OMAHA PUBLIC POWER DISTRICT

FORT CALHOUN STATION, UNIT 1

INSERVICE INSPECTION PROGRAM PLAN FOR THE 1993-2003 INTERVAL

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INTRODUCTION

This report defines the Fort Calhoun Station Inservice Inspection (ISI) Program Plan for Class 1, Class 2, and Class 3 pressure retaining components for the ten-year (120 month) interval from September 26, 1993, to September 25, 2003. This report also covers Class 1, Class 2, and Class 3 pump and valve Inservice Testing (IST) for the ten-year (120 month) interval from September 26, 1993, to September 25, 2003.

This program has been developed as required by Section 50.55a of 10 CFR Part 50 following the guidance of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI (hereinafter called Section XI), "*Rules for Inservice Inspection of Nuclear Power Plant Components*", and the ASME/ANSI Operation and Maintenance of Nuclear Power Plants manual (hereinafter called O&M Manual) Parts 1, 6 and 10, and NRC Generic Letter 89-04 dated April 3, 1989. The ISI Program Plan is controlled by the Fort Calhoun Station Unit 1 Technical Specifications 3.3.(1)a.

This program is in compliance, where possible, with the applicable requirements of ASME Section XI, 1989 Edition and the ASME/ANSI O&M Manual Parts 1, 6 and 10 1987 Edition, 1988 Addenda, except as noted below:

> The O&M Manual, Part 6, 1987 Edition and 1988 Addenda have omitted the Figure 1 referred to on Table 3, Note 2 for vibration ranges. OPPD will use the Table 3 as listed in the 1989 addenda of the O&M Manual, Part 6 for vibration ranges for test parameters.

This program incorporates the results of previous inservice and preservice inspections. It is the intent of the Licensee (Omaha Public Power District) to continue to review and apply, as appropriate, changes in the ASME Section XI Code that would improve the total ISI Program Plan, pursuant to 10 CFR 50.55a.

PART 1: CLASS 1, CLASS 2, AND CLASS 3 PRESSURE RETAINING COMPONENTS

1.1 Program Summary

1.1.1 The Inservice Inspection (ISI) Program for Class 1, 2 and 3 pressure retaining components was developed in accordance with, and meets the requirements of, the ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition. The ISI Program for Class 1, 2 and 3 pressure retaining components will remain in effect for the remainder of the ten-year (120 month) interval, which commences on September 26, 1993. The Program will be reviewed and updated as required by the edition of the Code and Addenda in effect not more than 12 months prior to the start of the next (i.e., fourth) 120-month interval (beginning September 26, 2003).

1.2 Scope and Responsibility

1.2.1 The Piping and Instrumentation Drawings (P&IDs) for Fort Calhoun Station (FCS) identify the class boundaries. These P&IDs are subject to review and are changed as required in accordance with FCS administrative procedures.

1.2.2 Class 1, Class 2 and Class 3 components and the methods of examination for each component are listed in Tables 1.1, 1.2, and 1.3 respectively. The specific components to be examined for each class shall be identified in the Fort Calhoun Station Unit 1 Ten-Year Inservice Examination Plan by title and/or number. Exceptions to compliance with Subsection IWA, Tables IWB-2500-1, IWC-2500-1 and IWD-2500-1 of Section XI are listed in Appendices 1A, 1B, 1C and 1D respectively.

Class 3 portions of the Waste Disposal System have been classified as Class 3 in accordance with Subarticle IWA-1300, Paragraph (e.) of Section XI. Examination in accordance with the rules of Subsection IWD will not be performed on the Class 3 portion of the Waste Disposal System. (Although the Waste Disposal System at FCS is classified Class 3, it is not considered safety related as required for inspection per IWD-2500.)

1.2.3 Class 1, Class 2 and Class 3 component supports and the methods of examination for each support are listed in Table 1.4.

1.2.4 Steam Generator, safety-related snubbers, metallic liners, containment spray nozzles and the concrete component examinations are not performed under this ISI Program Plan, but are performed as described below:

1.2.4.1 Steam Generator exams are performed under FCS Technical Specification 3.17.

1.2.4.2 Snubber exams are performed under FCS Technical Specification 3.14.

1.2.4.3 Metallic liner exams are not required at the time of this submittal per 10 CFR 50.

1.2.4.4 Concrete component exams are performed under FCS Technical Specification 3.5.

1.2.5 The containment spray nozzles are tested under FCS Technical Specification 3.6.

1.3 Inspection Intervals

1.3.1 The inspection intervals for Class 1, Class 2, and Class 3 components are ten-year (120 month) intervals of service which commenced on September 26, 1973. This program plan covers the third ten-year interval, i.e., September 26, 1993 to September 25, 2003.

The ten-year Inservice Examination Plan describes the distribution of examinations within the inspection intervals in accordance with IWB-2400, IWC-2400, IWD-2400 and IWF-2400 of Section XI.

1.3.2 The inspection intervals and periods may be extended by as much as one year to permit inspections to be concurrent with plant outages as permitted by IWA-2430(d) of Section XI.

1.3.3 Selection of Class 1 and Class 2 pressure retaining piping welds for examination shall be in accordance with the requirements of the 1974 Edition of Section XI, Summer of 1975 Addenda.

1.4 Examination Categories

1.4.1 Class 1 components as described in the ten-year examination plan will be examined to the extent and frequency required by Table IWB-2500-1 of Section XI (except as noted in Appendix 1B).

1.4.2 Class 2 components will be examined to the extent and frequency as required by Table IWC-2500-1 of Section XI (except as noted in Appendix 1C).

1.4.3 Class 3 components as described in the ten-year examination plan shall be examined to the extent and frequency as required by Table IWD-2500-1 of Section XI (except as noted in Appendix 1D).

1.5 Examination Methods

1.5.1 Class 1 and Class 2 components shall be examined by the required visual, surface, and volumetric examination methods. These examinations shall include one or a combination of the following methods: visual (VT), liquid penetrant (PT), magnetic particle (MT), radiographic (RT), and ultrasonic (UT). Ultrasonic (UT) examinations shall be performed in accordance with the following:

1.5.1.1 UT examination of vessels with a wall thickness greater than 2 inches (51 mm) shall be conducted in accordance with Article 4 of Section V, as supplemented by Appendix I Section XI.

1.5.1.2 The UT examination of ferritic piping will be performed in accordance with the procedural requirements of Appendix III and Section XI, 1989 Edition.

The UT examination of austenitic and dissimilar metal welds will be performed in accordance with Appendix III, Section XI, Supplement 4, 1989 Edition.

1.5.1.3 When the required volume or area of Class 1 and Class 2 welds cannot be examined due to interference by another component or part geometry, a reduction of <10% of examination coverage will be considered acceptable and noted on reports per the rules of Code Case N-460.

1.5.1.4 When listing calibration blocks on piping reports, the block thickness shall be within ±25% of the pipe wall thickness examined per the rules of Code Case N-461.

1.5.2 Class 3 components shall be visually examined for leakage in accordance with Article IWD-2500 of Section XI.

1.6 Evaluation of Examination Results

1.6.1 Class 1 Components

The evaluation of the nondestructive examination results shall be in accordance with Article IWB-3000 of Section XI. All indications shall be subject to comparison with previous data to help in characterization and in determining origin.

1.6.2 Class 2 Components

The evaluation of nondestructive examination results shall be in accordance with Article IWC-3000 of Section XI. All indications shall be subject to comparison with previous data to help in characterization and in determining origin.

1.6.3 Class 3 Components

The evaluation of the visual examination results shall be in accordance with Article IWA-5000 of Section XI.

1.6.4 Indications which have been recorded in the preservice inspection or in a previous inservice inspection which are not characterized as propagating flaws shall be considered acceptable for continued service.

1.7 Repair Requirements

1.7.1 Repair of Class 1, Class 2, and Class 3 components shall be performed in accordance with Article IWA-4000 of Section XI.

1.7.2 Surface defects in Class 1, and Class 2 pressure retaining components may be removed by mechanical means when the removal of a defect will not alter the basic configurations of the item. Pressure retaining components that have defects that cannot be removed by mechanical means will be replaced in accordance with Article IWA-7000 of Section XI, or monitored for further growth per IWB-2420 or IWC-2420.

1.8 System Pressure Testing

1.8.1 General Requirements

1.8.1.1 System pressure tests will be conducted in accordance with Article IWA-5000 of Section XI, and ASME Code Case N-498.

1.8.1.2 Evaluation of any corroded area will be performed in accordance with Section XI.

1.8.1.3 Repairs of corroded areas shall be performed in accordance with Section 1.7 of this Program.

1.8.2 Class 1 Components

1.8.2.1 After each Refueling Outage, the system will be leak tested in accordance with Article IWB-5000 of Section XI and in accordance with FCS Technical Specification 2.1 (Figures 2-1A and 2-1B).

1.8.2.2 The ten-year hydrostatic tests for ASME Class 1 systems will not be performed in the ISI Program. In lieu of the hydrostatic tests required by ASME Section XI, alternative testing consisting of system pressure and leakage tests as described in ASME Code Case N-498 will be performed. Refer to ASME Code Case N-498 dated May 1991 and NRC letter dated December 19, 1991 (NRC-91-377).

1.8.2.3 Partial penetration welds on the reactor vessel and the pressurizer shall be examined in accordance with Table IWB-2500 Examination Category B-E of Section XI.

1.8.3 Class 2 Components

1.8.3.1 Pressure tests and visual examination of Class 2 components will be performed in accordance with the guidelines of Section XI.

1.8.3.2 The ten-year hydrostatic tests for ASME Class 2 systems will not be performed in the ISI Program. In lieu of the hydrostatic tests required by Section XI, alternative testing consisting of system pressure and leakage tests as described in ASME Code Case N-498, will be performed. Refer to ASME Code Case N-498, dated May 1991 and NRC letter dated December 18, 1991 (NRC-91-377).

1.8.3.3 The test pressure will be in accordance with the requirements of Article IWC-5000. Paragraph 2.1.1 of the FCS Technical Specifications limits the secondary side of the Steam Generator to ten (10) cycles at 125% of design pressure.

1.8.4 Class 3 Components

Class 3 components shall be pressure tested in accordance with Article IWD-5000 of Section XI. Exemptions of components requiring hydrostatic testing shall be made using guidance provided in IWD-1220.

1.9 Records and Reports

Records and reports made in accordance with this program shall be developed and maintained in accordance with Article IWA-6000 of Section XI.

TABLES

TABLE 1.1

COMPONENTS, PARTS, AND METHODS OF EXAMINATION IWB-2500-1

Item No.	Examination Category Table IWB-2500-1	Components and Parts to be Examined	Method
		Reactor Vessel	
B1.10	B-A	Longitudinal and circumferential shell welds	Volumetric
B1.20	B-A	Circumferential and meridional head welds (accessible length)	Volumetric
B1.30	B-A	Shell-to-flange welds	Volumetric
*B1.40	B-A	Head-to-flange weld	Volumetric & Surface
B3.90	B-D	Nozzle-to-vessel welds	Volumetric
B3.100	B-D	Nozzle inside radius section	Volumetric
B4.10	B-E	Partial penetration welds, including vessel nozzles, control rod drive nozzles & instrumentation nozzles	Visual, VT-2
B5.10	B-F	Nozzle-to-safe end welds NPS 4 or larger	Volumetric & Surface
B6.10	B-G-1	Closure head nuts	Surface
B6.30	B-G-1	Closure studs, when removed	Volumetric & Surface
B6.40	B-G-1	Threads in flange	Volumetric
B6.50	B-G-1	Closure washers	Visual, VT-1
B7.80	B-G-2	Bolts, studs & nuts ≤ 2 in. diameter in CRD housing	Visual, VT-1
*B13.10	B-N-1	Vessel interior	Visual, VT-3
B13.50	B-N-2	Interior attachments within beltline region	Visual, VT-1
B13.60	B-N-2	Interior attachments beyond beltline region	Visual, VT-3
B13.70	B-N-3	Core support structure	Visual, VT-3
B14.10	B-O	Pressure retaining welds in Control rod drive housings	Surface or Volumetric
B15.10	B-P	Pressure retaining boundary	Visual, VT-2
B15.11	B-P	Pressure retaining boundary	Visual, VT-2
		Pressurizer	
B2.10	B-B	Longitudinal and circumferential shell-to-head welds	Volumetric
*B3.110	B-D	Nozzle-to-vessel welds	Volumetric
*B3.120	B-D	Nozzle inside radius section	Volumetric
B4.20	B-E	Heater penetration welds	Visual, VT-2
B5.40	B-F	Nozzle-to-safe end welds NPS 4 or larger	Volumetric & Surface
B5.50	B-F	Nozzle-to-safe-end NPS less than 4	Surface

* See Appendix 1B

TABLE 1.1 (Continued)

COMPONENTS, PARTS, AND METHODS OF EXAMINATION IWB-2500-1

Item No.	Examination Category Table IWB-2500-1	Components and Parts to be Examined	Method
		Pressurizer (Continued)	
B7.20	B-G-2	Bolts, studs and nuts ≤ 2 in. diameter	Visual, VT-1
B8.20	B-H	Integrally Welded Attachments	Surface or Volumetric
B15.20	B-P	Pressure retaining boundary	Visual, VT-2
B15.21	B-P	Pressure retaining boundary	Visual, VT-2
		Steam Generators (Primary Side)	
B2.30	B-B	Head welds, circumferential and meridional	Volumetric
B2.40	B-B	Tubesheet-to-head weld	Volumetric
B3.130	B-D	Nozzle-to-vessel welds	Volumetric
B3.140	B-D	Nozzle inside radius section	Volumetric
B5.70	B-F	Nozzle-to-safe end welds NPS 4 or larger	Volumetric & Surface
B7.30	B-G-2	Bolts, studs, and nuts ≤ 2 in. diameter	Visual, VT-1
B8.30	B-H	Integrally welded attachments	Surface
B15.30	B-P	Pressure retaining boundary	Visual, VT-2
B15.31	B-P	Pressure retaining boundary	Visual, VT-2
		Heat Exchanger	
B2.50	B-B	Head welds, circumferential and meridional	Volumetric
B2.60	B-B	Tubesheet-to-head welds	Volumetric
B2.70	B-B	Longitudinal welds	Volumetric
B2.80	B-B	Tubesheet-to-shell welds	Volumetric
*B3.150	B-D	Nozzle-to-vessel welds	Volumetric
*B3.160	B-D	Nozzle inside radius section	Volumetric
B15.40	B-P	Pressure retaining boundary	Visual, VT-2
B15.41	B-P	Pressure retaining boundary	Visual, VT-2
		Piping Pressure Boundary	
B7.50	B-G-2	Bolts, studs and nuts ≤ 2 in. diameter	Visual, VT-1
*B9.10	B-J	Circumferential welds & longitudinal welds NPS 4 or larger	Surface & Volumetric
B9.20	B-J	Circumferential & Longitudinal welds less than NPS 4	Surface

* See Appendix 1B

TABLE 1.1 (Continued)

COMPONENTS, PARTS, AND METHODS OF EXAMINATION IWB-2500-1

Item No.	Examination Category Table IWB-2500-1	Components and Parts to be Examined	Method
		Piping Pressure Boundary (Continued)	
B9.31	B-J	Branch pipe connection welds Nominal pipe size NPS 4 or larger	Surface & Volumetric
B9.32	B-J	Branch pipe connection welds Nominal pipe size less than NPS 4	Surface
B9.40	B-J	Socket welds	Surface
B10.10	B-K-1	Integrally welded attachments	Surface or Volumetric
B15.50	B-P	Pressure retaining boundary	Visual, VT-2
B15.51	B-P	Pressure retaining boundary	Visual, VT-2
		Pump Pressure Boundary	
B6.180	B-G-1	Bolts and studs > 2 in. diameter	Volumetric
B6.190	B-G-1	Flange surface when disassembled (with > 2 in. bolting or studs)	Visual, VT-1
B6.200	B-G-1	Nuts, bushings, and washers > 2 in.	Visual, VT-1
B7.60	B-G-2	Bolts, studs, and nuts ≤ 2 in.	Visual, VT-1
B10.20	B-K-1	Integrally welded attachments	Surface or Volumetric
*B12.10	B-L-1	Pump casing welds	Volumetric
*B12.20	B-L-2	Pump casings	Visual, VT-3
B15.60	B-P	Pressure retaining boundary	Visual, VT-2
B15.61	B-P	Pressure retaining boundary	Visual, VT-2
		Valve Pressure Boundary	
B7.70	B-G-2	Bolts, studs, and nuts ≤ 2 in. diameter	Visual, VT-1
B12.30	B-M-1	Valve body welds less than NPS 4	Surface
B12.40	B-M-1	Valve body welds NPS 4 or larger	Volumetric
B12.50	B-M-2	Valve body exceeding NPS 4	Visual, VT-3
B15.70	B-P	Pressure retaining boundary	Visual, VT-2
B15.71	B-P	Pressure retaining boundary	Visual, VT-2

* See Appendix 1B

TABLE 1.2

COMPONENTS, PARTS, AND METHODS OF EXAMINATION IWC-2500-1

Item No.	Examination Category Table IWC-2500-1	Components and Parts to be Examined	Method
		Pressure Vessels	
C1.10	C-A	Shell circumferential welds	Volumetric
C1.20	C-A	Head circumferential welds	Volumetric
C1.30	C-A	Tubesheet-to-shell weld	Volumetric
*C2.21	C-B	Nozzle-to-shell (or head) weld in vessels > 1/2 in. nominal thickness without reinforcing plate	Surface & Volumetric
*C2.22	C-B	Nozzle inside radius in vessels > 1/2 in. nominal thickness without reinforcing plate	Volumetric
C7.10	C-H	Pressure retaining boundary	Visual, VT-2
C7.20	C-H	Pressure retaining boundary	Visual, VT-2
		All Piping	
C3.20	C-C	Integrally welded attachments	Surface
C7.30	C-H	Pressure retaining boundary	Visual, VT-2
C7.40	C-H	Pressure retaining boundary	Visual, VT-2
		Austenitic Stainless Steel or High Alloy Piping	
C5.10	C-F-1	Circumferential & longitudinal welds ≥ 3/8 in. nominal wall thickness for piping ≥ NPS 4	Surface & Volumetric
C5.20	C-F-1	Circumferential & longitudinal welds > 1/5 in. nominal wall thickness for piping ≥ NPS 2 and ≤ NPS 4	Surface & Volumetric
C5.30	C-F-1	Socket welds	Surface
C5.40	C-F-1	Circumferential & longitudinal welds in pipe branch connections of branch piping ≥ NPS 2	Surface
C5.50	C-F-2	Circumferential & longitudinal welds ≥ 3/8 in. nominal wall thickness for piping > NPS 4	Surface & Volumetric
C5.60	C-F-2	Circumferential & longitudinal welds > 1/5 in. nominal wall thickness for piping ≥ NPS 2 and ≤ NPS 4	Surface & Volumetric
C5.70	C-F-2	Socket welds	Surface
C5.80	C-F-2	Circumferential and longitudinal welds in pipe branch connections of branch piping ≥ NPS 2	Surface

* See Appendix 1C

TABLE 1.2 (Continued

COMPONENTS, PARTS, AND METHODS OF EXAMINATION IWC-2500-1

Item No.	Examination Category Table IWC-2500-1	Components and Parts to be Examined	Method
		Pumps	
C6.10	C-G	Pump casing welds	Surface
C7.50	C-H	Pressure retaining components	Visual, VT-2
C7.60	C-H	Pressure retaining components	Visual, VT-2
		Valves	
C6.20	C-G	Valve body welds	Surface
C7.70	C-H	Pressure retaining components	Visual, VT-2
C7.80	C-H	Pressure retaining components	Visual, VT-2

* See Appendix 1C

TABLE 1.3

COMPONENTS, PARTS, AND METHODS OF EXAMINATION IWD-2500-1

Item No.	Examination Category Table IWD-2500-1	Components and Parts to be Examined	Method
D1.10	D-A	Pressure retaining components	Visual, VT-2
D1.20	D-A	Integral attachment, component supports & restraints	Visual, VT-3
*D1.30	D-A	Integral attachment, mechanical & hydraulic snubbers	Visual, VT-3
D1.40	D-A	Integral attachment, spring type supports	Visual, VT-3
D1.50	D-A	Integral attachment, constant load type supports	Visual, VT-3
*D1.60	D-A	Integral attachment, shock absorbers	Visual, VT-3
D2.10	D-B	Pressure retaining components	Visual, VT-2
D2.20	D-B	Integral attachments, component supports & restraints	Visual, VT-3
*D2.30	D-B	Integral attachment, mechanical & hydraulic snubbers	Visual, VT-3
D2.40	D-B	Integral attachment, spring type supports	Visual, VT-3
D2.50	D-B	Integral attachment, constant load type supports	Visual, VT-3
*D2.60	D-B	Integral attachment, shock absorbers	Visual, VT-3
D3.10	D-C	Pressure retaining components	Visual, VT-2
D3.20	D-C	Integral attachment, component supports & restraints	Visual, VT-3
*D3.30	D-C	Integral attachment, mechanical & hydraulic snubbers	Visual, VT-3
D3.40	D-C	Integral attachment, spring type supports	Visual, VT-3
D3.50	D-C	Integral attachment, constant load type supports	Visual, VT-3
*D3.60	D-C	Integral attachment, shock absorbers	Visual, VT-3

* See Appendix ID

TABLE 1.4

COMPONENTS, PARTS, AND METHODS OF EXAMINATION IWF-2500

Code Case N-491 Alternative Rules for Examination of Class 1, 2, 3, and Metal Containment Component Supports of Light-Water Cooled Power Plants

Item No.	Examination Category Table IWF-2500	Support Type Examined	Method
F1.10	F-A	Class 1 piping supports	Visual, VT-3
F1.20	F-A	Class 2 piping supports	Visual, VT-3
F1.30	F-A	Class 3 piping supports	Visual, VT-3
F1.40	F-A	Supports other than piping supports (Class 1, 2, 3 and MC)	Visual, VT-3

PART 1

APPENDICES

APPENDIX 1A

EXCEPTIONS TO COMPLIANCE WITH SUBSECTION IWA

IWA-2600 Weld identification at Fort Calhoun Station was not performed during preservice. SEI-27 (administrative procedure to control ISI Program Plan activities associated with aspects of implementation at FCS), Appendix A was written in 1991 to proceduralize a system of positively identifying all welds from drawings and marking them only for the following reasons: (1) if deemed necessary by the ISI Engineer, or (2) if there is a reportable UT indication (non-geometric). SEI-27, Appendix A will continue to be used in lieu of IWA-2600.

The ISI Administrator may elect to stamp a low stress weld identification near the weld to eliminate future conflicts concerning proper identification.

The Ultrasonic (UT) Inspector shall use a low stress "period" to identify the weld centerline at any point where a reportable UT indication (non-geometric) is located.

a. The "period" will be the reference point for all UT measurements of the indication.

b. The location of the "period" shall be noted on the UT report.

c. The "period" will be the reference point for any future UT measurements to monitor the indications size.

SEI-27, Appendix A will continue to be used in lieu of IWA-2600.

APPENDIX 1B

EXCEPTIONS TO COMPLIANCE WITH TABLE IWB-2500-1 (CLASS 1 COMPONENTS) IN ASME BOILER AND PRESSURE VESSEL CODE, SECTION XI, 1989 EDITION

Item No.	Exception
B1.40	The closure head-to-flange weld has physical obstructions which limit the extent of the ultrasonic and surface exams. Specifically, there are 12 seismic skirt mounting lugs, each six inches wide, located 37 inches apart, evenly spaced around the exam area. Thus, 72 inches of the head to flange weld cannot be examined due to this physical obstruction. Also, due to interference from the seismic skirt and the head flange, the UT scanning is limited to four inches either side of the head-to-flange weld. This restricts the volume of the weld examination, and depending upon the angle of the transducers used, may result in less than the Code required volume to be examined. Radiation levels of 7 - 8 R/hr area and 10 R/hr surface have prohibited access to perform the UT from the inside surface of the head. Should other specialized ultrasonic examination techniques become practical which are more effective, they will be incorporated into the examination plan.
B3.110	The pressurizer surge line nozzle-to-shell weld cannot be 100% volumetrically examined due to interference from heater penetrations. The area will be volumetrically examined to the extent possible. The weld area will be visually examined for leakage prior to the end of the inspection interval in accordance with IWB-5221 and IWB-5222.
B3.120	The pressurizer surge line inside radius section cannot be 100% volumetrically examined due to interference from heater penetrations. The area will be volumetrically examined to the extent possible. The area will be visually examined for leakage prior to the end of the inspection interval in accordance with IWB-5221 and IWB-5222.
B9.10	The primary piping is fabricated using centrifugally cast stainless steel pipe and cast stainless steel elbows. Experience has shown that these materials and welds are not always amenable to UT examination. Volumetric examination will be performed to the extent practical and according to the schedule designated in the examination plan. Should other specialized ultrasonic examination techniques become practical which are more effective, they will be incorporated into the examination plan.

Item No.	Exception
B12.10 B12.20	The reactor coolant pump (RCP) casings are made of cast stainless steel sections which are welded together. This type of material is not amenable to UT examination. Further, radiographic examination of a Byron Jackson pump casing has not yet been demonstrated to be feasible in an operating environment. ASME Code Case N-481 and Combustion Engineering Owners Group (CEOG) Analysis CEOG 678 (Report Number CEN-412, "*Relaxation of Reactor Coolant Pump Casing Inspection Requirements*") allow for the welds of the RCPs to be examined only when the pumps are removed from service for maintenance or other reasons, not solely for ISI purposes. The CEOG 678 analysis, which was referenced in OPPD Letter LIC-92-074R to the NRC dated March 6, 1992, show that the Fort Calhoun Station RCPs will be acceptable for approximately 175 years. The following examinations will be performed in lieu of the Code requirements. 1. VT-2 visual examination of the RCPs during the Reactor Coolant System leakage test performed in accordance with Item B15.10 of Table IWB-2500-1 of Reference 2 each Refueling Outage. 2. VT-3 visual examination of the interior surfaces of the RCP to the extent practical whenever a pump is disassembled for maintenance.
B3.150 B3.160	The regenerative heat exchanger vessel is in fact a capped 10" schedule 140 pipe. The geometric configuration of the 2½" and 3" nozzles attached to such a small diameter pipe, make the ultrasonic examination of the nozzle weld areas labor intensive and yields minimal data. Radiation levels of 1 - 2 R/hr preclude the use of radiography as a volumetric examination technique. Personnel radiation exposure and ineffective volumetric techniques make it impractical to perform volumetric examinations on the regenerative heat exchanger nozzles. A surface examination of the nozzle welds will be performed each interval in lieu of the volumetric examinations.
B13.10	During scheduled plant outages at Fort Calhoun Station, only the uppermost eight inches of the reactor vessel interior are accessible for visual examination. Accessibility is limited by the design of the reactor vessel and is caused by mechanical interference presented by the instrument flange on top of the core support barrel.

Item No.	Exception
	Because of the limited accessibility to the reactor vessel internals, the information gained from visual examination is small compared to the radiation exposure received by personnel performing the examination. The components that can be examined are not attached by bolted or welded connections, and the probability of detecting loose parts, debris, abnormal corrosion products, wear, erosion, and corrosion in such a limited area is very remote. During those plant outages when the core support barrel is removed, the reactor internal surfaces are accessible. Under these conditions, meaningful information can be obtained by the prescribed visual examinations. Normally, the core support barrel is removed during plant outages corresponding to the end of each ten-year interval. Therefore, because safety is not enhanced by examining such a small accessible area and because of the radiation exposure to personnel when performing the examination, OPPD will perform the visual examination of accessible areas of the reactor vessel interior only during those plant outages when the core support barrel is removed.

APPENDIX 1C

EXCEPTIONS TO COMPLIANCE WITH TABLE IWC-2500-1

Item No.	Exception
C2.21 C2.22	See Appendix 1B, B3.150 and B3.160

APPENDIX 1D

EXCEPTIONS TO COMPLIANCE WITH TABLE IWD-2500-1

Item No.	Exception
D1.30 D1.60 D2.30 D2.60 D3.30 D3.60	All snubbers and shock absorbers are examined under Technical Specification 3.14
D2.10	Buried raw water lines from the intake structure to the Auxiliary Building cannot be pressure tested since the isolation valves are not designed to be leak-tight shutoff valves. Flow instrumentation in the system is capable of detecting significant leaks by sensing a reduction of flow. Open-ended portion of a system extending to the first shutoff valve and buried systems components shall be exempted from pressure test and from inspection where accessibility is restricted.

PART 2: CLASS 1, CLASS 2, AND CLASS 3 VALVE TESTS

2.1 Program Summary

The Valve Test Program identifies test requirements for safety related valves and ensures that the valves are tested in accordance with the requirements of Subsection IWV of the ASME Section XI Boiler and Pressure Vessel Code, 1989 Edition, as delineated in O&M Part 1 and Part 10 1987 Edition up to and including the 1988 Addenda.

The Valve Test Program will be applicable for the 120-month interval, which begins on September 26, 1993. The Valve Test Program will be reviewed and updated as required with that edition of the Code and Addenda in effect not more than 12 months prior to the start of the next 120-month interval (beginning September 26, 2003).

Individual valve test requirements are presented by coded Valve Test Program Matrix, Table 2.1. The codes used for these tables are defined in Section 2.9. The Valve Test Program Matrix (Table 2.1) is arranged in numerical sequence by valve number. Appendix 2A provides justifications for valve test frequencies other than Quarterly. A basis for the test frequency is given as well as the frequency at which the valve will be tested. Appendix 2B provides justifications for exceptions taken to the ASME Section XI/O&M Code test requirements as provided for in 10CFR50.55a(g)(5)(iii). Two types of justifications are provided. The first is general in nature, and pertain to requirements found to be impractical for many valves. The second type is used to justify Code exceptions for specific valves. Code exceptions are numbered and referenced by number on the Valve Test Program Matrix Table 2.1.

2.2 Scope and Responsibility

2.2.1 The P&IDs listed in Part 4 of the Plan identify the location of each Class 1, Class 2, and Class 3 valves as determined by FCS IST philosophy.

2.2.2 The Class 1, Class 2, and Class 3 valves to be tested under O&M Part 1 and Part 10, the methods of testing for each valve, and exceptions to the tests of O&M Part 1 and Part 10, are found in Section 2.9 (Valve Test Program Matrix) and Appendix 2A and 2B.

2.2.3 Many safety related systems, particularly those with heat exchangers, have been provided with relief valves. These relief valves are thermal relief valves of small capacity intended to relieve pressure due to a thermal expansion of fluid in a "bottled-up" condition (generally occurring only during maintenance), which is considered a self-limiting transient. Experience has shown that failures of these valves will not result in failure of a system to fulfill its safety related function. Thus, most thermal relief valves are not considered to perform a safety function as defined by O&M Part 1 and Part 10, and such valves have not been included in the IST Program Plan at the Fort Calhoun Station.

2.3 Inservice Test Frequency

2.3.1 The inservice test frequency for Class 1, Class 2 and Class 3 valves is in accordance with O&M Part 1 and Part 10 with exceptions as found in Appendix 2A and 2B.

2.3.2 Valves identified herein as being tested at Cold Shutdown frequency shall be tested each Cold Shutdown (as defined by FCS Technical Specifications) where the duration of the shutdown is sufficient to accomplish the tests. Valve testing should commence not later than 48 hours after Cold Shutdown and continue until complete or plant is ready to return to power. Completion of all valve testing is not a prerequisite to return to power. Any testing not completed at one Cold Shutdown should be performed during subsequent Cold Shutdowns to meet the Code required testing frequency. Where more than one Cold Shutdown occurs within three months, the test frequency need not exceed once per three-month period (92 days).

2.4 Valve Categories

The valve categories for each Class 1, Class 2 and Class 3 valves have been determined from O&M Part 10 with exceptions as found in Appendix 2A and 2B.

2.5 Test Methods

2.5.1 The methods to be used to test Class 1, Class 2 and Class 3 valves have been determined from the appropriate sections of O&M Parts 1 and 10. These methods, along with exceptions, are listed in Section 2.9 and Appendices 2A and 2B (of this Program Plan).

2.5.2 Valves with remote position indicators shall be observed locally, or verified by other positive methods (such as changes in flow or pressure directly attributed to valve movement) at least once every two years in order to verify that valve operation is accurately indicated.

2.5.3 Valves with safety related failure positions indicated in the valve tables will be tested by observing valve operation upon loss of actuator power at the frequency specified in the valve table.

2.5.4 Valve stroke times are measured from actuation of valve operating device to end of valve travel as indicated by remote valve position indication lights. The valves will be timed using the lights in the Control Room as applicable.

2.5.5 Valve stroke times which exceed the acceptance criteria as stated in Paragraph 4.2.1.8 of O&M Part 10 will be immediately retested and corrective action taken as delineated in Paragraph 4.2.1.9 of O&M, Part 10.

2.5.6 Valve stroke times which exceed the acceptance criteria as determined by guidance using Paragraph 4.2.1.4 of O&M Part 10 and listed in the Surveillance Test or the Acceptance Criteria Basis Document shall be immediately declared inoperable, and not returned to service until corrective action is taken.

2.6 Evaluation of Test Results

2.6.1 The evaluation of test results shall be in accordance with the appropriate paragraphs in O&M Part 10.

2.6.2 If test data show that a valve is operating in the "Alert Range", remedies shall be taken as required in accordance with O&M Parts 1 and 10 until corrective action is taken. If the test data shows that the valve is operating in the "Required Action Range", the valve shall be immediately declared inoperable and not returned to service until corrective action is taken. Corrective action is defined as one or more of the following steps:

a. Recalibrate the applicable instruments and reperform test, or

b. Repair or replace the component as required, or

c. Perform an Engineering Analysis to demonstrate that the valve is still able to perform its required safety design function.

2.7 Records and Reports

2.7.1 Records and reports for the testing of Class 1, Class 2 and Class 3 valves shall be made in accordance with Paragraph 6.3 of O&M Part 10.

2.7.2 Records of corrective action for Class 1, Class 2, and Class 3 valves shall be made and maintained in accordance with Paragraph 6.4 of O&M Part 10.

2.8 Repair Requirements

Tests or examinations required to be performed after completion of valve replacement, repair or maintenance shall be completed as required per ASME, O&M Parts 1 and 10, and Section XI.

2.9 Valve Test Program Matrix

This section provides a tabulation of safety related valves, both those valves that are tested in accordance with the requirements of Part 1 and Part 10 of the O&M, and those valves for which the Code requirements have been found to be impractical. The Valve Test Program Matrix (Table 2.1) is arranged sequentially in numerical order by valve number.

2.10 Additions to Program - Valves

Valves added to the ISI Program Plan as a result of plant/system modifications, engineering changes or re-evaluation of a component eligibility requirement, per the O&M manual, are considered operable based on interim acceptance criteria (established by construction, preservice, post maintenance, or preoperational tests) until a trend is established.

TABLE FORMAT
FORT CALHOUN STATION VALVE TEST PROGRAM MATRIX TABLE 2.1

1. **Valve Number** — Unique number assigned to each valve.

2. **System (SYS)** — Plant system where valve is located. Designated by two (2) letters.

- AC - Auxiliary Cooling Water System
- CA - Compressed Air System
- CH - Charging System
- CS - Containment Spray
- DW - Demineralized Water System
- FO - (Diesel Generator) Fuel Oil System
- FW - Feedwater System
- HG - Hydrogen Gas
- IA - Instrument Air System
- MS - Main Steam System
- NG - Nitrogen Gas System
- RC - Reactor Coolant System
- RW - Raw Water System
- SA - (Diesel Generator) Starting Air System
- SI - Safety Injection System
- SL - Primary Sample System
- VA - Ventilating Air System
- WD - Waste Disposal System

3. **Category (CAT)** — Valve category as defined in O&M Part 10.

   a. Category A — Valves for which seat leakage is limited to a specific maximum amount in the closed position to fulfill their function.

   b. Category B — Valves for which seat leakage in the closed position is inconsequential for fulfillment of their function.

   c. Category C — Valves which are self-actuating in response to some system characteristic such as relief valves or check valves.

   d. Category D — Valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosive-actuated valves.

4. **Class (CL)** — ASME Class (1, 2 or 3, or N)

5. **P&ID** — Plant drawing number where valve is found.

6. **Coordinates** — Location of valve on plant drawing.

7. **Valve Type** The following is a list of the type of valves with the code used in the Valve Test Program Tables.

- BU - Butterfly
- BL - Ball
- CK - Check
- PG - Plug
- GA - Gate
- GL - Globe
- DI - Diaphragm
- RL - Relief

8. **Operator Type (OPER TYPE)**

The following is a list of the type of operator used to change the position of the valve, with the code used in the Valve Test Program Table to reflect the operator type.

- A - Air Operator
- M - Motor Operator
- R - Relief
- P - Piston Operator
- C - Self Actuated
- S - Solenoid Operator
- H - Manual (Hand)

9. **Valve Size** Nominal diameter of valve in inches.

10. **Normal Position (NOR POS)**

The following is a list of valve positions during normal operation and the code used in the Valve Test Program Table to reflect that position.

- A - Automatic
- NO - Normally Open
- NC - Normally Closed
- LO - Locked Open
- LC - Locked Closed
- - - Valve position determined by other system parameters as in the case of check valves

11. **Fail Position (FAIL POS)**

The following is a list of valve failure positions and the code used in the Valve Test Program Table to reflect that position.

- FC - Fails Closed
- FO - Fails Open
- FAI - Fails As Is
- - - Valve failure position determined by other system parameters as in the case of check valves.

12. **Testing Requirements (TEST REQ)**

This column indicates the position to which the valve is to be tested in order to satisfy the Code test requirements which apply to the valve. The following is a list of the codes used in the Valve Test Program Table.

- O - Valve shall be exercised to the **Open** position
- C - Valve shall be exercised to the **Closed** position
- T - Valve shall be tested to ensure meeting a specific **Trip** position
- L - Valve shall be tested for seat tightness and **Leak** criteria

13. **Type Test** The following is a list of tests required to be performed per ASME O&M Part 1 and Part 10 Code and the code used in the Valve Test Program Table to reflect that test.

- FS - Full-Stroke Test
- PS - Partial-Stroke Test
- LT - Leak Test
- ST - Stroke-Time Test
- SP - Setpoint Trip Test
- SD - Sample Disassembly
- ME - Manual Exercise

14. **Testing Frequency (TEST FREQ)**

The codes used in this column indicate the plant operational status that must be achieved before a particular valve can be safely and practically tested.

- Q - Quarterly

  Valves in this category shall be tested Quarterly during normal plant operation. (Technical Specification Modes 1 through 3)

- CS - Cold Shutdown

  Cold shutdown conditions are defined in the FCS Technical Specifications. (See Section 2.3.2 of this Program Plan for further explanation).

- CS* - Pressure Isolation Valves

  Surveillance of the RCS Pressure Isolation Valves (PIV) -Plant Technical Specification 3.3.(2) Periodic leakage testing on each valve listed in Table 2.9 as a PIV shall be accomplished:

  (1) prior to entering the power operation mode every time the plant is placed in the Cold Shutdown condition for refueling;

  (2) each time the plant is placed in a Cold Shutdown condition for 72 hours if testing has not been accomplished in the preceding nine months; and

  (3) prior to returning the valve to service after maintenance, repair or replacement work is performed.

- RO - Refueling Outage

  Refueling conditions are defined in the FCS Technical Specifications.

- RO* - Refueling Outage

  The valves in this category will be sample disassembled and inspected at an interval not to exceed once every six (6) years.

- 2YR - Periodic valve leakage rate determination for Category A valves shall be performed at a minimum of two year intervals in accordance with O&M Part 10.

- OM - The relief valves will be tested in accordance with the frequency established by O&M Part 1.

- OM* - The relief valve will be tested once every third refueling outage.

15. **Valve Position Indication Test (VPI TEST)**

This column indicates if a remote Valve Position Indication verification test is required. Valves with remote position indicators, which are used to verify valve exercising or timing, will have their remote position indicators verified in accordance with O&M Paragraph 4.1 of Part 10.

16. **Code Exception (CODE EXPT)**

If the valve is being tested at the Code required frequency (e.g., Quarterly) in accordance with O&M Part 1 or Part 10 requirements, this column will have a "-". However, for valves with impractical O&M Part 1 and Part 10 frequency requirements, this column will have a reference frequency justification number (JXX). This number is addressed in Appendix 2A.

If the valve is being tested in accordance with O&M Part 1 or Part 10 requirements, this column will have a "-". However, for valves which the O&M Part 10 requirements have been found to be impractical, this column will have a reference code exception number (EXX). This reference number is addressed in Appendix 2B with a complete explanation of the specific exception and the justification for that exception.

17. **Remarks** This column is provided for pertinent information as appropriate. Notes in Column 17 of the Instrument Air (IA) Check Valves refer to Notes 1 through 4 listed below.

NOTE #1 These valves are check valves on Instrument Air accumulators attached to process valves that are specified for testing elsewhere in the ISI Program Plan. The IA check valves will be tested on the same schedule as the process valve to which it is attached.

NOTE #2 These valves are check valves on IA accumulators on bubblers that are part of the level indication/control system for the SIRWT Tank. The ISI Program Plan speaks only to the testing of the check valve in this system.

NOTE #3 These valves are check valves on IA accumulators attached to HCV-238 and HCV-239 (which are located inside the containment). The process valves are remotely stroke tested Quarterly, but due to inaccessibility accumulator check valves IA-HCV-238-C and IA-HCV-239-C will be tested at Cold Shutdown.

NOTE #4 These valves are check valve on IA accumulators attached to PCV-6680A-1, PCV-6680A-2, PCV-6680B-1, PCV-6680B-2 and PCV-6682. The valves are located in Room 81. The dampers are not required to be tested; however, the IA accumulator check valves are required to be tested at Cold Shutdown.

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
SI-100	SI	C	2	210-130-3	C1	CK	C	6	-	-	O	PS	Q	-	J1	
SI-100	SI	C	2	210-130-3	C1	CK	C	6	-	-	O	FS	RO	-	J1	
AC-101	CCW	C	3	M-10-2	E6	CK	C	12	-	-	O	FS	Q	-	-	
AC-101	CCW	C	3	M-10-2	E6	CK	C	12	-	-	C	FS	Q	-	-	
PCV-102-1	RC	B	1	210-110-1A	E7	GL	S	2.5	NC	FC	C	ST	CS	Y	J2	
PCV-102-1	RC	B	1	210-110-1A	E7	GL	S	2.5	NC	FC	O	ST	CS	Y	J2	
PCV-102-2	RC	B	1	210-110-1A	E8	GL	S	2.5	NC	FC	O	ST	CS	Y	J2	
PCV-102-2	RC	B	1	210-110-1A	E8	GL	S	2.5	NC	FC	C	ST	CS	Y	J2	
SI-102	SI	C	2	210-130-3	C4	CK	C	4	-	-	O	FS	RO	-	J3	
AC-104	CCW	C	3	M-10-2	D6	CK	C	12	-	-	O	FS	Q	-	-	
AC-104	CCW	C	3	M-10-2	D6	CK	C	12	-	-	C	FS	Q	-	-	
FO-104	FO	C	3	M-262-1	F6	CK	C	1	-	-	C	FS	Q	-	-	
FO-104	FO	C	3	M-262-1	F6	CK	C	1	-	-	O	FS	Q	-	-	
SI-104	SI	C	2	210-130-3	C4	CK	C	1	-	-	O	FS	Q	-	-	
FO-105	FO	C	3	M-262-1	E6	CK	C	1	-	-	C	FS	Q	-	-	
FO-105	FO	C	3	M-262-1	E6	CK	C	1	-	-	O	FS	Q	-	-	
FO-106	FO	C	3	M-262-1	D6	CK	C	1	-	-	O	FS	Q	-	-	
FO-106	FO	C	3	M-262-1	D6	CK	C	1	-	-	C	FS	Q	-	-	
AC-107	CCW	C	3	M-10-2	C6	CK	C	12	-	-	O	FS	Q	-	-	
AC-107	CCW	C	3	M-10-2	C6	CK	C	12	-	-	C	FS	Q	-	-	
FO-107	FO	C	3	M-262-1	C6	CK	C	1	-	-	O	FS	Q	-	-	
FO-107	FO	C	3	M-262-1	C6	CK	C	1	-	-	C	FS	Q	-	-	
SI-108	SI	C	2	210-130-3	D4	CK	C	4	-	-	O	FS	RO	-	J3	
SI-110	SI	C	2	210-130-3	E4	CK	C	1	-	-	O	FS	Q	-	-	
SI-113	SI	C	2	210-130-3	E1	CK	C	8	-	-	O	PS	Q	-	J1	
SI-113	SI	C	2	210-130-3	E1	CK	C	8	-	-	O	FS	RO	-	J1	
RW-115	RW	C	3	M-100-1	B4	CK	C	20	-	-	O	FS	Q	-	-	
RW-115	RW	C	3	M-100-1	B4	CK	C	20	-	-	C	FS	Q	-	-	
SI-115	SI	C	2	210-130-3	E4	CK	C	4	-	-	O	FS	RO	-	J3	
RW-117	RW	C	3	M-100-1	B5	CK	C	20	-	-	O	FS	Q	-	-	

TABLE 2.1 - PORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
RW-117	RW	C	3	M-100-1	B5	CK	C	20	-	-	C	FS	Q	-	-	
SI-117	SI	C	2	210-130-3	F4	CK	C	1	-	-	O	FS	Q	-	-	
RW-121	RW	C	3	M-100-1	B6	CK	C	20	-	-	O	FS	Q	-	-	
RW-121	RW	C	3	M-100-1	B6	CK	C	20	-	-	C	FS	Q	-	-	
SI-121	SI	C	2	210-130-1	A4	CK	C	8	-	-	O	FS	CS	-	J4	
RW-125	RW	C	3	M-100-1	B7	CK	C	20	-	-	C	FS	Q	-	-	
RW-125	RW	C	3	M-100-1	B7	CK	C	20	-	-	O	FS	Q	-	-	
SA-127	SA	C	3	B120F07001-1	E7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-128	SA	C	3	B120F07001-1	E7	RL	R	0.75	-	-	T	SP	OM	-	-	
CH-129	CH	C	3	210-121-1	A6	CK	C	3	-	-	O	FS	Q	-	-	CH-4A DISCHARGE
SA-129	SA	C	3	B120F07001-1	C7	RL	R	0.75	-	-	T	SP	OM	-	-	
SI-129	SI	C	2	210-130-1	B4	CK	C	8	-	-	O	FS	CS	-	J4	
CH-130	CH	C	3	210-121-1	B7	CK	C	3	-	-	O	FS	Q	-	-	CH-4A DISCHARGE
SA-130	SA	C	3	B120F07001-1	B7	RL	R	0.75	-	-	T	SP	OM	-	-	
SI-135	SI	C	2	210-130-1	C4	CK	C	8	-	-	O	FS	CS	-	J3E	
SI-139	SI	A/C	2	210-130-1	D2	CK	C	20	-	-	O	SD	RO*	-	E1	
SI-139	SI	A/C	2	210-130-1	D2	CK	C	20	-	-	O	PS	Q	-	E1	
SI-139	SI	A/C	2	210-130-1	D2	CK	C	20	-	-	L	LT	2YR.	-	-	
SI-139	SI	A/C	2	210-130-1	D2	CK	C	20	-	-	C	FS	RO	-	-	
SI-140	SI	A/C	2	210-130-1	C2	CK	C	20	-	-	O	PS	Q	-	E1	
SI-140	SI	A/C	2	210-130-1	C2	CK	C	20	-	-	O	SD	RO*	-	E1	
SI-140	SI	A/C	2	210-130-1	C2	CK	C	20	-	-	L	LT	2YR.	-	-	
SI-140	SI	A/C	2	210-130-1	C2	CK	C	20	-	-	C	FS	RO	-	-	
RC-141	RC	C	1	210-110 .A	F6	RL	R	3	-	-	T	SP	RO	-	-	SENT OFFSITE
RC-142	RC	C	1	210-110-1A	F6	RL	R	3	-	-	T	SP	RO	-	-	SENT OFFSITE
CH-143	CH	C	2	210-121-2	B5	CK	C	3	-	-	O	FS	RO	-	J5	
SI-143	SI	C	2	210-130-1	D4	CK	C	8	-	-	O	FS	CS	-	J3G	
SA-147	SA	B	3	B120F07001-1	D3	DI	A	1.5	NC	FO	O	ST	Q	-	-	
SA-148	SA	B	3	B120F07001-1	C3	DI	A	1.5	NC	FO	O	ST	Q	-	-	DG START ACCEPT
SI-149	SI	C	2	210-130-1	E4	CK	C	8	-	-	O	FS	CS	-	J3G	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-150	RC	B	1	210-110-1A	D8	GA	M	2.5	NO	FAI	C	ST	Q	Y	-	
CH-151	CH	C	2	210-121-2	C7	CK	C	3	-	-	C	FS	Q	-	-	
HCV-151	RC	B	1	210-110-1A	D7	GA	M	2.5	NO	FAI	C	ST	Q	Y	-	
SI-153	SI	C	2	210-130-1	E5	CK	C	6	-	-	O	FS	Q	-	-	
CH-155	CH	C	2	210-121-2	A5	CK	C	3	-	-	C	FS	RO	-	J5	
CH-156	CH	C	2	210-120-1	E3	CK	C	3	-	-	O	FS	RO	-	J5	
SI-159	SI	C	2	210-130-3	B6	CK	C	24	-	-	O	SO	RO*	-	E2	
SI-160	SI	C	2	210-130-3	B6	CK	C	24	-	-	O	SO	RO*	-	E2	
FW-161	FW	C	2	M-253-1	D4	CK	C	16	-	-	C	FS	CS	-	J6	
FW-162	FW	C	2	M-253-1	D6	CK	C	16	-	-	C	FS	CS	-	J6	
FW-163	AFW	C	2	M-253-4	F7	CK	C	3	-	-	O	FS	CS	-	J7	
FW-164	AFW	C	2	M-253-4	F8	CK	C	3	-	-	O	FS	CS	-	J7	
CH-166	CH	C	2	210-120-1	C2	CK	C	4	-	-	C	FS	RO	-	J35	
FW-173	AFW	C	3	M-253-4	C6	CK	C	4	-	-	O	FS	Q	-	-	
FW-173	AFW	C	3	M-253-4	C6	CK	C	4	-	-	C	FS	Q	-	-	
FW-174	AFW	C	3	M-253-4	C5	CK	C	4	-	-	O	FS	Q	-	-	
FW-174	AFW	C	3	M-253-4	C5	CK	C	4	-	-	C	FS	Q	-	-	
SI-175	SI	C	2	210-130-2	B1	CK	C	12	-	-	O	SO	RO*	-	E3	
HCV-176	RC	B	2	D-4078	E5	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-176	RC	B	2	D-4078	E5	GL	S	1	NC	FC	C	ST	RO	Y	J8	
SI-176	SI	C	2	210-130-2	D1	CK	C	12	-	-	O	SO	RO*	-	E3	
HCV-177	RC	B	2	D-4078	D5	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-177	RC	B	2	D-4078	D5	GL	S	1	NC	FC	C	ST	RO	Y	J8	
SA-177	SA	C	3	B120F07001-2	E7	RL	R	0.75	-	-	T	SP	OM	-	-	
HCV-178	RC	B	2	D-4078	C5	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-178	RC	B	2	D-4078	C5	GL	S	1	NC	FC	C	ST	RO	Y	J8	
SA-178	SA	C	3	B120F07001-2	E7	RL	R	0.75	-	-	T	SP	OM	-	-	
HCV-179	RC	B	2	D-4078	C5	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-179	RC	B	2	D-4078	C5	GL	S	1	NC	FC	C	ST	RO	Y	J8	
SA-179	SA	C	3	B120F07001-2	C7	RL	R	0.75	-	-	T	SP	OM	-	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-180	RC	B	2	D-4078	E3	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-180	RC	B	2	D-4078	E3	GL	S	1	NC	FC	C	ST	RO	Y	J8	
SA-180	SA	C	3	B120F07001-2	B7	RL	R	0.75	-	-	T	SP	OM	-	-	
CH-181	CH	C	2	210-120-1	F7	RL	R	1.5	-	-	T	SP	OM	-	-	
HCV-181	RC	B	2	D-4078	C3	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-181	RC	B	2	D-4078	C3	GL	S	1	NC	FC	C	ST	RO	Y	J8	
CH-182	CH	C	2	210-120-1	D7	RL	R	1.5	-	-	T	SP	OM	-	-	
CH-183	CH	C	2	210-120-1	B7	RL	R	1.5	-	-	T	SP	OM	-	-	
SI-183	SI	A	2	210-130-1	E6	GL	H	2	NC	-	L	LT	2YR.	-	-	
SI-184	SI	A	2	210-130-1	D6	GA	H	6	NC	-	L	LT	2YR.	-	-	
SI-185	SI	A	2	210-130-1	E8	GL	H	2	NC	-	L	LT	2YR.	-	E5	APPENDIX J
CH-187	CH	C	2	210-120-1	E7	CK	C	2	-	-	O	FS	Q	-	-	
CH-188	CH	C	2	210-120-1	C7	CK	C	2	-	-	O	FS	Q	-	-	
CH-189	CH	C	2	210-120-1	A7	CK	C	2	-	-	O	FS	Q	-		
SI-194	SI	A/C	1	210-130-2A	D7	CK	C	6	-	-	O	FS	CS	-	J9	
SI-194	SI	A/C	1	210-130-2A	D7	CK	C	6	-	-	L	LT	CS*	-	-	PIV
SI-195	SI	A/C	1	210-130-2A	D8	CK	C	2	-	-	L	LT	CS*	-	-	PIV
SI-195	SI	A/C	1	210-130-2A	D8	CK	C	2	-	-	O	FS	RO	-	J10	
SI-196	SI	C	1	210-130-2A	D8	CK	C	2	-	-	O	PS	CS	-	J11	
SI-196	SI	C	1	210-130-2A	D8	CK	C	2	-	-	O	FS	RO	-	J11	
SA-197	SA	B	3	B120F07001-2	D3	DI	A	1.5	NC	FO	O	ST	Q	-	-	DG START ACCEPT
SI-197	SI	A/C	1	210-130-2A	D6	CK	C	6	-	-	L	LT	CS*	-	-	PIV
SI-197	SI	A/C	1	210-130-2A	D6	CK	C	6	-	-	O	FS	CS	-	J9	
CH-198	CH	C	2	210-120-1A	B2	CK	C	2	-	-	O	PS	Q	-	J12	
CH-198	CH	C	2	210-120-1A	B2	CK	C	2	-	-	O	FS	RO	-	J12	
SA-198	SA	B	3	B120F07001-2	C3	DI	A	1.5	NC	FO	O	ST	Q	-	-	DG START ACCEPT
SI-198	SI	A/C	1	210-130-2A	D6	CK	C	2	-	-	O	FS	RO	-	J10	
SI-198	SI	A/C	1	210-130-2A	D6	CK	C	2	-	-	L	LT	CS*	-	-	PIV
SI-199	SI	C	1	210-130-2A	C7	CK	C	2	-	-	O	PS	CS	-	J11	
SI-199	SI	C	1	210-130-2A	C7	CK	C	2	-	-	O	FS	RO	-	J11	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE *	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
SI-200	SI	A/C	1	210-130-2A	D5	CK	C	6	-	-	L	LT	CS*	-	-	PIV
SI-200	SI	A/C	1	210-130-2A	D5	CK	C	6	-	-	O	FS	CS	-	J9	
SI-201	SI	A/C	1	210-130-2A	D5	CK	C	2	-	-	L	LT	CS*	-	-	PIV
SI-201	SI	A/C	1	210-130-2A	D5	CK	C	2	-	-	O	FS	RO	-	J10	
SI-202	SI	C	1	210-130-2A	C5	CK	C	2	-	-	O	PS	CS	-	J11	
SI-202	SI	C	1	210-130-2A	C5	CK	C	2	-	-	O	FS	RO	-	J11	
TCV-202	CH	A	1	210-120-1A	D4	GL	A	2	A	FC	C	ST	CS	Y	J13	
TCV-202	CH	A	1	210-120-1A	D4	GL	A	2	A	FC	L	LT	2YR.	-	E5	APPENDIX J
CH-203	CH	C	1	210-120-1A	C5	CK	C	2	-	-	O	PS	Q	-	J12	
CH-203	CH	C	1	210-120-1A	C5	CK	C	2	-	-	O	FS	RO	-	J12	
SI-203	SI	A/C	1	210-130-2A	D3	CK	C	6	-	-	L	LT	CS*	-	-	PIV
SI-203	SI	A/C	1	210-130-2A	D3	CK	C	6	-	-	O	FS	CS	-	J9	
CH-204	CH	C	1	210-120-1A	A5	CK	C	2	-	-	O	PS	Q	-	J12	
CH-204	CH	C	1	210-120-1A	A5	CK	C	2	-	-	O	FS	RO	-	J12	
HCV-204	CH	A	2	210-120-2	A7	GL	A	2	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-204	CH	A	2	210-120-2	A7	GL	A	2	NO	FC	C	ST	CS	Y	J13	
SI-204	SI	A/C	1	210-130-2A	D3	CK	C	2	-	-	O	FS	RO	-	J10	
SI-204	SI	A/C	1	210-130-2A	D3	CK	C	2	-	-	L	LT	CS*	-	-	PIV
CH-205	CH	C	1	210-120-1A	B6	CK	C	2	-	-	O	PS	CS	-	J14	
CH-205	CH	C	1	210-120-1A	B6	CK	C	2	-	-	O	FS	RO	-	J14	
SI-205	SI	C	1	210-130-2A	C4	CK	C	2	-	-	O	PS	CS	-	J11	
SI-205	SI	C	1	210-130-2A	C4	CK	C	2	-	-	O	FS	RO	-	J11	
HCV-206	CH	A	2	210-120-1A	E1	GL	A	0.75	NO	FC	C	ST	CS	Y	J15	
HCV-206	CH	A	2	210-120-1A	E1	GL	A	0.75	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
SI-207	SI	A/C	1	210-130-2A	F7	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-207	SI	A/C	1	210-130-2A	F7	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-207	SI	A/C	1	210-130-2A	F7	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-208	SI	A/C	1	210-130-2A	C7	CK	C	12	-	-	L	LT	CS*	-		PIV
SI-208	SI	A/C	1	210-130-2A	C7	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-208	SI	A/C	1	210-130-2A	C7	CK	C	12	-	-	C	FS	CS*	-	E4	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
SI-208	SI	A/C	1	210-130-2A	C7	CK	C	12	-	-	O	PS	CS	-	E4	
SI-209	SI	C	2	210-130-2B	E3	RL	R	1	-	-	T	SP	OM	-	-	
SI-211	SI	A/C	1	210-130-2A	F6	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-211	SI	A/C	1	210-130-2A	F6	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-211	SI	A/C	1	210-130-2A	F6	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-212	SI	A/C	1	210-130-2A	C6	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-212	SI	A/C	1	210-130-2A	C6	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-212	SI	A/C	1	210-130-2A	C6	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-212	SI	A/C	1	210-130-2A	C6	CK	C	12	-	-	O	PS	CS	-	E4	
SI-213	SI	C	2	210-130-2B	E6	RL	R	1	-	-	T	SP	OM	-	-	
SI-215	SI	A/C	1	210-130-2A	F4	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-215	SI	A/C	1	210-130-2A	F4	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-215	SI	A/C	1	210-130-2A	F4	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-216	SI	A/C	1	210-130-2A	C4	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-216	SI	A/C	1	210-130-2A	C4	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-216	SI	A/C	1	210-130-2A	C4	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-216	SI	A/C	1	210-130-2A	C4	CK	C	12	-	-	O	PS	CS	-	E4	
SI-217	SI	C	2	210-130-2	E6	RL	R	1	-	-	T	SP	OM	-	-	
LCV-218-2	CH	B	2	210-120-1	C2	GA	M	4	NO	FAI	C	ST	CS	Y	J16	
LCV-218-3	CH	B	2	210-120-1	E3	GA	M	3	A	FAI	O	ST	CS	Y	J16	
SI-219	SI	A/C	1	210-130-2A	F3	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-219	SI	A/C	1	210-130-2A	F3	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-219	SI	A/C	1	210-130-2A	F3	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-220	SI	A/C	1	210-130-2A	C3	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-220	SI	A/C	1	210-130-2A	C3	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-220	SI	A/C	1	210-130-2A	C3	CK	C	12	-	-	L	LT	CS*	-	-	
SI-220	SI	A/C	1	210-130-2A	C3	CK	C	12	-	-	O	PS	CS	-	E4	
SI-221	SI	C	2	210-130-2	E3	RL	R	1	-	-	T	SP	OM	-	-	
HCV-238	CH	B	1	210-120-1A	D5	GL	A	2	NO	FO	C	ST	Q	Y	-	
HCV-238	CH	B	1	210-120-1A	D5	GL	A	2	NO	FO	O	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-239	CH	B	1	210-120-1A	A5	GL	A	2	NO	FO	O	ST	Q	Y	-	
HCV-239	CH	B	1	210-120-1A	A5	GL	A	2	NO	FO	C	ST	Q	Y	-	
HCV-240	CH	B	1	210-120-1A	B5	GL	A	2	NC	FC	C	ST	CS	Y	J17	
HCV-240	CH	B	1	210-120-1A	B5	GL	A	2	NC	FC	O	ST	CS	Y	J17	
HCV-241	CH	A	2	210-120-1A	E5	GL	A	0.75	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-241	CH	A	2	210-120-1A	E5	GL	A	0.75	NO	FC	C	ST	CS	Y	J15	
HCV-247	CH	B	2	210-120-1A	C5	GL	S	2	NO	FO	C	ST	Q	Y	-	
HCV-247	CH	B	2	210-120-1A	C5	GL	S	2	NO	FC	O	ST	Q	Y	-	
HCV-248	CH	B	2	210-120-1A	A5	GL	S	2	NO	FO	C	ST	Q	Y	-	
HCV-248	CH	B	2	210-120-1A	A5	GL	S	2	NO	FO	O	ST	Q	Y	-	
HCV-249	CH	B	1	210-120-1A	B5	GL	S	2	NC	FC	O	ST	CS	Y	J17	
HCV-249	CH	B	1	210-120-1A	B5	GL	S	2	NC	FC	C	ST	CS	Y	J17	
HCV-257	CH	B	3	210-121-1	D7	GL	A	2	NO	FC	C	ST	Q	Y	-	
HCV-258	CH	B	3	210-121-1	B5	GA	M	3	NC	FAI	O	ST	Q	Y	-	
HCV-264	CH	B	3	210-121-1	D4	GL	A	2	NO	FC	C	ST	Q	Y	-	
HCV-265	CH	B	3	210-121-1	B3	GA	M	3	NC	FAI	O	ST	Q	Y	-	
HCV-268	CH	B	3	210-121-2	B4	GA	M	3	NC	FAI	O	ST	CS	Y	J18	
FCV-269	CH	B	3	210-121-2	C7	GL	A	3	A	FC	C	ST	Q	Y	-	
MS-275	MS	C	2	M-252-1	F8	RL	R	6	-	-	T	SP	RO	-	-	
MS-276	MS	C	2	M-252-1	F8	RL	R	6	-	-	T	SP	RO	-	-	
MS-277	MS	C	2	M-252-1	F7	RL	R	6	-	-	T	SP	RO	-	-	
MS-278	MS	C	2	M-252-1	F7	RL	R	6	-	-	T	SP	RO	-	-	
MS-279	MS	C	2	M-252-1	E8	RL	R	6	-	-	T	SP	RO	-	-	
MS-280	MS	C	2	M-252-1	E7	RL	R	6	-	-	T	SP	RO	-	-	
VA-280	VA	A	2	M-1-2	A8	BU	H	4	LC	-	L	LT	2YR.	-	E5	APPENDIX J
MS-281	MS	C	2	M-252-1	E7	RL	R	6	-	-	T	SP	RO	-	-	
MS-282	MS	C	2	M-252-1	E6	RL	R	6	-	-	T	SP	RO	-	-	
SA-282	SA	C	3	B120F07001-1	B7	CK	C	0.5	-	-	C	FS	Q	-	-	
SA-285	SA	C	3	B120F07001-1	F7	CK	C	0.5	-	-	C	FS	Q	-	-	
SA-288	SA	C	3	B120F07001-2	B7	CK	C	0.5	-	-	C	FS	Q	-	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
VA-289	VA	A	2	M-1-2	A8	BU	H	4	LC	-	L	LT	2YR.	-	E5	APPENDIX J
MS-291	MS	C	2	M-252-1	F7	RL	R	2.5	-	-	T	SP	RO	-	-	
SA-291	SA	C	3	B120F07001-2	F7	CK	C	0.5	-	-	C	FS	Q	-	-	
MS-292	MS	C	2	M-252-1	E7	RL	R	2.5	-	-	T	SP	RO	-	-	
SI-300	SI	C	2	210-130-1	B4	CK	C	2	-	-	O	FS	Q	-	-	
SI-301	SI	C	2	210-130-1	D4	CK	C	2	-	-	O	FS	Q	-	-	
SI-302	SI	C	2	210-130-1	F4	CK	C	2	-	-	O	FS	Q	-	-	
SI-303	SI	C	2	210-130-1	E4	CK	C	2	-	-	O	FS	Q	-	-	
SI-304	SI	C	2	210-130-1	A4	CK	C	2	-	-	O	FS	Q	-	-	
SI-306	SI	A	2	210-130-1	D7	GA	H	6	LC	-	L	LT	2YR.	-	-	
HCV-308	SI	B	2	210-130-1	D6	GA	M	2	NC	FAI	O	ST	CS	Y	J19	
HCV-311	SI	B	2	210-130-2A	C3	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-312	SI	B	2	210-130-2A	C4	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-314	SI	B	2	210-130-2A	C5	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-315	SI	B	2	210-130-2A	C5	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-317	SI	B	2	210-130-2A	C8	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-318	SI	B	2	210-130-2A	C8	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-320	SI	B	2	210-130-2A	C6	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-321	SI	B	2	210-130-2A	C6	GL	M	2	NC	FAI	O	ST	Q	Y	-	
SI-323	SI	C	2	210-130-3	E6	CK	C	4	-	-	O	FS	RO	-	J20	
SI-323	SI	C	2	210-130-3	E6	CK	C	4	-	-	C	FS	RO	-	J20	
HCV-327	SI	B	2	210-130-2A	C3	GL	M	4	NC	FAI	O	ST	Q	Y	-	
HCV-329	SI	B	2	210-130-2A	C4	GL	M	4	NC	FAI	O	ST	Q	Y	-	
HCV-331	SI	B	2	210-130-2A	C7	GL	M	4	NC	FAI	O	ST	Q	Y	-	
HCV-333	SI	B	2	210-130-2A	C6	GL	M	4	NC	FAI	O	ST	Q	Y	-	
AC-341	CCW	C	3	M-10-2	C3	RL	R	1	-	-	T	SP	OM	-	-	
SI-342	SI	A	2	210-130-1	E7	GL	H	1	LC	-	L	LT	2YR.	-	-	
SI-343	SI	C	2	210-130-3	D6	CK	C	2	-	-	O	PS	CS	-	J11	
SI-343	SI	C	2	210-130-3	D6	CK	C	2	-	-	O	FS	RO	-	J11	
HCV-344	SI	B	2	210-130-1	D8	BL	A	8	NC	FO	O	ST	CS	Y	J21	

TABLE 2.1 - PORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-344	SI	B	2	210-130-1	D8	BL	A	8	NC	FO	C	ST	CS	Y	J21	
NG-HCV-344-S2	NG	C	N	C-4175-2	D2	RL	R	0.75	-	-	T	SP	OM	-	-	
HCV-345	SI	B	2	210-130-1	B8	BL	A	8	NC	FO	O	ST	CS	Y	J21	
HCV-347	SI	A	1	210-130-3	F7	GA	M	10	LC	FAI	L	LT	2YR.	-	-	APPENDIX J
HCV-347	SI	A	1	210-130-3	F7	GA	M	10	LC	FAI	C	ST	CS	Y	J22	
HCV-348	SI	A	1	210-130-2A	C2	GA	M	12	LC	FAI	L	LT	2YR.	-	-	APPENDIX J
HCV-348	SI	A	1	210-130-2A	C2	GA	M	12	LC	FAI	C	ST	CS	Y	J22	
MS-351	MS	C	3	M-252-1	E5	CK	C	2	-	-	O	FS	Q	-	-	
MS-352	MS	C	3	M-252-1	E5	CK	C	2	-	-	O	FS	Q	-	-	
AC-364	AC	C	3	M-10-2	D4	RL	R	2	-	-	T	SP	OM	-	-	
HCV-383-3	SI	A	2	210-130-3	B7	BU	M	24	NC	FAI	O	ST	Q	Y	-	
HCV-383-3	SI	A	2	210-130-3	B7	BU	M	24	NC	FAI	L	LT	2YR.	-	-	APPENDIX J
HCV-383-4	SI	A	2	210-130-3	B7	BU	M	24	NC	FAI	O	ST	Q	Y	-	
HCV-383-4	SI	A	2	210-130-3	B7	BU	M	24	NC	FAI	L	LT	2YR.	-	-	APPENDIX J
LCV-383-1	SI	A	2	210-130-1	D1	BU	A	20	NO	FO	C	ST	Q	Y	-	
LCV-383-1	SI	A	2	210-130-1	D1	BU	A	20	NO	FO	O	ST	Q	Y	-	
LCV-383-1	SI	A	2	210-130-1	D1	BU	A	20	NO	FO	L	LT	2YR.	-	-	
LCV-383-2	SI	A	2	210-130-1	D2	BU	A	20	NO	FO	O	ST	Q	Y	-	
LCV-383-2	SI	A	2	210-130-1	D2	BU	A	20	NO	FO	C	ST	Q	Y	-	
LCV-383-2	SI	A	2	210-130-1	D2	BU	A	20	NO	FO	L	LT	2YR.	-	-	
NG-LCV-383-1-S2	NG	C	3	C-4175-2	D2	RL	R	0.75	-	-	T	SP	OM	-	-	
NG-LCV-383-2-S2	NG	C	3	C-4175-2	D2	RL	R	0.75	-	-	T	SP	OM	-	-	
HCV-385	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	O	ST	Q	Y	-	
HCV-385	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	C	ST	Q	Y	-	
HCV-385	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	L	LT	2YR.	-	-	
HCV-386	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	C	ST	Q	Y	-	
HCV-386	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	O	ST	Q	Y	-	
HCV-386	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	L	LT	2YR.	-	-	
HCV-400A	CCW	B	2	M-40-1	C7	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-400B	CCW	B	2	M-40-1	B7	BU	A	8	NO	FO	O	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-400C	CCW	B	2	M-40-1	D2	BL	A	8	NO	FO	O	ST	Q	Y	-	
HCV-400D	CCW	B	2	M-40-1	B2	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-401A	CCW	B	2	M-40-1	C7	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-401B	CCW	B	2	M-40-1	B7	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-401C	CCW	B	2	M-40-1	D3	BL	A	8	NO	FO	O	ST	Q	Y	-	
HCV-401D	CCW	B	2	M-40-1	B3	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-402A	CCW	B	2	M-40-1	C6	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-402B	CCW	B	2	M-40-1	B6	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-402C	CCW	B	2	M-40-1	D4	BL	A	6	NO	FO	O	ST	Q	Y	-	
HCV-402D	CCW	B	2	M-40-1	B4	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-403A	CCW	B	2	M-40-1	C5	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-403B	CCW	B	2	M-40-1	B5	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-403C	CCW	B	2	M-40-1	D4	BL	A	6	NO	FO	O	ST	Q	Y	-	
HCV-403D	CCW	B	2	M-40-1	B4	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-425A	CCW	A	2	M-40-3	C6	GL	A	3	NO	FC	C	ST	CS	Y	J23	
HCV-425A	CCW	A	2	M-40-3	C6	GL	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-425B	CCW	A	2	M-40-1	D1	GL	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-425B	CCW	A	2	M-40-1	D1	GL	A	3	NO	FC	C	ST	CS	Y	J23	
HCV-425C	CCW	A	2	M-40-3	B5	GL	A	3	NO	FC	C	ST	CS	Y	J23	
HCV-425C	CCW	A	2	M-40-3	B5	GL	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-425D	CCW	A	2	M-40-3	B5	GL	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-425D	CCW	A	2	M-40-3	B5	GL	A	3	NO	FC	C	ST	CS	Y	J23	
HCV-438A	CCW	A	2	M-40-2	F8	GL	A	6	NO	FO	C	ST	CS	Y	J24	
HCV-438A	CCW	A	2	M-40-2	F8	GL	A	6	NO	FO	L	LT	2YR.	-	E5	APPENDIX J
HCV-438A	CCW	A	2	M-40-2	F8	GL	A	6	NO	FO	O	ST	CS	Y	J24	
HCV-438B	CCW	A	2	M-40-1	A6	GL	A	6	NO	FO	O	ST	CS	Y	J24	
HCV-438B	CCW	A	2	M-40-1	A6	GL	A	6	NO	FO	L	LT	2YR.	-	E5	APPENDIX J
HCV-438B	CCW	A	2	M-40-1	A6	GL	A	6	NO	FO	C	ST	CS	Y	J24	
NG-HCV-438B-S2	NG	NG	3	C-4175-2	E2	RL	R	0.75	-	-	T	SP	OM	-	-	
HCV-438C	CCW	A	2	M-40-2	F2	GL	A	6	NO	FO	C	ST	CS	Y	J24	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-438C	CCW	A	2	M-40-2	F2	GL	A	6	NO	FO	L	LT	2YR.	-	E5	APPENDIX J
HCV-438C	CCW	A	2	M-40-2	F2	GL	A	6	NO	FO	O	ST	CS	Y	J24	
HCV-438D	CCW	A	2	M-40-1	A3	GL	A	6	NO	FO	C	ST	CS	Y	J24	
HCV-438D	CCW	A	2	M-40-1	A3	GL	A	6	NO	FO	L	LT	2YR.	-	E5	APPENDIX J
HCV-438D	CCW	A	2	M-40-1	A3	GL	A	6	NO	FO	O	ST	CS	Y	J24	
NG-HCV-438D-S2	NG	C	3	C-4175-2	E2	RL	R	0.75	-	-	T	SP	OM	-	-	
HCV-467A	CCW	A	2	M-40-3	E3	GL	A	1.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-467A	CCW	A	2	M-40-3	E3	GL	A	1.5	NO	FC	C	ST	CS	Y	J25	
HCV-467B	CCW	A	2	M-40-1	A3	GL	A	1.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-467B	CCW	A	2	M-40-1	A3	GL	A	1.5	NO	FC	C	ST	CS	Y	J25	
HCV-467C	CCW	A	2	M-40-3	E1	GL	A	1.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-467C	CCW	A	2	M-40-3	E1	GL	A	1.5	NO	FC	C	ST	CS	Y	J25	
HCV-467D	CCW	A	2	M-40-1	A2	GL	A	1.5	NO	FC	C	ST	CS	Y	J25	
HCV-467D	CCW	A	2	M-40-1	A2	GL	A	1.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
CH-469	CH	C	1	210-120-1A	B5	CK	C	2	-	-	O	PS	CS	-	J11	
CH-469	CH	C	1	210-120-1A	B5	CK	C	2	-	-	O	FS	RO	-	J11	
HCV-474	CCW	B	3	M-10-3	F8	GL	A	2	NO	FO	O	ST	CS	Y	J37	
HCV-478	CCW	B	3	M-10-3	D2	BU	A	8	NO	FO	C	ST	Q	Y	-	
HCV-478	CCW	B	3	M-10-3	D2	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-480	CCW	B	3	M-10-3	C6	BU	A	14	NO	FO	O	ST	Q	Y	-	
HCV-481	CCW	B	3	M-10-3	B7	BU	A	14	NO	FO	O	ST	Q	Y	-	
HCV-484	CCW	B	3	M-10-3	B4	BU	A	14	NO	FO	O	ST	Q	Y	-	
HCV-485	CCW	B	3	M-10-3	A5	BU	A	14	NO	FO	O	ST	Q	Y	-	
HCV-489A	CCW	B	3	M-10-3	B2	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-489B	CCW	B	3	M-10-2	A6	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-490A	CCW	B	3	M-10-3	B2	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-490B	CCW	B	3	M-10-2	A6	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-491A	CCW	B	3	M-10-3	C2	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-491B	CCW	B	3	M-10-2	B6	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-492A	CCW	B	3	M-10-3	C2	BU	A	10	NO	FO	O	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-492B	CCW	B	3	M-10-2	C6	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-500A	WD	A	2	M-6-2	A6	DI	A	4	NO	FC	C	ST	Q	Y	-	
HCV-500A	WD	A	2	M-6-2	A6	DI	A	4	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-500B	WD	A	2	M-6-2	A6	DI	A	4	NO	FC	C	ST	Q	Y	-	
HCV-500B	WD	A	2	M-6-2	A6	DI	A	4	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-506A	WD	A	2	M-7-1	A6	DI	A	2	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-506A	WD	A	2	M-7-1	A6	DI	A	2	NC	FC	C	ST	Q	Y	-	
HCV-506B	WD	A	2	M-7-1	A6	DI	A	2	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-506B	WD	A	2	M-7-1	A6	DI	A	2	NO	FC	C	ST	Q	Y	-	
HCV-507A	WD	A	2	M-98-3	F7	DI	A	3	NO	FC	C	ST	Q	Y	-	
HCV-507A	WD	A	2	M-98-3	F7	DI	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-507B	WD	A	2	M-98-3	F7	DI	A	3	NO	FC	C	ST	Q	Y	-	
HCV-507B	WD	A	2	M-98-3	F7	DI	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-508A	WD	A	2	M-98-3	C7	DI	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-508A	WD	A	2	M-98-3	C7	DI	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-508B	WD	A	2	M-98-3	C6	DI	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-508B	WD	A	2	M-98-3	C6	DI	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-509A	WD	A	2	M-98-3	B7	DI	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-509A	WD	A	2	M-98-3	B7	DI	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-509B	WD	A	2	M-98-3	B6	DI	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-509B	WD	A	2	M-98-3	B6	DI	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
CA-555	CA	A	2	M-13	F3	GA	H	4	NO	-	L	LT	2YR.	-	-	APPENDIX J
FW-658	AFW	C	3	M-254-2	D5	CK	C	1.5	-	-	C	ME	Q	-	-	MANUALLY EXERCISE
FW-658	AFW	C	3	M-254-2	D5	CK	C	1.5	-	-	O	ME	Q	-	-	MANUALLY EXERCISE
FW-672	AFW	C	3	M-253-4	B6	CK	C	2	-	-	O	FS	Q	-	-	
A/HCV-742	VA	A	2	M-1-2	D8	DI	A	1	NO	FO	L	LT	2YR.	-	-	APPENDIX J
B/HCV-742	VA	A	2	M-1-2	D8	DI	A	1	NO	FO	L	LT	2YR.	-	-	APPENDIX J
C/HCV-742	VA	A	2	M-1-2	D8	DI	A	1	NO	FO	L	LT	2YR.	-	-	APPENDIX J
D/HCV-742	VA	A	2	M-1-2	C8	DI	A	1	NO	FO	L	LT	2YR.	-	-	APPENDIX J
PCV-742A	VA	A	2	M-1-1	D2	BU	A	42	A	FC	L	LT	2YR.	-	E5	APPENDIX J

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
PCV-742B	VA	A	2	M-1-2	C7	BU	A	42	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-742C	VA	A	2	M-1-1	C2	BU	A	42	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-742D	VA	A	2	M-1-2	B8	BU	A	42	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-742E	VA	A	2	M-1-1	F2	DI	A	1	A	FC	L	LT	2YR.	-	-	APPENDIX J
PCV-742E	VA	A	2	M-1-1	F2	DI	A	1	A	FC	C	ST	Q	Y	-	
PCV-742F	VA	A	2	M-1-2	E3	DI	A	1	A	FC	L	LT	2YR.	-	-	APPENDIX J
PCV-742F	VA	A	2	M-1-2	E8	DI	A	1	A	FC	C	ST	Q	Y	-	
PCV-742G	VA	A	2	M-1-1	E2	DI	A	1	A	FC	C	ST	Q	Y	-	
PCV-742G	VA	A	2	M-1-1	E2	DI	A	1	A	FC	L	LT	2YR.	-	-	APPENDIX J
PCV-742H	VA	A	2	M-1-2	E8	DI	A	1	NO	FC	C	ST	Q	Y	-	
PCV-742H	VA	A	2	M-1-2	E8	DI	A	1	NO	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-746A	VA	A	2	M-1-1	D2	GL	A	2	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-746A	VA	A	2	M-1-1	D2	GL	A	2	NC	FC	C	ST	Q	Y	-	
HCV-746B	VA	A	2	M-1-2	C7	GL	A	2	NC	FC	C	ST	Q	Y	-	
HCV-746B	VA	A	2	M-1-2	C7	GL	A	2	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-820A	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-820A	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	C	ST	Q	Y	-	
HCV-820B	VA	A	2	M-1-1	C2	GL	S	1	NC	FO	C	ST	Q	Y	-	
HCV-820B	VA	A	2	M-1-1	C2	GL	S	1	NC	FO	O	ST	Q	Y	-	
HCV-820B	VA	A	2	M-1-1	C2	GL	S	1	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-821A	VA	A	2	M-1-2	A8	GL	S	1	NC	FC	C	ST	Q	Y	-	
HCV-821A	VA	A	2	M-1-2	A8	GL	S	1	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-821B	VA	A	2	M-1-1	A2	GL	S	1	NC	FC	C	ST	Q	Y	-	
HCV-821B	VA	A	2	M-1-1	A2	GL	S	1	NC	FO	O	ST	Q	Y	-	
HCV-821B	VA	A	2	M-1-1	A2	GL	S	1	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-881	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	C	ST	Q	Y	-	
HCV-881	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	O	ST	Q	Y	-	
HCV-881	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-882	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	O	ST	Q	Y	-	
HCV-882	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	C	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-882	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-883A	VA	A	2	M-1-1	C2	PG	A	1	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-883A	VA	A	2	M-1-1	C2	PG	A	1	NC	FO	C	ST	Q	Y	-	
HCV-883A	VA	A	2	M-1-1	C2	PG	A	1	NC	FO	O	ST	Q	Y	-	
HCV-883B	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-883B	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	C	ST	Q	Y	-	
HCV-884A	VA	A	2	M-1-1	C2	GL	A	1	NC	FO	O	ST	Q	Y	-	
HCV-884A	VA	A	2	M-1-1	C2	GL	A	1	NC	FO	C	ST	Q	Y	-	
HCV-884A	VA	A	2	M-1-1	C2	GL	A	1	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-884B	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-884B	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	C	ST	Q	Y	-	
HCV-1041A	MS	B	2	M-252-1	F6	CK	A	28	NO	FC	C	ST	CS	Y	J26	
HCV-1041B	MS	C	2	M-252-1	F6	CK	C	28	-	-	C	SD	RO*	-	J39	
HCV-1041C	MS	B	2	M-252-1	F6	GL	M	2	NC	FAI	C	ST	CS	Y	J27	
HCV-1042A	MS	B	2	M-252-1	E6	CK	A	28	NO	FC	C	ST	CS	Y	J26	
HCV-1042B	MS	C	2	M-252-1	E6	CK	C	28	-	-	C	SD	RO*	-	J39	
HCV-1042C	MS	B	2	M-252-1	E6	GL	M	2	NC	FAI	C	ST	CS	Y	J27	
YCV-1045	MS	B	3	M-252-1	C5	GL	A	2	NC	FO	O	ST	Q	Y	-	
YCV-1045A	MS	B	2	M-252-1	F5	GL	A	2	NC	FO	O	ST	Q	Y	-	
YCV-1045A	MS	B	2	M-252-1	F5	GL	A	2	NC	FO	C	ST	Q	Y	-	
YCV-1045B	MS	B	2	M-252-1	E5	GL	A	2	NC	FO	O	ST	Q	Y	-	
YCV-1045B	MS	B	2	M-252-1	E5	GL	A	2	NC	FO	C	ST	Q	Y	-	
HCV-1103	FW	B	N	M-253-1	C3	GA	M	16	NO	FAI	C	ST	CS	Y		
HCV-1104	FW	B	N	M-253-1	E3	GA	M	16	NO	FAI	C	ST	CS	Y		
HCV-1105	FW	B	N	M-253-1	D3	GL	A	6	NC	FC	C	ST	CS	Y		
HCV-1106	FW	B	N	M-253-1	E3	GL	A	6	NO	FC	C	ST	CS	Y		
HCV-1107A	AFW	B	2	M-253-4	F8	GL	A	3	NC	FO	O	ST	Q	Y	-	
HCV-1107B	AFW	B	2	M-253-4	E8	GL	A	3	NC	FO	O	ST	Q	Y	-	
HCV-1108A	AFW	B	2	M-253-4	F7	GL	A	3	NC	FO	O	ST	Q	Y	-	
HCV-1108B	AFW	B	2	M-253-4	E7	GL	A	3	NC	FO	O	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
FCV-1368	AFW	B	3	M-253-4	C6	GL	A	1	A	FO	O	ST	Q	Y		
FCV-1369	AFW	B	3	M-253-4	B5	GL	A	1	A	FO	O	ST	Q	Y		
HCV-1384	FW	B	3	M-253-4	D7	GA	M	4	NC	FAI	O	ST	Q	Y	-	
HCV-1385	FW	B	2	M-253-1	D3	GA	M	16	NO	FAI	C	ST	CS	Y	J28	
HCV-1386	FW	B	2	M-253-1	C6	GA	M	16	NO	FAI	C	ST	CS	Y	J28	
HCV-1387A	FW	B	2	M-253-1	C3	GL	A	2	NO	FC	C	ST	CS	Y	J29	
HCV-1387B	FW	B	2	M-253-1	B3	GL	A	2	NO	FC	C	ST	CS	Y	J29	
HCV-1388A	FW	B	2	M-253-1	C8	GL	A	2	NO	FC	C	ST	CS	Y	J29	
HCV-1388B	FW	B	2	M-253-1	B8	GL	A	2	NO	FC	C	ST	CS	Y	J29	
FW-1443	FW	C	3	M-253-4	B5	RL	R	0.75	-	-	T	SP	OM	-	-	
FW-1444	FW	C	3	M-253-4	B5	RL	R	0.75	-	-	T	SP	OM	-	-	
FW-1525	AFW	C	3	M-253-4	B4	RL	R	0.75	-	-	T	SP	OM*	-	E6	
HCV-1559A	DW	A	2	M-5-2	E5	DI	A	2.5	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-1559A	DW	A	2	M-5-2	E5	DI	A	2.5	NC	FC	C	ST	Q	Y	-	
HCV-1559B	DW	A	2	M-5-2	E5	DI	A	2.5	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-1559B	DW	A	2	M-5-2	E5	DI	A	2.5	NC	FC	C	ST	Q	Y	-	
HCV-1560A	DW	A	2	M-5-2	A4	DI	A	2	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-1560A	DW	A	2	M-5-2	A4	DI	A	2	NC	FC	C	ST	Q	Y	-	
HCV-1560B	DW	A	2	M-5-2	A4	DI	A	2	NC	FC	C	ST	Q	Y	-	
HCV-1560B	DW	A	2	M-5-2	A4	DI	A	2	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-1749	CA	A	2	M-13	F4	GL	A	4	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-1749	CA	A	2	M-13	F4	GL	A	4	NC	FC	C	ST	Q	Y	-	
PCV-1849A	IA	A	2	M-264-1	C8	GL	A	2	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-1849A	IA	A	2	M-264-1	C8	GL	A	2	NO	FC	C	ST	CS	Y	J30	
PCV-1849B	IA	A	2	M-264-1	F5	GL	A	2	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-1849B	IA	A	2	M-264-1	F5	GL	A	2	NO	FC	C	ST	CS	Y	J30	
HCV-2504A	SL	A	2	M-12-1	F7	GL	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-2504A	SL	A	2	M-12-1	F7	GL	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2504B	SL	A	2	M-12-1	F7	GL	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-2504B	SL	A	2	M-12-1	F7	GL	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-25[illegible]	SL	B	2	M-12-1	D7	GL	A	0.5	NO	FC	C	ST	CS	Y	J31	
HCV-2506B	SL	B	2	M-12-1	D7	GL	A	0.5	NO	FC	C	ST	CS	Y	J31	
HCV-2507A	SL	B	2	M-12-1	C7	GL	A	0.5	NO	FC	C	ST	CS	Y	J31	
HCV-2507B	SL	B	2	M-12-1	C7	GL	A	0.5	NO	FC	C	ST	CS	Y	J31	
HCV-2603A	NG	A	2	M-42-1	D8	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2603A	NG	A	2	M-42-1	D8	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2603B	NG	A	2	M-42-1	D8	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2603B	NG	A	2	M-42-1	D8	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2604A	NG	A	2	M-42-1	D5	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2604A	NG	A	2	M-42-1	D5	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2604B	NG	A	2	M-42-1	D5	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2604B	NG	A	2	M-42-1	D5	GL	A	1	NO	FC	C	ST	Q	Y	-	
HCV-2808A	CCW	B	3	M-10-4	E5	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2808B	CCW	B	3	M-10-4	B5	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2809A	CCW	B	3	M-10-4	E4	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2809B	CCW	B	3	M-10-4	B4	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2810A	CCW	B	3	M-10-4	E3	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2810B	CCW	B	3	M-10-4	B3	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2811A	CCW	B	3	M-10-4	E2	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2811B	CCW	B	3	M-10-4	B2	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2812A	CCW	B	3	M-10-4	E1	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2812B	CCW	B	3	M-10-4	B1	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2813A	CCW	B	3	M-10-4	E6	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2813B	CCW	B	3	M-10-4	B6	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2814A	CCW	B	3	M-10-4	E8	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2814B	CCW	B	3	M-10-4	B8	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2815A	CCW	B	3	M-10-4	E7	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2815B	CCW	B	3	M-10-4	B7	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2850	RW	B	3	M-100-1	B7	BU	A	20	NO	FO	O	ST	Q	Y	-	
HCV-2851	RW	B	3	M-100-1	B6	BU	A	20	NO	FO	O	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-2852	RW	B	3	M-100-1	B5	BU	A	20	NO	FO	O	ST	Q	Y	-	
HCV-2853	RW	B	3	M-100-1	B4	BU	A	20	NO	FO	O	ST	Q	Y	-	
HCV-2880A	RW	B	3	M-100-1	E3	BU	A	12	NO	FO	O	ST	Q	Y	-	
HCV-2880B	RW	B	3	M-100-1	E1	BU	A	12	NO	FO	O	ST	Q	Y	-	
HCV-2881A	RW	B	3	M-100-1	C3	BU	A	12	NO	FO	O	ST	Q	Y	-	
HCV-2881B	RW	B	3	M-100-1	C1	BU	A	12	NO	FO	O	ST	Q	Y	-	
HCV-2882A	RW	B	3	M-100-1	F3	BU	A	12	NO	FO	O	ST	Q	Y	-	
HCV-2882B	RW	B	3	M-100-1	F1	BU	A	12	NO	FO	O	ST	Q	Y	-	
HCV-2883A	RW	B	3	M-100-1	B3	BU	A	12	NO	FO	O	ST	Q	Y	-	
HCV-2883B	RW	B	3	M-100-1	B1	BU	A	12	NO	FO	O	ST	Q	Y	-	
PCV-2909	SI	A	2	210-130-2	B5	GL	A	1	A	FC	C	ST	Q	Y	-	
PCV-2909	SI	A	2	210-130-2	B5	GI	A	1	A	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2916	SI	A	2	210-130-2	C5	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2916	SI	A	2	210-130-2	C5	GL	A	1	NC	FC	C	ST	Q	Y	-	
PCV-2929	SI	A	2	210-130-2	B8	GL	A	1	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2929	SI	A	2	210-130-2	B8	GL	A	1	A	FC	C	ST	Q	Y	-	
HCV-2936	SI	A	2	210-130-2	C7	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2936	SI	A	2	210-130-2	C7	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2949	SI	A	2	210-130-2B	B8	GL	A	1	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2949	SI	A	2	210-130-2B	B8	GL	A	1	A	FC	C	ST	Q	Y	-	
HCV-2956	SI	A	2	210-130-2B	C7	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2956	SI	A	2	210-130-2B	C7	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2969	SI	A	2	210-130-2B	B5	GL	A	1	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2969	SI	A	2	210-130-2B	B5	GL	A	1	A	FC	C	ST	Q	Y	-	
HCV-2976	SI	A	2	210-130-2B	C4	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2976	SI	A	2	210-130-2B	C4	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2983	SI	A	2	210-130-1	E8	GL	A	2	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2987	SI	B	2	210-130-3	E7	GA	P	4	NO	FO	C	ST	CS	Y	J32	
HCV-2987	SI	B	2	210-130-3	E7	GA	P	4	NO	FO	O	ST	CS	Y	J32	
HCV-2988	SI	B	2	210-130-3	D6	GL	S	2	NC	FC	C	ST	CS	Y	J19	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-2988	SI	B	2	210-130-3	D6	GL	S	2	NC	FC	O	ST	CS	Y	J19	
IA-HCV-238-C	IA	C	1	C-4175-2	B7	CK	C	0.5	-	-	O	FS	CS	-	J33	NOTE 3
IA-HCV-238-C	IA	C	1	C-4175-2	B7	CK	C	0.5	-	-	C	FS	CS	-	J33	NOTE 3
IA-HCV-239-C	IA	C	1	C-4175-2	B7	CK	C	0.5	-	-	O	FS	CS	-	J33	NOTE 3
IA-HCV-239-C	IA	C	1	C-4175-2	B7	CK	C	0.5	-	-	C	FS	CS	-	J33	NOTE 3
IA-HCV-240-C	IA	C	3	C-4175-2	B7	CK	C	0.5	-	-	C	FS	CS	-	J17	NOTE 1
IA-HCV-240-C	IA	C	3	C-4175-2	B7	CK	C	0.5	-	-	O	FS	CS	-	J17	NOTE 1
IA-HCV-344-C	IA	C	N	C-4175-2	D7	CK	C	0.5	-	-	O	FS	CS	-	J21	NOTE1
IA-HCV-344-C	IA	C	N	C-4175-2	D7	CK	C	0.5	-	-	O	FS	CS	-	J21	NOTE 1
IA-A/FIC-383-C	IA	C	3	M-264-4	D3	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 2
IA-A/FIC-383-C	IA	C	3	M-264-4	D3	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 2
IA-B/FIC-383-C	IA	C	3	M-264-4	B3	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 2
IA-B/FIC-383-C	IA	C	3	M-264-4	B3	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 2
IA-C/FIC-383-C	IA	C	3	M-264-4	C3	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 2
IA-C/FIC-383-C	IA	C	3	M-264-4	C3	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 2
IA-D/FIC-383-C	IA	C	3	M-264-4	A3	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 2
IA-D/FIC-383-C	IA	C	3	M-264-4	A3	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 2
IA-LCV-383-1-C	IA	C	3	C-4175-2	N/A	CK	C	0.375	-	-	O	FS	Q	-	-	NOTE 1
IA-LCV-383-1-C	IA	C	3	C-4175-2	D7	CK	C	0.375	-	-	C	FS	Q	-	-	NOTE 1
IA-LCV-383-2-C	IA	C	3	C-4175-2	D7	CK	C	0.375	-	-	C	FS	Q	-	-	NOTE 1
IA-LCV-383-2-C	IA	C	3	C-4175-2	D7	CK	C	0.375	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-385-C	IA	C	3	C-4175-2	D7	CK	C	0.5	-	-	O	FS	CS	-	J34	NOTE 1
IA-HCV-385-C	IA	C	3	C-4175-2	D7	CK	C	0.5	-	-	C	FS	CS	-	J34	NOTE 1
IA-HCV-386-C	IA	C	3	C-4175-2	D7	CK	C	0.5	-	-	O	FS	CS	-	J34	NOTE 1
IA-HCV-386-C	IA	C	3	C-4175-2	D7	CK	C	0.5	-	-	C	FS	CS	-	J34	NOTE 1
IA-HCV-400A-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-400A-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-400B-TV	I	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-400B-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-400C-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
IA-HCV-400C-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-400D-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-400D-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401A-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401A-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-401B-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-401B-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401C-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401C-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-401D-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401D-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402A-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-402A-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402B-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-402B-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402C-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-402C-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402D-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402D-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-403A-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-403A-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-403B-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-403B-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-403C-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-403C-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-403D-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-403D-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-438B-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	CS	-	J24	NOTE 1
IA-HCV-438B-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	CS	-	J24	NOTE 1
IA-HCV-438D-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	CS	-	J24	NOTE 1

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
IA-HCV-438D-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	CS	-	J24	NOTE 1
IA-YCV-1045A-C	IA	C	3	C-4175-2	F7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-YCV-1045A-C	IA	C	3	C-4175-2	F7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-YCV-1045B-C	IA	C	3	C-4175-2	B7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-YCV-1045B-C	IA	C	3	C-4175-2	B7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2850-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-2850-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2851-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-2851-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2852-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2852-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-2853-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-2853-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2987-C	IA	C	3	C-4175-2	E7	CK	C	0.375	-	-	O	FS	CS	-	J32	NOTE 1
IA-HCV-2987-C	IA	C	3	C-4175-2	E7	CK	C	0.375	-	-	C	FS	CS	-	J32	NOTE 1
IA-PCV-6680A-1-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-PCV-6680A-2-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-PCV-6680B-1-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-PCV-6680B-2-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-PCV-6682-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-3092	IA	A	2	M-264-4	B5	DI	H	0.5	-	-	L	LT	2YR.	-	-	APPENDIX J
IA-3093	IA	A	2	M-264-4	B5	DI	H	0.5	-	-	L	LT	2YR.	-	-	APPENDIX J
IA-3094	IA	A	2	M-264-4	B5	DI	H	0.5	-	-	L	LT	2YR.	-	-	APPENDIX J
PCV-1849A-20B	IA	A	2	M-264-1	D8	GL	S	0.5	O	FC	C	LT	2YR.	-	-	APPENDIX J
PCV-1849A-20A	IA	A	2	M-264-1	D8	GL	S	0.5	O	FC	C	LT	2YR.	-	-	APPENDIX J

APPENDIX 2A

JUSTIFICATION FOR TESTS FREQUENCIES OTHER THAN CODE PREFERRED

JUSTIFICATION FOR TEST FREQUENCIES OTHER THAN CODE PREFERRED

This section provides justification for alternate frequencies other than those preferred in the Code. Each frequency justification is identified by a unique number and identifies the valve(s) for which the frequency justification is presented. The specific Code test frequency requirement found to be impractical is defined and the justification for an alternative test frequency is given. Frequency justifications are numbered and referenced by number (Jx) on the Valve Test Program Matrix Table 2.1 for specific valves.

1. Frequency Justification Number J1 - Refueling Outage Justification

- Components:

  SI-100, SI-113

- Function:

  HPSI Pump Suction Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction

- Basis for Justification:

  These valves cannot be full-stroke exercised open Quarterly during plant operation or during Cold Shutdowns, since to do so would require a flow path to the RCS. That flow path cannot be utilized during power operation because the High Pressure Safety Injection (HPSI) pumps do not develop sufficient discharge pressure to overcome RCS pressure. This same flow path cannot be utilized during Cold Shutdowns because there is insufficient volume in the RCS to accommodate the flow required and a low temperature overpressure condition of the RCS could result.

- Alternate Testing:

  Valves will be partial-stroke exercised using the minimum recirculation flow path Quarterly during normal operations, and full-stroke exercised open during Refueling Outages.

  This method of partial-stroke exercising Quarterly and full-stroke exercising open during Refueling Outages is in accordance with the guidance set forth in Paragraph 4.2.1.2 O&M Part 10.

2. **Frequency Justification Number J2 - Cold Shutdown Justification**

- Components:

  PCV-102-1, PCV-102-2

- Function:

  Power Operated Relief Valves (PORV) for the Pressurizer

- Class:

  1

- Test Requirements:

  Quarterly Stroke-Timing Open and Closed

- Basis for Justification:

  These valves can only be opened or closed when there is a pressure differential across the valve. The valves have solenoid pilot valves that control their actuation. Since valves of this type have a history in the industry of sticking open and the PORVs are not credited in the safety analysis for overpressure protection during power operations, it is impractical to stroke these valves Quarterly during power operation. These valves cannot be partial-stroke tested because they are either fully opened or fully closed.

- Alternate Testing:

  The PORVs will be stroke-timed in the open and closed direction during the transition to Cold Shutdown (primary plant pressure is between 350 - 450 psia and primary plant temperature is between 300 - 350°F) prior to entering Mode 4. The PORVs will be tested during the transition from Hot Shutdown to Cold Shutdown (as defined by FCS Technical Specifications) whenever practical, i.e., normal plant shutdown. During a Technical Specification mandated shutdown, the PORVs will be tested during plant startup prior to entering Mode 2 (when primary plant pressure is between 350 - 450 psia and primary plant temperature is between 300 - 350°F).

3. **Frequency Justification Number J3 - Refueling Outage Justification**

- Components:

  SI-102, SI-108, SI-115

- Function:

  HPSI Pump Discharge Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction

- Basis for Justification:

  These valves cannot be full-stroke or partial-stroke exercised open during plant operation, Quarterly or during Cold Shutdowns, since to do so would require a flow path to the RCS. That flow path cannot be utilized during power operation because the HPSI pumps do not develop sufficient discharge pressure to overcome RCS pressure. This same flow path cannot be utilized during Cold Shutdowns because there is insufficient volume in the RCS to accommodate the flow required, and a low temperature overpressure condition of the RCS could result. Additionally, these valves cannot be exercised during Quarterly pump tests or miniflow because the minimum flow lines branch off upstream of the check valves and no flow occurs through these valves.

- Alternate Testing:

  Valves will be full-stroke exercised open during Refueling Outages when the Reactor Vessel head is removed. This will provide an expansion volume to accommodate the flow required.

4. **Frequency Justification Number J4 - Cold Shutdown Justification**

- Components:

  SI-121, SI-129

- Function:

  LPSI Pump Discharge Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full-Stroke Exercising in the Open Direction

- Basis for Justification:

  These valves cannot be partial-stroke or full-stroke exercised in the open direction Quarterly during power operation because there is no flow path available except during shutdown cooling. Additionally, these valves cannot be exercised open during Quarterly pump tests or using the miniflow line because the minimum flow lines branch off upstream of the check valves and no flow occurs through these valves.

- Alternate Testing:

  Valves will be full-stroke exercised open during Cold Shutdown.

5. **Frequency Justification Number J5 - Refueling Outage Justification**

- Components:

  CH-143, CH-155, CH-156

- Function:

  CH-143 - Charging Pump Boric Acid Supply Check Valve
  CH-155 - Charging Pump Boric Acid Gravity Feed Check Valve
  CH-156 - Charging Pump Safety Injection and Refueling Water Tank (SIRWT) Suction Check Valve

- Class:

  2

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction

- Basis for Justification:

  These check valves serve to permit direct feed of concentrated boric acid solution to the charging pump suction header. These check valves cannot be full-stroke or partial-stroke exercised Quarterly during power operation or Cold Shutdown. The only flow path through these valves is into the RCS; exercising would result in injecting highly concentrated boric acid into the RCS. Injecting concentrated boric acid into the RCS during power operation could cause a reactivity excursion or a plant shutdown. Injecting concentrated boric acid into the RCS during Cold Shutdown could delay reactor startup because of the requirement to establish the proper boron concentration prior to the reactor startup.

- Alternate Testing:

  Valves will be full-stroke exercised open during Refueling Outages.

6. Frequency Justification Number J6 - Cold Shutdown Justification

- Components:

  FW-161, FW-162

- Function:

  Steam Generator Normal Feedwater Inlet Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full-Stroke Exercising in the Closed Direction

- Basis for Justification:

  These check valves function to prevent the loss of inventory of the Steam Generators in the event of a line break upstream between valves HCV-1386 (HCV-1385) and check valve FW-161 (FW-162). These check valves cannot be full-stroke exercised closed Quarterly during power operation because the only flow paths are the Steam Generators. During power operation, the feedwater paths to the Steam Generators must not be isolated as this would remove the "heat sink" for the Reactor Coolant System.

- Alternate Testing:

  Valves will be full-stroke exercised closed during Cold Shutdown as defined in the FCS Technical Specifications, provided the feedwater system is able to be isolated from the Steam Generator and the feedwater lines are able to be drained as required to permit testing.

7. **Frequency Justification Number J7 - Cold Shutdown Justification**

- Components:

  FW-163, FW-164

- Function:

  Steam Generator Auxiliary Feedwater Injection Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full-Stroke Exercising in the Open Direction

- Basis For Justification:

  These check valves open for auxiliary feedwater flow to the Steam Generators. Exercising these valves during power operation would result in cold water injection to a portion of the Steam Generators normally at 400 - 500°F, which would cause unnecessary and possibly damaging thermal stresses in the Steam Generators.

- Alternate Testing:

  These check valves are exercised open during Cold Shutdown. Since failure of these valves to function in the reverse flow direction would **not** interfere with the plant's ability to shutdown or to mitigate the consequences of an accident, these check valves shall be full-stroke exercised only in the open direction.

8. **Frequency Justification Number J8 - Refueling Outage Justification**

- Components:

  HCV-176, HCV-177, HCV-178, HCV-179, HCV-180, HCV-181

- Function:

  Reactor Vessel Head and Pressurizer Vents

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing Open and Closed

- Basis for Justification:

  These valves are intended to be used to vent the Reactor Pressure Vessel (RPV) head and pressurizer. These valves are Target Rock solenoid valves, which have a history of sticking open when exercised. This could result in a small break Loss of Coolant Accident (LOCA) if these valves are stroke-timed at power or at Cold Shutdown. Therefore, partial or full-stroke timing during normal operation or Cold Shutdown is impractical.

- Alternate Testing:

  These valves will be stroke-timed in the open and closed directions during Refueling Outages.

9. **Frequency Justification Number J9 - Cold Shutdown Justification**

- Components:

  SI-194, SI-197, SI-200, SI-203

- Function:

  Shutdown Cooling Injection Check Valves

- Class:

  2

- Testing Requirements:

  Quarterly Full-Stroke Exercising in the Open Direction and Leakage Test During Cold Shutdown

- Basis for Justification:

  These check valves cannot be full-stroke exercised open or partial-stroke exercised Quarterly during power operation because no flow path is available at operating pressure due to system configuration. Since the SI pumps are not able to develop sufficient discharge pressure to overcome RCS pressure, the valves are not able to be exercised. Valves SI-194, SI-197, SI-200 and SI-203 are pressure isolation valves as defined by NRC GL 89-04 and as listed in the FCS Technical Specifications.

- Alternate Testing:

  These check valves are full-stroke exercised open during Cold Shutdown when the Shutdown Cooling system is in service. These check valves will be leak tested during Cold Shutdown in accordance with the requirements of FCS Technical Specification 2.1, Table 2-9, and Item 14 of the table format of this Program Plan.

10. **Frequency Justification Number J10 - Refueling Outage Frequency**

- Components:

  SI-195, SI-198, SI-201, SI-204

- Function:

  High Pressure Safety Injection to Reactor Coolant Loop Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full-Stroke Exercising in the Open Direction and Leakage Test During Cold Shutdown

- Basis for Justification:

  These check valves cannot be full-stroke or partial-stroke exercised open Quarterly during power operation because the only flow path available is into the RCS. Since the HPSI pumps do not develop sufficient discharge pressure to overcome RCS operating pressure, the valves cannot be exercised during Cold shutdown because the RCS does not contain an adequate expansion volume and a low temperature overpressurization of the RCS could result. Valves SI-195, SI-198, SI-201 and SI-204 are pressure isolation valves (PIVs) as defined by NRC GL 89-04 and as listed in the FCS Technical Specifications.

- Alternate Testing:

  These check valves will be full-stroke exercised open during Refueling Outages when the RCS is depressurized and the Reactor Vessel Head is removed in order to provide an expansion volume to accommodate the flow required. These check valves will be leak tested during Cold Shutdown in accordance with the requirements of FCS Technical Specification 2.1, Table 2-9, and Item 14 of the table format of this Program Plan.

11. Frequency Justification Number J11 - Refueling Outage Frequency

- Components:

  SI-196, SI-199, SI-202, SI-205, SI-343, CH-469

- Function:

  High Pressure Safety Injection to Reactor Coolant Loop Check Valves

- Class:

  1 - SI-196, SI-199, SI-202, SI-205, CH-469

  2 - SI-343

- Testing Requirements:

  Quarterly Full-Stroke Exercising in the Open Direction

- Basis for Justification:

  These valves function to prevent backflow through the Safety Injection pump discharge headers. These valves cannot be full-stroke or partial-stroke exercised open during power operation utilizing flow because the HPSI pumps do not develop sufficient discharge pressure to overcome RCS pressure. The charging pumps cannot be used during power operation because the flow path from the pumps would bypass the Regenerative Heat Exchanger and result in injecting cold water, causing thermal shock to the injection nozzles and a reactivity transient. Check valve SI-343 cannot be partial-stroke exercised during Cold Shutdowns because using the HPSI pumps could cause an overpressurization of the RCS; the HPSI pumps are therefore tagged out to prevent inadvertent operation.

- Alternate Testing:

  Check valve CH-469 will be partial-stroke exercised open during Cold Shutdown using the charging pumps. Both check valves CH-469 and SI-343 will be full-stroke exercised open during Refueling Outages using the charging pumps and the HPSI pumps as necessary.

12. **Frequency Justification Number J12 - Refueling Outage Justification**

- Components:

  CH-198, CH-203, CH-204

- Function:

  Charging Pump discharge to RCS Check Valve (CH-198)
  Loop Charging Line to RCS Check Valves (CH-203, CH-204)

- Class:

  2 (CH-198)
  1 (CH-203, CH-204)

- Test Requirements:

  Quarterly Full-Stroke Exercising in the Open Direction

- Basis for Justification:

  These check valves cannot be full-stroke exercised open during plant operations Quarterly or during Cold Shutdowns, since to do so would require the charging and HPSI pumps to be run which would require a flow path to the RCS. That flow path cannot be utilized during power operation because the HPSI pumps do not develop sufficient discharge pressure to overcome RCS pressure. This same flow path cannot be utilized during Cold Shutdowns because there is insufficient volume in the RCS to accommodate the flow required and a low temperature overpressure condition of the RCS could result.

- Alternate Testing:

  The check valves will be partial-stroke exercised in the open direction Quarterly during power operation using the charging pumps. The check valves will be full-stroke exercised in the open direction during Refueling Outages when the Reactor Vessel head is removed, using the charging pumps and the HPSI pumps.

13. **Frequency Justification Number J13 - Cold Shutdown Justification**

- Component:

  TCV-202, HCV-204

- Function:

  Letdown Temperature Control Valve, Letdown Isolation Valve

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing Closed

- Basis for Justification:

  These valves are used for RCS Loop 2A, letdown isolation and temperature regulation. Stroking these valves Quarterly during power operation could result in the termination of letdown flow. This would isolate the RCS purification process and could potentially cause a reactivity excursion. These valves cannot be partial-stroked because the valves are either fully open or fully closed.

- Alternate Testing:

  These valves will be stroke-timed in the closed direction during Cold Shutdown when the RCS is depressurized.

14. **Frequency Justification Number J14 - `old Shutdown Justification**

- Component:

  CH-205

- Function:

  Auxiliary Pressurizer Spray Check Valve

- Ciass:

  1

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction

- Basis for Justification:

  This check valve cannot be full-stroke exercised during plant operations Quarterly or during Cold Shutdowns, since to do so would require a flow path to the RCS. That flow path cannot be utilized during power operation because the HPSI pumps do not develop sufficient discharge pressure to overcome RCS pressure. This same flow path cannot be utilized during Cold Shutdowns because there is insufficient volume in the RCS to accommodate the flow required and a low temperature overpressure condition of the RCS could result.

- Alternate Testing:

  The check valves will be partial-stroke exercised in the open direction Quarterly during power operation using the charging pumps. The check valves will be full-stroke exercised in the open direction during Refueling Outages when the Reactor Vessel head is removed, using the charging pumps and the HPSI pumps.

15. **Frequency Justification Number J15 - Refueling Outage Justification**

- Component:

  HCV-206, HCV-241

- Function:

  RC Pump Control Bleedoff Isolation Valves

  Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing Closed

- Basis for Justification:

  The Reactor Coolant Pump (RCP) seals serve as an RCS pressure boundary; therefore, seal failure could result in unisolable coolant leakage from the RCS. Isolation of the RCP seal bleed-off by stroking these valves closed would cause the seal bleed-off line relief valve (CH-208) to lift, directing reactor coolant directly to the Reactor Coolant Drain Tank (RCDT). If the leakage remained unchecked, the RCDT relief valve could lift directing reactor coolant to the Containment floor, causing a Ventilation Isolation Actuation Signal (VIAS). Additionally, the temporary isolation of pump seal flow (until the relief valve lifted) would eliminate the ability of the RC pump seal to break down RCS pressure and could potentially cause localized overheating of the seals. The pump seals can be damaged by overheating if seal water flow is stopped while the pumps are running. It is impractical to exercise these valves Quarterly or during any plant conditions that could result in abnormal seal wear. This could lead to failure of the RCP seals, creating unisolable leakage equivalent to a small break Loss of Cooling Accident (LOCA).

- Alternate Testing:

  The valves will be stroke-timed in the closed direction during cold shutdown, when the RCS is depressurized and the RCPs are secured.

16. **Frequency Justification Number J16 - Cold Shutdown Justification**

- Components:

  LCV-218-2, LCV-218-3

- Function:

  Volume Control Tank Outlet Isolation Valve and Charging Pump Suction From Safety Injection and Refueling Water Tank (SIRWT) Isolation Valve

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing Closed for LCV-218-2 and
  Quarterly Stroke-Timing Open for LCV-218-3

- Basis for Justification:

  These valves function to provide Volume Control Tank (VCT) level control and switch charging suction to the Safety Injection and Refueling Water Storage Tank (SIRWT). The valves cannot be stroke-tested Quarterly because doing so would terminate charging flow to the RCS and would have the potential for disrupting pressurizer level regulation or boron concentration regulation. Pressurizer level regulation disruption can lead to RCS pressure transients and disruption of boron concentration could cause reactivity excursions.

- Alternate Testing:

  Valve LCV-218-2 will be stroke-timed in the closed direction and valve LCV-218-3 will be stroke-timed in the open direction during Cold Shutdowns.

17. Frequency Justification Number J17 - Cold Shutdown Justification

- Components:

  IA-HCV-240-C, HCV-240, HCV-249

- Function:

  Instrument Air Accumulator Check Valve for HCV-240,
  Auxiliary Pressurizer Spray Isolation Valves

- Class:

  3 (IA-HCV-240-C), Class 1 (HCV-249, HCV-240)

- Test Requirements:

  Quarterly Exercising in the Open and Closed Directions for
  IA-HCV-240-C,
  Quarterly Exercising Open for HCV-249 and
  Stroke-Testing in the Open and Closed Directions for HCV-240

- Basis for Justification:

  These valves (HCV-240 and HCV-249) cannot be stroke-timed Quarterly during power operation because doing so will lead to large scale depressurization of the RCS and thermal shock of the pressurizer spray nozzle. The IA accumulator check valve (IA-HCV-240-C) cannot be full-stroke exercised in the open direction Quarterly during power operation, as exercising of the check valve will cause HCV-240 to cycle. This could cause large scale depressurization of the RCS and thermal shock of the pressurizer spray nozzle. The check valve (IA-HCV-240-C) cannot be partial-stroke exercised for the same reason.

- Alternate Testing:

  Valve IA-HCV-240-C will be exercised in the open and closed directions during Cold Shutdowns. Valves HCV-240 and HCV-249 will be stroke-timed in both the open and close directions during Cold Shutdowns.

18. **Frequency Justification Number J18 - Cold Shutdown Justification**

- Components:

  HCV-268

- Function:

  Concentrated Boric Acid to Charging Pump Suction Isolation Valves

- Class:

  3

- Test Requirements:

  Quarterly Stroke-Timing in the Open Direction

- Basis for Justification:

  These valves serve to isolate concentrated boric acid from the charging pump suction header. These valves cannot be stroke-timed Quarterly during power operation because doing so would allow concentrated boric acid solution to be injected into the RCS. Boration of the primary system during normal power operation would cause reactivity transients and possibly result in a plant shutdown. These valves cannot be partial-stroked for the same reason.

- Alternate Testing:

  Valves will be stroke-timed in the open direction during Cold Shutdown.

19. **Frequency Justification Number J19 - Cold Shutdown Justification**

- Components:

  HCV-308, HCV-2988

- Function:

  Parallel Charging Pump Discharge to HPSI Isolation Valve

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Open Direction for Valve HCV-308 and in the Open and Closed Directions for Valve HCV-2988

- Basis for Justification:

  These valves provide an alternate charging flow path into the HPSI header and an alternate source for long term core cooling. They cannot be stroke-timed Quarterly during power operation because a charging pump is continuously operating during power operation. Opening one of these valves would expose the HPSI header to charging pressure at a time when this is not a desired charging flow path. It is impractical to shut down the charging flow to perform this test because of the thermal and flow transients that would result.

- Alternate Testing:

  Valve HCV-2988 will be stroke-tested both in the open and closed directions during Cold Shutdown. HCV-308 will be stroke-tested in the open direction only, during Cold Shutdown.

20. **Frequency Justification Number J20 - Refueling Outage Justification**

- Component:

  SI-323

- Function:

  High Pressure Safety Injection Header Check Valve

- Class:

  2

- Test Requirements:

  Quarterly Full Flow Exercising in the Open and Closed Directions

- Basis for Justification:

  This check valve functions to prevent backflow of charging flow to the lower design pressure HPSI piping when the alternate charging flow path is active. The only flow path available is into the RCS and since the HPSI pumps do not develop sufficient discharge pressure to overcome RCS operating pressure, this valve cannot be exercised Quarterly during power operation. This valve cannot be exercised during Cold Shutdowns because the RCS does not contain an adequate expansion volume and a low-temperature overpressurization of the RCS could result. Additionally, this valve cannot be partial-stroke exercised during pump test or miniflow because the minimum flow lines branch off upstream of the check valve and no flow occurs through this valve.

- Alternate Testing:

  This check valve will be exercised full open and full closed during Refueling Outages.

21. **Frequency Justification Number J21 - Cold Shutdown Justification**

- Components:

  HCV-344, HCV-345
  IA-HCV-344-C

- Function:

  Containment Spray Header Isolation Valves
  Instrument Air Accumulator Check Valve

- Class:

  2
  3

- Test Requirements:

  Quarterly Stroke-Timing in Both the Open and Closed Directions for HCV-344 and the Open Direction Only, for HCV-345. Quarterly Exercising to the Closed Direction for IA-HCV-344-C.

- Basis for Justification:

  Valves HCV-344 and HCV-345 serve as CS isolation. Valves cannot be stroke-tested Quarterly during power operation since the potential for spraying down the Containment is increased. These valves represent the only boundary between the CS and Safety Injection pump headers and the CS nozzles when manual valves SI-177 and SI-178 are open. The valves cannot be partial-stroked for the same reason.

  Valve IA-HCV-344-C is the IA accumulator check valve for process valve HCV-344, and functions to allow the valve to be closed on loss of IA, if required. This check valve cannot be exercised Quarterly as required as this would stroke the process valve, HCV-344.

- Alternate Testing:

  Valve HCV-344 shall be stroke-timed in both the open and closed direction during Cold Shutdown. HCV-345 shall be stroke-timed in the open direction during Cold Shutdown. The IA check valve IA-HCV-344-C shall be exercised in the closed direction during Cold Shutdown.

22. **Frequency Justification Number J22 - Cold Shutdown Justification**

- Components:

  HCV-347, HCV-348

- Function:

  Shutdown Cooling from Loop Isolation Valves

- Class:

  1

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  These valves cannot be Quarterly stroke-timed closed during power operation because they are interlocked closed to ensure the integrity of the pressure boundary between Class 2501 and Class 301 piping when the RCS pressure is > 250 psia.

- Alternate Testing:

  These valves will be stroke-timed in the close direction during Cold Shutdown prior to initiating Shutdown Cooling (<300°F and <250 psi) while the Steam Generator is still available for removing decay heat from the primary.

23. **Frequency Justification Number J23 - Cold Shutdown Justification**

- Components:

  HCV-425A, HCV-425B, HCV-425C, HCV-425D

- Function:

  Inlet and Outlet Isolation Valves to SI Tank Leakage Coolers

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  These valves serve to isolate Containment Penetrations M-39 and M-53, Component Cooling System penetrations. They cannot be Quarterly stroke-timed closed during power operation because failure of these valves in the closed position would terminate cooling flow to Safety Injection Tank leakage coolers. This would have the potential for lifting the relief valve (SI-222, to the Reactor Coolant Drain Tank (RCDT) which could eventually cause reactor coolant to overflow to the Containment floor, causing a Ventilation Isolation Actuation Signal (VIAS). These valves cannot be partial-stroked because they are either fully opened or fully closed.

- Alternate Testing:

  These valves will be stroke-timed in the close direction during Cold Shutdowns.

24. Frequency Justification J24 - Refueling Outage Justification

- Components:

  HCV-438A, HCV-438B, HCV-438C, HCV-438D, IA-HCV-438B-C, IA-HCV-438D-C

- Function:

  RCP Cooler Isolation Valves, Instrument Air Supply Check Valves

- Class:

  2 (HCV-438A, HCV-438B, HCV-438C, HCV-438D)
  3 (IA-HCV-438B-C, IA-HCV-438D-C)

- Test Requirements:

  HCV-438A, HCV-438B, HCV-438C and HCV-438D are Required to be Stroke-Timed Both in the Open and Close Directions Quarterly. IA Accumulator Check Valves (IA-HCV-438B-C and IA-HCV-438D-C) are Required to be Exercised Quarterly in the Open and Closed Directions.

- Basis for Justification:

  These valves serve to isolate Containment Penetrations M-18 and M-19, RCP seal cooling water. Exercising these valves would isolate cooling water flow to the RC Pumps which could damage the pumps if they are operating. RC pump failure during power operation could result in a plant shutdown. Therefore, it is not practical to exercise these valves Quarterly during power operations. During some Cold Shutdowns, Reactor Coolant temperature may be held above 130°F and plant conditions may not allow further cooldown or stopping all RC pumps. Exercising these valves during Cold Shutdowns when RC temperature is greater than 130°F or when any RC pump is running could result in RC pump damage. Therefore, it is not practical to exercise these valves when those plant conditions exist. These valves cannot be partial-stroked because they are either fully opened or fully closed.

  The IA accumulator check valves cannot be exercised Quarterly during power operation as exercising these check valves will cause cycling of the process valves.

- Alternate Testing:

  Valves HCV-438A, HCV-438B, HCV-438C and HCV-438D will be stroke-timed in both the open and close direction during Cold Shutdown, provided the RCS is depressurized, RCS temperature is less than 130°F, and RCPs are secured. IA accumulator check valves (IA-HCV-438B-C, IA-HCV-438D-C) will be exercised closed during Cold Shutdown, provided the RCS is depressurized, RCS
- temperature is less than 130°F and the RCPs are secured.

25. **Frequency Justification Number J25 - Cold Shutdown Justification**

- Components:

  HCV-467A, HCV-467B, HCV-467C, HCV-467D

- Function:

  Nuclear Detector Well Cooling Units Cooling Water Isolation Valves

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  These valves serve to isolate containment Penetrations M-15 and M-11, Component Cooling Water (CCW) penetrations. These valves cannot be stroke-timed Quarterly during power operation because failure of these valves during testing would render the Nuclear Detector Well Cooling Units inoperable. This would cause the Nuclear Instrumentation to have erratic indication. Should the Nuclear Detector well cooling units fail, the LCO specified in Technical Specification 2.13 would be entered and could result in a plant shutdown. These valves cannot be partial-stroked because they are either fully opened or fully closed.

- Alternate Testing:

  These valves shall be stroke-timed in the close direction during Cold Shutdown.

26. **Frequency Justification Number J26 - Cold Shutdown Justification**

- Components:

  HCV-1041A, HCV-1042A

- Function:

  Main Steam Isolation Stop Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  These valves serve to isolate the Main Steam headers. They cannot be tested Quarterly during power operation because doing so would isolate steam flow in the Steam Generators and result in a turbine and reactor trip. These valves cannot be partial-stroked because they are either fully opened or fully closed.

- Alternate Testing:

  These valves will be stroke-timed in the closed direction during Cold Shutdown.

27. **Frequency Justification Number J27 - Cold Shutdown Justification**

- Components:

  HCV-1041C, HCV-1042C

- Function:

  Main Steam Isolation Bypass Valves

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  These valves serve to provide a pathway from the Steam Generators to the steam dump and bypass valves in the event that the Main Steam Isolation Valves (MSIV) close. Stroke-timing these valves Quarterly during power operation is not acceptable because the valves are interlocked closed when the MSIVs are open. Bypassing this interlock could cause the MSIVs to close, causing the turbine to trip and resulting in a reactor trip. The valves cannot be partial-stroked for the same reason.

- Alternate Testing:

  These valves will be stroke-timed in the closed direction during Cold Shutdown.

28. **Frequency Justification Number J28 - Cold Shutdown Justification**

- Components:

  HCV-1385, HCV-1386

- Function:

  Main Feedwater Isolation Valves

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  Valves HCV-1385 and HCV-1386 cannot be stroke-timed Quarterly during power operation because doing so would isolate feedwater to Steam Generators resulting in a reactor trip. These valves cannot be partial-stroked because they are either fully opened or fully closed.

- Alternate Testing:

  These valves will be stroke-timed in the closed direction during Cold Shutdown.

29. **Frequency Justification Number J29 - Cold Shutdown Justification**

- Components:

  HCV-1387A, HCV-1387B, HCV-1388A, HCV-1388B

- Function:

  Steam Generator Blowdown Isolation Valves

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  These valves cannot be Quarterly stroke-timed during power operation because doing so would terminate the Steam Generator blowdown and disrupt all volatile chemistry control. They cannot be partial-stroked because they are either fully opened or fully closed.

- Alternate Testing:

  These valves will be stroke-timed in the closed direction during Cold Shutdowns.

30. **Frequency Justification Number J30 - Refueling Outage Justification**

- Components:

  PCV-1849A, PCV-1849B

- Function:

  Instrument Air Containment Isolation Valves

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  These valves serve to isolate IA pressure (via Penetration M-73) to containment systems. PCV-1849A (inboard) and PCV-1849B (outboard) were added during the refueling and maintenance outage (Fuel Cycle 12) in 1988 by Modification MR-FC-88-11 (OSAR 87-10). Stroke-timing cannot be performed Quarterly during power operations or Cold Shutdown with RCS temperature greater than 130°F and the RCS is not depressurized. The valves cannot be partial-stroked, because they are either fully opened or fully closed.

  The closing of these valves could:

  (1) cause fluctuations in the pressure control of the pressurizer (PCV-103-1, PCV-103-2),

  (2) result in damage to RCP seals (HCV 241),

  (3) disrupt RCS letdown to CVCS (TCV 202, LCV-101-1, LCV-101-2),

  (4) damage the Nuclear Detector instrumentation (HCV-467A/C),

  (5) cause level fluctuation in the SIT level (HCV-2916, HCV-2936, HCV-2956, HCV-2976), and

  (6) cause loss of the Steam Generator Blowdown (HCV-1387A and HCV-1388A).

  The ripple effect caused by the exercise stroking of PCV-1849A/B would be detrimental during power operation or when in Cold Shutdown with RCS temperature greater than 130°F and not depressurized.

- Alternate Testing:

  These valves will be stroke-timed in the closed direction during Cold Shutdown when the RCS temperature is less than 130°F with RCPs off and the RCS depressurized.

31. Frequency Justification Number J31 - Cold Shutdown Justification

- Components:

  HCV-2506A, HCV-2506B, HCV-2507A, HCV-2507B

- Function:

  Steam Generator Blowdown Sample Isolation Valves

- Class:

  2

- Test Requirements:

  Quarterly Stroke-Timing in the Closed Direction

- Basis for Justification:

  These valves serve to isolate Steam Generator Blowdown sampling lines. These valves cannot be Quarterly stroke-timed during power operation because doing so would terminate blowdown sample line flow. The Steam Generator blowdown activity monitor is on the sample line. Technical Specification 2.9(1)e requires that blowdown activity shall be continuously monitored by the Steam Generator blowdown sample monitoring system when blowdown is occurring. Steam generator blowdown is a continuous function at the FCS. Partial-stroking cannot be performed since these valves are either fully opened or fully closed.

- Alternate Testing:

  These valves will be stroke-timed in the closed direction during Cold Shutdown.

32. **Frequency Justification Number J32 - Cold Shutdown Justification**

- Component:

  HCV-2987, IA-HCV-2987-C

- Function:

  High Pressure Safety Injection Alternate Header Isolation Valve, Instrument Air Accumulator Check Valve

- Class:

  2 (HCV-2987)
  3 (IA-HCV-2987-C)

- Test Requirements:

  Quarterly Stroke-Timing in Both the Open and Closed Direction (HCV-2987). Quarterly Full Flow Exercising in the Open and Closed Directions (IA-HCV-2987-C).

- Basis for Justification:

  Valve HCV-2987 closes to provide a Long Term Core Cooling (LTCC) flow path. It cannot be Quarterly stroke-timed during power operation because failure in a non-conservative position would block one of the Safety Injection flow paths. This could cause the plant to enter into an LCO and cause undue cycling of plant equipment. The IA accumulator check valve cannot be exercised Quarterly during power operation as exercising of this check valve will cause cycling of the process valve.

- Alternate Testing:

  This valve will be stroke-timed both in the open and closed directions during Cold Shutdowns. The IA accumulator check valve will be exercised in the open and closed directions during Cold Shutdown.

33. **Frequency Justification Number J33 - Cold Shutdown Justification**

- Components:

  IA-HCV-238-C, IA-HCV-239-C

- Function:

  Instrument Air Supply Check Valves

- Class:

  3

- Test Requirements:

  Quarterly Full-Stroke Exercising in Both the Open and Closed Directions

- Basis for Justification:

  These valves are check valves on IA accumulators attached to HCV-238 and HCV-239, which are located inside the Containment. The process valves (HCV-238 and HCV-239) are remotely stroke-tested in both the open and closed directions Quarterly, but due to inaccessibility during power operation, the check valves are not able to be tested.

- Alternate Testing:

  These check valves will be exercised in the open and closed directions at Cold Shutdown.

34. Frequency Justification Number J34 - Cold Shutdown Justification

- Components:

  IA-HCV-385-C, IA-HCV-386-C

- Function:

  Instrument Air Supply Check Valves

- Class:

  3

- Test Requirements:

  Quarterly Full-Stroke Exercising in Both th Open and the Closed Direction.

  Basis for Justification:

  These valves are check valves on IA accumulators attached to HCV-385 and HCV-386 (Safety Injection Mini Flow Bypass Isolation Valves). The process valves (HCV-385 and HCV-386) are remotely stroke-tested Quarterly. The test methodology for the IA accumulator check valves requires the process valves to be closed greater than one hour each. This isolates the SI miniflow recirculation line, which, if the SI pumps start, could cause these pumps to operate at shutoff head. Therefore, the check valves are not able to be tested Quarterly. Running the SI pumps at shutoff head could cause the pumps to overheat and cavitate. Prolonged closure of these valves could cause equipment damage.

- Alternate Testing:

  These valves will be full-stroke exercised in the open and closed directions at Cold Shutdown.

35. **Frequency Justification Number J35 - Refueling Outage Justification**

- Component:

  CH-166

- Functic :

  Volume ' ntrol Tank Outlet Check Valve

- Clas:.

  2

- Test Requirements:

  Quarterly Full-Stroke Exercising in the Closed Direction

- Basis for Justification:

  This check valve serves to prevent a divergent path from the Boric Acid Injection system to the VCT. A divergent path may reduce the concentration of Boric Acid required to be injected into the RCS.

  This check valve cannot be full-stroke exercised in the closed direction Quarterly during power operation or Cold Shutdown. The only flow path through this valve is to the RCS, and would result in injecting highly concentrated boric acid into the RCS. Injecting concentrated boric acid into the RCS during Cold Shutdown could delay reactor startup because of the requirement to establish the proper boron concentration prior to reactor startup. The check valve cannot be partial-stroke exercised closed during power oper. .n or Cold Shutdowns for the same reasons.

- Alternate Testing:

  Valve will be full-stroke exercised in the closed direction during Refueling Outages.

36. Frequency Justification Number J36 - Refueling Outage Justification

- Components:

  SI-135, SI-143, SI-149

- Function:

  Containment Spray Pump Discharge Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction

- Basis for Justification:

  These valves cannot be full-stroke open exercised Quarterly during power operation because the only full flow path is into the CS headers. This would result in the spraying of the equipment in containment, possibly causing equipment damage and requiring extensive cleanup. Also, these valves cannot be partial-stroke exercised during the Quarterly CS pump tests because the minimum flow lines branch off upstream of the check valves and therefore no flow occurs through these valves. Using the discharge tap downstream of the minimum flowlines will overflow the floor drains in the Auxiliary Building potentially creating an increase in radioactive contamination and background radiation levels.

- Alternate Testing:

  Valves will be full-stroke exercised in the open direction during Cold Shutdown when the CS pumps are able to be aligned for shutdown cooling to the Shutdown Cooling Heat Exchangers (< 120°F primary temperature) in accordance with the FCS Technical Specifications.

37. **Frequency Justification Number J37 - Cold Shutdown Justification**

- Components:

  HCV-474

- Function:

  SI Pump SI-1A, SI-1B, SI-2A, SI-2B, SI-2C, Containment Spray Pumps SI-3A, SI-3B and SI-3C, Bearing Cooler CCW Isolation Valve

- Class:

  3

- Test Requirements:

  Quarterly Stroke-Timing in the Open Direction

- Basis for Justification:

  This valve serves to isolate Component Cooling Water (CCW) from the SI and CS pump bearing coolers. This valve cannot be Quarterly stroke-timed during power operation because failure of this valve in a non-conservative position would render the SI and Containment spray pumps inoperable. Should the CCW to bearing coolers fail, the LCO in Technical Specification 2.01 would be entered and could result in a forced plant shutdown. This valve cannot be partial stroked because it is either fully open or fully closed.

- Alternate Testing Methodology:

  Valve HCV-474 shall be stroke-timed in the open direction during Cold Shutdown.

38. **Frequency Justification Number J33 - Cold Shutdown Justification**

- Components:

  IA-PCV-6680A-1-C, IA-PCV-6680A-2-C, IA-PCV-6680B-1-C, IA-PCV-6680B-2, and IA-PCV-6682-C

- Function:

  These check valves are Instrument Air su header check valves for dampers PCV-6680A-1, PCV-6680A-2, PC B-1, PCV-6680B-2, and PCV-6682 (Control Room HVAC dampers

- Class:

  3

- Test Requirements:

  Quarterly Full Flow Exercising in the Closed Direction

- Basis for Justification:

  These valves cannot be exercised Quarterly during power operation, as exercising these check valves will cause isolation of the Control Room (CR) air filtration dampers. Failure of the CR air filtration dampers in a non-conservative position would cause the CR filtration system to be inoperable. This would require the plant to be in Cold Shutdown per Technical Specification 2.12. Failure of the dampers in the OPEN position would not allow the CR to be isolated during a toxic gas release. This would result in entry into Technical Specification 2.01.

- Frequency Testing:

  Check valves will be full flow exercised in the closed direction during Cold Shutdown.

39. **Frequency Justification Number J39 - Refueling Outage Justification**

- Components:

  HCV-1041B, HCV-1042B

- Function:

  Main Steam Stop Check (Reverse Flow) Valve.

- Class:

  2

- Test Requirements:

  Quarterly Reverse Full Flow Test Exercise

- Basis for Exception from O&M Part 10, Subsection 4.3.2.4:

  These check valves are swing type check valves which are installed to provide a positive isolation of the Steam Generators. If Main Steam header pressure is greater than Steam Generator pressure, the check valves prevent reverse back flow into a faulted Steam Generator. These check valves cannot be exercised Quarterly during power operation because doing so would cause steam to be isolated to the Main Steam header, causing the turbine to trip and resulting in a reactor trip. It is impractical to reverse flow test these check valves during Cold Shutdown; to do so would require the downstream side of the valves to have reverse flow sufficient to close the ~600 pound; 28 inch disk. To close these disks would require extensive modifications to the secondary side of the Main Steam system to permit sufficient ΔP to close the valve disks. Another method would be to fill the downstream side of the valve disks with fluid. To do this would require extensive piping and support modifications because of excessive loading on the Main Steam piping. To perform any type of successful reverse flow test on these check valves would require extensive plant modifications and manpower, and would subject the Main Steam system to potentially detrimental conditions, without providing a commensurate increase in public safety or check valve reliability.

- Alternate Testing:

  Check Valves HCV-1041B and HCV-1042B will be alternately disassembled and inspected one each Refueling Outage. Sample disassembly of these check valves is in accordance with O&M Part 10 and the NRC guidelines established in Generic Letter 89-04, Attachment 1, Position 2. For an 18-month refueling cycle, this method of sample disassembly and inspection ensures that each check valve is disassembled and inspected at least once every three years.

APPENDIX 2B

JUSTIFICATION FOR EXCEPTION TO ASME SECTION XI O&M PARTS 1 AND 10 CODES FOR VALVES

JUSTIFICATION FOR EXCEPTION TO ASME SECTION XI/O&M PARTS 1 AND 10 CODES FOR VALVES

This section provides justification for the exceptions taken to Code test requirements as allowed for in 10CFR50.55a(g)(5)(iii). Each Code exception is identified by a unique number and identifies the valve(s) for which the Code exception is being taken. The specific Code test requirement found to be impractical is defined and the basis for exclusion from Code requirements is presented. Any testing performed in lieu of Code requirements is specified. Two types of justifications are provided. The first is general in nature and pertain to Code requirements found to be impractical for numerous valves. The second type is used to justify Code exceptions for specific valves. Code exceptions for specific valves are numbered (Ex) and referenced by number on the Valve Test Program Matrix Table 2.1 for specific valves.

General: Code Exception Number G1

- Components:

  Category C Thermal Relief Valves

- Function:

  Thermal relief valves on safety related systems

- Class:

  1, 2, and 3

- Test Requirements:

  O&M Part 1 Subsection 1.1 Scope

- Basis for Exception from O&M Part 1, Subsection 1.1:

  The O&M Code Part 1 provides general requirements for periodic performance testing and monitoring of pressure relief devices utilized in nuclear power plant systems which are required to perform a specific function in shutting down a reactor or in mitigating the consequences of an accident. Thermal relief valves will not be tested in accordance with O&M Part 1 guidance as part of the FCS ISI Program Plan, as FCS has determined that the thermal relief valves do not fully meet the intent of the scope of O&M Part 1. Many safety related systems, particularly those with heat exchangers, have been provided with relief valves. These relief valves are thermal relief valves of small capacity intended to relieve pressure due to a thermal expansion of fluid in a "bottled-up" condition, which is considered a self-limiting transient. Experience has shown that failure of these valves will not result in a failure of the system to fulfill its safety function. Thus, most thermal relief valves are not considered to perform a function "important to safety", and as such have not been included in the FCS ISI Program Plan.

- Alternate Testing:

  Tests and test frequency for thermal relief valves will be controlled under the FCS Preventive Maintenance (PM) Program and be conducted in a similar manner as the FCS ISI Program Plan.

1. **Code Exception Number E1 - Relief Request**

- Components:

  SI-139, SI-140

- Function:

  SIRWT Discharge Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction and Leakage Testing Once Every Two Years

- Basis for Exception from O&M Part 10, Subsection 4.2.1.2:

  These check valves function to prevent backflow to the Safety Injection and Refueling Water Tank (SIRWT). These check valves are located in the lines leading from the SIRWT to the suctions of the Containment Spray (CS) pumps, the Low Pressure Safety Injection (LPSI) pumps and the High Pressure Safety Injection (HPSI) Pumps. The check valves under certain accident conditions must open sufficiently to provide design basis flow to all of these pumps. Because of this requirement the system design full-stroke exercising of these check valves Quarterly or during Cold Shutdowns cannot be performed. During power operation, no full flow path exists for the combination of pumps because the HPSI and LPSI pumps cannot overcome the RCS pressure, and the CS system cannot be permitted to spray down the Containment. No full flow path is available during Cold Shutdowns because operating the HPSI pumps could create a low-temperature overpressurization condition in the RCS. CS cannot be used because the Containment would be sprayed down. Additionally it is not possible to achieve the maximum design accident flow through the check valves during full flow exercising.

1. Code Exception Number E1 - Relief Request (Continued)

The corrective maintenance history of these two check valves has been limited to gasket/bolt/nut replacements since installation. In addition, the check valves are 20 inch stainless steel Mission-Duochek type valves which see very little flow during normal operations. OPPD has previously disassembled and inspected each of these check valves once with the results being that the check valves were "like new". The industry has experienced no failures with these type of check valves in similar applications at other facilities. The disassembly and subsequent inspection of these valves requires unnecessary radiation exposure as well as creating significant (i.e., > 50 gallons) liquid radwaste requiring disposal. Also, frequent disassembly and reassembly of the valves (i.e., every Refueling Outage) introduces unnecessary potential for valve failure due to damage caused by maintenance without providing a commensurate increase in plant safety or check valve reliability.

Alternate Testing:

OPPD will require Check valves SI-139 and SI-140 to be alternately disassembled and inspected every other Refueling Outage. This sample disassembly of these check valves is in accordance with the NRC guidelines established in Generic Letter 89-04, Attachment 1, Position 2. This method of sample disassembly and inspection will ensure that each check valve is disassembled and inspected at least once every six years and will help to maintain personnel exposure ALARA, while at the same time providing reasonable assurance that integrity, quality and the ability to detect component degradation are maintained.

2. **Code Exception Number E2 - Relief Request**

- Components:

  SI-159, SI-160

- Function:

  Containment Recirculation Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction

- Basis for Exception from O&M Part 10, Subsection 4.2.1.2:

  These valves function to prevent backflow to the Containment lower level. These valves are backed up by motor operated isolation valves HCV-383-3 and HCV-383-4 which are normally closed, fail-as-is, and open only upon receipt of a containment Recirculation Actuation Signal (RAS). Due to system design, these valves cannot be partial-stroke or full-stroke exercised open during power operation, Cold Shutdown or Refueling Outage because the Containment sump is normally dry and there is no flow path available for testing. Full-stroke exercising these valves open requires that the Containment sump be filled with water and provided with a source of makeup water in addition to operating the CS pumps and the HPSI pumps at rated capacity. Therefore, system configuration renders flow testing of these valves impractical.

  The corrective maintenance history of these two check valves has been limited to gasket/bolt/nut replacements since installation. In addition, the check valves are 24 inch stainless steel Mission-Duochek type valves which see no flow during normal operations. OPPD has previously disassembled and inspected each of these check valves with the results being that the check valves were "like new". The industry has experienced no failures with this type of check valves in similar applications at other facilities. The disassembly and subsequent inspection of these valves requires unnecessary radiation exposure as well as creating significant (i.e., > 50 gallons) liquid radwaste requiring disposal, with minimal benefits. Also, frequent disassembly and reassembly of the valves (i.e., every Refueling Outage) introduces unnecessary potential for valve failure due to damage caused by maintenance without providing a commensurate increase in plant safety or check valve reliability.

2. **Code Exception Number E2 - Relief Request (Continued)**

- Alternate Testing:

  OPPD will require Check valves SI-159 and SI-160 to be alternately disassembled and inspected every other Refueling Outage. This sample disassembly of these check valves is in accordance with the NRC guidelines established in Generic Letter 89-04, Attachment 1, Position 2 with the exception of partial-stroke exercising. This method of sample disassembly and inspection will ensure that each check valve is disassembled and inspected at least once every six years and will help to maintain personnel exposure ALARA, while at the same time providing reasonable assurance that the integrity, quality and the ability to detect component degradation is maintained.

3. **Code Exception Number E3- Relief Request**

- Components:

  SI-175, SI-176

- Function:

  Containment Spray Header Check Valves

- Class:

  2

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction

- Basis for Exception from O&M Part 10, Subsection 4.2.1.2:

  These check valves are located inside Containment. These valves cannot be full-stroke or partial-stroke exercised open using system flow during any plant operating conditions because the only flow path is into the CS headers and would result in spraying down the Containment, causing equipment damage and requiring extensive cleanup.

  The corrective maintenance history of these two check valves has been limited to gasket/bolt/nut replacements since installation. In addition, the check valves are 12 inch stainless steel Mission-Duochek type valves which see no flow during normal operations. OPPD has previously disassembled and inspected each of these check valves with the results being that the check valves were "like new". The industry has experienced no failures with this type of check valves in similar applications at other facilities. The disassembly and subsequent inspection of these valves requires unnecessary radiation exposure with minimal benefits. Also, frequent disassembly and reassembly of the valves (i.e., every Refueling Outage) introduces unnecessary potential for valve failure due to damage caused by maintenance without providing a commensurate increase in plant safety or check valve reliability.

- Alternate Testing:

  Check valves SI-175 and SI-176 will be alternately disassembled every other refueling outage. The sample disassembly of these check valves is in accordance with the NRC guidelines established in Generic Letter 89-04, Attachment 1, Position 2 with the exception of partial-stroking. This method of sample disassembly and inspection will ensure that each check valve is disassembled and inspected at least once every six years and will help to maintain personnel exposure ALARA, while at the same time providing reasonable assurance that the integrity, quality and the ability to detect component degradation is maintained.

4. **Code Exception Number E4 - Relief Request**

- Components:

  SI-207, SI-208, SI-211, SI-212, SI-215, SI-216, SI-219, SI-220

- Function:

  Safety Injection Tank (SIT) Check Valves

- Class:

  1

- Test Requirements:

  Quarterly Full Flow Exercising in the Open Direction
  Quarterly Full Flow Exercising in the Closed Direction and Leak Testing during Cold Shutdown

- Basis for Exception from O&M Part 10, Subsection 4.2.1.2:

  These valves cannot be exercised during power operation because a flow path does not exist due to the higher RCS pressure. The Safety Injection Tank pressure is less than RCS pressure during power operation. Also, these check valves cannot be exercised during Cold Shutdowns because the RCS does not contain sufficient volume to accept the flow required and a low temperature overpressure condition of the RCS could result.

- Alternate Testing:

  Check Valves will be full-stroke exercised in the open direction during Refueling Outages by "dumping" the Safety Injection Tanks to the Reactor Vessel. Test parameters such as SI tank level decrease vs. time, SI tank pressure, valve differential pressure, flow rate etc. are used to determine a flow coefficient. The minimum flow coefficient was determined using the safety analysis data provided by the NSSS vendor. Comparing this minimum flow coefficient as acceptance criteria to the flow coefficient determined by testing, assures FCS the valve is able to perform its safety function. This method of testing the check valves complies with the guidance provided in Generic Letter 89-04, Attachment 1, Position 1. Additionally, valves SI-208, SI-212, SI-216 and SI-220 will be partial-stroke exercised at Cold Shutdown frequency in the open direction using Shutdown Cooling flow.

5. Code Exception Number E5 - Relief Request

- Components:

CONTAINMENT PENETRATION NUMBER	VALVE NUMBER
M-2	HCV-204, *TCV-202
M-7	HCV-206, *HCV-241
M-8	*HCV-506A, HCV-506B
M-11	*HCV-467C, HCV-467D
M-14	*HCV-507A, HCV-507B
M-15	*HCV-467A, HCV-467B
M-18	*HCV-438C, HCV-438D
M-19	*HCV-438A, HCV-438B
M-20	HCV-500A, *HCV-500B
M-22	*HCV-2916, *HCV-2936, *HCV-2956, *HCV-2976, HCV-2983, *PCV-909, *PCV-2929, *PCV-2949, *PCV-2969, SI-185
M-24	*HCV-509A, HCV-509B
M-25	*HCV-508A, HCV-508B
M-30	*HCV-882, VA-289
M-39	*HCV-425A, HCV-425B
M-42	HCV-2603A, *HCV-2603B
M-43	*HCV-2604A, HCV-2604B
M-45	*HCV-2504A, HCV-2504B
M-53	*HCV-425C, HCV-425D
M-69	*HCV-881, VA-280
M-73	*PCV-1849A, PCV-1849B
M-79	*HCV-1560A, HCV-1560B
M-80	*HCV-1559A, HCV-1559B
M-87	*PCV-742A, PCV-742B
M-88	*PCV-742C, PCV-742D

* Valve is tested in the reverse direction

- Function:

Containment Isolation Valves

- Class:

2

- Test Requirements:

Valve Leak Test once every two years.

5. Code Exception Number E5 - Relief Request (Continued)

- Basis for Justification:

  These valves are tested in accordance with 10CFR50, Appendix J by pressurizing between the valves as permitted by IWV-3424(b), versus pressurizing the valves in the same direction as when the valves are performing their function as noted in IWV-3422. The valves cannot be tested in the direction of their design function due to system configuration, without extensive modifications to the piping system adjacent to each valve. These valves must be tested in pairs. Testing of these valves in the reverse direction results in higher leakage rates than testing in the accident direction. This is a more conservative approach to testing. Testing between the valves does not allow leak rate trending by valve.

- Alternative Testing:

  The valves marked with an asterisk will be leak tested in the direction opposite to the design function but in accordance with 10CFR50, Appendix J. Leak rates will be measured, recorded and trended by penetration.

6. Code Exception L6 - Periodic Testing of Relief Valves

- Components:

  FW-1525

- Function:

  Auxiliary Feedwater Pump Oil Cooler Relief Valve

- Class:

  3

- Test Requirements:

  A Minimum of 20% of Each Type and Manufacture Shall be Tested Within any 48 Months.

- Basis for Exception from O&M Part 1 Subsection 1.3.5(b):

  The relief valve is the only one of its type and manufacturer in its respective group. The intent of the Code is that all Class 3 relief valves be tested at least once every ten years (Reference O&M Part 1, Subsection 1.3.5(b)). This intent will be met. The current Refueling Outage frequency is 18 months. A review of historical maintenance records reveals that there have been no maintenance problems which justify testing the relief valve every other refueling outage. The scope of O&M Part 1 is to verify valve operability and detect any degradation in valve performance.

- Alternate Testing:

  The relief valve will be tested every third refueling outage.

PART 3: CLASS 1, CLASS 2, AND CLASS 3 PUMP TESTS

3.1. Program Summary

The Inservice Testing (IST) Program for ASME Class 1, 2 and 3 pumps was developed in accordance with and meets the requirements of ASME Operation and Maintenance of Nuclear Power Plants (O&M) 1987 Edition, 1988 Addenda. The IST for pumps will remain in effect for the remainder of the 120-month interval which began on September 26, 1993. The Program will be reviewed and updated, as appropriate, with that Edition of the Code in effect not more than 12 months prior to the start of the next 120-month interval.

The function of each pump in the Program is described in Section 3.8. Section 3.9 contains individual pump test requirements and exceptions to the Code (Table 3.1), as well as the codes used in the Table. Appendix 3A contains justifications for exceptions taken to the Code test requirements as provided for in 10CFR50.55a(g)(5)(iii). Justifications are general in nature and pertain to requirements found to be impractical. Code exceptions are numbered and referenced by number on the Pump Test Program Table 3.1.

3.2 Scope and Responsibility

3.2.1 The P&IDs of Part 4 identify the location of each Class 1, Class 2, and Class 3 pump.

3.2.2 Class 1, Class 2, and Class 3 pumps are to be tested in accordance with Part 6 of the O&M Manual. The test methods for each pump, and exceptions to the tests of O&M Part 6, are found in Appendix 3A.

3.3 Inservice Test Frequency

The inservice test frequency for Class 1, Class 2, and Class 3 pumps are in accordance with Part 6 of the O&M Manual, with exceptions as found in Table 3.1 and Appendix 3A.

3.4 Test Methods

The methods to be used to test Class 1, Class 2, and Class 3 pumps have been determined from Part 6 of the O&M manual. These methods, along with exceptions, are listed in Table 3.1 and Appendix 3A.

3.5 Evaluation of Test Results

The allowable ranges of test results shall be in accordance with Table 3 of Part 6 of the O&M Manual, as appropriate. All test data shall be analyzed within 96 hours after completion of a test in accordance with Part 6 of the O&M Manual.

If test data show that a pump is operating in the "Alert Range", remedies shall be taken, as required in accordance with O&M Part 6, until corrective action is taken. If the test data show that a pump is operating in the "Required Action Range," the pump shall be declared inoperable until corrective action is taken. Corrective action is defined as one or more of the following steps:

a. Recalibrate the applicable instruments and reperform the test, or

b. Repair or replace the component as required, or

c. Perform an Engineering Analysis to demonstrate that the pump is still able to perform its required safety design function.

3.6 Records and Reports

Records and reports for the testing of Class 1, Class 2, and Class 3 pumps shall be made in accordance with Part 6, Subsection 7, of the O&M Manual.

3.7 Repair Requirements

Tests, after pump replacement, repair or servicing, shall be made as required by O&M Part 6, Subsection 4.4

3.8. Function of Pumps in the Program

3.8.1 Auxiliary Feedwater (AFW) Pumps

FW-6 and FW-10 are the motor driven and the steam driven AFW pumps respectively. They supply makeup water to the Steam Generators during startup/shutdown condition. Subsequent to an automatic initiation signal when normal feedwater flow is unavailable, they supply water to the Steam Generators.

3.8.2 Component Cooling Water (CCW) Pumps

AC-3A, AC-3B and AC-3C are the three CCW Pumps. They supply cooling water to safety related components in the Containment and Auxiliary Buildings, including components containing radioactive or potentially radioactive fluids. They provide cooling water to Containment air coolers and the Control Room air conditioning units during both normal and accident conditions. In the event of a design basis accident, these pumps provide sufficient cooling water to the Engineered Safeguards equipment. Additionally, they supply cooling water to components to support normal plant operation, and to remove heat from the RCS via the Shutdown Cooling Heat Exchangers during normal plant cooldowns.

3.8.3 Raw Water Pumps

AC-10A, AC-10B, AC-10C and AC-10D are the four Raw Water Pumps. They supply cooling water to the CCW Heat Exchangers. They also supply cooling water directly to select safety related components in the event the CCW System is unavailable. Additionally, they supply water to the Demineralized Water System.

3.8.4 Safety Injection Pumps

SI-1A and SI-1B are the two LPSI Pumps. They inject borated water into the reactor coolant system following a LOCA. Additionally, they serve as Shutdown Cooling pumps by supplying water to the Shutdown Cooling Heat Exchangers for removal of residual heat during normal plant cooldown.

SI-2A, SI-2B and SI-2C are the three HPSI Pumps. They inject borated water into the reactor coolant system following a LOCA. Additionally, they are used to maintain the required water level in the Safety Injection Tanks.

SI-3A, SI-3B and SI-3C are the three CS Pumps. They spray borated water into the Containment to remove energy from the Containment vapor space after the initiation of a pressurization event in containment. Although there is a possibility of physically aligning the CS Pumps for Shutdown Cooling, that alignment should only be considered when the RCS is below 120°F and the RCS is vented to the Containment atmosphere with the vent area equivalent to a twelve-inch diameter pipe.

3.8.5 Chemical Volume and Control Pumps

CH-1A, CH-1B and CH-1C are the three Charging Pumps. CH-4A and CH-4B are the two Boric Acid Pumps. These five pumps inject concentrated borated water into the RCS under emergency conditions. These pumps also serve several non-safety related functions.

3.8.6 Diesel Generator Fuel Oil Transfer Pumps

FO-4A-1, FO-4A-2 and FO-4B-1, FO-4B-2 are the four Diesel Generator Fuel Oil Transfer Pumps. They take suction from the underground fuel oil storage tank and transfer fuel oil to the wall mounted auxiliary tanks.

3.9 Pump Test Program Table (Table 3.1)

This section provides a tabulation of all safety related pumps, both those pumps that are tested in accordance with the requirements of O&M Manual Part 6, and those pumps for which the Code requirements have been found to be impractical.

3.10 Additions to Program - Pumps

Pumps added to the ISI Program Plan as a result of plant/system modifications, engineering changes or re-evaluation of component eligibility requirements as per O&M Manual, Part 6, are considered operable based on interim acceptance criteria (established by construction or preoperational tests) until a reference value is able to be established.

TABLE FORMAT
FORT CALHOUN STATION PUMP TEST PROGRAM MATRIX TABLE 3.1

The Pump Test Program Table has been coded to provide the following information:

1. **System and Drawing Number** - System the pump is in and the P&ID number.

2. **Coordinates** - Location on the P&ID where the pump is found.

3. **Pump Number** - Unique number assigned to each pump.

4. **Speed n** - This parameter is addressed with one of the following entries, which indicate test applicability, interval, or Code exception number respectively.

   - NR - Not Required
   - Q - Quarterly Test
   - E1, E2, E3, E4 - Code Exception Number

5. **Inlet Pressure P_i** - Same as number 4.

6. **Differential Pressure ΔP** - Same as number 4.

7. **Flow Rate Q** - Same as number 4.

8. **Vibration Amplitude V** - Same as number 4.

   V_d - Displacement (peak-peak)
   V_v - Velocity (peak)

9. **Discharge Pressure (P)** - Same as number 4.

10. **Code Exceptions** - If the pump is being tested in accordance with O&M Part 6 requirements, this column will be blank. However, for pumps which the O&M Part 6 requirements have been found to be impractical, a reference number is entered in this column. The reference number is addressed in Appendix 3A with a complete explanation of the specific exception and justification for that exception.

FORT CALHOUN NUCLEAR POWER STATION UNIT NO.1
PUMP TEST PROGRAM TABLE 3.1

SYSTEM & DRAWING NUMBER	COORDINATES	PUMP NUMBER	SPEED n*	INLET PRESSURE (P_1)	DIFFERENTIAL PRESSURE (ΔP)	FLOW RATE (Q)	VIBRATION DISPLACEMENT (V_d) Velocity (V_v)+	DISCHARGE PRESSURE (P) **	EXCEPTIONS
AUX. FEEDWATER 11405-M-253 SHEET 4	C-6 B-5	FW-6 FW-10	NR Q	Q Q	Q Q	Q Q	Q Q	Q Q	
COMPONENT COOLING WATER 11405-M-10 SHEET 2	E-6 D-6 C-6	AC-3A AC-3B AC-3C	NR NR NR	Q Q Q	Q Q Q	Q Q Q	Q Q Q	Q Q Q	
R.W WATER 11405-M-100	A-7 A-6 A-5 A-4	AC-10A AC-10B AC-10C AC-10D	NR NR NR NR	E1 E1 E1 E1	E1 E1 E1 E1	Q Q Q Q	Q Q Q Q	Q Q Q Q	E1 E1 E1 E1
SAFETY INJECTION E-23866-210-130 SHEETS 1 AND 3	B-3 A-3 E-3 C-3 D-5 C-3 D-3 E-3	SI-1A SI-1B SI-2A SI-2B SI-2C SI-3A SI-3B SI-3C	NR NR NR NR NR NR NR NR	E1 E1 E1 E1 E1 E1 E1 E1	E1 E1 E1 E1 E1 E1 E1 E1	E2 E2 E2 E2 E2 E2 E2 E2	Q Q Q Q Q Q Q Q	Q Q Q Q Q Q Q Q	E1, E2 E1, E2 E1, E2, E1, E2 E1, E2, E1, E2 E1, E2 E1, E2
CHEMICAL VOLUME AND CONTROL E-23866-210-120 SHEET 1 OF 2 E-23866-210-121	A-6 C-6 E-6 A-3 B-6	CH-1A CH-1B CH-1C CH-4A CH-4B	NR NR NR NR NR	NR NR NR E1 E1	NR NR NR E1 E1	E3 E3 E3 Q Q	Q Q Q Q Q	Q Q Q Q Q	E3 E3 E3 E1 E1
DIESEL GENERATOR FUEL OIL 11405-M-262 SHEET 1	D-6 C-6 F-6 E-6	FO-4A-1 FO-4B-1 FO-4A-2 FO-4B-2	NR NR NR NR	NR NR NR NR	NR NR NR NR	Q Q Q Q	Q Q Q Q	Q Q Q Q	

* SYNCHRONOUS OR INDUCTION MOTORS DO NOT REQUIRE SPEED CHECK (O&M PART 6, SUBSECTION 4.6.3)

** REQUIRED FOR POSITIVE DISPLACEMENT PUMPS (O&M PART 6, SUBSECTION 5.2 TABLE 2)

\+ VIBRATION DISPLACEMENT (P-P) FOR < 600 RPM, VIBRATION VELOCITY (PEAK) FOR ≥ 600 RPM (O&M PART 6, SUBSECTION 4.6.4 TABLE 3A)

APPENDIX 3A

JUSTIFICATION FOR EXCEPTION TO O&M MANUAL PART 6 FOR PUMPS

APPENDIX 3A

JUSTIFICATION FOR EXCEPTION
TO O&M MANUAL PART 6 FOR PUMPS

1. Code Exception Number E1 - Relief Request

- Components:

  Raw Water Pumps AC-10A, AC-10B, AC-10C, AC-10D
  Low Pressure Safety Injection Pumps SI-1A, SI-1B
  High Pressure Safety Injection Pumps SI-2A, SI-2B, SI-2C
  Containment Spray Pumps SI-3A, SI-3B, SI-3C
  Boric Acid Pumps CH-4A, CH-4B

- Class:

  2
  3

- Test Requirements:

  Measurement of Pump Inlet Pressure and Differential Pressure

Raw Water Pumps

- Basis for Exception O&M Part 6, Subsection 4.6.2.2, 5.2 and Table 2:

  System design does not include instrumentation for direct measurement of inlet and differential pressure.

- Alternate Testing:

  The pump inlet pressure will be calculated based on the river level and the elevation of the pump suction bells. The pump differential pressure will then be calculated based on the measured discharge pressure and the calculated inlet pressure. Since (1) the river provides the required positive pressure at the suction of the pumps, (2) the river level does not change when a pump is started, and (3) at least one pump is usually in service, the calculated inlet pressure prior to starting a pump is the same as with a pump running.

LPSI, HPSI and Containment Spray Pumps

- Basis for Exception from O&M Part 6, Subsections 4.6.2.2, 5.2 and Table 2:

  System design does not include instrumentation for direct measurement of inlet and differential pressure.

- Alternate Testing:

  The LPSI, HPSI and CS pumps take their suction directly from the Safety Injection and Refueling Water Tank and have inlet pressures due to the level of water in the tank above the pump inlets. The pump inlet pressures will be calculated based on the tank level and the difference in elevation between the tank and the pump inlets. Pump differential pressures will then be calculated by subtracting the calculated inlet pressure from the measured discharge pressures. Since the Safety Injection and Refueling Water Tank provides the required positive pressure at the suction of the pumps and since the tank level does not significantly change when a pump is started, the calculated pump inlet pressure prior to starting a pump is the same as with a pump running. Flow losses through the suction piping of these pumps are negligible. Since the losses would be the same from test to test, not including them in the test would still enable pump degradation to be identified.

Boric Acid Pump.

- Basis for Exception for O&M Part 6, Subsections 4.6.2.2, 5.2 and Table 2:

  System design does not include instrumentation for direct measurement of inlet and differential pressure.

- Alternate Testing:

  The Boric Acid Pumps take their suction directly from the Boric Acid Tanks and have an inlet pressure due to the level of acid in the tanks above the pump inlet. The pump inlet pressure will be calculated based on the Boric Acid Storage Tank level and the elevation difference between the tank level and the pump inlet. Pump differential pressure will then be calculated by subtracting the calculated inlet pressure from the measured discharge pressure.

2. **Code Exception Number E2 - Relief Request**

- Components:

  Low Pressure Safety Injection Pumps SI-1A, SB
  High Pressure Safety Injection Pumps SI-2A, B, C
  Containment Spray Pumps SI-3A, B, C

- Class:

  2

- Test Requirements:

  Measurement of Flow Rate Quarterly

Low Pressure Safety Injection Pumps

- Basis for Exception from O&M Part 6, Subsection 5.1 and Table 2:

  The flow rate of the LPSI pumps cannot be measured while they are operating on the minimum flow recirculation line because flow measurement instrumentation is not installed on this line. The pump minimum flow recirculation line must be used when testing these pumps Quarterly during power operation, because the only other flow path is into the RCS. This flow path cannot be utilized because the pump discharge pressure cannot overcome the RCS pressure.

- Alternate Testing:

  In addition to the Quarterly mini-flow test, pump flow rate will be measured on a Cold Shutdown frequency when an instrumented flow path to the RCS is available. This is in accordance with Position 9 (Pump Testing Using Minimum Flow Line With or Without Flow Measuring Devices) of Attachment 1 to the Generic Letter 89-04.

Containment Spray Pumps

- Basis for Exception from O&M Part 6, Subsection 5.1 and Table 2

  The flow rate of the CS Pumps cannot be measured while they are operating on the minimum flow recirculation line because the flow measurement instrumentation is not installed on this line. The pump minimum flow recirculation line must be used when testing these pumps Quarterly during power operation, because the only other flow path is into the Containment spray headers which would result in water damage to equipment in Containment. Additionally, as approved by Amendment 136, Technical Specifications 2.1.1 states that the CS pumps will not be lined up on the shutdown cooling flow path until RCS temperature is below 120°F and a vent path is available. This is due to the fact that the suction side piping is designed to DBA conditions (60 psig) and valves on the suction piping are designed to 150 psig.

- Alternate Testing:

  In addition to the Quarterly mini-flow test, pump flow rate will be measured on a refueling outage frequency when an instrumented flow path to the RCS is available. This is in accordance with Item 9 (Pump Testing Using Minimum Flow Line With or Without Flow Measuring Devices) of Attachment 1 to Generic Letter 89-04.

High Pressure Safety Injection Pumps

- Basis for Exception from O&M Part 6, Subsection 5.1 and Table 2:

  The flow rate of the HPSI pumps cannot be measured while they are operating on the minimum flow recirculation line because the flow measurement instrumentation is not installed on this line. The pump minimum flow recirculation line must be used when testing these pumps Quarterly during power operation, because the only other flow path is into the RCS which cannot be utilized because the pump discharge pressure cannot overcome the RCS pressure.

- Alternate Testing:

  In addition to the Quarterly mini-flow test, pump flow rate will be measured on a refueling outage frequency when an instrumented flow path to the RCS is available. This is in accordance with Position 9 (Pump Testing Using Minimum Flow Line With or Without Flow Measuring Devices) of Attachment 1 to Generic Letter 89-04.

3. **Code Exception Number E3 - Relief Request**

- Components:

  Charging Pumps CH-1A, CH-1B, CH-1C

- Class:

  2

- Test Requirements:

  Any deviations from reference values shall be compared to the limits given in Table 3b of Subsection 6.1 of the O&M Part 6, and the specified corrective action taken.

- Basis for Exception from O&M Part 6, Subsection 6.1 and Table 3b:

  There is no minimum flow rate mentioned in the USAR for the charging pumps. A maximum flow rate of 40 gpm per pump is identified in the post-LOCA long term cooling section of the USAR. The reference flow rate value associated with these pumps is approximately 38 gpm. The charging pumps are positive displacement (reciprocating) type pumps. The flow rates for the charging pumps are established by the geometry of the positive displacement pump. The flow rate is a direct function of the amount of water displaced by the pump plungers with a constant speed pump.

- Alternate Testing:

  The discharge pressure for each pump will be set and recorded, then the flow rate measured Quarterly. The acceptable range for flow will be $35 \leq Q \leq 40$. The "Required Action" range will be < 35 gpm and > 40 gpm. It is not crucial to double the frequency as flow rates approach 35 gpm because there is no minimum required flow rate given in the USAR, and unless instrumentation has drifted out-of-calibration or test conditions have changed, the flow rate should not increase.

PART 4
REFERENCES

1. Fort Calhoun Station Technical Specifications.

2. ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition.

3. ASME/ANSI Operation and Maintenance of Nuclear Power Plants, 1987 Edition, 1988 Addenda.

4. NRC Generic Letter No. 89-04, "*Guidance on Developing Acceptable Inservice Testing Programs*".

5. NRC's Safety Evaluation Report on Revision 3 and 4 of the Fort Calhoun Station's Inservice Inspection/Testing Program Plan (1983-1993), Dated December 22, 1988 and July 3, 1989.

6. NRC's Safety Evaluation Report on Revision 5 of the Fort Calhoun Station's Inservice Inspection/Testing Program Plan (1983-1993), Dated March 13, 1990.

7. ASME Code Cases*

Code Case N-460	Alternative Examination Coverage for Class 1 and Class 2 welds. Approval Date: July 27, 1988
Code Cass N-461	Alternative Rules for Piping Calibration Block Thickness. Approval Date: November 30, 1988
Code Case N-481	Alternative Examination Requirements for Cast Austenitic Pump Casings. Approval Date: March 5, 1990
Code Case N-491	Alternative Rules for Examination of Class 1, 2, 3 and MC Component Supports of Light-Water Cooled Power Plants. Approval Date: March 14, 1991
Code Case N-498	Alternative Rules for Ten-year Hydrostatic Pressure Testing for Class 1 and 2 Systems. Approval Date: May 13, 1991

* Code cases approved by NRC-Reference NRC Regulatory Guide 1.147.

8. The following OPPD Piping and Instrumentation Drawings:

Number	Title
11405-M-1	*Containment Heating Cooling & Ventilating System*
11405-M-5	*Demineralized Water System*
11405-M-6	*Waste Disposal System*
11405-M-7	*Waste Disposal System*
11405-M-10	*Auxiliary Coolant Component Cooling System*
11405-M-12	*Primary Plant Sampling System*
11405-M-13	*Plant Air System*
11405-M-40	*Auxiliary Coolant Component Cooling System Flow*
11405-M-42	*Nitrogen, Hydrogen, Methane, Propane & Oxygen Gas System*
11405-M-98	*Waste Disposal System*
11405-M-100	*Raw Water System*
11405-M-252	*Steam System*
11405-M-253	*Steam Generator Feedwater & Blowdown System*
11405-M-254	*Condensate System*
11405-M-262	*Fuel Oil System*
11405-M-264	*Instrument Air System*
E-23366-210-110	*Reactor Coolant System*
E-23866-210-120	*Chemical & Volume Control System*
E-23866-210-121	*Chemical & Volume Control System*
E-23866-210-130	*Safety Injection & Containment Spray System*
B120F07001	*Diesel Generator Starting Air System*
C-4175	*Control Valve Air Source Valve Lineup/Listing*
D-4078	*Reactor Coolant Gas Vent System*

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE *	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
FW-163	AFW	C	2	M-253-4	F7	CK	C	3	-	-	O	FS	CS	-	J7	
FW-164	AFW	C	2	M-253-4	F8	CK	C	3	-	-	O	FS	CS	-	J7	
FW-173	AFW	C	3	M-253-4	C6	CK	C	4	-	-	O	FS	Q	-	-	
FW-173	AFW	C	3	M-253-4	C6	CK	C	4	-	-	C	FS	Q	-	-	
FW-174	AFW	C	3	M-253-4	C5	CK	C	4	-	-	O	FS	Q	-	-	
FW-174	AFW	C	3	M-253-4	C5	CK	C	4	-	-	C	FS	Q	-	-	
FW-658	AFW	C	3	M-254-2	D5	CK	C	1.5	-	-	C	ME	Q	-	-	MANUALLY EXERCISE
FW-658	AFW	C	3	M-254-2	D5	CK	C	1.5	-	-	O	ME	Q	-	-	MANUALLY EXERCISE
FW-672	AFW	C	3	M-253-4	B6	CK	C	2	-	-	O	FS	Q	-	-	
HCV-1107A	AFW	B	2	M-253-4	F8	GL	A	3	NC	FO	O	ST	Q	Y	-	
HCV-1107B	AFW	B	2	M-253-4	E8	GL	A	3	NC	FO	O	ST	Q	Y	-	
HCV-1108A	AFW	B	2	M-253-4	F7	GL	A	3	NC	FO	O	ST	Q	Y	-	
HCV-1108B	AFW	B	2	M-253-4	E7	GL	A	3	NC	FO	O	ST	Q	Y	-	
FCV-1368	AFW	B	3	M-253-4	C6	GL	A	1	A	FO	O	ST	Q	Y		
FCV-1369	AFW	B	3	M-253-4	B5	GL	A	1	A	FO	O	ST	Q	Y		
FW-1525	AFW	C	3	M-253-4	B4	RL	R	0.75	-	-	T	SP	OM*	-	E6	
CA-555	CA	A	2	M-13	F3	GA	H	4	NO	-	L	LT	2YR.	-	-	APPENDIX J
HCV-1749	CA	A	2	M-13	F4	GL	A	4	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-1749	CA	A	2	M-13	F4	GL	A	4	NC	FC	C	ST	Q	Y	-	
AC-101	CCW	C	3	M-10-2	E6	CK	C	12	-	-	O	FS	Q	-	-	
AC-101	CCW	C	3	M-10-2	E6	CK	C	12	-	-	C	FS	Q	-	-	
AC-104	CCW	C	3	M-10-2	D6	CK	C	12	-	-	O	FS	Q	-	-	
AC-104	CCW	C	3	M-10-2	D6	CK	C	12	-	-	C	FS	Q	-	-	
AC-107	CCW	C	3	M-10-2	C6	CK	C	12	-	-	O	FS	Q	-	-	
AC-107	CCW	C	3	M-10-2	C6	CK	C	12	-	-	C	FS	Q	-	-	
AC-341	CCW	C	3	M-10-2	C3	RL	R	1	-	-	T	SP	OM	-	-	
AC-364	CCW	C	3	M-10-2	D4	RL	R	2	-	-	T	SP	OM	-	-	
HCV-400A	CCW	B	2	M-40-1	C7	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-400B	CCW	B	2	M-40-1	B7	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-400C	CCW	B	2	M-40-1	D2	BL	A	8	NO	FO	O	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE *	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-400D	CCW	B	2	M-40-1	B2	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-401A	CCW	B	2	M-40-1	C7	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-401B	CCW	B	2	M-40-1	B7	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-401C	CCW	B	2	M-40-1	D3	BL	A	8	NO	FO	O	ST	Q	Y	-	
HCV-401D	CCW	B	2	M-40-1	B3	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-402A	CCW	B	2	M-40-1	C6	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-402B	CCW	B	2	M-40-1	B6	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-402C	CCW	B	2	M-40-1	D4	BL	A	6	NO	FO	O	ST	Q	Y	-	
HCV-402D	CCW	B	2	M-40-1	B4	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-403A	CCW	B	2	M-40-1	C5	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-403B	CCW	B	2	M-40-1	B5	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-403C	CCW	B	2	M-40-1	D4	BL	A	6	NO	FO	O	ST	Q	Y	-	
HCV-403D	CCW	B	2	M-40-1	54	BU	A	6	NO	FO	O	ST	Q	Y	-	
HCV-425A	CCW	A	2	M-40-3	C6	GL	A	3	NO	FC	C	ST	CS	Y	J23	
HCV-425A	CCW	A	2	M-40-3	C6	GL	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-425B	CCW	A	2	M-40-1	D1	GL	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-425B	CCW	A	2	M-40-1	D1	GL	A	3	NO	FC	C	ST	CS	Y	J23	
HCV-425C	CCW	A	2	M-40-3	B5	GL	A	3	NO	FC	C	ST	CS	Y	J23	
HCV-425C	CCW	A	2	M-40-3	B5	GL	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-425D	CCW	A	2	M-40-3	B5	GL	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-425D	CCW	A	2	M-40-3	B5	GL	A	3	NO	FC	C	ST	CS	Y	J23	
HCV-438A	CCW	A	2	M-40-2	F8	GL	A	6	NO	FO	C	ST	CS	Y	J24	
HCV-438A	CCW	A	2	M-40-2	F8	GL	A	6	NO	FO	L	LT	2YR.	-	E5	APPENDIX J
HCV-438A	CCW	A	2	M-40-2	F8	GL	A	6	NO	FO	O	ST	CS	Y	J24	
HCV-438B	CCW	A	2	M-40-1	A6	GL	A	6	NO	FO	O	ST	CS	Y	J24	
HCV-438B	CCW	A	2	M-40-1	A6	GL	A	6	NO	FO	L	LT	2YR.	-	E5	APPENDIX J
HCV-438B	CCW	A	2	M-40-1	A6	GL	A	6	NO	FO	C	ST	CS	Y	J24	
HCV-438C	CCW	A	2	M-40-2	F2	GL	A	6	NO	FO	C	ST	CS	Y	J24	
HCV-438C	CCW	A	2	M-40-2	F2	GL	A	6	NO	FO	L	LT	2YR.	-	E5	APPENDIX J
HCV-438C	CCW	A	2	M-40-2	F2	GL	A	6	NO	FO	O	ST	CS	Y	J24	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	VE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-438D	CCW	A	2	M-40-1	A3	GL	A	6	NO	FO	C	ST	CS	Y	J24	
HCV-438D	CCW	A	2	M-40-1	A3	GL	A	6	NO	FO	L	LT	2YR.	-	E5	APPENDIX J
HCV-438D	CCW	A	2	M-40-1	A3	GL	A	6	NO	FO	O	ST	CS	Y	J24	
HCV-467A	CCW	A	2	M-40-3	E3	GL	A	1.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-467A	CCW	A	2	M-40-3	E3	GL	A	1.5	NO	FC	C	ST	CS	Y	J25	
HCV-467B	CCW	A	2	M-40-1	A3	GL	A	1.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-467B	CCW	A	2	M-40-1	A3	GL	A	1.5	NO	FC	C	ST	CS	Y	J25	
HCV-467C	CCW	A	2	M-40-3	E1	GL	A	1.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-467C	CCW	A	2	M-40-3	E1	GL	A	1.5	NO	FC	C	ST	CS	Y	J25	
HCV-467D	CCW	A	2	M-40-1	A2	GL	A	1.5	NO	FC	C	ST	CS	Y	J25	
HCV-467D	CCW	A	2	M-40-1	A2	GL	A	1.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-474	CCW	B	3	M-10-3	F8	GL	A	2	NO	FC	O	ST	CS	Y	J37	
HCV-478	CCW	B	3	M-10-3	D2	BU	A	8	NO	FO	C	ST	Q	Y	-	
HCV-478	CCW	B	3	M-10-3	D2	BU	A	8	NO	FO	O	ST	Q	Y	-	
HCV-480	CCW	B	3	M-10-3	C6	BU	A	14	NO	FO	O	ST	Q	Y	-	
HCV-481	CCW	B	3	M-10-3	B7	BU	A	14	NO	FO	O	ST	Q	Y	-	
HCV-484	CCW	B	3	M-10-3	B4	BU	A	14	NO	FO	O	ST	Q	Y	-	
HCV-485	CCW	B	3	M-10-3	A5	BU	A	14	NO	FO	O	ST	Q	Y	-	
HCV-489A	CCW	B	3	M-10-3	B2	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-489B	CCW	B	3	M-10-2	A6	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-490A	CCW	B	3	M-10-3	B2	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-490B	CCW	B	3	M-10-2	A6	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-491A	CCW	B	3	M-10-3	C2	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-491B	CCW	B	3	M-10-2	B6	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-492A	CCW	B	3	M-10-3	C2	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-492B	CCW	B	3	M-10-2	C6	BU	A	10	NO	FO	O	ST	Q	Y	-	
HCV-2808A	CCW	B	3	M-10-4	E5	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2808B	CCW	B	3	M-10-4	B5	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2809A	CCW	B	3	M-10-4	E4	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2809B	CCW	B	3	M-10-4	B4	GL	A	1.5	NO	FO	O	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-2810A	CCW	B	3	M-10-4	E3	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2810B	CCW	B	3	M-10-4	B3	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2811A	CCW	B	3	M-10-4	E2	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2811B	CCW	B	3	M-10-4	B2	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2812A	CCW	B	3	M-10-4	E1	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2812B	CCW	B	3	M-10-4	B1	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2813A	CCW	B	3	M-10-4	E6	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2813B	CCW	B	3	M-10-4	B6	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2814A	CCW	B	3	M-10-4	E8	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2814B	CCW	B	3	M-10-4	B8	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2815A	CCW	B	3	M-10-4	E7	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
HCV-2815B	CCW	B	3	M-10-4	B7	GL	A	1.5	NO	FO	O	ST	Q	Y	-	
CH-129	CH	C	3	210-121-1	A6	CK	C	3	-	-	O	FS	Q	-	-	CH-4A DISCHARGE
CH-130	CH	C	3	210-121-1	B7	CK	C	3	-	-	O	FS	Q	-	-	CH-4A DISCHARGE
CH-143	CH	C	2	210-121-2	B5	CK	C	3	-	-	O	FS	RO	-	J5	
CH-151	CH	C	2	210-121-2	C7	CK	C	3	-	-	C	FS	Q	-	-	
CH-155	CH	C	2	210-121-2	A5	CK	C	3	-	-	O	FS	RO	-	J5	
CH-156	CH	C	2	210-120-1	E3	CK	C	3	-	-	O	FS	RO	-	J5	
CH-166	CH	C	2	210-120-1	C2	CK	C	4	-	-	C	FS	RO	-	J35	
CH-181	CH	C	2	210-120-1	F7	RL	R	1.5	-	-	T	SP	OM	-	-	
CH-182	CH	C	2	210-120-1	D7	RL	R	1.5	-	-	T	SP	OM	-	-	
CH-183	CH	C	2	210-120-1	B7	RL	R	1.5	-	-	T	SP	OM	-	-	
CH-187	CH	C	2	210-120-1	E7	CK	C	2	-	-	O	FS	Q	-	-	
CH-188	CH	C	2	210-120-1	C7	CK	C	2	-	-	O	FS	Q	-	-	
CH-189	CH	C	2	210-120-1	A7	CK	C	2	-	-	O	FS	Q	-	-	
CH-198	CH	C	2	210-120-1A	B2	CK	C	2	-	-	O	PS	Q	-	J12	
CH-198	CH	C	2	210-120-1A	B2	CK	C	2	-	-	O	FS	RO	-	J12	
TCV-202	CH	A	1	210-120-1A	D4	GL	A	2	A	FC	C	ST	CS	Y	J13	
TCV-202	CH	A	1	210-120-1A	D4	GL	A	2	A	FC	L	LT	2YR.	-	E5	APPENDIX J
CH-203	CH	C	1	210-12	C5	CK	C	2	-	-	O	PS	Q	-	J12	

TABLE 2.1 - PORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
CH-203	CH	C	1	210-120-1A	C5	CK	C	2	-	-	O	FS	RO	-	J12	
CH-204	CH	C	1	210-120-1A	A5	CK	C	2	-	-	O	PS	Q	-	J12	
CH-204	CH	C	1	210-120-1A	A5	CK	C	2	-	-	O	FS	RO	-	J12	
HCV-204	CH	A	2	210-120-2	A7	GL	A	2	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-204	CH	A	2	210-120-2	A7	GL	A	2	NO	FC	C	ST	CS	Y	J13	
CH-205	CH	C	1	210-120-1A	B6	CK	C	2	-	-	O	PS	CS	-	J14	
CH-205	CH	C	1	210-120-1A	B6	CK	C	2	-	-	O	FS	RO	-	J14	
HCV-206	CH	A	2	210-120-1A	E1	GL	A	0.75	NO	FC	C	ST	CS	Y	J15	
HCV-206	CH	A	2	210-120-1A	E1	GL	A	0.75	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
LCV-218-2	CH	B	2	210-120-1	C2	GA	M	4	NO	FAI	C	ST	CS	Y	J16	
LCV-218-3	CH	B	2	210-120-1	E3	GA	M	3	A	FAI	O	ST	CS	Y	J16	
HCV-238	CH	B	1	210-120-1A	D5	GL	A	2	NO	FO	C	ST	Q	Y	-	
HCV-238	CH	B	1	210-120-1A	D5	GL	A	2	NO	FO	O	ST	Q	Y	-	
HCV-239	CH	[illegible]	1	210-120-1A	A5	GL	A	2	NO	FO	O	ST	Q	Y	-	
HCV-239	CH	B	1	210-120-1A	A5	GL	A	2	NO	FO	C	ST	Q	Y	-	
HCV-240	CH	B	1	210-120-1A	B5	GL	A	2	NC	FC	C	ST	CS	Y	J17	
HCV-240	CH	B	1	210-120-1A	B5	GL	A	2	NC	FC	O	ST	CS	Y	J17	
HCV-241	CH	A	2	210-120-1A	E5	GL	A	0.75	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-241	CH	A	2	210-120-1A	E5	GL	A	0.75	NO	FC	C	ST	CS	Y	J15	
HCV-247	CH	B	2	210-120-1A	C5	GL	[illegible]	2	NO	FO	C	ST	Q	Y	-	
HCV-247	CH	B	2	210-120-1A	C5	GL	S	2	NO	FO	O	ST	Q	Y	-	
HCV-248	CH	B	2	210-120-1A	A5	GL	S	2	NO	FO	C	ST	Q	Y	-	
HCV-248	CH	B	2	210-120-1A	A5	GL	S	2	NO	FO	O	ST	Q	Y	-	
HCV-249	CH	B	1	210-120-1A	B5	GL	S	2	NC	FC	O	ST	CS	Y	J17	
HCV-249	CH	B	1	210-120-1A	B5	GL	S	2	NC	[illegible]	C	ST	CS	Y	J17	
HCV-257	CH	B	3	210-121-1	D7	GL	A	2	NO	FC	C	ST	Q	Y	-	
HCV-258	CH	B	3	210-121-1	B5	GA	M	3	NC	FAI	O	ST	Q	Y	-	
HCV-264	CH	B	3	210-121-1	D4	GL	A	2	NO	FC	C	ST	Q	Y	-	
HCV-265	CH	B	3	210-121-1	B3	GA	M	3	NC	FAI	O	ST	Q	Y	-	
HCV-268	CH	B	3	210-121-2	B4	GA	M	3	NC	FAI	O	ST	CS	Y	J18	

TABLE 3.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
FCV-269	CH	B	3	210-121-2	C7	GL	A	3	A	FC	C	ST	Q	Y	-	
CH-469	CH	C	1	210-120-1A	B5	CK	C	2	-	-	O	PS	CS	-	J11	
CH-469	CH	C	1	210-120-1A	B5	CK	C	2	-	-	Q	FS	RO	-	J11	
HCV-1559A	DW	A	2	M-5-2	E5	DI	A	2.5	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-1559A	DW	A	2	M-5-2	E5	DI	A	2.5	NC	FC	C	ST	Q	Y	-	
HCV-1559B	DW	A	2	M-5-2	E5	DI	A	2.5	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-1559B	DW	A	2	M-5-2	E5	DI	A	2.5	NC	FC	C	ST	Q	Y	-	
HCV-1560A	DW	A	2	M-5-2	A4	DI	A	2	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-1560A	DW	A	2	M-5-2	A4	DI	A	2	NC	FC	C	ST	Q	Y	-	
HCV-1560B	DW	A	2	M-5-2	A4	DI	A	2	NC	FC	C	ST	Q	Y	-	
HCV-1560B	DW	A	2	M-5-2	A4	DI	A	2	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
FO-104	FO	C	3	M-262-1	F6	CK	C	1	-	-	C	FS	Q	-	-	
FO-104	FO	C	3	M-262-1	F6	CK	C	1	-	-	O	FS	Q	-	-	
FO-105	FO	C	3	M-262-1	E6	CK	C	1	-	-	C	FS	Q	-	-	
FO-105	FO	C	3	M-262-1	E6	CK	C	1	-	-	O	FS	Q	-	-	
FO-106	FO	C	3	M-262-1	D6	CK	C	1	-	-	O	FS	Q	-	-	
FO-106	FO	C	3	M-262-1	D6	CK	C	1	-	-	C	FS	Q	-	-	
FO-107	FO	C	3	M-262-1	C6	CK	C	1	-	-	O	FS	Q	-	-	
FO-107	FO	C	3	M-262-1	C6	CK	C	1	-	-	C	FS	Q	-	-	
FW-161	FW	C	2	M-253-1	D4	CK	C	16	-	-	C	FS	CS	-	J6	
FW-162	FW	C	2	M-253-1	D6	CK	C	16	-	-	C	FS	CS	-	J6	
HCV-1103	FW	B	N	M-253-1	C3	GA	M	16	NO	FAI	C	ST	CS	Y		
HCV-1104	FW	B	N	M-253-1	E3	GA	M	16	NO	FAI	C	ST	CS	Y		
HCV-1105	FW	B	N	M-253-1	D3	GL	A	6	NC	FC	C	ST	CS	Y		
HCV-1106	FW	B	N	M-253-1	E3	GL	A	6	NO	FC	C	ST	CS	Y		
HCV-1384	FW	B	3	M-253-4	D7	GA	M	4	NC	FAI	O	ST	Q	Y	-	
HCV-1385	FW	B	2	M-253-1	D3	GA	M	16	NO	FAI	C	ST	CS	Y	J28	
HCV-1386	FW	B	2	M-253-1	C6	GA	M	16	NO	FAI	C	ST	CS	Y	J28	
HCV-1387A	FW	B	2	M-253-1	C3	GL	A	2	NO	FC	C	ST	CS	Y	J29	
HCV-1387B	FW	B	2	M-253-1	B3	GL	A	2	NO	FC	C	ST	CS	Y	J29	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-1388A	FW	B	2	M-253-1	C8	GL	A	2	NO	FC	C	ST	CS	Y	J29	
HCV-1388B	FW	B	2	M-253-1	B8	GL	A	2	NO	FC	C	ST	CS	Y	J29	
FW-1443	FW	C	3	M-253-4	B5	RL	R	0.75	-	-	T	SP	OM	-	-	
FW-1444	FW	C	3	M-253-4	B5	RL	R	0.75	-	-	T	SP	OM	-	-	
PCV-1849A	IA	A	2	M-264-1	C8	GL	A	2	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-1849A	IA	A	2	M-264-1	C8	GL	A	2	NO	FC	C	ST	CS	Y	J30	
PCV-1849B	IA	A	2	M-264-1	F5	GL	A	2	NO	FC	L	LT	2YR		E5	APPENDIX J
PCV-1849B	IA	A	2	M-264-1	F5	GL	A	2	NO	FC	C	ST	CS		J30	
IA-HCV-238-C	IA	C	1	C-4175-2	B7	CK	C	0.5	-	-	O	FS	CS		J33	NOTE 3
IA-HCV-238-C	IA	C	1	C-4175-2	B7	CK	C	0.5	-	-	C	FS	CS		J33	NOTE 3
IA-HCV-239-C	IA	C	1	C-4175-2	B7	CK	C	0.5	-	-	O	FS	CS	-	J33	NOTE 3
IA-HCV-239-C	IA	C	1	C-4175-2	B7	CK	C	0.5	-	-	C	FS	CS	-	J33	NOTE 3
IA-HCV-240-C	IA	C	3	C-4175-2	B7	CK	C	0.5	-	-	C	FS	CS	-	J17	NOTE 1
IA-HCV-240-C	IA	C	3	C-4175-2	B7	CK	C	0.5	-	-	O	FS	CS	-	J17	NOTE 1
IA-HCV-344-C	IA	C	N	C-4175-2	D7	CK	C	0.5	-	-	O	FS	CS	-	J21	NOTE1
IA-HCV-344-C	IA	C	N	C-4175-2	D7	CK	C	0.5	-	-	O	FS	CS	-	J21	NOTE 1
IA-A/FIC-383-C	IA	C	3	M-264-4	D3	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 2
IA-A/FIC-383-C	IA	C	3	M-264-4	D3	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 2
IA-B/FIC-383-C	IA	C	3	M-264-4	B3	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 2
IA-B/FIC-383-C	IA	C	3	M-264-4	B3	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 2
IA-C/FIC-383-C	IA	C	3	M-264-4	C3	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 2
IA-C/FIC-383-C	IA	C	3	M-264-4	C3	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 2
IA-D/FIC-383-C	IA	C	3	M-264-4	A3	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 2
IA-D/FIC-383-C	IA	C	3	M-264-4	A3	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 2
IA-LCV-383-1-C	IA	C	3	C-4175-2	N/A	CK	C	0.375	-	-	C	FS	Q	-	-	NOTE 1
IA-LCV-383-1-C	IA	C	3	C-4175-2	D7	CK	C	0.375	-	-	C	FS	Q	-	-	NOTE 1
IA-LCV-383-2-C	IA	C	3	C-4175-2	D7	CK	C	0.375	-	-	C	FS	Q	-	-	NOTE 1
IA-LCV-383-2-C	IA	C	3	C-4175-2	D7	CK	C	0.375	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-385-C	IA	C	3	C-4175-2	D7	CK	C	0.5	-	-	O	FS	CS	-	J34	NOTE 1
IA-HCV-385-C	IA	C	3	C-4175-2	D7	CK	C	0.5	-	-	C	FS	CS	-	J34	NOTE 1

TABLE 2.1 - PORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
IA-HCV-386-C	IA	C	3	C-4175-2	D7	CK	C	0.5	-	-	O	FS	CS	-	J34	NOTE 1
IA-HCV-386-C	IA	C	3	C-4175-2	D7	CK	C	0.5	-	-	C	FS	CS	-	J34	NOTE 1
IA-HCV-400A-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-400A-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-400B-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-400B-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-400C-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-400C-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-400D-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-400D-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401A-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401A-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-401B-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-401B-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401C-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401C-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-401D-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-401D-TV	IA	C	3	C-4175-2	D3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402A-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-402A-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402B-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-402B-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402C-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-402C-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402D-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-402D-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-403A-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-403A-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-403B-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-403B-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
IA-HCV-403C-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-403C-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-403D-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-403D-TV	IA	C	3	C-4175-2	C3	CK	C	0.25	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-438B-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	CS	-	J24	NOTE 1
IA-HCV-438B-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	CS	-	J24	NOTE 1
IA-HCV-438D-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	CS	-	J24	NOTE 1
IA-HCV-438D-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	CS	-	J24	NOTE 1
IA-YCV-1045A-C	IA	C	3	C-4175-2	F7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-YCV-1045A-C	IA	C	3	C-4175-2	F7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-YCV-1045B-C	IA	C	3	C-4175-2	B7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-YCV-1045B-C	IA	C	3	C-4175-2	B7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2850-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-2850-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2851-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-2851-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2852-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2852-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-2853-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	O	FS	Q	-	-	NOTE 1
IA-HCV-2853-C	IA	C	3	C-4175-2	E7	CK	C	0.5	-	-	C	FS	Q	-	-	NOTE 1
IA-HCV-2987-C	IA	C	3	C-4175-2	E7	CK	C	0.375	-	-	O	FS	CS	-	J32	NOTE 1
IA-HCV-2987-C	IA	C	3	C-4175-2	E7	CK	C	0.375	-	-	C	FS	CS	-	J32	NOTE 1
IA-PCV-6680A-1-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-PCV-6680A-2-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-PCV-6680B-1-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-PCV-6680B-2-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-PCV-6682-C	IA	C	3	P-49323	N/A	CK	C	0.5	-	-	C	FS	CS	-	J38	NOTE 4
IA-3092	IA	A	2	M-264-4	B5	DI	H	0.5	-	-	L	LT	2YR.	-	-	APPENDIX J
IA-3093	IA	A	2	M-264-4	B5	DI	H	0.5	-	-	L	LT	2YR.	-	-	APPENDIX J
IA-3094	IA	A	2	M-264-4	B5	DI	H	0.5	-	-	L	LT	2YR.	-	-	APPENDIX J

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
PCV-1849A-20B	IA	A	2	M-264-1	D8	GL	S	0.5	O	FC	C	LT	2YR.	-	-	APPENDIX J
PCV-1849A-20A	IA	A	2	M-264-1	D8	GL	S	0.5	O	FC	C	LT	2YR.	-	-	APPENDIX J
MS-275	MS	C	2	M-252-1	F8	RL	R	6	-	-	T	SP	RO	-	-	
MS-276	MS	C	2	M-252-1	F8	RL	R	6	-	-	T	SP	RO	-	-	
MS-277	MS	C	2	M-252-1	F7	RL	R	6	-	-	T	SP	RO	-	-	
MS-278	MS	C	2	M-252-1	F7	RL	R	6	-	-	T	SP	RO	-	-	
MS-279	MS	C	2	M-252-1	E8	RL	R	6	-	-	T	SP	RO	-	-	
MS-280	MS	C	2	M-252-1	E7	RL	R	6	-	-	T	SP	RO	-	-	
MS-281	MS	C	2	M-252-1	E7	RL	R	6	-	-	T	SP	RO	-	-	
MS-282	MS	C	2	M-252-1	E6	RL	R	6	-	-	T	SP	RO	-	-	
MS-291	MS	C	2	M-252-1	F7	RL	R	2.5	-	-	T	SP	RO	-	-	
MS-292	MS	C	2	M-252-1	E7	RL	R	2.5	-	-	T	SP	RO	-	-	
MS-351	MS	C	3	M-252-1	E5	CK	C	2	-	-	O	FS	Q	-	-	
MS-352	MS	C	3	M-252-1	E5	CK	C	2	-	-	O	FS	Q	-	-	
HCV-1041A	MS	B	2	M-252-	F6	CK	A	28	NO	FC	C	ST	CS	Y	J26	
HCV-1041B	MS	C	2	M-252-	F6	CK	C	28	-	-	C	SD	RO*	-	J39	
HCV-1041C	MS	B	2	M-252-1	F6	GL	M	2	NC	FAI	C	ST	CS	Y	J27	
HCV-1042A	MS	B	2	M-252-1	E6	CK	A	28	NO	FC	C	ST	CS	Y	J26	
HCV-1042B	MS	C	2	M-252-1	E6	CK	C	28	-	-	C	SD	RO*	-	J39	
HCV-1042C	MS	B	2	M-252-1	E6	GL	M	2	NC	FAI	C	ST	CS	Y	J27	
YCV-1045	MS	B	3	M-252-1	C5	GL	A	2	NC	FO	O	ST	Q	Y	-	
YCV-1045A	MS	B	2	M-252-1	F5	GL	A	2	NC	FO	O	ST	Q	Y	-	
YCV-1045A	MS	B	2	M-252-1	F5	GL	A	2	NC	FO	C	ST	Q	Y	-	
YCV-1045B	MS	B	2	M-252-1	E5	GL	A	2	NC	FO	O	ST	Q	Y	-	
YCV-1045B	MS	B	2	M-252-1	E5	GL	A	2	NC	FO	C	ST	Q	Y	-	
NG-HCV-344-S2	NG	C	N	C-4175-2	D2	RL	R	0.75	-	-	T	SP	OM	-	-	
NG-LCV-383-1-S2	NG	C	3	C-4175-2	D2	RL	R	0.75	-	-	T	SP	OM	-	-	
NG-LCV-383-2-S2	NG	C	3	C-4175-2	D2	RL	R	0.75	-	-	T	SP	OM	-	-	
NG-HCV-438B-S2	NG	NG	3	C-4175-2	E2	RL	R	0.75	-	-	T	SP	OM	-	-	
NG-HCV-438D-S2	NG	C	3	C-4175-2	E2	RL	R	0.75	-	-	T	SP	OM	-	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-2603A	NG	A	2	M-42-1	D8	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2603A	NG	A	2	M-42-1	D8	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2603B	NG	A	2	M-42-1	D8	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2603B	NG	A	2	M-42-1	D8	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2604A	NG	A	2	M-42-1	D5	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2604A	NG	A	2	M-42-1	D5	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2604B	NG	A	2	M-42-1	D5	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2604B	NG	A	2	M-42-1	D5	GL	A	1	NO	FC	C	ST	Q	Y	-	
PCV-102-1	RC	B	1	210-110-1A	E7	GL	S	2.5	NC	FC	C	ST	CS	Y	J2	
PCV-102-1	RC	B	1	210-110-1A	E7	GL	S	2.5	NC	FC	O	ST	CS	Y	J2	
PCV-102-2	RC	B	1	210-110-1A	E8	GL	S	2.5	NC	FC	O	ST	CS	Y	J2	
PCV-102-2	RC	B	1	210-110-1A	E8	GL	S	2.5	NC	FC	C	ST	CS	Y	J2	
RC-141	RC	C	*	210-110-1A	F6	RL	R	3	-	-	T	SP	RO	-	-	SENT OFFSITE
RC-142	RC	C		210-110-1A	F6	RL	R	3	-	-	T	SP	RO	-	-	SENT OFFSITE
HCV-150	RC	B	1	210-110-1A	D8	GA	M	2.5	NO	FAI	C	ST	Q	Y	-	
HCV-151	RC	B	1	210-110-1A	D7	GA	M	2.5	NO	FAI	C	ST	Q	Y	-	
HCV-176	RC	B	2	D-4078	E5	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-176	RC	B	2	D-4078	E5	GL	S	1	NC	FC	C	ST	RO	Y	J8	
HCV-177	RC	B	2	D-4078	D5	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-177	RC	B	2	D-4078	D5	GL	S	1	NC	FC	C	ST	RO	Y	J8	
HCV-178	RC	B	2	D-4078	C5	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-178	RC	B	2	D-4078	C5	GL	S	1	NC	FC	C	ST	RO	Y	J8	
HCV-179	RC	B	2	D-4078	C5	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-179	RC	B	2	D-4078	C5	GL	S	1	NC	FC	C	ST	RO	Y	J8	
HCV-180	RC	B	2	D-4078	E3	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-180	RC	B	2	D-4078	E3	GL	S	1	NC	FC	C	ST	RO	Y	J8	
HCV-181	RC	B	2	D-4078	C3	GL	S	1	NC	FC	O	ST	RO	Y	J8	
HCV-181	RC	B	2	D-4078	C3	GL	S	1	NC	FC	C	ST	RO	Y	J8	
RW-115	RW	C	3	M-100-1	B4	CK	C	20	-	-	O	FS	Q	-	-	
RW-115	RW	C	3	M-100-1	B4	CK	C	20	-	-	C	FS	Q	-	-	

TABLE 2.1 - PORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
RW-117	RW	C	3	M-100-1	B5	CK	C	20	-	-	Q	FS	Q	-	-	
RW-117	RW	C	3	M-100-1	B5	CK	C	20	-	-	C	FS	Q	-	-	
RW-121	RW	C	3	M-100-1	B6	CK	C	20	-	-	Q	FS	Q	-	-	
RW-121	RW	C	3	M-100-1	B6	CK	C	20	-	-	C	FS	Q	-	-	
RW-125	RW	C	3	M-100-1	B7	CK	C	20	-	-	C	FS	Q	-	-	
RW-125	RW	C	3	M-100-1	B7	CK	C	20	-	-	Q	FS	Q	-	-	
HCV-2850	RW	B	3	M-100-1	B7	BU	A	20	NO	FO	Q	ST	Q	Y	-	
HCV-2851	RW	B	3	M-100-1	B6	BU	A	20	NO	FO	Q	ST	Q	Y	-	
HCV-2852	RW	B	3	M-100-1	B5	BU	A	20	NO	FO	Q	ST	Q	Y	-	
HCV-2853	RW	B	3	M-100-1	B4	BU	A	20	NO	FO	Q	ST	Q	Y	-	
HCV-2880A	RW	B	3	M-100-1	E3	BU	A	12	NO	FO	Q	ST	Q	Y	-	
HCV-2880B	RW	B	3	M-100-1	E1	BU	A	12	NO	FO	Q	ST	Q	Y	-	
HCV-2881A	RW	B	3	M-100-1	C3	BU	A	12	NO	FO	Q	ST	Q	Y	-	
HCV-2881B	RW	B	3	M-100-1	C1	BU	A	12	NO	FO	Q	ST	Q	Y	-	
HCV-2882A	RW	B	3	M-100-1	F3	BU	A	12	NO	FO	Q	ST	Q	Y	-	
HCV-2882B	RW	B	3	M-100-1	F1	BU	A	12	NO	FO	Q	ST	Q	Y	-	
HCV-2883A	RW	B	3	M-100-1	B3	BU	A	12	NO	FO	Q	ST	Q	Y	-	
HCV-2883B	RW	B	3	M-100-1	B1	BU	A	12	NO	FO	Q	ST	Q	Y	-	
SA-127	SA	C	3	B120F07001-1	E7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-128	SA	C	3	B120F07001-1	E7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-129	SA	C	3	B120F07001-1	C7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-130	SA	C	3	B120F07001-1	B7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-147	SA	B	3	B120F07001-1	D3	DI	A	1.5	NC	FO	Q	ST	Q	-	-	
SA-148	SA	B	3	B120F07001-1	C3	DI	A	1.5	NC	FO	Q	ST	Q	-	-	DG START ACCEPT
SA-177	SA	C	3	B120F07001-2	E7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-178	SA	C	3	B120F07001-2	E7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-179	SA	C	3	B120F07001-2	C7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-180	SA	C	3	B120F07001-2	B7	RL	R	0.75	-	-	T	SP	OM	-	-	
SA-197	SA	B	3	B120F07001-2	D3	DI	A	1.5	NC	FO	Q	ST	Q	-	-	DG START ACCEPT
SA-198	SA	B	3	B120F07001-2	C3	DI	A	1.5	NC	FO	Q	ST	Q	-	-	DG START ACCEPT

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
SA-282	SA	C	3	B120F07001-1	B7	CK	C	0.5	-	-	C	FS	Q	-	-	
SA-285	SA	C	3	B120F07001-1	F7	CK	C	0.5	-	-	C	FS	Q	-	-	
SA-288	SA	C	3	B120F07001-2	B7	CK	C	0.5	-	-	C	FS	Q	-	-	
SA-291	SA	C	3	B120F07001-2	F7	CK	C	0.5	-	-	C	FS	Q	-	-	
SI-100	SI	C	2	210-130-3	C1	CK	C	6	-	-	O	PS	Q	-	J1	
SI-100	SI	C	2	210-130-3	C1	CK	C	6	-	-	O	FS	RO	-	J1	
SI-102	SI	C	2	210-130-3	C4	CK	C	4	-	-	O	FS	RO	-	J3	
SI-104	SI	C	2	210-130-3	C4	CK	C	1	-	-	O	FS	Q	-	-	
SI-108	SI	C	2	210-130-3	D4	CK	C	4	-	-	O	FS	RO	-	J3	
SI-110	SI	C	2	210-130-3	E4	CK	C	1	-	-	O	FS	Q	-	-	
SI-113	SI	C	2	210-130-3	E1	CK	C	8	-	-	O	PS	Q	-	J1	
SI-113	SI	C	2	210-130-3	E1	CK	C	8	-	-	O	FS	RO	-	J1	
SI-115	SI	C	2	210-130-3	E4	CK	C	4	-	-	O	FS	RO	-	J3	
SI-117	SI	C	2	210-130-3	F4	CK	C	1	-	-	O	FS	Q	-	-	
SI-121	SI	C	2	210-130-1	A4	CK	C	8	-	-	O	FS	CS	-	J4	
SI-129	SI	C	2	210-130-1	B4	CK	C	8	-	-	O	FS	CS	-	J4	
SI-135	SI	C	2	210-130-1	C4	CK	C	8	-	-	O	FS	CS	-	J36	
SI-139	SI	A/C	2	210-130-1	D2	CK	C	20	-	-	O	SD	RO*	-	E1	
SI-139	SI	A/C	2	210-130-1	D2	CK	C	20	-	-	O	PS	Q	-	E1	
SI-139	SI	A/C	2	210-130-1	D2	CK	C	20		-	L	LT	2YR.	-	-	
SI-139	SI	A/C	2	210-130-1	D2	CK	C	20	-	-	C	FS	RO	-	-	
SI-140	SI	A/C	2	210-130-1	C2	CK	C	20	-	-	O	PS	Q	-	E1	
SI-140	SI	A/C	2	210-130-1	C2	CK	C	20	-	-	O	SD	RO*	-	E1	
SI-140	SI	A/C	2	210-130-1	C2	CK	C	20	-	-	L	LT	2YR.	-	-	
SI-140	SI	A/C	2	210-130-1	C2	CK	C	20	-	-	C	FS	RO	-	-	
SI-143	SI	C	2	210-130-1	D4	CK	C	8	-	-	O	FS	CS	-	J36	
SI-149	SI	C	2	210-130-1	E4	CK	C	8	-	-	O	FS	CS	-	J36	
SI-153	SI	C	2	210-130-1	E5	CK	C	6	-	-	O	FS	Q	-	-	
SI-159	SI	C	2	210-130-3	B6	CK	C	24	-	-	O	SD	RO*	-	E2	
SI-160	SI	C	2	210-130-3	B6	CK	C	24	-	-	O	SD	RO*	-	E2	

TABLE 2.1 - PORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VTI TEST	CODE EXPT	REMARKS
SI-175	SI	C	2	210-130-2	B1	CK	C	12	-	-	O	SD	RO*	-	E3	
SI-176	SI	C	2	210-130-2	D1	CK	C	12	-	-	O	SD	RO*	-	E3	
SI-183	SI	A	2	210-130-1	E6	GL	H	2	NC	-	L	LT	2YR.	-	-	
SI-184	SI	A	2	210-130-1	D6	GA	H	2	NC	-	L	LT	2YR.	-	-	
SI-185	SI	A	2	210-130-1	E8	GL	H	2	NC	-	L	LT	2YR.	-	E5	APPENDIX J
SI-194	SI	A/C	1	210-130-2A	D7	CK	C	6	-	-	O	FS	CS	-	J9	
SI-194	SI	A/C	1	210-130-2A	D7	CK	C	6	-	-	L	LT	CS*	-	-	PIV
SI-195	SI	A/C	1	210-130-2A	D8	CK	C	2	-	-	L	LT	CS*	-	-	PIV
SI-195	SI	A/C	1	210-130-2A	D8	CK	C	2	-	-	O	FS	RO	-	J10	
SI-196	SI	C	1	210-130-2A	D8	CK	C	2	-	-	O	PS	CS	-	J11	
SI-196	SI	C	1	210-130-2A	D8	CK	C	2	-	-	O	FS	RO	-	J11	
SI-197	SI	A/C	1	210-130-2A	D6	CK	C	6	-	-	L	LT	CS*	-	-	PIV
SI-197	SI	A/C	1	210-130-2A	D6	CK	C	6	-	-	O	FS	CS	-	J9	
SI-198	SI	A/C	1	210-130-2A	D6	CK	C	2	-	-	O	FS	RO	-	J10	
SI-198	SI	A/C	1	210-130-2A	D6	CK	C	2	-	-	L	LT	CS*	-	-	PIV
SI-199	SI	C	1	210-130-2A	C7	CK	C	2	-	-	O	PS	CS	-	J11	
SI-199	SI	C	1	210-130-2A	C7	CK	C	2	-	-	O	FS	RO	-	J11	
SI-200	SI	A/C	1	210-130-2A	D5	CK	C	6	-	-	L	LT	CS*	-	-	PIV
SI-200	SI	A/C	1	210-130-2A	D5	CK	C	6	-	-	O	FS	CS	-	J9	
SI-201	SI	A/C	1	210-130-2A	D5	CK	C	2	-	-	L	LT	CS*	-	-	PIV
SI-201	SI	A/C	1	210-130-2A	D5	CK	C	2	-	-	O	FS	RO	-	J10	
SI-202	SI	C	1	210-130-2A	C5	CK	C	2	-	-	O	PS	CS	-	J11	
SI-202	SI	C	1	210-130-2A	C5	CK	C	2	-	-	O	FS	RO	-	J11	
SI-203	SI	A/C	1	210-130-2A	D3	CK	C	6	-	-	L	LT	CS*	-	-	PIV
SI-203	SI	A/C	1	210-130-2A	D3	CK	C	6	-	-	O	FS	CS	-	J9	
SI-204	SI	A/C	1	210-130-2A	D3	CK	C	2	-	-	O	FS	RO	-	J10	
SI-204	SI	A/C	1	210-130-2A	D3	CK	C	2	-	-	L	LT	CS*	-	-	PIV
SI-205	SI	C	1	210-130-2A	C4	CK	C	2	-	-	O	PS	CS	-	J11	
SI-205	SI	C	1	210-130-2A	C4	CK	C	2	-	-	O	FS	RO	-	J11	
SI-207	SI	A/C	1	210-130-2A	F7	CK	C	12	-	-	L	LT	CS*	-	-	PIV

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
SI-207	SI	A/C	1	210-130-2A	F7	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-207	SI	A/C	1	210-130-2A	F7	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-208	SI	A/C	1	210-130-2A	C7	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-208	SI	A/C	1	210-130-2A	C7	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-208	SI	A/C	1	210-130-2A	C7	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-208	SI	A/C	1	210-130-2A	C7	CK	C	12	-	-	O	PS	CS	-	E4	
SI-209	SI	C	2	210-130-2B	E3	RL	R	1	-	-	T	SP	OM	-	-	
SI-211	SI	A/C	1	210-130-2A	F6	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-211	SI	A/C	1	210-130-2A	F6	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-211	SI	A/C	1	210-130-2A	F6	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-212	SI	A/C	1	210-130-2A	C6	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-212	SI	A/C	1	210-130-2A	C6	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-212	SI	A/C	1	210-130-2A	C6	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-212	SI	A/C	1	210-130-2A	C6	CK	C	12	-	-	O	PS	CS	-	E4	
SI-213	SI	C	2	210-130-2B	E6	RL	R	1	-	-	T	SP	OM	-	-	
SI-215	SI	A/C	1	210-130-2A	F4	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-215	SI	A/C	1	210-130-2A	F4	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-215	SI	A/C	1	210-130-2A	F4	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-216	SI	A/C	1	210-130-2A	C4	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-216	SI	A/C	1	210-130-2A	C4	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-216	SI	A/C	1	210-130-2A	C4	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-216	SI	A/C	1	210-130-2A	C4	CK	C	12	-	-	O	PS	CS	-	E4	
SI-217	SI	C	2	210-130-2	E6	RL	R	1	-	-	T	SP	OM	-	-	
SI-219	SI	A/C	1	210-130-2A	F3	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-219	SI	A/C	1	210-130-2A	F3	CK	C	12	-	-	L	LT	CS*	-	-	PIV
SI-219	SI	A/C	1	210-130-2A	F3	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-220	SI	A/C	1	210-130-2A	C3	CK	C	12	-	-	O	FS	RO	-	E4	SIT DUMP
SI-220	SI	A/C	1	210-130-2A	C3	CK	C	12	-	-	C	FS	CS*	-	E4	
SI-220	SI	A/C	1	210-130-2A	C3	CK	C	12	-	-	L	LT	CS*	-	-	
SI-220	SI	A/C	1	210-130-2A	C3	CK	C	12	-	-	O	PS	CS	-	E4	

TABLE 2.1 - PORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST RFQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
SI-221	SI	C	2	210-130-2	E3	RL	R	1	-	-	T	SP	OM	-	-	
SI-300	SI	C	2	210-130-1	B4	CK	C	2	-	-	O	FS	Q	-	-	
SI-301	SI	C	2	210-130-1	D4	CK	C	2	-	-	O	FS	Q	-	-	
SI-302	SI	C	2	210-130-1	F4	CK	C	2	-	-	O	FS	Q	-	-	
SI-303	SI	C	2	210-130-1	E4	CK	C	2	-	-	O	FS	Q	-	-	
SI-304	SI	C	2	210-130-1	A4	CK	C	2	-	-	O	FS	Q	-	-	
SI-306	SI	A	2	210-130-1	D7	GA	H	6	LC	-	L	LT	2YR.	-	-	
HCV-308	SI	B	2	210-130-1	D6	GA	M	2	NC	FAI	O	ST	CS	Y	J19	
HCV-311	SI	B	2	210-130-2A	C3	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-312	SI	B	2	210-130-2A	C4	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-314	SI	B	2	210-130-2A	C5	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-315	SI	B	2	210-130-2A	C5	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-317	SI	B	2	210-130-2A	C8	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-318	SI	B	2	210-130-2A	C8	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-320	SI	B	2	210-130-2A	C6	GL	M	2	NC	FAI	O	ST	Q	Y	-	
HCV-321	SI	B	2	210-130-2A	C6	GL	M	2	NC	FAI	O	ST	Q	Y	-	
SI-323	SI	C	2	210-130-3	E6	CK	C	4	-	-	O	FS	RO	-	J20	
SI-323	SI	C	2	210-130-3	E6	CK	C	4	-	-	C	FS	RO	-	J20	
HCV-327	SI	B	2	210-130-2A	C3	GL	M	4	NC	FAI	O	ST	Q	Y	-	
HCV-329	SI	B	2	210-130-2A	C4	GL	M	4	NC	FAI	O	ST	Q	Y	-	
HCV-331	SI	B	2	210-130-2A	C7	GL	M	4	NC	FAI	O	ST	Q	Y	-	
HCV-333	SI	B	2	210-130-2A	C6	GL	M	4	NC	FAI	O	ST	Q	Y	-	
SI-342	SI	A	2	210-130-1	E7	GL	H	1	LC	-	L	LT	2YR.	-	-	
SI-343	SI	C	2	210-130-3	D6	CK	C	2	-	-	O	PS	CS	-	J11	
SI-343	SI	C	2	210-130-3	D6	CK	C	2	-	-	O	FS	RO	-	J11	
HCV-344	SI	B	2	210-130-1	D8	BL	A	8	NC	FO	O	ST	CS	Y	J21	
HCV-344	SI	B	2	210-130-1	D8	BL	A	8	NC	FO	C	ST	CS	Y	J21	
HCV-345	SI	B	2	210-130-1	B8	BL	A	8	NC	FO	O	ST	CS	Y	J21	
HCV-347	SI	A	1	210-130-3	F7	GA	M	10	LC	FAI	L	LT	2YR.	-	-	APPENDIX J
HCV-347	SI	A	1	210-130-3	F7	GA	M	10	LC	FAI	C	ST	CS	Y	J22	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-348	SI	A	1	210-130-2A	C2	GA	M	12	LC	FAI	L	LT	2YR.	-	-	APPENDIX J
HCV-348	SI	A	1	210-130-2A	C2	GA	M	12	LC	FAI	C	ST	CS	Y	J22	
HCV-383-3	SI	A	2	210-130-3	B7	BU	M	24	NC	FAI	O	ST	Q	Y	-	
HCV-383-3	SI	A	2	210-130-3	B7	BU	M	24	NC	FAI	L	LT	2YR.	-	-	APPENDIX J
HCV-383-4	SI	A	2	210-130-3	B7	BU	M	24	NC	FAI	O	ST	Q	Y	-	
HCV-383-4	SI	A	2	210-130-3	B7	BU	M	24	NC	FAI	L	LT	2YR.	-	-	APPENDIX J
LCV-383-1	SI	A	2	210-130-1	D1	BU	A	20	NO	FO	C	ST	Q	Y	-	
LCV-383-1	SI	A	2	210-130-1	D1	BU	A	20	NO	FO	O	ST	Q	Y	-	
LCV-383-1	SI	A	2	210-130-1	D1	BU	A	20	NO	FO	L	LT	2YR.	-	-	
LCV-383-2	SI	A	2	210-130-1	D2	BU	A	20	NO	FO	O	ST	Q	Y	-	
LCV-383-2	SI	A	2	210-130-1	D2	BU	A	20	NO	FO	C	ST	Q	Y	-	
LCV-383-2	SI	A	2	210-130-1	D2	BU	A	20	NO	FO	L	LT	2YR.	-	-	
HCV-385	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	O	ST	Q	Y	-	
HCV-385	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	C	ST	Q	Y	-	
HCV-385	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	L	LT	2YR.	-	-	
HCV-386	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	C	ST	Q	Y	-	
HCV-386	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	O	ST	Q	Y	-	
HCV-386	SI	A	2	210-130-1	F4	GL	A	4	NO	FO	L	LT	2YR.	-	-	
PCV-2909	SI	A	2	210-130-2	B5	GL	A	1	A	FC	C	ST	Q	Y	-	
PCV-2909	SI	A	2	210-130-2	B5	GL	A	1	A	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2916	SI	A	2	210-130-2	C5	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2916	SI	A	2	210-130-2	C5	GL	A	1	NC	FC	C	ST	Q	Y	-	
PCV-2929	SI	A	2	210-130-2	B8	GL	A	1	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2929	SI	A	2	210-130-2	B8	GL	A	1	A	FC	C	ST	Q	Y	-	
HCV-2936	SI	A	2	210-130-2	C7	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2936	SI	A	2	210-130-2	C7	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2949	SI	A	2	210-130-2B	B8	GL	A	1	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2949	SI	A	2	210-130-2B	B8	GL	A	1	A	FC	C	ST	Q	Y	-	
HCV-2956	SI	A	2	210-130-2B	C7	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2956	SI	A	2	210-130-2B	C7	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
PCV-2969	SI	A	2	210-130-2B	B5	GL	A	1	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-2969	SI	A	2	210-130-2B	B5	GL	A	1	A	FC	C	ST	Q	Y	-	
HCV-2976	SI	A	2	210-130-2B	C4	GL	A	1	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2976	SI	A	2	210-130-2B	C4	GL	A	1	NC	FC	C	ST	Q	Y	-	
HCV-2983	SI	A	2	210-130-1	E8	GL	A	2	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2987	SI	B	2	210-130-3	E7	GA	P	4	NO	FO	C	ST	CS	Y	J32	
HCV-2987	SI	B	2	210-130-3	E7	GA	P	4	NO	FO	Q	ST	CS	Y	J32	
HCV-2988	SI	B	2	210-130-3	D6	GL	S	2	NC	FC	C	ST	CS	Y	J19	
HCV-2988	SI	B	2	210-130-3	D6	GL	S	2	NC	FC	Q	ST	CS	Y	J19	
HCV-2504A	SL	A	2	M-12-1	F7	GL	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-2504A	SL	A	2	M-12-1	F7	GL	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2504B	SL	A	2	M-12-1	F7	GL	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-2504B	SL	A	2	M-12-1	F7	GL	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-2506A	SL	B	2	M-12-1	D7	GL	A	0.5	NO	FC	C	ST	CS	Y	J31	
HCV-2506B	SL	B	2	M-12-1	D7	GL	A	0.5	NO	FC	C	ST	CS	Y	J31	
HCV-2507A	SL	B	2	M-12-1	C7	GL	A	0.5	NO	FC	C	ST	CS	Y	J31	
HCV-2507B	SL	B	2	M-12-1	C7	GL	A	0.5	NO	FC	C	ST	CS	Y	J31	
VA-280	VA	A	2	M-1-2	A8	BU	H	4	LC	-	L	LT	2YR.	-	E5	APPENDIX J
VA-289	VA	A	2	M-1-2	A8	BU	H	4	LC	-	L	LT	2YR.	-	E5	APPENDIX J
A/HCV-742	VA	A	2	M-1-2	D8	DI	A	1	NO	FO	L	LT	2YR.	-	-	APPENDIX J
B/HCV-742	VA	A	2	M-1-2	D6	DI	A	1	NO	FO	L	LT	2YR.	-	-	APPENDIX J
C/HCV-742	VA	A	2	M-1-2	D8	DI	A	1	NO	FO	L	LT	2YR.	-	-	APPENDIX J
D/HCV-742	VA	A	2	M-1-2	C8	DI	A	1	NO	FO	L	LT	2YR.	-	-	APPENDIX J
PCV-742A	VA	A	2	M-1-1	D2	BU	A	42	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-742B	VA	A	2	M-1-2	C7	BU	A	42	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-742C	VA	A	2	M-1-1	C2	BU	A	42	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-742D	VA	A	2	M-1-2	B8	BU	A	42	A	FC	L	LT	2YR.	-	E5	APPENDIX J
PCV-742E	VA	A	2	M-1-1	F2	DI	A	1	A	FC	L	LT	2YR.	-	-	APPENDIX J
PCV-742E	VA	A	2	M-1-1	F2	DI	A	1	A	FC	C	ST	Q	Y	-	
PCV-742F	VA	A	2	M-1-2	E8	DI	A	1	A	FC	L	LT	2YR.	-	-	APPENDIX J

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
PCV-742F	VA	A	2	M-1-2	E8	DI	A	1	A	FC	C	ST	Q	Y	-	
PCV-742G	VA	A	2	M-1-1	E2	DI	A	1	A	FC	C	ST	Q	Y	-	
PCV-742G	VA	A	2	M-1-1	E2	DI	A	1	A	FC	L	LT	2YR.	-	-	APPENDIX J
PCV-742H	VA	A	2	M-1-2	E8	DI	A	1	NO	FC	C	ST	Q	Y	-	
PCV-742H	VA	A	2	M-1-2	E8	DI	A	1	NO	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-746A	VA	A	2	M-1-1	D2	GL	A	2	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-746A	VA	A	2	M-1-1	D2	GL	A	2	NC	FC	C	ST	Q	Y	-	
HCV-746B	VA	A	2	M-1-2	C7	GL	A	2	NC	FC	C	ST	Q	Y	-	
HCV-746B	VA	A	2	M-1-2	C7	GL	A	2	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-820A	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-820A	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	C	ST	Q	Y	-	
HCV-820B	VA	A	2	M-1-1	C2	GL	S	1	NC	FO	C	ST	Q	Y	-	
HCV-820B	VA	A	2	M-1-1	C2	GL	S	1	NC	FO	O	ST	Q	Y	-	
HCV-820B	VA	A	2	M-1-1	C2	GL	S	1	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-821A	VA	A	2	M-1-2	A8	GL	S	1	NC	FC	C	ST	Q	Y	-	
HCV-821A	VA	A	2	M-1-2	A8	GL	S	1	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-821B	VA	A	2	M-1-1	A2	GL	S	1	NC	FO	C	ST	Q	Y	-	
HCV-821B	VA	A	2	M-1-1	A2	GL	S	1	NC	FO	O	ST	Q	Y	-	
HCV-821B	VA	A	2	M-1-1	A2	GL	S	1	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-881	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	C	ST	Q	Y	-	
HCV-881	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	O	ST	Q	Y	-	
HCV-881	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-882	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	O	ST	Q	Y	-	
HCV-882	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	C	ST	Q	Y	-	
HCV-882	VA	A	2	M-1-1	B2	BU	A	4	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-883A	VA	A	2	M-1-1	C2	PG	A	1	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-883A	VA	A	2	M-1-1	C2	PG	A	1	NC	FO	C	ST	Q	Y	-	
HCV-883A	VA	A	2	M-1-1	C2	PG	A	1	NC	FO	O	ST	Q	Y	-	
HCV-883B	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-883B	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	C	ST	Q	Y	-	

TABLE 2.1 - FORT CALHOUN VALVE TEST PROGRAM MATRIX

VALVE NUMBER	SYS	CAT	CLASS	P&ID	COORD-INATES	VALVE TYPE	OPER TYPE	VALVE SIZE "	NORM POS	FAIL POS	TEST REQ	TYPE TEST	TEST FREQ	VPI TEST	CODE EXPT	REMARKS
HCV-884A	VA	A	2	M-1-1	C2	GL	A	1	NC	FO	O	ST	Q	Y	-	
HCV-884A	VA	A	2	M-1-1	C2	GL	A	1	NC	FO		ST	Q	Y	-	
HCV-884A	VA	A	2	M-1-1	C2	GL	A	1	NC	FO	L	LT	2YR.	-	-	APPENDIX J
HCV-884B	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	L	LT	2YR.	-	-	APPENDIX J
HCV-884B	VA	A	2	M-1-2	B8	GL	S	1	NC	FC	C	ST	Q	Y	-	
HCV-500A	WD	A	2	M-6-2	A6	DI	A	4	NO	FC	C	ST	Q	Y	-	
HCV-500A	WD	A	2	M-6-2	A6	DI	A	4	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-500B	WD	A	2	M-6-2	A6	DI	A	4	NO	FC	C	ST	Q	Y	-	
HCV-500B	WD	A	2	M-6-2	A6	DI	A	4	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-506A	WD	A	2	M-7-1	A6	DI	A	2	NC	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-506A	WD	A	2	M-7-1	A6	DI	A	2	NC	FC	C	ST	Q	Y	-	
HCV-506B	WD	A	2	M-7-1	A6	DI	A	2	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-506B	WD	A	2	M-7-1	A6	DI	A	2	NO	FC	C	ST	Q	Y	-	
HCV-507A	WD	A	2	M-98-3	F7	DI	A	3	NO	FC	C	ST	Q	Y	-	
HCV-507A	WD	A	2	M-98-3	F7	DI	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-507B	WD	A	2	M-98-3	F7	DI	A	3	NO	FC	C	ST	Q	Y	-	
HCV-507B	WD	A	2	M-98-3	F7	DI	A	3	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-508A	WD	A	2	M-98-3	C7	DI	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-508A	WD	A	2	M-98-3	C7	DI	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-508B	WD	A	2	M-98-3	C6	DI	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-508B	WD	A	2	M-98-3	C6	DI	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-509A	WD	A	2	M-98-3	B7	DI	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J
HCV-509A	WD	A	2	M-98-3	B7	DI	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-509B	WD	A	2	M-98-3	B6	DI	A	0.5	NO	FC	C	ST	Q	Y	-	
HCV-509B	WD	A	2	M-98-3	B6	DI	A	0.5	NO	FC	L	LT	2YR.	-	E5	APPENDIX J