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MCDUFFIE,M.A. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards responses to Auxiliary Sys Branch draft SER Open Items 134,135 & 224,re removal of barrier in fuel cask pool, crane load block & protection of circulating water sys.

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CP&L

Carolina Power & Light Company

SERIAL: LAP-83-224

JUN 30 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
UNIT NOS. 1 AND 2
DOCKET NOS. 50-400 AND 50-401
DRAFT SAFETY EVALUATION REPORT RESPONSES
AUXILIARY SYSTEMS BRANCH

Dear Mr. Denton:

Carolina Power & Light Company (CP&L) hereby transmits one original and forty copies of responses to Shearon Harris Nuclear Power Plant Draft Safety Evaluation Report Open Items. These responses are for the Auxiliary Systems Branch, and are CP&L Open Item Numbers 134, 135, and 224.

We will be providing responses to other Open Items in the Draft Safety Evaluation Report shortly.

Yours very truly,

M. A. McDuffie
Senior Vice President
Engineering & Construction

JDK/pgp (7036JDK)

cc: Mr. N. Prasad Kadambi (NRC)
Mr. N. Wagner (NRC)
Mr. G. F. Maxwell (NRC-SHNPP)
Mr. J. P. O'Reilly (NRC-RII)
Mr. Travis Payne (KUDZU)
Mr. Daniel F. Read (CHANGE/ELP)
Chapel Hill Public Library
Wake County Public Library
Mr. Wells Eddleman
Dr. Phyllis Lotchin
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Dr. Richard D. Wilson
Mr. G. O. Bright (ASLB)
Dr. J. H. Carpenter (ASLB)
Mr. J. L. Kelley (ASLB)

B030 1/1

411 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

JUN 3 0 1983

DOCKET NOS. 50-400 AND [illegible]

AUXILIARY SYSTEMS BRANCH

Dear Mr. Denton:

[illegible]
and forty copies of responses to Shearon Harris Nuclear Power Pl[illegible]
Safety Evaluation Report [illegible]
[illegible]

[illegible]

cc: Mr. N. Prasad Kadambi (PM)
Mr. A. Wagner (...)
Mr. J. P. O'Reilly (NRC-RII)
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Mr. [illegible] (CHANGE/FIX)
Chapel Hill Public Library
Wake County Public Library

Dr. Richard [illegible]
Mr. G. O. [illegible] (SLB)
Mr. J. O. [illegible] (ASB)
Mr. [illegible] (ASB)

Open Item 134 (ASB/NW-7), Question 410.11

Question

Provide additional information indicating how the removal barrier placed between the cask loading pool and the new fuel pool will prevent the spent fuel cask-handling crane from being inadvertently moved over the new fuel pool. We are concerned that since the new fuel pools may be flooded and used for storage of spent fuel, only administrative controls could prevent a heavy load on the spent fuel cask crane from moving over this spent fuel. Describe the design of the removal barrier, its stability against side thrust of the spent fuel cask, its resting position should it be toppled by the spent fuel cask and clearance around the in-place removable barrier to the new fuel pool.

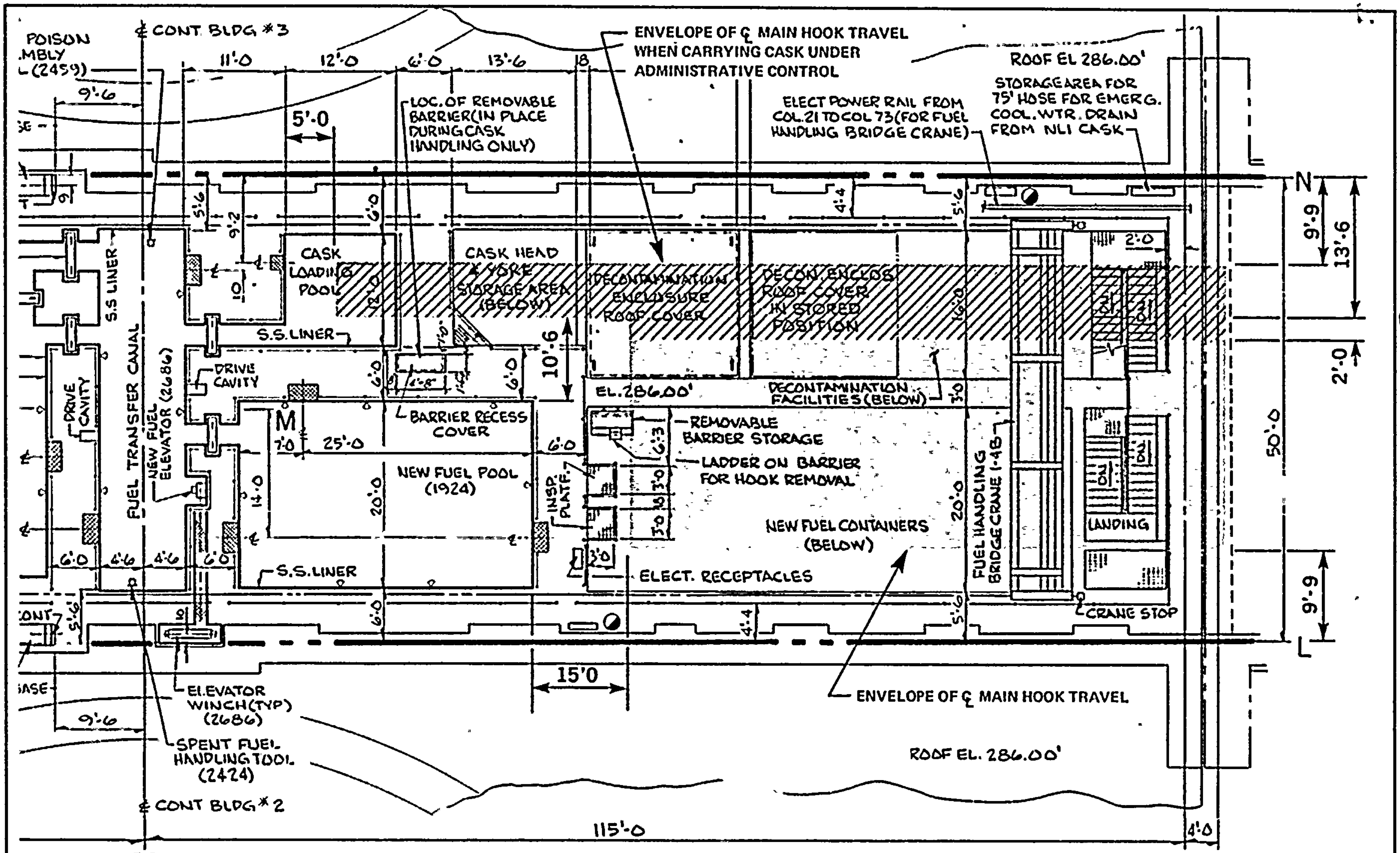
It is our position, based on NUREG-0612, Section 5.1.2, that mechanical or electrical stops be provided to restrict travel to the east from the cask loading area, and we are concerned that the removable barrier is an inadequate mechanical stop.

Response

The removable barrier is not designed to prevent the cask crane from being inadvertently moved over the new fuel pool. The function of the removable barrier is to prevent the cask, in the remote chance of being dropped on top of the dividing wall between the cask loading pool and cask head and yoke storage area, from toppling over and falling into the new fuel pool. The dropping cask, after landing on the dividing wall, may start to topple over and strike the barrier. The barrier is designed to withstand the striking force, thus, preventing the cask from falling into the new fuel pool. The removable barrier is 21 feet 6 inches in overall height. It is set in place by being lowered into a 4 feet deep recess in the concrete floor; therefore, the installed height is 17 feet 6 inches measured from the operating floor.

Travel of the center line of the main hook on the cask crane is restricted to the shaded area as shown on Figure 9.1.4-7 by a combination of limit switches and mechanical stops. Figure 9.1.4-7 has been marked to show additional information and is attached. During cask handling, the center line of the main hook is further restricted under administrative control to the path cross hatched on the figure.

Therefore, a combination of limit switches and mechanical stops do restrict the crane from the new fuel pool area, and the removable barrier is not used as a mechanical stop. Refer to FSAR Section 9.1.4.2.2.7 for further details on the spent fuel cask handling crane and the auxiliary crane.



PLAN AT EL. 286.00'

SHEARON HARRIS NUCLEAR POWER PLANT
Carolina Power & Light Company
FINAL SAFETY ANALYSIS REPORT

SPENT FUEL CASK CRANE MAIN HOOK AND CASK TRAVEL ENVELOPES – SHEET 1

FIGURE 9.1.4-7

REF DWG: CAR2165 G-022 (REV 7, OPEN)

Open Item 135

Describe how movement of the spent fuel cask-handling crane load block is prevented from going within a 15 foot horizontal distance of the new fuel pool during the time spent fuel is stored therein. Indicate how you will meet the recommendations of NUREG-0612 to prevent raising the spent fuel cask greater than 6 inches above the operating floor.

Response

Please reference FSAR Section 9.1.4.2.2.7 and the response to Open Item 134. The center of the main hook of the cask crane is prevented from coming within 15 feet of the north edge and 10 feet 6 inches of the west edge of the new fuel pool by limit switches. During the cask handling, the entire operation will also be under administrative control.

In case of a cask drop while the cask is being transported between the cask loading pool and cask decontamination area, the cask will either drop into a pit (cask loading pool, cask head and yoke storage area, or cask decontamination area) or be prevented from toppling over and falling into the new fuel pool by the removable barrier. (See response to Open Item 134)

Cask handling procedures will require additional links to be added to the lifting yoke to prevent the cask from being raised higher than 6 inches above the operating floor. The cask handling procedures will be in place 90 days prior to initial fuel load.

Open Item 135

Describe how movement of the spent fuel cask-handling crane is prevented [illegible] of the [illegible]
[illegible] how you will [illegible] to [illegible] prevent [illegible] the spent fuel [illegible]

Response

[illegible] 1984 [illegible] of [illegible] hook [illegible]
[illegible] the Safety Analysis [illegible] also be under [illegible] operation.

[illegible] to [illegible] both [illegible] a cask [illegible] control station area, either [illegible] (cask loading [illegible] storage [illegible] cask handling [illegible]
handler. (See response to Open Item 134)

[illegible] procedures will require [illegible] to the [illegible] to prevent the cask [illegible] above the operating floor [illegible] 90 days prior to initial fuel load.

Shearon Harris Nuclear Power Plant
Draft SER Open Item No. 224 (FSAR Section 10.4.5)

Demonstrate that the circulating water system meets the requirements of GDC 4 with respect to protection of safety related systems from failures in non-safety related systems. Postulated seismic failure of the circulating water piping allows water flow by gravity and siphoning to a common elevation in the cooling tower basin and turbine building basement. Water may reach several safety related areas via access from turbine building walls and doors not identified as seismic Category I and water proof for flooding.

Response

The areas of the Turbine Building containing circulating water pipes are separated from the buildings with safety related areas by continuous reinforced concrete walls as shown by shading in Figures 224-1 and 224-2. These walls are seismically designed to resist the seismic forces of the SSE and hydrostatic pressure that would be associated with flooding up to elevation 262 feet.

The seismic gap between Turbine Building number 1 and number 2 is provided with waterstops in locations as required to isolate the area from the effects of flooding.

As shown in Figure 224-1, the Unit 1 Turbine Building walls that isolate the circulating water pipe areas from safety related areas of the Reactor Auxiliary Building are the walls at column coordinates 7/Aa to 7Ak, 7/Ak to 9/Ap, 9/Ap to 42/Ap, 42/Ap to 42/Aa, 42/Aa to 43/Aa, 43/Aa to 43/Ap.

As shown on Figure 224-2, the Unit 2 Turbine Building walls that isolate the circulating water pipe areas from safety related areas of the Reactor Auxiliary Building are the walls at column coordinates 43/Aa to 43/Ap, 43/Ap to 75/Ap, 75/Ap to 75/Aa, 75/Aa to 76/Aa.

FSAR Section 10.4.3.5 will be revised to reflect this response in a future amendment.

[illegible] that the circulating water system [illegible] of [illegible] systems from failures in non-safety related systems. Postulated [illegible] turbine building [illegible] overall [illegible]

[illegible]

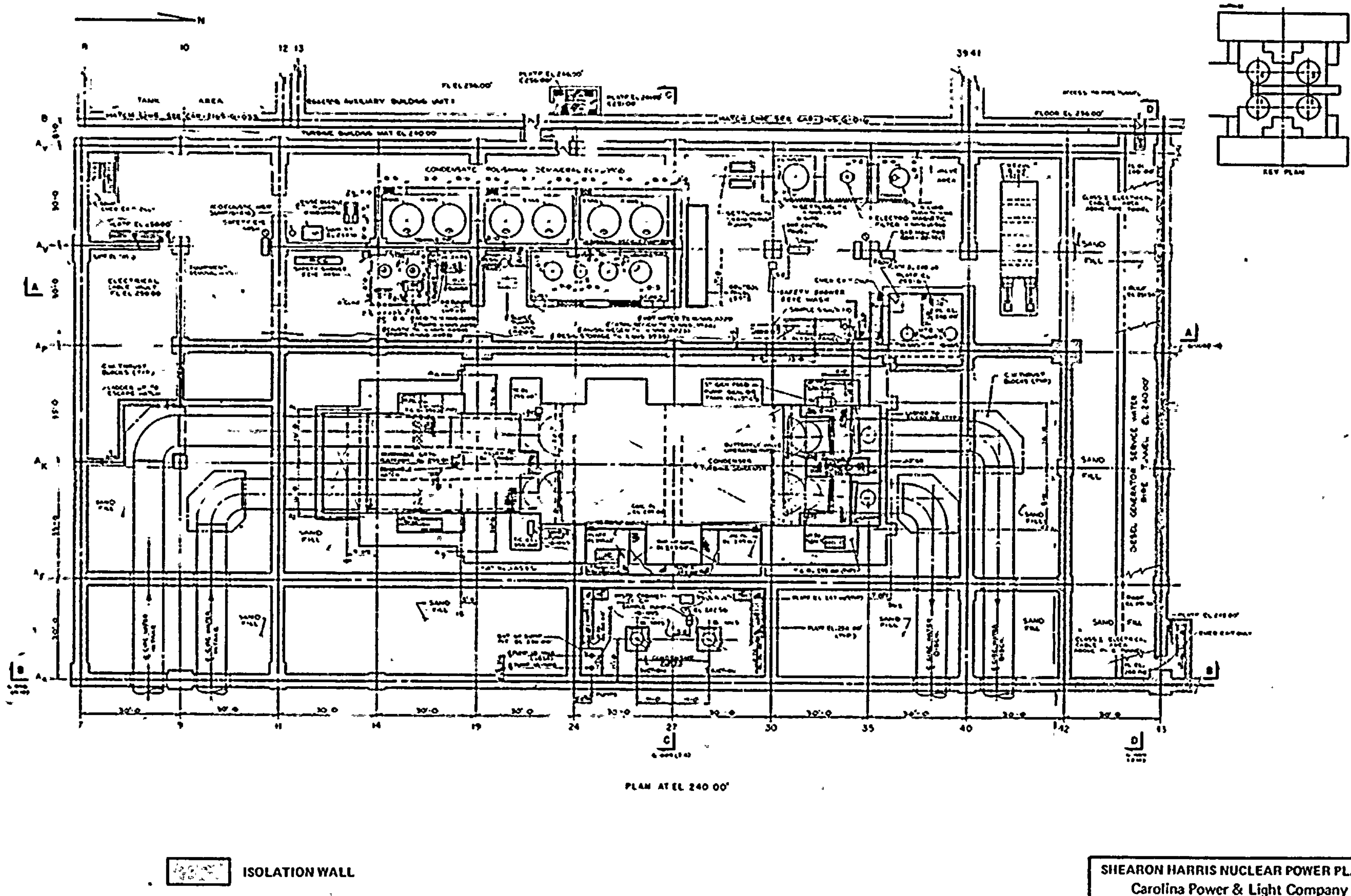
[illegible] are [illegible] as compared to [illegible] area from the effects of flooding.

[illegible]

isolate the circulating water pipe areas from [illegible] of the [illegible] Auxiliary building are [illegible] 82/As, 82/As to 83/As, 83/As to 84/As.

[illegible] to isolate the circulating water pipe areas from safety [illegible] of [illegible]

[illegible] are drawn.

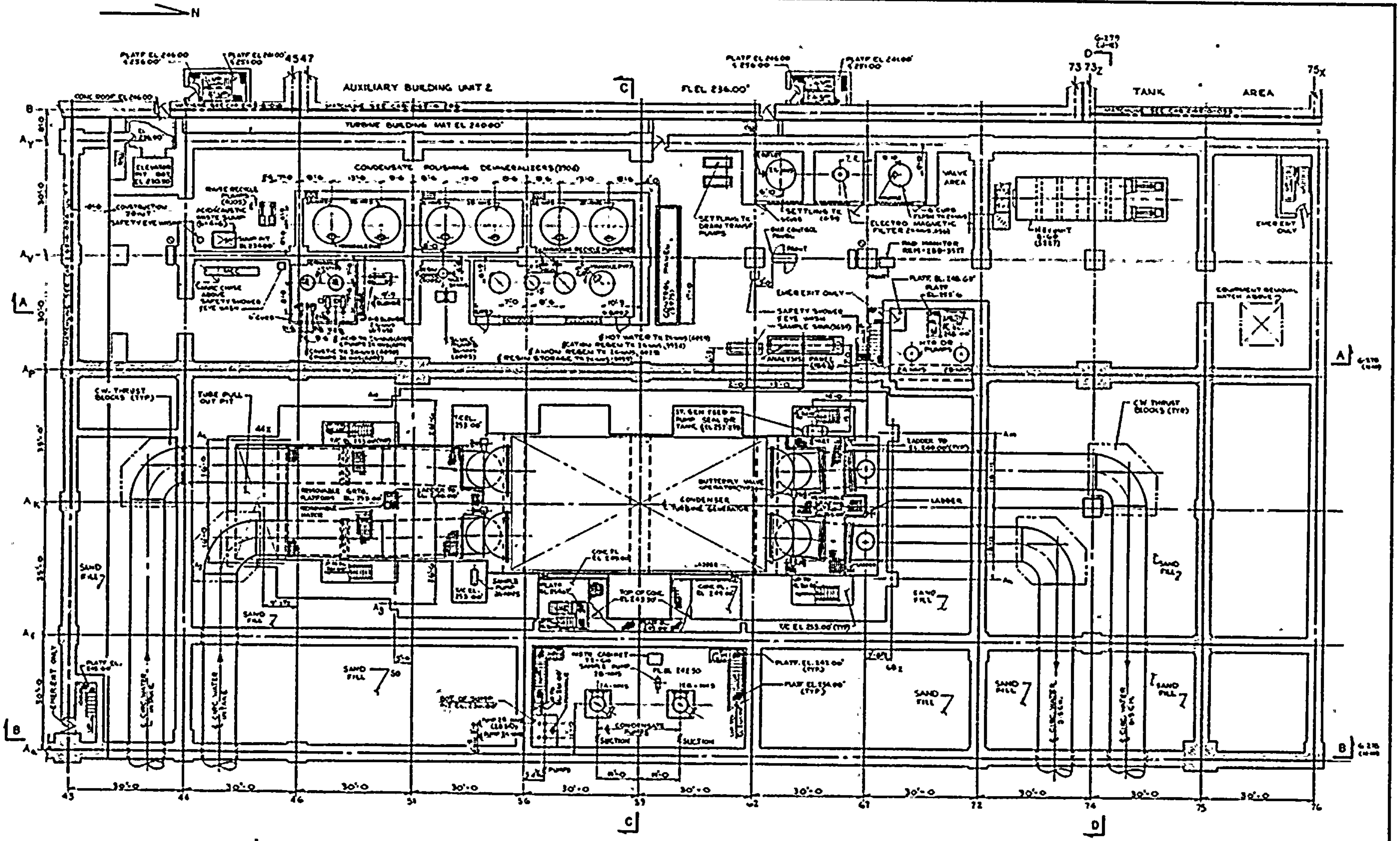


SHEARON HARRIS NUCLEAR POWER PLANT
Carolina Power & Light Company
FINAL SAFETY ANALYSIS REPORT

GENERAL ARRANGEMENT – TURBINE BUILDING – PLAN EL 240.00'
UNIT 1

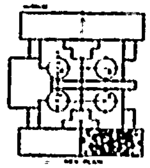
FIGURE 224-1

REF DWG: CAR 2165-G-004 (REV 3)



PLAN AT EL. 240.00'

ISOLATION WALL



REF DWG: CAR 2165-G-274 (REV 3)

SHEARON HARRIS NUCLEAR POWER PLANT
Carolina Power & Light Company
FINAL SAFETY ANALYSIS REPORT

GENERAL ARRANGEMENT – TURBINE BUILDING – PLAN EL 240.00'
UNIT 2

FIGURE 224-2

[illegible]

[illegible]