UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM

ROCHESTER GAS AND ELECTRIC CORPORATION

R. E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-244

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a, requires that inservice testing (IST) of certain ASME Code Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda, except where relief has been requested and granted or proposed alternatives have been authorized by the Commission pursuant to 10 CFR 50.55a(f)(6)(i), (a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate that: (1) conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Section 50.55a(f)(4)(iv) provides that inservice tests of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to the limitations and modifications listed, and subject to Commission approval. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provided alternatives to the Code requirements determined to be acceptable to the staff and authorized the use of the alternatives in Positions 1, 2, 6, 7, 9, and 10, provided the licensee follows the guidance delineated in the applicable position. When an alternative is proposed which is in accordance with GL 89-04 guidance and is documented in the IST program, no further evaluation is required; however, implementation of the alternative is subject to NRC inspection.

Section 50.55a authorizes the Commission to grant relief from ASME Code requirements or to approve proposed alternatives upon making the necessary findings. The NRC staff's findings with respect to granting or not granting the relief requested or authorizing the proposed alternative as part of the licensee's IST program are contained in this Safety Evaluation (SE).

In rulemaking to 10 CFR 50.55a, effective September 8, 1992, (see 57 *Federal Register* 34666), the 1989 edition of ASME Section XI was incorporated in 10 CFR 50.55a(b). The 1989 edition provides that the rules for IST of pumps and valves shall meet the requirements set forth in ASME Operations and

Enclosure

Maintenance Standards Part 6 (OM-6), "Inservice Testing of Pumps in Light-Water Reactor Power Plants," and Part 10 (OM-10), "Inservice Testing of Valves in Light-Water Reactor Power Plants." Pursuant to (f)(4)(iv), portions of editions or addenda may be used provided that all related requirements of the respective editions or addenda are met, and subject to Commission approval. Because the alternatives meet later editions of the Code, relief is not required for those inservice tests that are conducted in accordance with OM-6 and OM-10, or portions thereof, provided all related requirements are met. Whether all related requirements are met is subject to NRC inspection.

By letter dated January 12, 1996, the Rochester Gas and Electric Company (licensee) submitted relief requests VR-8 Revision 1, VR-9 Revision 1, and PR-9 Revision 1 for the Ginna Nuclear Power Plant, third ten-year interval program for inservice testing of pumps and valves. The licensee requested an NRC response to relief requests VR-8 Revision 1 and VR-9 Revision 1 by April 30, 1996, in support of the impending outage schedule. Following a conference call with the staff on March 7, 1996, the licensee provided additional information by letter dated March 27, 1996. The three revised relief requests are evaluated below.

The Ginna Nuclear Power Plant IST Program was developed to conform to the 1986 Edition of ASME Section XI, for the third ten-year interval that began January 1, 1990.

2.0 RELIEF REQUEST VR-8 REVISION 1

Relief is requested from the quarterly exercising requirements of IWV-3522 for the safety injection (SI) check valves 842A and 842B. Relief request VR-8 Revision 1 proposes to part-stroke exercise quarterly and full-stroke exercise once every three refueling outages. The previous version of this relief request, which provided for valve disassembly instead of full-stroke exercise, was approved in an SE provided by letter dated October 20, 1992.

2.1 Licensee's Basis For Request

These valves open to provide flow from the SI accumulators to the reactor coolant system (RCS). Full-stroke open and close exercising during normal power operation cannot be accomplished since system pressures required to perform the test are not enough to overcome RCS pressure. A test method that permits and confirms full-stroke exercising of these check valves during cold shutdown has been developed for Ginna Station. To perform the test, the plant must be maintained in an off-normal condition with a risk for nitrogen injection and possible entrainment in the RCS. The performance of this test also involves added personnel radiological exposure. Additionally, this test method requires extensive planning and setup and substantially impacts the refueling outage scheduled at the start of the shutdown.

As a result of the implementation of this check valve test method, the need for periodic disassembly to satisfy Code requirements would no longer exist thereby eliminating the potential for improper reassembly. The maintenance

history of these check valves documents that the valves have been found in excellent mechanical condition upon disassembly. With an excellent mechanical condition baseline verified by periodic part-stroke (quarterly) and full-stroke testing, the operability of check valves 842A and 842B will continue to be ensured.

These full-flow check valve tests are considered significant infrequently performed evolutions in accordance with conservative plant management directives because of the potential for adverse impact to plant operations as a result of the off-normal plant configurations required for conducting the test. Analyses performed in preparation for these tests addressed the potential for nitrogen injection into the RCS while the residual heat removal system is in operation and for thermal shock of the SI accumulator nozzles. Although, because of controls established for the performance of these tests, the probability for nitrogen injection into the RCS is extremely low and the thermal impact to the SI accumulator nozzles is not significant, these challenges to systems and components important to safety are not activities that the licensee believes are necessary and prudent to perform more than reasonably needed.

As stated in the basis for relief for the existing NRC-approved relief request VR-8, which employs check valve disassembly frequencies of once-per-6 years, the mechanical condition of these valves has been found to be excellent when disassembled. The successful full-flow testing conducted during the 1995 refueling outage validated this excellent mechanical condition. Since these valves only experience flow during testing and do not experience flow during any normal system-operational configuration, check valve degradation and wear is minimal.

Because of the system design of Ginna Station, these check valves do not function as part of the RHR system nor are they employed during RHR system operation as they are in other nuclear power plant system designs. Licensees who test their SI check valves at a frequency less than once-every-three-refueling outages typically employ system designs where these check valves are utilized for RCS cooling using the RHR system which subjects these check valves to significantly larger amounts of degradation and wear.

2.2 Proposed Alternate Testing

These valves will be part-stroke exercised quarterly using the SI test header. Full-stroke exercising of 842A and 842B will be performed at a frequency of once-every-three-refueling outages.

2.3 Evaluation

Relief is requested from the 3-month frequency for the full-stroke and backflow exercising test required by ASME Section XI, IWV-3521, which states: "Check valves shall be exercised at least once every three months, except as provided by IWV-3522." IWV-3522 states that valves that cannot be exercised during plant operation shall be specially identified by the owner and shall be

full-stroke exercised during cold shutdown.

The category A/C valves 842A and B open to provide a flow path from the SI accumulators to the RCS cold leg during certain accidents. The valves are normally closed. In the closed position, the valves function as RCS pressure isolation valves.

Full-stroke exercise testing of these valves quarterly during power operations is not practicable because the accumulators are not capable of overcoming normal operating RCS pressure. These check valves cannot be tested by discharging the accumulators into the RCS during cold shutdowns because of risk associated with low-temperature overpressurization of the RCS.

For the valves in question, relief request VR-8 Revision 1 proposes to part-stroke exercise quarterly and full-stroke exercise every three refueling outages. This proposal is an improvement over relief request VR-8, which provided for valve disassembly in lieu of the full-stroke exercise testing, since the staff considers valve disassembly and inspection to be a maintenance procedure that is not equivalent to exercising produced by fluid flow. However, the proposed interval of every three refueling outages is a substantial extension of the Code-required test frequency.

GL 89-04 states in Position 2 that extension of the valve disassembly inspection interval to one valve every other refueling outage should only be considered in cases of extreme hardship where the extension is supported by actual in-plant data from previous testing. Position 2 also states that extension of the valve disassembly/inspection interval from that allowed by the Code (quarterly or cold shutdown frequency) to longer than once every 6 years is a substantial change which may not be justified by the valve failure rate data for all valve groupings. Although the licensee's proposed alternative no longer involves disassembly/inspection, the Position 2 provision for extension of the testing interval is applicable for the proposed interval of every three refueling outages. The licensee should provide documentation of extreme hardship and actual in-plant data from previous testing to support the extended test interval of every three refueling outages.

Regarding the definition of extreme hardship, the staff's response to Question Group 19 (see NUREG-1482 at pp. 13 to 14) states that the existence of "extreme hardship" that would allow extension of the schedule is dependent on the particular circumstances at the plant. To determine whether extreme hardship exists, the staff's response to Question 19 states that the licensee should conduct a detailed evaluation of the various competing factors:

> First, the licensee should determine the effect on plant safety that would result from the proposed schedule extension. The maintenance history of the component and other information relevant to its reliability should be reviewed to determine whether the decrease in assurance of plant safety resulting from the schedule extension is justified. A need to offload the reactor core, such as when testing the

combined injection header check valves at some plants, or to operate at mid-level of the reactor coolant loops may be considered. The radiation exposure that would result from disassembly and inspection is a factor to be considered under the ALARA principle, but it should be judged in combination with all of the other factors.

In their submittal dated January 12, 1996, the licensee states that, to perform the test, the plant must be maintained in an off-normal condition with a risk for thermal shock of the accumulator nozzles and for nitrogen injection and possible entrainment in the RCS and that the performance of this test also involves added personnel radiological exposure. The licensee indicates that this test method requires extensive planning and setup and substantially impacts the refueling outage schedule at the start of the shutdown. Further, the licensee states that these valves have only experienced flow during testing such that degradation and wear are minimal. The mechanical condition of the valves was found to be excellent when disassembled as part of the commitment made in Relief Request VR-8.

With regard to justifying the proposed full-stroke exercising frequency of every three refueling outages, the licensee's basis does not show evidence of extreme hardship. The accumulator check valves are typically tested on a refueling outage frequency at other plants; therefore, the licensee would be expected to document unusual conditions involving extreme hardship to justify testing on an every-three-refueling-outages frequency at Ginna. The documentation should be detailed enough so that it is evident that testing involves extreme hardship. If personnel radiation exposure concerns form part of the argument, then information about the general area radiation field, local hot spots, plant radiation limits and stay times, and the amount of exposure personnel performing the test would receive should be included. Bases should include actual plant data from previous examinations and show that the longer testing interval will provide adequate assurance of continued valve operational readiness.

Typically, the licensees would full-stroke exercise the accumulator check valves on a refueling outage frequency. However, given that these valves have experienced minimal use and wear and that mechanical condition of the valves has been found to be excellent during previous disassembly and inspection activities, the burden of testing these valves during the current refueling outage would not be compensated by additional quality and safety. Therefore, an interim relief can be authorized for one year in order to allow time for the licensee to provide additional basis to justify the 6-year test interval.

2.4 Conclusion

Based on the determination that the proposal as modified by this SE will not compromise the reasonable assurance of operational readiness and that compliance with the Code would result in hardship without a compensating increase in the level of quality and safety, the proposed alternative is authorized for one year pursuant to § 50.55a(a)(3)(ii) in order for the licensee to provide documentation of extreme hardship and actual in-plant data

from previous testing to support the extended test interval of every three refueling outages.

3.0 RELIEF REQUEST VR-9 REVISION 1

Relief is requested from the quarterly exercising requirements of IWV-3522 for SI check valves 867A and 867B. Relief request VR-9 Revision 1 proposes to part-stroke exercise each refueling outage and full-stroke exercise once every three refueling outages. The previous version of this relief request, which provided for valve disassembly instead of full-stroke exercise, was approved in an SE provided by letter dated October 20, 1992.

3.1 Licensee's Basis For Request

These valves open to provide a flowpath from the SI accumulators or the SI pumps to the RCS cold legs.

Full-stroke or part-stroke open and close exercising during normal power operation cannot be accomplished since system pressures available to perform the test are not enough to overcome RCS pressure. A test method that permits and confirms full-stroke exercising of these check valves during cold shutdown has been developed for Ginna Station. To perform the test, the plant must be maintained in an off-normal condition with a risk for nitrogen injection and possible entrainment in the RCS. The performance of this test also involves added personnel radiological exposure. Additionally, this test method requires extensive planning and setup and substantially impacts the refueling outage schedule at the start of the shutdown.

As a result of the implementation of this check valve test method, the need for periodic disassembly to satisfy code requirements would no longer exist thereby eliminating the potential for improper reassembly. The maintenance history of these check valves documents that these valves are found in excellent mechanical condition upon disassembly. With an excellent mechanical condition baseline verified by periodic part-stroke and full-stroke testing, the operability of check valves 867A and 867B will continue to be ensured.

These full-flow check valve tests are considered significant infrequently performed evolutions in accordance with conservative plant management directives because of the potential for adverse impact to plant operations as a result of the off-normal plant configurations required for conducting the test. Analyses performed in preparation for these tests addressed the potential for nitrogen injection into the RCS while the residual heat removal system is in operation and for thermal shock of the SI accumulator nozzles. Although, because of controls established for the performance of these tests, the probability for nitrogen injection into the RCS is extremely low and the thermal impact to the SI accumulator nozzles is not significant, these challenges to systems and components important to safety are not activities that the licensee believes are necessary and prudent to perform more than reasonably needed.

As stated in the basis for relief for the existing NRC-approved relief request VR-9, which employs check valve disassembly frequencies of once-per-6 years, the mechanical condition of these valves has been found to be excellent when disassembled. The successful full-flow testing conducted during the 1995 refueling outage validated this excellent mechanical condition. Since these valves only experience flow during testing and do not experience flow during any normal system-operational configuration, check valve degradation and wear is minimal.

Because of the system design of the Ginna Station, these check valves do not function as part of the RHR system nor are they employed during RHR system operation as they are in other nuclear power plant system designs. Licensees who test their SI check valves at a frequency less than once-every-three refueling outages typically employ system designs where these check valves are utilized for RCS cooling using the RHR system which subjects these check valves to significantly larger amounts of degradation and wear.

3.2 Proposed Alternate Testing

These valves will be part-stroke exercised each refueling outage using actual SI flow into the RCS. Full-stroke exercising of 867A and 867B will be performed at a frequency of once-every-three refueling outages.

3.3 Evaluation

Relief is requested from the 3-month frequency for the full-stroke and backflow exercising test required by ASME Section XI, IWV-3521, which states: "Check valves shall be exercised at least once every three months, except as provided by IWV-3522." IWV-3522 states that valves that cannot be exercised during plant operation shall be specially identified by the owner and shall be full-stroke exercised during cold shutdown.

The category A/C valves 867A and B open to provide a flow path from the SI accumulators or the SI pumps to the RCS cold leg during certain accidents. The valves are normally closed. In the closed position, the valves function as RCS pressure isolation valves.

Full or part-stroke exercising these valves quarterly during power operation is not practicable because the accumulators or the SI pumps are not capable of overcoming normal operating RCS pressure. These check valves cannot be full- or part-stroke exercise tested by establishing SI pump flow and/or discharging the accumulators into the RCS during cold shutdowns because of risk associated with low-temperature overpressurization of the RCS.

For the valves in question, relief request VR-9 Revision 1 proposes to part-stroke exercise every refueling outage and full-stroke exercise every three refueling outages. This proposal is an improvement over Relief Request VR-9, which provided for valve disassembly in lieu of full-stroke exercise testing, since the staff considers valve disassembly and inspection to be a maintenance procedure that is not equivalent to exercising produced by fluid flow.

However, the proposed interval of every three refueling outages is a substantial extension of the Code required test frequency.

GL 89-04 states in Position 2 that extension of the valve disassembly/inspection interval to one-valve-every-other refueling outage should only be considered in cases of extreme hardship where the extension is supported by actual in-plant data from previous testing. Position 2 also states that extension of the valve disassembly/inspection interval from that allowed by the Code (quarterly or cold shutdown frequency) to longer than once-every-year is a substantial change which may not be justified by the valve failure rate data for all valve groupings. Although the licensee's proposed alternative no longer involves disassembly/inspection, the Position 2 provision for extension of the testing interval is applicable for this case. The licensee should document extreme hardship and actual in-plant data from previous testing to support the extended test interval of every three refueling outages.

Regarding the definition of extreme hardship, the staff's response to Question Group 19 (see NUREG-1482 at pp. 13 to 14) states that the existence of "extreme hardship" that would allow extension of the schedule is dependent on the particular circumstances at the plant. To determine whether extreme hardship exists, the staff's response to Question 19 states that the licensee should conduct a detailed evaluation of the various competing factors:

> First, the licensee should determine the effect on plant safety that would result from the proposed schedule extension. The maintenance history of the component and other information relevant to its reliability should be reviewed to determine whether the decrease in assurance of plant safety resulting from the schedule extension is justified. A need to offload the reactor core, such as when testing the combined injection header check valves at some plants, or to operate at mid-level of the reactor coolant loops may be considered. The radiation exposure that would result from disassembly and inspection is a factor to be considered under the ALARA principle, but it should be judged in combination with all of the other factors.

In their submittal dated January 12, 1996, the licensee states that, to perform the test, the plant must be maintained in an off-normal condition with a risk for thermal shock of the accumulator nozzles and for nitrogen injection and possible entrainment in the RCS and that the performance of this test also involves added personnel radiological exposure. The licensee indicates that this test method requires extensive planning and setup and substantially impacts the refueling outage schedule at the start of the shutdown. Further, the licensee states that these valves have only experienced flow during testing such that degradation and wear are minimal. The mechanical condition of the valves was found to be excellent when disassembled as part of the commitment made in Relief Request VR-9.

With regard to justifying the proposed full-stroke exercising frequency of every three refueling outages, the licensee's basis does not show evidence of extreme hardship. The accumulator check valves are typically tested on a

refueling outage frequency at other plants; therefore, the licensee would be expected to document unusual conditions involving extreme hardship to justify testing on an every-three-refueling-outages frequency at Ginna. The documentation should be detailed enough so that it is evident that testing involves extreme hardship. If personnel radiation exposure concerns form part of the argument, then information about the general area radiation field, local hot spots, plant radiation limits and stay times, and the amount of exposure personnel performing the test would receive should be included. Bases should include actual plant data from previous examinations and show that the longer testing interval will provide adequate assurance of continued valve operational readiness.

Typically, the licensees would full-stroke exercise the accumulator check valves on a refueling outage frequency. However, given that these valves have experienced minimal use and wear and that mechanical condition of the valves has been found to be excellent during previous disassembly and inspection activities, the burden of testing these valves during the current refueling outage would not be compensated by additional quality and safety. Therefore, an interim relief can be authorized for 1 year in order to allow time for the licensee to provide additional basis to justify the 6-year test interval.

3.4 Conclusion

Based on the determination that the proposal as modified by this SE will not compromise the reasonable assurance of operational readiness and that compliance with the Code would result in hardship without a compensating increase in the level of quality and safety, the proposed alternative is authorized for one year pursuant to § 50.55a(a)(3)(ii) in order for the licensee to provide documentation of extreme hardship and actual in-plant data from previous testing to support the extended test interval of every three refueling outages.

4.0 RELIEF REQUEST PR-9 REVISION 1

For charging pumps A, B, and C, PR-9 Revision 1 requests relief from the requirements of Section XI, Paragraph IWP-3100 for (1) establishing fixed differential pressure or flow rate reference points, (2) measurement of differential pressure, and (3) establishing allowable range of flow rates specified in IWP-3100-2. The licensee proposes to (1) adjust the pump speed to a reference value instead of establishing fixed differential pressure or flow rate reference points, (2) measure pump discharge pressure per OM-6, Table 2 in lieu of differential pressure, and (3) designate a minimum operability limit of 15 gpm per Technical Specification in place of the allowable range of flow rates specified in IWP-3100-2.

4.1 Licensee's Basis For Request

The charging pumps function is to control RCS inventory, chemistry conditions, activity level, and boron concentration and to provide seal water to the RCPs. The charging pumps are variable-speed positive displacement type pumps.

The test method developed for these pumps involves attaining the reference baseline speed and the measurement of flow rate, discharge pressure, vibration and oil level. Since the resistance of the system is fixed by RCP seal and letdown flow, it would cause an unnecessary perturbation upon pressurizer level control to vary the charging flow rate to the RCS. The establishment of the reference speed and the verification of acceptable flow rate have been proven to provide an accurate and repeatable indication of pump/varidrive performance degradation.

The measurement of pump inlet pressure provides no useful data for evaluation of pump performance or for detecting pump degradation; and since pump discharge pressure is dependent upon RCS pressure, the recording of pump differential pressure for positive-displacement type pumps is not applicable.

Operation of the charging pumps and the identification of excessive pump leakage is continuously monitored. Periodic testing using the allowable ranges of Table IWP-3100-2 often results in the identification of insignificant deviations that do not affect charging pump operability. These pumps are subject to performance differences resulting from varidrive air controller drift, varidrive drive belt slippage, pump plunger leakage, discharge relief valve leakage and flow instrument calibration drift. Since the minimum operability limit for these pumps is 15 gpm to ensure safety-function performance (boron addition to compensate for Xenon decay), performance deviations that exceed the Alert and Required Action ranges of Table IWP-3100-2 result in unnecessary corrective actions per IWP-3230. Upon loss of instrument air, the charging pumps revert to minimum speed which, by design, will deliver a minimum of 15 gpm per pump. The establishment of a reference flow rate of 37.5 gpm, ± 10 gpm, per pump ensures the safety-function flow rate is always attainable. Since the charging pumps are continuously monitored and verified to be delivering greater than 15 gpm when in service, no Alert Range values will be established.

4.2 Proposed Alternate Testing

In lieu of varying the resistance of the system until the differential pressure or flow rate equals the corresponding reference value, the speed of the pump will be adjusted to the corresponding reference value.

Pump discharge pressure shall be measured in lieu of pump inlet and differential pressure per OM-1988, Part 6, Table 2.

The reference flow rate to be verified at the reference speed shall be 37.5 gpm, ± 10 gpm. No Alert Range values will be designated. The minimum operability limit will be designated as 15 gpm per R. E. Ginna Nuclear Power Plant Technical Specifications.

4.3 Evaluation

The ASME Section XI, IWP requires that pump flow rate and differential pressure be evaluated against reference values to monitor pump condition and

to allow detection of hydraulic degradation. The charging pumps operate under varying differential pressure conditions. A positive displacement pump flow does not vary appreciably with variations in differential pressure. Under these circumstances, it would not be practical to establish a fixed differential pressure reference point for testing the positive displacement charging pumps; and the licensee indicates that varying the charging flow rate to a reference value could cause unwanted problems related to pressurizer level control.

When it is impractical to test a pump at a reference value of flow or differential pressure, comparing test parameters to an established reference curve may be an acceptable alternative. Pump curves represent a set of infinite reference points of flow rate and differential pressure. Establishing a reference curve for the positive displacement pump when it is known to be operating acceptably, and basing the acceptance criteria on this curve, can permit evaluation of pump condition and detection of degradation, though not in accordance with IWP. However, there is a greater potential for error associated with the use of pump curves. The licensee's proposal to set the pump speed to a reference value instead of establishing fixed discharge pressure or flow rate reference points is an acceptable alternative provided the following elements are incorporated into the IST program and procedures for developing and implementing the curves:

(1) Curves are developed, or manufacture's pump curves are validated, when the pumps are known to be operating acceptably.

(2) The reference points used to develop or validate the curve are measured using instruments at least as accurate as required by the Code.

(3) Curves are based on an adequate number of points, with a minimum of five.

(4) Points are in a range which includes or is as close as practicable to design basis flow rates.

(5) Acceptance criteria based on the curves do not conflict with Technical Specification or Facility Safety Analysis Report operability criteria for flow rate and discharge pressure.

(6) If vibration levels vary significantly over the range of pump conditions, a method for assigning appropriate vibration acceptance criteria should be developed for regions of the pump curve.

(7) When the reference curve may have been affected by repair, replacement, or routine service, a new reference curve shall be determined or the previous curve revalidated by an inservice test.

The acceptable alternative to establishing a fixed set of reference values is delineated in NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power

Plants," Section 5.2, "Use of Variable Reference Value for Flow Rate and Differential Pressure During Pump Testing."

The licensee has not provided adequate basis to justify the use of a minimum operability limit of 15 gpm per Technical Specifications in place of the allowable range of flow rates specified in IWP-3100-2. Based on the information provided, there is no reasonable assurance that such a limit based on system requirements would adequately detect degradation at the component level. Before this operability limit can be approved, the licensee will have to provide additional bases including vendor's recommendation and historical test and repair data showing that the minimum operability limit of 15 gpm without the Alert Range will adequately detect hydraulic degradation of these charging pumps.

The staff position on the measurement of discharge pressure in lieu of differential pressure for positive displacement pumps is addressed in Section 5.1.2 of NUREG-1482. OM-6 does not require measurement of inlet or differential pressure for these pumps, but rather requires measurement of pump discharge pressure. The guidance in NUREG-1482, Section 5.1.2, through GL 89-04, Supplement 1, permits the licensee to eliminate measurement of pump differential pressure for positive displacement pumps provided that discharge pressure is monitored with the specified limits of OM-6. Measuring and evaluating discharge pressure and flow rate adequately monitors the hydraulic condition of these pumps.

4.4 Conclusion

Based on the determination that compliance with the Code requirements is impractical, and considering the burden on the licensee if the Code requirements are imposed, relief is granted from the IWP-3100 requirement on the first aspect of PR-9 Revision 1 on establishing fixed discharge pressure or flow rate reference value pursuant to 10 CFR 50.55a(f)(6)(i) provided the seven elements identified in Section 4.3 above are incorporated into the IST program.

With respect to the second aspect of PR-9 Revision 1, the licensee's proposed alternative to measure discharge pressure in lieu of differential pressure for positive displacement pumps is approved per NUREG-1482, Section 5.1.2, through GL 89-04, Supplement 1, provided that discharge pressure is monitored with the specified limits of OM-6.

Relief is denied regarding the third aspect of PR-09 Revision 1 for the use of a minimum operability limit of 15 gpm per Technical Specification in place of the allowable range of flow rates specified in IWP-3100-2. Before this operability limit can be approved, the licensee will have to provide additional bases including vendor's recommendation and historical test and repair data showing that the minimum operability limit of 15 gpm without the Alert Range will adequately detect hydraulic degradation of these charging pumps.

5.0 CONCLUSION

The staff concludes that the relief requests as evaluated and modified by this SE will not compromise the reasonable assurance of operational readiness of pumps and valves in question to perform their safety-related functions. The staff has determined that approval of relief requests pursuant to 10 CFR 50.55a(a)(3)(ii) or (f)(6)(i) is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest. Where relief is not approved, the burden on the applicant if the Code requirements were imposed has been considered in the staff's evaluation.

Principal Contributor: K. Dempsey

Date: May 28, 1996

RELIEF REQUEST PR-9 REVISION 1

Based on the determination that compliance with the Code requirements is impractical, and considering the burden on the licensee if the Code requirements are imposed, relief is granted from the IWP-3100 requirement on the first aspect of PR-9 Revision 1 on establishing fixed discharge pressure or flow rate reference value pursuant to § 50.55a(f)(6)(i) provided the seven elements identified in Section 4.3 of the SE are incorporated into the IST program.

With respect to the second aspect of PR-9 Revision 1, the licensee's proposed alternative to measure discharge pressure in lieu of differential pressure for positive displacement pumps is approved per NUREG-1482, Section 5.1.2, through GL 89-04, Supplement 1, provided that discharge pressure is monitored with the specified limits of OM-6.

Relief is denied regarding the third aspect of PR-9 Revision 1 for the use of a minimum operability limit of 15 gpm per Technical Specifications in place of the allowable range of flow rates specified in IWP-3100-2. Before this operability limit can be approved, the licensee will have to provide additional bases including vendor's recommendation and historical test and repair data showing that the minimum operability limit of 15 gpm without the Alert Range will adequately detect hydraulic degradation of these charging pumps.

The NRC staff concludes that the relief requests as evaluated and modified by the SE will not compromise the reasonable assurance of operational readiness of pumps and valves in question to perform their safety-related functions. The staff has determined that authorization of alternative or approval of relief requests pursuant to 10 CFR 50.55a(a)(3)(ii) or (f)(6)(i) is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest.

Sincerely,
ORIGINAL SIGNED BY ALEXANDER W. DROMERICK FOR:

Jocelyn A. Mitchell, Acting Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-244

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION:

Docket File	SVarga	ACRS
PUBLIC	JZwolinski	WDean
PDI-1 Plant	JMitchell	LDoerflein, RGI
WRussell	GVissing	KDempsey
FMiraglia	SLittle	GHill(2)
RZimmerman	OGC	

DOCUMENT NAME: G:\GINNA\GI94509.REL #15/20 B

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	LA:PDI-1	PM:PDI-1	BC:EMEB	OGC	D:PDI-1
NAME	SLittle	GVissing:smm	RWessman	EHoller	JMitchell
DATE	05/23/96	05/16/96	05/21/96	05/20/96	05/28/96

OFFICIAL RECORD COPY