LOUISIANA POWER & LIGHT / 142 DELARONDE STREET
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MIDDLE SOUTH UTILITIES SYSTEM

June 5, 1984

W3P84-1560
3-A!.01.04
Q-3-P43

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

SUBJECT: Waterford SES Unit 3
Docket No. 50-382
Further Information Related to
Requests for Relief from Certain Technical
Requirements of Appendix R to 10CFR50

REFERENCES: (1) W3P84-0709 dated March 26, 1984
(2) W3P84-1412 dated May 17, 1984
(3) W3P83-0519 dated February 14, 1983

Dear Sir:

This letter provides further information on fire damper installation, air handler units AH-13, and control room smoke detection as they relate to exceptions previously submitted in reference (1), and operator training as committed to in reference (2).

1. FIRE DAMPER INSTALLATION

Waterford 3 design varies from the duct to damper assembly breakaway concept utilized in U.L. testing and listing of fire damper assemblies. This duct breakaway concept is based on the philosophy of a total fire area conflagration with collapse of building construction on one side of the fire wall. This breakaway design would allow the duct to break away from the duct damper assembly, thus allowing the damper assembly to remain in the wall and maintain continuity of the fire wall. Building construction at Waterford 3 is fire resistive type utilizing reinforced concrete and building collapse is not a credible occurrence; therefore, if duct and support structural integrity can be maintained for the postulated fire, the fire damper assembly will remain in the fire wall and thus maintain fire wall continuity.

For discussion purposes, duct systems (with fire dampers) at Waterford 3 can be categorized into two types, seismic or seismically supported duct work and non-seismically supported duct work.

A002
1/1

a. Seismic or seismically supported duct work:

Reference (3) gives justification for not providing fire protection coating for structural supports associated with fire protected cable trays and conduits. Essentially, tray supports remained intact during an ASTM E-119 fire test of wrapped cable trays. This same information/justification applies to supports for seismic or seismically supported duct since these supports are structurally more substantial than the tested cable tray supports. Therefore seismic or seismically supported duct supports have adequate protection from postulated fires and should be acceptable.

b. Non-seismically supported duct work:

There are 34 dampers installed in non-seismically supported duct work as follows:

(1) FD-101, 106, 108, 109, 110, 111, 117, 122, 123, 124, 125, 150, 171 and 186. These dampers are located in fire rated walls, floors and ceilings which have automatic detection and sprinkler protection on both sides. Automatic detection and suppression assures prompt notification of a fire and prevention of further propagation until arrival of the fire brigade. The suppression system which activates at ambient air temperatures of approximately 200°F to 285°F will limit the temperature rise of structural steel below that which could adversely impact the physical integrity of the ducting. This sprinkler discharge will effectively cool the ambient air and components within the immediate vicinity of a fire and ultimately extinguish it.

(2) FD-112, 113, 114, 115, 116, 162, 177, 178, 179, 187 and 215. These dampers are located in fire rated walls, floors and ceilings which have automatic detection and sprinkler protection provided on one side of the fire barrier. The automatic detection and suppression systems installed on the one side will, as described in item (1) above, adequately keep temperatures well below that which could adversely impact structural steel. In most cases, the areas on the non-suppression side of these damper installations consist of process tank rooms which have no combustible loading. The remaining cases involve areas with minimal in-situ combustibles of such minor quantities as not to warrant sprinkler protection per the fire hazards analysis. These areas are provided with automatic ionization type smoke detectors which alarm in the control room. It is expected that any

fire in these areas will be detected and quickly extinguished by the fire brigade since combustible loading is minimal and non-contiguous. If for any unforeseen reason a fire damper installation is breached, the existence of automatic suppression on the other side will limit the propagation of the fire or its hot gases until arrival of the fire brigade. Thus the protection of safe shutdown equipment is assured.

(3) FD-163, 164, 165, 166 and 167 (refer to attached figures 1 through 5). These dampers are located in the floor of the hot machine shop HVAC Room (part of RAB 2) located at + 46' el. This room has ionization type smoke detection and is separated from the remainder of RAB 2 by a reinforced concrete wall having a 3-hour fire resistance rating with the exception of conduit penetrations and a non-fire rated personnel access door. The area below this floor is RAB 24 (hot machine shop) which also has ionization detection. These two rooms (RAB 24 and Hot Machine Shop HVAC Room) have no equipment required for safe shutdown. Based on our design in depth utilizing detection, suppression where needed, passive protection involving substantial fire resistance building construction, fire extinguishers and hose station protection and the fact these dampers are not essential since they separate rooms which have no safe shutdown equipment; the existing fire barrier afforded by these damper installations is considered adequate.

(4) FD-172 and 173 (refer to attached figures 6 and 7). These dampers are located in the fire rated wall separating the Computer HVAC Room (part of RAB 3) and Computer Room (RAB 1D). The Computer HVAC Room, which houses air handling unit AH-31, is separated from the remainder of RAB 3 by reinforced concrete walls and ceiling having a 3-hour fire resistance rating with the exception of conduit penetration seals. The room also has ionization type smoke detection which alarms in the control room. The Computer Room has an automatic 1301 Halon fire suppression system for the underfloor area and ionization type detectors are provided below the suspended ceiling which alarms in the control room. RAB 1D (Computer Room) is separated from the remainder of the control room envelope by a fire wall which has a 2-hour fire resistance rating with the exception of HVAC duct penetrations. The Computer Room and the Computer HVAC Room have no equipment required for safe shutdown. Based on our design in

depth utilizing detection, suppression where needed, passive protection involving substantial fire resistive building construction, fire extinguishers and hose station protection and the fact these dampers are not essential since they separate rooms which have no safe shutdown equipment, the existing fire barrier separation afforded by these damper installations is considered adequate.

(5) FD 156 and 158 (refer to attached figures 8 and 9). These dampers are located in the fire rated wall separating RAB 25 from cooling tower A. RAB 25 has ionization type detection and the duct in this area is seismically supported. The duct located in cooling tower "A" area is non-seismically supported. Cooling tower "A" is an open area with negligible combustibles. Based on our design in depth utilizing detection in areas of any combustibles, passive protection involving substantial fire resistive building construction, fire extinguishers and hose station protection and the fact that these dampers are not essential since they do not separate redundant safe shutdown equipment, existing fire barrier separation afforded by these dampers is considered adequate.

In summary, where non-seismic dampers separate fire areas containing redundant safe shutdown equipment, automatic suppression and detection exist on both sides of the fire wall ensuring the physical integrity of the ducting and fire barrier rating are maintained. Where suppression does not exist in the immediate vicinity on one side of a non-seismic damper installation, automatic fixed suppression coverage is provided over safe shutdown equipment ensuring adequate protection of safe shutdown capability in the event of a fire. In cases where such damper installations lack suppression on either side, they are located in fire walls which do not separate redundant safe shutdown equipment and therefore the existing fire barrier separation is considered adequate.

2. VENTILLATION SUPPLY FANS AH-13A AND AH-13B

Reference (1) clearly demonstrates the adequacy of the fire barrier separation between these redundant ventilation supply fans in an exception to the strictest application of Appendix R, Section III.G.2 separation requirements. However, if for some unforeseen event, both AH-13 fans are lost, ambient air temperature rise at E.L. +46.0 of the Reactor Auxiliary Building (RAB) can be mitigated if appropriate compensatory measures are taken.

Room temperature (at E.L. +46.0) will remain below the design limit of 104°F provided:

a. Both E.L. +46.0 exhaust fans E-41A and E-41B are running

b. Outside air intake door D-253 and/or door D-265 is opened

c. Only heat loads from normal operating equipment are considered (i.e. one chiller with associated pump and one RAB exhaust fan E-22A or E-22B).

Due to the small impact the loss of both fans (AH-13A and AH-13B) would have on ambient air temperature, the need for additional fire protective measures beyond those currently provided requires no further consideration.

3. CONTROL ROOM SMOKE DETECTION

As a result of a conference call with Mr. Wilson (PM) and Mr. Stang (CEB) of the NRC on May 29, 1984 discussing detection in the Control Room, a new backfit to the plant smoke detection/ alarm system is proposed.

LP&L will install ionization type detection in the Control Room main control panels: CP1, 2, 3, 4, 6, 7, 8, 18, 35 and 36. The system will consist of one detector per compartment and the zone alarm will annunciate on the local and master control panel located in the Control Room. The system will be installed in accordance with NFPA 72 E. Initiating device circuits will be style "D" and signaling line circuits will be style 1 per NFPA 72 D. If possible, an individual remote detector alarm indicating light will be provided on the rear face of each control panel to indicate which panel is in alarm. This system will be installed and functional prior to start-up following first refueling.

To provide compensatory measures until this new retrofit can be implemented, LP&L will install U.L. listed (for NPFA 74 service) self-contained battery powered smoke detectors in each of the control panels listed above. These detectors will be installed in accordance with NFPA 74 and tested in accordance with the manufacturers recommendations. These detectors will be provided prior to receiving the full power license.

The proposed schedule for the new backfits are considered reasonable since Section 9.5.1.6 of Waterford 3's SER Supplements No. 3 and No. 5 specifically mention "detection" when addressing fire protection in the Control Room Proper and both Supplements indicate the existing protection is adequate. Also the installation of an NFPA 72 E detection system for the control room main console cannot be accomplished without

impacting our present fuel load schedule. During and after fuel load, access to the internals of these panels is extremely restricted and for safety considerations cannot be permitted during operation.

4. ALTERNATE SHUTDOWN PROCEDURES

In reference (2), LP&L committed to completion of all operator alternate shutdown training prior to receipt of full power license contrary to our verbal proposal of May 2, 1984 at a meeting with NRC reviewers in Bethesda. In order to accommodate this change, our Auxiliary Systems Branch reviewer, Mr. Fioravante, requested that LP&L complete the Associated Circuits Analysis (spurious operation) by receipt of full power license rather than 12/1/84 as verbally agreed to May 2, 1984. Also by this new date, additional procedural changes resulting from this study as well as follow-on training should be completed.

It became apparent during a 5/24/84 meeting with Mr. Fioravante that, based on our discussion of the Associated Circuits Analysis program plan, the completion of the spurious operation study by an earlier date would not be possible. Therefore, Waterford 3 will pursue an alternate shutdown training schedule which is significantly compressed from the normal training cycle. By this letter LP&L commits to the following schedule regarding the alternate shutdown training and related spurious operation study:

a. Each required operator or auxiliary operator shall successfully complete training on the off-normal procedure, "Evacuation of the Control Room and Subsequent Plant Shutdown" (OP-901-004), prior to assuming shift duties following commencement of fuel load.

b. Submit for NRC review, a completed Associated Circuits Analysis by December 1, 1984.

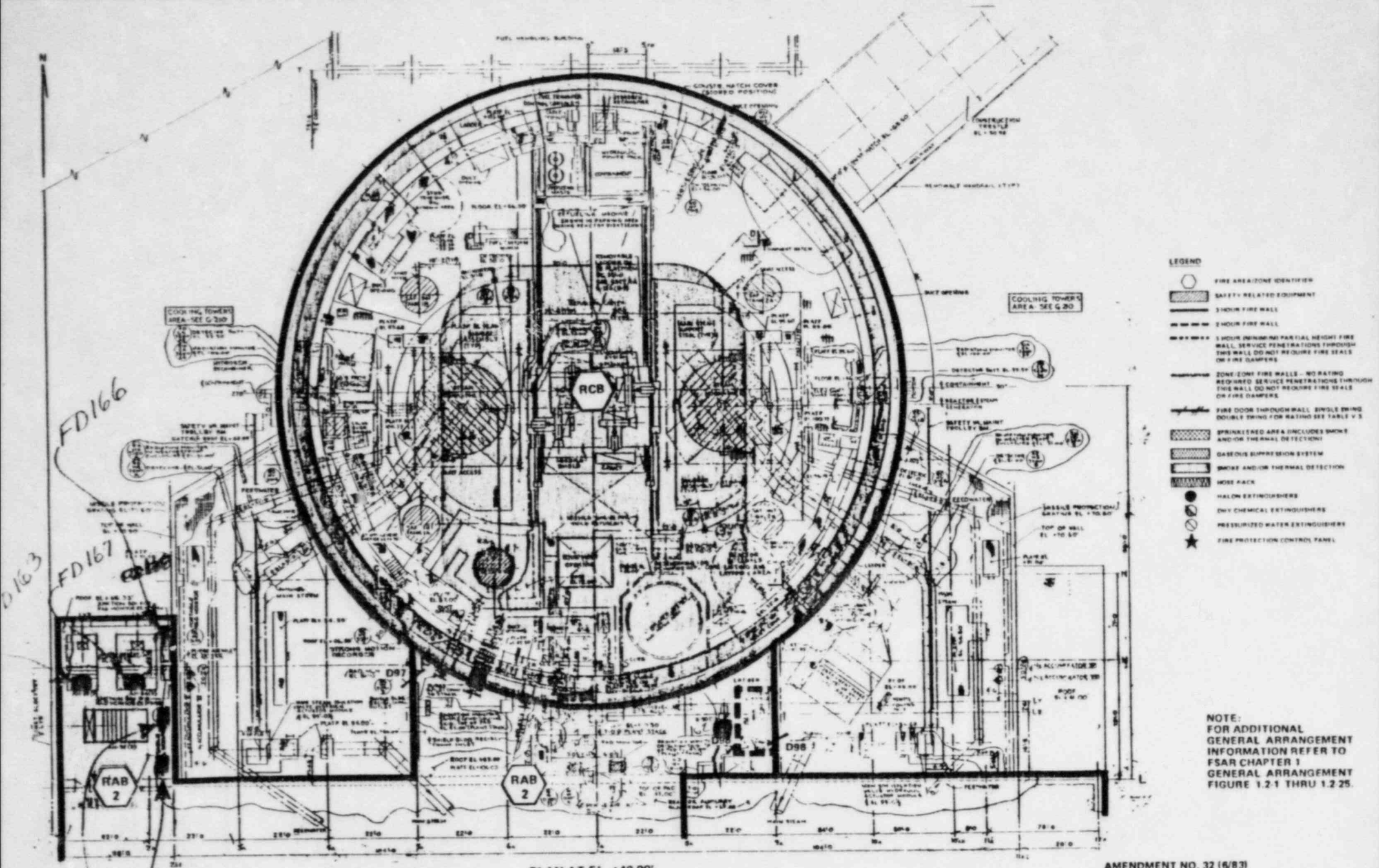
c. Prior to startup following first refueling, incorporate all procedural or hardware changes necessary to control or prevent spurious operations identified in item b. above.

We trust that the information and commitments in this letter are sufficient to resolve any remaining concerns on the subject of fire protection. Please refer any questions you may have on this letter or subject to our fire protection licensing engineer, Kevin Curley at (504) 363-8950.

Yours very truly,

K.W. Cook
Nuclear Support & Licensing Manager

KWC/KNC/pco
Attachments
cc: E.L. Blake, W.M. Stevenson, J.T. Collins, D.M. Crutchfield, J. Wilson, G.L. Constable, D.J. Kubicki, N. Fioravante



PLAN AT EL. +46.00'

FIGURE 1

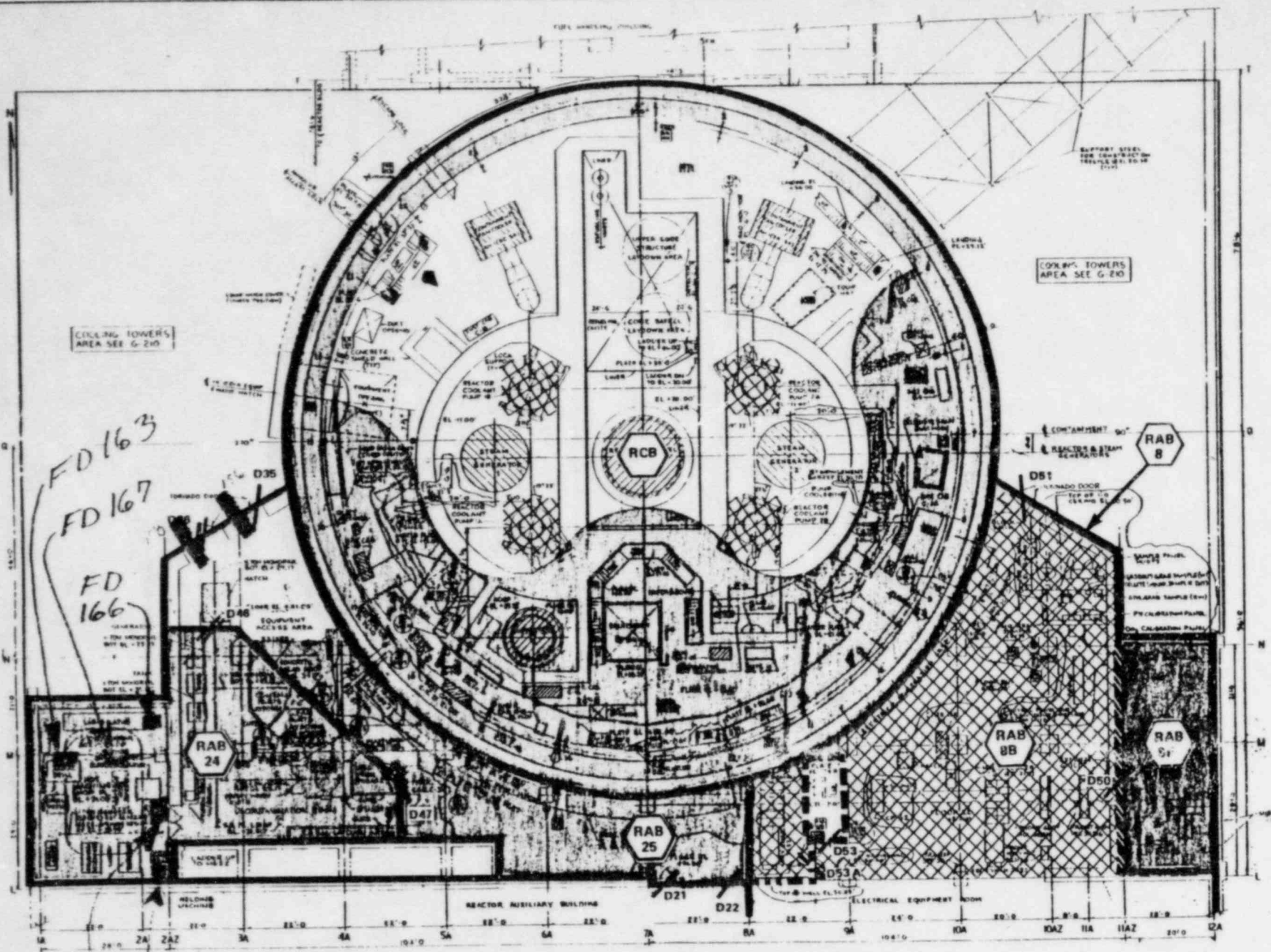
AMENDMENT NO. 32 (6/83)

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

FIRE PROTECTION
REACTOR BUILDING – PLAN
EL +46.00'

~~FIGURE X-15~~



FD 163
FD 167
FD 166
FD 165
FD 164

NOTE:
FOR ADDITIONAL GENERAL ARRANGEMENT INFORMATION REFER TO FSAR CHAPTER 1 GENERAL ARRANGEMENT FIGURE 1.2.1 THRU 1.2.25.

PLAN AT EL. +21.00'

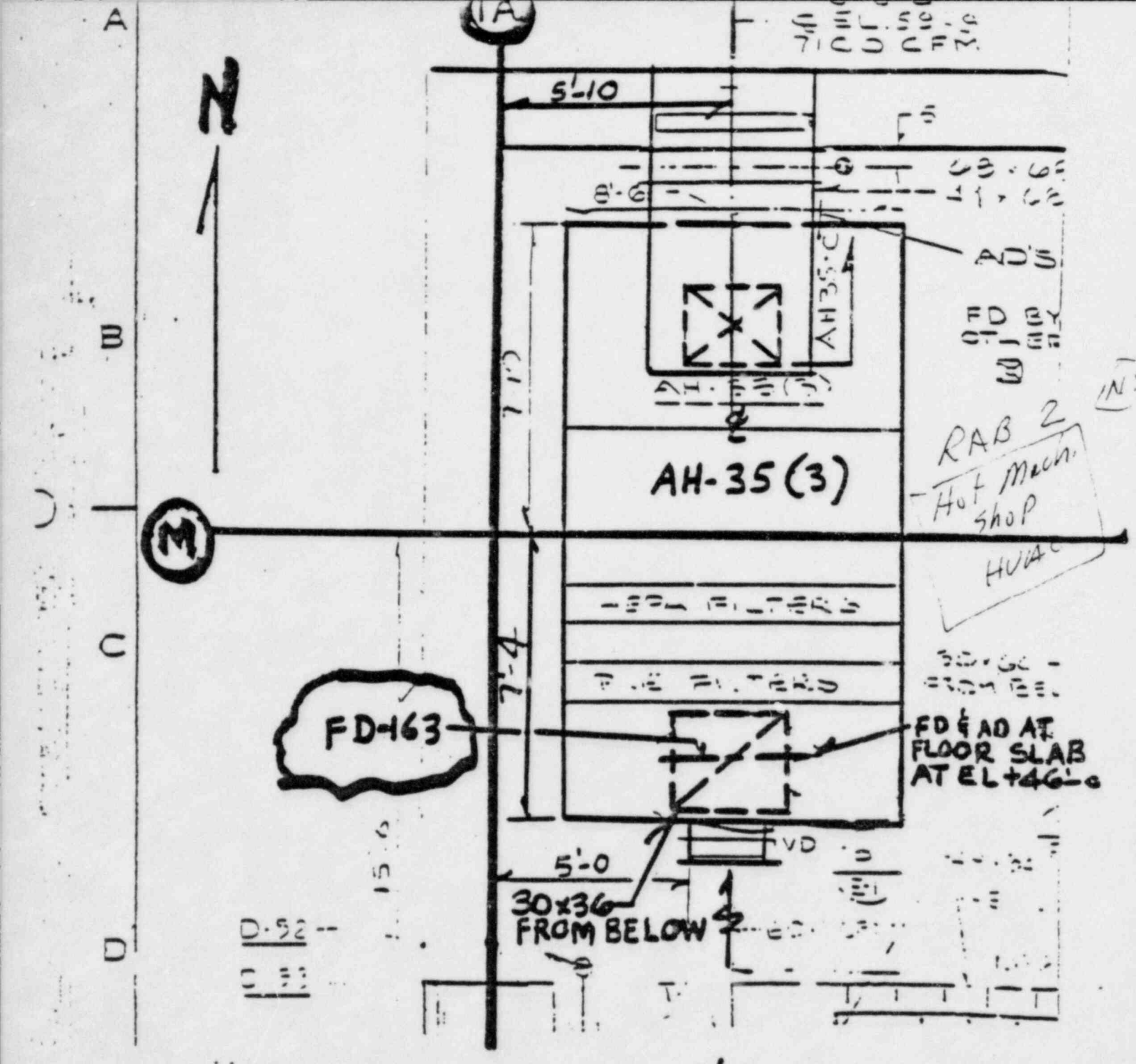
FIGURE - 2

AMENDMENT NO. 34 (1/84)

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

FIRE PROTECTION
REACTOR BUILDING – PLAN
PLAN EL. +21.00'

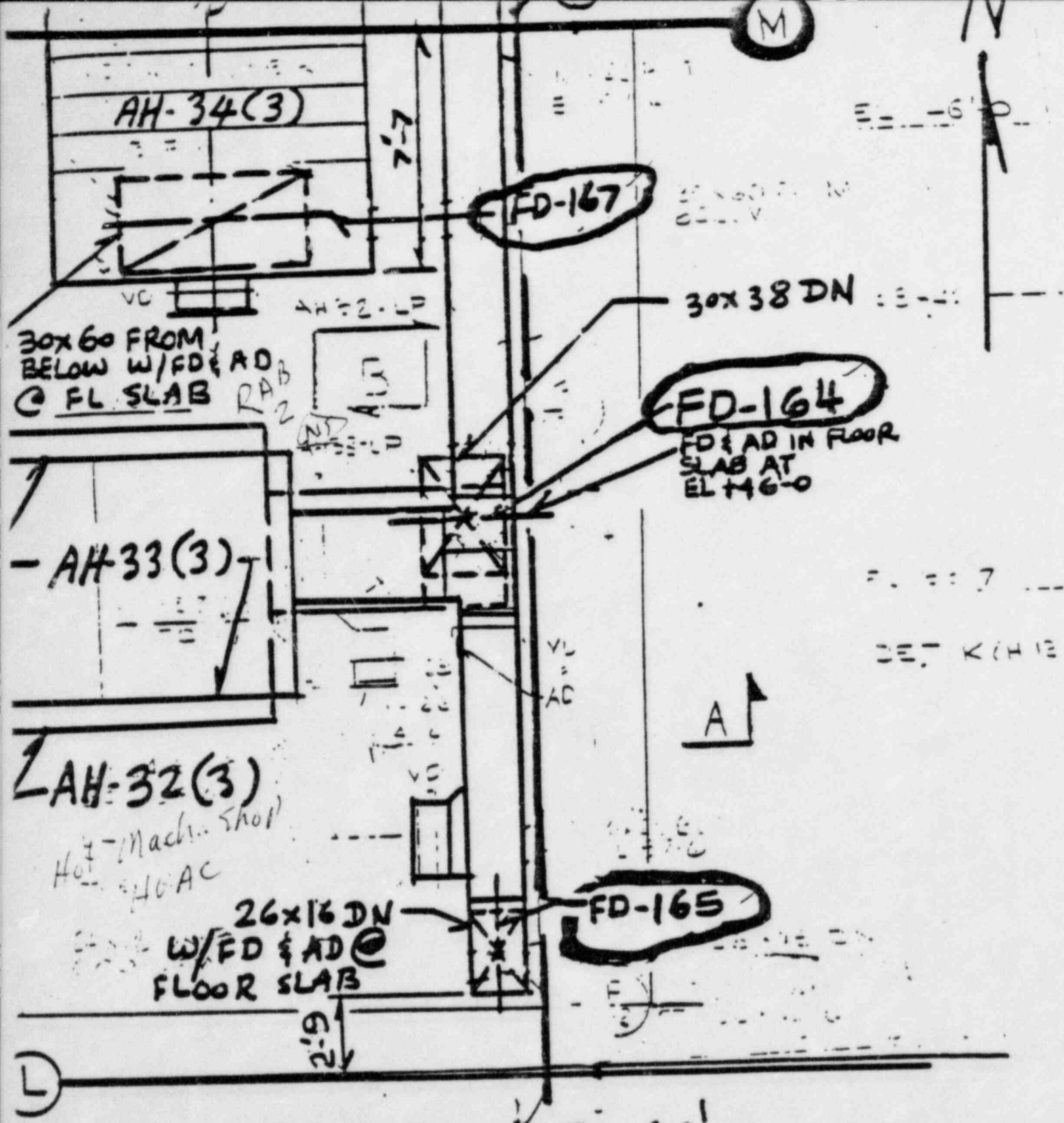
FIGURE X-14



PART PLAN EL. 46'-0

FIGURE - 3

DCN – HV-343	
PAGE 23 OF 41	
PART OF RAB	DWG
G – 859505	REV. 7
DR AE Lloyd	DATE 3/10/82
CH. [illegible]	DATE 3/11/82

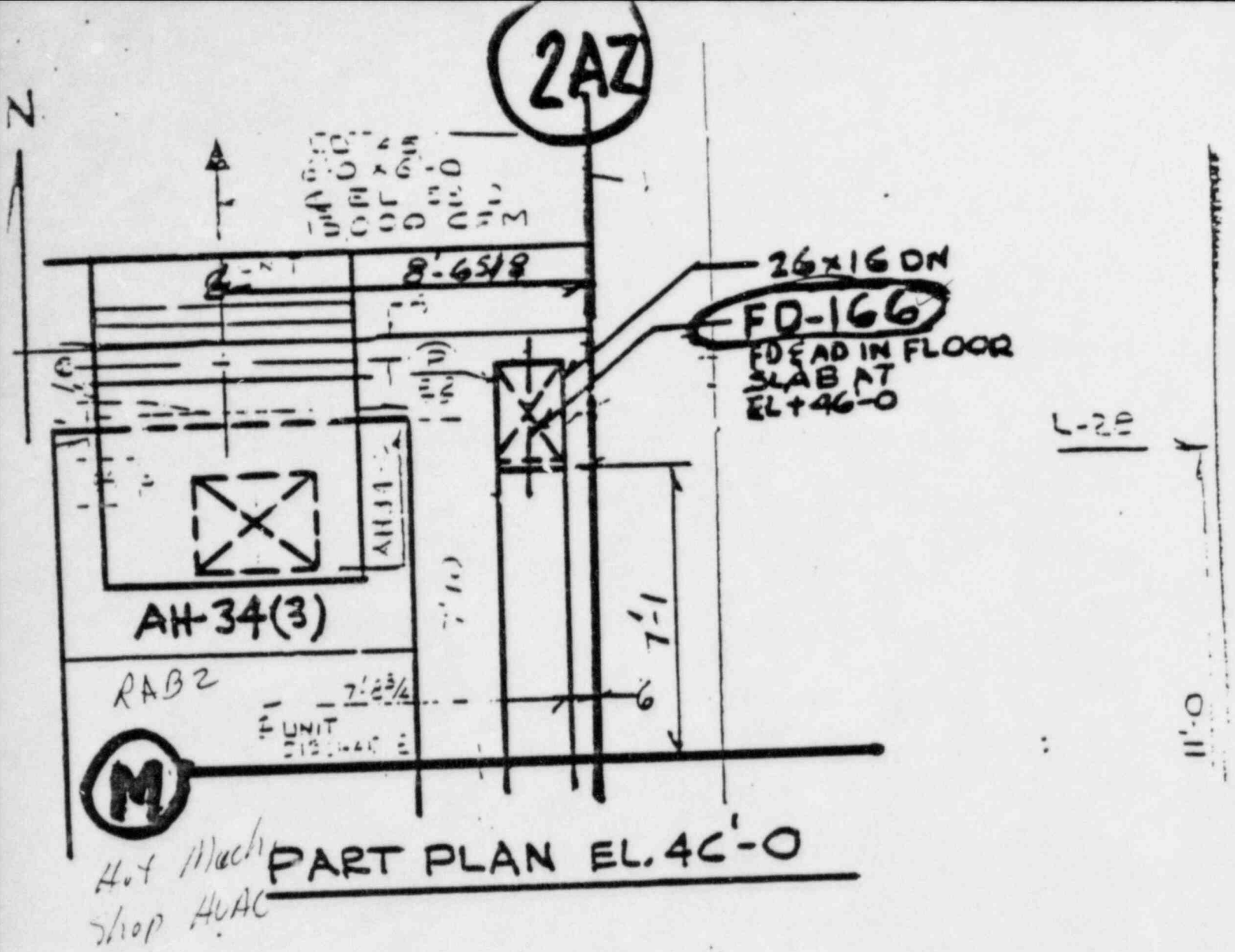


PART PLAN EL. 46'-0

FIGURE - 4

DCN - HV-343
PAGE 24 OF 41

PART OF RAB DWG
G-859505 REV. 7
DR AE Floyd DATE 2/10/88
CH AEO DATE 2/11/88



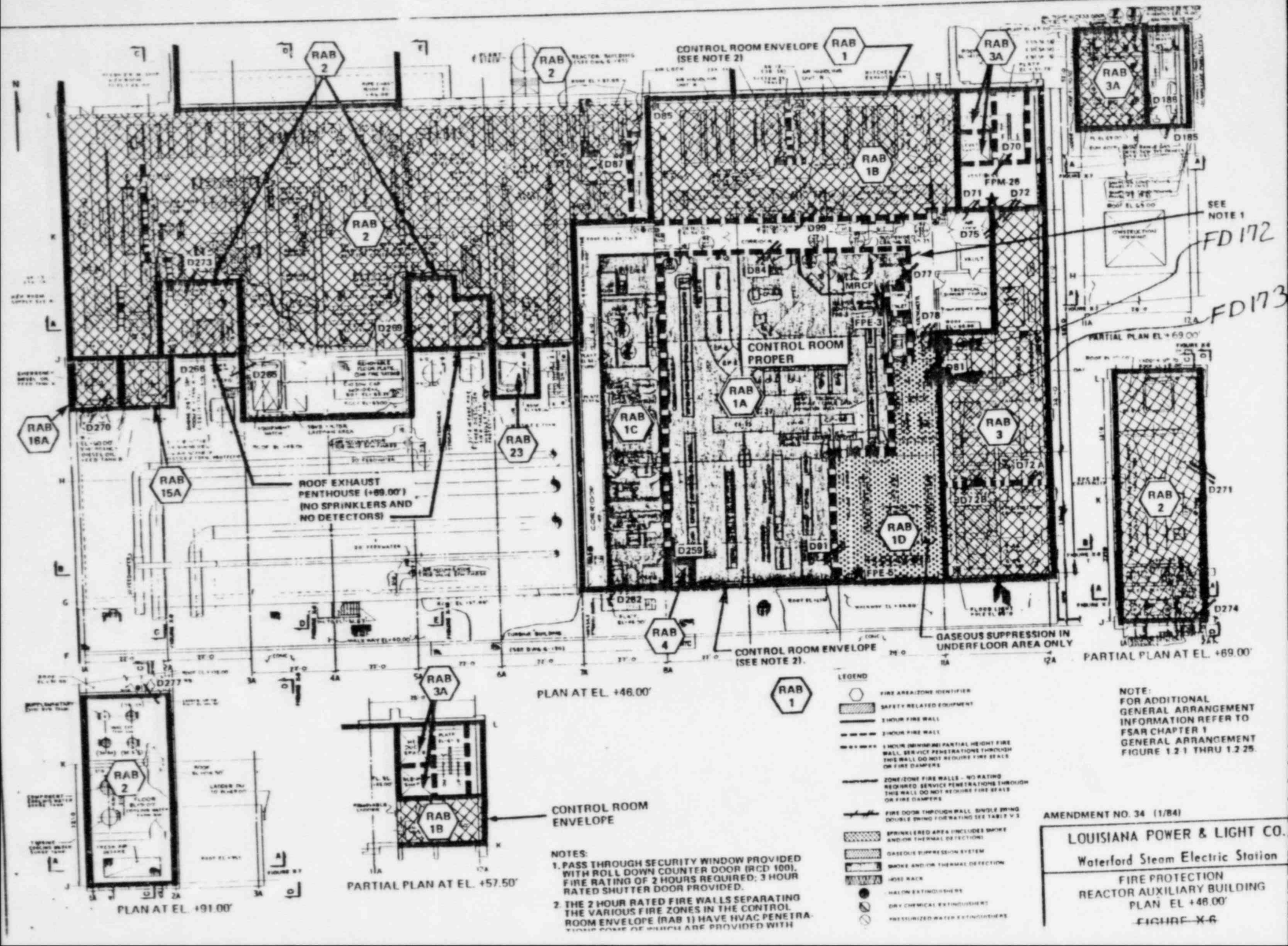
H.T Mech Shop HVAC

FIGURE - 5

DCN - HV - 343
PAGE 25 OF 41

PART OF RAB DWG
G - 859505 REV. 7
DR AE Lloyd DATE 3/10/94
CH. [illegible] DATE 3/11/94

FIGURE - 6


CONTROL ROOM ENVELOPE (SEE NOTE 2)
RAB 1
RAB 2
RAB 3A
RAB 1B
RAB 1A
RAB 1C
RAB 1D
RAB 3
RAB 4
RAB 16A
RAB 15A
RAB 23
CONTROL ROOM PROPER
ROOF EXHAUST PENTHOUSE (+89.00') (NO SPRINKLERS AND NO DETECTORS)
SEE NOTE 1
FD 172
FD 173
PARTIAL PLAN EL +69.00'
GASEOUS SUPPRESSION IN UNDERFLOOR AREA ONLY
CONTROL ROOM ENVELOPE (SEE NOTE 2).
PLAN AT EL. +46.00'
PARTIAL PLAN AT EL. +69.00'
PLAN AT EL. +91.00'
PARTIAL PLAN AT EL. +57.50'
CONTROL ROOM ENVELOPE
LEGEND
NOTES:
1. PASS THROUGH SECURITY WINDOW PROVIDED WITH ROLL DOWN COUNTER DOOR (RCD 100), FIRE RATING OF 2 HOURS REQUIRED; 3 HOUR RATED SHUTTER DOOR PROVIDED.
2. THE 2 HOUR RATED FIRE WALLS SEPARATING THE VARIOUS FIRE ZONES IN THE CONTROL ROOM ENVELOPE (RAB 1) HAVE HVAC PENETRATIONS SOME OF WHICH ARE PROVIDED WITH
NOTE:
FOR ADDITIONAL GENERAL ARRANGEMENT INFORMATION REFER TO FSAR CHAPTER 1 GENERAL ARRANGEMENT FIGURE 1.2-1 THRU 1.2-25.
AMENDMENT NO. 34 (1/84)
LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station
FIRE PROTECTION
REACTOR AUXILIARY BUILDING
PLAN EL +46.00'
FIGURE X-6

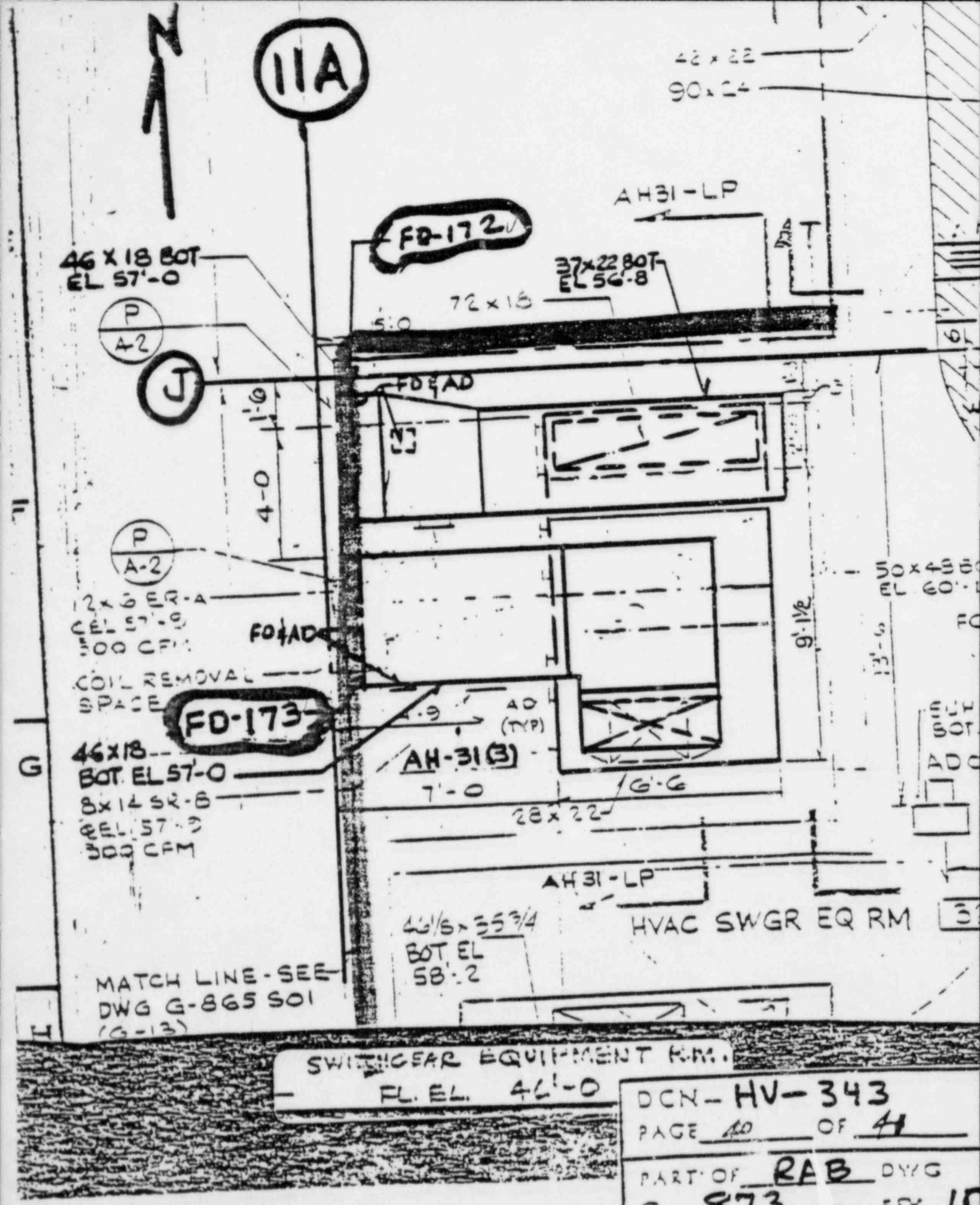
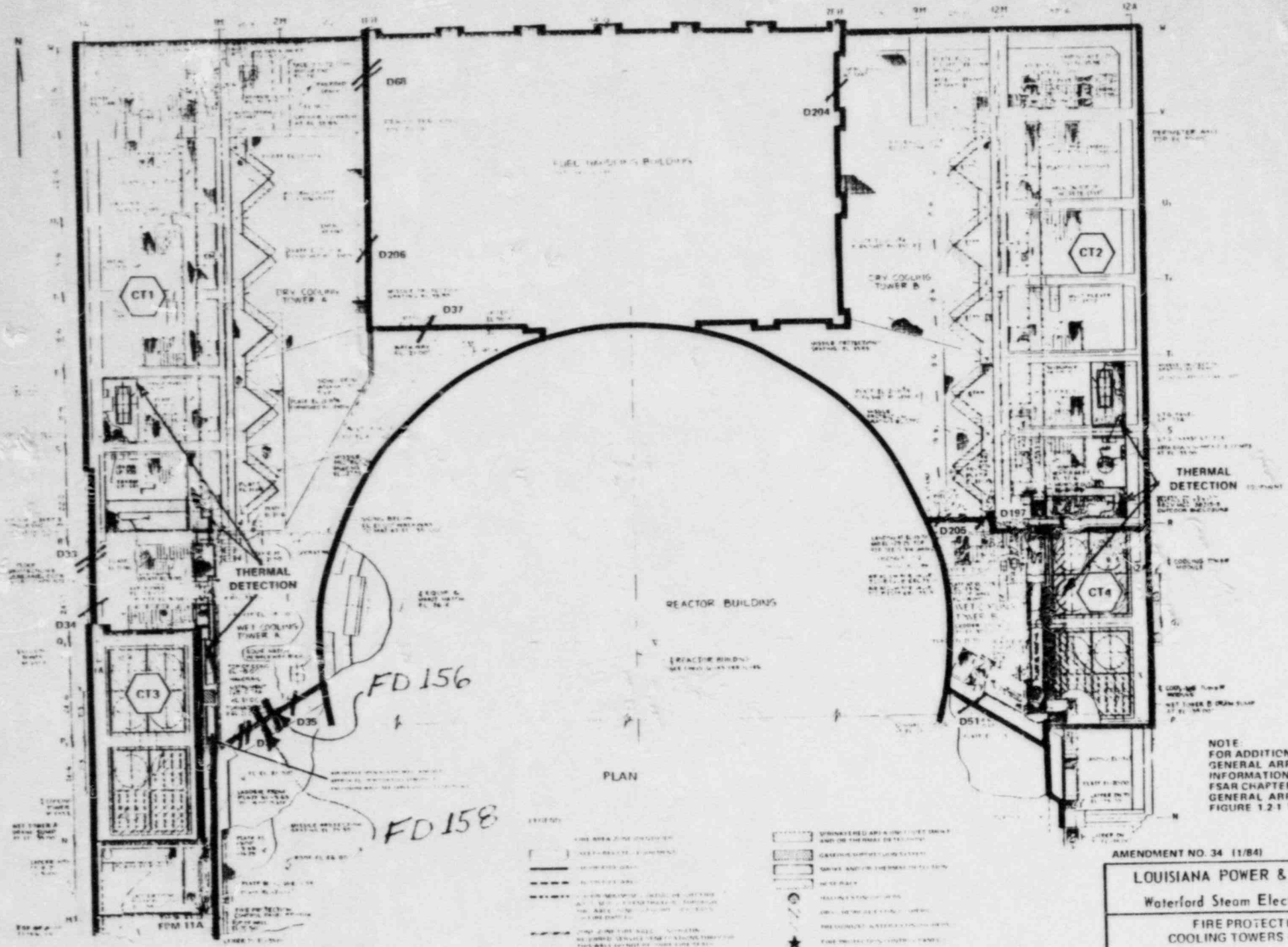

11A
FD-172
AH31-LP
46 X 18 BOT EL 57'-0
37x22 BOT EL 56'-8
72 x 15
P A-2
J
FD&AD
4'-0
12 x 6 ER-A EL 57'-9 300 CFM
COIL REMOVAL SPACE
FD-173
46x18 BOT EL 57'-0
8x14 SR-B EL 57'-9 300 CFM
AD (TYP)
AH-31(B)
7'-0
6'-6
28 x 22
AH31-LP
HVAC SWGR EQ RM
MATCH LINE - SEE DWG G-865 S01 (G-13)
SWITCHGEAR EQUIPMENT RM.
FL. EL. 41'-0
DCN - HV-343
PAGE 10 OF 41
PART OF RAB DWG
G-873
DR AE Lloyd
CH.
REV. 10
DATE 3/1
DATE 3/1

FIGURE - 7



AMENDMENT NO. 34 (1/84)

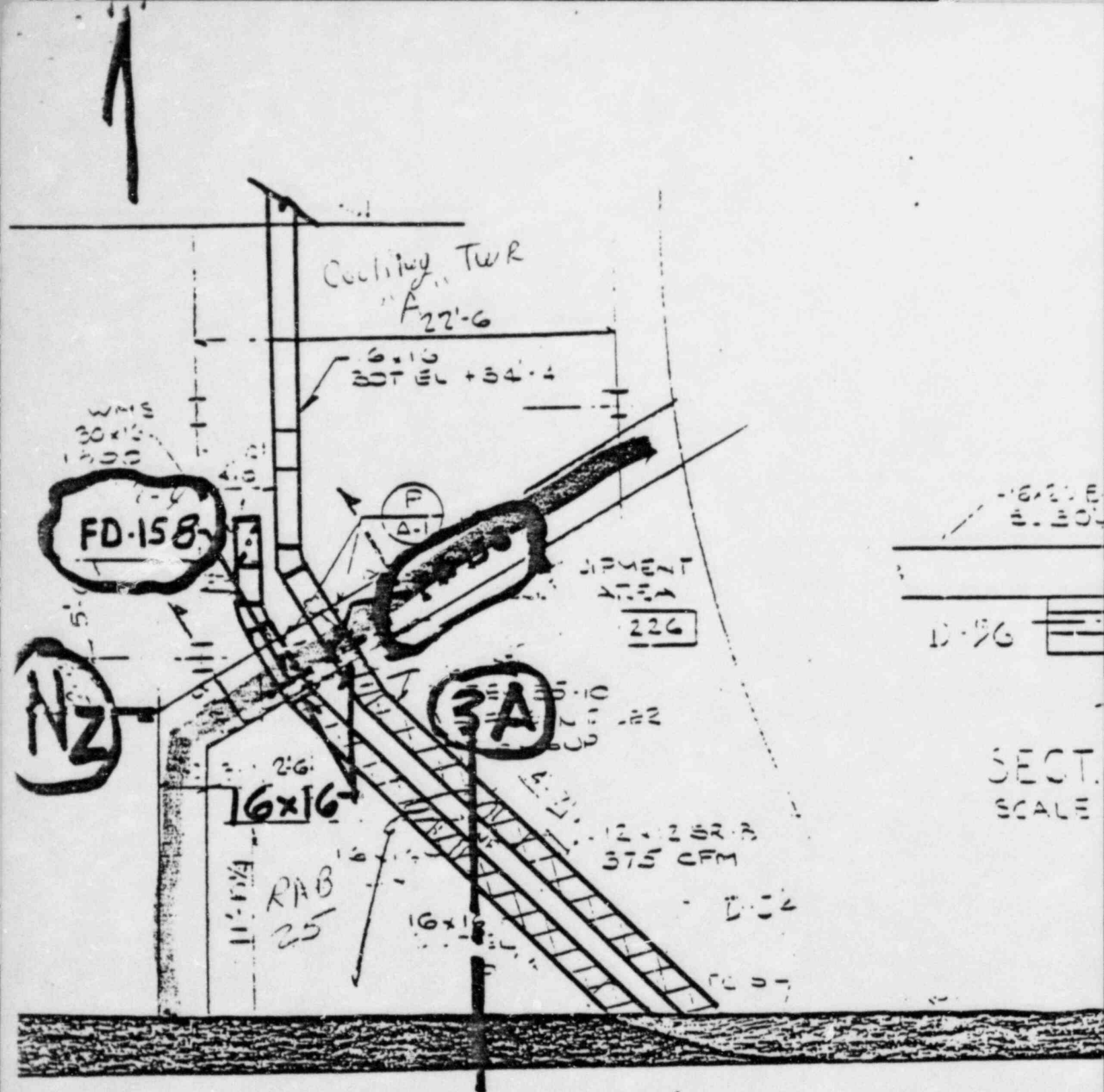
LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

FIRE PROTECTION
COOLING TOWERS – PLAN

~~FIGURE X-2~~

FIGURE 8



FL. PLAN +21'-0

FIGURE 9

DCN- HV-343
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PART OF RAB DWG
G- 859502 REV. 13
DR AE Lloyd DATE 3/12/8
CH. [illegible] DATE 3/16/8