AUG 6 1986

Docket No. 50-461

DISTRIBUTION

Docket File	NThompson
NRC PDR	BSiegel
LPDR	MO'Brien
PD#4 Rdg.	ACRS(10)
RBernero	HShaw
Pirfo,OGC	RLaGrange
EJordan	
BGrimes	
JPartlow	

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: PUMP AND VALVE INSERVICE TESTING PROGRAM FOR CLINTON POWER STATION, UNIT 1

Enclosed are questions and comments resulting from the staff's and its consultant's (EG&G Idaho) review of your inservice testing (IST) program dated February, 1985 for Clinton Power Station, Unit 1. For the staff to proceed with the review of your IST program, it is suggested that a working meeting be held in Bethesda, Maryland 30 to 45 days after your receipt of this letter to discuss your responses to the questions and comments contained in the enclosure. In Supplement 6 to the SER, Section 3.9.6, the staff granted you relief from the pump and valve testing requirements of the ASME Code Section XI (1980 Edition) through Winter 1981 addenda. This relief was for a period of no longer than two years from the date of issuance of the operating license or until the staff's detailed review was completed, whichever came first. Therefore, completion of this review prior to issuance of a low power or full power license is not required.

Since your IST program was found to be lacking in many of the details that have typically been included in other facility programs, it may be desirable to have a conference call prior to the date for the working meeting. In addition, you may wish to submit proposed program changes or a revised IST program for consideration by the staff prior to the meeting.

If you have any questions regarding this issue please contact the staff's project manager for your application, Byron Siegel, at (301) 492-9474.

Sincerely,

Original signed by

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

Enclosure:
As stated

cc w/enclosure:
See next page

PD#4/PM	PD#4/D
BSiegel:lb	WButler
08/06/86	08/6/86

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 6 1986

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: PUMP AND VALVE INSERVICE TESTING PROGRAM FOR CLINTON POWER STATION, UNIT 1

Enclosed are questions and comments resulting from the staff's and its consultant's (EG&G Idaho) review of your inservice testing (IST) program dated February, 1985 for Clinton Power Station, Unit 1. For the staff to proceed with the review of your IST program, it is suggested that a working meeting be held in Bethesda, Maryland 30 to 45 days after your receipt of this letter to discuss your responses to the questions and comments contained in the enclosure. In Supplement 6 to the SER, Section 3.9.6, the staff granted you relief from the pump and valve testing requirements of the ASME Code Section XI (1980 Edition) through Winter 1981 addenda. This relief was for a period of no longer than two years from the date of issuance of the operating license or until the staff's detailed review was completed, whichever came first. Therefore, completion of this review prior to issuance of a low power or full power license is not required.

Since your IST program was found to be lacking in many of the details that have typically been included in other facility programs, it may be desirable to have a conference call prior to the date for the working meeting. In addition, you may wish to submit proposed program changes or a revised IST program for consideration by the staff prior to the meeting.

If you have any questions regarding this issue please contact the staff's project manager for your application, Byron Siegel, at (301) 492-9474.

Sincerely,

Walter R. Butler

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

Enclosure:
As stated

cc w/enclosure:
See next page

Mr. Frank A. Spangenberg
Illinois Power Company

Clinton Power Station
Unit 1

cc:
Mark Jason
Assistant Attorney General
Public Utilities Division
Office of the Attorney General
State of Illinois Center
100 West Randolph Street - 12th Floor
Chicago, Illinois 60601

Mr. D. P. Hall
Vice President
Clinton Power Station
P. O. Box 678
Clinton, Illinois, 61727

Mr. John Greene
Manager-Nuclear Station Engineering Dpt.
Clinton Power Station
P. O. Box 678
Clinton, Illinois 61727

Sheldon Zabel, Esquire
Schiff, Hardin & Waite
7200 Sears Tower
233 Wacker Drive
Chicago, Illinois 60606

Resident Inspector
U. S. Nuclear Regulatory Commission
RR 3, Box 229 A
Clinton, Illinois 61727

Mr. R. C. Heider
Project Manager
Sargent & Lundy Engineers
55 East Monroe Street
Chicago, Illinois 60603

Mr. L. Larson
Project Manager
General Electric Company
175 Curtner Avenue, N/C 395
San Jose, California 95125

Regional Administrator, Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Richard B. Hubbard
Vice President
Technical Associates
1723 Hamilton Avenue - Suite K
San Jose, California 95125

Chairman of DeWitt County
c/o County Clerk's Office
DeWitt County Courthouse
Clinton, Illinois 61727

Director, Criteria & Standards (ANR-460)
Office of Radiation Programs
U. S. Environmental Protection Agency
Washington, DC 20460

EIS Review Coordinator
Environmental Protection Agency
Region V
230 S. Dearborn Street
Chicago, Illinois 60604

Director, Eastern Environmental
Radiation Facility
U. S. Environmental Protection Agency
P. O. Box 3009
Montgomery, Alabama 36193

Illinois Department of Nuclear Safety
Division of Engineering
1035 Outer Park Drive, 5th Floor
Springfield, Illinois 62704

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

1. VALVE TESTING PROGRAM

A. General Questions and Comments

1. Provide a listing of the limiting values of full-stroke time for all power operated valves in the Clinton IST program for our review.

2. Are all valves that are Appendix J type C leak-rate tested included in the Clinton 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?

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

System	Valves
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
	1E12-F024B
	1E12-F027A
	1E12-F027B
	1E12-F028A
	1E12-F028B
	1E12-F037A
	1E12-F037B
	1E12-F046A
	1E12-F046B
	1E12-F046C
	1E12-F064A
	1E12-F064B
	1E12-F064C
	1E12-F074A
	1E12-F074B
	1E12-F105
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	E31-F014
	E31-F015
	E31-F017
	E31-F018

System	Valves
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
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	1IA005
	1IA006
	1IA012A
	1IA012B
	1IA013A
	1IA013B
	1IA042A
	1IA042B
Makeup Condensate System	0MC009
	0MC010
Process Sampling System	1PS004
	1PS005
	1PS009
	1PS010
	1PS016

System	Valves
Process Sampling System (continued)	1PS017
	1PS022
	1PS023
	1PS031
	1PS032
	1PS034
	1PS035
	1PS037
	1PS038
	1PS047
	1PS048
	1PS055
	1PS056
	1PS069
	1PS070
Breathing Air System	ORA026
	ORA027
	ORA028
	ORA029
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	1SX088A
	1SX088B
	1SX089A
	1SX089B
	1SX096A
	1SX096B
	1SX097A
	1SX097B
Drywell Cooling System	1VP004A
	1VP004B
	1VP005A
	1VP005B
	1VP014A
	1VP014B
	1VP015A
	1VP015B

System	Valves
Drywell Purge System	1VQ004A 1VQ004B 1VQ006A 1VQ006B
Containment Ventilation System	1VR001A 1VR001B 1VR002A 1VR002B 1VR035 1VR036 1VR040 1VR041
Chilled Water System	1WO001A 1WO001B 1WO002A 1WO002B
Solid Radwaste System	1WX019 1WX020

5. Are any valves at Clinton Power Station currently leak-rate tested to verify a pressure boundary isolation function? Those valves 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.

6. The Code permits valves to be exercised during cold shutdowns where it is not practical to exercise during plant operation and these valves 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 valve 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 valves and that the testing should be performed during cold shutdowns. Cold shutdown testing of valves identified by the licensee is acceptable when the following conditions are met:

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 nours may be taken.

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

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?

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 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.

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.

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?

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 Clinton IST program conform to this staff position?

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)?

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.

13. Do the valves identified in Table 200-1 in relief request 200 perform safety related functions? IF they do, they shcuild 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.

B. Main Steam System

1. 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.

2. 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.

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.

4. The safety relief valves 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 valves to verify their ability

to perform the ADS function as well as the safety relief valve function. Which main steam safety relief valves perform the ADS function?

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

6. Do valves F021 and F033 (M05-1002/2 coordinates B-4 and C-4, respectively) perform any safety related function?

C. Reactor Recirculation System

1. What is the safety related function of valves F023A, F023B, F067A and F067B? Provide the detailed technical justification for not measuring stroke times for these valves.

2. What is the safety related function of valves F060A and B? Provide the detailed technical justification for not measuring stroke times for these valves.

D. Component Cooling Water System

1. What is the safety related function of check valves 1CC188A and 188B? If the safety function is to close, how are these valves verified in the closed position quarterly?

2. Do valves 1CC065, 067, 068, and 070 perform any safety related function? If so, they should be included in the IST program as Category B valves.

E. Containment Monitoring System

1. How are excess flow check valves 1CM002A, 002B, 003A, and 003B tested and at what frequency are they tested?

2. 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 032.

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.

F. Cycled Condensate System

1. 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.

G. Control Rod Drive System

1. 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 XI.

2. Provide the P&ID that shows the scram discharge volume piping. Any valve that is required to operate in order to allow insertion of the control rods must be included in the IST program.

3. Provide a detailed technical justification for not measuring the stroke times for air operated valves F010 and F011. Also provide the P&ID that shows these valves.

4. Define "extended cold shutdown" as used in relief request 008 for valve F083.

H. Standby Liquid Control System

1. Define "extended cold shutdown" as used in relief request 011.

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

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?

I. Residual Heat Removal System

1. How is check valve F098 full-stroke exercised open quarterly during power operation?

2. What is the safety related function of check valves F103A, F103B, F104A, and F104B? If these valves perform a safety function in the closed position, how is each valve individually verified to close?

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 F032A, F032B, F051A, F051B, F065A, and F065B (P&ID M05-1075/4) to determine if they should be included in the IST program and be categorized B.

4. Review the safety related function of solenoid operated valve F095 to determine if it should be included in the IST program.

5. How is check valve F019 full-stroke exercised quarterly during power operation?

6. Will the air operators full-stroke exercise testable check valves F041A, B, and C? If not, how are these valves full-stroke exercised quarterly?

7. How are valves F046A, B, and C verified to full-stroke exercise during the quarterly testing?

8. Do check valves F085A, B and C perform a safety related function in either the open or closed position? Do check valves F084A, B, and C perform a safety related function in the closed position? If so, how are these valves individually verified to close?

9. Provide the P&IDs that show valves F052A, F052B, F100A, and F100B; they do not appear in the P&ID locations indicated in the Clinton IST program on the drawings provided.

10. Review the safety related functions of valves F301A, B, and C to determine if they should be included in the IST program.

J. Low Pressure Core Spray System

1. Will the air operator on testable check valve F006 full-stroke exercise the valve quarterly during power operations? If not, how is this valve full-stroke exercised quarterly?

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

3. How is valve F033 individually tested to verify its safety related function in the closed position? Does valve F034 perform a safety related function in either the open or closed position?

4. Review the safety related function of valve F340, the air operated bypass valve around F006 (P&ID M05-1073 coordinates D-2), to determine if it should be included in the IST program.

K. High Pressure Core Spray System

1. Will the air operator on valve F005 full-stroke exercise the valve quarterly during power operations? If not, how is this valve full-stroke exercised quarterly?

2. Does valve F006 perform a safety related function in either the open or closed position? If this valve performs a safety related function in the closed position, how is it individually verified to close?

3. Provide the P&ID that shows excess flow check valves F330 and F332. How are these valves being tested?

4. Review the safety related function of valve F304, the bypass around valve F005, to determine if it should be included in the IST program and be categorized A.

L. MSIV Leakage System

1. 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?

F010	F315A	F315C
F011	F315B	F315D

M. Reactor Core Isolation Cooling System

1. Does valve F062 perform a safety related function in either the open or closed position? How is valve F061 tested to individually verify its ability to perform its safety related function in the closed position?

2. How are check valves F065 and F066 full-stroke exercised quarterly during power operation? Can F065 be exercised with a differential pressure equivalent to operating reactor pressure across the valve disk?

3. How is valve 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.

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

N. Fuel Pool Cooling and Cleanup System

1. 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).

2. Are the fuel pool cooling and cleanup pumps (1FC02PA and 1FC02PB) supplied from an emergency power source? If they perform a safety related function, all applicable system valves should be included in the IST program.

3. What are the safety related functions for the following valves?

1FC004A	1FC016A	1FC024A	1FC017
1FC004B	1FC016B	1FC024B	1FC023

O. Instrument Air System

1. Provide a more detailed technical justification for not exercising valves 1IA005, 006, 007, and 008 quarterly during power operation.

2. 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 original position would cause a loss of operating air to SRVs.

3. Do check valves 1IA042A, 042B, 076A, and 076B perform a safety related function in the closed position? If so, how are these valves verified in the closed position during valve testing?

P. Process Sampling System

1. 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).

2. Does this system perform any safety related function? If so, review the function of the following valves to determine if they should be included in the IST program.

1PS041	1PS013	1PS029
1PS050	1PS019	IPS046A
1PS006	1PS025	1PS046B

Q. Breathing Air System

1. 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). Provide P&ID M05-1065/7 for our review.

R. Suppression Pool Makeup System

1. How are excess flow check valves 1SM008, 009, 010, and 011 being tested?

S. Shutdown Service Water System

1. Provide a more detailed technical justification for not measuring stroke times for the valves listed in relief request 020 Table 20-1. Stroke times are measured for IST purposes to detect valve degradation instead of determining if the valve can meet an operational time requirement.

2. Should the valves identified on the valve listing table (Table 3.3-1) as 1SX012D, 012E, and 012F be changed to 1SX013D, 013E, and 013F?

3. What is the basis for the 18 month alternate testing frequency identified in relief requests 017 and 030? What is the technical justification for not performing this testing on a cold shutdown frequency?

4. How are check valves 1SX083A and 083B full-stroke exercised quarterly during power operation.

5. The valve listing table indicates that a loss of power test will be performed for valves 1SX025A, 025B, and 025C. Do these motor operated valves have fail-safe actuators?

6. 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	1SX073A
1SX072B	1SX106B	1SX073B

T. Control Room HVAC System

1. Provide the P&ID that shows valves OVC017B, 020B, and 032B for our review.

2. Do valves 0VC010A and 022A have a required fail-safe position? If so, they should be included in the IST program and be full-stroke exercised.

3. What is the safety related function of check valves 0VC020A and 032A? If these check valves perform a safety related function in the closed position, how are they verified in that position quarterly?

4. What is the function of valves 0VC001A and 002A? Is this a safety related function?

U. Containment Ventilation System

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

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

3. Provide a more detailed technical justification for not measuring stroke times for valves 1VR035, 036, 040, and 041.

V. Chilled Water System

1. Provide the P&ID that shows valves 1WO001A, 001B, 002A, and 002B. They do not appear on M05-1117/9 as indicated in the valve listing table.

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