February 6, 1987

Docket No.: 50-461

Mr. Frank A. Spangenberg Manager-Licensing and Safety Clinton Power Station P.O. Box 678 Mail Code V920 Clinton, Illinois 61727

Dear Mr. Spangenberg:

SUBJECT: INSERVICE TESTING PROGRAM (IST) MEETING SUMMARY

As you are aware on December 9 and 10, 1986, the NRC staff, NRC contractors from EG&G and Illinois Power Company staff met in Bethesda, Maryland to discuss questions resulting from the staff's review of the Clinton Power Station pump and valve IST program.

The conclusions reached at this meeting are contained in the enclosed trip report which was prepared by our EG&G contractors.

If you have any questions related to this trip report please contact the Project Manager for your plant, Byron Siegel (301-492-9474).

Sincerely,

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Original Signed by

R. Caruso

(*T* Walter R. Butler, Director BWR Project Directorate No. 4 Division of BWR Licensing

Enclosure: As Stated

cc w/o enclosure: HShaw BDLiaw

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Mr. Frank A. Spangenberg Illinois Power Company

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FORM EGSG 460A		NOTEGRAM January 9, 1987	We value integrity and open communication.
To Horace Shaw		From	C. B. Ransom
OrgNRC/DBL/EB		Org	NRR and I&E Support
Address Bethesda, MD		Address	INEL-Idaho Falls, ID

# TRIP REPORT FOR THE PUMP AND VALVE INSERVICE TESTING PROGRAM WORKING MEETING FOR THE CLINTON POWER STATION

On December 9 and 10, 1986, a working meeting was held at the NRC offices in Bethesda, Maryland with Illinois Power Company, NRC, and EG&G Idaho, Inc. representatives to discuss the questions resulting from the review of the Clinton Power Station pump and valve inservice testing (IST) program. Attached is a list of the meeting attendees, the questions that served as an agenda for the meeting, and the responses to those quetions as taken from the meeting minutes and the written responses provided by Illinois Power Company. The utility representatives were given a brief introduction outlining the agenda and the methods used for the documentation of questions and responses. This was followed by detailed discussions roncerning specific pumps and valves in the Clinton Power Station IST program.

Those discussions resulted in an action item for the NRC staff and 16 action and 2 open items for Illinois Power Company (action items are areas where the utility and the NRC are in agreement but additional action is required in order to close out the item). These action and open items are identified in this trip report. There are several additional items where the utility has agreed to make corrections or changes to their IST program as indicated in the responses to the questions.

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Attachment: As Stated

- cc: E. C. Anderson
  - J. J. Lombardo, NRC/DBL/EB
  - H. L. Magleby
  - C. F. Obenchain
  - C. B. Ransom
  - H. C. Rockhold
  - B. Siegel, NRC/DBL/PD4

# ATTENDANCE LIST

### CLINTON POWER STATION PUMP AND VALVE INSERVICE TESTING PROGRAM WORKING MEETING

Dates: December 9 and 10, 1986

1. 1.

Representing	
NRR/DBL/EB	
NRR/DBL/EB	
NRR/DBL/PD4	
Illinois Power Company	
Illinois Power Company .	
Illinois Power Company	
Illinois Power Company	
EG&G Idaho Inc.	
EG&G Idaho Inc.	

# CLINTON POWER STATION PUMP AND VALVE INSERVICE TESTING PROGRAM QUESTIONS AND COMMENTS

### I. VALVE TESTING PROGRAM

#### A. General Questions and Comments

- Provide a listing of the limiting values of full-stroke time for all power operated values in the Clinton IST program for our review.
- Response: A table with limiting values of full-stroke times has been provided for all power operated values in the Clinton IST program.
- Are all valves that are Appendix J, Type C, leak-rate tested included in the Clinton IST program?
- Response: All valves that are Appendix J, Type C, leak-rate tested (except vent valves, drain valves, manual isolation valves, etc. which are exempt per Section XI, Paragraph IWV-1200) will be included in the Clinton IST program as Category A or A/C valves. Some containment isolation valves are leak-rate tested with water (Type B) and will also be included in the IST program.
- 3. The NRC has concluded that the applicable leak test procedures and requirements for containment isolation valves are determined by 10 CFR 50 Appendix J, however, the licensee must comply with the Analysis of Leakage Rates and Corrective Action Requirements paragraphs of Section XI, IWV-3420 (f) and 3420(g). Does the current Clinton IST program meet this NRC staff position?
- Response: Clinton Power Station (CPS) will comply with the Analysis of Leakage Rates and Corrective Action Requirements of Section XI IWV-3426 and 3427 (1980 Edition of the Code) except as modified

by relief request 056. Request 056 seeks relief from the requirement to assign a leak-rate limit to each specific containment isolation valve and proposes instead to assign a limit to each penetration. The staff finds the basis for requesting this relief and the proposed alternate testing to be acceptable.

4. Do the following valves receive an Appendix J leak rate test to verify their ability to perform a containment isolation function? If so, they should be categorized A or A/C as appropriate and be identified in the IST program as receiving a valve seat leakage test (Method of Testing 3 from Table 3.3-1).

System	Valves
Component Cooling Water System	1CC049 1CC050 1CC053 1CC054 1CC057 1CC060 1CC071 1CC072 1CC073 1CC074 1CC127 1CC128
Containment Monitoring System	1CM011 1CM012 1CM022 1CM023 1CM025 1CM026 1CM047 1CM048
Cycled Condensate System	1CY016 1CY017
Control Rod Drive System	1C11-F083 1C11-F122
Residual Heat Removal System	1E12-F004A 1E12-F004B 1E12-F011A 1E12-F011B 1E12-F021 1E12-F024A

System	Valves
Residual Heat Removal System (continued)	1E12-F024B 1E12-F027A 1E12-F027B 1E12-F028A 1E12-F028B 1E12-F037A 1E12-F037B 1E12-F046A 1E12-F046B 1E12-F046B 1E12-F046B 1E12-F064B 1E12-F064B 1E12-F064B 1E12-F074A 1E12-F074B 1E12-F074B
Low Pressure Core Spray System	1E21-F001 1E21-F012 1E21-F303 1E21-F340
High Pressure Core Spray System	1E22-F012 1E22-F015 1E22-F023 1E22-F304
Leakage Detection System	1E31-F014 1E31-F015 1E31-F016 1E31-F017 1E31-F018 1E31-F019
Reactor Core Isolation Cooling System	1E51-F019 1E51-F031 1E51-F063 1E51-F064 1E51-F068 1E51-F076 1E51-F078 1E51-F316
Fuel Pool Cooling and Cleanup System	1FC007 1FC008 1FC036 1FC037

System	Valves
Fire Protection System	1FP050 1FP051 1FP052 1FP053 1FP054 1FP092
Reactor Water Cleanup System	1G33-F028 1G33-F034 1G33-F039 1G33-F040 1G33-F053 1G33-F054
Combustible Gas Control System	1HG001 1HG004 1HG005 1HG008
Instrument Air System	11A005 11A006 11A012A 11A012B 11A013A 11A013B 11A042A 11A0428
Makeup Condensate System	0MC009 0MC010
Process Sampling System	1PS004 1PS005 1PS009 1PS010 1PS016 1PS017 1PS022 1PS023 1PS031 1PS032 1PS034 1PS035 1PS037 1PS038 1PS037 1PS038 1PS047 1PS048 1PS055 1PS056 1PS059 1PS070

System	Valves
Breathing Air System	0RA026 0RA027 0RA028
Equipment Drain System	1RE021
	1RE022
Floor Drain System	1RF021 1RF022
Service Air System	1SA029 1SA030
Suppression Pool Cleanup System	1SF001 1SF002 1SF004
Shutdown Service Water System	15X088A 15X088B 15X089A 15X089B 15X096A 15X096B 15X097B
Drywell Cooling System	1VP004A 1VP004B 1VP005A 1VP005B 1VP014A 1VP014B 1VP015A 1VP015B
Drywell Purge System	1VQ004A 1VQ004B 1VQ006A 1VQ006B
Containment Ventilation System	1VR001A 1VR001B 1VR002A 1VR002B 1VR035 1VR036 1VR040 1VR041

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System	Valves
Chilled Water System	1W0001A
	100018
	1W0002A
	1W0002B
Solid Radwaste System	1WX019
	1WX020

Response: As stated in the response to I.A.2 above, all valves that are Appendix J, Type C, leak-rate tested will be included in the IST program as Category A or A/C valves (except those valves that are exempt per IWV-1200). This applies to all of the above listed valves except the following, which are not currently tested as containment isolation valves.

10057	1E21-F303	1E31-F014
100128	1E21-F340	1E31-F015
1E12-F046A	1E22-F304	1E31-F017
1E12-F0468	1E51-F316	1E31-F018
1E12-F046C	ORA028	0RA029

- 5. Are any values at Clinton Power Station currently leak-rate tested to verify a pressure boundary isolation function? Those values that serve both a pressure boundary isolation function and a containment isolation function must be leak tested to both the Appendix J and Section XI requirements.
- Response: All valves that are identified in the Clinton Plant Technical Specifications as pressure boundary isolation valves are included in the IST program as Category A or A/C valves. Any of these valves that also perform a contament isolation function are leak-rate tested to both the Appendix J and the Technical Specification requirements for pressure isolation valves.

6. The Code permits values to be exercised during cold shutdowns where it is not practical to exercise during plant operation and these values are specifically identified by the licensee and are full-stroke exercised during cold shutdowns. The staff requires that the licensee provide a technical justification for each value that cannot be exercised quarterly during power operation that clearly explains the difficulties or hazards encountered during that testing. The staff will then verify that it is not practical to exercise those values and that the testing should be performed during cold shutdowns. Cold shutdown testing of values identified by the licensee is acceptable when the following conditions are met:

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- a. The licensee is to commence testing as soon as the cold shutdown condition is achieved, but not later than 48 hours after shutdown, and continue until complete or the plant is ready to return to power.
- b. Completion of all valve testing is not a prerequisite to return to power.
- c. Any testing not completed during one cold shutdown should be performed during any subsequent cold shutdowns starting from the last test performed at the previous cold shutdown.
- d. For planned cold shutdowns, where ample time is available and testing all the valves identified for the cold shutdown test frequency in the IST program will be accomplished, exceptions to the 48 hours may be taken.

Does the Clinton IST program conform to this staff position for all valves tested on a cold shutdown frequency?

Response: Valves that cannot be exercised during power operations which are tested during cold shutdowns will be specifically identified in the IST program and a justification for this test

frequency will be provided. Clinton will perform the cold shutdown testing in accordance with the above guidelines. When valve testing cannot be performed during power operations or cold shutdown, a specific request for relief will be provided.

- 7. The Clinton IST program valve listing table does not identify the testing frequency for each individual valve. Therefore, it was assumed that unless indicated otherwise in a comment or a relief request, the tests are performed at the Code specified frequency of once every 3 months for tests 1, 2, and 7; at refueling outages but not less than once every two years for test 3; and in accordance with Table 3510-1 for test 5. Does the Clinton IST program conform to these Code requirements?
- Response: Revision 1 of the Clinton Power Station Inservice Pump and Valve Testing Program, dated November 1985, clarified that the valve testing frequencies are in compliance with the Section XI requirements.
- 8. Many Clinton IST program relief requests specify that the valves will be exercised "during cold shutdown or refueling outages." The use of the word "or" implies that an option exists for the frequency of performing the testing. For valve testing purposes, the NRC differentiates between the cold shutdown mode and the refueling cutage mode. That is, for valves identified for testing during cold shutdowns, it is expected that the tests will be performed both during cold shutdowns (in accordance with the Staff positions in A.6 above) and during each refueling outage. However, when relief is granted to perform tests on a refueling outage frequency, testing is expected only during each refueling outage. In addition, for extended outages, tests being performed are expected to be maintained as closely as practical to the Code-specified frequencies.

For the purposes of this review, when the alternate testing specified "cold shutdown or refueling outages" it was assumed that the testing was to be performed on the cold shutdown frequency and the word "and" was substituted for "or" in the relief requests. Specifically identify any cases where this assumption is not correct and provide a technical justification for not exercising the involved valves during cold shutdowns.

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- Response: Revision 1 of the Clinton IST program deleted the usage of the phrase "during cold shutdowns or refueling outages" in the program relief requests.
- 9. Are remote position indicators being verified in accordance with the requirements of Section XI, IWV-3300 for all applicable valves in the Clinton IST program?
- Response: All remote position indicators will be tested every 2 years as required by the Code.
- 10. When flow through a check valve is used to indicate a full-stroke exercise of the valve disk, the NRC staff position is that verification of the maximum flow rate identified in any of the plant's safety analyses through the valve would be an adequate demonstration of the full-stroke requirement. Any flow rate less than this will be considered partial-stroke exercising unless it can be shown (by some means such as measurement of the differential pressure across the valve), that the check valve's disk position at the lower flow rate would permit maximum required flow through the valve. Does the linton IST program conform to this staff position?
- Response: Where flow through a check valve is utilized to verify full-stroke capability, the maximum flow rate utilized in the safety analysis will be the flow rate used. Where this flow rate cannot be achieved, the valve will be considered to be

partial-stroke exercised. Mechanical exercising of a check valve is also an acceptable method for full-stroke verification either by utilizing a mechanical exerciser or by disassembly and inspection. CPS will review all instances of proposed partial-stroke exercising of check valves and modify the affected relief requests where necessary.

- 11. If a manual operator is used to full-stroke exercise check valves that cannot be full-stroke exercised with flow, is the force or torque that is applied to the mechanical exerciser measured to assure compliance with IWV-3520(b)(2)?
- Response: When a manual operator is used to full-stroke exercise a check valve, the torque or force required to stroke the valve will be measured and compared to acceptance criteria.
- 12. The NRC staff position is that the emergency diesel generators perform a safety-related function and that the appropriate valves in the emergency diesel air start, cooling water and fuel oil transfer systems should be included in the IST program and be tested in accordance with the Code. Engine mounted pumps are considered to be part of the diesel and need not be tested separately.
- Response: Revision 1 of the Clinton IST program included the following emergency diesel generator system valves:

1DG007E	10G008E	100001A
10G007F	10G008F	100001B
10G008A	10G008G	1000010
10G008B	10G008H	15X006C
10G008C	10G008J	15X063A
10G008D	10G008K	1SX063B

Section H of this report contains specific questions and responses concerning diesel generator subsystem valves.

- 13. Do the valves identified in Table 200-1 in relief request 200 perform safety related functions? If they do, they should be included in the valve listing table of the IST program and be tested in accordance with the Section XI requirements (stroked, stroke timed, fail-safe tested, position verification tested, etc., as applicable) unless specific relief is requested for individual valves or groups of valves in similar applications.
- Response: Revision 1 of the Clinton IST program deleted relief request 200. Some of the valves on Table 200-1 were included in the valve listing table of Revision 1 of the Clinton IST program. Some of the valves from Table 200-1 perform no safety function and were deleted from the Clinton program in Revision 1. The following valves perform a safety function and will be included in the IST program.

1FCO18A	1FC020A	IFC022A
1FC0188	1FC020B	1FC0228
1FC073	1FC077	1FC096

14. IWV-3412 states that if only limited operation of a valve is practical during plant operation, the valve should be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Does the Clinton IST program comply with this Code requirement? If so, identify those valves that receive a partial-stroke exercise. For valve testing purposes, the NRC differentiates between the cold shutdown mode and the refueling outage mode. That is, for valves identified for testing during cold shutdowns, it is expected that the tests will be performed both during cold shutdowns (in accordance with the Staff positions in A.6 above) and during each refueling outage. However, when relief is granted to perform tests on a refueling outage frequency, testing is expected only during each refueling outage. In addition, for extended outages, tests being performed are expected to be maintained as closely as practical to the Code-specified frequencies.

Response: Clinton Power Station will review their value testing program to verify that this Code requirement and staff position is met or specific relief will be requested.

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### B. Main Steam System

- Are valves F022A through D and F028A through D full-stroke exercised quarterly during power operations? If not, describe the testing that is performed and provide either a cold shutdown justification or a relief request for these valves.
- Response: These valves cannot be full-stroke exercised quarterly during power operation since repeated closure during plant operation would result in degradation of the seating surfaces of these containment isolation valves. Also, closure during fill power operation could result in a plant trip due to steam flow imbalance. These valves will be partial-stroke exercised quarterly and full-stroke exercised during cold shutdowns.
- Do valves F022A through D and F028A through D have a required fail-safe position? If so, their fail-safe operation should be verified quarterly by performing test 7.
- Response: These valves are fail-safe tested during the cold shutdown exercising mentioned in the response to question B.1 above.
- 3. Define what is meant by "extended cold shutdown" in relief requests 015 and 016. If these valves are not tested on a cold shutdown frequency as described in A.6 and A.8 above, then the detailed technical justifications for not testing these valves during cold shutdowns should be included in the relief requests.
- Response: Revision 1 of the Clinton IST program deleted the phrase "extended cold shutdown."

 Provide the detailed technical justification for not exercising the valves listed in relief request 042 during cold shutdowns.

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- Response: Relief request 042 will be revised to discuss the consequences of failure of these check valves during power operation. These valves will be exercised closed during cold shutdowns.
- 5. The safety relief values that also perform the ADS function should be categorized B/C in the IST program and be exercised in accordance with Section XI as Category B power operated values to verify their ability to perform the ADS function as well as the safety relief value function. Which main steam safety relief values perform the ADS function?
- Response: The ADS valves are 1821-F041B, C, D, and F; 1821-F047A and C; and 1821-F051G. These valves will be categorized B/C and will be full-stroke exercised on a refueling outage frequency. These valves cannot be exercised quarterly during power operations because failure of a valve in the open position would place the plant in a LOCA condition. These valves should not be exercised during cold shutdowns in order to reduce the number of challenges to safety/relief valves as recommended by NUREG-0737 and a recent study on the subject (BWR Owners Group Evaluation of NUREG-0737 Item II.K.3.16 Reduction of Challenges and Failure of Relief Valves).

It is <u>ACTION ITEM</u> for CPS to determine if repeatable and representative stroke times can be measured for the ADS valves which would allow for evaluation of valve degradation.

6. Since the upstream MSIVs are exercised quarterly, provide the justification for not exercising valves 1821-F098A, B, C, and D quarterly during power operation.

Response: Revision 1 relief request 053 states that the MSIVs will be partial-stroke exercised quarterly during power operations and full-stroke exercised quarterly during cold shutdowns. Valves 1821-F098A, B, C, and D are not designed to be partial-stroked. These valves will be full-stroke exercised during cold shutdowns for the same reasons as given for the MSIVs in relief request 053. These valves are currently being reviewed to determine if they perform any safety function.

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- 7. Do valves 1821-F021, F033, F068, and F069 (M05-1002/2 Coordinates B-4, C-4, D-4, and D-4 respectively) perform any safety related function?
- Response: Valves 1821-F021, F033, F068, and F069 do not perform any safety function and need not be included in the Clinton IST program.
- 8. Relief request 001 identifies the reason that it is impractical to exercise the listed valves during plant operation and then states that the valves are to be exercised during refueling outages. IWV-3412(a) requires that valves that cannot be exercised during plant operation should be specifically identified by the owner and should be full-stroke exercised during cold shutdowns. Unless a specific technical justification is provided for not exercising these valves during cold shutdowrs, they must be exercised at that frequency as described in IWV-3412(a) and in A.6 above.
- Response: This is an <u>ACTION ITEM</u> for CPS to determine if valves 1821-F010A, F010B, F032A, and F032B can be exercised closed during cold shutdowns.
- 9. Are valves 1821-F001 and F002 ever required to change position in order to mitigate the consequences of an accident, shutdown the reactor to the cold shutdown condition, or to perform any other safety related function? If so, they are active valves and must be exercised

and have their stroke times measured quarterly in accordance with the Code. If not, they should be identified as being passive values in the IST program.

- Response: These are passive valves that are not required to change position in order to perform any safety function. These and all other passive valves will be specifically identified as being passive in the IST program.
- Provide the technical justification for not exercising the valves listed in relief request 003 during cold shutdowns.
- Response: Valves B21-F037 A-H, J-N, P, R, S; B21-F078 A-H, J-N, P, R, S; B21-F379 A-H, J-N, P, Q, R and B21-F040, the safety relief valve discharge and vent line vacuum breakers, are inside containment and cannot be exercised during plant operations. It is an <u>ACTION ITEM</u> for CPS to determine if these valves can be exercised during cold shutdowns.
- Provide the technical justification for not exercising valves
   1821-F065A and B during cold shutdowns (see relief request 004).
- Response: It is an <u>ACTION ITEM</u> for CPS to determine if valves 1821-F065A and B can be exercised during cold shutdowns.

# C. Reactor Recirculation System

- Do valves 1833-F019 and F020 have a required fail-safe position? If so, the fail-safe position for these valves should be verified in accordance with IWV-3415.
- Response: Valves 1833-F019 and F020 will be fail-safe tested to the Code requirements.

- Are valves 1833-F013A, F013B, F017A, and F017B Appendix J leakrate tested? If so, they should be included in the IST program as Category A/C valves.
- Response: These valves are not currently Appendix J, Type C, leak-rate tested and need not be included in the IST program.

### D. Component Cooling Water System

- What is the safety related function of check valves iCC188A and 188B? If the safety function is to close, how are these valves verified in the closed position guarterly?
- Response: Valves ICC188A and 1888 do not perform a safety function and need not be included in the IST program.
- Do valves 10065, 067, 068 and 070 perform any safety related function? If so, they should be included in the IST program as Category B valves.
- Response: Valves 10065, 067, 068, and 070 do not perform any safety function and need not be included in the IST program.
- Provide the technical justification for not exercising the valves listed in relief request 019 during cold shutdowns.
- Response: It is an <u>ACTION ITEM</u> for CPS to determine if the valves in relief request 019 can be exercised during cold shutdowns.
- Provide the technical justification for not exercising the valves listed in relief request 036 during cold shutdowns.
- Response: The valves identified in relief request 036 perform no safety function and need not be included in the IST program. Relief request 036 will be deleted.

 Provide the P&ID (M05-1032/2) that shows valves 1CC075A, 075B, 076A. and 076B for the staff's review.

Response: P&ID M05-1032/2 was provided.

E. Containment Monitoring System

- How are excess flow check valves 1CM002A, 002B, 003A, and 003B tested and at what frequency are they tested?
- Response: Excess flow check valves 1CM002A, 003A, and 003B are exercised quarterly using an air flow test to verify that they will close to restrict excessive flow. Valve 1CM002B will be tested during refueling outages because this valve is 8 feet below normal suppression pool level and testing would require a diver to enter the suppression pool or lowering the pool level 8 feet, either of which cannot be performed quarterly during power operations and is not practical to accomplish during cold shutdowns (Refer to relief request 037).
- 2. Are the values listed in relief request 032 passive values as defined in IWV-2100? If so, they should be identified as such in the IST program. If not, they should be exercised and have their stroke times measured in accordance with the Code.

The purpose of measuring valve stroke times in the IST program is to detect valve degradation to allow for repairs of degraded valves prior to their failure, and not for any functional or accident mitigation reasons as indicated in relief request 0.32.

Solenoid operated valves are not exempted from the stroke time measurement requirements of Section XI; their stroke times must be measured and corrective action taken if these times exceed the limiting value of full-stroke time. The NRC staff will grant relief

from the trending requirements of Section XI [Paragraph IWV-3410 (c)(3)] for these rapid acting valves, however, in order to obtain this relief the licensee must assign a maximum limiting stroke time of 2 seconds to these valves.

- Response: A request for relief from the stroke time trending requirements for rapid acting solenoid valves which have a limiting value of full-stroke time of 2 seconds or less will be submitted (Relief request 058). The stroke times of these rapid acting valves will be measured, but need not be trended. If the 2 second limiting stroke time is exceeded, the degraded valve must be declared inoperable and corrective action taken. Relief request 032 will be deleted from the IST program.
- 3. Provide a more detailed technical justification for not exercising valves 1CM066 and 067 quarterly or during cold shutdowns. Also, provide the P&ID that shows valve 1CM067 for the staff's review.
- Response: The relief request for 1CM066 and 067 will be deleted. Valves 1CM066 and 067 will be exercised quarterly, or a cold shutdown justification will be provided and the valves tested during cold shutdowns. The P&ID was provided.

### F. Cycled Condensate System

- Review the safety related function of valves 1CY020 and 021 (P&ID M05-1012/6 coordinates D-3 and D-2, respectively) to determine if they should be included in the IST program and be categorized A.
- Response: Valves 1CYO2O and O21 are drywell isolation valves and are included in the IST program as category B valves. Their safety function is to close on a containment isolation signal.

# G. Control Rod Drive System

- It is the NRC staff position that the hydraulic control unit air operated valves 126 and 127 and check valves 114, 115, and 138 (145 of each valve) perform a safety related function and must be included in the IST program and be tested in accordance with the requirements of Section X1.
- Response: Hydraulic control unit valves 126, 127, 114 and 138 (145 of each) will be included in the IST program and be exercised as stated in relief request 059.

It is an <u>OPEN ITEM</u> for CPS to further evaluate the safety function of hydraulic control unit valve 115 (one valve in each of the 145 HCUs) to determine if they should be included in the IST program.

- Provide the P&ID that shows the scram discharge volume piping. Any
  valve that is required to operate in order to allow rapid insertion of
  the control rods must be included in the IST program.
- Response: The P&ID was provided. There are no additional valves associated with the scram discharge volume that affect insertion of the control rods.
- Provide the P&ID that shows valves 1C11-F010, F011, F180, and F181 for the staff's review.
- Response: The P&ID was provided. The stroke times will be measured for these valves.
- Provide the technical justification for not exercising valves 1C11-F083 and F122 during cold shutdowns (see relief requests 008 and 010).

Response: Valve 1C11-F083 will be exercised and have its stroke times measured during cold shutdowns and relief request 008 will be modified.

It is an <u>ACTION ITEM</u> for CPS to determine if valve 1C11-F122 can be exercised during cold shutdowns. CPS will provide a detailed justification for not exercising this valve to the Code requirements.

### H. Standby Liquid Control System

- 1. Define "extended cold shutdown" as used in relief request Oll.
- Response: Revision 1 of the Clinton IST program deleted the phrase "extended cold snutdown." CPS will modify relief request Oll by adding a discussion of the consequences of testing these valves during cold shutdowns and injecting boron into the reactor vessel. Valve 1C41-F336 will also be included in this relief request.

2. Provide P&iD M05-1077 for our review.

Response: P&ID M05-1077 was provided.

- 3. Are any of the valves in the standby liquid control system leak rate tested in accordance with Appendix J requirements to verify their ability to perform a containment isolation function?
- Response: The only values that are Appendix J leak-rate tested in this system are vent and drain values which are exempted from the IST program by IWV-1200.
- 4. Does valve 1C41-F007 receive an Appendix J leak-rate test? If so, it should be included in the IST program as a category A/C valve.

Response: Valve 1C41-F007 is not Appendix J, Type C, leak-rate tested.

I. Diesel Generator Starting Air System

- Do valves 1DG007A through 007K have a required fail-safe position? If not, they may be exempt from Section XI testing per IWV-1200(a).
- Response: Valves 1DG007A through D and G through K have been removed from the system. Valves 1DG007E and F are exempt from IST testing per IWV-1200(a) and, therefore, need not be included in the IST program.
- Review the safety related function of the following check valves to determine if they should be included in the IST program.

Valve	P&ID	Coordinates	Valve	P&ID	Coordinates
1DG168	M05-1035/	E-7	1DG171	M05-1035/2	C-7
1DG169	M05-1035/	C-7	1DG172	M05-1035/3	E-7
10G170	M05-1035/2	2 E-7	1DG173	M05-1035/3	C-7

- Response: It is an <u>ACTIL 1 ITEM</u> for CPS to evaluate the safety function of these check values to determine if they should be included in the IST program.
- 3. The pump and valve in-service testing program is set up to test individual components in order to provide a reasonable assurance of their capability to perform their safety related function. A system test provides information about a system's performance, but may not provide information about degradation or failure of individual components in that system where redundant flow paths exist. Therefore, the individual component test is necessary, in addition to the system testing, unless the system testing is set up to individually check the operation and condition of the various system components.

Does the diesel generator surveillance test verify operation of each individual air start valve or are they tested in pairs? Does the proposed alternate testing provide a quantitative means to determine individual valve degradation?

- Response: It is an <u>ACTION ITEM</u> for CPS to further investigate a test method for verification of operability of the diesel air start valves.
  - NOTE: It is an <u>ACTION ITEM</u> for the NRC to provide written direction to CPS for inclusion of emergency diesel generator subsystems in the IST program.

### J. Residual Heat Removal System

- How is check valve 1E12-F098 full-stroke exercised open quarterly during power operation?
- Response: Check valve IE12-F098 is exercised quarterly using a mechanical exerciser in accordance with the Code.
- 2. What is the safety related function of check valves lE12-F103A, F103B, F104A, and F104B? If these valves perform a safety function in the closed position, how is each valve individually verified to close?
- Response: Check valves 1E12-F103A, F103B, F104A, and F104B provide vacuum relief on vent paths to the suppression pool for portions of systems in which condensing or cooling of a fluid can cause a negative pressure, but they do not perform a safety function in the closed position.
- 3. Is credit taken for the RCIC steam condensing mode of operation in any of the Clinton accident analyses? Review the safety related function of valves 1E12-F051A, F051B, F052A, F052B, F065A, and F065B (P&ID M05-1075/4) to determine if they should be included in the IST program and be categorized B.

Response: The steam condensing mode of operation is not used for safety grade shutdown at Clinton. Valves 1E12-F051A, F051B, F052A, F052B, F065A, and F065B perform a safety function in the closed position to allow LPCI operation and will be included in the IST program as category B valves. Valves 1E12-F087A and F087B will also be included in the IST program as category B valves.

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- Review the safety related function of solenoid operated valve 1E12-F095 to determine if it should be included in the IST program.
- Response: The safety function of valve 1E12-F095 is to close on an open signal to valves 1E12-F094and F096 and it, therefore, will be included in the IST program.
- 5. How is check valve 1E12-F019 full-stroke exercised quarterly during power operation?
- Response: Valve 1E12-F019 is full-stroke exercised during cold shutdowns utilizing a mechanical exerciser. A cold shutdown justification will be provided to explain why this valve cannot be exercised guarterly during power operations.
- 6. Will the air operators full-stroke exercise testable check valves lE12-f041A, B, and C? If not, how are these valves full-stroke exercised?
- Response: The air operators on valves 1E12-F041A, B, and C do not full-stroke exercise the valve disks. It is an <u>ACTION ITEM</u> for CPS to determine a method and frequency for full-stroke exercising these check valves.
- How are valves 1E12-F046A, B, and C verified to full-stroke exercise during the quarterly testing?

- Response: Valves 1E12-F046A, B, and C are full-stroke exercised utilizing a mechanical exerciser in accordance with the Code.
- 8. Do check valves 1E12-F084A, F084B, F084C, F085A, F085B, and F085C perform a safety related function in the closed position? If so, how are these valves individually verified to close?
- Response: Valves 1E12-F084A, B, C, and 1E12-F085A, B, C perform safety related functions in both the open and the closed positions. The open requirement is to allow the water leg pump to fill the discharge lines of the RHR pumps and the closed requirement is to protect the low pressure piping of the water leg pump during operation of the RHR pumps. The open requirement is verified by observation that the "low discharge pressure" alarm on Panel 1H13-P601 is cleared. It is an <u>OPEN ITEM</u> for CPS to further evaluate a method and frequency for individually verifying closure of these valves.
- 9. Provide the P&IDs that show valves 1E12-F052A, F052B, F100A, and F100B; they do not appear in the P&ID locations indicated in the Clinton IST program on the drawings provided.
- Response: Valves 1E12-F100A and B have been replaced by valves 1E12-F110A and B. The P&ID that shows these valves and valves 1E12-F052A and B was provided.
- 10. Review the safety related functions of valves lEl2-F301A, B, and C to determine if they should be included in the IST program.

Response: Valves E12-F301 A, B and C do not perform any safety function. These valves need not be included in the IST program.

 Provide a more detailed technical justification for not exercising the valves listed in relief request 054 quarterly during power operations or during cold shutdowns.

- Response: It is an <u>ACTION ITEM</u> for CPS to further evaluate the valves identified in relief request 054 to determine if they can be exercised during cold shutdowns.
- Review the safety related function of valves 1E12-F037A and F037B to determine if they should be included in the IST program.
- Response: Valves 1E12-F037A and B will be included in the IST program as Category B valves and tested to the Code requirements.
- 13. Relief was requested from measuring stroke times for the solenoid operated valves listed in relief request 045, but no alternate means of quantitatively determining valve degradation has been proposed. Solenoid operated valves are not exempt from stroke time measurements, however, some allowances are made for these rapid acting valves as explained in item E.2.
- Response: The valves listed in relief request 045 will be identified as rapid acting valves in relief request 058 and will have their stroke times measured. In accordance with the NRC staff's position on rapid acting valves, these valves have been assigned limiting values of full-stroke times of 2 seconds and will be exempt from the stroke time trending requirements.

### K. Low Pressure Core Spray System

- Will the air operator on testable check valve 1E21-F006 full-stroke exercise the valve? If not, how is this valve full-stroke exercised?
- Response: The air operator does not full-stroke exercise this testable check valve, however it will be used to partial-stroke exercise this valve during cold-shutdowns. It is an <u>ACTION ITEM</u> for CPS to determine a method and frequency to full-stroke exercise this check valve.

 Are there any interlocks (i.e. RCS pressure >135 psig) that would prevent a full-stroke exercise of valve 1E21-F005 quarterly during power operation?

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- Response: This valve performs a pressure boundary isolation function and cannot be opened during power operations due to a pressure interlock with the RCS (It cannot be opened when RCS pressure is above 484 psig). CPS will further evaluate full-stroke exercising this valve during cold shutdowns.
- 3. How are valves 1E21-F033 and F034 individually tested to verify their safety related function in the closed position?
- Response: 1E21-F033 and F034 are series check valves in the water leg keep fill lines which are similar to the valves discussed in Item J.8. It is an <u>OPEN ITEM</u> for CPS to further evaluate a method and frequency to individually verify closure of these valves.
- 4. Review the safety related function of valve 1E21-F340, the air operated bypass valve around 1E21-F006 (P&ID M05-1073 coordinates D-2), to determine if it should be included in the IST program.
- Response: This valve does not perform a safety function and is exempt from IST testing per IWV-1200.
- Provide a more detailed technical justification for not exercising valve 1E21-F306 quarterly during power operations and during cold shutdowns (see relief request 041).
- Response: Valve 1E21-F306 does not perform any safety function and may be deleted from the IST program.

L. High Pressure Core Spray System

 Will the air operator on valve 1E22-F005 full-stroke exercise the valve? If not, how is this valve full-stroke exercised?

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- Response: The air operator does not full-stroke exercise this valve. It is an <u>ACTION ITEM</u> for CPS to determine a method and frequency to full-stroke exercise this valve.
- 2. Does valve 1E22-F006 perform a safety related function in the closed position? If this valve performs a safety related function in the closed position, how is it individually verified to close?
- Response: There are two series check valves in the water leg keep fill lines which are similar to the valves discussed in Item J.8. It is an <u>OPEN ITEM</u> for CPS to further evaluate a method and frequency to individually verify closure of these valves.
- 3. How are excess flow check valves 1E22-F330 and F332 being tested?
- Response: These valves will be tested using an air flow test. Valve 1E22-F330 will be exercised quarterly and 1E22-F332 will be exercised during refueling outages for the reasons provided in relief request 037.
- 4. Review the safety related function of valve 1E22-F304, the bypass around valve 1E22-F005, to determine if it should be included in the IST program and be categorized A.
- Response: Valve 1E22-F304 does not perform any safety function and need not be included in the IST program.

# M. Leakage Detection System

- Are 1E31-F016 and F109 passive values as defined in IWV-2100? If so, they should be identified as such in the IST program. If not, they should be tested as active values in accordance with the Code.
- Response: These valves do not perform any safety function and need not be included in the IST program.
- Provide a more detailed technical justification for not measuring the stroke times for the rapid acting valves listed in relief request 033.
- Response: The valves listed in relief request 033 will be identified as rapid acting valves in relief request 058 and will have their stroke times measured in accordance with the NRC staff's position on rapid acting valves.

# N. MSIV Leakage System

What is the safety related function of the following valves? If they
perform a safety function in the closed position, how are these valves
exercised closed?

1E32-F010	1E32-F315A	1E32-F315C	
1E32-F011	1E32-F315B	1E32-F315D	

Response: These values close to allow the MSIV leakage control blowers to obtain the required negative pressure on the MSIV headers. These values will be verified to close during the system operability test performed during cold shutdowns.

### 0. Reactor Core Isolation Cooling System

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- Does valve 1E51-F062 perform a safety related function in either the open or closed position? How is valve 1E51-F061 tested to individually verify its ability to perform its safety related function in the closed position?
- Response: Valves 1E51-F061 and 1E51-F062 perform a safety function in the open direction to allow the waterleg pump to fill the RCIC piping. There is no safety function in the closed direction to protect low pressure piping since the waterleg pump discharges to the suction piping of the RCIC pump. Valve 1E51-F062 will be added to the IST program as a Category C valve.
- 2. How are check valves 1E51-F065 and F066 full-stroke exercised? Can 1E51-F065 be exercised with a differential pressure equivalent to operating reactor pressure across the valve disk?
- Response: The air operator does not full-stroke exercise 1E51-F066. It is an <u>ACTION ITEM</u> for CPS to determine a method and frequency of full-stroke exercising this valve.

Exercising 1E51-F065 with a differential pressure across the disk equivalent to reactor pressure may result in damage to the actuator. This valve will be exercised during cold shutdowns utilizing the mechanical exerciser.

- 3. How is valve 1E51-F030 full-stroke exercised quarterly? If this valve is full-stroke exercised using a manual operator, provide a valve drawing that shows how the mechanical exerciser actuates the valve disk.
- Response: Valve 1E51-F030 will be exercised quarterly utilizing the mechanical exercise arm. A drawing of the valve was provided.

 Review the safety related function of valve 1E51-F316 to determine if this valve should be included in the IST program and be categorized A.

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- Response: 1E51-F316 is exempt from testing per IWV-1200. This valve does not perform a CIV or PIV function.
- Does valve 1E51-F015 have a required fail-safe position? If not, it may be exempt from Section XI testing per IWV-1200(a).
- Response: Valve E51-F015 is a pressure control valve that may be deleted from the IST program per IWV-1200(a).
- Review the safety related function of valves 1851-F004, F005 and F047 to determine if they should be included in the IST program (in the case of 1851-F004 and F005) or retained in the IST program (in the case of 1851-F047).
- Response: It is an <u>ACTION ITEM</u> for CPS to determine if valves 1E51-F004 and F005 should be included in the IST program. Valve 1E51-F047 performs a safety function and will remain in the IST program.

## P. Fuel Pool Cooling and Cleanup System

- Is credit taken for the RHR system supplying cooling water flow to the fuel pool? If so, all applicable system valves should be included in the IST program (may include check valves 1FC018A, 018B, 020A, 020B, 022A, and 022B).
- Response: Yes, the RHR system can be used to supply cooling or makeup to the upper containment pools if the pool temperature exceeds 105°F or if pool level cannot be maintained. The following check valves have a safety function in the open position to

allow cooling and makeup water flow to the fuel pools and will be included in the IST program and exercised quarterly.

1FCO18A	1FC020A	1FC022A
1FC0188	1FC020B	1FC022B
1FC077	1FC073	1FC096

2. Are the fuel pool cooling and cleanup pumps (IFCO2PA and IFCO2PB) supplied from an emergency power source? If these pumps perform a safety related function, they should be included in the IST program along with valves IFCO22A and O228.

- Response: Before irradiated fuel is placed into the fuel pool the applicable fuel pool cooling system pumps and valves will be included in the Clinton IST program and will be tested to the code requirements unless specific relief has been requested and approved.
- 3. What are the safety related functions for the following valves?

1FC004A	1FC016A	1FCO24A	1FC017
1FC004B	1FC016B	1FC0248	1FC023

Response: These valves receive a containment isolation signal and will be included in the IST program as category B valves, however, these valves do not recieve an Appendix J, Type C, leakrate test.

#### Q. Reactor Water Cleanup

- What is the safety related function of valves 1G33-F051, F052A, and F052B?
- Response: It is an <u>ACTION ITEM</u> for CPS to evaluate any safety function that these values may perform.

### R. Instrument Air System

 Provide a more detailed technical justification for not exercising valves 11A005, 006, 007, and 008 quarterly during power operation.

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Response: These isolation valves are within the normal flow path between the instrument air system and various valves located inside the containment/drywell. Exercising these valves will isolate the air supply to various instrumentation and safety related valves and a failure of the air supply could realign the valves to positions that may cause a plant trip. CPS will further evaluate whether these valves can be exercised during cold shutdowns.

> It should be noted that the control scheme for these values is such that 1IA005 and 008 stroke together and 1IA006 and 007 stroke together when operated by the control switch.

- Define "extended cold shutdowns" as used in relief requests 028 and 029. Explain how a failure of valves 1IA012A, 012B, 013A, and 013B to return to their original positions would cause a loss of operating air to SRVs.
- Response: Relief requests 028 and 029 will be deleted. Valves 11A012A, 012B, 013A, and 013B will be tested on a quarterly basis since the configuration of the instrument air system can support this test while maintaining air to the SRVs.
- 3. Do check valves 1IA042A, 042B, 076A, and 076B, perform a safety related function in the close position? If so, how are these valves verified in the closed position during valve testing?
- Response: Valves 11A042A and 042B perform safety functions in the closed position and valves 11A076A and 076B do not perform a safety related function. Relief request 042 has been changed to test

1IAO42A and O42B during cold shutdowns and a discussion of the consequences of valve failure during quarterly testing will be added. Valves 1IAO42A and 1IAO42B are tested by an air leakage test.

 Provide the technical justification for not exercising the following valves during cold shutdowns.

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11A012A	11A013A	11A042A	11A043A
1IA012B	11A013B	11A042B	11A043B

Explain how a failure of valves 1IA012A, 012B, 013A, and 013B to return to original position would cause a loss of operating air to SRVs.

- Response: Valves 11A012A, 012B, 013A, and 013B are addressed in the response to R.2 above. Valves 11A042A and B are addressed in the response to R.3. Valves 11A043A and B do not exist and were erroneously referenced in the IST program; the reference to these valve numbers will be deleted.
- 5. What is the safety related function of valves 1IA044A and 044B? Do these pressure regulating valves have a required fail-safe position?
- Response: 11A044A and B are pressure regulating valves which are exempt from testing per IWV-1200(a).

### S. Process Sampling System

- Provide a more detailed technical justification for not measuring stroke times for the solenoid operated valves in this system (refer to relief request 034 and comment E.2).
- Response: These solenoid operated valves will be identified as rapid acting valves with a limiting value of full-stroke time of

2 seconds. These valves will be included in relief request 058 and will be tested in accordance with the NRC staff's position for rapid acting valves.

 Is any credit taken for the operation of this system? If so, review the safety function of the following valves to determine if they should be included in the IST program.

1PS041	1PS013	1PS029
1PS050	1PS019	1PS046A
1PS006	1PS025	1PS0468

Response: The process sampling system is not required to perform a safety related function other than containment isolation. These valves are not containment isolation valves and, therefore, they need not be included in the IST program.

# T. Breathing Air System

- Provide a more detailed technical justification for not measuring the stroke times for the solenoid operated valves in this system (refer to relief request 027 and item E.2).
- Response: These solenoid operated valves will be tested as rapid acting valves in accordance with the NRC staff's position on this topic.

### U. Emergency Air System

- What is the safety related function of valves 1RA017A and 017B? Do these pressure regulating valves have a required fail-safe position?
- Response: 1RA017A and B are pressure regulating valves which are exempt from testing per IWV-1200(a).

#### V. Suppression Pool Makeup System

1. How are excess flow check valves ISM008, 009, 010, and 011 tested?

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Response: These excess flow check valves are being tested with an air flow test. ISM008 and Oll are tested during refueling outages as discussed in relief request 037. ISM009 and Ol0 are tested guarterly.

#### W. Shutdown Service Water System

- Provide a more detailed technical justification for not measuring stroke times for the valves listed in relief request 048 Table 48-1.
   Stroke times are measured for IST purposes to detect valve degradation instead of determining if the valve can meet an operational time requirement.
- Response: All of the valves listed on relief request 048 except 15X025A, B, and C will have their stroke times measured in accordance with the Code requirements. Valves 15X025A, B, and C are exempt from IST testing per IWV-1200 and need not be included in the program.
- Should the valves identified on the valve listing table (Table 3.3.1) as ISX012D, 012E, and 012F be changed to ISX013D, 013E, and 013F?

Response: Yes; this correction was made in Revision 1 of the IST program.

- Provide a technical justification for not exercising the valves listed in relief requests 017 and 030 during cold shutdowns.
- Response: Testing of valves 1SX016A and B will allow lake water into the fuel pools thereby affecting the chemistry of the water in the pools. Cleanup of the fuel pool water will generate additional

solid radioactive waste. Testing of valves ISXO12A and B and ISXO62A and B will allow lake water into the fuel pool cooling heat exchangers. Flushing the heat exchangers and cleanup of the fuel pool water could delay startup from down.

It is an <u>ACTION ITEM</u> for CPS to further investigate a test method and frequency for full-stroke exercising these valves.

- How are check valves ISX083A and 083B full-stroke exercised quarterly during power operation.
- Response: Check valves ISX083A and B do not perform an isolation function, the upstream valves ISX082A and B perform that function, and, therefore, ISX083A and B need not be included in the IST program. Valves IXS082A and B are included in the IST program and are tested to the Code requirements.
- 5. The valve listing table indicates that a loss of power test will be performed for valves ISX025A, 025B, and 025C. Do these motor operated valves have fail-safe actuators?
- Response: Valves ISX025A, B, and C are exempt from testing per IWV-1200 and may be deleted from the IST program.
- Review the safety related function of the following valves from P&ID M05-1052/5 to determine if they should be included in the IST program.

1SX072A	1SX106A	15X073A
1SX072B	1SX106B	1SX0738

Response: Revision 1 of the IST program included these values and they will be exercised during refueling outages. Relief request 050 will be expanded to include a discussion of why these values cannot be exercised during cold shutdowns.

- Provide a more detailed technical justification for not exercising valves ISX013D, 013E, and 013F as required by the Code.
- Response: It is an <u>ACTION ITEM</u> for CFS to determine if valves ISX013D, E, and F perform any safety function.
- 8. What is the safety related function of the valves listed in relief request 051? If these valves are not safety related, they should be identified as such in the IST program. Relief requests will not be evaluated for nonsafety related valves.
- Response: All valves in relief request 051 are Unit 2 cross connect valves and Unit 2 has been canceled. These valves do not perform a safety function.

#### X. Control Room HVAC System

1. Provide P&ID M05-1102/1 for the staff's review.

Response: The P&ID was provided.

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- Do valves OVCOIDA and O22A have a required fail-safe position? If so, they should be included in the IST program and be full-stroke exercised.
- Response: Valves OVCOIOA and O22A are required to "fail-open." These valves will be included in the IST program as Category B valves and will be exercised in accordance with the Code or relief will be requested.
- 3. What is the safety related function of check valves OVCO20A and O32A? If these check valves perform a safety related function in the closed position, how are they verified in that position guarterly?

- Response: OVCO20A and B prevent the loss of control room HVAC system chilled water. OVCO32A and B preclude loss of ventilation cooling in case of loss of service air. These valves will be included in the IST program and will be exercised quarterly.
- 4. What is the function of valves OVCODIA and OO2A? Is this a safety related function?
- Response: These valves are used to prevent freezing of the HVAC cooling coils. These valves will be included in the IST program and exercised to the Code requirements.
- Provide a more detailed technical justification for not measuring stroke times for the solenoid operated valves listed in relief request 055.
- Response: These rapid acting solenoid operated valves will be included in relief request 058 and will have their stroke times measured in accordance with the NRC staff's position on rapid acting valves.

# Y. Containment Ventilation System

 Provide the P&ID that shows valves 1VR006A, 006B, 007A, and 007B for the staff's review.

Response: The P&ID was provided.

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2. How are excess flow check valves 1VR016A, 016B, 018A, and 018B tested?

Response: These valves are tested quarterly utilizing an air flow test.

 Provide a more detailed technical justification for not measuring stroke times for valves 1VR035, 036, 040, and 041. Response: These valves will be included in relief request 058 and will have their stroke times measured in accordance with the NRC staff's position on rapid acting valves.

# Z. Chilled Water System

 Provide the P&ID that shows valves 1W0001A. 0018, 002A, and 002B. They do not appear on M05-1117/9 as indicated in the valve listing table.

Response: The correct P&ID was provided.

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2. Define "extended cold shutdown" as used in relief request 021.

Response: Revision 1 of the IST program deleted the phrase "extended cold shutdown" from relief request 021.

- Provide the justification for not exercising the valves listed in relief requests 021 and 052 during cold shutdowns.
- Response: Relief requests 021 and 052 will be modified to include a discussion of why the referenced valves cannot be exercised during cold shutdowns, or the valves will be exercised during cold shutdowns.

### 2. PUMP TESTING PROGRAM

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- Provide a more detailed technical justification for not measuring pump bearing temperatures yearly (refer to pump relief request 001).
- Response: Pump relief request 001 will be modified to include additional information justifying the deletion of annual pump bearing temperature measurements.
- 2. What is the maximum expected variance in lake level (refer to relief request 004)? Could this level be measured during pump tests to allow calculation of the pump inlet pressure?
- Response: CPS will further evaluate the availability of pump inlet pressure measurements or calculations of inlet pressure.