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### SUMMARY - IST PROGRAM CHANGES (CONTINUED)

8. The following items are changed on PASS system valves, SV-4594 A&B, SV-4595 A&B, and SV-8772 A&B:

SV-4594B is renamed valve SV-4595A.

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SV-4594B and SV-4595B are added to the program.

The maximum stroke time tests (BTC) are established at 5 sec.

Position indication tests are added.

Relief Request VR-32 is changed to VR-34.

- 9. CV-1859B and CV-1867B BTC maximum stroke times are changed from 30 sec. to 7 sec.
- 10. MO-1908 normal position is changed from open to closed.
- 11. CV-2002 actuator type is changed from SAT to SA.
- 12. V-22-26 test is from CT-CC to CT-CO.
- Reference to Relief requests VR-49 and VR-50 are added to the valve listing.
- 14. CV-4304 and CV-4305 BTO maximum stroke times are changed from 42 sec. to 5 sec.
- 15. V-46-26 and V-46-30 P&ID coordinates are changed from D-7 to B-7.
- 16. CV-5703 A & B are changed to manual valves V-57-75 and V-57-76 and CV-5719 A & B are changed to manual valves V-57-77 and V-57-78.
- 17. Note 7 is deleted.

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DUANE ARNOLD ENERGY CENTER

INSERVICE TESTING PROGRAM

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12-19-85 DATE

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Effective Date:

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Date 11/01/85 Rev. 7

Iowa Electric Light and Power Company Duane Arnold Energy Center (Docket No. 50-331)

## ASME INSERVICE TESTING PROGRAM

FOR

PUMPS AND VALVES

## RECORD OF REVISIONS

## REVISION

## DATE

Original	March 1, 1978
Rev. 1	0ctober, 1978
Rev. 2	May 1, 1980
Rev. 3	November 1, 1980
Rev. 4	January 1, 1983
Rev. 5	December 23, 1983
Rev. 6	August 1, 1984
Rev. 7	November 1, 1985

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## 1.0 INTRODUCTION

Revision 7 of the Duane Arnold Energy Center (Unit 1) ASME Inservice Testing Program for Pumps and Valves will be in effect through February 1, 1995, the end of the second 120-month (10-year) inspection interval, unless changed for other reasons. The program will be updated prior to the start of the third inspection interval in accordance with the requirements of 10CFR 50.55a(g).

This document outlines the inservice testing (IST) program for Duane Arnold Energy Center, based on the requirements of Section XI of the ASME Boiler & Pressure Vessel Code, 1980 Edition through the Winter 1981 Addenda. All references to IWP or IWV in this document correspond to Subsections IWP or IWV, respectively, of ASME Section XI, 1980 Edition through the Winter 1981 Addenda unless otherwise noted.

The inservice inspection (ISI) classification boundaries for the Duane Arnold Energy Center are identical to the design classification or quality group boundaries shown on the plant piping and instrument diagrams (P&IDs). This IST program was developed using the ISI classification boundaries and the following documents:

- Title 10, Code of Federal Regulations, Part 50, paragraph 50.55a(g)
- NRC Regulatory Guides-Division 1
- Standard Review Plan 3.9.6, "Inservice Testing of Pumps and Valves"
- Division 1 (Draft) Regulatory Guide and Value/Impact Statement, "Identification of Valves for Inclusion in Inservice Test Programs"
- "NRC Staff Guidance for Preparing Pump and Valve Testing Programs and Associated Relief Request," January 1978
- Updated Final Safety Analysis Report, Duane Arnold Energy Center
- Technical Specifications, Duane Arnold Energy Center
- Safety Evaluation via D. B. Vassallo's letter to L. Liu dated September 26, 1983.

The inservice tests identified in this program will verify the operational readiness of pumps and valves whose functions are required to mitigate the consequences of an accident or to bring the reactor to a cold shutdown condition. The ISI classification of each pump and valve matches the ISI classification indicated on the P&IDs excepting those pumps and valves in the IST boundaries that are identified as non-classed (NC).

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## 2.0 TESTING PROGRAM FOR PUMPS

- 2.1 General Information
- 2.1.1 Applicable Code

This Inservice Testing Program for pumps meets the requirements of Subsection IWP of Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition through the Winter of 1981 Addenda. Where these requirements are determined to be impractical, specific requests for relief are included in Section 2.2.

2.1.2 Pump Program Tables

Appendix A lists the pumps included in the Duane Arnold Energy Center IST Program. Data contained in these tables identifies those pumps subject to inservice testing with the respective inservice test quantities, testing intervals, and any applicable remarks. The column headings are explained below:

- PUMP NUMBER: The pump identification number
- PUMP NAME: The system of which the pump is a component.
- CLASS: The ISI classification of the pump
- <u>P&ID:</u> The DAEC drawing number for the P&ID referring to the pump
- <u>COOR:</u> The drawing coordinate location of the pump on the P&ID

## SPEED, INLET PRES, DIFF PRES, FLOWRATE, VIBRATION

AND BEARING TEMP: Inservice test quantities to be measured. When the character "Y" appears in a particular test quantity column, that quantity will be measured during inservice testing in accordance with Subsection IWP. If a modified test is planned or if the character "N" appears in a particular test quantity column, a request for relief number will be referenced. Requests for relief are identified PR-XX. Requests for relief are included in Section 2.2.

TEST INTERVAL: The frequency of testing.

REMARKS: Remarks in the IST Program are coded as NOTE 001, NOTE 002, etc.

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- 2.1.3 Measurement of Test Quantities
  - SPEED: Per Subarticle IWP-4400, shaft speed measurements are not applicable (NA) for pumps directly coupled to synchronous or induction-type drivers. For variable speed pumps, the pump speed is set at the reference speed per Subarticle IWP-3100.
  - INLET PRESSURE: For pumps taking suction from a tank or the residual heat removal (RHR) service water complex basin, inlet pressure may be calculated (using appropriate correction factors) from a measured tank or basin level. (See Relief Request No. PR-4) All other inlet pressure measurements will be taken using pressure instruments at or near the pump inlet.
  - DIFFERENTIAL PRESSURE: Differential pressure will be calculated from inlet and discharge pressure measurements or measured directly from differential pressure instrumentation.
  - FLOWRATE: Pump flowrate will be measured by direct reading based on inline flow instrumentation or will be calculated from tank level change over an elapsed time interval.
  - VIBRATION: Pump vibration will be measured when accessibility allows.
- 2.1.4 Allowable Ranges of Test Quantities

The allowable ranges specified in Table IWP-3100-2 will be used for differential pressure, flow, and vibration measurements except as discussed in PR-8 and PR-13. In some cases, the performance of a pump may be adequate to fulfill its safety function even though there is some parameter variation outside of the allowable ranges as set forth in Table IWP-3100-2. Should a measured test quantity fall outside the allowable range, an expanded allowable range may be determined, on a case basis, in accordance with ASME Code interpretation XI-1-79-19.

2.1.5 Bearing Lubricant

As specified in Table IWP-3100-1, pump bearing lubricant level or pressure will be observed during inservice testing, when practical.

2.1.6 Instrument Accuracy

Instrument accuracies for the DAEC IST Program will generally conform to those given in Table IWP-4110-1. In some cases, relief has been requested from the requirements of Table IWP-4110-1. (See Relief Requests Nos. PR-7, PR-11 and PR-12).

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SECTION 2.2

# RELIEF REQUESTS FOR PUMP TESTING PROGRAM

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## RELIEF REQUEST NO. PR-1

#### PUMP NUMBER:

DIESEL FUEL OIL TRANSFER 1P-44A, B

## SECTION XI REQUIREMENT:

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Measure pump vibration amplitude quarterly and bearing temperature annually. (IWP-3100)

## BASIS FOR RELIEF:

The diesel fuel oil pumps and motors are submerged inside the diesel fuel oil tank (IT-35) and thus are inaccessible for the purpose of taking such measurements.

#### ALTERNATE TESTING:

No alternate testing is proposed.

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RELIEF REQUEST NO. PR-2

## PUMP NUMBER:

EMERGENCY SERVICE WATER (ESW) 1P-99A, B

#### SECTION XI REQUIREMENT:

Measure bearing temperature annually. (IWP-3100)

#### BASIS FOR RELIEF:

The ESW pump motors are provided with roller bearings immersed in an integral oil bath reservoir. Discussions with the manufacturer of the motors (General Electric Company) indicate that measuring bearing temperatures would be difficult and of marginal value. Likewise, measuring oil temperature on an annual basis, is also questionable. It is estimated that approximately four hours of pump operation would be required for the oil temperature to stabilize. Furthermore, in this particular case due to the arrangement of the oil reservoir, oil temperature is more a function of winding and ambient air temperatures than of bearing temperature. It is likely that annual trends of oil temperature in this case would be of little value in determining the condition of motor bearings.

#### ALTERNATE TESTING:

No alternate testing is proposed.

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#### RELIEF REQUEST NO. PR-3

#### PUMP NUMBER:

HIGH PRESSURE COOLANT INJECTION (HPCI) booster and main 1P-216 REACTOR CORE ISOLATION COOLING (RCIC) 1P-226

#### SECTION XI REQUIREMENT:

Measure pump vibration amplitude guarterly. (IWP-3100)

### BASIS FOR RELIEF:

These measurements require stationing a man in close proximity to the pumps in the HPCI and RCIC rooms. Because of the rooms' layout, the man would be in a confined area distant from the exits. Consequently, should an accident occur such as the rupture of a steam line rupture disc, which has previously occurred (Ref. RO 78-02), the man probably could not exit in time to prevent serious injury. Thus, measurement of HPCI and RCIC pump vibration represents a significant safety hazard.

## ALTERNATE TESTING:

Facilities for portable remote reading of vibration are being installed and are expected to be operational in February, 1986. At that time vibration measurements will be taken in accordance with Subarticle IWP-3100.

#### RELIEF REQUEST NO. PR-4

#### PUMP NUMBER:

RHR SERVICE WATER 1P-22A, B, C, D ESW 1P-99A, B RIVER WATER 1P-117A, B, C, D DIESEL FUEL OIL TRANSFER 1P-44A, B STANDBY LIQUID CONTROL 1P-230A, B

#### SECTION XI REQUIREMENT:

Measure pump inlet pressure before starting the pump and during the test. (Table IWP-3100-1)

## BASIS FOR RELIEF:

The above listed pumps, except for 1P-230 A & B, are submerged and have inlet pressures which correspond to levels of the wet pit, the river, or diesel oil storage tank. Because these levels remain relatively constant before and during the test, only one measurement per test is necessary.

In the case of the standby liquid control (SBLC) pumps, 1P-230 A & B, no gauge is installed at the pump suction and suction pressure is assumed to be equivalent to the static head corresponding to the average height of test tank level above the pump suction.

## ALTERNATE TESTING:

One inlet pressure, based on wet pit, river, or oil tank level, will be calculated per test for pumps other than 1P-230 A & B.

One suction pressure for the SBLC Pumps will be calculated from the average test tank level during the test.

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### RELIEF REQUEST NO. PR-5

#### PUMP NUMBER:

RIVER WATER PUMPS 1P-117A, B, C, D CORE SPRAY PUMPS 1P-211A, B HPCI PUMP 1P-216 RCIC PUMP 1P-226 LOW PRESSURE COOLANT INJECTION PUMPS 1P-229A, B, C, D

#### SECTION XI REQUIREMENT:

Reference values shall be at points of operation readily duplicated during subsequent inservice testing. (IWP-3110)

### BASIS FOR RELIEF:

Operating experience has shown that flowrates (independent variables during inservice performance testing) cannot be readily duplicated with the present flow control systems. Efforts to exactly duplicate reference values would require excessive valve manipulation which could ultimately result in damage to valves or operators.

### ALTERNATE TESTING:

DAEC will implement two alternate means of measuring pump performance.

#### Alternate 1:

Reference values for flowrate (Qr) and differential pressure (dPr) will be established during the reference value tests. In lieu of duplicating Qr during subsequent inservice performance tests, a flowrate (Ql), lower than Qr, will be obtained and recorded along with the corresponding differential pressure (dPl). Next, a flowrate (Qh), higher than Qr, will be obtained and recorded along with its corresponding differential pressure (dPh). These two points, (Ql, dPl) and (Qh, dPh), define a small portion of the pump curve which includes the point Qr (See Figure Pr-5.1). Using linear interpolation between the two points, a differential pressure (dP) will be computed from Qr. This computed value for dP will be recorded and compared to the reference differential pressure (dPr) per Table IWP-3100-2.

The alternate testing procedure described above assumes that the pump curve is nearly linear between Q1 and Qh. Procedural limits for Q1 and Qh have been established and individual pump curves have been analyzed to ensure near linearity between Q1 and Qh.

#### Alternate 2:

During pump reference tests, a reference pump curve will be established or the manufacturer's pump curve will be confirmed. In lieu of duplicating a specific flowrate (Qr) during subsequent inservice performance tests, a flowrate (Qa) will be obtained and recorded along with the corresponding differential pressure (dPa). The differential pressure measurement (dPa) will be compared to the theoretical differential pressure (dP+) corresponded to the measured flowrate (Qa) on the pump curve and evaluated per the requirements of Table IWP-3100-2.



Flow Rate



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## RELIEF REQUEST NO. PR-6

#### PUMP NUMBER:

DIESEL FUEL OIL TRANSFER 1P-44A, B

#### SECTION XI REQUIREMENT:

Each pump shall be run at least five minutes under conditions as stable as system permits. (IWP-3500)

## BASIS FOR RELIEF:

The diesel fuel oil transfer pumps cannot be operated for five minutes because the available capacities of the diesel oil day tanks, to which the pumps discharge, are too small to provide sufficient volume for both five minutes of operation and flow measurement by monitoring tank level. Since the tank is filled at the end of each diesel generator operability test, about two hours of operation of the diesel generator would be needed to reduce the tank level to that required for retesting of the fuel oil pumps. The additional hour of operation of the diesel generator, beyond the one hour technical specification requirement, is unacceptable.

#### ALTERNATE TESTING:

As soon as a diesel fuel oil transfer pump reaches stable operation at the reference conditions, as indicated by a, steady reading of the discharge pressure gauge, test data will be recorded.

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## RELIEF REQUEST NO. PR-7

## PUMP NUMBER:

CORE SPRAY 1P-211A & B HIGH PRESSURE COOLANT INJECTION (HPCI) 1P-216 REACTOR CORE ISOLATION COOLING (RCIC) 1P-226

#### SECTION XI REQUIREMENT:

.Instrument accuracy shall be within the limits of Table IWP-4110-1. (IWP-4110)

## BASIS FOR RELIEF:

The instrumentation loop accuracies listed below do not meet the requirements of Table IWP-4110-1.

FUNCTION
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## LOOP ACCURACY (+ %)

Core Spray Pump Disc. Press	2.24
HPCI Pump Disc. Press	2.24
HPCI Pump Suction Press.	2.06
RCIC Pump Disc. Press.	2.24
HPCI Pump Turbine Speed	2.26
RCIC Pump Turbine Speed	2.13

Suitable 1E-qualified instrument loop elements needed to replace those existing that contribute to the problem are not commercially available at this time.

## ALTERNATE TESTING:

Inservice test measurements of pressure and speed, as discussed above, will be made using instruments with loop accuracies that are less than or equal to  $\pm$  2.26 percent of full scale.



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RELIEF REQUEST NO. PR-8

#### PUMP NUMBER:

All pumps (except Diesel Fuel Oil Transfer 1P-44A, B)

### SECTION XI REQUIREMENT:

At least one displacement vibration amplitude (peak-to-peak composite) shall be read during inservice testing. (IWP-4510)

## BASIS FOR RELIEF:

Measuring vibration in velocity units rather than displacement is an industry accepted method considered to be more sensitive to small changes that are indicative of developing mechanical problems. Velocity measurements detect not only high-amplitude vibration, characteristic of major mechanical problems, but low-amplitude vibrations caused by misalignment, imbalance, or bearing wear.

#### ALTERNATE TESTING:

Where practical, pump vibration measurements will be taken in velocity units. In all other cases, displacement measurements will conform to Paragraph IWP 4510. Acceptance criteria for velocity measurements will conform to ASME Publication 78-WA/NE-5 and Table PR-8.1.



## (1)

# TABLE PR-8.1: ALLOWABLE RANGES OF TEST QUANTITIES

QUANTITY	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
$v_r \leq .15$ in/sec	0 to .3 in/sec	.301 in/sec to .45 in/sec	> .45 in/sec
.15 in/sec < $v_r \leq .3$ in/sec	0 to .45 in/sec	.451 in/sec to .75 in/sec	> .75 in/sec
.3 in/sec < v <sub>r</sub> <u>&lt;</u> .6 in/sec	0 to .9 in/sec	.901 in/sec <sup>r</sup> to 1.0 in/sec	> 1.0 in/sec (2)
.6 in/sec < v <sub>r</sub> <u>&lt;</u> 1.0 in/sec	0 to 1.0 in/sec	None	> 1.0 in/sec (2)

Where:

- v = velocity in inches/second, peak
- v<sub>r</sub> = reference velocity
- (1) See ASME Technical Paper 78-WA/NE-5.
- (2) Upper limit is 1.0 in/sec per ISO 2372 Mechanical Vibration of Machines With Operating Speed from IO to 20 rev/s Basis for Specifying Evaluation Standards.
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### RELIEF REQUEST NO. PR-9

## PUMP NUMBER:

SCREEN WASH 1P-112A, B

## SECTION XI REQUIREMENT:

An inservice test shall be run on each pump nominally every 3 months . during normal plant operation. (IWP-3400)

## BASIS FOR RELIEF:

There is currently no appropriate permanent instrumentation installed or convenient provisions for the installation of temporary instrumentation. An engineering evaluation is underway to identify instrumentation requirements and initiate necessary modifications. Modifications will be accomplished in 1985 or relief will be requested.

## ALTERNATE TESTING:

No alternate testing is proposed until modifications are completed. These pumps are currently test-operated as part of the DAEC surveillance test program.

#### RELIEF REQUEST NO. PR-10

#### PUMP NUMBER:

DIESEL FUEL OIL TRANSFER 1P-44A, B

#### SECTION XI REQUIREMENT:

Pump test results shall be analyzed per Subarticle IWP-3200.

#### BASIS FOR RELIEF:

The ASME recognizes that the characteristics of systems containing other than steam or water (eg. fuel oil) may not necessarily lend themselves to the type and detailed test requirements as specified by Subsection IWP. This is so stated in the ASME response to WPPSS inquiry, File no. BC 77-666/NI 77-371 dated 1/8/79. (See Appendix C) In cases where test data is erratic or questionable, strict compliance with the Section XI requirements will likely result in unnecessary pump maintenance and excessive testing of the fuel oil pumps and the emergency diesel generators.

#### ALTERNATE TESTING:

Analysis of the quarterly test data will be based on Subarticle IWP-3200 or Relief Request PR-13. In those cases where the test results are obviously erratic or misleading, alternate acceptance criteria will be applied.

## RELIEF REQUEST NO. PR-11

#### PUMP NUMBER:

Various

## SECTION XI REQUIREMENT:

The full-scale range of each instrument shall be three times the reference value or less. (IWP-4120)

## **BASIS FOR RELIEF:**

The commercially available instruments used for measuring pump vibration do not provide range selections that guarantee adherence to the range limitations per Subsubarticle IWP-4120. Specifically, for the instrument used at DAEC, the scale ranges are 0 - 0.3, 0 - 1.0, 0 - 3.0, 0 - 10, and 0 - 30 mils or in/sec. Vibration measurements will be made with the instrument range selection at the lowest possible scale that includes the measured parameter.

## ALTERNATE TESTING:

No alternate method for vibration monitoring is proposed.

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## RELIEF REQUEST NO. PR-12

#### PUMP NUMBER:

CORE SPRAY 1P-211A, B RESIDUAL HEAT REMOVAL SERVICE WATER 1P-22A, B, C, D HIGH PRESSURE COOLANT INJECTION 1P-216 REACTOR CORE ISOLATION COOLING 1P-226

#### SECTION XI REQUIREMENT:

The full-scale range of each instrument shall be three times the reference value or less.  $(I_WP-4120)$ 

## BASIS FOR RELIEF:



In several instances the accuracy of installed flowrate instrumentation is unacceptable with respect to the requirements of Subsubarticle IWV-4110 and from the practical aspect of test result repeatability. In these instances, temporary instrumentation is used to replace inaccurate panel meters. However, the available electronic instruments suitable for this service generally do not meet the range limitations imposed by Subsubarticle IWP-4120 in that the instrument ranges exceed the respective reference values by greater than a factor of 3. Since the accuracies of the instruments in question are based on the actual indicated reading and not on the full-scale range of the instruments, this is considered to be acceptable. The specific systems affected are listed below:

SYSTEM	REF. VALUE	(1) INST. RANGE	(1) ACCURACY
Core Spray	30ma	0-200ma	+ 0.325 ma
RHR Service Water	.25ma	0 <b>-</b> 200ma	+ 0.288 ma
H. P. Coolant Inj.	50mv	0-200mv	<u>+</u> 0.15 mv
Rx. Core Iso. Cooling	50mv	0-200mv	<u>+</u> 0.15 mv

(1) Based on FLUKE Model 8024B Digital Multimeter

#### ALTERNATE TESTING:

No alternate method of measurement is proposed.



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## RELIEF REQUEST NO. PR-13

#### PUMP NUMBER:

All pumps

#### SECTION XI REQUIREMENT:

The allowable ranges of inservice test quantities in relation to the reference values are tabulated in Table IWP-3100-2. This table limits the acceptable performance of each pump dependent variable (flowrate or differential pressure) to a maximum of 103 percent of the respective reference value. If the test parameter should exceed this limit, it shall be declared inoperative and removed from service. (IWP-3200)

### BASIS FOR RELIEF:

The requirement to declare a pump inoperative when a test parameter exceeds the reference value by 3 percent is not technically justified, sound engineering judgement, nor acceptable plant operating practice for the following reasons:

- \* Indiscriminately declaring safety system pumps inoperative results in excessive and unneeded testing of other plant safeguard systems and components. Such testing could ultimately detract from the overall reliability of the plant safety systems. In addition, unwarranted testing unnecessarily adds to the burden of the operations force and dilutes efforts focused on the performance of their primary duties. Also, operators are subjected to additional, and unnecessary radiation exposure.
- \* The case where a test parameter exceeds the reference value is not necessarily indicative of pump degradation. It may merely signify that the reference value is probably at the lower side of the statistical scatter of the test data and the specific test in question is on the upper side. Note that the reference values are subject to the same elements of statistical error associated with any other individual test.
- \* The 3-percent limitation is overly restrictive when compared to the accuracy of the instrumentation used to gather the test data. Analysis has shown that, in order to consistantly remain below the 3-percent limit, instrument loop accuracies in the range 0.5 to 0.75 percent would be required. This represents a significantly more restrictive requirement than that established by Paragraph IWP-4110 (+ 2 percent).
- \* Power plant operating systems are not configured in a manner that provides the laboratory-type conditions demanded to meet the repeatability implied by the 3-percent restriction. Several of the tests require throttling with large gate or butterfly valves using remote manual control. Thus, non-quantifiable system flow conditions are created that are certain to affect measured test quantities.

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## RELIEF REQUEST NO. PR-13 (CONT)

- \* To ensure that reference values do not reflect operations at the lower end of the performance spectrum and, thus, ultimately be reflected in frequently exceeding the upper performance limits as a result of instrument drift, all related instrumentation is calibrated on a frequent basis.
- \* This requirement provides no additional measure of reliability to the equipment.
- \* When the upper limits are exceeded, the only reasonable way of correcting the inoperative condition is to conduct an analysis to ensure that the pump is indeed operable and capable of meeting its intended function. When this is done, in accordance with Subsubarticle IWP-3230 (c), a new reference value must be established. Due to the test conditions and methods of testing at DAEC, any change in the reference point eliminates the correlation of future test results with past pump performance. Because, the usefulness of any past data in determining a trend for pump performance is essentially eliminated a primary goal and basis for the inservice testing program could be jeopardized.

#### ALTERNATE TESTING:



Pumps will be tested in accordance with Subsection IWP with the following exceptions:

- a) The Required-action range (HIGH) will be eliminated for test quantities flowrate and differential pressure; and
- b) The Alert-range (HIGH) will be above a value equal to 105 percent of the reference value for test quantities of flowrate and differential pressure.

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### RELIEF REQUEST NO. PR-14

#### **PUMP NUMBER:**

Various

## SECTION XI REQUIREMENT:

The temperature of all centrifugal pump bearings outside the main flow path shall be measured at points selected to be responsive to changes in the temperature of the bearings. (IWP-4310)

## BASIS FOR RELIEF:

- \* Bearings of the selected pumps addressed in the DAEC IST Program are water cooled -- cooling water supplied from the flowstream or the Emergency Service Water System. Thus, bearing temperature measurements are highly dependent on the temperature of the cooling medium.
- \* The data associated with bearing temperatures taken at one-year intervals provides little statistical basis for determining the incremental degradation of a bearing or any meaningful trending information or correlation.
- \* Vibration measurements are a significantly more reliable indication of pump bearing degradation than are temperature measurements. All pumps addressed by this relief request are subjected to vibration measurements on a quarterly basis in accordance with Subarticle IWP-4500.
- \* Although excessive bearing temperature is an indication of an imminent or existing bearing failure, it is highly unlikely that such a condition would go unnoticed during routine monthly and quarterly surveillance testing since it would manifest itself in other obvious indications such as audible noise, reduced pump hydraulic performance, unusual vibration, increased motor current, etc.
- \* The gain from taking bearing measurements, which in most cases would be done locally using portable instruments, cannot offset the cost in terms of dilution of operator effort, distraction of operators from other primary duties, excessive operating periods for pumps, and personnel radiation exposure.

## ALTERNATE TESTING:

None

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## 3.0 INSERVICE TESTING PROGRAM FOR VALVES

## 3.1 General Information

This testing program for valves meets the requirements of Subsection IWV of Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition through the Winter 1981 Addenda. Where these requirements are determined to be impractical, specific requests for relief are included in Section 3.2.

Appendix B lists all ISI Class 1, 2, 3, and NC valves included in the DAEC IST Program. The following information is included for each valve:

- VALVE NUMBER: The valve identification number.
- P&ID COORDINATE: The valve location coordinates on the P&ID.
- . CLASS: The ISI classification of the valve.
- VALVE CATEGORY: The category(s) assigned to the valve based on the definitions per Subarticle IWV-2200. Four (4) separate categories are defined in the Code:
  - <u>CATEGORY A</u> Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their safety function.
  - <u>CATEGORY B</u> Valves for which a specific amount of leakage in the closed position is not measured but which require stroke testing to verify their ability to fulfill their safety function.
  - <u>CATEGORY C</u> Valves which are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves).
  - <u>CATEGORY D</u> Valves which are actuated by an energy source capable of only a single operation (eg. explosively-actuated valves).

VALVE SIZE: The nominal size of the valve in inches.

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VALVE TYPE: The valve body design as indicated by the following abbreviations:

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ANGLE BALL BUTTERFLY CHECK	ANG BAL BTF CK
EXCESS FLOW CHECK	XFC
GLOBE	GA
NEEDI F	
NOTCHED GLOBE	NGL
PLUG	PLG
RELIEF	RV
RUPTURE DIAPHRAGM	RPD
SAFETY	S٧
SHEAR	SH
STOP CHECK	SCK
	3WY
4-WAT	4WY

ACTUATOR TYPE: The type of valve actuator as indicated by the following abbreviations:

MOTOR OPERATOR	MO
AIR-PILOT OPERATOR	AP
AIR OPERATOR	AO
SOLENOID OPERATOR	SO
HYDRAULIC OPERATOR	HO
EXPLOSIVE ACUTATOR	EXP
MANUAL	M
SELF ACTUATED & MANUAL OPERATED	MSA
SELF ACTUATED	SA
SELF ACTUATED & MOTOR OPERATED	SAM
SELF ACTUATED & PILOT OPERATED	SAP
SELF ACTUATED, TESTABLE CHECK	SAT

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	• NORMAL POSITION: The position of the valve d operation, specified as fol	uring normal plant lows:
	0 Normally Open C Normally Closed 0/KL Normally Open/K 0/F0 Normally Open/F 0/FC Normally Open/F 0/K0 Normally Open/K Fail Open C/KL Normally Closed C/F0 Normally Closed C/FC Normally Closed C/FC Normally Closed Fail Closed NE Normally Energi ND Normally De-ene	ey Locked ail Open ail Closed ey Locked and /Key Locked /Fail Open /Fail Closed /Key Locked and zed rgized
	Valves with fail-safe posit either FO-fail open or FC-f	ions are indicated as ail closed.
	• <u>TEST:</u> The test(s) that will be performed to of Subsection IWV. The test definitio used are identified in Table 3.1-1.	fulfill the requirements ns and abbreviations
	<ul> <li>TEST FREQUENCY: The frequency at which the reperformed. Test frequencies 3.1-2.</li> </ul>	equired tests will be are defined in Table
	<ul> <li>MAXIMUM STROKE TIME: In seconds, for power-o Category A or B.     </li> </ul>	lue of full stroke time, perated valves in
	• MAXIMUM LEAKAGE: The leakrate acceptance cri forth in the plant records.	teria for valves are set
	<ul> <li><u>RELIEF_REQUEST</u>: The reference to a relief req valve testing. Requests for VR-XX.</li> </ul>	uest in Section 3.2 for relief are identified as

• <u>REMARKS:</u> Remarks in the IST Program are coded as NOTE 001, NOTE 002, etc.



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# TABLE 3.1-1: INSERVICE VALVE TESTS

TEST	TEST NAME	TEST DESCRIPTION
AT-1	Type Cleaktest	Containment isolation valves will be leak tested in accordance with DAEC Technical Specifications, Section 4.7.A.2.c and 10CFR50 Appendix J.
AT-2	Excess flow check valve test	Excess flow check valves will be tested in accordance with DAEC Technical Specifications, Section 4.7.D.1.d.
AT3	DELETED	
AT-4	Vacuum breaker leaktest	The suppression chamber-drywell vacuum breakers will be leak tested in accordance with DAEC Technical Specifications, Section 4.7.A.4.
AT-5	Pressure isolation valve leaktest	Those valves so designated will be leak tested in accordance with Sybsubarticle 1WV-3420 per the NRC SER.
AT-6	Accumulator check valve test	Leaktesting of accumulator check valves.
υτο	Full-stroke exercise test to the OPEN position (IWV-3412 and 3413)	Exercise testing in the open direction, verified by stroke time measurement, will be performed to confirm the full stroke capability of each valve. The stroke direction is based on the direction the valve disk must travel to fulfill a safety function.
BTC	Full-stroke exercise test to the CLOSE position (IWV-3412 and 3413)	Exercise testing in the closed direction, verified by stroke time measurement, will be performed to confirm the full stroke capability of each valve. The stroke direction is based on the direction the valve disk must travel to fulfill a safety function.

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# TABLE 3.1-1: INSERVICE VALVE TESTS (continued)

TEST	TEST NAME	TEST DESCRIPTION	
BTD	Full-stroke exercise test to de-energized position	Solenoid valves, which direct control air to main air- operated valves, are shown to stroke to their de-energized position by the proper operation of the associated main valves.	ITLE: INS
BTE	Full-stroke exercise test to energized position	Solenoid valves, which direct control air to main air- operated valves, are shown to stroke to their energized position by the proper operation of the respective main valves.	ERVICE TES
CT-CO	Check valve exercise test to OPEN position (1WV-3522)	Check valves will be exercised from the fully closed to the open positions. Verification of safety basis system flow through a check valve shall be an adequate demonstration that the valve is open. The stroke direction tested (open) is based on the direction the valve disk must travel to fulfill a safety function.	TING PROGRAM
CT-CC	Check valve exercise test to CLOSED position (IWV-3522)	Check valves will be exercised from the open to the closed positions. The stroke direction tested (closed) is based on the direction the valve disk must travel to fulfill a safety function.	
CT-SP	Safety/relief valve set point verification test (IWV-3510)	Relief and safety valve set points will be verified in accordance with IWV-3510.	0
DT	Explosive valve test (IWV-3610 and 3620)	Explosively-actuated valves will be tested in accordance with IWV-3610.	ate 11
FST	Fail-safe test (IWV-3415)	Valves with fail-safe actuators will be tested to verify proper fail-safe operation upon loss of actuator power.	/01/85
TIG	Position indication checks (IWV-3300)	Valves with position indicators will be checked to verify that remote valve indicators accurately reflect valve position.	Rev. 7

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## TABLE 3.1-2: TEST FREQUENCY

## (1)

TEST FREQUENCY	OPERATIONAL CONDITION	FREQUENCY OF TESTING
OP	Power operation	At least once per 92 days
CS	Cold shutdown	See (2) below
RR	Refueling	Nominally every two years-during reactor refueling
SP	See appropriate relief request	See appropriate relief request
5Y	No operational condition limitations	Every five years (see Paragraph IWV-3511). Applies to CT-SP test.
27	No operational condition limitations	Every two years (see Subarticle IWV-3300). Applies to PIT test.

## (1) Operational conditions are defined in DAEC Technical Specifications, page 1.0-3.

- (2) Inservice value testing will commence within 48 hours of reaching the cold shutdown condition as defined in the DAEC Technical Specifications. Testing not completed before startup may be completed during subsequent cold shutdowns. Value testing need not be performed more often than once every three months. In the case of extended cold shutdowns, the testing need not be started within the 48-hour limitation. However, in these instances, all values must be tested prior to startup.
- NOTE: It is expected that the required testing will normally be completed within 96 hours following cold shutdown. However, completion of all valve testing during cold shutdowns is not required if plant operating conditions do not permit testing of specific valves.

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SECTION 3.2

# RELIEF REQUESTS FOR INSERVICE VALVE TESTING PROGRAM

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RELIEF REQUEST NO. VR-1

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TITLE: INSERVICE TESTING PROGRAM

## RELIEF REQUEST NO. VR-2

## SYSTEMS:

Various

### COMPONENTS:

All solenoid and air-pilot operator valves without individual position indication.

### CATEGORY:

## A & B

### FUNCTION:

Solenoid and air-pilot operators are used to control actuators on many valves.

#### TEST REQUIREMENT:

Stroke time evaluation per Subparagraph IWV-3413 (b).

# BASIS FOR RELIEF:

Solenoid and air-pilot valves which control the air supply to a main valve usually do not have indicator lights. However, the operation of the main valve within its stroke time limit implies that the solenoid and/or air-pilot valve is performing satisfactorily.

## ALTERNATE TESTING:

For solenoid-operated and air pilot-operated valves which control the air supply to air-operated valves and have no individual position indication, verification that the main valve has stroked to the correct position within its respective time limits will provide adequate evidence that the solenoid or air pilot-operated valve has stroked to its proper position within the required time. When the letters "NA" appear in the stroke time column of the Inservice Testing Program Listing, the valve's stroke time is verified indirectly by the stroke time measurement of its associated main valve.

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## SYSTEM:

NUCLEAR BOILER

#### COMPONENTS:

V-14-1

#### CATEGORY:

A/C

## FUNCTION:

This valve is the reactor feedwater supply inboard isolation valve. It opens for feedwater flow and RCIC injection into the vessel and acts as a containment isolation valve.

#### TEST REQUIREMENT:

Check valves shall be exercised at least every 3 months. (IWV-3521)

## BASIS FOR RELIEF:

It is impractical to exercise this valve during normal plant operation and during cold shutdown as it is required to remain open for continued operation of the reactor water cleanup system.

#### ALTERNATE TESTING:

This valve will be exercised closed during each refueling outage and verified open during normal plant operation.

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## SYSTEM:

NUCLEAR BOILER

## COMPONENTS:

Reactor Relief Valves	Solenoid Valves
PIS No.	PIS No.
PSV-4400 *	SV-4400
PSV-4401	SV-4401
PSV-4402 *	SV-4402
PSV-4405 *	SV-4405
PSV-4406 *	SV-4406
PSV-4407	SV-4407

\*Automatic Depressurization System (ADS)

## CATEGORY:

B/C for the relief valves B for solenoid valves

## FUNCTIONS:

The functions of the relief valves are to (1) open upon receipt of an ADS signal to blowdown the reactor vessel (for the ADS valves only) and (2) act as primary system safety valves actuating on high system pressure or capable manual actuation from the control room.

The function of the solenoid valves is to energize upon receipt of a manual or ADS actuation signal and, in so doing, vent the poppet valve assembly causing the associated main valves to open.

### TEST REQUIREMENT:

Exercise and time valves every three months (BTO).

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# RELIEF REQUEST NO. VR-6 (continued)

#### BASIS FOR RELIEF:

Relief is requested from the Section XI required testing frequency of once every three months. Exercising these valves during normal operation would cause primary system pressure spikes and reactor power fluctuations which could lead to a reactor scram. These valves will be exercised once per operating cycle as specified in DAEC Technical Specifications, Section 4.6.D.3.

In addition, relief is requested from the stroke timing requirements of Section XI. It is impractical to measure stroke times for relief and solenoid valves since the stroke times are on the order of 100 milliseconds. An abrupt change in the turbine bypass valve position will verify that the solenoid and relief valves have satisfactorily performed their function.

NOTE: Stroke timing requirements for the solenoid valves are discussed in Relief Request No. VR-2.

# ALTERNATE TESTING:

These valves will be exercised at least once per operating cycle. The response of these valves will be verified by observing an abrupt change in the turbine bypass valve position. Stroke times will not be measured.

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## SYSTEM:

NUCLEAR BOILER

#### COMPONENTS:

PSV-4439A	PSV-4439D
PSV-4439B	PSV-4439E
PSV-4439C	PSV-4439F

#### CATEGORY:

С

#### FUNCTION:

During a relief valve discharge, these valves must be closed to prevent steam release into the drywell. After a relief valve discharge, steam remaining in the relief valve discharge piping will condense drawing a vacuum in the discharge line. These relief valves (vacuum breakers) open to admit air to the discharge line thus relieving the vacuum condition.

## TEST REQUIREMENT:

Exercise in the open and close directions every three months (CT-CC, CT-CO).

## BASIS FOR RELIEF:

These valves have no external means of actuation for exercising. The only practical method for exercising these valves is by manually pushing the disk from its seat. This requires access to the valves, which are located in the drywell.

## ALTERNATE TESTING:

These valves will be exercised during each refueling outage.

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## SYSTEM:

NUCLEAR BOILER, REACTOR RECIRCULATION, REACTOR CORE ISOLATION COOLING, CORE SPRAY, HIGH PRESSURE COOLANT INJECTION, AND REACTOR VESSEL INSTRUMENTATION

## COMPONENTS:

Excess flow check valves

#### CATEGORY:

A/C

## FUNCTION:

Excess flow check valves limit leakage from the reactor coolant system in the event of an instrumentation piping failure outside containment. They also perform a containment isolation function if an instrument line were to fail inside and outside of the containment vessel.

#### TEST REQUIREMENT:

Exercise in the closed direction every three months (CT-CC). Conduct valve seat leakage tests once every two (2) years. (AT-1)

#### BASIS FOR RELIEF:

Exercising of these valves is impractical during normal operation since it requires isolating instrumentation downstream of the excess flow check valves. Additionally, this testing involves a total of 94 valves which would require excessive cold shutdown time solely to accomplish this testing and would greatly increase total personnel radiation exposure.

The excess flow check valves, designated FLO-FUSE by the manufacturer (Marietta Valve Corp., Boonton, New Jersey), have no provision for leaktesting nor are there such provisions in the upstream side of the lead-in tubing from the root valves. Thus, there is no practical method of conducting leaktests of these vales.

It should be noted that these valves see little or no flow and function essentially only during the exercise testing described below. Also, the significant internal components are fabricated from corrosion-resistant materials that are not expected to degrade during the plant lifetime. For these reasons, general seat degradation is highly unlikely. Gross failure of the seat, if present, will be identified during exercise testing.

## ALTERNATE TESTING:

These valves will be exercised in accordance with DAEC Technical Specifications, Section 4.7.D.

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RELIEF REQUEST VR-9

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# SYSTEM:

CONTAINMENT ATMOSPHERE CONTROL

## COMPONENTS:

CV-4327A	CV-4327F
CV-4327B	CV-4327G
CV-4327C	CV-4327H
CV-4327D	

## CATEGORY:

A/C

## FUNCTION:

These are the pressure suppression chamber to drywell vacuum breaker valves which equalize the pressure between the two volumes should the suppression chamber pressure exceed that in the drywell.

## TEST REQUIREMENT:

Measure valve seat leakage and compare the measured leakage to a specific maximum leakage for each valve (IWV-3426).

## BASIS FOR RELIEF:

A specific maximum leakage per valve is not applicable to the vacuum breaker valve testing. As part of the containment integrity testing, a pressure decay test is performed on the pressure suppression chamber in accordance with DAEC Technical Specifications Section 4.7.A.4.d. This test demonstrates the aggregate leak tightness of the vacuum breaker valves.

## ALTERNATE TESTING:

The leak tightness of the pressure suppression chamber to drywell vacuum breakers will be demonstrated during containment integrity testing. This test consists of establishing a drywell to suppression chamber pressure differential of 1.1 psi and measuring the suppression chamber pressure increase over a ten (10) minute period. If this pressure increase is less than 0.009 psi/min the vacuum breakers have demonstrated adequate leak tightness.

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## SYSTEM:

CONTROL ROD DRIVE HYDRAULIC

#### COMPONENTS:

V-17-83 V-17-96

## CATEGORY:

A/C

#### FUNCTION:

Prevent backflow through the reactor recirculation pumps seal purge line. They also function as primary containment isolation valves.

#### TEST REQUIREMENT:

Exercise every three (3) months (CT-CC).

## BASIS FOR RELIEF:

These simple check valves cannot be remotely operated. They are located inside primary containment and are not accessible for testing during reactor operation. Additionally, the primary containment is inerted with nitrogen during plant operation. De-inerting and then re-inerting the containment atmosphere each cold shutdown solely for the purpose of conducting valve testing would represent an excessive operational burden. These valves cannot be exercised by utilizing outside drywell test lines because the reactor recirculation pumps would require venting, necessitating containment entry. These valves can be exercised closed during leakrate testing performed during refueling outage.

#### ALTERNATE TESTING:

These valves will be exercised during leaktesting conducted in accordance with DAEC Technical Specification 4.7.A.2.c. Normal System operation implies that the valves are open. By verifying that the valves close with the leaktest, the valves are indirectly observed to stroke from their open to closed position.

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# RELIEF REQUEST NO. VR-13

# SYSTEM:

CONTROL ROD DRIVE (CRD) HYDRAULIC

## COMPONENTS:

SV-1840 A & B CV-1849 CV-1850 SV-1855 SV-1856 V-18-118 thru 206 V-18-919 thru 1007 V-18-1453 thru 1541

CATEGORY:

Category B -- CV-1849, CV-1850, SV-1855 and SV-1856 Category C -- V-18-118 thru 206, V-18-919 thru 1007 an V-18-1453 thru 1541

## FUNCTION:

SV-1840 · A & B	-	Backup Scram valves; bleed off scram air header upon receiving a SCRAM signal from the reactor protection system.
CV-1849 -	-	Opens with SCRAM signal to pressurize lower side of CRD piston from accumulator.
CV-1850 -	-	Opens with SCRAM signal to vent top of CRD piston to scram discharge header.
SV-1855 & SV-1856 -	-	Pilot valves for CV-1849 & CV-1850, respectively. Open on SCRAM signal to vent air operators.
V-18-118 thru 206 -	-	Prevent bypassing drive water to charging water header (if depressurized); open to charge accumulators following SCRAM.
V-18-919 thru 1007	-	Prevent backflow into cooling water header during SCRAM; allow cooling water circulating during normal operation.
V-18-1453 thru 1541	-	Open to allow flow from top of CRD pistons to the scram discharge header.



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Relief Request No. VR-13 (continued)

#### TEST REQUIREMENTS:

Exercise and time air-operated and solenoid valves every three months (BTO,BTC).

Exercise check valves every three months (CT-CO, CT-CC).

# The corresponding fail-safe test is discussed in VR-17.

## BASIS FOR RELIEF:

Individual testing of the backup scram valves requires modifying the electrical configuration of the reactor protection system by jumpers, etc and inserting a scram signal to each valve - a complex test.

Except for the backup scram valves, these valves can only be tested by scramming each individual control rod. Due to the extensive effort and operational constraints associated with scram testing, this is impractical to accomplish on a quarterly basis or even during cold shutdown periods.

Exercising and measuring the individual stroke times of the air-operated scram valves (CV-1849 and CV-1850) is impractical due to design limitations. There is a single position indicating light for both valves that is energized only when both valves are not in the fully-closed position. Thus, in order to accurately measure stroke time, additional individual position indicating circuitry is required. Such a backfit would be costly and could possibly detract from the basic reliability of the present configuration.

Except for V-18-118 thru V-18-206, proper operation of the check valves is monitored during plant operation. Failure of any of these valves manifests itself in abnormal operation of the associated control rod drive which would be noted (and corrected) by the plant staff.

## ALTERNATIVE TESTING:

Proper operation of these valves is demonstrated during normal plant operation or scram testing once each operating cycle. V-18-118 thru V-18-206 are also tested once each operating cycle. The testing and acceptance criteria of the DAEC Technical Specifications, Sections 4.3.C and 3.3.C, will be substituted for stroke timing and exercising of individual valves. Testing of the backup scram valves meets the requirements of NUREG-0979, "Safety Evaluation Report Related to the Fuel Design Approval of the GESSAR II, BWR/6 Nuclear Island Design."

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# SYSTEM:

CONTROL ROD DRIVE HYDRAULIC

#### COMPONENTS:

SV-1851 SV-1852 SV-1853 SV-1854

#### CATEGORY:

В

#### FUNCTIONS:

There are 89 sets of these valves--one for each control rod drive. Normal insertion and withdrawal of the CRD's is accomplished by opening and closing a particular set of valves (only one CRD can be moved at at time). These valves are not required to change position during a scram, but must be maintained in their normally-closed position.

#### TEST REQUIREMENT:

Exercise and time valves in the closed direction every three months

## BASIS FOR RELIEF:

The proper operation of these valves is demonstrated frequently during normal operation as discussed in DAEC Technical Specifications, Section 4.3.A.2. Malfunctioning valves would be evidenced by unusual rod movement (drift). Therefore, a special exercise and timing test for operability is not required for these valves.

## ALTERNATE TESTING:

The control rod drives will be monitored for proper operation as required by the DAEC Technical Specifications. Weekly tests and periodic scram testing will demonstrate that the subject valves are in the closed position and operating properly. Stroke times will not be measured for the subject valves.

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### RELIEF REQUEST NO. VR-17

#### SYSTEM:

ALL SYSTEMS

#### COMPONENTS:

All valves equipped to fail open or closed.

## CATEGORY:

A and B

#### FUNCTIONS:

Upon loss of actuator power (electrical or pneumatic), the valve must stroke to its fail-safe position.

### TEST REQUIREMENT:

When practical, values with fail-safe actuators shall be tested by observing the operation of the values upon loss of actuator power. (IWV-3415)

## BASIS FOR RELIEF:

Solenoid valves which control the air supply to air-operated valves and direct solenoid-operated valves must stroke to their fail-safe position upon interruption of their electric power supply. (FST)

De-energizing the solenoid valve has the same effect as loss of electrical power or loss of control air. Therefore, stroking the valve from the control room (BTO, BTC) to its fail-safe position constitutes a fail-safe test.

The additional procedural requirements to perform fail-safe stroke testing of main steam isolation valves, MSIVs, of each cold shutdown represents an excessive operational burden. Confirmation of the capability of these valves to function with only their accumulator air supply once per reactor refueling is adequate.

## ALTERNATE TESTING:

With the exception of the MSIV's normal stroking (BTO, BTC), to the fail-safe position of valves equipped to fail open or closed constitutes an FST. No additional testing is necessary.

MSIV's will be stroke tested with only the air supply stored in accumulators at each refueling outage.

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### SYSTEM:

#### NUCLEAR BOILER

COMPONENTS:

V-14-9	V-14-32	V-14-112
V-14-14	V-14-100	V-14-116
V-14-15	V-14-104	V-14-120
V-14-16	V-14-108	V-14-124

#### CATEGORY:

A/C

## FUNCTION:

These valves must close upon loss of normal air or nitrogen supply to the automatic depressurization system (ADS) relief valve accumulators and the main steam isolation valve accumulators.

## TEST REQUIREMENT:

Exercise valves in the closed direction every three months (CT-CC).

# BASIS FOR RELIEF:

The position of these valves cannot be verified during normal operation since they are simple check valves and have no position indicators. In addition, access to these valves is limited since they are located either inside the drywell or the steam tunnel.

#### ALTERNATE TESTING:

These valves will be exercised during refueling. More frequent testing is not practical because a leaktest must be performed to verify that they close.

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#### RELIEF REQUEST NO. VR-20

# SYSTEM:

STANDBY LIQUID CONTROL (SBLC)

#### COMPONENTS:

V-26-08 V-26-09

## CATEGORY:

A/C

#### FUNCTIONS:

The functions of these check valves are to open during SBLC injection and close for containment isolation.

#### TEST REQUIREMENT:

Exercise value in the open and closed directions every three months (CT-CO, CT-CC).

#### BASIS FOR RELIEF:

These check valves are normally closed. They can only be stroked closed during seat leakage tests performed during reactor refueling. To stroke these valves open, the SBLC pumps must discharge directly into the reactor vessel through explosively-actuated isolation valves. This cannot be done during normal operation or cold shutdown since the SBLC system must be drained and flushed to prevent contamination of the reactor coolant with sodium pentaborate. In addition, extensive testing is required to replace the explosive charges of the isolation valves.

#### ALTERNATE TESTING:

These valves will be exercised open and closed during operational tests and leak testing performed each cycle in accordance with DAEC Technical Specifications 4.4.A.2.b and 4.7.A.2.c., respectively.

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#### SYSTEM:

HIGH PRESSURE COOLANT INJECTION (HPCI) REACTOR CORE ISOLATION COOLING (RCIC)

#### COMPONENTS:

V-23-01 V-25-01

#### CATEGORY:

С

### FUNCTIONS:

These valves are designed to prevent backflow into the suppression pool in the event of pump suction shift from the condensate storage tank (CST) to the suppression pool. The safety-related function of these valves is to open to provide flow from the suppression pool to the HPCI and RCIC pumps.

#### TEST REQUIREMENT:

Exercise every three months (CT-CO).

## BASIS FOR RELIEF:

There is no convenient method for verifying the ability of these valves to swing to the full-open position. The system test piping circuits utilize the CST for pump suction rather than the suppression pool. Taking suction from the suppression pool during testing is undesirable because, in so doing, torus water would be transferred to the condensate storage tank. Torus water is not demineralized, thus the entire condensate storage tank inventory would require processing following each test. Since these valves have no function during normal operation, no internal wear-induced degradation is expected.

## ALTERNATE TESTING:

In lieu of the Code-required full-stroke test, valve operability will be demonstrated by disassembling the valves during each refueling outage and verifying that the valve disk swings freely to the open position.

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# RELIEF REQUEST VR-23

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# SYSTEM:

CONTAINMENT ATMOSPHERE CONTROL

#### COMPONENTS:

V-43-82 V-43-84 V-43-86 V-43-88

## CATEGORY:

С

## FUNCTION:

The function of these check valves is to open to provide a flowpath for nitrogen into the primary containment from the primary containment atmosphere dilution (CAD) system.

#### TEST REQUIREMENT:

Check valves shall be exercised at least once every three months, except as provided by IWV-3522. (IWV-3521)

## BASIS FOR RELIEF:

These valves are verified to open during the CAD system functional test performed during each reactor refueling.

## ALTERNATE TESTING:

Valves will be exercised during functional tests performed once each cycle in accordance with DAEC Technical Specifications 4.7.A.6.a.

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#### RELIEF REQUEST NO. VR-25

## SYSTEM:

CONTAINMENT ATMOSPHERE CONTROL

#### COMPONENTS:

V-43-214

#### CATEGORY:

A/C

## FUNCTIONS:

This valve prevents backflow from the containment into the drywell nitrogen supply line and also functions as a primary containment isolation valve.

## TEST REQUIREMENT:

Check valve shall be exercised at least once every three months, except as provided by IWV-3522. (IWV-3521)

## BASIS FOR RELIEF:

This check valve cannot be remotely operated. It is located inside primary containment and is not accessible for testing during reactor operation. Additionally, the primary containment is inerted with nitrogen during plant operation. De-inerting and re-inerting the containment atmosphere each cold shutdown solely for the purpose of conducting valve testing would represent an excessive operational burden. This valve can be exercised closed during leakrate testing performed during refueling outage.

## ALTERNATE TESTING:

This valve will be checked in the closed position during leaktesting conducted in accordance with DAEC Technical Specification 4.7.A.2.c.

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# SYSTEM:

CONTROL ROD DRIVE (CRD) HYDRAULIC

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## COMPONENTS:

V-17-52 V-17-53

# CATEGORY:

A/C

## FUNCTION:

These valves provide containment isolation for the control rod drive hydraulic system.

## TEST REQUIREMENT:

Check valves shall be exercised at least once every three months, except as provided by IWV-3522. (IWV-3521)

## BASIS FOR RELIEF:

These valves are in the CRD return line to the reactor vessel. In accordance with NUREG-0619, this system is no longer used. Therefore, these check valves are now passive valves and verifying that they stroke from the open to closed positions is not necessary.

### ALTERNATE TESTING:

The closed position is verified during leaktests performed once each cycle in accordance with DAEC Technical Specification 4.7.A.2.c.



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#### SYSTEM:

NEUTRON MONITORING

# COMPONENT:

TIP-CK

### CATEGORY:

A/C

#### FUNCTION:

This valve provides containment isolation for the nitrogen purge portion of the TIP system.

## TEST REQUIREMENT:

Check valves shall be exercised at least once every three months, except as provided by IWV-3522. (IWV-3521)

#### BASIS FOR RELIEF:

This valve is a simple check valve and thus the only practical method to verify closure is by performing a leaktest. Conducting such tests every three months is excessively time consuming and difficult.

## ALTERNATE TESTING:

This valve will be checked in the closed position during leaktesting conducted once each cycle in accordance with DAEC Technical Specification 4.7.A.2.c.

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## SYSTEM:

CONTAINMENT ATMOSPHERE MONITORING SYSTEM

#### COMPONENTS:

SV-8101A	SV-8106A
SV-8101B	SV-8106B
SV-8102A	SV-8107A
SV-8102B	SV-8107B
SV-8103A	SV-8108A
SV-8103B	SV-8108B
SV-8104A	SV-8109A
SV-8104B	SV-8109B
SV-8105A	SV-8110A
SV-8105B	SV-8110B

#### CATEGORY:

А

#### FUNCTION:

These valves provide containment isolation for the containment atmosphere monitoring system.

#### TEST REQUIREMENT:

Exercise valves in the closed direction every three months (BTC). The stroke time of all power-operated valves shall be measured. (IWV-3413)

## BASIS FOR RELIEF:

These values are not provided with individual position indicators and the only reasonable means of verifying the close position is by performing leaktests--tests that are impractical to perform during normal operation. Also, meaningful stroke time measurements cannot be taken.

#### ALTERNATE TESTING:

These valves will be exercised every three months. Verification of the closed position will be performed during leaktesting conducted once each cycle in accordance with DAEC Technical Specification 4.7.A.2.c. Stroke times will not be measured.

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## SYSTEM:

CORE SPRAY

## COMPONENTS:

CV-2118 CV-2138

# CATEGORY:

С

## FUNCTIONS:

These check valves provide a flowpath for core spray to the reactor vessel and prevent backflow from the reactor vessel to the core spray system.

## TEST REQUIREMENT:

Check valves shall be exercised at least once every three months, except as provided in IWV-3522. (IWV-3521)

# BASIS FOR RELIEF:

These check valves are normally closed. To open the valves, the core spray pumps are operated at rated flow discharging directly into the reactor vessel. This cannot be done during normal operation as these valves cannot be opened against normal reactor pressure. The air operators on these valves (used for testing only) have proven to be unreliable and a continuing source of nitrogen inleakage in the drywell. Thus, operating nitrogen is normally cut-off to the operator. Currently, an engineering evaluation is being conducted to determine if these operators should be replaced or removed. In the first case this would allow for testing of these valves during cold shutdown. In the event the operators are removed, these valves can only be tested during refueling. Core spray injection during cold shutdown with the reactor head in place is impractical due to the difficulty of controlling reactor vessel water level.

## ALTERNATE TESTING:

These valves will be exercised at each refueling outage by verifying that each division of core spray can deliver rated flow to the reactor vessel.

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## SYSTEM:

CONTAINMENT ATMOSPHERE DILUTION (CAD) NEUTRON MONITORING POST-ACCIDENT SAMPLING SYSTEM (PASS)

## COMPONENTS:

SV-4331A	SV-4333A	TIP-BAL A	SV-4594A
SV-4331B	SV-4333B	TIP-BAL B	SV-4594B
SV-4332A	SV-4334A	TIP-BAL C	SV-4595A
SV-4332B	SV-4334B		SV-4595B
			SV-8772A
			SV-8772B

#### CATEGORY:

А

## FUNCTIONS:

The PASS system valves provide a flow path for post-accident sampling of the reactor recirculation system and return of the sample flow stream to the torus.

The CAD System valves function to provide a flowpath into the containment in the event that containment dilution is required during an accident and serve as containment isolation valves.

The TIP System valves function as containment isolation for the TIP tube penetrations.

#### TEST REQUIREMENT:

Evaluate stroke times in accordance with IWV-3413 (b).

#### BASIS FOR RELIEF:

It is impractical to apply the requirements of IWV-3413 (b) to valves with stroke times less than 2 seconds without installing sophisticated timing devices. Operator reaction times could easily vary by .5 seconds or more, thereby invalidating the 50% criteria for increasing the surveillance frequency.

There have been several instances when the internal position indicating switches of the CAD system valves malfunction and corrective maintenance during plant operation is impractical. If this should occur, then accurate stroke time measurements are not possible. TITLE: INSERVICE TESTING PROGRAM

## RELIEF REQUEST NO. VR-34

# (CONTINUED)

## ALTERNATE TESTING:

Stroke times for these valves will be measured. The frequency of testing will be increased to once each month if an increase in measured stroke time of 100% or more from the previous test is observed and the stroke time is greater than 2 seconds. Valves exceeding the maximum allowable stroke time will be declared inoperable.

When CAD system SV valves position indication is inoperable, stroke time will be estimated by a flow test through the valve. The results of this test will be evaluated with respect to the maximum allowable stroke time but will not be compared to previous tests per the criteria set forth above or in IWV-3413(b).
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TITLE: INSERVICE TESTING PROGRAM

# RELIEF REQUEST NO. VR-35

# SYSTEM:

EMERGENCY SERVICE WATER (ESW)

#### COMPONENTS:

CV-1956 A	CV-2080
CV-1956 B	CV-2081

#### CATEGORY:

В

# FUNCTION:

CV-1956 A & B open to provide a return path for ESW cooling water from the control building chillers.

CV-2080 and CV-2081 are ESW supply valves to the emergency dieselgenerators.

#### TEST REQUIREMENT:

Stroke time shall be measured during exercise testing. (IWV-3413)

## BASIS FOR RELIEF:

CV-1956 A & B are actuated by the starting logic of the associated emergency service water pump, with no individual control handswitch. Also, there are no position indicators for these valves. For these reasons precise stroke time measurements are impractical.

CV-2080 and CV-2081 do not have position indication, thus stroke time measurements are impractical.

#### ALTERNATE TESTING:

These valves will be exercised every three months. During this testing, valve operation will be observed. Based on visual observation, any erratic operation or excessively long stroke time will be cause for failure or investigation.

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# SYSTEM:

DEMINERALIZED WATER COMPRESSED AIR

## COMPONENTS:

V-09-065 V-09-111 V-30-287

#### CATEGORY:

А

#### FUNCTIONS:

Containment isolation valves for demineralized water and compressed air systems.

# TEST REQUIREMENT:

Category A and B valves shall be exercised at least once every three months, except as provided by IWV-3412 (a), IWV-3415, and IWV-3416. (IWV-3410)

# BASIS FOR RELIEF:

These valves are all manually-operated and normally closed during plant operation. During each reactor refueling outage each is leak tested (AT-1), thus proving proper closure. In this case, stroke testing is not appropriate to manual valves.

# ALTERNATE TESTING:

Proper valve closure will be verified in conjunction with leakrate tests conducted in accordance with DAEC Technical Specification 4.7.A.2.c.

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# SYSTEM:

VARIOUS

# COMPONENTS:

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# VALVES

X9A X9B X23A X23B X24A X24A X24B	MO-4441 MO-4442 CV-5718A CV-5718B V-57-75 V-57-76	MO-2312 MO-2512 V-57-77 V-57-78 CV-5704A CV-5704B	MO-2740	
X25 X26 X41 N205	CV-4302 CV-4306 CV-4639 CV-4300	CV-4303 CV-4307 CV-4640 CV-4301	CV-4308	
N212 N214 N222 N231	V-24-8 V-22-16 V-22-21 CV-4305	V-24-23 V-22-17 V-22-22 CV-4304	V-43-168	V-43-169



A & C

# FUNCTIONS:

Containment isolation valves

# TEST REQUIREMENT:

Category A valves shall be seat leak tested to a specific maximum amount for each valve in the closed position for fulfillment of their safety function at least once every 2 years. (IWV-3420, 3421, 3422, 3426)

## BASIS FOR RELIEF:

The configuration of the piping systems is such that individual testing of these valves is not possible.

# ALTERNATE TESTING:

The valves will be tested in multiple arrangements with a maximum leakage rate established for each combination of valves, as appropriate.



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#### SYSTEMS:

EMERGENCY SERVICE WATER (ESW)

#### COMPONENTS:

V-46-18 V-46-21

# CATEGORY:

С

#### FUNCTION:

These are the ESW pump discharge check valves that provide a flow path to the ESW piping system and prevent backflow through an idle pump.

## TEST REQUIREMENTS:

Check valves shall be exercised at least once every three months, except as provided by IWV-3522. (IWV-3521)

# BASIS FOR RELIEF:

There is no sure method of ensuring that these valves stroke to their fully-closed positions.

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#### ALTERNATE TESTING:

The valves will be exercised to the open position during operational testing of the ESW pumps. Once every two years, each valve will be disassembled and inspected to ensure proper operation.

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#### RELIEF REQUEST NO. VR-40

#### SYSTEMS:

NUCLEAR BOILER, REACTOR FEEDWATER

#### COMPONENTS:

MO-4441 MO-4442

#### CATEGORY:

A/C

# FUNCTION:

Provide primary containment outboard isolation for the reactor feedwater supply piping.

#### TEST REQUIREMENTS:

When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. (IWV-3200)

Valves that are normally open during plant operation and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observing of appropriate pressure indications in the system, or by other positive means. (IWV-3522[a]) (CT-CC)

#### BASIS FOR RELIEF:

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These valves are lift-type stop check valves and have no mechanism for opening other than that induced by feedwater flow to the reactor vessel. If maintenance (e.g., disassembly, lapping, or component replacement) is performed which could potentially affect their capability to close, post-maintenance testing would require plant startup and operation at full-power to fully open the valve, followed by plant shutdown to close the valve. Testing in this manner would be contrary to the requirements of IWV-3200 which prohibit plant operation prior to testing. Since the disk does not possess position indication, a leakage test would be required subsequent to plant shutdown to demonstrate that the valve had stroked to its fully-closed position. Cycling the plant in this manner, in order to perform a test, is considered undesirable and impractical.

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# RELIEF REQUEST NO. VR-40

## BASIS FOR RELIEF: (CONTINUED)

Maintenance activities associated with these valves.fall under the cognizance of the DAEC Operational Quality Assurance Program. Thus, reassembly errors, the most probable source of failure, are unlikely. Gross errors would be detected during leak rate testing that would follow reassembly.

# ALTERNATE TESTING:

When these valves are subjected to repair or maintenance that could affect their performance, a leak rate test will be performed to ensure that the valve has been properly reassembled.

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#### SYSTEMS:

NUCLEAR BOILER, REACTOR FEEDWATER

#### COMPONENTS:

V-14-1 V-14-3

### CATEGORY:

A/C

# FUNCTION:

These valves have a dual function capability as they perform safety-related functions in both the open and closed positions. Specifically, they provide primary containment inboard isolation for the reactor feedwater supply piping. V-14-1 and V-14-3 provide injection paths to the reactor vessel for RCIC and HPCI, respectively.

# TEST REQUIREMENTS:

When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. (IWV-3200)

Valves that are normally open during plant operation and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observing of appropriate pressure indications in the system, or by other positive means. (IWV-3522[a]) (CT-CC)

Valves that are normally closed during plant operation and whose function is to open on reversal of pressure differential shall be tested by proving that the disk moves promptly away from the seat when the closing pressure differential is removed and flow through the valve is initiated. (IWV-3522[b]) (CT-CO) DUANE ARNOLD ENERGY CENTER

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RELIEF REQUEST NO. VR-41

# BASIS FOR RELIEF:

These check valves have no mechanism for opening other than that induced by feedwater (or HPCI or RCIC) flow to the reactor vessel. If maintenance (e.g., disassembly, lapping, or component replacement) is performed which could potentially affect their capability to close, post-maintenance testing would require plant startup and operation at full-power to fully open the valve, followed by plant shutdown to close the valve. Testing in this manner would be contrary to the requirements of IWV-3200 which prohibit plant operation prior to testing. Cycling the plant in this manner in order to perform a test, is considered undesirable and impractical. Maintenance activities associated with these valves fall under the cognizance of the DAEC Operational Quality Assurance Program. Thus, reassembly errors, the most probable source of failure, are unlikely. Gross errors would be detected during leak rate testing that would follow reassembly. Proper stroking of these valves to the open position is verified by satisfactory operation of the reactor feedwater system during power operation of the plant.

# ALTERNATE TESTING:

When these valves are subjected to repair or maintenance that could affect their performance, a leak rate test will be performed to ensure that the valve has been properly reassembled.

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#### SYSTEMS:

CONTROL ROD DRIVE (CRD)

#### COMPONENTS:

V-17-52 V-17-53

## CATEGORY:

A/C

#### FUNCTION:

Provide primary containment isolation for the CRD return line piping.

#### TEST REQUIREMENTS:

When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. (IWV-3200)

Valves that are normally open during plant operation and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observing of appropriate pressure indications in the system, or by other positive means. (IWV-3522[a]) (CT-CC)

# BASIS FOR RELIEF:

These check valves open by CRD return line water flow to the reactor vessel. If maintenance (e.g. disassembly, lapping, or component replacement, etc.) is performed on either of these valves that could potentially affect their capability to close, post-maintenance testing would require reversal of a spectacle flange in the CRD piping and injection of water into the reactor vessel. However, as required by NUREG-0619, the CRD line is no longer used. Since the disk does not possess position indication, a leakage test would be required subsequent to injection to demonstrate that the valve had stroke to its fully-closed position.

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# BASIS FOR RELIEF: (CONTINUED)

Maintenance activities associated with these valves fall under the DAEC Operational Quality Assurance Program. Thus, reassembly errors, the most probable source of failure, are unlikely. Gross errors would be detected during leak rate testing that would follow assembly. The effort of reversing the CRD spectacle flange and injecting CRD water into the reactor vessel is undesirable and could result in unnecessary personnel exposure, potential contamination hazards, unnecessary plant downtime and is also contrary to the guidance of NUREG-0619.

### ALTERNATE TESTING:

When these valves are subjected to repair or maintenance that could affect their performance, a leak rate test will be performed to ensure that the valve has been properly reassembled.

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#### SYSTEMS:

CONTROL ROD DRIVE (CRD) HYDRAULIC

# COMPONENTS:

V-18-919 through V-18-1007 V-18-1453 through V-18-1541

#### CATEGORY:

С

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# FUNCTION:

V-19-919 through V-18-1007

Prevent backflow into the cooling water header during a SCRAM; allow cooling water circulation during normal operation.

V-19-1453 through V-18-1541

Open to allow flow from the top of the CRD pistons to the SCRAM discharge header.

#### TEST REQUIREMENTS:

When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. (IWV-3200)

Valves that are normally open during plant operation and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observing of appropriate pressure indications in the system, or by other positive means. (IWV-3522[a]) (CT-CC)

Valves that are normally closed during plant operation and whose function is to open on reversal of pressure differential shall be tested by proving that the disk moves promptly away from the seat when the closing pressure differential is removed and flow through the valve is initiated. (IWV-3522[b]) (CT-CO) TITLE: INSERVICE TESTING PROGRAM

#### RELIEF REQUEST NO. VR-43

# (CONTINUED)

#### BASIS FOR RELIEF:

These valves open with CRD process system flow. If maintenance (e.g. disassembly, lapping, or component replacement, etc.) is performed on any of these valves that could potentially affect their capability to open or close, post-maintenance testing would require operation of the CRD system and the affected control rod to determine proper valve operation.

Maintenance activities associated with these valves fall under the DAEC Operational Quality Assurance Program. Thus, reassembly errors, the most probable source of failure, are unlikely. As required by the DAEC Technical Specifications, proper operation of these valves is verified by satisfactory operation of the reactor CRD system and individual control rods during startup and power operation of the plant.

#### ALTERNATE TESTING:

When these valves are subjected to repair or maintenance that could affect their performance, control rod operation and response will be monitored during the normal course of plant startup and operation following completion of maintenance activities. TITLE: INSERVICE TESTING PROGRAM

# RELIEF REQUEST NO. VR-44

#### SYSTEMS:

HIGH PRESSURE COOLANT INJECTION (HPCI)

COMPONENTS:

V-22-16 V-22-17 V-22-21 V-22-22

# CATEGORY:

A/C

## FUNCTION:

Provide primary containment (torus) isolation for the HPCI steam exhaust (V-22-16 and V-22-17) and HPCI condensate return (V-22-21 and V-22-22) piping.

V-22-16 and V-22-17 provide an exhaust path to the suppression pool for the HPCI turbine.

V-22-21 and V-22-22 provide a path for condensate from the HPCI exhaust drain pot to the suppression chamber.

# TEST REQUIREMENTS:

When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. (IWV-3200)

Valves that are normally open during plant operation and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observing of appropriate pressure indications in the system, or by other positive means. (IWV-3522[a]) (CT-CC)

Valves that are normally closed during plant operation and whose function is to open on reversal of pressure differential shall be tested by proving that the disk moves promptly away from the seat when the closing pressure differential is removed and flow through the valve is initiated. (IWV-3522[b]) (CT-CO) DUANE ARNOLD ENERGY CENTER

TITLE: INSERVICE TESTING PROGRAM

Date 11/01/85 Rev. 7

#### RELIEF REQUEST NO. VR-44

# (CONTINUED)

# BASIS FOR RELIEF:

These valves are check valves and have no mechanism for opening other than that induced by steam exhaust or condensate flow to the suppression pool. If maintenance (e.g., disassembly, lapping, or component replacement, etc.) is performed on any of these valves that could potentially affect its capability to open or close, post-maintenance testing would require plant startup and HPCI system operation to open the valve(s), then shutting down the HPCI system to close the valve. Following shutdown of the HPCI system, a leaktest would be required to prove that the valve(s) stroked from the open to the closed positions. Plant startup cannot be initiated with any of these valves in an inoperable status as this would be contrary to the requirements of IWV-3200. Since conducting a leaktest of these valves would render the HPCI system inoperable during the test, it would be imprudent to conduct such a test with the plant in any condition other than cold shutdown. Cycling the plant in such a manner would be undesirable and impractical.

Maintenance activities associated with these valves fall under the DAEC Operational Quality Assurance Program. Thus, reassembly errors, the most probable source of failure, are unlikely. Gross errors would be detected during leak rate testing that would follow reassembly. Proper stroking of these valves to the open position is verified by satisfactory operation of the HPCI turbine during surveillance testing as required by the Technical Specifications.

# ALTERNATE TESTING:

When these valves are subjected to repair or maintenance that could affect their performance, a leak rate test will be performed to ensure that the valve has been properly reassembled. Following plant startup, HPCI system operational tests will be conducted to confirm valves operate properly to the opened position.

## SYSTEMS:

HIGH PRESSURE COOLANT INJECTION (HPCI)

#### COMPONENTS:

V-22-26 V-22-28 V-22-29

## CATEGORY:

С

#### FUNCTION:

V-22-26 HPCI condensate pump discharge V-22-28 HPCI condensate return to the HPCI pumps suction V-22-29 HPCI condensate to the HPCI turbine lube oil cooler

# TEST REQUIREMENTS:

When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. (IWV-3200)

Valves that are normally open during plant operation and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observing of appropriate pressure indications in the system, or by other positive means. (IWV-3522[a]) (CT-CC)

# BASIS FOR RELIEF:

These check valves have no mechanism for opening other than that induced by condensate flow from the HPCI condensate pump. If maintenance (e.g., disassembly, lapping, or component replacement, etc.) is performed on either of these valves that could potentially affect its capability to open, post-maintenance testing would require plant startup and HPCI system operation to operate the condensate pump and thus open the valve(s). Plant startup cannot be initiated with either of these valves in an inoperable status, as this would be contrary to the requirements of IWV-3200. TITLE: INSERVICE TESTING PROGRAM

DUANE ARNOLD ENERGY CENTER

# RELIEF REQUEST NO. VR-45

# BASIS FOR RELIEF: (CONTINUED)

Maintenance activities associated with these valves fall under the DAEC Operational Quality Assurance Program. Thus, reassembly errors, the most probable source of failure, are unlikely. Proper stroking of these valves to the open position is verified by satisfactory operation of the HPCI turbine during surveillance testing as required by the Technical Specifications.

# ALTERNATE TESTING:

When these valves are subjected to repair or maintenance that could affect their performance, operability to the open position will be demonstrated during HPCI system testing following plant startup.

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#### SYSTEMS:

HIGH PRESSURE COOLANT INJECTION (HPCI)

# COMPONENTS:

V-23-14

## CATEGORY:

С

# FUNCTION:

V-23-14 HPCI minimum flow check valve

# **TEST REQUIREMENTS:**

When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. (IWV-3200)

Valves that are normally open during plant operation and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observing of appropriate pressure indications in the system, or by other positive means. (IWV-3522[a]) (CT-CC)

# BASIS FOR RELIEF:

These check valves have no mechanism for opening other than that induced by flow from the HPCI pump. If maintenance (e.g., disassembly, lapping, or component replacement, etc.) is performed on this valve that could potentially affect its capability to open, post-maintenance testing would require plant startup and HPCI system operation to open the valve. Plant startup cannot be initiated with either of these valves in an inoperable condition, as this would be contrary to the requirements of IWV-3200.

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# BASIS FOR RELIEF: (CONTINUED)

Maintenance activities associated with these valves fall under the DAEC Operational Quality Assurance Program. Thus, reassembly errors, the most probable source of failure, are unlikely. Proper stroking of these valves to the open position is verified by satisfactory operation of the HPCI turbine during surveillance testing as required by the Technical Specifications.

# ALTERNATE TESTING:

When these valves are subjected to repair or maintenance that could affect their performance, operability to the open position will be performed during HPCI system test following plant startup.

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#### SYSTEMS:

REACTOR CORE ISOLATION COOLING (RCIC)

#### COMPONENTS:

V-24-8 V-24-23

## CATEGORY:

A/C

#### FUNCTION:

Provide primary containment (torus) isolation for the RCIC steam exhaust.

Provide an exhaust path to the suppression pool for the RCIC turbine.

#### TEST REQUIREMENTS:

When a valve or its control system has been replaced or repaired or has undergone maintenance that could affect its performance, and prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters which could be affected by the replacement, repair, or maintenance are within acceptable limits. (IWV-3200)

Valves that are normally open during plant operation and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on its seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observing of appropriate pressure indications in the system, or by other positive means. (IWV-3522[a]) (CT-CC)

Valves that are normally closed during plant operation and whose function is to open on reversal of pressure differential shall be tested by proving that the disk moves promptly away from the seat when the closing pressure differential is removed and flow through the valve is initiated. (IWV-3522[b]) (CT-CO)

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TITLE: INSERVICE TESTING PROGRAM

## RELIEF REQUEST NO. VR-47

# (CONT INUED)

# BASIS FOR RELIEF:

Valves V-24-8 and V-24-23 are stop and swing check valves, respectively, and have no mechanism for opening other than that induced by steam exhaust flow to the suppression pool. If maintenance (e.g., disassembly, lapping. or component replacement, etc.) is performed on any of these valves that could potentially affect its capability to open or close. post-maintenance testing would require plant startup and RCIC system operation to open the valve(s), then shutting down the RCIC system to close the valve. Following shutdown of the RCIC system, a leaktest would be required to prove that the valve(s) stroke from the open to the closed position. Plant startup cannot be initiated with any of these valves in an inoperable status, as this would be contrary to the requirements of IWV-3200. Since conducting a leaktest of these valves would render the RCIC system inoperable during the test, it would be inprudent to conduct such a test with the plant in any condition other than cold shutdown. Cycling the plant in this manner in order to perform a test, is undesirable and impractical.

Maintenance activities associated with these valves fall under the DAEC Operational Quality Assurance Program. Thus, reassembly errors, the most probable source of failure, are unlikely. Gross errors would be detected during leak rate testing that would follow reassembly. Proper stroking of these valves to the open position is verified by satisfactory operation of the HPCI turbine during surveillance testing as required by the Technical Specifications.

# ALTERNATE TESTING:

When these valves are subjected to repair or maintenance that could affect their performance, a leak rate test will be performed to ensure that the valve has been properly reassembled. Following plant startup, RCIC system operational tests will be conducted to confirm valves operate to the opened position.

Date 11/01/85 Rev. 7

#### RELIEF REQUEST NO. VR-48

#### SYSTEMS:

VARIOUS

# COMPONENTS:

Valves that cannot be exercised during plant operation.

#### CATEGORY:

A and B

#### FUNCTION:

Various

#### TEST REQUIREMENTS:

If, for power operated valves, an increase in stroke time of 25% or more from the previous test for valves with full-stroke times greater than 10 sec or 50% or more for valves with full-stroke times less than or equal to 10 sec is observed, test frequency shall be increased to once each month until corrective action is taken, at which time the original test frequency shall be resumed. [IWV-3417(a)]

## BASIS FOR RELIEF:

Strict adhearance to this requirement as stated would require a plant shutdown or operation under unusual conditions each month for testing until it is determined that the valve is operating satisfactory and has not undergone significant degradation or some corrective maintenance action is performed to correct the condition.

Since valve stroke time would be less than the maximum allowable, it would continue to be considered operable and thus corrective maintenance, along with the accompanying time and personnel exposure costs, may not be warranted or justified.

# ALTERNATE TESTING:

If valve testing should result in valve stroke increases as stated in Article IWV-3417(a) requiring increased frequency of testing, the subject valves will be full-stroke tested only during cold shutdowns on a frequency determined by the intervals between shutdowns as follows:

- \* for intervals of 1 month (30 days) or longer, tests will be performed during each shutdown;
- \* for intervals of less than 1 month (30 days), full-stroke exercise will not be performed unless 1 month (30 days) has passed since the last shutdown exercise test.

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TITLE: INSERVICE TESTING PROGRAM

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#### RELIEF REQUEST NO. VR-49

# SYSTEMS:

CONTAINMENT ATMOSPHERE CONTROL

#### COMPONENTS:

CV-4300	CV-4301
CV-4302	CV-4303
CV-4306	CV-4307
CV-4308	

# FUNCTION:

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Provide ventilation and purging for the drywell and torus.

# TEST REQUIREMENTS:

The limiting value of full-stroke time of each power-operated valve shall be specified by the Owner. Full-stroke time is that time interval from initiation of the actuating signal to the end of the actuating cycle.

The stroke time of all power-operated valves shall be measured to the nearest second, for stroke times 10 seconds or less, or 10% of the specified limiting stroke times longer than 10 seconds whenever such a valve is full stroke tested.

# BASIS FOR RELIEF:

These valves are blocked to limit opening stroke to approximately 30% per Generic Issue B-24 and implementation of Item B.4 of Branch Technical Position (BTP) CSB 6-4. Exercising these valves to full-stroke is thus impractical.

# ALTERNATE TESTING:

These valves will be part-stroke exercised.



TITLE: INSERVICE TESTING PROGRAM

# RELIEF REQUEST NO. VR-50

## SYSTEMS:

CONTAINMENT ATMOSPHERE CONTROL

#### **COMPONENTS:**

CV-4327A	CV-4327F
CV-4327B	CV-4327G
CV-4327C	CV-4327H
CV-4327D	

#### CATEGORY

A/C

#### FUNCTION:

These are the pressure suppression chamber to drywell vacuum breaker valves which open to equalize the pressure between the two volumes should the suppression chamber pressure exceed that of the drywell.

# TEST REQUIREMENTS:

Check valves shall be exercised at least once every three months, except as provided by IWV-3522. (IWV-3521)

Valves that are normally closed during plant operation and whose function is to open on reversal of pressure differential shall be tested by proving that the disk moves promptly away from the seat when the closing pressure differential is removed and flow through the valve is initiated, or when a mechanical opening force is applied to the disk. If the test is made without flow through the valve, a mechanical exerciser shall be used to move the disk. The force or torque delivered must be limited to less than 10% of the equivalent force . . ., except that for vacuum breaker valves, the exerciser force or torque delivered to the disk may be equivalent to the desired functional pressure differential force. This implies that force or torque measurements are required.

#### BASIS FOR RELIEF:

These valves are located inside the torus and, as such, are not readily accessible for obtaining the required measurements during reactor operation or when the containment is inerted.

# ALTERNATE TESTING:

The valves will be full stroked quarterly during plant operation using installed air operators without any quantitative set point measurements. Additionally, each will be tested to open with the mechanical exerciser obtaining set point measurements at least once each refueling cycle. ۱ ١



APPENDIX A

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PUMP LISTING

#### PREPARED BY : IELP PROGRAM : PRISIM

#### ISI CLASS 1, 2, 3 AND NC PUMPS DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND POWER

DUANE ARNOLD ENERGY CENTER

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							IST	PROGRAM R	EVISION	007 11	/01/85	
						INSERVICE	TEST Q	JANTITIES				
PUMP NUMBER	FUMP NAME	IST CLASS	F&ID	P&1D COOR	SPEED	INLET PRESS	DIFF(1) FRESS	FLOW(1) RATE	(2 VIBRA	) BEAR TEMP	TEST INTERVAL	REMARKS
				·						•		
1P-022A	RHRSW	3	M146	B8	NA	Y : FR-4	Y	Y PR-12	Y	N:FR-14	QUARTERLY	
1F-022B	RHRSW	3	M-146	B8	NA	Y FR-4	Y	Y PR-12	Y	N : FR-14	QUARTERLY	
1P-022C	RHRSW	3	M-146	B8	NA	Y:PR-4	Y	Y PR-12	Y	N:PR-14	QUARTERLY	
1F-022D	RHRSW	3	M-146	, <b>₽−</b> 8	NA	Y : F'R−4	Y	Y PR-12	Y	N:FR-14	QUARTERLY	
1P-044A	DFO	NC	M-132	A2	NA .	Y: PR-4	Y : PR-6	Y : F'R-6	N : PR-1	N : PR-1	QUARTERLY	NOTE001
1F-044B	DFO,	NC	M-132	A3	NA	Y : F'R-4	¥ : F'R6	¥÷₽ <sup>;</sup> R−6	N : F'R1	N : FR-1	QUARTERLY	NOTE-001
1P-099A	ESW	3	M-146	Ð-7	NA	Y : P'R4	٠Y	Y	Y	N: PR-2	QUARTERLY	. •
1F-099B	EZM	3	M-146	₽6	АИ	Y : PR-4	Y	Y	Υ.	N:FR-2	QUARTERLY	
1P-112A	SCREEN	NC	M-129	C-7	NA	Y FR-9	Y PR-9	Y PR-9	Y FR-9	N:PR-14	QUARTERLY	
FP-112B	SCREEN	NC	M-129	C3	NA	Y FR-9	Y ዮጽ–9	Y F'R-9	Y ₽₨−9	N:PR-14	QUARTERLY	
1P-117A	RW	3	M-129	Ď7	NA	Y : PR-4	Y : PR5	Y : PR-5	Y	N:FR-14	QUARTERLY	
1P-117B	RW	3	M-129	D4	NA	Y∶FR⊷4	Y÷₽R-5	Y : F'R-5	Y	N : PR-14	QUARTERLY	:
1P-1170	RW	3	M-129	D-6	NA	Y∶PR−4	Y : PR-5	Y : PR-5	Y	N: FR-14	QUARTERLY	
1F-117D	R₩	3	M-129 .	D-3	NA	Y∶F'R4	Y÷F'R−5	¥ : FR-5	Y	N : F'R-14	QUARTERLY	
1P-211A	C S	2	M-121	C-3	NA	Y	Y : PR-5	Y : PR-5	Y	N: PR-14	QUARTERLY	NOTE-003
1F-2118	С2	2	M-121	C4	NA	Y	Y÷₽̂Ŕ−5	¥∶F <sup>.</sup> R−5	Y	N:FR-14	QUARTERLY	NOTE-003
1P-216	HPCI	2	M-123	D-2	Y	Y	Y : PR-5	Y : P'R-5	N:PR-3	N:PR-14	QUARTERLY	NOTE-003
1P-226	RCIC	2	M-125	D4	Ϋ́	Y	Y : F'R-5	Y : PR-5	N: FR-3	N : F'R~14	QUARTERLY	NOTE-003
1P-229A	RHR	2	M-120	B-3	NA ·	Y	Y : PR-5	Y : PR-5	Y	N : PR-14	QUARTERLY	NOTE-002



PREPARED BY : IELP PROGRAM : PRISIM

# ISI CLASS 1, 2, 3 AND NC FUMPS DUANE ARNOLD ENERGY CENTER

TOWA ELECTRIC LIGHT AND FOWER .

							IST	PROGRAM R	FAG EVISION	E: 2 007 11	/01/85	
						INSERVICE	TEST (	QUANTITIES				
FUMF NUMBER	f'umf Name	IST CLASS	F&ID	F&1D COUR ====	SPEED	INLET FRESS	DIFF PRESS	FLOW RATE	VIBRA	DEAR TEMP	TEST INTERVAL	REMARKS
1P-229B	RHR	2	M-119	B-7	NA	Y	Y : PR5	Y : PR5	Y	N: PR-14	QUARTERLY	NOTE-002
1F <sup>(</sup> -229C	RHR	2	M-120	8-2	NA	Y	Y : FR−5	Y∶F⁄R−5	Y	N : F'R-14	QUARTERLY	NOTE-002
1P-229D	RHR	2	M-119	B8	NA	Y	Y : PR~5	Y : PR5	Y	N: PR-14	QUARTERLY	N0TE002
1P-230A	SELC	NC	M-126	D-5	NA	Y FR-4	Y	Y	Y	Y	QUARTERLY	
1P-230B	SHLC	NC	M-126 ,	C-5	NA	Y PR-4	Y	Y	Y	Y	QUARTERLY	

PAGE 3 IST PROGRAM REVISION: 007, 11/01/05 FOOTNOTES FOR FUMP LISTING (1) SEE PR-13 (2) SEE PR-8 AND PR-11	PREPARED BY : IELP PROGRAM : PRISIM	INSERVICE TESTING ISI CLASS 1, 2, 3 AN DUANE ARNOLD ENERG	PROGRAM D NC FUMPS Y CENTER	TOMU	ELECTRIC LIGHT AND FOWER
(1) SEE PR-13 (2) SEE PR-8 AND PR-11			PAG ISI PROGRAM REVISION:	E 3 007, 11/01/05	
(1) SEE PR-13 (2) SEE PR-8 AND PR-11		FOOTNOTES FOR PUMP LI	STING		
(2) SEE PR-8 AND PR-11	(1) SEE PR-13				
	(2) SEE PR-8 AND PR-	11			· ·
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PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3 AND NC PUMPS DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND FOWER

FAGE 4 IST PROGRAM REVISION: 007, 11/01/85

# FUMF IST FROGRAM REMARKS

NOTE 001: ALTHOUGH THE DIESEL FUEL OIL TRANSFER FUMFS (1F-44A & B) ARE INCLUDED IN THE FROGRAM, THEY DO NOT STRICTLY FALL WITHIN THE JURISDICTION OF THE ASME B & FV FROGRAM, SECTION XI. (REFERENCE ASME RESPONSE TO WPFSS INQUIRY, FILE NO. BC 77-666/NI 77-371 DATED (/8/79) SEE RELIEF REQUEST NO. FR-10 FOR FURTHER DISCUSSION OF THIS ISSUE.

NOTE 002: SEE RELIEF REQUEST FR-12.

NOTE 003: SEE RELIEF REQUEST FR-7 AND FR-12.

PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

	F & 1 S Y S	ID C STEM : M	51-1-7 IEUTRON	REVISI MONITOR	ON 00 (ING		FAGE : 1 IST FROGRAM REVISION : 007 , 11/01/85							
VAL VE NUMBER	F&ID COOR ====	IST CLASS =====	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYFE	NORMAL FOSITION	TEST	TEST FREQ	.MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS	
ŦIF−BALA		NC	A	.375	FAL	20	С	AT-1 BTC FIT	RR 0P 2Y	005	NA	VR34		
TIP-BALB		NC	A	.375	BAL.	02	C	AT-1 BTC FIT	RR OP 2Y	005	NA	VR-34		
TIF-BALC		NC	A	.375	BAL.	02	C	AT-1 BTC FIT	RR 0F 2Y	005	NA	VR-34	** ** ** ** ** ** ** ** **	
TIF-CK		NC	A/C	.375	СК	SA	C	AT-1 CT-CC	RR RR		NA ·	VR-31		
TIF-SHA		NC	D		SH	EXP	0	DT	RR					
TIP-SHB		NC	D		SH	EXP	0	DT	RR					
TIP-SHC		NC	D		SH	EXP	0	DT	 RR		anne anne anne anne anne anne anne anne			





IOWA ELECTRIC LIGHT AND FOWER

PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND POWER

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	F&I SYS	D M TEM : C	I-109 ONDENSA	REVISI TE & DE	ON 21 MINERAL	IZED WATER	IS	T PROGRA	M REVI	PAGE SIUN : 00	: 2 7 , 11/01/85	•	
VAL VE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
V-09-065	G-2	NC	A	1	GA	м	С	AT-1	RR		NA	VR36	
V-09-111	6-2	NC	A	1	GA	M	C	AT-1	RR		NA	VR-36`	

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FREFARED BY : IELF FROGRAM : FRISIM	INSERVICE TESTING FROGRAM ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER	IOWA ELECTRIC LIGHT AND FOWER

	ዮ&1 5¥5	D M TEM : R	-112 EACTOR	REVISI BUILDIN	0N 12 G COOLI	NG WATER	FAGE : 3 IST FROGRAM REVISION : 007 , 11/01/85						
VALVE NUMBER	F&ID COOR ====	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
MO-4841A	E-3	NC	A	4	GA .	мо	0	AT-1 BTC PIT	RR C <i>S</i> 2 Y	020	NA		
MO-4841B	F-3	NC	A	4	GA	M()	0	AT-1 BTC FIT	RR CS 2Y	020	NA		

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PREFARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND FOWER

	F& I SY S	D M TEM : R	I-113 HR & EM	REVISI	ON 17 SERVIC	E WATER	FAGE : 4 IST PROGRAM REVISION : 007 , 11/01/85						
VALVE NUMBER	ዮ&1D COOR	IST CLASS	VALVE Cat	VAL VE S I ZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-1956A	H3	3	Ŗ	4	GA	AO	C/FO	BTO FST	0F 0F	005		VR-35 VR-17	
CV-1956B	H-2	3	ß	4	GA	AO	C/F0	BTO FST	0F 0ዮ 0ዮ	005		VR-35 VR-17	
CV-2080	G 5	3	B	6	GL.	AO	C/F0	BTO FST	0P 0P	NA		- VR-35 VR-17	1889 1997 1997 1997 1997 1997 1997 1997
CV-2081	G-5	3	E	6	GL.	AØ	C/F0	BTO FST	OF OF	NA		VR-35 VR-17	
MO-1943A	G8	· 3	B	12	GA	MO	C/KL	BTC FIT	0P 2Y	072		999 9999 996 996 996 996 996 997 999	,
MO-1943B	G-8	3	B	12	GA	мо	C/KL	BTC PIT	0F 2Y	072		** ** ** ** ** ** ** ** ** ** **	,
M0-2039A	H-4	NC	B	4	GA	ма	0	BTC PIT	0P 2Y	070			
MO-20398	H-3	NC	P	4	GA	MO	0	BTC FIT	0P 2Y	070		• <b>*</b> • •• •• •• •• •• •• •• •• •• ••	
MO-2077	H3	3	B	4	GA	MO	0	BTC FIT	0P 2Y	070		88 alah - 684 alah alah pan pan pan any ang ang a	dar anna aine ann ann ann ann ann ann
M0~2078	H-2	.3	B	4	GA	MO	0	BTC PIT	0F 2Y	070		* 4* 4* ** ** ** ** ** ** ** **	
FSV-1988	E-7	3	С	. 75	RV	SA	C	CT-SP	5Y				
FSV-2068	E-6	3	C	. 75	RV	SA	C	CT-SP	5Y		er bine sint daar baar taan pann adar daan mayo sint pang vant ad	te man daan daga agan cons sidar anga dana umit s	
SV-1956A	H3	NC	B		ЗWY	50	NE	BTD	OP	NA	i and and the last and and the same and and and and and	VR-2	an dhad dhu, thut sabb shu san yang gay dan

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PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT . AND FOWER

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	F'& T S Y S	D h TEM : F	1-113 RHR & EM	REVISI 1ERGENCY	ON 17 SERVIC	E WATER	15	ST FROGRA	M REVI	PAGE SION : 00	: 5 7 , 11/01/85		
VALVE NUMBER	F&ID COOR	15T CLASS =====	VALVE CAT	VALVE	VAL VE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
SV-1956B	H-2	NC	В		3WY	20	NE	BTD (	0F	NA		VR-2	
SV-2080	G-5	NC	В	-	3WY	20	NE	BTD	٥f	NA	· · · · · · · · · · · · · · · · · · ·	VR-2	
<u>5V-2081</u>	G-5	NC	<b>B</b>		3WY	50	NE	BTD	OF'	NA		VR-2	****

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# IOWA ELECTRIC LIGHT AND POWER

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	F& I SYS	D M TEM : N	I-114 IUCLEAR	REVISI BOILER	00 15	PAGE : 6 IST PROGRAM REVISION : 007 , 11/01/85								
VALVE NUMBER	F&ID COOR ====	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	REL1EF REQUEST	REMORKS	
AF-4412A	G-3	NC	FI		4WY	AP	NĘ	BTD FST	0F 0F	NA		VR-2 VR-17		
AF-4412B	G-3	NC	B		4WY	AF	NE	BTD FST	0F 0P	NA		VR-2 VR-17		
AF-4413A	G - 1	NC	В	, 1999, 1999, 1999, 1999, 1997, 1997, 1997	4WY	AP	NE	BTD FST	OP OF	NA		VR-2 VR-17		
AP-4413B	G-1	NC	B		4WY	AP	NE	BTD FST	0P 0P 0P	NA		VR-2 VR-17		
AP-4415A		NC	P		4WY	AF <sup>.</sup>	NE	BTD FST	OF' OF'	NA		VR-2 VK-17	90 dana dana 1991 p.S. apat dala dala agi p.S.	
AF-4415B		мс	F	-	4WY	AF <sup>,</sup>	NE	BTD FST	0F 0P	NA	·····	VR-2 VR-17		
AP-4416A		NC	₽		4WY	AF <sup>,</sup>	NE	BTD FST	0P 0P	NA		VR-2 VR-17	an ann 1865 1865 1867 1867 1867 1867 1867 1867 1867 1867	
AP-4416B		NC	Ŗ		4WY	AF'	NE	BTD FST	0F 0P	NA		VR-2 VR-17		
AP-4418A		NC	B	***	4WY	AP	NE	BTD FST	OP OP	NA		VR-2 VR-17		
AF-4418B		NC	B		4WY	AF'	, NE	BTD FST	0P 0P	NA		VR-2	•	
AP-4419A		NC	B		4WY	AF <sup>.</sup>	NE	BTD FST	0F 0F	NA	*** *** (** (** (** 199 )*** (** 199 )*** (** 199 )	VR-2 VR-17		
AF'-4419B		NC	FI		4WY	AF'	NE	BTD FST	0F 0F 0F	NA		VR-2 VR-17		

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10) CLASS 1, 2, 3, AND MC VALVED DUALE ARNOLD ENERGY CEN UP 

# 1006 ELECTRIC LIGHT 60D FODER

	P&1 575	D M TEN N	114 UCLEAR	REVIST	018 125	PAGE 7 IST LEOGRAM REVISION 097 . (1/01/85								
76LVE Rofiber	638.1 D COOR	UST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	HORMAL POSITION	TEST	TEST FREQ	NAXINUD STROKE TIME	DAXINUN LEAKAGE	RELJEF REQUEST	REMARES	
11° 4420A		NC	В		4₩Y	Αŀ.	NE	BTD FST	OF OP	NA		VR-2 VR-17		
∂P-4420B		ŊC	B.		9WY	АF <sup>.</sup>	HE	BTD FST	0P 0F	NA		VR -2 VR-17	1. 19. 19. 19. 19. 1 . 19. 1 . 1994 (M. 1994 (M. 1994	
ôF-44216	5011 of or 1865	NC	F		4WY	AF <sup>.</sup>	NE:	BTD FST	0P 0P	NA		VR-2 VR-17		
ô₽~??21B		NC ,	B	······································	46JY	AF	NE	BTD FST	UP OP	NA		VR-2 VR-17	en on a nell e constant	
(X-4412	E-3	1	A	20	GL.	A0	0/FC	AT-1 BTC FST PIT	RE OP RE 2Y	005	NA	VR-17		
CV4413	E-2	1	A	20	61.	AU	0/FC	AF-1 BTC FST FIT	RR OF RR 2Y	005	NA .	VR-17	·	
CV-4415	C-7	í	A	20	ĞL.	AO	0/FC	AF-1 BTC FST FIT	RR OP RR 2Y	005	NA	• VR-17		
CV-4416	C-8	l	A	26	GL.	A0	07FC	nT-1 BTC FST FIT	- RR OF - RR - 2Y	005	NA	VR-17	1000 MIL 100 MI	
.₩~4418	C-3	f	û	20	GL	ის	0/FC	AT - 1 BIC FS1 PIC	RR UP RE 2Y	095	Νń	VR-17	· · · · · · · · · · · · · · · · · · ·	

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TREPORED BY : IELF PROGRAM : PRISIN

# 131 CLASS 1, 2, 3, AND HC VALVES DUANE ARNOLD ENERGY CENTER

LOWA ELECTRIC LIGHT AND FOWER

	P&J SYS	ID 1 TEN : N	1-114 JUGLEAR	REVISI	08 13	•	£3	T FROGR	AM REVI	PAGE 510N : 007	8 , 11701785		
VALVE NUMBER	F&ID CUOR	IST CLASS	VALVE	VALVE S12E	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	DEST FREQ	MAXIMUR STROKE TIME	MAXIMUH LEAKAGE	RELIEF REQUEST	REHARES
€V~4419	6-2	1	٨	20	GL.	<u>۵0</u>	0/FC	AT-1 BTC FST FIT	RR OF RR 2Y	005	NA	VR−17	
CV-4420	E-7	1	A	20	GL	A0	0/FC	AT-1 BTC FST FIT	RR OP RE 2Y	005	NA	VR-17	
CV-4421	E-8	1	A	<sup>2</sup> 0	GL.	AÜ	0/FC	AT-1 BTC FST FIT	RR OF RR 2Y	005	NA	VR-17	
CV-4428	H6	1	в	.5	GL.	AÜ	С	BTC PIT	C <i>S</i> 2Y	060			
177-4429	ŀſ⊷7	i	B	15	GL	۸Ü	С	BTC F1T	CS 2Y	060			*** *** *** ** *** *** *** ***
M0-4423	B-3	1	A	3	GA	014	C	AT-1 BTC FIT	RR OP 2Y	Ø15	NA		99 999 999 999 999 999 999 999 999 999
110-4424	8~3	1	A	3	GA	M0	С	AT-1 BTC PIT	RR OF 2Y	015	Nก		17 TH (14 W) 14 H H H H H H H H H H H H H H H H H H
ii04441	B-3	1	AZ C	16	SCK	Sam	07KL	AT-1 BTC CT-CC PIT	RR CS CS 2Y	053	NA .	. VR-37	
10-4442	B7	1	A∕U	16	SCK	รคท	07KL	AT-1 NTC CT-CC FIT	RR CS CS 2)	053	NA	VR-37	







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PROGRAM : FRISIM ISI CLASS F, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

IOWA ELECTRIC LIGHT AND FOWER

	F& ] S Y S	1D N STEM : N	1-114 IUCILEAR	REVISI BOILER	ON 15		15	T PROGRA	M REVI	FAGE SION : 007	9 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
FSV-4400	E-5	1	₿∕C	6	Ŕ٧	SAP	C	810 CT-SP	5 F' 5 Y	NA		VR-6	
F'SV-4401	E-4	1	₽/C	6	Ŕν	SAF	C	BTO CT-SP	SF 5Y	NA		VR-6	
FSV-4402	C-6	1	F/C	6	R٧	SAP	С	BTO CT-SP	ሪዮ 5Y	NA		VR-6	
FSV-4403	C-6	1	С	6	5۷	SA	С	CT-SF	 5Y				
FSV-4404	C-5	1	С	6	s۷	SA	С	CT-SP	 5Y			*** ** ** ** ** ** ** ** ** **	
FSV-4405	C-4	1	₿/C	6	κv	SAF	C	BTD CT-SP	ς <sub>Ρ</sub> . 5Υ	NA		VR-6	
FSV-4406	E6	1	B/C	6	κv	SAP	С	BTO CT-SF	SF 5Y	NA		VR-6	- met toet une tour toet une toet and
FSV-4407	E-6	. 1	₽/С	6	Ŕ٧	SAF	C	BTO CT-SF	SF 5 Y	NA		VR-6	
PSV4439A	H-4	3	C	6	RV	SA	С	CT-CC CT-CO CT-SP	ŔŔ ŔŔ 5Y		a ana ang ang ang ang ang ang ang ang an	VR-7 VR-7	· • •
FSV-4439B	B-4	3	С	6	Ŕ٧	SA	С	CT-CC CT-CO CT-SP	RR RR RR 5Y			VR-7 VR-7	
FSV-4439C	A5	3	С	6	₽V	SA	C	CT-CC CT-CO CT-SF	RR RR 5 Y			VR-7 VR-7	**** *** *** *** *** *** *** *** ***
PSY-4439D	B4	3	C	6	£Υ	SA	С	CT-CC CT-CO CT-SP	RR RR 51	ne balle aller aller ange ante enge som kann kann kan	, tan ann an ann an an an an an an an an an	VR-7 VR-7	

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# ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

### IOWA ELECTRIC LIGHT AND FOWER

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	F&I SYS	D M TEM : N	1-114 IUCLEAR	REVISI	ON 15			T FROGRA	M REVI	FAGE SIDN : 00	10 7 , 11/01/85		
VALVE NUMBER	P&ID COOR	IST CLASS =====	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
F'SV-4439E	A-5	3	С	6	₽V	SA	C	01-00 01-00 01-5P	RR RR 5Y	<u></u>		VR-7 VR-7 VR-7	
FSV-4439F	A- <b>4</b>	3	С	6	Ēν	. SA	С	CT-CC CT-CO CT-SP	RR RR 5Y			VR-7 VR-7	
SV-4400	E-5	NC	B		3WY	<u>so</u>	ND	BTE	 SF	NA			
SV-4401	E4	NC	B		3WY	50	ND	вте	 SF			VR-0	
SV-4402	C-6	NC	B		3WY	20	ND	BTE	 SP	 NA		VR-0	
SV-4405	C-4	NC	 B		3WY	50	 ND	BTE	SF	 ΝΔ		VK-6	
SV-4406	E-6	NC			3WY	50	 ND	 BTE			· · · · · · · · · · · · · · · · · · ·	VR-6	
SV-4407	E-6	NC	B		3WY	 SO	 ND	BTE		۲۲۶۱ 	· · · · · · · · · · · · · · · · · · ·	VK-6	
SV-4412A	 G-8	NC	 P		 3WY	50	NF	 DTD	۵۲ 	NA 		VR-6	
SV-4412B	 G-8	 NC	 B					61 <i>0</i>	0r	AN 		VR-2	
SV-4413A	 F-2	 NC	 Fi					BID 	UF	NA		VR-2	
SV-4413B	 F-2	NC			7.17		NC	HID	0F'	NA		VR-2	
۲۷-4415۵								BTD	0F	NA		VR-2	
				-	3W Y	20	NE	BTD	0F	NA		VR-2	
5 V - 4 4 1 .5 B	6-8	NU	H		3WY	02	NE	BTD	0F	NA		VR-2	
>v-4416A	G8	NC	B		3WY		NE	BTD	OF	NA		VR-2	<b></b>
SV-4416B	G-8 	NC	<b>B</b>		3WY	<u>so</u>	NE	BTD	OP	NA		VR-2	

FREFARED BY : JELF FROGRAM : FRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND POWER

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rict till sint bar till sint sint and and and and	F'& I S Y S	D M TEM : N	I-114 IUCLEAR	REVISI BOILER	ON 15		IS	T PROGRA	M REVI	PAGE SION : 007	11 , 11/01/85		
VALVE NUMPER	F&ID COOR ====	IST CLASS	VALVE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF	REMARKS
SV-4418A	G-8,	NC	Ð		3WY	20	NE	BTD	0F	NA			======
SV-4418B	G-8	NC	<b>B</b>		3WY	50	NE	RTD	0P	NA	ar 1961 alar 1967 ann ann 2667 2668 2668 2669 2669 2669 2669 26	VR-2	
SV-4419A	G8	NC	B		3WY	50	NE	BTD	 0P	 NA		VR-2	
SV-4419B	G-8	NC	B		3WY	20	NE	BTD	0P	NA	n ant ant part the case and the case part part the same ma	VR-2	
SV-4420A	G-8	NC	P		3WY	50	NE	BTD.	0P	 NA	a maa kana kana kana kana kana kana kana	VR-2	
SV-4420B	G-8	NC	B		3WY	50	NE	втр	 OF	NA		VR-2	
SV-4421A	G-8	NC	R		3WY	20	NE	BTD	 0P	 NA			
SV-4421B	G~8	NC	B		3WY	20	NE	BTD.	0F	 NA	anna anna anna anna anna anna anna ann	VR-2	
SV-4428	H6	NC	B		3WY	50	ND	 втр	 C S	. NA	tala ana tala tala ana bila para tala tala tala tala tala tala tala t	VE-2	
SV-4429	H-7	NC			3WY	02	 ND	BTD	CS	NA			
V-14-001	B-6	í	A/C	16	СК	SA	0	AT-1 CT-CC CT-CO FIT	RR RR OF 2Y		NA	VR-4	· · · · · · · · · · · · · · · · · · ·
V-14-003	B-4	1	A/C	16	CK	SA	0	AT-1 CT-CC CT-CO FIT	RR CS OF 2Y		NA		
V-14-009	F-6	NC	A/C	2	СК	SA	С	AT-6 CT-CC	RR RR		NA	VR-19	, mai ann ann ann ann ann lan san lan
V-14-014	D-6	NC	A/C	2	СК	SA	С	AT-6 CT-CC	RR RR		NA	 VR-19	

PREPARED BY : IELP PROGRAM : PRISIM

# INSERVICE TESTING PROGRAM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

# IOWA ELECTRIC LIGHT AND FOWER

	F'& I S Y S	D N TEM : N	1-114 IUCLEAR	REVISI BOILER	ON 15		13	T PROGRA	M REVI	FAGE SION 00	: 12 7 , 11/01/85		
VALVE NUMBER	₽&ID COOR ====	IST CLASS =====	VALVE CAT	VAL.VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
V-14-015	G-5	NC	A/C	2	СК	SA	С	AT6 CT-CC	RR RR		NA	Second	
V-14-016	D-5	NC	A/C	2 .	СК	SA	C	AT-6 CT-CC	RR RR		NA	VE-10	
V-14-032	F-1	NC	·A/C	. 75	СК	SA	0	AT-6 CT-CC	 RR RR		NA	VR-19	
V-14-100	G-8	NC	A/C	: .75	СК	SA	0	AT-6 CT-CC	RR RR		NA	VE-19	
V-14-104	G - 8	NC	A/C	. 75	СК	SA	0	AT-6 CT-CC	RR RR		NA	VE 10	
V-14-108	G-8	NC	A/C	.75	СК	SA	0	AT-6 CT-CC	 RR RR		NA	VR-19	
V-14-112	G-8	NC	A/C	. 75	CK	SA	0	AT-6 CT-CC	 RR RR		NA	VP- ( P	
V-14-116	G-8	NC	A/C	.75	СК	SA	0	AT-6 CT-CC	RR RR		NA	VE-19	· · · · · · · · · · · · · · · · · · ·
V-14-120	G-8	NC	A/C	. 75	СК	SA	0	AT-6 CT-CC	RR RR		NA	VB ( 0	
V-14-124	G-8	NC	A/C	.75	СК	· SA	0	AT-6 CT-CC	RR RR		NA	VP-40	and the any the part and the fact and
KFV-4453A	E-3	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	 RR RR 2Y	··· •• •• •• •• •• •• •• •• •• •• ••	· · · · · · · · · · · · · · · · · · ·	VR-8	
(FV-4453B	D-3	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	

FREFA	RED BY	: IELF	,		]	NSERVICE 1	ESTING PRO	GRAM				1 TO L TOUT	
PROGR	AM : FF	(ISIM			ISI C DL	LASS 1, 2, JANE ARNOLI	3, AND NC ENERGY CE	VALVES NTER			AND POL	NER	
	F & I S Y S	D M TEM : N	I-114 IUCLEAR	REVISI BOILER	ON 15		12	T PROGRA	M REVI	FAGE SION : 007	: 13 , 11/01/85		
VALVE NUMBER	F&ID COOR =====	IST CLASS	VALVE CAT	VALVE SIZE	VAL VE TYPE	ACTUATOR Type	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARK
XFV-4454A	E3	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4454B	D-1	2	A/C	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	••• ••• ••• ••• ••• ••• ••• ••• ••• ••
XFV-4455A	C-3	2	A/C	<b>1</b>	XFC	AS	0	AT-2 CT-CC PIT	RR RR 2Y	· · · · · · · · · · · · · · · · · · ·		VR-8	-
XFV4455B	C-3	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y		τη που αυτή τους τους της μαχά τους ματή ματή τους τους τους	VR-8	
XFV-4456A	C-3	2	A/C	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR8	
(FV-4456A	C-3	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y		· · · · · · · · · · · · · · · · · · ·	Vk-8	
(FV-4457A	E-7	2	A/C	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y		· • • • • • • • • • • • • • • • • • • •	VR-8	7
FV-4457B	D-7	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			` VR−8	
FV-4458A	E-7	2	A/C	1	XFC	SA	0	AT-2 CT-CC	RR RR	* ** ** ** ** ** ** ** ** ** ** **		 VR-8	

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PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND POWER

F&ID M-114 REVISION 15 SYSTEM : NUCLEAR BOILER FAGE : 14 IST PROGRAM REVISION : 007 , 11/01/85 MAXIMUM VALVE P&ID VALVE VALVE VALVE ACTUATOR IST NORMAL TEST STROKE NUMBER COOR CLASS MAXIMUM RELIEF CAT SIZE TYPE TYPE POSITION TEST FREQ -----TIME LEAKAGE \_\_\_\_ \*\*\*\* REQUEST --------==== REMARKS -----======== -----TRESSES RESSERTER ====== -----XFV-44588 D-7 2 A/C 1 XFC SA 0 AT-2 RR CT-CC ŔŔ VR--8 PIT 2Y XEV--4459A C--7 2 A/C 1 XFC SA ٥ AT-2 RR CT-CC RR VR--8 PIT 2Y -----..... -----XEV-4459B A/C 1 C--7 2 XFC SA 0 AT-2 RR CT-CC RR VR--8 PIT 2Y ----------XFV--4460A C-7 2 A/C 1 XFC SA 0 AT-2 RR CT-CC RR VR--8 PIT 2Y XFV-4460B C-7 2 A/C 1 XFC SA 0 AT-2 RR CT-CC RR VR-8 PIT 2Y

PREPAI PROGR/	RED BY AM : PR	: IELF			IS'I ( DL	INSERVICE CLASS 1, 2, JANE ARNOLI	FESTING FRO 3, AND NC D ENERGY CE	GRAM VALVES NTER			IOWA ELECTR AND FO	IC LIGHT WER	
	F&I SYS	D M TEM : R	I-115 EACTOR	REVISI VESSEL	ON Ø INSTRUM	ENTATION	15	T PROGRA	M REVI	PAGE SION : 007	: 15 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	Valve Cat	VALVE SIZE	VAL VE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
SV-4594A	D-3	2	Ĥ	î	GL.	20	C	AT-1 RTC FST FIT	RR OP OP 2Y	5	NA	VR-34 VR-17	
SV-4594B	D6	2	A	1	GL °	20	C	AT-1 BTC FST FIT	RR OF OP 2Y	5	NA	VR-34 VR-17	
SV-4595A	D-3	NC	A	1	. GL.	02	C	AT-1 BTC FST FIT	- RR OP OP 2Y	5	NA	VR=34 VR-17	
SV-4595B	D-6	NC	A	1	GL.		C	AT-1 BTC FST FIT	RR OF OF 2Y	5	NA .	VR-34 VR-17	
XFV-4501A	E-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-45018	E-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	:
XFV-4503	E-3	•	A	1	XFC	AZ	0	AT-2 CT-CC FIT	RR RR 2Y	<b></b>		VR8	
XFV-4504	E-6	2	A	1	XFC	SA	8	AT-2 CT-CC FIT	RR RR 2Y			VR-8	

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PREPA PROGR	RED BY AM : PF	: IELF RISIM	» 		ISI ( Di	UNSERVICE CLASS 1, 2 JANE ARNOLI	TESTING PRO , 3, AND NO D ENERGY CE	DGRAM VALVES INTER			IOWA ELECTR AND POL	IC LIGHT JER	
	F& ] 5 Y S	D N STEM : F	1-115 EACTOR	REVISI VESSEL	INSTRUM	ENTATION	1.5	T PROGRA	M REVI	PAGE ISION : 007	16 , 11/01/85		
VALVE NUMBER	P&ID COOR ====	IST CLASS	VALVE CAT	VAL.VE SIZE	VAL VE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	RENARKS
XFV-4505	C-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	==== RR RR 2Y			* ======= VR-8	
XFV-4506	B3	2	٨	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	4841 - 644 - 646 - 646 - 646 - 646 - 646 - 646 - 646 - 646
XFV-4507	B3	2	A	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR RR 2Y		nte une age fore part fore tor side data and have tan the	VR-8	tille Will Blad tille Solt Sant Fact Last Last
XFV-4508	B-3	2	A	í	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4510A	E6	2	A	1	XFC	AZ	0	AT-2 CT-CC FIT	RR RR RR 2Y	<u> </u>	na anna aine ann ann ann ann ann ann ann ann ann a	VR;-8	
XFV-4510B	E7	2	. A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	80 mm (00 100 100 100 100 100 100 100 100 100
×FV-4511	B-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
(FV-4512	8-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	-
(FV-4513	B-3	2	A	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	* 4884 9986 9942 9444 4884 9895 989 989 98



PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND POWER

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	۴۸۱ ۲۵ ۲۵	D M TEM : F	1-115 EACTOR	REVISI	ON 0 INSTRUM	1ENTATION	,	T PROGRA	M REVI	PAGE (S'ION : 007	: 17 7 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF	REMARKS
XFV-4514	B-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y				
XFV-4515	B-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			 VR8	
XFV-4516	B-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XEV-4518	D-6	2	A	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4519	D-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	FR FR 2Y			. VR-8	• • • • • • • • • • • • • • • • • • •
XFV-4528	D-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	· · · · · · · · · · · · · · · · · · ·
XFV-4562	E-3	2	A	1.	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4578	F-6	2	A	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4579	F6	2	A	`1	XFC	SA	()	AT-2 CT-CC FJT	RR RR 2Y			VR-8	

PREFAR PROGRA	ED BY M : PR	: IELF ISIM			ISI C	NSERVICE T LASS 1, 2, ANE ARNOLD	ESTING FRO 3, AND NC ENERGY CE	GRAM VALVES NTER			IOWA ELECTRI AND POW	C LIGHT ER	
	F& I SY S	D M TEM : R	1–115 REACTOR	REVISI VESSEL	ON O Instrum	ENTATION		T PROGRA	M REVI	FAGE SION : 00	: 18 7 , 11/01/85	•	
VALVE NUMBER	P&ID COOR	IST CLASS	VAL VE CAT	VAL VE S I ZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
XFV-4580	F6	2	A	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4581	E6	2	A	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			¥£-8	
XFV-4582	E6	2	A	<b>f</b>	XFC	SA	0.	AT-2 CT-CC FIT	RR RR 2Y		na ta an	¥k-8	·
XEV-4583	E-6	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y	an and high offer der find die der find der		VR-8	
XFV-4584	D-6	2	A	<b>i</b>	XEC	SA .	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4585	D-6	2	A	1	XFC	AS	U	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4586	F3	2.	A	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	Ÿ
XFV-4587	F-3	2	A	1	XFC	A'2	0	AT-2 CT-CC PIT	RR RR 2Y	ur ee ee mu uk eu en ho MA ov		VR-8	
XFV-4588	F-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR8	

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INSERVICE LESIING EROGRAM	INSERVICE	TESTING	PROGRAM
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### IOVA ELECTRIC LIGHT AND FOWER

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

FREFARED BY : IELF PROGRAM : FRISIM

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	F&I 2Y2	D M TEM : R	-115 EACTOR	REVISI VESSEL	ON O INSTRUM	ENTATIOŅ	15	T PROGRAM	M REVI	FAGE SION : 007	: 19 7 , 11/01/85		
VALVE NUMBER	ዮጲ፲ D COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
XFV~4589	E3	2	A	1	XFC	AZ	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4590	D-3	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	КR RR 2Y			VR-8	
XFV-4591	D3	2	A	1 ,	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	

PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER 

IOWA ELECTRIC LIGHT AND POWER

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	F'& I S'Y S	ID M TEM : F	1-116 REACTOR	REVISI RECIRCU	ON 12 JLATION		15	T PROGRA	M REVI	PAGE SION : 007	: 20 7, 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-4639	F6	2	<b>A</b>	. 75	GL	A0	C	AT-1 BTC FIT	RR OP 2Y	005	NA	VR-37	
CV-4640	F-6	NC	A	. 75	GL.	AO	C	AT-1 BTC FIT	RR 0P 2Y	005	NA	VR-37	
M0-4627	C-2	1	В	22	GA	мо	D	BTC FIT	CS 2Y	036		<b></b>	
MO-4628	C-8	1	B	22	GA .	MO	0	BTC FIT	CS 2Y	036	, 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 	an akt rat tas tas cas cas ar tas tas tas	
MO-4629	C-3	1	В	4	GA	MO	C	BTC PIT	CS 2Y	036			
NO-4630	C-8	1	B	4	GA	MO	C	BTC FIT	CS 2Y	036		an abr 19, an 199 wat 199 hat 199 h	
SV-4639	F-6	NC	B	_	3WY	50	ND	BTD	OF	NA		VR-2	
SV-4640	F-6	NC	B		3WY	50	ND	BTD.	OF	NA		VR-2	
XFV-4607	A-5	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	:
XFV-4608	A-5	2	A/C	1	XFC	SA	0.	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4611	A-5	2	A∕C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	<b>F ( ) ( ) ) ( ) ) ( ) ) ( ) ) ) ( ) ) ) ( ) ) ) ) ) ) ) ) ) )</b>
										** ** ** ** ** ** ** **			

FREFARED BY : IELF FROGRAM : FRISIM

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND POWER

	F&I SYS	D M TEM : F	I-116 EACTOR	REVISI RECIRCU	ON 12 LATION		IS	T PROGRA	M REVI	FAGE SION : 00	: 21 7 , 11/01/85		
VALVE NUMBER	P&ID COOR ====	151 CLASS =====	VALVE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
XFV-4612	A-5	2	A/C	i	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y	·		VR-8	
XFV-4637	E6	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4638	E6	2	A/C	<b>1</b> , .	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-9	
XFV-4641A	H-7	2	A/C	í	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4641B	H3	2	A/C	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4642A	G-7	2	A/C	ſ	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4642B	G-3	2	AŻC	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	÷
XFV-4643A	G-7	2	A/C	١	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4643B	G-3	2	A/C	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	



PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND FOWER

	۴&۱ ۲۵ ۲۵	D M TEM : R	1-116 REACTOR	REVISI RECIRCL	ON 12 LATION		I S	T PROGRA	M REVI	FAGE SION : 00	22 7 , 11/01/85		
VALVE NUMBER	P&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF	REMARKS
XFV-4644A	G-7	2	A/C	i	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-46448	G-3	2	A/C	1	XFC	, SA	0	AT-2 CT-CC PIT	RR RR 2Y	, <b>60</b> 60 61 72 97 97 98 88 88 88		VR-8	
XFV-4663	F-4	5	A/C	1	XFC	. SA	0	AT-2 CT-CC FIT	RR RR 2Y		har an	VR8	
XFV-4664	F-4	. 2	A/C	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4665	F-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4666	F-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR8	· ••• ••• ••• •• •• •• •• •• •• •• •• ••
XFV4667	E-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	*
XFV-4668	E-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y	** ** ** ** ** ** ** **		VR-8	
XFV-4669	E-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	



FREPARED BY : IELF

PROGRAM : PRISIM ISL CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

IOWA ELECTRIC LIGHT AND FOWER

	F& I S Y S	D M TEM R	-116 EACTOR	REVISI RECIRCU	ON 12 LATION		15	T PROGRA	M REVI	FAGE SION 007	23. , 11/01/85		
VALVE NUMBER	P&ID COOR ====	JST CLASS	VALVE CAT	VALVE SIZE	Ý VALVE TYPE	ACTUATOR	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
XFV-4670	E-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4671	E-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4672	E-4	2	A/C	1,	XFC	59	ò	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-4673	E-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	<b>21 10</b> - 10- 10- 10- 10- 10- 10- 10- 10- 10- 10
XFV-4674	E-4	2	A/C	1	XFC	SU	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4675	D-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			۷R8	
XFV-4676	D-4	2	A/C	ł	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y		• •• •• •• •• •• •• •• •• •• •• •• •• •	VR-8	
XFV-4677	D-4	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
XFV-4678	D-4	2	A∕C	1	XFC	SA .	0	AT-2 CT-CC PIT	RR RR 2Y			VR8	

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INSERVICE	TESTING	PROGRAM
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PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND POWER

PAID M-116 REVISION 12 PAGE : 24 SYSTEM : REACTOR RECIRCULATION IST PROGRAM REVISION : 007 , 11/01/85 MAXIMUM VALVE P&ID IST VALVE VALVE VALVE ACTUATOR NORMAL TEST STROKE MAXIMUM RELIEF NUMBER COOR CLASS CAT SIZE TYPE TYPE POSITION TEST FREQ TIME LEAKAGE REQUEST ------REMARKS === \*\*\*\* ----======= ======= ----------\*\*\*\*\*\*\*\*\*\*\* ====== ======= XEV-4679 A-1 2 A/C 1 XFC SA 0 AT-2 RR CT-CC RR VR-8 PIT 2Y XEV-4680 A-7 2 A/C 1 XFC SA 0 AT-2 RR CT-CC RR VR-8 PIT 2Y ------. .... .... . XFV-4681 A--3 A/C 2 1 XFC SA 0 AT-2 RR CT-CC RR VR-8 · PIT 2Y ------ ---- ----XEV-4682 A-3 2 A/C 1 XFC 0 SA AT-2 RR CT-CC RR VK-8 PIT - 2Y

FREPARED BY : IELF FROGRAM : FRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

	ዮ&1 5 Y S	ID M TEM I C	I-117 CONTROL	REVISI RUD DRI	ON 17 VE HYDR	AULIC	1 2	T PROGRA	M REVI	PAGE SION : 00	: 25 7 , 11/01/85		
VALVE NUMBER	P&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYFE	ACTUATOR Type	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-1804A	A-5	NC	A	1	GL.	A0	0	AT-1 BTC PIT	RR OP 2Y	005	NA		
CV-1804B	A-5	NC	A	1	GL .	ΑÛ	0	AT-1 BTC FIT	RR OP 2Y	005	NA		
SV-1804A	A-5	NC	В		3WY	<b>S</b> 0	NE	BTD	OP	NA	· · · · · · · · · · · · · · · · · · ·	· VR-2	
SV-1804B	A-5	NC	F		3WY	50	NE	BTD	0F	NA		VR-2	
SV-1840A	G-6	NC	B	1	3WY	50	NE	BTD	RR	NA		VR-13	NOTE-005
SV-1840B	6-6	NC	B	1	3WY	50	NE	BTD	RR	NA		VR-13	NOTE-005
V-17-052	E-3	1	A/C	3	СК	SA	C	AT-1 CT-CC	RR RR	<b>*</b>	NA	VR-30	
V-17-053	E-2	1	A/C	3	СК	· SA	C	AT-1 CT-CC	RR RR		NA	VR-30	
V-17-083	A-6	2	A/C	1	СК	SA	0	AT-1 CT-CC	RR RR	<b>20 20</b> 20 10 10 10 20 20 20 20 20 20 20 20 20 20 20 20 20	NA	VR-12	
V-17-096	A-4	2	A/C	1	СК	SA	0	AT-1 CT-CC	RR RR		NA	VR-12	tal) Mill Gall - wat tur All - war say - ang rang



IOWA ELECTRIC LIGHT AND POWER

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PREPARED BY : IELP PROGRAM : PRISIM

# ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND POWER

	F'& I S Y S	D N STEM : C	1-118 CONTROL	REVISI ROD DRI	ON ØÐ VE HYDR	AULIC	15	T PROGR	AM REVI	FAGE SION : 007	: 26 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE Cat	VALVE SIZE	VAL.VE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXJMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-1849	D7	2	B	.75	GA	A0	C/FO	BTO FST	ያዮ ያዮ	NA		. VR-13 VR-17	NOTE-001
CV-1850	D-6	2	B	. 75	GA	AO	C/FO	HTO FST	SP SP	NA		VR-13 VR-17	NOTE-001
CV-1859A	G-4	NC	Þ	<b>1</b>	GL.	AD	0/FC	BTC FST FIT	C <i>S</i> C <i>S</i> 2Y	030		VR-17	
CV-1859B	G-4	2	B	1	GL	AO	0/FC	BTC FST FIT	CS CS 2Y	007		VR-17	
CV-1867A	D5	NC	Ŗ	2	GL	AO	0/FC	BTC FST FIT	CS CS 2Y	032	· · · · · · · · · · · · · · · · · · ·	VR-17	
CV-1867B	D-5	2	B	2	GL	AO	0/FC	BTC FST FIT	CS CS 2Y	007	<b>10 10 10 10 10 10 10 10</b>	VR-17	
SV-1851	C-7	2	B	.5	GA	20	C/FC	BTC FST	SP SF	NA		VR-14 VR-17	NOTE-001
SV-1852	C-7	2	B.	. 75	GA	50	C/FC	BTC FST	SP SP	NA		VR-14 VR-17	NOTE-001
SV-1853	C-7	2	B	.5	GA	50	C/FC	BTC FST	<b>ሪ</b> ዮ ሪዮ	NA		VR-14 VR-17	NOTE-001
SV-1854	C-7	2	ħ	. 75	GA	50	C/FC	BTC FST	SP SP	NA		VR-14 VR-17	NOTE-001
SV-1855	E6	NC	B		3WY	20	NE	BTD	SF	NA		VR-13	

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PREPARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND FONER

	F& I SY S	D M TEM : C	1-118 ONTROL	REVISI ROD DRI	ON Ø8 VE HYDR	AUL.IC	15	T PROGRA	M REVI	FAGE SION : 00	: 27 7 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VAL VE SJZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
SV-1856	E-6	NC	P	- <b></b>	3WY	50	NE	втр	SF	NA		VR-13	
SV-1868	D-4	NC	B	. 25	3WY	20	NE	ETD	SF	NA		VR-2	· ••• •• •• •• •• •• •• •• •• ••
SV-1869	D-4	NC	B	.25	3WY	50	NE	BTD	OP ·	NA		VR-2	-
V-18-0118	B-8	2	С	.5	CK	SA	C	CT-CC	S.F.	NA		VR-13	NOTE-002
V-18-0919	E-7	2	С	• <sub>1</sub> 5	CK	SA	0	CT-CC	SF.	NA		VR-13	NOTE-003
V-18-1453	D-6	2	С	.5	СК	SA	C	<u>CT-CO</u>	SF	NA		VR-13	NOTE-004

PREFA PROGR	RED DY AM : PF	: IELF XISIM	· .		ISI ( DU	INSERVICE 1 LASS 1, 2, JANE ARNOLI	ESTING PRO 3, AND NC ) ENERGY CE	GRAM VALVES NTER			IOWA ELECTRI AND POU	IC LIGHT JER	
	F & I S Y S	D M TEM : F	1-119 RESIDUAL	REVISI HEAT R	ON 16 Emoval		IS	T PROGRA	M REVI	PAGE : SION : 007	28 , 11/01/85		
VALVE NUMPER	F&ID COOR	IST CLASS	VALVE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-1906	E-7	1	A/C	20	СК	SA	С	AT5 CT-CC CT-CO PIT	RR CS CS 2Y		NA		
M0-1900	H-8	1	A	4	GA	MO	C	AT-5 BTC PIT	RR CS 2Y	028	- NA		
MD-1901	H-7	1	Α	4,	GL.	· MO	С	AT-5 BTC FIT	RR CS 2Y	016	NA		
M0-1902	G-7	2	B	10 .	GA	MO	C	BTC FIT	0P 2Y	014		<b>WA 45 50 %2 12 24 25 25 26 26</b>	
NO-1903	G-6	2	B	10	GL.	MO	C/KL	BTC FIT	ОР 2Ү	014			
M0-1904	E-6	2	F	20	ANG	мо Мо	0	BTO FIT	ΟF 2Υ	037			
MD1905	E-6	1.	A	20	GA	MO	C	AT-5 BTC BTO FIT	RR 0P 0P 2Y	037 037	NA	nen vivi kan sun mer int dan var per och	
MD-1908	E-8	1	Α	18	GA	мо	С	AT-5 BTC FIT	RR CS 2Y	022	NA		
M0-1909	E-8	1	A	18	ĢA	MO	C	AT-5 BTC FIT	RR CS 2Y	022	NA		
M0-1912	C-7	2	B	18	GA	MO	С	BTC PIT	0F 2Y	084			

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND POWER

	F&I SYS	D M TEM : R	ESIDUAL	REVISI HEAT R	ON 16 Emoval		12	T PROGRA	M REVI	FAGE SION : 007	: 29 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE Size	VALVE TYFE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
MQ-1913	C-7	. 2	в	18	GA	MO	0/KL.	DTC DTO PIT	0P 0P 2Y	084 084			
MO-1920	C-8	2	н	18	GA	· MO	C	NTC PIT	0F 2Y	084			
MO-1921	C-7	2	в	18	GA	MO	0/KL	BTC BTO FTT	0P 0F 2Y	084 084		- 1999 - 1991 - 1992 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994	
M0-1932	F-5	2	B	12	GA	MO	C/KL •	BTC BTO FIT	0F 0F 2Y	083 083	199 dan 199 ang 199 ang 199 kan 199 kan 199 kan 199 kan 199 kan 199 kan 199		*** *** *** *** *** *** ***
NO-1933	F-5	2	B	4	GL.	MO	С	BTC FIT	0P 2Y	009			anna ainer anna anna anna anna anna anna anna
MO-1934	F-5	2	B	12	GL.	MO	C	RTC BTO FIF	0F 0F 2Y	041 041			
MO-1935	C-5	2	B	3	GA	MO	0	BTC BTO FIT	0F 0P 2Y	019 019	• •• •• •• •• •• •• •• •• •• •• •• •• •		
MD-1936	D-6	NC	F	4	GL.	мо	C	BTC PIT	0F 2Y	005			
MO-1937	D-6	2	B	4	ĢA	мо	C	BTC . FIT	OP 2Y	019	1 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	, ,	·····
MD-1939	D-4	2	B	12	GA	MO	0/KL	BTC BTO FIT	OF OF 2Y	080 080			



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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND FOWER

	F& I S Y S	D M TEM F	1-119 RESIDUAL	REVISI HEAT R	ON 16 Emoval		15	'T PROGRA	M REVI	FAGE : SION : 007	30 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS =====	VALVE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
MO-1940	E-4	2	B	18	GL	MO	0	BTC BTO PIT	0P 0P 2Y	060 060	·		
NO-1941	E-3	2	ß	18	GA	MO	0/KL	PTC BTO FIT	0P 0P 2Y	080 080	- Mar das vas par par ente tar das con das par e		
MO-1949A	D-4	NC	B	<b>1</b>	GL.	MO	С	BTC FIT	0P 2Y	018			
MO-1949B	D-4	2	F	1	GL.	мо	C	BTC PIT	OP 2Y	018			<u>.</u>
MO-1967	E-2	NC	B	4	GA	MO	C .	BTC BTO PIT	0P 0P 2Y	030 030			Be blit the che the suit but the same same same
MO-1970	E-3	NC	Ŗ	, 1 , 1	GA	MO	C	BTC PIT	0P 2Y	017			Bi allef sing save save date mit date base tare
MO-1989	D-7	2	В	24	GA	мо	0/KL	BTC BTO FIT	0F 0P 2Y	1 40 1 40			
FSV-1911	D-8	2	C	1	Ŕ٧	SA	C	CT-SP	 5Y				• •• •• •• <del>`</del> `- •• •• •• •• •• ••
FSV-1952	D-4	2	с С	4	RV	SA	с С	CT-SP	 5Y				
V-19-001	A-7	2	C	12	CK	SA	C	CT-CC CT-CO	 ዐዮ ዐዮ			• •• •• •• •• •• •• •• •• •• ••	
V-19-003	A-5	3	Ç ·	12	СК	SA	С	CT-CC CT-CO	OF OF	ar dad ain an in in gan an an an an an an	lang pang dang mang mang mang pang pang pang pang pang pang pang	·	
V-19-014	A-9	2	C	3	СК	SA	C	СТ-СС СТ-СО	OP OP	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·



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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

# IOWA ELECTRIC LIGHT AND POWER

	F&1 SYS	D M TEM : F	1-119 KESIDUAL	REVISI HEAT F	ON 16 EMOVAL		15	ST PROGRA	M REVI	PAGE SION : 00	E := 31 97 → 11/01/85		٠
VALVE NUMBER	F&ID COOR ====	IST CLASS	VAL VE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM L.E.AKAGE	RELIEF REQUEST	REMARKS
V-19-016	H-5	2	C	3	СК	AZ	C	CT-CC CT-CO	0F 0F				
V-19-020	B-6	2	B/C	1	SCK	MSA	0	CT-CC	90				
V-19-023	B-6	2	B/C	1	SCK	MSA	0	CT-CC	0P				
V-19-128	B6	2	B/C	1	SCK	MSA	0	CT-CC	0F				

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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	
VALVE NUMBER     FAID COR     IST CLASS     VALVE CAT     VALVE SIZE     VALVE TYPE     ACTUATOR TYPE     NORMAL POSITION     TEST TEST     TEST FRE     MAXIMUM STROKE     MAXIMUM HAXIMUM LEAKAGE     RELIEF REQUEST       CV-2002     F-3     1     A/C     20     CK     SA     C     AT-5 CT-CC     RR CC     NA       M0-2000     G-2     2     B     10     GA     MU     C     BTC     OP     014       M0-2001     G-4     2     B     10     GL     MO     C/KL     BTC     OP     014       M0-2003     F-4     1     A     20     GA     MU     C     AT-5 BTC     RR 0P     037       M0-2004     F-4     2     B     12     GA     MU     C/KL     BTC PT     OP     037       M0-2005     G-4     2     B     12     GA     MU     C/KL     BTC PT     OP     083 PT       M0-2006     F-4     2     B     4     GL	, men bar tar an an air an an an an
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	REMARKS
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	·• ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
MO-2004 F-4 2 B 20 ANG MO 0 BTO OP 037   MO-2005 G-4 2 B 12 GA MO C/KL BTC OF 083   MO-2005 G-4 2 B 12 GA MO C/KL BTC OF 083   MO-2006 F-4 2 B 4 GL MO C BTC OF 009	
MO-2005 G-4 2 B 12 GA MU C/KL BTC OF 083 BTO OF 083 FIT 2Y MO-2006 F-4 2 B 4 GL MO C BTC OF 009	<b>4</b> 7 146 <b>34</b> 7 <b>4</b> 9 <b>4</b> 0
M0-2006 F-4 2 B 4 GL MO C BTC OF 009	
F11 21	
MO-2007 F-5 2 B 12 GL MO C BTC OP 041 BTO OF 041 FIT 2Y	78 Maga Anga Anga Anga Anga Anga Anga Anga A
MQ-2009 C-4 2 B 3 GA MO O BTC OP 019 BTO OP 019 PTO OP 019 FIT 2Y	
MO-2011 C-3 2 B 14 GA MO C BTC OF 084 FIT 2Y	

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IOWA ELECTRIC LIGHT AND POWER

	F& I 5 Y S	D N STEM : F	1-120 KESIDUAL	REVISI HEAT R	ION 14 Emoval		15	T PROGRA	AM REVI	FAGE SION : 00	33 7 , 11/01/85		
VALVE NUMBER	F&ID COOR ====	IST CLASS	VALVE CAT	VAL.VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
MO-2012	C3	2	В	14	GA	MO	0/KL	PTC BTO PIT	0P 0P 2Y	084 084			
NO-2015	C-3	2	B	14	GA	MO	0/KL	BTC PTO PIT	0F 0F 2Y	084 084		· <b></b>	
.MO2016	C-2	2	B	14	GA	MO	C	BTC FIT	0P 2Y	084			
M0-2029	D-5	2	B	12	GA	MO	. 0	BTC BTO PIT	0F 0F 2Y	080 080			
M0-2030	E-5	2	B	18	GL.	MO	· 0	BTC BTO PIT	0P 0P 2Y	060 060			
MD-2031	E-7	2	₿	12	GA	MO	0	BTC BTO FIT	0F 0P 2Y	080 080			
MO-2036	E-8	NC	B	4	GA	M0	С	BTC BTO FIT	0F 0P 2Y	030 030			 :
M0-2038	E-7	NC	В	4	GA	мо	C	BTC PIT	0F 2Y	017			
MO-2044A	D-6	NC	B	1	GL	мо	C	BTC FIT	0F 2Y	018		tur bus une me par par ser ser ser	
NO-2044B	D-6	2	B	1	GL.	мо	C	BTC PIT	0F 2Y	018			** ** ** ** ** ** ** ** ** ** **

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	F&I SYS	D M Tem : R	I-120 ESIDUAL	REVISI HEAT F	ON 14 EMOVAL		13	T FROGRA	M REVI	FAGE SION : 00	: 34 7 , 11/01/85		
VALVE NUMBER	P&ID COOR	IST CLASS =====	VAL VE CAT	VALVE SIZE	VAL VE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARK S
M0-2069	D-3	2	B	24	GA	MO	0/KL.	BTC BTO FIT	0P 0P 2Y	140 140			
FSV-2043	D-6	2	C	4	R٧	SA	C	CT-SF	5Y				
V-20-001	₽-3	2	С	12	CK	SA	C	CT-CC CT-CO	OF OP			•	
V-20-003	A-5	• 2	C	12	СК	SA	С	CT-CC CT-CO	0P 0F				
V-20-006	B-4	2	С	3	СК	SA	C	CT-CC CT-CO	0F 0F	** ** ** ** ** ** ** ** **	· · · · · · · · · · · · · · · · · · ·		
V-20-008	B-2	2	С	3	CK	SA	С	CT-CC CT-CO	0P 0P				



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IOWA ELECTRIC LIGHT AND POWER

	F&1 SYS	D M TEM : C	I-121 ORE SPR	REVISI	ON 13		15	T PROGRA	M REVI	FAGE SION : 007	: 35 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VAL.VE CAT	VAL.VE SIZE	VALVE Type	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-2118	F6	1	A/C	8	CK	SA	C	AT-5 CT-CC CT-CO FIT	RR RR RR 2Y		NA	VR-33 VR-33	
CV-2139	E-6	1	A/C	EJ	СК	AZ	· C	AT-5 CT-CC CT-C0 PIT	RR RR RR 2Y		NA	VR-33 VR-33	
MB-2100	₿~5	2	Ð	12	GA	мо	0/KL	BTO FIT	0F 2Y	078			
M0-2104	D-3	2	B	2	GA	мо	0 .	NTC FIT	0F 2Y	013			
MO-2112	F5	2	B	8	GL	MO	С	BTC FIT	0P 2Y	033			
MO-2115	G-5	2	A	8	GΑ	MO	0	AT-1 BTC BTO FIT	RR OP OP 2Y	008 008	NA		· · · · · · · · · · · · · · · · · · ·
NO-2117	G-6	1	A	8	GA	M0	С	AT-1 AT-5 BTC BTO PIT	RR RR 0P 0F 2Y	008 008	NA NA		
MO-2120	C-5	2	B	12	GA	мо	0/KL	BTO FIT	0F 2Y	078.	· · · · · · · · · · · · · · · · · · ·		
MO-2124	D4	2	B	2	ĢA	мо	()	BTC FIT	0F 2Y	013			

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### IOWA ELECTRIC LIGHT AND FOWER

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	۲۸۹ ۲۵2	D M TEM : C	-121 ORE SFR	REVISI AY	ON 13		1.5	T FROGRA	M REVI	FAGE : S'ION : 007	36 , 11/01/85		
VALVE NUMBER	P&ID COOR ====	IST CLASS	VALVE CAT	VAL VE SIZE	VALVE Type	ACTUATOR TYPE	NORMAL FUSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
M0-2132	E-5	2	B	8	GL	мо	С	BTC PIT	0F 2Y	033			
NO-2135	E-5	2	A	8	GA	MO	0	AT-1 BTC BTO FIT	RR OF OP 2Y	008 008	АИ		· •
M0-2137	E-6	1	A	8	GA	MO	C	AT-1 AT-5 BTC BTO FIT	RR RR 0F 0P 2Y	008 008	NA NA		
M0-2146	C-5	2	B	12	GA	MO	O/KL	BTC BTO FIT	0F 0F 2Y	078 078			
M0-2147	B-5	2	₿	12	ĢA	. MO	0/KL	BTC BTO FIT	0F 0P 2Y	079 078			
FSV-2109	G-4	2	С	2	κv	SA	с С	CT-SF	 5Y	·			
FSV-2129	E-4	2	C	2	R٧	SA	с С	CT-SP	 5Y	• •• •• •• •• •• •• •• •• •• •• •• •• •			 "
V-21-007	D-3	2	C	10	СК	·SA	C	ст-со	 OF				* ** ** ** ** ** ** ** ** **
V-21-009	D-,3	2	C	2	СК	.SA	C	CT-CO	 OF				
V-21-010	D-4	2	C	10	СК	50	C	CT-CØ	0P		• • • • • • • • • • • • • • • • • • •		
V-21-012	D-4	2	С	2	СK	SA	С	CT-CO	 OF				
XFV-2119	G-7	2	A/C	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	<b></b>



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# PROGRAM : PRISIM ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND POWER

FAID M-121 REVISION 13 PAGE : 37 IST FROGRAM REVISION : 007 , 11/01/85 SYSTEM : CORE SPRAY MAXIMUM VALVE PAID IST VALVE VALVE VALVE ACTUATOR NORMAL TEST STROKE MAXIMUM RELIEF NUMBER COOR CLASS TYPE FOSITION TEST FREQ SIZE CAT TYPE TIME LEAKAGE REQUEST REMARKS ==== \_\_\_\_\_ ------------------\_\_\_\_\_\_ XEV-2139 G--7 2 AZC 1-XFC SA 0 AT-2 RR . CT-CC ŔŔ VR-8 . PIT 2Y 

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND FOWER

	F& I S Y S	D M TEM : F	1-122 IPCI - S	REVISI TEAM SI	ON 14 DE		2.1	T FROGRA	M REVI	PAGE SION : 00	: 38 7 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYFE	ACTUATOR Type	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-2206	D-2	2	Ŗ	i	GA	A0	C/FC	BTC FST FIT	0P 0P 2Y	005		VR-17	92 54 52 52 55 <b>55</b> 53 55
CV~2211	C-2	NC	A	1	GA	AO	0/FC	AT-1 BTC FST FIT	RR OP OP 2Y	005	NA	VR-17	
CV-2212	C-2	NC -	A	1	GA	A0	0/FC	AT-1 BTC FST FIT	RR OP OF 2Y	005	NA	VR-17	
CV-2235	C-5	NC	B	1	GA	A0	C/FC	BTC FST FIT	0F 0P 2Y	005	1 999 - 100 991 - 101 991 991 991 993 995 995 995 995 995 995 995 995 995	VR-17	
HV-2201	E-3	2	В	10	G1_	HO	C	BTO PIT	0P 2Y	030	n 1989 tang ang ang ang ang ang ang ang ang ang	an, and an and but the last rat an a	
M0-2202	E-3	2	B	10	GA	мо	C	BTO PIT	0F 2Y	021			
NO-2238	G6	1	A	10	GA	MO	0	AT-1 BTC BTO FIT	RR OP OP 2Y	013 013	ŅA		
HO-2239	G-5	1	A	10	GΑ	MO	0	AT-1 BTC BTO FIT	RR OP OP 2Y	013 013	NA		
NO-2247	D5	2	B	2	GL	MO	С	RTO FIT	0P 2Y	011	and and the last took and any the took and the same too and too a		t 1997 and part out any the just car and



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# ISI CLASS 1, 2, 3, AND NC VALVES AND POWER, DUANE ARNOLD ENERGY CENTER

IOWA ELECTRIC LIGHT AND POWER

	F& I S Y S	D M TEM : H	1-122 IPCI - S	REVISI TEAM SI	ION 14 DE		IS	T PROGRA	M REVI	PAGE SION : 007	: 39 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VAL.VE CAT	VALVE SIZE	VAL.VE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
MO-2290A	B-8	NC	A	2	GA	MO	0	AT-1 BTC BTO FIT	RR OP OP 2Y	010. 010	NA		
M0-2290B	B-8	NC .	A	2	GA	MO	0	AT-1 BTC BTO PIT	RR OP OF 2Y	010 010	NA	· · · · · · · · · · · · · · · · · · ·	
PSV-2223	C-3	2	С	1.25	RV	SA	C	CT-SF	 5Y			-91 999 -91 -99 -99 -99 -99 -99 -99 -99	na ran san san aga tar san yan san san
PSV-2228	C-4	2	C	1	۴V	SA	С	CT-SP	5Y		ter sam alle for den par met der sin den des bes and		49 - 164 - 866 - 166 - 166 - 166 - 166 - 166 - 166 - 166 - 166
SV-2206	D-2	. NC	B		ЗWY	50	ND	BTD	0P	NA		VR-2	
SV-2211	C-2	NC	B		3WY	so	NE	BTD	0F		na 1962 aller 1962 alle alle 1965 tale filst dass dass dass alle dass	 VR-2	
SV-2212	C-2	NC	B	-	3WY	50	NE	BTD	0P		ne ande alle anna anna anna anna ann ann anna anna	 	
SV-2235	C-5	NC	ŀ		3WY	50	ND	BTD	0P	NA	ne and any the car and the sky his day and an	VR-2	
V-22-016	₿7	2	A/C	16	СК	SA	C	AT-1 CT-CC CT-CO	RR CS 0P		. NA	VR-37	• • • • • • • • • • • • • • • • • • •
V-22-017	B7	2	A/C	16	2CK	SA	C	AT-1 CT-CO	RR OF	417 May 1968 May 2064 Long Aller and and and and	NA	VR-37	
V-22-021	H-7	NC	A/C	2	СК	SA	C	AT-1 CT-CC CT-CO	RR CS OF		NA .	VR-37	· · · · · · · · · · · · · · · · · · ·
V-22-022	8-7	NC	A/C	2	SCK	MSA	С	AT-1 CT-CO	RR OP		NA	VR-37	

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### TOWA ELECTRIC LIGHT AND POWER

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	F'& I S Y S	D M Tem : H	i-122 IFCI - S	REVISI TEAM SI	ON 14 DE		12	T PROGRA	M REVI	FAGE SION : 00	: 40 7 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CL:ASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR Type	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
V-22-026	B-3	2	С	2	СК	SA	С	CT-C0	0P			a	
V-22-028	E-4	2	С	2	СК	SA	C	ст-со	OP				· · · · · · · · · · · · · · · · · · ·
V-22-029	B-5	2	С	2	CK	SA	C	ст-со	0P	· · · · · · · · · · · · · · · · · · ·	no to an		
V-22-063	B-8	2	A/C	3	СК	SA	C	AT-1 CT-CC CT-CO	RR CS OP		NA		
V-22-064	B-8	NC	A/C	3	СК	SA	C	AT-1 CT-CC CT-CO	КR СS 0F		NA		
XFV-2246A	F-6	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y	, We sa <b>4</b> 0 as as as		VR-8	
XFV-22468	F-6	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y	. <b>28 80</b> 40 <b>80 5 5 5 5</b> 40 40	<u>.</u>	VR-8	
XFV-2246C	F-6	2	A	1	XFC	SA	0	AT-2 CT-CC PIT	RR RR 2Y			VR-8	
XFV-2246D	E-6	2	A	1	XFC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	

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# ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER DUANE ARNULD ENERGI LENTER

IOWA ELECTRIC LIGHT AND FOWER

	F&ID M-123 REVISION 10 SYSTEM : HPCI - WATER SIDE IST PROGRAM REVISION : 007,											41 11/01/85			
	P&ID COOR	IST CLASS	VAL VE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS		
CV-2313	C-7	1	<b>C</b>	12	СК	SAT	С	CT-CC CT-CO FIT	C <i>S</i> C <i>S</i> 2Y						
M0-2300	F-4	2	B	14	GA	мо	0	BTC FIT	0P 2Y	077	1997 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 - 2019 -				
M0-2311	С <b>-6</b>	2	B	12	GA	MO	0	BTO FIT	0F 2 Y	018		- <u>-</u>			
M0-2312	C-7	1	A	12 -	GA	MO	C	AT-1 RTC RTO FIT	RR OP OP 2Y	020 020	NA	VR-37	, (g), (g), (g), (g), (g), (g), (g), (g)		
M0-2316	E-6	NC	B	8	GA	мо	C	BTC FIT	0F 2Y	024	An				
MO2318	C-5	2	B	4	GL	мо	C	BTC BTO FIT	0P 0F 2Y	018 018	aan aan dan kut nga kut nga kat nga ka	pa ang pan tan tan tan tan tan tan tan tan tan t	4 143 <u>-</u> 41 (41 (48 )48 (48 )48 (48 )48		
M0-2321	A-7	2	Я	14	ĢA	мо	С	BTC BTO PIT	OF OF 2Y	077 077					
MO-2322	F-4	2	B	14	GA	мо	C	BTO FIT	0P 2Y	077					
PSV-2301	F-3	2	С	1.5	R۷	SA	C	CT-SP	5Y			. <u></u> <b>.</b>			
V-23-001	A-6	2	С	14	СК	SA	С	CT-CO	ŔŔ			VR-21			
V-23-014	C-4	2	С	4	СК	SA	С	CT-CO	0F		· · · · · · · · · · · · · · · · · · ·				

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ISI CLASS 1, 2, 3, AND NC VALVES \_\_\_\_\_AND PO DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND FOWER

	F'& I S Y S	D M Tem R	-124 CIC - S	REVISI TEAM SI	ON 12 DE		15	T <sup>†</sup> progra	NM REVI	FAGE SION : 007	: 42 , 11/01/85	•	
VAL VE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VAL VE SIZE	VAL VE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-2409	E-2	NC	B	1	GA	AO	C/FC	BTC FST FIT	0P 0P 2Y	005		VR-17	
CV-2410	D-3	NC	A	1	GA	AO	0/FC	AT-1 BTC FST FIT	RR OF OF 2Y	005	NA	VR-17	199 199 199 199 199 199 199 199 199 199
CV-2411	D-3	NC	A	'1	GA	A0	0/FC	AT-1 BTC FST FIT	RR OP OP 2Y	005	NA	VR-17	
CV-2436	R5	NC	B	1	GA	AÜ	0/FC	BTC FST FIT	OP OF 2Y	005	, ,	VR-17	ant and day and and and and and and and
<u>M</u> 0-2400	G-6	1	A	4	ĠA	MO	0	AT-1 BTC BTO FJT	RR OP OF 2Y	020 020	NA		
MO-2401	G-5	i •	A	4	GA	MO	0	AT-1 BTC BTO FIT	RR OP OF 2Y	020 020	' NA		2
MO-2404	G-3	NC	B	4	GL.	MO	C	RTO FIT	0P 2Y	016		an jan dan dan dan din jan jan dan dan dan	
M0-2405	F-3	NC	B	3	GL.	MO	C	BFO PIT	<mark>ወ</mark> ዮ 2	015	44 00 00 00 00 00 00 00 00 00 00 00 00	L, <b>20 00 00 10 10 0</b> 0 1, <b>00</b> 1, 00 0, 00 00	
NO-2426	D-6	NC	B	2	GL	MO	Ċ	BTO FIT	0P 2Y	014			

PREFARED BY : IELP PROGRAM : PRISIM

ISI CLASS 1, 2, 3, AND NC VALVES AND DUANE ARNOLD ENERGY CENTER

IOWA ELECTRIC LIGHT AND POWER

VALVE NUMBERP&ID COORIST CLASS CLASSVALVE CATVALVE SIZEVALVE TYPEACTUATOR TYPENORMAL POSITIONTEST TESTMAXIMUM STROKE TIMEPSV-2474C-3NCB/C1.25RVSACCT-SF5YSV-2409E-2NCB-3WYSONDBTDOPNASV-2410D-3NCB-3WYSONEBTDOPNASV-2411D-3NCB-3WYSONEBTDOPNASV-2436R-5NCB-3WYSONEBTDOPNA	MAXIMUM LEAKAGE	RELIEF REQUEST VR-2	REMARKS
PSV-2474   C-3   NC   B/C   1.25   RV   SA   C   CT-SF   5Y     SV-2409   E-2   NC   B   -   3WY   SO   ND   BTD   OF   NA     SV-2410   D-3   NC   B   -   3WY   SO   NE   BTD   OF   NA     SV-2411   D-3   NC   B   -   3WY   SO   NE   BTD   OF   NA     SV-2436   R-5   NC   B   -   3WY   SO   NE   BTD   OF   NA		VR-2	
SV-2409     E-2     NC     B     -     3WY     SO     ND     BTD     OF     NA       SV-2410     D-3     NC     B     -     3WY     SO     NE     BTD     OF     NA       SV-2410     D-3     NC     B     -     3WY     SO     NE     BTD     OF     NA       SV-2411     D-3     NC     B     -     3WY     SO     NE     BTD     OF     NA       SV-2436     R-5     NC     B     -     3WY     SO     NE     BTD     OF     NA		VR-2	
SV-2410     D-3     NC     B     -     3WY     SO     NE     BTD     OP     NA       SV-2411     D-3     NC     B     -     3WY     SO     NE     BTD     OP     NA       SV-2411     D-3     NC     B     -     3WY     SO     NE     BTD     OP     NA       SV-2436     R-5     NC     B     -     3WY     SO     NE     BTD     OP     NA		VD	
SV-2411     D-3     NC     B     -     3WY     SO     NE     RTD     OP     NA       SV-2436     R-5     NC     B     -     3WY     SO     NE     BTD     OP     NA		V #S ~~ 2	
SV-2436 R-5 NC B - 3WY SO NE BTD OP NA		VR-2	
	nden somen aden same sinde filde somen somen varen flever somen va	VR-2	in pape table gann pann bart vonn ronn voge ronr ha
V-24-008 D-7 NC A/C 10 SCK MSA C AT-1 RR CT-CO OP	NA	. VR-37	NOTE-005
V-24-012 C-6 NC C 2 CK SA C CF-CO OF			NOTE-005
V-24-023 D-7 NC A/C 10 CK SA C AT-1 RR CT-CC CS . CT-CO OP	NA	VR-37	
V-24-046 D-7 NC A/C 3 CK SA C AT-1 RR CT-CC CS CT-CO 0F	NA		
V-24-047 D-7 NC A/C 3 CK SA C AT-1 RR CT-CC CS CT-C0 OF	NA		2
XFV-2443A F-6 2 A/C 1 XFC SA 0 AT-2 RR CT-CC RR PIT 2Y		VR-9	
XFV-2443B     E-6     2     A/C     1     XFC     SA     0     AT-2     RR       CT-CC     RR     CT-CC     RR     FIT     2Y		VR-8	
XEV-2443C E-6 2 A/C 1 XEC SA O AT-2 RR CT-CC RR FIT 2Y		VR-8	

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER 

# IOWA ELECTRIC LIGHT AND FOWER

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u 1917 - 1918 - 1919 - 1919 - 1914 -	P& I S Y S	D M TEM : R	1-124 CIC - S	REVISI TEAM SI	ON 12 DE		15	T FROGRA	M REVI	PAGE SION : 00	: 44 7 , 11/01/85	·	
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE Tyfe	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
XFV-2443D	F-6	2	A/C	1	XEC	SA	0	AT-2 CT-CC FIT	RR RR 2Y			VR-8	
· · ·	•												ande tille toge som som talt blat dest skar som

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ISI CLASS 1, 2, 3, AND NE VALVES DUANE ARNOLD ENERGY CENTER

IOWA ELECTRIC LIGHT AND FOWER

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	F&I SYS	של א דבא : R	1-125 CIC - W	REVISI MATER SI	UN 12 DE		15	T PROGRA	M REVI	FAGE SION : 00	: 45 7 , 11/01/85		
VALVE NUMBER	F&ID COOR =====	IST CLASS =====	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-2513	D6	1 •	С	4	CK	SAT	С	CT-CC CT-CO PIT	C S C S 2 Y		· ·		
MO-2500	F-4	NC	F	6	GA	MO	8	BTC FIT	0P 2Y	040			
MO-2510	C-4	NC	E	2	GL.	MO	C	RTC RTO FIT	0F 0F 2Y	013 013		· · · · · · · · · · · · · · · · · · ·	
MQ-2511	D-5	NC	B	4	GA	MO	0	BTO PIT	0F 2Y	015			
MO-2512	D-6	. 1	A	4	GA	MQ	C	AT-1 BTC BTO ' FIT	RR OF OF 2Y	015 015	NA	VR-37	
MD-2516	A-5	NC	B	6	ĢA	MO	С	BTC BTO FIF	0F 0P 2Y	040 040			un es de eux es an es ta se an
M0-2517	F-4	NC	ŀ	6	GA	MO	С	BTO PIT	. OP 2Y	040			:
FSV-2501	E4	NC	С	1	RV	SA	C	CT-SP	5Y		ner alle der Mer der der der ere nam alle ger ger gen des des des des		140 146 146 146 146 146 146 146 146 146 146
V-25-001	A-5	NC	C,	6	СК	SA	С	CT-CO	ŔŔ			VR-21	
V-25-006	C4	NC	С	2	СК	SA	С	CT-CO	OF	, and and and and and an an an an and an and a sec	الله الله الله الله الله الله الله الله		

PREPA PROGRI	RED BY AM : FF	: IELF XIS'IM	5.		1	INSERVICE CLASS 1, 2, JANE ARNOLI	FESTING PRO 3, AND NO ENERGY CO	DGRAM C VALVES INTER			IOWA ELECTRIC AND FOWE	C LIGHT R	
	ዮሌ I S Y S	LD H STEM : S	1-126 Standby	REVISI LIQUID	ON 09 CONTROL	•	13	ST PROGRA	M REVI	FAGE SION : 007	46 , 11/01/85		* *** *** *** *** *** *** *** *** ***
VALVE NUMBER	F&ID COOR	IST CLASS	VAL VE CAT	VALVE SIZE	VAL VE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
FSV-2607	E-5	NC	С	1	RV	SA	С	CT-SP	5Y			and the pre-star star tar in	
FSV-2609	₽-5	ŅC	C	1	RV	SA	С	CT-SP	5Y	it ben alle alle ann alle alle the the the ser any and an		. Niké bing kany rang papu ping tang tang man	
V-26-004	D-5	NC	C	1.5	СК	SA	C	CT-CO	 0P			- 1860 and and 1860 and 1860 and 1860 and	
V26006	C-5	NC	C	1.5	СК	SA	C	CT-CO	 0P	r alan biri ban pas bad ana ami ang ang haka sa	t alle fan fan fan de fer tak gan bler gan gan gan gan de fer fan		
V-26-008	F-7	1	A/C	1.5	СК	SA	C	AT-1 CT-CC CT-CO	RR RR RR		NA	VR-20 VR-20	
V-26-009	D-8	1	A/C	1.5	СК	SA	C	AT-1 CT-CC CT-CO	RR RR RR	, MAR MAR AN	NA	VR-20 VR-20	
XS-2618A	F-6	NC	D	1.5	GA	EXP	С	DT	RR		, and you and any out		
XS-2618B	D-6	NC	D	1.5	GA	EXP	C	DT	RR				

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#### ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

### IOWA ELECTRIC LIGHT AND POWER

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	F'& I S Y S	D M Tem : R	I-127 EACTOR	REVISI WATER C	ON 15 LEANUP		13	T FROGRA	M REVI	PAGE 510N : 00	: 47 7 , 11/01/85		
VALVE NUMBER	P&ID COOR	IST CLASS	VAL VE CAT	VÁLVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELJEF REQUEST	REMARKS
MD-2700	F-8	•	A	4	GA	MO	0	AT-1 BTC FIT	RR 0P 2Y	020	NA		
M0-2701	F-7	1	A	4	GA	MO	0	AT-1 BTC FIT	RR OP 2Y	020	. NA		
M0-2740	G <b>-4</b>	1.	A	. 4	GL.	MO	0	AT-1 PTC FIT	RR OP 2Y	010	NA	VR-37	

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND FOWER

P&ID M-129 REVISION 11 FAGE : 48 SYSTEM : RIVER WATER SUPPLY - INTAKE IST PROGRAM REVISION : 007 , 11/01/85 MAXIMUM VALVE FAID VALVE VALVE VALVE ACTUATOR IST NORMAL TEST STROKE MAXIMUM RELIEF NUMBER COOR CLASS CAT SIZE TYPE TYPE POSITION TEST FREQ TIME LEAKAGE REQUEST REMARKS -----==== ===== ==== \_\_\_\_\_\_ -----\_\_\_\_\_\_ ======= ======== V-29-001 D-6 3 С 18 СК SA 0 CT-CC 0F' CT-CO OP ---------V-29-003 D-5 3 С CK 18 SA 0 CT-CC 0F' CT-CO 0F -----V-29-005 D--5 3 С 18 CK SA 0 · CT-CC 0f CT-CO 0F' -------- -- -- -- -- -- -- --· -----V-29-007 D-4 3 С 18 СК SA 0 CT-CC 0P CT-CO OP 

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# IOWA ELECTRIC LIGHT AND FOWER

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	۲۵۹۲ ۲۲۵ ۲۲۵	D M TEM : C	I-130 OMFRESS	REVISI ED AIR	0N 16		12	T FROGRA	M REVI	FAGE SION : 00	: 49 7., 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
V-30-287	B-8	NC	A	1	GA	м	С	AT-1	RR		NA	VR-36	

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## ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

#### IOWA ELECTRIC LIGHT AND POWER

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	F& I S Y S	D M TEM : D	I-132 DIESEL G	REVISI	ON 13 R SYSTE	MS	12	T PROGRA	M REVI	FAGE SION :.00	: 50 7 , 11/01/85		
VAL VE NUNBER	F&1D COOR ====	IST CLASS =====	VAL VE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
V-32-005	B3	NC	С	1.5	СК	SA	С	CTCO .	0P				
V-32-010	B-2	NC	C	1.5	CK	SA	C.	CTCO	0P			* 1886 8886 9861 7866 1886 1886 9867 1886 1886	
V-32-032	G-7	NC	A/C	. 75	СК	SA	С	AT-6 CT-CC CT-CO	RR OP OP		NA		
V-32-034	D-7	NC	A/C	, 75	СК	SA	C	AT-6 CT-CC CT-CO	RR OF OP		NA	and 201 (101 102 - 201 99) (107 - 201 - 201	
											e rent dies aufe beer rate auge dies sier anne buie dare wat dies die		

## TOWA FUECTRIC LIGHT

PREPAR PROGRA	RED BY M : FR	ISIM			ISI C DU	LASS 1, 2, ANE ARNOLD	3, AND NC ENERGY CE	VALVES NTER			AND FOWE	R	
	Γ.Υ.Ι 2.λ2	D M TEM : R	-137 Adwaste	REVISI SUMP	ON 12		.12	T FROGRA	M REVI	FAGE SION : 00	: 51 7 , 11/01/85		
VAL.VE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-3704	H-7	3	A	3	GA	A0	0/FC	AT-1 BTC FST PIT	RR OP OF 2Y	004	NA	VR-17	
CV-3705	H-7	3	A	3	GA	AO	0/FC	AT-1 BTC FST FIT	RR OP OP 2Y	004	NA	VR-17	· · ·
CV-3728	D-6	3	A	3	GA	AO	0/FC	AT-1 BTC FST PIT	RR OP OF 2Y	004	NA	VR-17	•
CV-3729	D-6	3	A	3	GA	· A0	0/FC	AT-1 FTC FST FIT	RR OF OP 2Y	004	NA	VR-17	
SV-3704		 NC	B		3WY	50	NE	<b>ETD</b>	OF	NA		VR-2	
SV-3705	 G-7	NC			3WY	50	NE	BTD	OP	NA	·	VR-2	
SV-3728	с-6	 NC	E		3WY	.50	NE	BTD	OF	NA		VR-2	
	 С-6	NC	B		3WY	50	NE	BTD	OP	NA		<b>V</b> R-2	

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER 

IOWA ELECTRIC LIGHT AND POWER

	F&J SYS	D M TEM : C	1-143 CONTAINN	REVISI	ON 20 IOSPHERE	CONTROL	15	T PROGRA	AM REVI	FAGE : SION : 007	53 , 11/01/85		
VALVE NUMBER	F&ID COOR ====	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	Remarks
CV-4307	E-3	NC	A	18	BTF	. AD	C/FC	AT-1 BTC FST FIT	RR OP OP 2Y	005	NA _	VR37 VR49 VR17	
CV-4308	E-3	NC	A	18	BTF	AD	C/FC	AT-1 BTC FST FIT	RR OP OF 2Y	005	NA	' VR-37 VR-49 VR-17	· · · · · · · · · · · · · · · · · · ·
CV-4309	Ð7	NC	A	2	GA	AO	C/FC	AT-1 BTC FST FIT	RR OP OP 2Y	005	NA	VR-17	
CV-4310	D-7	NC	A	2	GA	AÜ	C/FC	AT-1 BTC FST PLT	RR OP OP 2Y	005	. NA	VR-17	
CV-4311	F-3	NC	A	6	GA	AO	C/FC	AT-1 BTC FST FIT	RR OF OP 2Y	005	NA	VR-17	
CV-4312	F-3	NC	A	6	GA	A0	C/FC	AT-1 BTC FST FIT	RR 0P 0F 2Y	005	NA	VR-17	
CV-4313	F-3	NC	A	6	ĢΑ	A0	C/FC	AT-1 FTC FST FIT	RR OP OP 2Y	005	NA .	VR-17	
CV-4327A	C-7	NC	A∕C	18	СК	SAT	C	AT-4 CT-CC CT-CO PIT	RR OP OF 2Y	· · · · · · · · · · · · · · · · · · ·	NA	VR-11 VR-50 VR-50	·



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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER 

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IOWA ELECTRIC LIGHT AND POWER

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<b></b>	F & I S Y S	D M TEM : C	-143 ONTAINN	REVISI	ON 28 IOSPHERE	CONTROL	15	T PROGRA	M REVI	PAGE SION : 007	: 54 ', 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VALVE SIZE	VAL.VE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUN STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-4327B	C-7	NC	A/C	18	СК	SAT	С	AT-4 CT-CC CT-C0 FIT	RR OF OP 2Y		NA	VR-11 VR-50 VR-50	
CV-4327C	C-7	NC	A/C	18	СК	SAT	C	AT-4 CT-CC CT-CO FIT	RR OP OP 2Y		NA	VR-11 VR-50 VR-50	
CV4327D	C-7	NC -	A/C	18	СК	SAT	C	AT-4 CT-CC CT-C0 FJT	RR OP OP 2Y		NA	VR-11 VR-50 VR-50	
CV-4327F	C-7	NC	A/C	18	СК	SAT	С •	AT-4 CT-CC CT-CO. PIT	RR OF OF 2Y		NA	VR-11 VR-50 VR-50	
CV-4327G	C-7	NC	A/C	18	СК	TAZ	C	AT-4 CT-CC CT-CO FJT	RR OF OP 2Y	<b>**** ***</b> * *** *** *** *** *** *** ***	NA	VR-11 VR-50 VR-50	
CV-4327H	C-7	NC	A/C	18	СК	TAZ	С.	AT-4 CT-CC CT-CO PIT	RR OP OF 2Y		NA	VR-11 VR-50 VR-50	·· · · · · · · · · · · · · · · · · · ·
CV-4371A	E-5	NC	A	2	GA	A0	0/FC	AT-1 BTC FST FIT	RR OP OP 2Y	005	NA	VR-17	
CV-4371C	F-5	NC	A	2	GA	A0	0/FC	AT-1 RTC FST PTT	RR OF OF 2Y	005 .	NA	VR-17	

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# ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER

IOWA ELECTRIC LIGHT

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	F&1 SYS	ID M TEM : C	1-143 CONTAINN	REVISI	ION 28 10SPHERE	CONTROL	15	T FROGRA	MREVI	FAGE SIDN : 007	55 , 11/01/85		
VALVE NUMBER	F&ID COOR ====	IST CLASS	VALVE CAT	VAL.VE SJZE	VAL VE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-4378A	E-5	NC	A	2	GA	A0	0/FC	AT-1 BTC FST PIT	RR OP OP 2Y	025	NA	VR-17	
CV-4378D	E-5	NC	A	2	GA	AD .	0/FC	AT-1 FTC FST FIT	RR OF OF 2Y	025	NA	VR17	
MD-4320A	C-3	NC	B	2	ĢA	MO	C	BTC BTO FIT	0F 0F 2Y	012 012			·····
MD-4320B	C-4	NC	F	2	GA	MO	С	BTC BTO FIT	0F 0P 2Y	012 012			
MD-4323A	R-3	NC	8	2	GL.	MD	С	BTO PIT	0F 2Y	040			
NO-4323B	B-4	NC	B	2	GL	MO	C	ВТО Р J Т	0F 2Y	040			at man ina ina ina ina ina ina ina ina ina i
SV-4300	C-7	NC	B		3WY	50	ND	 BTD	0F	 NA		 V&-?	
SV-4301	C-8	NC	P		3WY	.50	ND	 ртд	0F <sup>.</sup>	NA		 VR-2	
SV-4302	D-7	NC	ß		3WY	50	ND	 BTD	0F	NA		VR-2	
SV-4303	D-7	NC	B		3WY	20	N.D	втр	ÛF	NA		VR-2	
SV-4304	8-7	NC	B	.75	3WY	50	NE	BTD BTE	0F 0P	NA NA		VR-2 VR-2	
SV-4305	B-7	NC	B	.75	3WY	02	NE	BTD BTE	OP OF	NA NA		VR-2 VR-2	





PREPARED BY : JELP PROGRAM PRISIN

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SIM ISI CLASS 1, 2, 3, AND NC VALVES AND P DUANE ARNOLD ENERGY CENTER

IOWA ELECTRIC LIGHT AND POWER

	F&1 SYS	TD I STEM : (	1-143 CONTAINN	REVIS: IENT ATN	ION 28 IOSPHERE	CONTROL	I	ST PROGR	AM REVI	- PAGE SION : 007	56 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS ======	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
SV-4306	E-1	NC	B	-	3WY	20	ND	BTD	- ===== NP		================		
SV-4307	E3	NC	B		3WY	sò	ND	BTD				VR-2	
SV-4308	E3	NC	Ŗ		3WY	50	 ND	BTD				VR-2	
SV-4309	D7	NC	B		3WY	 SO	 ND					VR-2	
SV-4310	D-7	NC	B		3WY	S0	ND			NA		VR-2	
SV-4311	F-3	NC	B		 3WY	<u>so</u>		DTN	Ur 	NA		VR-2	
SV-4312	F-3	NC	 В			50				NA	nn dar jas une des jas des las jas des and and des per bes de	VR-2	
SV-4313	F-3	NC	 B		 3WY	50				NA	We way to's man have appen paint space area, where appen share to	VR-2	
SV-4331A	C-2	2	A	2	GA	02	C/KC	AT-1 BTC BTO FST PIT	RR OF OP OP 2Y	NA 005 005	NA	VR-2 VR-34 VR-34 VR-17	. <u> </u>
SV-4331B	C-2	NC	A	2	GA.	20	С/КС	AT-1 BTC BTO FST FIT	RR OF OF OF 2Y	005 005	NA	VR-34 VR-34 VR-17	
SV-4332A	C-2	2	A	2	GA	<i>S</i> 0	C/KC	AT-1 BTC BTO FST FIT	RR OP OF OF 2Y	005 005	NA	VR-34 VR-34 VR-17	
SV-4332B	C-2	NC	۸	2	GA	S0	C/KC	AT-1 BTC BTO FST FIT	RR OF OF OF 2Y	005 005	* NA	VR-34 VR-34 VR-17	

PREPAI PRUGRI	RED BY AM : PF	IELF	`		ISI ( DL	INSERVICE 1 CLASS 1, 2, JANE ARNOLI	EESTING PRO , 3, AND NO ) ENERGY CE	OGRAM VALVES NTER			IQWA ELECTRI AND FOW	C LIGHT Er	
	F'& ] SY S	LD M STEM : C	1-143 CONTAINH	REVISI	ON 28 IOSPHERE	CONTROL	1.5	T FROGRA	M REVI	PAGE SION : 00	: 57 7 , 11/01/85	na pilo van min pilo olin nin ska ska ska	,
VALVE NUMBER	F&ID COOR	IST CLASS	VALVE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
SV-4333A	C-2	2	A	2	ĢA	50	C/KC	AT-1 BTC BTU FST FIT	RR OP OP OP 2Y	005 005	NA .	VR-34 VR-34 VR-17	
SV-4333B	C-3	NC	A	2	GA .	50	C/KC	AT-1 BTC BTO FST FIT	RR OP OF OP 2Y	005 005	NA	VR-34 VR-34 VR-17	
SV-4334A	B-2	2	Α.	2	GA	. 02	C/KC	AT-1 BTC BTO FST FIT	RR OP OF OF 2Y	005 005	N۸	VR-34 VR-34 VR-17	
SV-43348	₿−2	NC	A	2	GA .	02	C/KC	AT-1 BTC BTO FST FIT	RR OP OP OP 2Y	005 005	NA	VR-34 VR-34 VR-17	
SV-4371A	E-5	NC	B	-	3WY	20	NE	BTD	OF	 NA		VR-2	
SV-4371C	F-5	NC	B		3WY	so 20	NE.	BTD	<u>ወ</u> ዮ	NA			
SV-4378A	E-5	NC	B		3WY	50	NE	BTD	0F	NA		VR-2	
SV-43780	E-5	NC	B		3WY	50	NE	BTD	0F'	NA		 VR-2	
V-43-082	C-3	NC	С	2	СК	SA	С	CT-CO	<b>F</b> R			VR-24	
V-43-084	C-3	NC	C	5	СК	SA	C	CT-CO	RR			24	

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ISI CLASS 1, 2, 3, AND NC VALVES AND POWER DUANE ARNOLD ENERGY CENTER

## IOWA ELECTRIC LIGHT

	F& I S Y S	D M TEM : C	I-143 CONTAINM	REVISI	ON 28 OSPHERE	CONTROL	15	T PROGRA	M REVI	FAGE SION : 00	: 58 7 , 11/01/85		
VALVE NUMBER	F&ID COOR ====	IST CLASS	VALVE CAT	VAL VE S I ZE	VAL VE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
V43086	C-3	NC	С	2	CK	SA	Ċ	CTCO	RR			VR-24	
V-43-088	B3	NC	C	2	СК	SA	С	CT-CO	RR			VR-24	
V43168	A-7	NC	A/C	20	СК	SA	Ċ	AT-1 CT-CC CT-CO FIT	RR OF OP 2Y		NA	VR-37	997 998 999 999 999 999 999 999 999 999
V-43-169	A-7	NC	A/C	20	СК	SA	с.	AT-1 CT-CC CT-CO FIT	RR OP OF 2Y		NA	VR-37	•
V-43-214	F4	NC	A/C	2	CK	SA	С	AT-1 CT-CC	RR RR		NA	VR-25	

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# IOWA ELECTRIC LIGHT AND POWER

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	F&I SYS	D M TEM : S	-146 ERVICE	REVISI WATER P	ON 15 UMP HOU	SE	IS	T PROGRA	M REVI	FAGE : SION : 007	59 , 11/01/85		
VAL VE NUMBER	F&ID COOR	IST CLASS =====	VAL VE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-4909	H6	3	B	24	BTF	A0	0/FC	BTC FST FIT	0P 0P 2Y	060		VR-17	
CV-4910A	H-7	3	8	24	BTF	A0	0/FC	RTC FST FIT	0P 0P 2Y	060	ter de les se s	VR-17	1844 1944 1944 1944 1944 1944 1944 1944
CV-4910B	H7	3	Ŗ	,24	BTE	AQ-	0/FC	BTC FST PIT	0P 0F 2Y	060		VR-17	
SV-4909	H-6	NC	B		3WY	50	NE	RTC FST	OP OP	NA		VR-2 VR-17	****
SV-4910A	H-7	NC	B		3WY	20	NE	BTC FST	0F 0F	NA		VR-2 VR-17	
SV-4910B	H-7	NC	P		3WY	50	NE	BTC FST	0F 0F	NA		VR-2 VR-17	ner tes ans set for for an sur pre and
V-46-011	<u>₽</u> -5	3	C	12	CK	SA	С	CT-CC CT-CO	0F 0P	99 99 66 66 64 64 ay ay ay ay ay ay	· · · · · · · · · · · · · · · · · · ·		
V-46-013	₿-5	3	C	12	СК	SA ·	С	CT-CC CT-CO	OF OF	No Pala and a sea and an Non Ala and a sea and a sea and			
V-46-018	C-6	3	C	8	СК	SA	С	CT-CC CT-CO	RR OF			VR-39	
V-46-021	C6	3	С	8	CK	SA	C	CT-CC CT-CO	RR OF	ur un das des des des des ces de ces de ces de ces de ces d		VR-39	AL LAS INS INS SAI LAS SAI SAI SAI SAI
V-46-025	₽-7	3	С	12	СК	SA	С	CT-CC CT-CO	0F 0F 0F				



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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND FOWER

	ዮል 1 5 Y S	D M TEM : S	I-146 ERVICE	REVISI WATER P	0N 15 'UMF' HOU	ISE	15	T PROGRA	M REVI	FAGE SION : 00	60 7 , 11/01/85		
VALVE NUMBER	F&ID COOR ====	IST CLASS =====	VAL VE CAT	VALVE Size	VAL VE Type	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
V-46-030	₽-7	3	С	12	СК	SA	С	CT-CC CT-CO	OP OP				

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	F&I SYS	D M TEM : D	-157 RYWELL	REVISI COOLING	ON 08 WATER		15	T PROGRA	AM REVI	FAGE SION : 007	: 61 , 11/01/85		
VALVE NUMBER	F&ID COOR	• 1 S T CLAS S =====	VALVE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
CV-5704A	H-6	NC	A	4	GL	AO	0/F0	AT-1 BTC BTO FST FIT	RR OP OP 2Y	005 005	NA	VR-37 VR-17	
CV-5704B	H-6	NC	A	4	GL.	A0 .	0/F0	AT-1 BTC BTO FST FIT	RR OF OF OF 2Y	005 005	NA	VR-37 VR-17	
CV5718A	₿-8	NC	A	4	GL.	AO	0/F0	AT-1 BTC BTO FST FIT	RR OP OP OP 2Y	005 005	NA	VR-37 VR-17	
CV-5718B	A-8	NC	A	4	GL.	AO	0/F0	AT-1 BTC BTO FST FIT	RR OP OF OF 2Y	005 005	NA	VR-37 VR-17	
SV-5704A	H-6	NC	B	-	3WY	. 20	ND	BTD BTE	0P 0P	NA NA		VR-2 VR-2	
SV-5704B	H-6	NC		-	3WY	S0	ND	BTD BTE	0F 0P	NA NA		VR-2 VR-2	
SV-5718A	Fr8	NC	H		3WY	20	ND	BTD BTE	OP OF	NA NA		VR-2 VR-2	· · · · · · · · · · · · · · · · · · ·
SV-5718B	A~8	NC	Fi		3WY	20	ND	BTD BTE	0P 0P	NA NA	9 99 90 til <u>an b</u> h an <u>su</u> Au <sub>N</sub> a <del>sa</del> an	VR-2 VR-2	

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#### IOWA ELECTRIC LIGHT AND FOWER

	F& I S Y S	א D TEM : D	I-157 RYWELL	REVISI COOLING	ON 08 WATER		13	ST PROGRA	M REVI	PAGE SION : 00	: 62 7 , 11/01/85		
VALVE NUMBER	P&TD Coor ====	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
V-57-075	G-7	NC	A	3	Gt.	м	C	AT-1	RR		NA	VR-37	
V-57-076	F-7	NC	A	3	GL.	M	, <u> </u>	AT-1	R.R.		NA	VR-37	
V-57-077	B-7	NC	A	3	GL.	M	С	AT-1	RR		NA	VR-37	
V-57-078	A-7	NC	A	3	GL.	Μ	C	AT-1	RR		NA	VR-37	

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	1 & 1 2 Y 2	D N TEM : C	I-181 CONTAINP	REVISI	ION 10 IOSPHERE	MONITORIN	IG IS	T PROGRA	AM REVI	PAGE SION : 007	63. , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VAL.VE. CAT	VAL VE S I ZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
SV-8101A	F-5	NC	A	<b>5</b>	GL	<b>50</b> .	0/FC	AT-1 HTC FST	RR OP OP	NA	NA	VR-32 VR-17	
SV-8101B	F-4	NC	Α.	1	GL.	. 20	0/FC	AT-1 BTC FST	RR 0P 0P	NA	NA	VR-32 VR-17	
SV-8102A	F-5	NC	A	1	GL.	50	0/FC	AT-1 BTC FST	RR OF OP	NA	NA	VR-32 VR-17	
SV-8102B	F-4	NC	A	1	GL.	50	0/FC	AT-1 ETC FST	RR OP OP	NA	NA	VR-32 VR-17	
SV-8103A	E-5	NC	A	1	GL.	20	0/FC	AT-1 BTC FST	RR OP OP	NA	NA	VR-32 VR-17	
SV-8103B	E4	NC	A	1	GL.	20	0/FC	AT-1 BTC FST	RR OP OP	NA	NA	VR-32 VR-17	
SV-8104A	E-5	NC	A	1	GL.	20	0/FC	AT-1 BTC FST	RR OF OP	NA	NA	VR-32 VR-17	
SV-8104B	E4	NC	A	1	GL	20	0/FC	AT-1 BTC FST	RR OF OP	NA	NA	VR-32 VR-17	
SV-8105A	E-5	NC	A	1	GL.	S()	0/FC	AT-1 BTC FST	RR OF OP	NA	NA	VR-32 VR-17	<b>MY NA</b> , JAN, IN, IN, <u>MY NA</u> , <u>IN</u> ,

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#### IOWA ELECTRIC LIGHT AND POWER

	F& I S Y S	D M	-181 ONTAINM	REVISI	ON 10 IOSPHERE	MONITORI	1G I S	T PROGRA	M REVI	FAGE SION : 00	64 7 , 11/01/85		
VALVE NUMBER	F& ( ) COOR ====	IST CLASS	VALVE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
2A-81928	E-4	NC	A	1	GL	<b>50</b>	0/FC	AT-1 BTC FST	RR OP OP	NA	NA	VR-32 VR-17	
SV-8106A	E-5	NC	A	1	GL.	20	0/FC	AT-1 BTC FST	RR OP OP	NA	NA	VR-32 VR-17	
2A-8162B	Ė−4	NC	A	1	GL.	S0	0/FC	AT-1 BTC FST	 RR OP OF	NA	NA	VR-32 VR-17	•• •• •• •• •• •• •• •• •• •• •• •• ••
SV-8107A	D-5	NC	A ·	1	GL.	02	0/FC	AT-1 BTC FST	RR OP OP	NA	NA	VR-32 VR-17	
SV-8107B	D4	NC	A	1	GL.	.50	0/FC	AT-1 BTC FST	RR OF OF	NA	NA	VR-32 VR-17	
SV-8108A	D-5	, NC	A	1	GL.	20	0/FC	AT-1 BTC FST	RR OF OF	NA	NA	VR-32 VR-17	
SV-8108B	D-4	NC	A	<b>1</b>	GL	50	0/FC	AT-1 BTC FST	RR OP OF	NA	NA	VR-32 VR-17	·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ··
SV8109A	D-5	NC	A	1	GL.	50	0/FC	AT-1 BTC FST	RR 0P 0F	NA	NA	VR-32 VR-17	
SV-8109B	D-4	NC	A	1	GL.	<i>S</i> 0	0/FC	AT-1 BTC FST	RR 0P 0P	NA	NA	VR-32 VR-17	

PREPAF PROGRA	FREPARED BY : IELF FROGRAM : FRISIM FRID M-181					NSERVICE 1 LASS 1, 2, ANE ARNOLE	ESTING PRO 3, AND NO ENERGY CE	IGRAM VALVES INTER			IOWA ELECTRIC AND POWE	C LIGHT ER	
	F&I SYS	D M TEM : C	-181 CONTAINM	REVISI	ION 10 IOSPHERE	MONITORIN	IG IS	T PROGRA	M REVI	FAGE SION : 00	- 65 7 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS	VAL.VE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL FOSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
SV-8110A	D5	NC	A	1	GL.	50	0/FC	AT-1 BTC FST	RR OP OP	NA	NA	VR-32 VR-17	
SV8110B	D-4	NC	A	1	GL.	s0	0/FC	AT-1 BTC	RR OF	NA	NA	VE-70	al) ang pang ban dan sala ban pang pang pang ban sang

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND FOWER

	P&I SYS	.D M STEM : M	1-184 1SIV LEF	REVISI AKAGE C(	ION 05 DNTROL		I <i>S</i>	ST PROGR	AM REV	PAGE ISION : 007	: 66 7 <b>, 11/01/85</b>		
VALVE NUMBER	F&ID C00R =====	IST CLASS	VALVE CAT	VAL VE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST FREQ	MAXIMUM STROKE TIME	MAXINUM LEAKAGE	RELIEF REQUEST	REMARKS
MO-8401A	F-3	. 1	F	<b>,</b> 1	GA	MO	С	BTC BTO FIT	0F 0P 2Y	020 020			
MO-8401B	F-3	1	Et	1	GA	MO	C	BTC BTO FIT	0F 0P 2Y	020 020	· · · · · · · · · · · · · · · · · · ·		
MO-8401C	F-3	1	B	<b>1</b>	GA.	MO	с С	BTC BTO FIT	0F 0F 2Y	020 020			
MD-8401D	F-3	1	Fi	1	GA	MO	C	BTC BTO FIT	0P 0P 2Y	020 020		· · · · · · · · · · · · · · · · · · ·	
MD-8402A	F-3	NC	B	1	GA	MO	С	BTC BTO FIT	0F 0F 2Y	020 020	· · · · · · · · · · · · · · · · · · ·		•
MO-84028	F-3	NC	B	1	GA	MO	C	BTC BTO FIT	0P 0P 2Y	020 020		· · · · · · · · · · · · · · · · · · ·	
MD-8402C	F-3	NC	B	1	ĢA	MO	C	BTC BTO FIT	0F 0F 2Y	020 020		· · · · · · · · · · · · · · · · · · ·	*
MO-8402D	F-3	NC	F	1	GA	MO	C	BTC BTO FIT	0F 0P 2Y	020 020		. <b></b> .	
MO-8403A	F4	NC	Ŗ	1	GA	MO	С	BTC BTO FIT	0P 0P 2Y	020 020			

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### IOWA ELECTRIC LIGHT AND POWER

	F&I SYS	D M TEM : M	I-184 ISIV LEA	REVISI KAGE CO	ON 05 NTROL		15	T PROGRA	M REVI	FAGE SION : 007	67 , 11/01/85		
VALVE NUMBER	F&ID COOR	IST CLASS =====	VAL.VE CAT	VALVE SIZE	VALVE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST Freq	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
MO-8403B	F-4	NC	F	1	GA	MO	С	BTC BTO FIT	0P 0P 2Y	020 020			
MO-8403C	F-4	NC	B	1	GA	мо	C	BTC BTO PIT	0P 0F 2Y	020 020			
NO-8403D	F-4	NC	P	1	GA	MO .	C	BTC BTO FIT	0P 0F 2Y	020 020			

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ISI CLASS 1, 2, 3, AND NC VALVES DUANE ARNOLD ENERGY CENTER IOWA ELECTRIC LIGHT AND FOWER

	F'& ] SY 5	ID N TEM : F	1-187 OST ACC	REVISI	ION 01 SAMFLING	SYSTEM	1.5	ST FROGRA	M REVI	FAGE SION : 00			
VALVE NUMBER	F&1D COOR ====	IST CLASS =====	VALVE CAT	VALVE SIZE	VAL VE TYPE	ACTUATOR TYPE	NORMAL POSITION	TEST	TEST	MAXIMUM STROKE TIME	MAXIMUM LEAKAGE	RELIEF REQUEST	REMARKS
SV-8772A	Ð-8	NC	A	i	GL.	02	С	AT-1 BTC FST FIT	RR OP OP 2Y	005	NA	VR-34 VR-17	
SV-8772B	B-8	NC	A	1 <u>.</u>	GL.		C	AT-1 PTC FST FIT	RR OF OF 2Y	005	NA	VR-34 VR-17	

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APPENDIX C

#### The American Society of Mechanical Engineers United Engineering Center / 345 E, 47th St., New York, N.Y. 10017 / 212 644-7815 February 16, 1978 THE BOIL SH AND Date 1/8/79 COMMITTEE Phi Revision 0 L. T. Harrold, Supervisor, ISI Programs Chevre J. Za Washington Public Power Supply System PO Box 968 3000 George Washington Way Vice-Charmen W.L. HARDING Richland, WA 99352 Subject: Section XI, Division 1, TWA-1100 W.B. HOYT Scope of Section XI, Division 1 CW. ALLISON Reference: Your letter of September 19, 1977 (APO 77-59) B.W. BACE R.D. BONNER ASME File #: BC 77-666 NI 77-371 R.J. BOSNAK P.M. BRISTER H.M. CANAVAN A.J. CEPLUCH Dear Mr. Harrold: W.E CDOPER W.O. DOTY Your inquiry and our response are as stated below: G.E. FRATCHER R.C. GRIFFIN S.F. HARRISON QUESTION: E.J HEMZY WP JOHNSON E.L KEMMLER Is it the intent of Subarticle IWA-1100 that the rules and requirements of Section XI, Division 1 for inservice inspection of Class 1, 2 & 3 EL KIME pressure retaining components (and their supports) be applied only to J. LTCOFF water and steam systems in light water cooled nuclear power plants? R H MOELLER REPLY: C.E. RAWLINS WE SMITH SR. Systems containing other than steam or water were not originally considered by the Committee in formulating the rules in Section XI; they may, however, be included for further consideration and for revisions to future editions of Section XI. The requirements shown in Section XI. Article IWA-1000 on Scope and Responsibility, specifically Paragraph TWA-1400, requires the Owner of the nuclear plant to determine the appropriate Code, Class or Classes for each component of the nuclear power plant to be examined according to Section XI rules. Very truly yours, .7 1 au remetin of

Kenneth I. Baron, Assistant Secretary

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