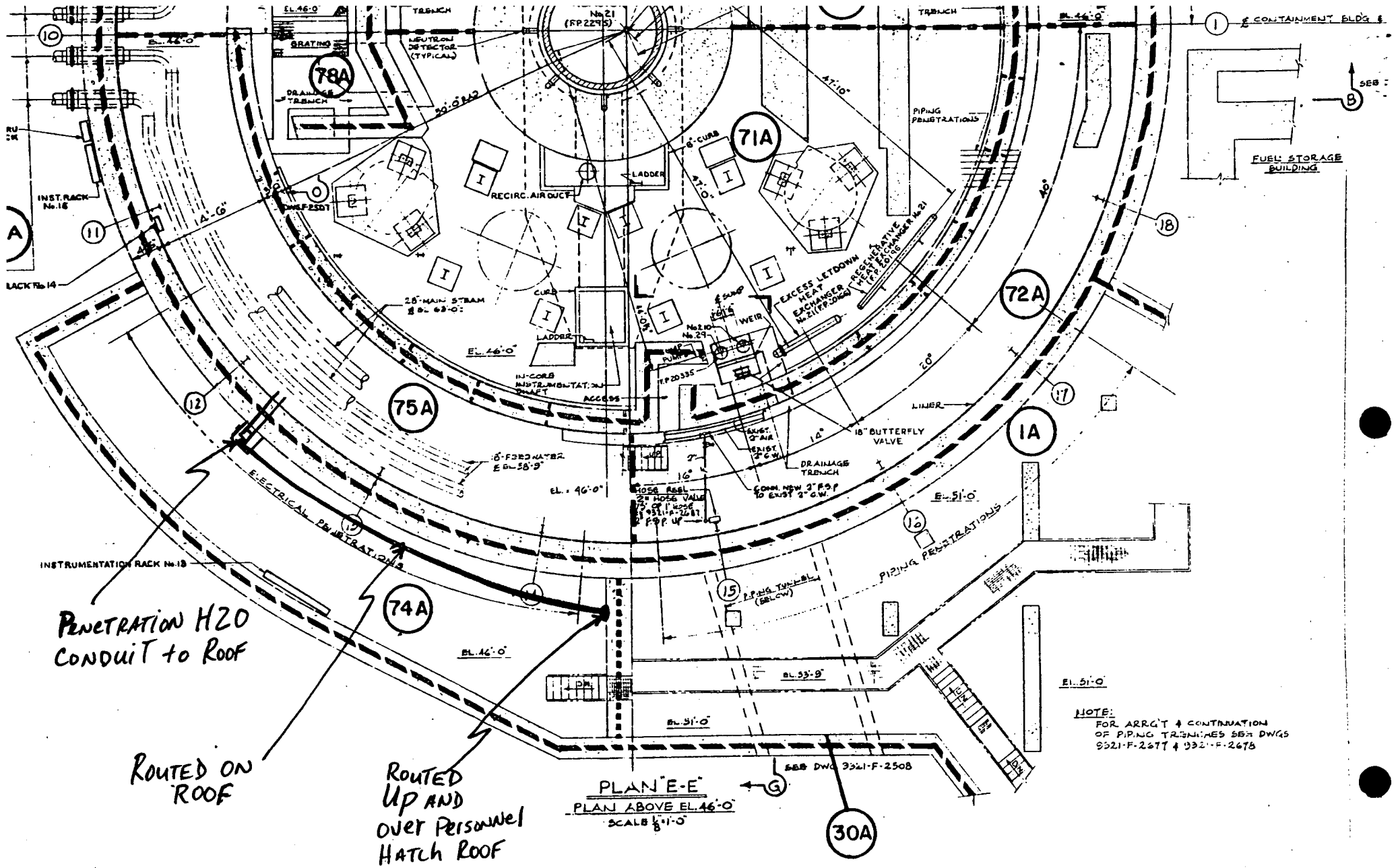
NOTES:

1) 3-HOUR FIRE BARRIER BETWEEN ZONE 74A & 74B SHALL BE MOUNTED & INSTALLED ON ALL STRUCTURAL STEEL ENTITIES, EXCEPT FOR THE SUBSTRATE OF SLEEVE IN PEN. OPENING 74A/74B-001, IN ACCORDANCE WITH THERMAL SCIENCE INC. TECHNICAL NOTES 20684 SECOND REVISION - INSTALLATION PROCEDURE MANUAL, NUCLEAR PLANT APPLICATIONS, THERMO-LAG 330-1 FIRE BARRIER SYSTEM.
2) THE BULK MATERIALS SUCH AS THERMO-LAG 330-1 SUBLIMING MATERIAL AND THERMO-LAG 351 SERIES PRIMER SHALL BE PROTECTED AGAINST FREEZING & FROM TEMPERATURES ABOVE 100°F DURING STORAGE SHELF LIFE
3) SIDE SURFACE E SHALL BE MADE UP OF 2 INDIVIDUAL PANELS BUTTED TIGHTLY AT MIDPOINT OF THE 4'-5" LENGTH. THE PANEL CLOSEST TO THE V.C WALL SHALL BE FASTENED TO THE STEEL FRAME USING 1/4" DIA. X 3/4" LG BOLTS W/NUTS.
4) ONLY STAINLESS STEEL BANDS SHALL BE USED AS REQ'D.
5) ALL EXPOSED STRUCTURAL STEEL SURFACES INSIDE & OUTSIDE THE FIRE BARRIER, EXCEPT FOR INSIDE SURFACE OF PENETRATION 74A/74B-001, SHALL BE COATED WITH THERMO-LAG 330-1 PREFAB PANELS OR TROWEL GRADE (3-HR RATED INSTALLATION). (SEE TECHNICAL NOTES 20684)
6) THE MINIMUM CROSS-SECTIONAL THICKNESS OF THE TROWELED OR CAULKED EDGES AND JOINTS SHOULD BE EQUAL TO THE PREFABRICATED PANEL THICKNESS.
7) THERMAL SCIENCE INC. REPRESENTATIVE SHALL SUPERVISE THE INSTALLATION, APPLICATION AS A QUALIFIED CONTRACTOR, PERFORM THE QUALITY CONTROL FUNCTIONS AND MAINTAIN THE QUALITY ASSURANCE OF THIS INSTALLATION. (SEE C.E.P.O. 4-21142-00).
8) THE 8" x 8" x 12" PENETRATION IS TO BE SEALED W/DOW CORNING 3-6548 SILICONE FOAM (TYPE I - 3-HOUR SEAL) AFTER H20 PEN. CABLES ARE ROUTED (BY OTHERS - NOT IN CONTRACT).
9) DETAILED DWGS OF INSTALLATION, METHOD OF FASTENING & STEEL COATINGS SHALL BE DEVELOPED & MAINTAINED BY TSI IN THE PROJECT Q.A. FILE, ORIGINALS TO BE FORWARDED TO CON ED Q.A. & R DEPT. ON SITE. (INCLUDING TECHNICAL NOTES 20684)
10) BOTTOM SIDE C, FRONT SIDE B, & LEFT SIDE D SHALL BE FASTENED TO STEEL BY BOLTS IN ACCORDANCE W/ SECTION II DIVISION 5.0 OF TSI's TECHNICAL NOTES 20684.

INDIAN POINT 2

TSI THERMO-LAG 330-1 3-HOUR BARRIER VIEWS

FIGURE 2-4



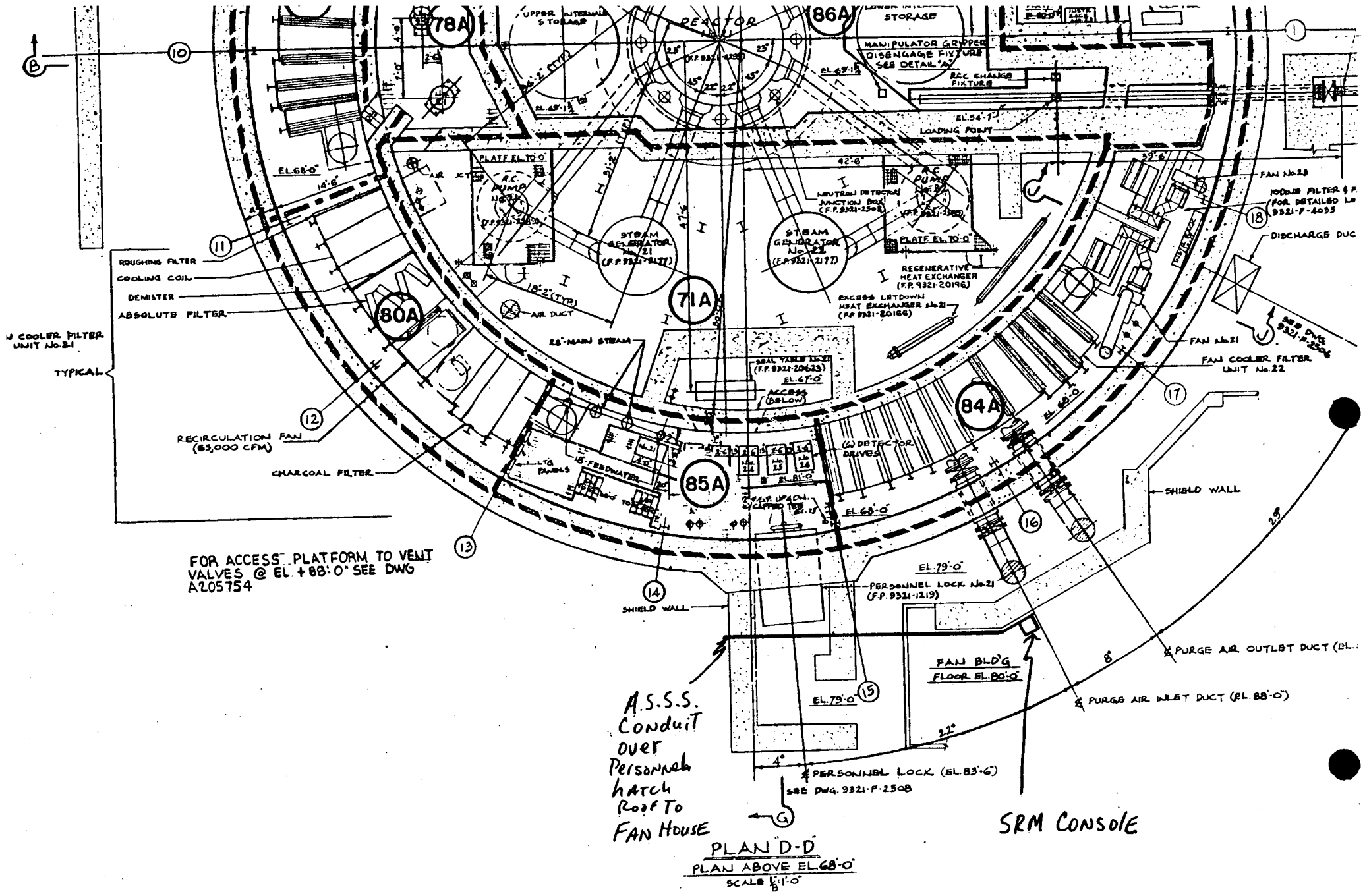
LEGEND

- 3 HOUR RATED WALL AND PENETRATIONS AS NOTED IN APPENDIX B OR EXEMPTION REQUEST
- 3 HOUR RATED WALL; NONRATED PENETRATIONS
- NO WALL OR FLOOR
- NON RATED WALL OR FLOOR

INDIAN POINT 2

FIGURE 2-5

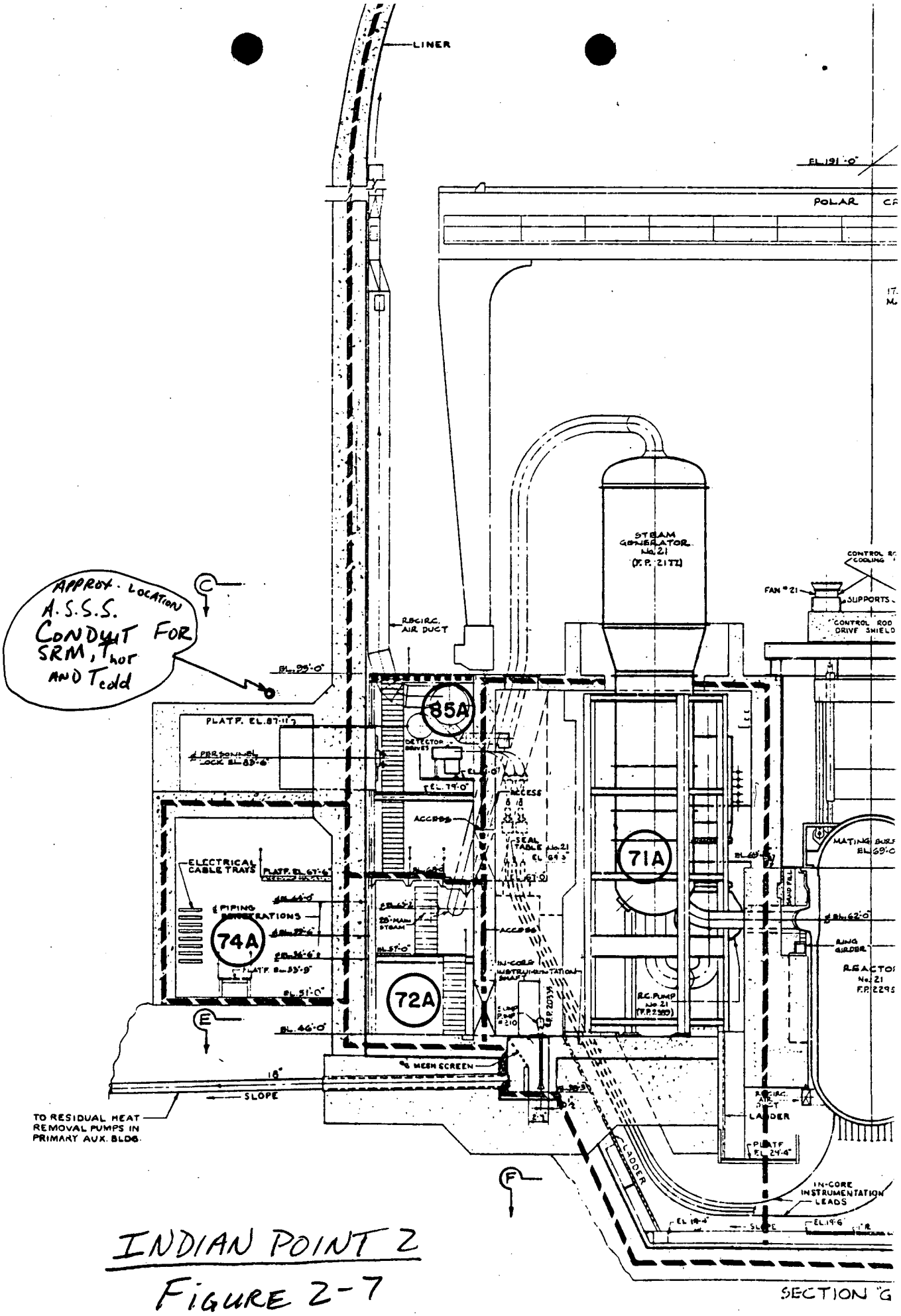
Routing of ASSS conduits outside CONTAINMENT



INDIAN POINT 2

FIGURE 2-6

ROUTING OF ASSS CONDUITS OUTSIDE CONTAINMENT



INDIAN POINT 2

FIGURE 2-7

ROUTING OF ASSS CONDUITS OUTSIDE CONTAINMENT

ATTACHMENT 3

Supplemental Information From Generic Letter 83-33 Review

Indian Point Unit No. 2

Attachment 3

Our partial review of Generic Letter 83-33 in relation to our previous Appendix R evaluations showed the need to upgrade some fire doors and fire proof structural steel. This was discussed in our November 2, 1984 and March 25, 1985 submittals. We have now completed our review of Generic Letter 83-33 and submit the following supplemental information in support of our conclusion that no further fire protection upgrades are needed. The specific IP-2 configurations involved are: (a) detection and automatic suppression in lower elevations of the Primary Auxiliary Building (PAB), (b) fire resistance of containment penetrations and (c) susceptability of mechanical components to fire damage.

(a) Detection and Automatic Suppression:

In Generic Letter 83-33 it was stated that where fire detectors and an automatic fire suppression system are installed in a fire area to satisfy Appendix R, in the view of the NRC Staff the fire detectors and automatic suppression system need to be installed throughout the fire area. The subsections of Appendix R where fire detectors and an automatic suppression system are required are III.G.2.b, III.G.2.c, and III.G.2.e.

Subsection III.G.2.b applies to locations where reliance is placed on redundant safe shutdown trains being separated by a horizontal distance of greater than 20' with no intervening combustibles. In this case, Appendix R would require fire detectors and an automatic fire suppression system to be installed throughout the fire area. For zone 1A, Piping and Electrical Tunnel, an exemption was requested from the requirement for a fixed suppression system in this area where separation of the ASSS instrument lines from the normal shutdown cabling was greater than 20'. The ASSS instrument lines in this zone are wrapped in a 1/2 hour fire wrap and this exemption was approved in Mr. Eisenhut's October 16, 1984 letter.

Subsection III.G.2.c of Appendix R requires enclosure of one redundant train of safe shutdown components in a fire barrier having a one-hour rating. In addition, fire detectors and an automatic fire suppression system are to be installed throughout the fire area. In several locations within Indian Point 2, exemptions were requested from certain elements of this subsection of Appendix R. In some cases, an exemption was requested from both the one-hour requirement and for installation of the automatic fire suppression system. The following summarizes the zones where Subsection III.G.2.c applies:

Zone	Exemption Request	Detectors	Suppression System
1, Component Cooling Pump Room	4.1		X

Zone	Exemption Request	Detectors	Suppression System
22, Screenwell Area	4.11	X	X
23, Auxiliary Feed Pump Room	4.12		X
Yard Manhole No. 21	4.15	X	X
Several zones containing cabling for PAB HVAC	4.17	X*	X*

These exemption requests justified omission of area wide suppression systems in the zones addressed, as well as the need for fire detector coverage in certain zones. With the exception of the HVAC exemption requested in our July 13, 1983 submittal, which is still pending approval, the other exemptions have been approved in Mr. Eisenhut's October 16, 1984 letter.

Subsection III.G.2.e allows installation of fire detectors and an automatic fire suppression system throughout the fire area as one alternative to protect cables within the Containment Building. For Indian Point 2, reliance on this criterion was not required in order to satisfy Appendix R.

Based on the above summary for those cases where criteria require area wide coverage under the strict application of Appendix R, either Indian Point 2 complies or exemptions have been granted providing relief with respect to installation of automatic area wide suppression systems. Accordingly, the Indian Point 2 Appendix R evaluations satisfy the NRC position relative to area wide suppression coverage.

With respect to area wide detection coverage for the fire zones where III.G.2.b or III.G.2.c apply, either smoke detectors are provided in those zones or exemptions were taken relative to smoke detectors. Under the definition of "fire area" it could be interpreted that smoke detectors are required throughout each fire area where redundant and alternate shutdown components are both located. Locations where III.G.2.b or III.G.2.c apply are:

Zone 1, Component Cooling Pump Room

Zone 1A, Piping and Electrical Tunnel

Zone 22, Screenwell Area

NOTE: *-A portable fan for room cooling not dependent on PAB HVAC operation is provided. Thus separation/protection of PAB HVAC need not meet Section III.G of Appendix R.

Zone 23, Auxiliary Feed Pump Room

Yard Manhole 21

For all the above listed fire zones, except zone 1A discussed below, exemption requests justify omission of detection coverage or the adequacy of detection capability that is provided. Each of these zones is now designated as a separate fire area as shown on Table 3-1. Accordingly, the justification and exemptions contained in the exemption requests conform to the interpretations in Generic Letter 83-33.

Zone 1A is contained in Fire Area A (see table 3-1). Application of the "fire area wide" interpretation to Fire Area A, which is the Control Building, Tunnels, Penetration Areas, Lower Elevations of the PAB and the Tank Farm, would require smoke detectors in all rooms. At present smoke detectors are provided in a number of the zones that make up Fire Area A, although several small rooms (approximately 18 rooms) at lower elevations of the PAB do not contain smoke detectors.

Although "area-wide" detection coverage was not specifically addressed for these PAB rooms comprising Fire Area A, in exemption request 4.2 for fire zone 1A (also part of Fire Area A) we described the separation/ barriers/openness to adjacent zones. From that request and the fire zone evaluation and drawings provided in Section 3.0 and Appendix B of our January 10, 1983 submittal, it was determined that if a 3-hour barrier separates the zone under consideration, or if the adjacent zone contains no components needed to achieve shutdown, no further review needed to be made. In addition, for those adjacent zones which contain only components in the same system(s) as the zone under consideration, no further evaluation was made unless the adjacent zone contained a redundancy that is required to achieve shutdown.

From this methodology the PAB evaluation showed that only fire zone 7A needed to be reviewed for detection coverage and additional detectors added where required. Commitments for this were contained in our September 9, 1983 submittal. However, within the context of Generic Letter 83-33 it could be implied that either exemptions of the "fire area wide" coverage would be required for the rooms in the lower PAB elevations not containing detectors, or exemptions of the fire barrier requirements that would have to be met in order to designate these rooms as their own fire area would be required. Since our exemption request for zone 1A and other PAB zones did not bring this out explicitly and exemption request 4.2 (zone 1A) was approved in Mr. Eisenhut's October 16, 1984 letter, implicit in the NRC's review is that presently installed detector coverage beyond Zone 1A is adequate with respect to protection of redundant safe shutdown components in Zone 1A.

In view of the above, we do not feel that exemptions with respect to fire area wide coverage are required for the lower elevations of the PAB within Fire Area A. We request that the NRC explicitly concur with the above assessment and issue appropriate revisions to Mr. Eisenhut's October 16, 1984 letter or alternately, advise us on the need to submit additional exemption requests.

(b) Fire Resistance of Containment Penetrations:

The containment building is designated as Fire Area H as shown in Table 3-1. Fire Area H interfaces with Fire Areas A, C and K. In each case, a portion of the containment building wall is the interfacing fire barrier. At these interfaces the containment building wall contains electrical, HVAC (purge) and piping penetrations which are not fire rated assemblies. The containment wall is 4'-6" thick reinforced concrete at these interfaces and the penetrations are of substantial design having inherent fire resistance. Based on the fire loads in these fire areas, it is our judgement that the design of containment penetrations is satisfactory for the fire load in the area. On March 16, 1984, during a telephone discussion with members of the NRC Staff on this matter we understood that containment penetrations are recognized to be of substantial construction and need not be a 3-hour fire rated design. At that time, the NRC Staff also indicated that an exemption request on containment penetrations was not required. We request that the NRC explicitly concur with the above evaluation and issue revisions to Mr. Eisenhut's October 16, 1984 letter, as appropriate.

(c) Mechanical Components:

When reviewing the interface between Fire Area J (Alternate Shutdown Cable and Equipment Area) and Fire Area K (Steam/Feedwater Piping) shown in Table 3-1 we found that the wall separating these areas is non-rated construction. However, components in Area K that may be required for safe shutdown are not susceptible to fire damage. Such equipment includes steam piping, safety relief valves, steam feed to turbine driven AFP, feedwater piping, and atmospheric relief valves. Damage to cabling would not affect safe shutdown capability and local operation of valves could be performed following suppression of the fire. In our discussion of the north wall of the AFP room (fire area C) under the clarification of exemption request 4.12 contained in Attachment 2, we were concerned with the effects of a fire on ASSS components in the Turbine Building via the pipe bridge interface with Fire Area K and C. Since Fire Area J includes the ASSS components in the Turbine Building, Fire Area K via the bridge could, in effect, be considered part of Fire Area J, and thus a 3-hour rated fire barrier separating J and K would not be required to satisfy III.G.2.a of Appendix R. The clarification in Attachment 2 covers the Fire Area C/K interface. However, it was judged that a clarification should be obtained from the NRC as to the components not considered to be susceptible to fire damage. In telephone discussions with members of the NRC Staff on March 16, 1984 it was clarified that piping, valve bodies, tanks, reactor vessels, steam generators, and the pressurizer need not be considered as components susceptible to fire damage, and thus need not be separated/protected per III.G.2 of Appendix R. It is requested that the NRC explicitly concur with the above assessment and issue revisions to Mr. Eisenhut's October 16, 1984 letter, as appropriate.

TABLE 3 -1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description	Fire Zones	
A	Control Building, Tunnels, Penetration Areas, Lower PAB, Tank Farm	1A	Electrical and Piping Tunnel, Piping Penetration Area
		2	Containment Spray Pump Room
		2A	Primary Water Make Up Pump Room
		3	Residual Heat Removal Pump Room
		3A	Corridor
		4A	Sump Tank and Pump Room
		6A	Waste Storage and Drumming Station
		9	Safety Injection Pump Room
		11	Cable Spreading Room
		12	Battery Room

1/ These fire areas are established as combinations of fire zones for the purposes of evaluation. This is used to demonstrate compliance with staff positions in Generic Letter 83-33. Fire zone designations should be kept for the purposes of fire hazards evaluation of subsequent plant activities/modifications.

TABLE 3-1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description	Fire Zones	
A (cont.)	Control Building, Tunnels, Penetration Areas, Lower PAB, Tank Farm	12A	Ion Exchange Column Room
		13	Battery Room
		13A	Valve Room
		14	Switchgear Room
		14A	Large Gas Decay Tank Room
		15	Control Room
		15A	Valve Room
		16A	Spent Resin Storage Tank Room
		17A	Filter Room
		18A	Valve Room and Corridor
		19A	Chemical Drain Tank Room
		29A	Piping and Valve Room
		30A	Piping Bay and Tunnel
		31A	Piping Tunnel

TABLE 3-1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description	Fire Zones	
A (cont.)	Control Building, Tunnels, Penetration Areas, Lower PAB, Tank Farm	32A	Electrical Tunnel
		74A	Electrical Penetration Area
		94A	Waste Holdup Tank Area
		95A	Waste Holdup Tank Area
		96A	Waste Holdup Tank Area
		97A	Waste Holdup Tank Area
		98A	Waste Holdup Feed Pump Area
		99A	Gas Stripper Room
		100A	Boric Acid Evaporator Room
		101A	Control Area
		105A	Monitor Tank Farm
		106A	Tank Farm

TABLE 3-1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description
B	RHR 21 Pump Room
C	Aux. Feed Pump Room
D	Fuel Storage Building
E	Charging Pump 21 Room
F	PAB, El. 80' and 98', and Fan House

Fire Zones	
4	RHR 21 Pump Room
23	Aux. Feed Pump Room
90A	Spent Fuel Pool Equipment Area
91A	New and Spent Fuel Storage Area
5	Charging Pump 21 Room
5A	Sampling Room
6	Charging Pump Room
7	Charging Pump Room
7A	Corridor
8	Boric Acid Tank Area
8A	Waste Evaporator Room
9A	Gas Stripper Room
10A	Waste Gas Compressors

TABLE 3-1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description	Fire Zones	
F (cont.)	PAB, El. 80' and 98' and Fan House	11A	Waste Condensate Tank Room
		20A	Non-Regen. Heat Exchange Room
		21A	Concentrate Holding Tank Room
		22A	Valve Corridor
		23A	Volume Control Tank Room
		24A	Reactor Coolant Filter Room
		25A	Valve Corridor
		26A	Boric Acid Evaporator Room
		27A	Corridor
		28A	Seal Water Heat Exchanger Room
		33A	Storage Area
		59A	Fan House

TABLE 3-1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description
G	Diesel Generator Building
H	Containment Building

Fire Zones	
10	Diesel Generator Building
70A	Reactor Coolant Pump Area
71A	Reactor Coolant Pump Area
72A	Outer Annulus
75A	Outer Annulus
76A	Outer Annulus
77A	Outer Annulus
78A	Recirc. Pumps and RHR Heat Exchange Area
80A	Containment Fan Cooler Area
81A	Containment Fan Cooler Area
82A	Containment Fan Cooler Area
83A	Containment Fan Cooler Area
84A	Containment Fan Cooler Area
85A	Incore Detector Drive Area

TABLE 3-1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description	Fire Zones	
H (cont.)	Containment Building	86A	Refueling Floor Area
		87A	Outer Annulus
I	Intake Area	22	Screen Well Area
		63A	Screen Well Area
		66A	Service Water Valve and Strainer Pit
J	Alternate Shutdown Cable and Equipment Area	IP-1	Turbine Building
		IP-1	Superheater Building
		IP-1/IP-2 Passageway	
		16	Turbine Oil Storage Tank Area
		17	Turbine Oil Reservoir Area
		18	Turbine Lube Oil Cond. Area
		19	Station Air Compressor Area
		20	Boiler Feed Pump Lube Oil Reservoir

TABLE 3-1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description	Fire Zones	
J (cont.)	Alternate Shutdown Cable and Equipment Area	21	Hydrogen Seal Oil Reservoir Area
		39A	Mezzanine Floor
		40A	Turbine Floor
		41A	Turbine Floor
		42A	Turbine Floor
		43A	Ground Floor
		44A	Ground Floor
		45A	Ground Floor
		46A	Ground Floor
		47A	Ground Floor
		48A	Ground Floor
		49A	Mezzanine Floor
		50A	Mezzanine Floor
		51A	Mezzanine Floor

TABLE 3-1

DESIGNATION OF IP-2 FIRE AREAS 1/

Fire Area	Description	Fire Zones	
J (cont.)	Alternate Shutdown Cable and Equipment Area	52A	Mezzanine Floor
		53A	Loading Well
		64A	De-Icing Pit
K	Steam/Feedwater Piping	60A	Chemical Addition Area
		61A	Feedwater Bypass Regulator Platform
		62A	Main Boiler Feedwater Regulator Area
		65A	Main Steam and Feedwater Valve Area
L	IP-1 Screenwell Area	IP-1 Screenwell Area	
M	Gas Turbine (GT-1)	Gas Turbine (GT-1)	
N	Manhole 21	Manhole 21	
P	CCW Pump Room	1	Component Cooling Pump Room
Q	ASSS Instrument Cable Enclosure at Penetration H-20	74B -	Penetration H-20/Electrical Penetration Area