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Mr. Victor Stello	Florida Power & Light Company Miami, Florida Robert E. Uhrig	12/09/77
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DESCRIPTION

ENCLOSURE

Consists of requested additional info. concerning the inservice inspection program and pump & valve test program for Turkey Point Unit No. 4.....

PLANT NAME: Turkey Point Unit No. 4
RJL 12/13/77)(2-P) (17-P)

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FLORIDA POWER & LIGHT COMPANY

December 9, 1977
L-77-372

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

Dear Mr. Stello:

Re: Turkey Point Unit 4
Docket No. 50-251
Pump & Valve Program and
Inservice Inspection Program

On February 25, 1977, Florida Power & Light Company (FPL) submitted its proposed inservice inspection and pump & valve test programs for Turkey Point Unit 4. Proposed Technical Specification changes to conform the Technical Specifications to the revised programs were submitted as required by 10 CFR 50.55a (g)(5)(ii). A September 7, 1977 letter from your staff referred to our February 25 submittal and requested additional information for the purpose of evaluating our proposals. Our response to that request is attached.

As a result of the review which has been prompted by the request for additional information and discussions with your staff, FPL has made numerous changes in the proposed pump and valve test program for the purpose of providing additional clarification. Although we believe that none of these changes are of a substantive nature, we will nonetheless submit a revised program to replace in toto that which was forwarded to you on February 25. The revised program will be submitted to your office within a few weeks, after it has been reviewed and approved by our on-site and off-site review groups.

Our submittal of February 25 included proposed Technical Specification changes to conform the Technical Specifications to the requirements of the proposed test programs. As a result of our

revision of the programs, we are also revising the Technical Specification change proposal and intend to submit it along with the revised programs.

Very truly yours,

Robert E. Uhrig

Robert E. Uhrig
Vice President

REU/MAS/lah

Attachment

cc: Mr. James P. O'Reilly, Region II
Robert Lowenstein, Esq.

ATTACHMENT

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Pump & Valve Program and
Inservice Inspection Program

I INSERVICE TESTING OF PUMPS AND VALVES

Question 1

Provide a detailed technical justification for not testing at three month intervals for all Code Category A, B and C valves, which are specified to be tested at cold shutdown or refueling outages, in Table I of Attachment B.

Response 1

Subsection IWV-3410(a) of the Code requires that Code Category A and B valves be exercised once every three months, with exceptions as defined in IWV-3410(b)(1) (e) and (f). IWV-3520(a) requires that Code Category C valves be exercised once every three months with exceptions as defined in IWV-3520(b). In the above cases of exceptions, the Code permits the valves to be tested at cold shutdown where:

(a) It is not practical to exercise the valves to the position required to fulfill their function during plant operation.

(b) It is not practical to observe the operation of the valves (with fail-safe actuators) upon loss of actuator power.

Question 2

Provide justification for categorizing valves CV-4-2900, 2901, 2902 as Category B instead of Category C.

Response 2

Our categorization of valves CV-4-2900, 2901, and 2902 as Category (B) valves is a typographical error. These valves should be classified as Code Category (C) valves.

Question 3

Provide the exact test interval, for Code Category A, B and C valves listed in Table I; which are referenced with the number (3) in the test period column and is defined in the table legend as testing during operation.

Response 3

The test interval for these Code Category valves that are referenced with the number (3) (Operation) is defined as follows:

Code - 3 months or less.

Question 4

Provide the plant leak test procedure that is associated with test parameter (SLT-3) listed on many valves in Table I of Attachment B.

Response 4

A system re-analysis was performed on the Category (A) valves in Table I and Table II of Appendix B, with emphasis on the valves associated with test parameter (SLT-3). Coupled with a better understanding of the philosophies to be considered in addressing the Code requirements for the classification of Category (A) valves, the re-analysis concluded that the plant test procedures associated with test parameter (SLT-3) should be revised. Accordingly, test parameter (SLT-3) is not being used for this valve test program and is being replaced with test parameter (SLT-1), [Seat leakage test valve during refueling but less than every 2 years (Code)].

Question 5

Supply a detailed description, to justify the exceptions requested from Section XI Subsection IWV valve exercising, for all valves in Table II of Attachment B which reference item (E-5).

Response 5

An evaluation of the results of a comprehensive fluid system analysis concluded that it was impractical to perform the tests required by IWV-3410 or IWV-3520(b)(1) and (2) on the valves listed in Table II of Appendix B that reference (E-5) because the location, alignment, and orientation of the valves in the fluid system does not provide means for positive confirmation that either the valve disk has moved promptly off its seat or the valve disk is on its seat as required for the valve to fulfill its function.

The use of appropriate pressure indications in the fluid system or by other positive means to provide positive confirmation of appropriate valve disk position during the performance of required tests were considered as alternate methods. It was concluded that these alternate methods were impractical, except for certain valves that could be tested during refueling.

Further, the design of the valves does not provide for either visual observation of valve disk position by a positive indicating device or by an electrical signal initiated by a position indicating device.

Question 6

Supply a detailed description, to justify the exception requested from Section XI Subsection IWV valve seat leakage testing, for all valves in Table II of Attachment B which reference item (E-4).

Response 6

A system re-analysis was performed on the valves in Table II of Attachment B that utilize (E-4) as a basis for seat leakage test exceptions. Coupled with a better understanding of the philosophies to be considered in addressing the Code requirements for the classification of Category (A) valves, the analysis showed that we had improperly classified these valves. These valves are in interconnected process systems and serve as quality group classification boundary valves (i.e., Class 1, 2 and 3).

In fulfillment of its function, the seat leakage of the valve (s) is inconsequential to the safety of any of the safety related systems required to safely shutdown the reactor or mitigate the consequences of an accident.

Therefore, the Category (A) valves listed in Table II of Attachment B with (E-4) exceptions were reclassified to Category (B) or (E) valves and placed in the appropriate Table(s). The proper classifications of these valves therefore negates the justification for the exceptions taken for these valves as previously reported.

Question 7

Justify, for each valve in Table II of Attachment B that is referenced with the exception item (E-11), that a failure of this valve will not obstruct the operation of any safety related systems.

Response 7

We have reviewed the design of the valve(s) and the system function of the valve(s) in Table II of Attachment B that reference item (E-11). An evaluation of the results concluded that the valve(s) should either be tested to the requirements of Subsection IWV-3410 for Code Category (B) valves or the valve(s) be reclassified to the appropriate Quality Group. Accordingly, these valves were removed from Table II and therefore negates the exceptions taken for these valves as previously reported.

Question 8

Provide data to clarify the exemption requested from exercising valves to Section XI Subsection IWV-3420 listed in Table II of Attachment B with item (E-3).

Response 8

Technical Specification Figures 3.1-1a and 3.1-1b show the allowable pressure - temperature limits for the Reactor Coolant System (except for the pressurizer). During cold shutdown conditions, when the reactor coolant system temperature is maintained below 200°F, the maximum allowable reactor coolant system pressure shall be maintained at less than 500 psig.

During cold shutdown conditions, the pressurizer pressure control system is used to provide protection against overpressurization of the reactor coolant system. However, the reactor coolant system overpressure protection system may be removed from service when the reactor vessel closure head is removed from the reactor vessel during refueling. Therefore,

the valves in Table II, Attachment B that reference (E-3) are specified to be tested to Section XI, Subsection IWV-3410 during Test Period 1 (i.e., with reactor vessel head off) to avert a reactor coolant system overpressure condition.

The discharge pressure of the high head safety injection pumps is greater than 1400 psig when the pumps are operating at low flow conditions. Therefore, the valves in Table II, Attachment B that reference (E-3) are specified to be tested to Section XI, Subsection IWV-3520 during Test Period 1 (i.e., with reactor vessel head off) to avert a reactor coolant system overpressure condition when the high head safety injection pumps are operating for valve tests that could provide flow paths to the reactor coolant system.

Question 9

Discuss in detail the "loss of system function" for all valves in Table II, Atachment B referenced with the exemption request item (E-1) and justify why these valves cannot be tested at cold shutdown.

Response 9

The valves in Table II, Attachment B referenced with Item (E-1) are valves that are required to change position either by opening, closing, or opening and re-closing to perform their function to safely shutdown the reactor, to remove residual (decay) heat from the core, or to mitigate the consequences of an accident. Systems, or portions of systems, are required to remove residual (decay) heat from the reactor and to maintain the reactor in a safe shutdown condition.

Therefore, the failure in a non-conservative position of the valves listed in Table II, Attachment B could cause either (1) a "loss of system function" to remove residual (decay) heat from the fuel in the reactor core, (2) a "loss of system function" to add borated water to the reactor coolant system to maintain the reactor in a safe shutdown condition, (3) a "loss of system function" to maintain the operability of required air operated valves necessary to maintain the reactor coolant system in a safe shutdown condition, or (4) a "loss of system function" to maintain required engineered safeguard systems operable.

Question 10

Provide details of all valves in Table II.A of Attachment B

demonstrating that they fulfill non-safety related functions.

Response 10

We have reviewed the design function of the valves listed in Table II.A and have concluded that these valves, although not essential for safe shutdown of the reactor or to mitigate the consequences of an accident, should be reclassified according to their design function.

Therefore, the valves listed in Table II.A of Attachment B have been assigned to Table I, II, or III according to the design function of the valve. Thus, Table II.A has been eliminated from the valve test program.

Question 11

In Table IV "Pumps Test Program" describe alternative methods that will be utilized to establish flow rate Q for all pumps that will not have their flow rate measured directly.

Response 11

Table IWP-3100-1, Subsection IWP, ASME Section XI through Summer 1975 Addenda requires that in a fixed hydraulic resistance system it is required to measure differential pressure (ΔP) or flow rate (Q), not both. Similarly, in a variable hydraulic resistance system both ΔP and Q shall be measured. In Table II, "Pumps Test Program", while performing inservice tests of pumps installed in a variable hydraulic resistance system both the ΔP and Q will be measured.

However, while performing inservice tests of pumps installed in a fixed hydraulic resistance system only ΔP will be measured in accordance with the Code.

Question 12

Item (6), of Section I.C. of Attachment B, lists a table of requirements for valve testing which are not equivalent to Subsection IWV, ASME Section XI thru Summer 1975 Addenda, requirements. Provide a detailed technical justification for the parts of this table, specifically for Code Category (A) passive valves, which are not in agreement with Section XI.

Response 12

The Table represents a list of valve test requirements which are essentially exerpts from the above applicable Code, except for references to "Active" and "Passive" terms whose definitions are identified in Section I.C.(4) and I.C.(5), respectively.

Our assigning the terms "Active" and "Passive" (Ref. (1)a. above) in the Table does not change the test requirements from that of the ASME Section XI Code. Therefore, the Table is considered in agreement with the Code.

In the context of these requirements, Code Category (A) valves are classified as "Active" valves (I.C.4) when they are required to change position either by opening, closing, or opening and re-closing to either safely shutdown the reactor or mitigate the consequences of an accident; whereas "Passive" valves (I.C.5) are not required to change position to either safely shutdown the reactor or mitigate the consequences of an accident.

The valve exercise test requirements of IWV-3410 of the ASME Section XI Code imply that these tests only apply to those valves that are required to change position to fulfill their function. It is important to recognize that there are many valves that are not required to change position to fulfill their function (I.C.5). Consequently, these valves are already in their proper position and therefore, classified as Code Category (A) "Passive" valves. Accordingly, the Table does not require these valves to be exercised per IWV-3410 (b)(1), but requires these valves to be seat leakage tested per IWV-3420.

II. INSERVICE INSPECTION - CLASS 1 COMPONENTS

Question 1

Provide in Table 1 the inspection accomplished in Period 1 and the inspection to be done in Period 3 in order to establish compliance with the ASME Code, Section XI, Paragraph IWB-2411.

Response 1

The Long-term Plan tables will provide this information. These will be submitted with our revised program.

Question 2

With Regard to Item B1.14 of the Reactor Pressure Vessel (RPV) Cladding examination, indicate the extent to which you will comply with IWB-2411. At present all six patches are being examined during this period versus an even distribution during the 10-year interval.

Response 2

It is impractical to remove the core barrel every 3-1/3-year period for the examination of two cladding patches; therefore, all six patches are scheduled to be examined during this 3-1/3-year period since the core barrel is scheduled to be removed for other necessary work in the RPV. However, in the event that this does not occur during this period as presently scheduled, this examination for reasons defined herein will be conducted during the third period of the interval. If the core barrel is removed for other reasons during the third period then the opportunity will be utilized to reexamine at least two of the cladding patches.

Question 3

On Item B2.11 of the pressurizer examination provide the total number of bolts installed in the manway in order to clarify the extent of the examination.

Response 3

There are 16 bolts in the manway cover. The examinations were allocated approximately evenly between the three periods of the 10-year interval (5 bolts in the first period, 5 bolts in the second period and 6 bolts in the third period).

Question 4

On the Chemical and Volume Control System examination in loops 3"-CH-3, 3"-CH-5, and 2"-CH-7 provide data (figures or drawings) to support the statement that certain B-J welds within these loops cannot be examined due to inaccessibility. The welds in the order of loops listed above are 20, 21, 22; 27, 28, 29, 30; and 6, 7, 8.

Response 4

These welds are embedded in concrete and, therefore, they cannot be examined by any nondestructive testing (NDT) method. (See attached Figures A-22, A-23, and A-36.)

Question 5

In the valve examination portion of this submittal, examination of Category B-G-2 does not comply with the requirements of ASME Section XI, IWB-2411. Indicate how this examination will be conducted in the remaining period of the 10-year interval and how it was conducted during the initial period.

Response 5

During the first period of the 10-year interval, the Turkey Point Unit 4 Technical Specifications (Table 4.2-1, Item 6.5, G-2) required examinations to be performed on 33 per cent of the bolting in 5 years. The 5 year period has not expired, therefore, 50 percent of the valve bolting will be examined during the 1978 ISI and the remaining 50 percent during the third period of the 10-year inspection interval.

Question 6

Provide details of the ultrasonic testing procedure that will be utilized in inspection of Class 1 components.

Response 6

SwRI, which is the examination agency that provides the ISI services for Turkey Point Unit 4, has a multitude of ultrasonic procedures to be used for the Class 1 and Class 2 component examinations. These procedures are highly specialized for each type of component, are constantly upgraded to conform to Code requirements, incorporate recently developed techniques, and have been successfully demonstrated to be effective during many PSI's/ISI's. During the planning stages of each ISI, the procedures are tailored for the specific scheduled examinations and are reviewed for approval by FPL prior to any site examinations. These procedures are subject to review by the NRC I & E Compliance Inspector and the Code Authorized Inspector.

Question 7

Provide all figures referenced in this table for Class 1 examination.

Response 7

The Class 1 figures are in the process of being reviewed and updated to reflect changes and actual "as-built" conditions in the plant. A followup report will be submitted to the NRC by January 31, 1978, to give the status of the response to this question.

CLASS 2 COMPONENTS

Question 1

Provide in Table 2 the inspection accomplished in Period 1 and the inspection to be done in Period 3 in order to establish compliance with the ASME Code Section XI, Paragraph IWC-2411.

Response 1

No examination was accomplished in Period 1 of the 10-year inspection interval. Period 1 examinations were completed to the Turkey Point Unit 4 Technical Specifications, which did not require examination of class 2 components, prior to the effectivity date (January 7, 1977) of the program addressing the upgrading criteria of 10 CFR 50.55a(g). The 40-year plan will provide the examination requirements for period 3 of this interval.

Question 2

Clarify whether the Heat Exchanger item numbers taken from ASME Section XI, Table IWC-2600 should be C1.1, 1.2, 1.3, and 1,4 instead of C2.1, 2.2, 2.3, and 2.4 as identified in Table 2 of your submittal.

Response 2

The tables are being corrected to reflect the correct ASME Section XI item numbers for the Heat Exchangers which are C1.1, 1.2, 1.3, and 1.4.

Question 3

On Item C2.4 of the Residual Heat exchangers justify your intent to volumetrically examine 2% of the C-D bolting versus 10% as required by the Code.

Response 3

10 percent or 2 bolts, whichever is greater, will be examined in each joint as required by the Code. The 2 bolts scheduled were inadvertently shown as 2 percent due to a typographical error.

Question 4

Clarify the intent of the dashed lines shown on the 10"-SI-320 and 8"-SI-301 systems under the Category and item no. columns.

Response 4

Dashed lines under Item No. and Category columns indicate throughout the plan that the welds referenced have no Code requirements for examination. The dashed lines are used for accountability purposes.

Question 5

Items C3.1, 3.2, and 3.3 have been omitted from the examination requirements for the Class 2 charging pumps. Also, Items C4-1, 4.3, and 4.4 have been omitted for the Class 2 valves. Indicate that these items are non-existent or exemptions from these examinations are being requested.

Response 5

Item numbers (i.e., C3.1, 3.2 and 3.3, and C4.1, 4.3 and 4.4) which pertain to components and parts of the pumps and valves, respectively, to be examined in Table IWC-2600, were excluded from the program. The reason for the exclusions is that the valves (components) and parts in the program do not fall within the requirements of the applicable corresponding item numbers pertaining to the Examination Category of Table IWC-2520.

Question 6

Provide details indicating that there are no Items C4.1, C4.3, and C4.4 to be examined for the Class 2 valves.

Response 6

Same response as for Class 1 Components, Response 7.

Question 7

Justify your intent to volumetrically examine 2% of the Category C-D valve bolting versus 10% as required by the ASME Code.

Response 7

10% or 2 bolts, whichever is greater, will be examined in each joint as required by the Code. The 2 bolts scheduled were inadvertently shown as 2% due to a typographical error.

III PRESSURE TESTS

CLASS 1 COMPONENTS

Question 1

Provide all figures listed as references for the Class 1 pressure tests.

Response 1

The Class 1 figures are in the process of being reviewed and updated to reflect changes and actual "as-built" conditions in the plant. A followup report will be submitted to the NRC by January 31, 1978, to give the status of the response to this question.

Question 2

Indicate whether the 3"-RC-21 reactor coolant system will be pressure tested. It seems to be omitted from this table.

Response 2

The line will be pressure tested. It had been omitted from the table due to an oversight.

Question 3

Indicate in the table for Class 1 components when the system pressure tests will be performed during the 10-year interval.

Response 3.

The 10-year plan indicates that the tests are scheduled during the 9th outage, which is near the end of the inspection interval and, therefore, the schedule complies with Code requirements.

CLASS 2 COMPONENTS

Question 1

Provide levels of radiation in those cases where relief is requested due to high radiation.

Response 1

A followup report will be submitted to the NRC by January 31, 1978, to give the status of the response to this question.

Question 2

Provide all figures listed as references for the Class 2 pressure tests.

Response 2

The Class 2 figures are in the process of being reviewed to reflect actual "as-built" conditions in the plant. A followup report will be submitted to the NRC by January 31, 1978, to give the status of the response to this question.

CLASS 3 COMPONENTS

Question 1

Provide levels of radiation in those cases where relief is requested due to high radiation.

Response 1

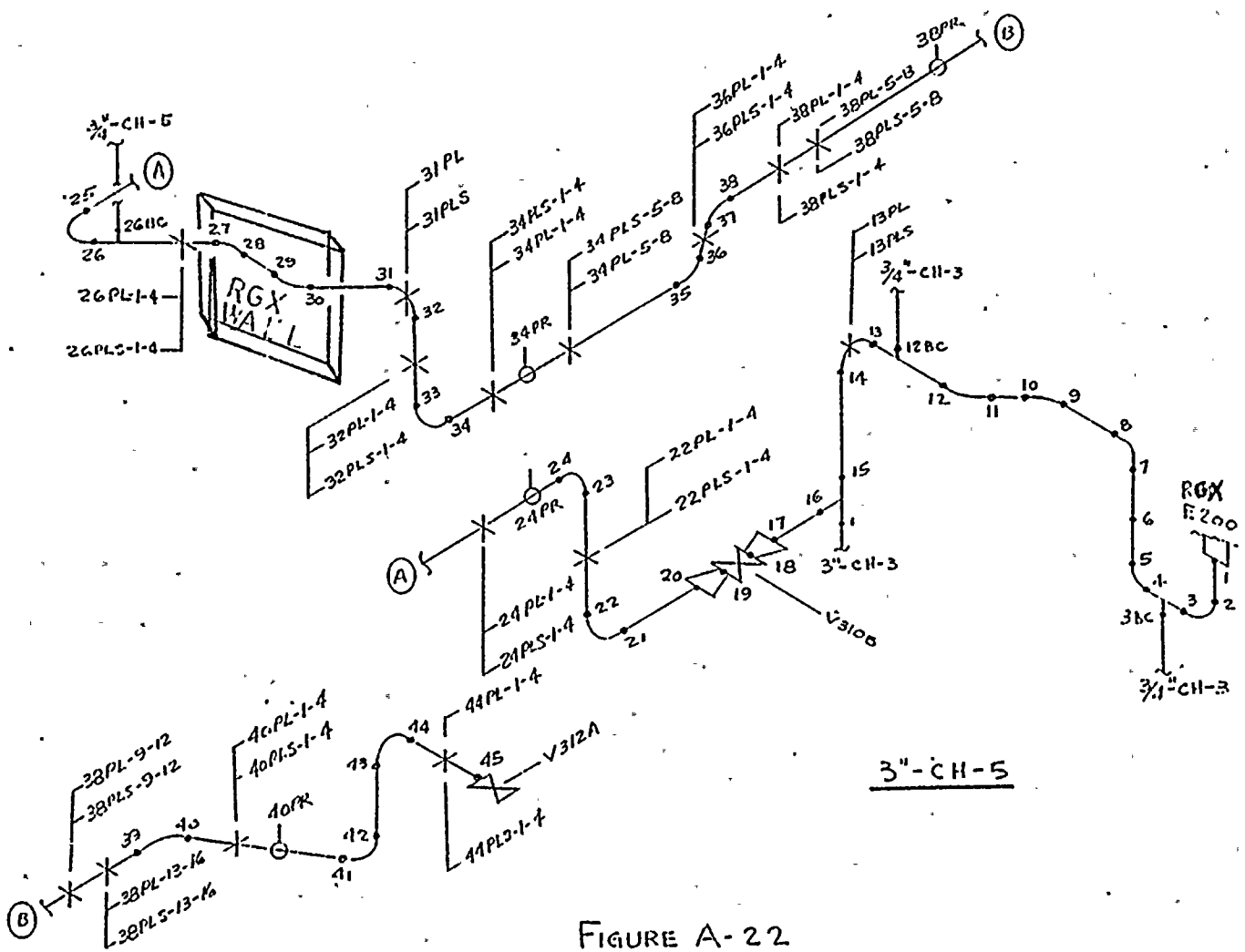
A followup report will be submitted to the NRC by January 31, 1978, to give the status of the response to this question.

Question 2

Provide all figures listed as references for the Class 3 pressure tests.

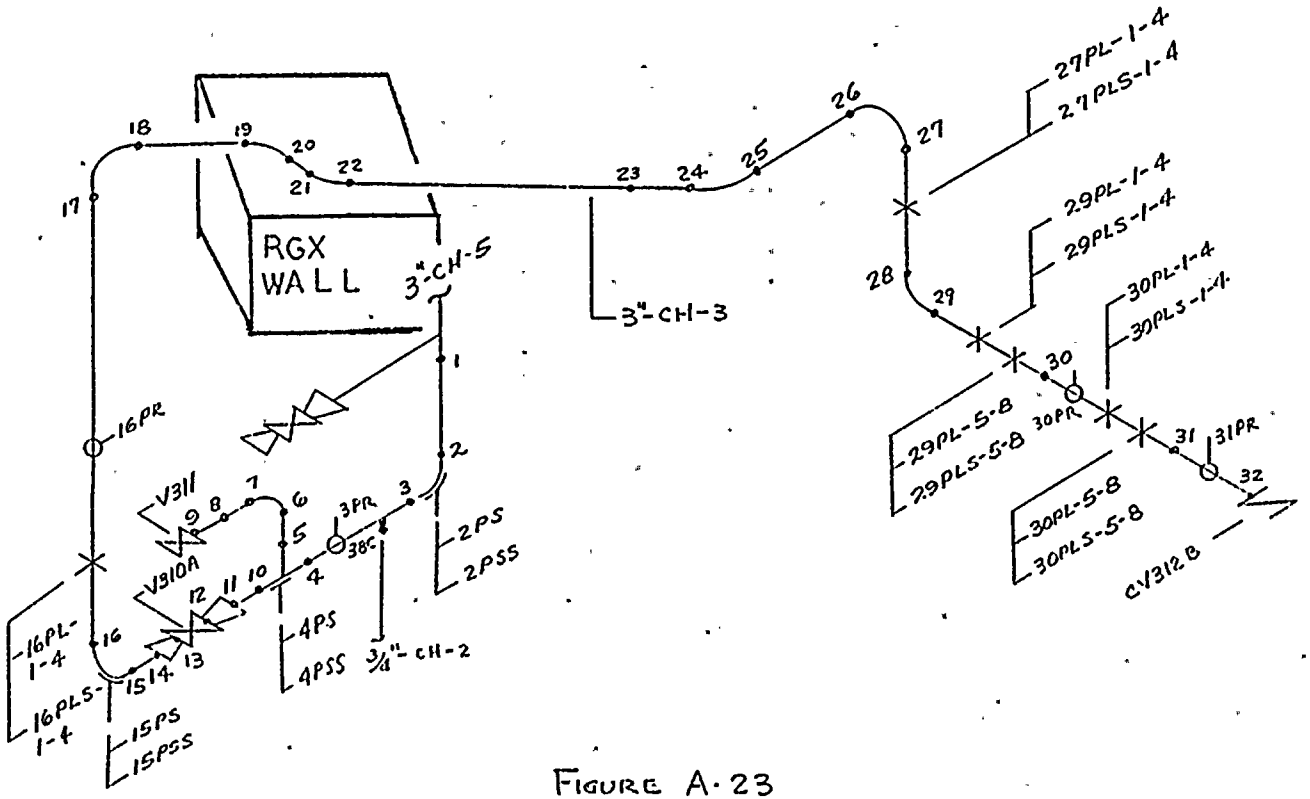
Response 2

The Class 3 figures are in the process of being reviewed to reflect actual "as-built" conditions in the plant. A followup report will be submitted to the NRC by January 31, 1978, to give the status of the response to this question.



3"-CH-5

FIGURE A-22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3"-CH-3
16PR
V311
V310A
3PR
3SC
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2PSS
4PS
4PSS
3/4"-CH-2
16PL-1-4
16PLS-1-4
15PS
15PSS
27PL-1-4
27PLS-1-4
29PL-1-4
29PLS-1-4
30PL-1-4
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31PR
CV312B

FIGURE A-23

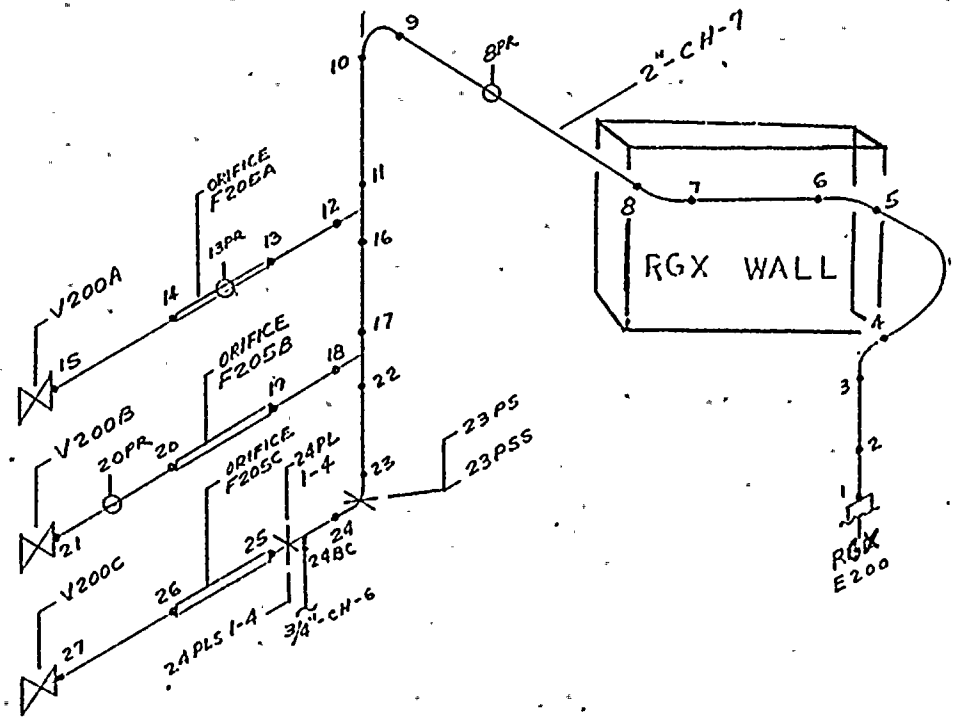
RGX WALL
2"-CH-7
8PR
ORIFICE F205A
13PR
V200A
ORIFICE F205B
20PR
V200B
ORIFICE F205C
24PL 1-4
V200C
24PLS 1-4
24BC
3/4"-CH-6
23PS
23PSS
RGX E200

FIGURE A-36