

March 20, 1989

Dr. Thomas E. Murley, Director Office of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission Washington, DC 20555

Attn: Document Control Desk

Subject: Braidwood Station Units 1 and 2 Inservice Testing (IST) Programs for Pumps and Valves NRC Docket Nos. 50-456 and 50-457

Reference: (a) September 15, 1988, L.N. Olshan letter to H.E. Bliss

- (b) December 21, 1988 R. Chrzanowski letter to T.E. Murley
- (c) August 31, 1987 S.C. Hunsader letter to T.E. Murley
- (d) January 31, 1989 S.C. Hunsader letter to T.E. Murley

Dear Dr. Murley:

Reference (d) provided the Braidwood Station (IST) Programs for Pumps (Revision 4) and Valves (Revision 4) that included changes based on the meeting held in response to reference (a) at the NRC White Flint Offices on October 27, 1988, and per the comments presented in the teleconference held on December 12, 1988. These revisions included changes presented in reference (b) for Byron Station as they apply to Braidwood Station.

Upon t ther review, Commonwealth Edison has determined that a change needs to be made to Relief Request VR-12 to make it more consistent with the Relief Request submitted for Byron Station. As a result, Relief Request VR-12 for Braidwood Station has been changed from Revision 4 to Revision 4A.

The Valve Relief Request VR-12, Revision 4A, deletes valves 1/2RF026 and 1/2RF027 since they no longer apply and includes a rewording in the alternative testing section to match the corresponding Byron Station Relief Request. For the ease of review by the NRC Staff, the IST Program Revision 4/4A that now includes the new VR-12 Relief Request is 'eing transmitted in its entirety. No changes have been made to other parts of the IST Programs.

Attachment A to this letter describes the differences between the Byron and Braidwood programs. Attachment B to this letter presents the differences or changes made between Revision 3 which had been submitted previously in reference (c) for Braidwood Station and Revision 4/4A as provided herein.

ADD: BOB Pulsifer UT God. DED 1

# ATTACHMENT "A"

# IST PROGRAM PLAN BYRON/BRAIDWOOD DIFFERENCES

The following presents the differences of , on the Byron and Braidwood Pump and Valve IST Program Plans:

- A) Byron Pump Program (Rev. 7) Braidwood Pump
  - -Byron program includes SX Makeup Pumps.
  - -Byron Control Volume (CV) Fumps are included in PR-5
- B) Byron Valve Program (Rev. 8)
  - -Byron program includes for valves 1/2CS019A,B a Stroke time of 30 seconds.
  - -Byron program includes valves with fast acting stroke times, per VR-12.

- Braidwood Pump Program (Rev. 4)
- -N/A, since Braidwood does not have SX Makeup Pumps or the related OSX028A and B valves.
- -Breidwood Control Volume (CV)
  Pumps have permanently installed
  flow measurement devices and, thus
  do not require the use of an
  ultrasonic flowmeter in PR-3.
- Braidwood Valve Program (Rev. 4/4A)
- -Braidwood program includes a 15 second stroke time to more closely match the response time surveillance requirements.
- -Braidwood program does not include certain valves previous y in this relief request that have a slower stroke time history and have been deleted.

# ATTACHMENT "B"

# BRAIDWOOD IST PROGRAM PLAN REVISION 3 TO REVISION 4/4A DIFFERENCES AND CHANGES

The primary difference between Revision 3 and Revision 4/4A is the addition of Braidwood Unit 2 Pump and Valve EPN's to the Tables, Notes and P lief Requests. Other changes made are as follows:

# A) - Pumps

- Page 3-9 added a statement for vertical line shaft pumps to more clearly define test methodology, per ASME OM-6.
- 2) Page 3-12 deleted Control Volume (CV) pumps from PR-3. These pumps have permanently installed flow measurement equipment and thus do not use the ultrasonic flow meter.

#### B) Valves

- Removed XT designation for 1/2CS008A,B in 5 of 42 tables, as this was inadvertently left in, in Revision 3. VR-4 states partial stroking using air is not practical.
- 2) In 5 of 42 tables, for 1/2CS019A,B revised maximum stroke time of 30 seconds to read 15 seconds to coincide with response time requirements.
- For the following valves, fast acting valve Relief Request VR-12, no longer applies.

EPN	-	Pagi	0	
1/2CV8152	. 7	of	4.2	
1/2CV8160	-7	of	42	
1/2PRO66	2.0	of	4.2	
1/2SD005A-D	3.1	of	42	
1/2518871	34	of	4.2	
1/2818880	3.4	of	4.2	
1/2818964	3.6	of	42	
1/2S18888	3.4	of	4.2	

- 4) In 7 of 42, 1/2CV8481A,B and 1/2CV8546 have Relief Request VR-15 designated. Note 8 has been removed from 1/2CV8481A,B as it no longer applies.
- 5) In 8 of 42, revised 1/2DG5185A,B and 1/2DG5184A,B valve category from Type B to Type C, typo.
- 6) In 15 of 42, revised 1/2IA065 and 1/2IA066 for ST and FT in RR as per VR-10 revisions.
- 7) In 17 of 42, revised stroke times of 1/2MS018A-D to reflect VR-12 requirements.
- 8) In 21 of 42, revised stroke times of 1/2PS228A,B, 1/2PS229A,B and 1/2PS230A,B to reflect VR-12 requirements. Revised 1/2PS231A,B valve category to AC.

#### ATTACHMENT "B" (cont'd)

## 8) Valves Continued

- 9) In 24 of 42, revised stroke times for 1/2RE9156, 1/2hc9159A.B and 1/2RE9160A,B per VR-12.
- 10) In 25 of 42, revised stroke times per VR-12.
- 11) In 26 of 42, revised 1/2RH8705A,B valve category to AC.
- 12) In 33 of 42, revised typo for 1/2S18819A-D so that test mode is RR.
- 13) In 34 of 42, revised typo for 1/2SI8905A-D so that test mode is RR.
- 14) In 35 of 42, revise 1/2SI8949A-D so that test mode is RR.
- 15) In page 35 of 42, deleted reference to XT for valves 1/2SI8948C,D as it was a typo.
- 16) In the note section page 4-11 for Note 8 deleted reference to 1/2CV8481A, B valves as these are now in VR-15.
- 17) In page 4-12, for Note 12, corrected typo on valve EPN's.
- 18) In the Relief Request section for VR-1 page 4-18 added a clarification of section X. testing for leak rates.
- 19) In VR-4 page 4-21, added more justification for not testing the affected valves during operations or cold shutdown.
- 20) In VR-12, page 4-29, deleted valves 1/2CV8152, 1/2CV8160, 1PR066, 1/2SD005A-D. 1/2S18871, 1/2S18880, 1/2S18888, 1/2S18964. Rewrote alternate testing to clarify testing trending requirer-nts.
- 22) In VR-15, page 4-34, added 1/2CV8481A.B and 1/2CV8546. Revised wording to clarify basis for relief, alternate testing and justification.
- 23) In VR-16, page 4-36, rewrote basis for relief and justification.

SECTION 3.0

PRESERVICE/INSERVICE TESTING

PROGRAM PLAN FOR PUMPS

# Table of Contents

3.0	Pres	ervice/Inse	rvice Testing Program for Pumps	Page
	3.1	Program D	escription	3-1
	3.2	Program T	ables	3-3
	3.3	Notes		3-5
		Note 1 Note 2 Note 3	Pump Bearing Shaft Bearing Pumps Lubricated by Pumpet Formatte DELETED	3-6 3-6 3-6
	3.4	Relief Re	quests	3-7
		PR-1 PR-2 PR-3 PR-4	Pump Vibration Pump Bearing Temperatures Ultrasonic Flowmeter usage Differential Pressure	3-8 3-10 3-12 3-14

PROGRAM DESCRIPTION

# Program Description

The Pump Preservice/Inservice Testing Program for Braidwood Nuclear Power Station Unit 1 and Unit 2, is implemented in accordance with the requirements of Subsection IWP of Section XI of the ASME Boiler and Pressure Vessel Code, 1983 Edition. Where these requirements are determined to be impractical, specific relief is requested. Additional pump relief requests may be necessary and these will be identified during subsequent inservice tests. The pumps subject to ISI testing are those pumps which are identified in the Braidwood FSAR as Active, and have an emergency power source. Active pumps are defined as those which are called on to perform a safety function as well as to accomplish and maintain a safe reactor shutdown. The only exception are the diesel driven auxiliary feedwater pumps, 1/2AFOIPB which are included in the program although they are not supplied by an emergency power source.

Pump reference values shall be determined from the results of a preservice test, which may be run during preoperational testing, or from the results of the first inservice test run during power operation. Reference values shall be at points of operation readily duplicated during subsequent inservice testing. Additional reference values may be necessary and these wil, be taken in accordance with IWP-3111 and 3112.

In the event a pump must be declared inoperable as a result of inservice testing, limitations on plant operation will be as stated in the Technical Specifications.

Section XI of the ASME Boiler and Pressure Vessel Code shall not construed to supersede the requirements of any Technical Specification.

PROGRAM TABLES

# Table Description

The following information is included in the summary tables:

The first four columns include the unique Braidwood Station Equipment Piece Number, the Pump Name, the Code Class, and the P&ID on which the pumps a --- located.

Speed: Speed will be measured by a tachometer or stroboscope for variable speed drives.

Inlet pressure: Inlet pressure will be measured via permanently installed gauges or other means, provided the requirement accuracy meets the requirements of IWP-4150. This is to be measured both before pump startup and during the test.

Differential pressure: Differential pressures will be measured using calibrated differential pressure gauges or by recording the difference between calibrated inlet and outlet pressure gauges.

Flow rate: Flow rates will be measured using permanently installed instrumentation or other means, provided that equipment accuracy meets the requirements of IWP-4150.

<u>Vibration</u>: Vibration measurement shall be made using portable or hand held instruments at locations as marked on the pumps.

Bearing Temperature: Bearing temperature will be measured by permanently installed devices where such devices are present. Portable measurement devices will be used where temperature wells are provided.

Per IWP-3300, bearing temperatures are required only once per year. Braidwood Station takes the data for bearing temperatures once per year during summer testing.

Test Interval: An inservice test shall be run on each pump nominally every 3 months during normal plant operation, in accordance with IWP-3400.

Lubrication Level: Lubrication level will be observed through sight glasses for the pumps listed in the program.

Revision: The current revision of the program is listed.

Table Page: The table pages are numbered sequentially and show the total number of pages.

NOTES

#### NOTE 1

The Diesel Oil Transfer (IDOCIPA-D and 2DOCIPA-D). Residual Heat Removal (IRHOIPA, B and 2RHOIPA, B) and Containment Spray (ICSOIPA, B and 2CSOIPA, B) pumps cannot be measured for lubrication level. These pumps are lubricated by the fluid pumped and hence have no indication for lubrication level.

# NOTE 2

The Component Cooling pumps (OCCOIP, ICCOIPA, B and 2CCOIPA, B) Essential Service Water Pumps (ISXOIPA, B and 2SXOIPA, B), and Control Room Chill Water Pumps (OWCOIPA, B) are in systems which are in continuous operation. The idle inlet pressure for these pumps cannot be obtained without interrupting normal system operation and causing system transients. The idle inlet pressure will be recorded only if the pump to be tested is not in operation at the start of the test. Proper pump operation is assured by continuous pump operation as well as quarterly monitoring of the remaining ISI pump parameters.

NOTE 3

-DELETED-

RELIEF REQUESTS

- 1. PUMP NUMBER: All pumps in the program plan.
- 2. NUMBER OF ITEMS: 39 pumps.
- 3. ASME CODE CLASS: 2 & 3
- 4. ASME CODE, SECTION MI REQUIREMENTS: In reference to Table IWP-3100-2, "Allowable Ranges of Test Quantities", pump vibration is to be measured in and compared to values given in mils displacement.
- 5. BASIS FOR RELIEF: The measurement of pump vibration is required so that developing problems can be detected and repairs initiated prior to a pump becoming inoperable. Measurement of vibration only in displacement quantities does not take into account frequency which is also an important factor in determining the severity of the vibration.
- ALTERNATZ TESTING: The ASME Code minimum standards require

  measurement of the vibration amplitude in mils (displacement).

  Braidwood Station proposes an alternate program of measuring vibration velocity (inches per second) which is more comprehensive than that required by Section XI. This technique is an industry-accepted method which is much more meaningful and sensitive to small changes that are indicative of developing mechanical problems. These velocity measurements detect not only high amplitude vibration, that indicate a major mechanical problem such as misalignment or unbalance, but also the equally harmful low amplitude, high frequency vibration due to bearing wear that usually go undetected by simple displacement measurements.

The allowable ranges of vibration and their associated action levels will be patterned after the guidelines established in ANSI/ASME OM-6 Draft 8. Table 6100-1 and Figure 6100-1. These ranges will be used to assess equipment operational readiness for all components.

The acceptable performance range will be  $\le 2.5$  times the reference value, not to exceed .325 inches per second. The alert range, at which time the testing frequency would be doubled, will be  $\ge 2.5$  to 6 times the reference value, not to exceed .70 inches per second. Any vibrating velocity greater than 6 times the reference value or greater than .70 inches per second will require corrective actions to be performed on the affected component.

Vibration measurements for all pumps will be obtained and recorded in velocity, inches per second, and will be broadband unfiltered peak measurements. The monitored locations for vibration analysis will be marked so as to permit subsequent duplication in both location and plane.

The frequency response range of the vibration transducers and their readout system shall be capable of frequency responses from one-third minimum pump shaft rotational speed to at least one thousand hertz.

The Vertical Line Shaft Pumps in the program will have vibration measurements taken on the upper motor bearing housing in three orthogonal directions, one of which is the axial direction.

- 7. JUSTIFICATION: Measurement of vibration in mils displacement is not as sensitive as velocity measurements to small changes that are indicative of developing mechanical problems. Therefore, the proposed alternate of measuring vibration amplitude in inches/second provides added assurance of the continued operability of the pumps.
- APPLICABLE TIME PERIOD: This relief is requested once per quarter during the first inspection interval.

- 1. FUMP NUMBER: OCCOIP, 1CCOIPASB, 2CCOIPASB, 1CSOIPASB, 2CSOIPASBB, 1RHO1PASB, 2RHO1PASPB, 1DOO1PA-D, 2DOO1PA-D, 0WOO1PA, 0WOO1PB
- 2. NUMBER OF ITEMS: 23 pumps
- 3. ASME CODE CLASS: 2 & 3
- 4. ASME CODE. SECTION XI REQUIREMENTS: Per IWP-3100. Inservice Test Procedure pump bearing temperatures are required to be measured to detect any change in the mechanical characteristics of a bearing. IWP-3500(b) requires three successive readings taken at ten minute intervals that do not vary more than 3%.

#### 5. BASIS FOR RELIEF:

- a. These pumps' bearings are not provided with permanent temperature detectors or thermal wells. Therefore, gathering data on bearing temperature is impractical.
- b. The only temperature measurements possible are from the bearing housing. To detect high bearing temperature at the bearing housing would require that the bearings in question be seriously degraded.
- c. Measurement of housing temperature on these pumps does not provide information on bearing condition or degradation. For example, the bearings on the Diesel Oil Transfer Pumps (1D001PA-D, 2D001PA-D) are cooled by the fluid pumped.

Therefore, any heat generated by degraded bearings is carried away by the cooling fluid and would not be directly measured at the bearing housing.

- 6. ALTERNATE TESTING: No direct alternate test is proposed for bearing temperatures. However, measurement of hydraulic parameters and vibration readings do provide a more positive method of monitoring pump condition and bearing degradation.
- 7. JUSTIFICATION: By measuring pump hydraulic parameters and vibration velocity, (as described in PR-1), pump operability and the trending of mechanical degradation is assured. Also, since these parameters (i.e., Hydraulic parameters and vibration) are measured quarterly, the pump mechanical condition will be more accurately determined than would be possible by measuring bearing temperature on a yearly basis.
- APPLICABLE TIME PERIOD: This relief is requested once per year. during the first inspection interval.

OCCOIP, ICCOIPAGB, 2CCOIPAGB, ISXOIPAGB. 1. PUMP NUMBER:

2SX01PA&B, 1D001PA-D, 2D001PA-D

NUMBER OF ITEMS: 17 pumps

ASME CODE CLASS: 2 & 3

4. ASME CODE, SECTION XI REQUIREMENTS: Per IWP-4120, the full scale range of each instrument shall be three times the reference value or less.

5. BASIS FOR RELIEF: The full scale range of ultrasonic flowmeters, used to collect Section XI flow data, exceed three times the reference value.

6. ALTERNATE TESTING: Ultrasonic flowmeters, with digital readouts and totalizer features will be utilized to obtain Section XI flow data.

7. JUSTIFICATION: Ultrasonic flowmeters provide an accurate means of measuring flowrate. They utilize a digital display whose accuracy is independent of the full scale range. The ultrasonic flowmeter is well within the requirements of IWP-4110 and IWP-4120, which refer to an instrument accuracy of + 2% of full scale for

an instrument with a range of one and one-half to three times the reference value. The following examples will illustrate this point. The component cooling pumps (OCC01P, 1CC01PA, and 1CC01PB) have a reference value of approximately 4500 gpm. Using the Code requirements, an instrument with a full scale range of 13,500 gpm (3 x 4500 gpm), the acceptable instrument accuracy is + 270 gpm (.02 x 13500 gpm). Using the ultrasonic flowmeter, with an accuracy of + 3% of the indicated reading, provide an instrument accuracy of + 135 (.03 x 4500 gpm).

The diesel oil transfer pumps (1D001PA-D) have a reference value of approximately 25 gpm. Using the Code requirements, an instrument with a full scale of 75 gpm (3 x 25 gpm) the acceptable instrument accuracy is + 1.5 gpm (.02 x 75 gpm). Using the ultrasonic flowmeter with an accuracy of + 3% of indicated reading will provide an instrument accuracy of + 0.75 gpm (.03 x 25 gpm).

Use of an ultrasonic flowmeter, with totalizer and integrator feature, instead of other instruments allowed by IWP-4110 and IWP-4120, wil. provide more precise and accurate flow measurements.

8. APPLICABLE TIME PERIOD: This relief is requested once per quarter, during the first inspection interval.

- PUMP NUMBER: 1D001PA-D, 2D001PA-D.
- 2. NUMBER OF ITEMS: 8 pumps
  - 3. ASME CODE CLASS:
- 4. ASME CODE, SECTION XI REQUIREMENTS: Per IWP-3100, differential pressure shall be measured on all pumps that are tested.
- 5. BASIS FOR RELIEF:

  These pumps are positive displacement Diesel
  Oil Transfer Pumps. The pump differential
  pressure is not a factor affecting pump
  performance, but rather dependent only on the
  inlet pressure to the pump. As the pump
  discharge pressure is constant, and the inlet
  pressure varies with tank level, the
  differential pressure is not a valid
  operational parameter.
- 6. ALTERNATE TESTING: Pump discharge pressure for positive displacement pumps is a valid operational parameter. This will be used to evaluate the Diesel Oil Transfer Pumps performance.
- 7. JUSTIFICATION:

  Using pump discharge pressure in lieu of pump differential pressure will provide meaningful pump performance data for evaluation of operational readiness of the Diesel Oil Transfer Pumps.
- 8. APPLICABLE TIME PERIOD: This relief is requested once per quarter during the first inspection interval.

#### INSERVICE TESTING PROGRAM PLAN

#### ASME CLASS 2 & 3 PUMPS BRAIDWOOD NUCLEAR POWER STATION

REVISION TABLE PAGE 1 of 4 TEST PARAMETERS L LUBRI-A S CATION SYSTEM INLET DIFF FLOW BEARING TEST PUMP NAME P & ID SPEED PRES PRES RATE VIBRATION TEMP INTERVAL LEVEL REMARKS PUMP NUMBER Yes PR-1 Yes Quarterly Yes Yes 1AF01PA Auxiliary Feedwater M-37 Pump Yes Yes Yes PR-1 Yes Quarterly AFOIPB Auxiliary Feedwater M-37 Yes Pump (Diesel) Yes PR-1 Yes Quarterly Yes M-122 No Yes 2AF01PA Auxiliary Peedwater Pump Yes Yes PR-1 Yes Quarterly Yes 2AF01PB Auxiliary Feedwater M-122 Yes les Pump Yes Yes PR-3 PR-1 PR-2 Quarterly Yes Note 2 M-66 No OCC01P Component Cooling Pump PR-2 Yes Yes PR-3 Quarterly Note 2 M-66 No Yes 1CC01PA Component Cooling Pump Yes PR-3 PR-1 PR-2 Quarterly Yes Note 2 Yes Component Cooling M-66 ICC01PB Pump Yes PR-3 Yes Note 2 No Yes PR-1 PR-Z Quarterly 2CC01PA Component Cooling M-56 Pump Note 2 Yes Yes PR-3 PR-1 PR-2 Quarterly Yes 2CC01PB Component Cooling M-66 No Pump No Yes Yes PR-1 PR-2 Quarterly No Note 1 Containment Spray M-46 ICS01PA Planp No PR-2 Quarterly Note 1 No Yes Yes Yes PR-1 Containment Spray M-46 1CS01PB Pump

TABLE PAGE

# INSERVICE TESTING PROGRAM PLAN

ASME CLASS 2, 6 3 PUMPS
BRAIDWOOD NUCLEAR POWER STATION REVISION

										4		2 of 4	
			0 4				TEST	TEST PARAMETERS	FERS				
PUMP NUMBER	PUMP NAME	El	< 02 02	SYSTEM P & ID	CERT	INLET PRES	DIFF	PLOW	VIBRATION	BEARING	TEST	LUBRI- CATION LEVEL	REMARKS
2CS01PA	Containment Sy Pump	Spray	7	M-129	No	S S	× es	res	PR-1	PR-2	Quarterly	No	Note 1
2020178	Containment Sp Pump	Spray	N	W 12.9	No	Yes	% es	Ve.s	PR-1	PR 2	Quarterly	No	Note 1
ICV01PA	Centrifugal Cl Pump	Charging	rvi .	₩ 9-	No	Yes	Yes	Yes	PR-1	Z es	Quarterly	Yes	
1CV01PB	Centrifugal Cl Pump	Charging	6.1	M-64	No	74 (0)	Yes	¥es S	PR-1	Yes	Quarterly	<i>J</i> B	
2CV01PA	Centrifugal Cl Pump	Charging	64	M-138	No	Yes	s es	Yes	PR-1	Yes	Quarterly	Si (4)	
2CV01PB	Centrifugal Charging Pump	harging	7	M-138	No	ST CO	ss es	Z es	PR-1	S es	Quarterly	Yes	
1D001PA	Diesel Oil Tra Pump	Transfer	m	M-50	No	Yes	PR-4	PR-3	PR-1	PR-2	Quarterly	No	Note 1
10001PB	Diesel Oil Tra Pump	Transfer	m	M 50	No	100 100 100 100 100 100 100 100 100 100	P.K4	PR-3	PR 1	52 24 25	Quarterly	No	Note 1
1B001PC	Diesel Oil Tra Pump	Transfer	m	M-50	No	NO SE SE SE SE SE SE SE SE SE SE SE SE SE	PR-4	PK-3	PR-1	PR-2	Quarterly	No	Note 1
1D001PD	Diesel Oil Tra	Transfer	es	M-50	No	Vess	PR-4	PR-3	PR-1	PR-2	Quarterly	No	Note 1
2D001FA	Diesel Ovl Tra	Transfer	m	M-130	No	Zes.	PR-4	PR-3	PR-1	PR: Z	Quarterly	Mo	Note 1

229	ķ.
46	ū
40	٨
	'n
	2
	7
143	۲.
	J.
25	n
-	3
75	
148	×
	٦
392	
L4	×
G	
217	и
	ĸ
16	ü
Alm	2
-	
(den	٠
2.	'n.
14.1	
-	۰
54	×
20	
m	7
E)	
	٠
15%	ü
$E^{\dagger}$	۲
20	
Ыă	ú
	ĸ
坐	3
	r
*	ď
p.	Ħ

ASME CLASS 2 & 3 PUMPS
BRAIDWOOD NUCLEAR POWER STATION REVISION

				BRATDW	000 NI	CLEAR	ASPER CLASS & S. FORES STUDIOS NUCLEAR POWER ST	BRAIDWOOD NUCLEAR POWER STATION	REVISION 4	ION	TABLE 3 of 4	PAGE 4
		0 4				TEST	PARAMETERS	TERS				
PUMP NUMBER	PUMP NAME	< 00 to	SYSTEM P & TD	SPEED	IMLET	DIFF		PLOW RATE VIBRATION	BEARING	TEST	LUBRI- CATION LEVEL	REMARKS
2D001PB	Diesel Oil Transfer Pump	m	M-130	No	Mess Mess	PR 4	PR-3	G S S S S S S S S S S S S S S S S S S S	PR-2	Quarterly	No	Note 1
2D001PC	Diesel Oil Transfer Pump	60	M-130	No	x es	PR-4	P. X	PR-1	PR-2	Quarterly	No	Note 1
2D001PD	Diesel Oil Transfer Pump	m	M-130	No	ž es Ž	7 24	PR T	PR-1	FR-2	Quarterly	No	Note 1
1KH01PA	Residual Heat Removal Pump	N	M-62	O.	SS SS	60 (0) (4)	Ke S	ex ex	PR-2	Quarterly	No	Note 1
16901P8	Residual Heat Removal Pump	N	M-62	No	Yes	90 34	Yes	FR-1	PR-2	Quarterly	No	Note 1
28HG1PA	Residual Heat Removal Pump	14	M-137	No	100 H	on D D	Yes.	Pag-1	PR-2	Quarterly	No	Note 1
2RH01PB	Residual Heat Removal Pump	N	M-137	No	Yes	Yes	on di Da	E E	PR-2	Quarterly	No	Note 1
1ST01PA	Safety Injection Pump	14	M-61	No	ses	¥ es	M F S	PR-1	Yes	Quarterly	SO SE	
15101798	Safety Injection Pump	N	M-61	No	Yes	Yes	in O	PR-1	V es s	Quarterly	74 60 80	

## INSERVICE TESTING PROGRAM PLAN

ASME CLASS 2 & 3 PUMPS BRAIDWOOD NUCLEAR POWER STATION REVISION

TABLE PAGE 4 of 4

		C L				TEST	PARAM	METERS				
PUMP NUMBER	PUMP NAME	A S S	SYSTEM P & ID	SPEED	INLET PRES			VIBRATION	BEARING TEMP	TEST INTERVAL	LUBRI- CATION LEVEL	REMARKS
2SI01PA	Safety Injection Pump	2	M-136	No	Yes	Yes	Yes	PR-1	Yes	Quarterly	Yes	
2S101PB	Safety Injection Pump	2	M-136	No	Yes	Yes	Yes	PR-1	Yes	Quarterl,	Yes	
1SX01PA	Essential Service Water Pump	3	M-42	No	Yes	Yes	PR-3	PR-1	Yes	Quarterly	Yes	Note 2
ISX01PB	Essential Service Water Pump	3	M-42	No	Yes	Yas	PR-3	PR-1	Yes	Quarterly	Yes	Note 2
2SX01PA	Essential Service Water Pump	3	M-42	No	Yes	Yes	PR-3	PR-1	Yes	Quarterly	Yes	Note 2
2SX01PB	Essential Service Water Pump	3 -	M-42	No	Yes	Yes	PR-3	PR-1	Yes	Quarterly	Yes	Note 2
0WO01PA	Control Room Chilled Water	3	M-118	No	Yes	Yes	Yes	PR-1	PR-2	Quarterly	Yes	Note 2
0W001PB	Control Room Chilled Water	. 3	M-118	No	Yes	Yes	Yes	PR-1	PR-2	Quarterly	Yes	Note 2

PROGRAM PLAN FOR VALVES

# Table of Contents

4.0	Pres	ervice/In	nservice Testing Program Plan for Valves	Page
	4.1	Program	Description	4-1
	4.2	Program	Tables	4-3
	4.3	Notes		4-9
		Note 1	Main Steam Isolation Valves	4.10
			CV System Boric Acid injection check valve	4-10
		Note	Main Feedwater Isolation Valves	4-10
			CV system letdown and make-up solation valves	4-10
		Note 5	RHR pumps suction isolation valves	
		Note 6	Intersystem LOCA check valves	4-10
			Reactor Vessel vent valves	4-11
			CV. RHR pump discharge check valves	4-11
		Note 9	CV, RHR ECCS check valves	4-11
			Main Feedwater waterhammer prevention valves	4-11
		Note 11	VQ Purge Supply and Exhaust Isolation valves	4-12
		Note 12	AF Suction and Steam Generator Check Valves	6-12
		Note 13	CV High Head Inject on Isolation Valves	4-12
		Note 14	SVAG Valves	4-12
		Note 15		4-13
			Main Predwater Regulating Valves	4-13
		Note 17	Main fledwater Regulating Bypass Valves	4-13
		Note 18	Fe Water Tampering Flow Control Valves	4-13
		Note 19	Deleted Additional Flow Courtor Agines	4-13
			Remote Position Indication of Solenoid Valves	4-13
		Note 21	Process Sample Check Valve Stroke Test	4-14
	4.4	Relief R	rante 2 - a	4-15
			pendix J valves	4-16
		VR-4 Co	rta nment spray NaOH additive check valves	4-19
		/R-" EC	CS injection check valves	4-20
		1 R-4 Co	intainment Spray ring header check valves	4-21
		VR-5 Ac	comulator discharge check valves	4-23
		VR-6 SI	Sump Suction check valve	4-24
		VR-7 DE		4-25
		VR-8 Co	mponent Cooling RC Pump thermal barrier valves	4-26
		VR-9 RC	pump seal injection CV check valves	4-27
		VR-10 In	strument Air Containment Isolation Valves	4-28
		VR-11 DE		4-30
		VR-12 Va	lves stroking normally in two seconds or less	4-31
			esel Generator Starting Air Solenoid Valves	4-33
		VR-14 DE		4-35
		VR-15 EX	CS Check Valve Stroke Testing	4-36
		VR-16 Co	ntainment Sump Outlet Isolation Valves	4-38
		VR-17 SX	Solenoid Valve Stroke Testing	4-40

PROGRAM DESCRIPTION

# Program Description

The Preservice/Inservice Testing Program for Class 1, 2, & 3 valves meets the requirements of Subsection IWV of the ASME Section XI Code, 1983 Edition. Where code requirements are determined to be impractical, specific requests for relief are written, referenced, and included with the tables. Additional valve relief requests may be necessary and these will be identified during subsequent inservice tasts. The tables list all code Class 1, 2 & 3 valves which have been assigned a specific code category as directed by Subsection IWV of Section XI. The tables are organized by system and further identified by code class and code category, using P&ID references.

After installation and prior to service, all valves identified in this program will be tested as required by Subsection IWV-3100 of Section XI of the ASME Code. These tests will be conducted under conditions similar to those to be experienced during subsequent inservice tests. When a valve or its cortrol system has been replaced or undergone maintenance that could affect its performance, it will be retested, prior to its return to service, to demonstrate that all performance parameters are within acceptable limits.

In the event a valve must be declared inoperable as a result of inservice testing, limitations on plant operations will be as stated in the Technical Specifications.

Section XI of the ASME Boiler and Pressure Vessel Code shall not be construed to supersede the requirements of the Technical Specifications.

PROGRAM TABLES

# Table Description

The following information is included in the summary tables:

## A. SYSTEM

The system in which a valve is located is denoted by the abbreviated system identification.

#### B. REVISION

The revision corresponds to the current revision of the program.

## C. PAGE

The pages are numbered sequentially and show the total number of pages.

# D. VALVE NUMBER

The valve number references the unique Braidwood Station equipment piece number (EPM). This specific valve number identifies the unit and system.

## E. P& ID

The P & ID column references the specific P & ID number and sheet number, which the valves are located on.

#### F. CLASS

The class refers to the ASME class assigned to the specific valve.

## G. VALVE CATEGORY

The valve category identifies the valve category defined in subarticle IWV-2200 of ASME Section XI.

#### H. VALVE SIZE

The valve size lists the nominal pipe size of each valve in inches.

# I. VALVE TYPE

The valve type categorizes the valve as to its valve design. The following abbreviations will be used to identify specific valve types:

Gate GA Globe Butterfly BTF Check CK Safety Valve SV Relief Valve RV Power Operated Relief Valve PORV Diaphragm Seated D Plug P Angle 2.37

# J. ACT. TYPE

The actuator type identifies the valve actuator. The following abbreviations will be used to designate specific types of valve actuators:

Motor Operated M.O.
Air Operated A.O.
Hydraulic Operated H.O.
Self Actuated S.A.
Manual M
Solenoid Operated S.O.

## K. NORMAL POSITION

Normal position identifies the normal operating position of a specific valve. O for open and C for closed.

# L. STROKE DIRECT.

The stroke direction identifies the direction the valve actuator moves a specific valve stem to place the valve disc in a position to perform its designed safety function. Q for open, and Q for closed. This identifies the direction the valve stem will move when tested.

Note: Exercising of power operated valves will involve stroking the valves to both its open and closed positions. The valve will only be timed, however, in the direction designated to perform its safety function. Therefore, the program plan specifies only the direction in which valves must be stroked to be timed.

## M. TEST METHOD

The test method column identifies specific tests which will be performed on specific valves to fulfill the requirements of Subsection IWV of Section XI. The tests and abbreviations used are as follows:

# 1. Seat Leakage Test (Lt)

The seat leakage tests will meet the requirements of IWV-3420 for Category A valves. On these valves, seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their safety function.

# 2. Full Stroke Test (St)

Valve exercising tests of Category A and B valves will be performed in accordance with IWV-3410. The test will include full stroke testing to verify operability in the direction required to fulfill the required safety function.

# 3. Check Valve Exercise Test (Ct)

The check valve disc will be exercised to the position required to fulfill its safety function in accordance with IWV-3520.

# 4. Safety Valve Setpoint Check (Rt)

Safety value setpoints will be verified in accordance with IWV-3510 of ASME Section XI.

#### 5. Fail Safe Test (Ft)

Valves with fail safe actuators will be tested to verify the valve operator moves the valve stem to the required fail safe position upon loss of actuating power in accordance with IWV-3415.

This will be accomplished during the normal stroking of the valve. Upon stroking a valve out of its fail position, the solenoid operator is de-energized causing air to be vented which, in turn, allows the spring to move the valve to its fail position. This condition simulates loss of actuating power (Electric and/or Air) and hence satisfies the fail test requirements of IWV-3415.

## 6. Position Indication Check (IT)

Valves which are identified to require a Position Indication Test (IT) will be inspected in accordance with IWV-3300 of ASME Section XI.

# 7. Part-Stroke Test (%t)

If only limited operation is practical during plant operation, the valves shall be part-stroke (Xt) exercised during plant operation and full-stroke exercised during cold shutdowns, in accordance with IWV-3412 or IWV-3522.

# N. MAK STROKE TIME

for power operated valvus requiring a full stroke test (St), in order to meet the requirements of IAV-3413, the maximum allowable stroke time is specified in seconds. N/A indicates that time is not a factor affecting valve operability.

# O. TEST MODE

Denotes the frequency and plant condition necessary to perform a given test. The following abbreviations are used:

# 1. Normal Operation (OP)

Tests designated OP will be done once every 3 months. except in those modes in which the valve is not required to be operable.

# 2. Semiannual (S)

Tests designated (D) will be conducted once every 6 months, except in those modes in which the valve is not required to be operable.

# 3. Cold Shutdown (CS)

Valves that cannot be operated during plant operation shall be full stroke exercised during cold shutdowns. Valve testing will commence within 48 hours after shutdown, with completion of cold shutdown valve testing not being a prerequisite to plant startup. Valve testings which are not completed during a cold shutdown shall be completed during subsequent cold shutdowns to meet the code specified testing frequency.

For planned shutdowns, where ample time is available, and testing all the valves identified for cold shutdown test frequency in the ISI Program will be accomplished, e.ceptions to the 48 hours may be taken. In case of frequent cold shutdowns, valve testing need not be performed more often than once during any three-month period.

## 4. Reactor Refueling (RR)

Tests with this designation will be conducted during reactor refueling outages only.

# P. RELIEF REQUEST

Relief requests reference a specific request for relief from code requirements. All relief requests are included immediately following the presentation tables.

NOTES

Closure of the Main Steam isolation valves, 1MS001A-D and 2MS001A-D, during unit operation would result in reactor trip and safety injection actuation. To avoid this transient, these valves will be partially stroked every three months. Full stroke testing will be done during Mode 4. 5 or 6 as plant conditions allow per IWV-3412.

#### NOTE 2

The testing of any emergency boration flowpath valves during unit operation is not practical. Stroke testing 1CV8104/2CV8104 (Borid Acid Injection Isolation Valves), check valves 1CV8442/2CV8442. 1CV8546/2CV8546 (RWST to CV Pump Suction Valves), 1CV8804A/2CV8804A (RH to CV Pump Suction Iso Valves), or 1CV112D.E/2CV112D.E (RWST to CV Pump Suction Iso Valves) could cause boration of the RCS resulting in a cooldown transient. Aligning the system in this configuration, even for a short duration, is therefore unacceptable. These valves will be stroke tested during cold shutdown in accordance with IWV-3412.

# NOTE 3

These values are the Main Feedwater isolation values, 1FW009A-D. 2FW009A-D, and cannot be fully stroked during operation as feedwater would be terminated causing a reactor trip. They will, however, be partially stroke tested during operation as well as full stroke tested during cold shutdown per the requirements of 1WV-3412.

# NOTE 4

Closure of these letdown and makeup valves, 1CV112B-C/2CV112B-C. 1CV8105/1CV8105, 1CV8106/2CV8106, 1CV8152/2CV8152 and 1CV8160/2CV8160 during normal unit operation would cause a loss of charging flow which would result in a reactor coolant inventory transient, and possibly, a subsequent reactor trip. These valves will be full stroke exercised during cold shutdown as required by IWV-3412.

#### NOTE 5

The 1RH8701A.B. 1RH8702A.B. 2RH8701A.B. 2RH8702A.B valves are the isolation boundary between the Residual Heat Removal Pumps and the Reactor Coolant System. Opening one of these valves during unit operation will leave only one valve isolating RHR from the high RCS pressure. This would place the plant in an undesirable condition. Therefore, the valves will be full stroke tested during cold shutdown, per IWV-3522.

The following valves have been identified as intersystem LOCA valves. They form a pressure boundary between the RCS and other essential components in order to protect these components from damage. These valves will be leak tested in accordance with the Braidwood Technical Specifications.

	transmitted as	CHARLES AND A SECOND	CHICAGO CA A
1RH8701A.B	1RH8702A.B	2RH8701A-B	2RH8702A-B
1RH8705A.B	1518815	2RH8705A-B	2518815
1S18818A-D	1S18905A-D	2SI8818A-D	2518905A-D
1SI8819A-D	1518948A-D	2S18819A-D	2818948A-D
1S18841A.B	1518949A-D	2SI8841A.B	2S18949A-D
1518900A-D	1SI8956A-D	2318900A-D	3518996A-D

# NOTE 7

The reactor pressure 'essel vent valves, 1RC014A-D and 3RC014A-D, cannot be stroked during unit operation as they provide a pressure boundary between the Reactor Coolant system and containment atmosphere. Failure of one of these valves in the open position would result in leaving only one valve as the high pressure boundary. These valves will be stroked when the RCS pressure is at a minimum during Cold Shutdown, per IWV-3412.

# NOTE 8

The Residual Heat Removal Pump discharge check valves. 1RM8730A.B. and 2RH8730A.B cannot be full stroke exercised during unit operation due to the high RCS pressure. These check valves will be partial stroke tested, however, on a quarterly basis and full stroke exercised during cold shutdown. This is in accordance with IWV-3522.

# NOTE 9

Due to RCS pressure, the check valves listed below cannot be full stroke exercised during unit operation:

1SI8818A-D, 2SI88"	BA-D	RHR (	Cold	Led	Inj	ection
1518958A-B, 2518:2	BA-D	RWST	50	RHR	Pump	Suction

These valves will be full stroke exercised uuring cold shutdown. in accordance with IWV-3522.

The IFW039A-D and AFW039A-D valves cannot be stroke tested during unit operation as losure of these valves would result in termination of the waterhammer prevention feedwater flow. This would result in undesirable affects on the Steam Generators. These valves will be full stroke tested during cold shutdown per IWV-3412.

### NOTE 11

The Primary Containment Purge Supply and Exhaust Valves. 1VQ001A.B. 1VQ002A.B. 2VQ001A.B. 2VQ002A.B. and cannot be stroke timed during unit operation. These 48 inch valves are the only isolation points between the containment atmosphere and the environment. Stroking these valves at any time other than mode 5 or 6 would be a violation of the Braidwood Technical Specifications. These valves will be full stroke tested during cold shutdown in accordance with TWV-3412. These valves will be leak tested semi-annually in accordance with Braidwood Technical Specifications.

The Primary Containment Mini-Purge and Exhuast Valves: 1VQ004A.B. 1VQ005A-C. 2VQ004A-B. 2VQ005A-C. and the Post LOCA Purge Exhaust Valve 1VQ003. 2VQ003 will be leak tested every 3 months in accordance with Braidwood Station Technical Specifications.

### NOTE 12

The Auxiliary Feedwater check valves, 1AF001A-B, 1AF003A-B, 1AF014A-H, 1AF029A-B, 2AF001A-B, 2AF003A,B, 2AF014A-H, 2AF029A,B, cannot be full stroke tested during unit operation, as this would induce potentially damaging thermal stresses in the upper feedwater nozzle piping. The 1AF001A-B, 1AF003A-B and 2AF001A-B, 2AF003A-B valves will be partially stroke tested during operation, and all valves full stroke tested during cold shutdown. This will be performed per Tech Spec. 4.7.1.2.2 and is in accordance with IWV-3522.

#### NOTE 13

The High Head Injection Isolation Valves, ISI8801A.B and 2918801A.B cannot be stroke tested during unit operation. These valves isolate the CV system from the RCS. Opening them during operation would enable charging flow to pass directly into the RCS, bypassing the regenerative heat exchanger. The temperature difference of the charging flow and the RCS could result in damaging thermal stresses to the cold leg nozzles as well as causing a reactivity change which would, in turn, cause a plant transient. These valves will be full stroke tested during cold shutdown in accordance with IWV-3412.

The safety injection system SVAG (Spurious Valve Actuation Group) valves, 1S18802A, B. 1S18806, 1S18809A, B. 1S18813, 1S18435, 1S18840, 2S18802A, B. 2S18806, 2S18809A, B. 2S18813, 2S18835, and 2S18840, cannot be stroke tested during unit operation. These valves are required by the Technical Specifications to be deenergized in their proper positions during unit operation. Stroking then would be a violation of the Technical Specifications as well as defeating the de-energized SVAG valve principle. These valves will be stroke tested during cold shutdown when they are not required to be de-energized. This is in accordance with INV-3412.

NOTE 15

# NOTE 16

The closure of the Main Feedwater Regulating Valves, 1FW510, 1FW520, 1FW530, 1FW540, 2FW530, 2FW530 and 2FW540, during unit operation would cause a loss of feedwater to the steam generators, resulting in a plant transient with a possible reactor trip as a result. These valves will be fail safe tested (Ft) per the Braidwood Technical Specifications. These valves are noncode valves and as such, do not require the full scope of Section XI required testing. They are included in the program for operability tracking purposes only.

# NOTE 17

The closure of the Main Feedwater Regulating Bypass Valves, 1FW510A. 1FW520A, 1FW530A, 1FW540A, 2FW510A, 2FW520A, 2FW50A, and 2FW540A during unit operation would require the Main Fee. After Regulating Valves to correct for bypassed flow and could result in a plant transient with a possible reactor trip as a result. These valves will be fail safe tested (Ft) per the Braidwood Technical Specifications. These valves are noncode valves and as such, do not require the full scope of section XI required testing. They are included in the program for operability tracking purposes only.

# NOTE 18

The Feedwater Tempering Flow control valves 1FW034A-D and 2FW034A-D will be to ted per the Braidwood Technical Specifications. These valves are noncode, and as such do not require the full scope of ASME Section XI required testing. They are included in the program for operability tracking purposes only.

#### NOTE 19

- DELETED - (Incorporated into NOTE 14)

The remote position indicator for these valves cannot be observed directly due to the encapsulated design of the solenoid valve body. During the indication test, indirect evidence of the necessary valve disk movement shall be used in accordance with IWV-3412(b). The valves affected are listed below:

1CV8114	1PS230A.B	2PS228A.B
1CV8116	1RC014A-D	2PS229A.B
1PS228A.B	2CV8114	2PS230A.B
1PS229A.B	2CV8116	2RC014A-D

# NOTE 21

Per NRC mandated augmented testing requirements, the 1PS231A,B and 2PS231A,B check valves shall be stroke tested open (Ct), to ensure post accident operability of the Hydrogen Monitoring System.

4.4

RELIEF REQUESTS

# Valve Number:

All primary containment isolation valves in this program are listed as Category A:

1				VALVE #		VALVE #
1		VALVE =		Age at the second		
2) 1CC9413A 46) 1PS9354B 90) 1VQ0023 3) 1CC9414 47) 1PS9355A 91) 1VQ003 4) 1CC9416 48) 1PS9355B 92) 1VQ004A 5) 1CC9438 49) 1PS9356B 93) 1VQ004B 5) 1CC9438 50) 1PS9356B 94) 1VQ005B 6) 1CC9518 51) 1PS9357A 95) 1VQ005B 7) 1CC9518 51) 1PS9357B 96) 1VQ005C 8) 1CC9518 52) 1PS9357B 96) 1VQ005C 9) 1CS007A 53) 1RE9157 97) 1VQ016 110 1CS007B 54) 1RE9159B 99) 1VQ017 111 1CS002B 56) 1RE9159B 99) 1VQ018 122 1CS098B 56) 1RE9160A 100) 1VQ019 123 1CV810A 57) 1RE9160B 101) 1VM190 140 1CV8113 59) 1RE1003 103) 1W0006A 141 1CV8113 59) 1RE1003 103) 1W0006B 161 1CV813 59) 1RE1003 103) 1W0006B 162 1CV816A 60) 1RF026 104) 1W0007A 163 1FC010 63) 1RY8026 107) 1W0027A 170 1CV5152 61) 1RY802B 108) 1W0020B 191 1FC010 63) 1RY802B 108) 1W002CB 201 1FC011 64) 1RY802B 108) 1W002CB 211 1FC012 65) 1RY8033 109) 1W0056B 221 1TA066 67) 1RY8046 110) 1W0056B 231 1TA066 67) 1RY8047 111) 1PR002E 241 1TA091 683 1SA032 112) 1PR002B 243 1TA066 67) 1RY8047 111) 1PR002B 244) 1TA091 683 1SA032 112) 1PR002B 255 1CG057A 693 1SA003 113) 1PR033B 266 1CG057A 693 1SA003 113) 1PR033B 267 1CG08B 74) 1SD002B 115) 1PR002F 271 1CG08B 75) 1SD002B 115) 1PR002B 283 1CG081 72) 1SD002B 115) 1PR002B 273 1CG08B 75) 1SD002B 115) 1PR002B 274 1CG08B 75) 1SD002B 117) 1PR033C 310 1CG08B 75) 1SD002B 117) 1PR033C 311 1CG08B 75) 1SD002B 117) 1PR033C 311 1CG08B 75) 1SD002B 118) 1PR033B 311 1CG08B 75) 1SD002B 118) 1PR033B 312 1CG08B 75) 1SD002B 118) 1PR033B 313 1CG08B 75) 1SD002B 118) 1PR033B 314 1CG08B 75) 1SD002B 118) 1PR033B 315 1PR032 75) 1SD002B 118) 1PR033B 316 1PS22B 82) 1SB880 1PS22B 82) 1SB880 1PS22B 82) 1SB880 1PS22B 84) 1SB888 1PS22B 82) 1SB880 1PS22B 84) 1SB888 1PS23B 85) 1SB880 1PS23B 85) 1SB886 1PS23B	11	100485	45)	1PS9354A		
3) 1CC9414 47) 1FS9355A 91) 1VQ004A 4) 1CC9416 48) 1FS9355B 92) 1VQ004B 5) 1CC9438 49) 1FS9356A 93) 1VQ004B 5) 1CC9438 50) 1FS9356A 93) 1VQ004B 6) 1CC9458 51) 1FS9357A 95) 1VQ005B 7) 1CC9518 51) 1FS9357B 96) 1VQ005C 8) 1CC9534 52) 1FS9357B 96) 1VQ005C 1CS007B 54) 1RE9157 97) 1VQ016 10) 1CS007B 54) 1RE9159A 98) 1VQ017 11) 1CS007B 54) 1RE9159A 98) 1VQ017 12) 1CS008B 56) 1RE9160A 100) 1VQ019 12) 1CS008B 56) 1RE9160B 101) 1VM191 13) 1CV8100 57) 1RE9160B 101) 1VM191 14) 1CV8112 58) 1RE1003 103) 1W0006A 16) 1CV8113 59) 1RE1003 103) 1W0006A 16) 1CV8160 60) 1RF026 104) 1W0006B 17) 1CV8152 61) 1RF026 104) 1W0007B 18) 1FC010 63) 1RY8026 107) 1W0007B 19) 1FC010 63) 1RY802B 108) 1W0020B 20) 1FC011 64) 1RY802B 108) 1W0020B 21) 1FC012 65) 1RY8033 109) 1W0056A 22) 1A066 67) 1RY8047 111) 1PR002C 24) 1IA081 68) 1SA032 112) 1PR002C 24) 1IA081 68) 1SA032 112) 1PR002C 24) 1IA081 68) 1SA033 113) 1PR033A 25) 1CG057A 69) 1SA033 113) 1PR033A 26) 1CG080 71) 1SD002B 115) 1PR002F 27) 1CG080 71) 1SD002B 115) 1PR002B 28) 1CG081 72) 1SD002C 116) 1PR002F 29) 1CG082 73) 1SD002C 116) 1PR003B 31) 1CG084 75) 1SD002B 115) 1PR033D 30) 1CG083 74) 1SD002B 115) 1PR033D 31) 1CG084 75) 1SD002B 115) 1PR033D 32) 1CG085 76) 1SD005C 33) 1PR001A 77) 1SD002B 33) 1PR032 79) 1SD005B 34) 1PS22BA 81) 1SD005B 35) 1PR322BA 81) 1SD005B 37) 1PS330B 85) 1S18880 40) 1PS323A 85) 1S18880 41) 1PS330B 85) 1S18880 42) 1PS330B 85) 1S18964 43) 1PS330B 85) 1S18968						
4) 1CC9416 48) 1PS93556 92) 1VQ004B 5) 1CC9428 49) 1PS9356A 93) 1VQ004B 6) 1CC9436 50) 1PS9356B 94) 1VQ005A 7) 1CC9518 51) 1PS9357A 95) 1VQ005B 8) 1CC9534 52) 1PS9357B 96) 1VQ005C 1CS007A 53) 1RE9157 97) 1VQ016 10) 1CS007B 54) 1RE9159A 98) 1VQ017 11) 1CS008A 55) 1RE9159B 99) 1VQ017 12) 1CS008B 56  1RE9159B 99) 1VQ018 12) 1CS008B 56  1RE9160B 101) 1VM190 12) 1CV8110 57) 1RE9160B 101) 1VM191 14) 1CV8117 58) 1RE1003 103) 1M0006A 16) 1CV8160 60  1RF026 104) 1W0006B 17) 1CV8152 61) 1RF026 104) 1W0006B 16) 1CV8160 60  1RF026 104) 1W0007B 17) 1CV8152 61) 1RF027 105) 1W0007A 18) 1FC009 62) 1RY802B 108) 1W0020A 19) 1FC011 64) 1RY802B 108) 1W0020A 20) 1FC011 64) 1RY802B 108) 1W0020A 21) 1FC012 65) 1RY8046 110) 1W0056B 22) 1TA066 67) 1RY8047 111) 1PR002E 23) 1TA066 67) 1RY8047 111) 1PR002E 24) 1TA091 68) 1SA033 13) 1PR033A 25) 1OG057A 69) 1SA033 13) 1PR033A 26) 1OG079 70 1SD002A 114) 1PR032B 27) 1OG080 71) 1SD002B 115) 1PR002F 28) 1OG081 72) 1SD002B 115) 1PR002B 29) 1CO882 73) 1SD002B 115) 1PR002B 33) 1PR01A 77) 1SD002B 34) 1PR02B 78) 1SD002B 33) 1PR03B 78) 1SD005C 37) 1PS228A 81) 1SD005B 36) 1PR032 79) 1SD005B 37) 1PS228A 81) 1SD005B 39) 1PS229B 84) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230B 85) 1S18880 42) 1PS231A 87) 1VQ001B				1PS9355A		
5) 1CC9438						
6) 1CC9456 50) 1PS9356E 94) 1VQ005A 7) 1CC9518 51) PS9357A 95) 1VQ005B 8) 1CC9534 52) 1PS9357B 96) 1VQ005B 9) 1CS007A 53) 1RE9157 97) 1VQ016 1CS007B 54) 1RE9159A 98) 1VQ017 10) 1CS007B 54) 1RE9159B 99) 1VQ018 11) 1CS008A 55) 1RE9150A 100) 1VQ019 12) 1CS008B 56) 1RE9160A 100) 1VQ019 13) 1CV8100 57) 1RE9160B 101) 1VM190 14) 1CV8117 58) 1RE1003 103) 1MO006A 15) 1CV8113 59, 1RE1003 103) 1MO006A 16) 1CV8160 60) 1RF026 104) 1W0006B 17) 1CV8152 61) 1RF027 105) 1W0007A 18) 1FC009 62) 1RY8025 106) 1W0007B 19) 1FC010 63) 1RY8026 107) 1W0020A 19) 1FC011 64) 1RY802B 108) 1W0020B 20) 1FC011 65) 1RY8033 109) 1W0056A 21) 1FC012 65) 1RY8046 110) 1W0056A 22) 1TA065 66) 1RY8046 110) 1W0056A 23) 1A066 67) 1RY8047 111) 1PR002E 24) 1TA065 66) 1RY8047 111) 1PR002E 24) 1TA065 69) 1SA033 113) 1PR003A 25) 1CG057A 69) 1SA033 113) 1PR003A 26) 1CG079 70) 1SD002A 114) 1PR033B 26) 1CG079 70) 1SD002B 115) 1PR002F 27) 1CG08D 71) 1SD002B 115) 1PR003F 28) 1CG08B 72) 1SD002C 116) 1PR003B 29) 1CG08B 73) 1SD002C 116) 1PR033D 31) 1CG084 75) 1SD002B 33) 1PR001A 77) 1SD002B 33) 1PR001B 76) 1SD005B 33) 1PR001B 76) 1SD005B 33) 1PR001B 76) 1SD005B 33) 1PR001B 76) 1SD005B 33) 1PR002B 79) 1SD005B 33) 1PR001B 76) 1SD005B 33) 1PR003B 79) 1SD005B 34) 1PS228B 82) 1S18871 39) 1PS228B 82) 1S18880 40) 1PS229B 84) 1S1888B 41) 1PS230B 86) 1S1896B 43) 1PS231A 87) 1VQ001A						
7) 1CC9518 51) 1PS9357A 95) 1VQ005B 8) 1CC9534 52) 1PS9357B 96) 1VQ005C 1CS007A 53) 1RE9157 97) 1VQ016 10) 1CS007B 54) 1RE9159A 98) 1VQ017 11) 1CS008A 55) 1RE9159A 98) 1VQ017 11) 1CS008A 55) 1RE9160B 100) 1VQ019 12) 1CS058E 56) 1RE9160B 101) 1VM190 12) 1CS0510 57) 1RE9160B 101) 1VM190 13) 1CV8100 57) 1RE9160B 101) 1VM191 14) 1CV8112 58) 1RE9170 102) 1VM191 15) 1CV8113 59) 1RE1003 103) 1W0006A 16) 1CV8160 60) 1RF026 104) 1W0006B 17) 1CV8152 61) 1RF027 105) 1W0007A 18) 1FC009 62) 1RY8025 106) 1W0007B 19) 1FC010 63) 1RY8026 107) 1W0020A 19) 1FC011 64) 1RY802B 108) 1W0020B 11) 1FC012 65) 1RY8033 109) 1W0056A 12) 1RO012 66) 1RY8046 110) 1W0056B 12) 1A066 67) 1RY8047 111) 1PR002C 13) 1A066 67) 1RY8047 111) 1PR002C 24) 1A091 68) 1SA032 112) 1PR002C 24) 1A091 68) 1SA032 112) 1PR002C 24) 1A091 68) 1SA032 113) 1PR033A 26) 1CG057A 69) 1SA033 113) 1PR033A 26) 1CG057A 69) 1SA002A 114) 1PR032B 26) 1CG079 70) 1SD002A 114) 1PR033C 27) 1CG08D 71) 1SD002B 115) 1PR002F 28) 1CG08C 73) 1SD002C 116) 1PR002F 29) 1CG08C 73) 1SD002C 116) 1PR002F 33) 1PR001A 77) 1SD002B 115) 1PR033C 30) 1CG08B 76) 1SD005C 33) 1PR001A 77) 1SD002B 118) 1PR033D 31) 1CG08B 76) 1SD005B 33) 1PR001B 78) 1SD005B 33) 1PR001B 78) 1SD005B 35) 1PR032 79 1SD005B 35) 1PR032 79 1SD005B 36) 1PR032B 82) 1S18880 40) 1PS228B 82) 1S18880 40) 1PS228B 84) 1S1888B 44) 1PS230B 86) 1S1896B 43) 1PS231A 87) 1VQ001A 44) 1PS230B 86) 1S1896B 43) 1PS231A 87) 1VQ001A						
8) 10C99544 52) 1PS9357B 96) 1VQ005C 9) 1CS007A 53) 1RE9157 97, 1VQ016 10) 1CS007B 54) 1RE9159A 98) 1VQ017 11) 1CS008A 55) 1RE9159B 99) 1VQ018 12) 1CS008B 56) 1RE9160A 100) 1VQ019 13) 1CV8100 57) 1RE9160B 101) 1VM190 14) 1CV8117 58) 1RE9170 102) 1WM191 14) 1CV8113 59) 1RE1003 103) 1W0006A 16) 1CV8160 60) 1RF026 104) 1W0006B 16) 1CV8160 60) 1RF026 104) 1W0006B 17) 1CV8152 61) 1RF027 105) 1W0007A 18) 1FC009 62) 1RY8025 106) 1W0007B 19) 1FC010 63) 1RY8026 107) 1W0020A 20) 1FC011 64) 1RY8028 108) 1W0020B 21) 1FC012 65) 1RY8033 109) 1W0056A 22) 1A065 66) 1RY8046 110) 1W0056B 23) 1A066 67) 1RY8047 111) 1PR002E 23) 1A066 67) 1RY8047 111) 1PR002E 24) 1A091 68) 1SA032 112) 1PR002C 24) 1A091 68) 1SA033 113) 1PR023A 25) 1CGC57A 69) 1SD002A 114) 1PR033B 25) 1CGC57A 69) 1SD002B 115) 1PR02C 28) 1CG080 71) 1SD002B 115) 1PR02C 29) 1CG082 73) 1SD002B 116) 1PR033D 30) 1CG083 74) 1SD002B 116) 1PR033D 31) 1CG084 75) 1SD002B 116) 1PR033D 33) 1PR001A 77) 1SD002B 118) 1PR033D 34) 1PR001B 78) 1SD005B 33) 1PR001A 77) 1SD002B 33) 1PR001B 78) 1SD005B 33) 1PS228A 81) 1SD005B 34) 1PS228B 82) 1S18871 39) 1PS228A 81) 1SD005B 31) 1CG08B 76) 1SD005C 37) 1PS228A 81) 1SD005B 38) 1PS228B 82) 1S18871 39) 1PS228B 84) 1S18888 41) 1PS230A 85) 1S18968 42) 1PS231A 87) 1VQ001A					95)	
9) ICSDO7A 53) IRE9157 97) IVQ016 10) ICSD07B 54) IRE9159A 98) IVQ017 11) ICSD02A 55) IRE9159B 99) IVQ018 12) ICSD08B 56) IRE9160A 100) IVQ019 12) ICSD08B 56) IRE9160B 101) IVM190 13) ICV8100 57) IRE9160B 101) IVM190 14) ICV8117 56) IRE9170 102) IVM191 14) ICV8118 59) IRE1003 103) IWOC06A 15) ICV813 59) IRE1003 103) IWOC06A 16) ICV8160 60) IRF026 104) IWO007B 17) ICV8152 61) IRF027 105) IWO007A 18) IFC009 62) IRY8025 106) IWO007B 19) IFC010 63) IRY8026 107) IWO020A 19) IFC011 64) IRY8028 108) IWO020B 20) IFC011 64) IRY8028 108) IWO020B 21) IFC012 65) IRY8033 109) IWO056A 22) IIAO65 66) IRY8046 110) IWO056A 23) IIAO66 67) IRY8047 111) IPR002E 23) IIAO66 67) IRY8047 111) IPR002E 24) IIAO91 68) ISAO32 112) IPR002G 24) IIAO91 68) ISAO33 113) IPR033A 25) IOG057A 69) ISAO33 113) IPR033B 25) IOG057A 69) ISAO33 113) IPR033B 26) IOG079 70) ISD002A 114) IPR033B 26) IOG081 72) ISD002B 115) IPR002F 27) IOG080 71) ISD002B 115) IPR002F 28) IOG081 72) ISD002C 116) IPR002H 32) IOG085 76) ISD002B 33) IPR001A 77) ISD002B 34) IPR001B 78) ISD005C 37) IPS228A 81) ISD005D 38) IPS228B 82) ISI8871 39) IPS228B 84) ISI8888 41) IPS230A 85) ISI8968 43) IPS231A 87) IVQ001A						
10						
11) 1CSOO8A 55) 1RE9159B 99) 1VQ019 12) 1CSOO8B 56  1RE9160B 100) 1VQ019 13) 1CV8100 57  RE9160B 101) 1/M190 14) 1CV8112 56  1RE9170 102) 1/M191 15) 1CV8113 59  1RE1003 103) 1/M0006A 16) 1CV8160 60  1RF026 104  1/M0006B 16  1CV8160 60  1RF026 105  1/M0007A 17  1CV8152 61  1RF027 105  1/M0007A 18  1FC009 62  1RY8025 106  1/M0007B 19  1FC010 63  1RY8026 107  1/M0020A 19  1FC011 64  1RY8028 108  1/M0020B 20  1FC011 64  1RY8028 108  1/M0020B 21  1FC012 65  1RY8033 109  1/M0056A 22  11A065 66  1RY8046 110  1/M0056B 23  1IA066 67  1RY8047 111  1PR002E 23  1IA066 67  1RY8047 111  1PR002E 24  1IA091 68  1SA032 112  1PR002C 24  1IA091 68  1SA032 112  1PR002C 24  1IA091 70  1SD002A 114  1PR033B 25  1OG087A 70  1SD002A 114  1PR033B 25  1OG080 71  1SD002B 115  1PR002F 27  1OG080 71  1SD002B 115  1PR002F 28  1OG081 72  1SD002B 116  1PR003B 30  1OG083 74  1SD002B 117  1PR033D 30  1OG084 75  1SD005B 33  1PR001A 77  1SD005B 34  1PR001B 78  1SD005B 35  1PR032 79  1SD005B 36  1PR066 80  1SD005B 37  1PS228B 82  1S18871 39  1PS228B 82  1S18871 39  1PS228B 82  1S18888 41  1PS230A 85  1S18888 41  1PS230A 85  1S18888 41  1PS230A 85  1S18968 43  1PS231A 87  1VQ001A						
12) 1CS098E 56) 1RE9160A 100) 1VQ019 13) 1CV8100 57) 1RE9160B 101) 1VM190 14) 1CV8117 58) 1RE9170 102 1VM191 14) 1CV8113 59) 1RE1003 103) 1W0006A 15) 1CV8113 59) 1RE1003 103) 1W0006A 16) 1CV8160 60 1RF026 104) 1W0006B 17) 1CV8152 61) 1RF027 105) 1W0007B 18) 1FC009 62) 1RY8025 106) 1W0007B 19) 1FC010 63) 1RY8026 107) 1W0020A 20) 1FC011 64) 1RY8028 108) 1W0020B 21) 1FC012 65) 1RY8033 109) 1W0056A 22) 11A065 66) 1RY8046 110) 1W0056A 23) 11A066 67) 1RY8047 111) 1PR002B 23) 11A066 67) 1RY8047 111) 1PR002B 24) 11A091 68 1SA032 112) 1PR002B 24) 11A091 69) 1SA033 113) 1PR033B 25) 10G057A 69) 1SA033 113) 1PR033B 26) 10G079 70) 1SD002A 114) 1PR033B 27) 10G080 71) 1SD002B 115) 1PR002F 27) 10G080 72) 1SD002C 116) 1PR002B 28) 10G081 72) 1SD002C 116) 1PR002B 31) 10G084 75) 1SD002D 117) 1PR033D 31) 10G084 75) 1SD002B 33) 1PR01A 77) 1SD002B 33) 1PR001A 77) 1SD002B 34) 1PR02B 79) 1SD005B 35) 1PR032 79 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18968 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A					99)	
13) 1CV81L0 57) 1RE9160E 101) 1VM190 14) 1CV8112 58) 1RE9170 102) 1VM191 15) 1CV8113 59) 1RE1003 103) 1W0006A 16) 1CV8160 60) 1RF026 104) 1W0006B 17) 1CV8152 61) 1RF027 105) 1W0007A 18) 1FC009 62) 1RY8025 106) 1W0007B 19) 1FC011 63) 1RY8026 107) 1W0020A 20) 1FC011 65) 1RY8028 108) 1W0020B 21) 1FC012 65) 1RY8033 109) 1W0056A 22) 11A065 66) 1RY8046 110) 1W0056B 23) 11A066 67) 1RY8047 111) 1PR002E 24) 11A091 68) 1SA032 112) 1PR002C 24) 1IA091 68) 1SA032 112) 1PR002C 24) 1IA091 70) 1SD002A 114) 1PR033B 25) 10G057A 69) 1SA033 113) 1PR033A 25) 10G080 71) 1SD002B 115) 1PR002F 27) 10G080 72) 1SD002C 116) 1PR002H 28) 10G081 72) 1SD002C 116) 1PR002H 29) 10G082 73) 1SD002D 117) 1PR033D 30) 10G083 74) 1SD002D 117) 1PR033D 31) 10G084 75) 1SD002F 32) 10G085 76) 1SD002C 33) 1PR01A 77) 1SD002H 34) 1PR01B 78) 1SD005D 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS30B 86) 1S18968 43) 1PS231A 87) 1VQ001A					100)	
14) 1CV8117 58) 1RE9170 102) 1MM191 15) 1CV8113 59) 1RE1003 103) 1W0006A 16) 1CV8160 60) 1RF026 104) 1W0006B 16) 1CV8152 61) 1RF027 105) 1W0007A 17) 1CV8152 61) 1RF027 105) 1W0007A 18) 1FC009 62) 1RY8025 106) 1W0007B 19) 1FC010 63) 1RY8026 107) 1W0020A 19) 1FC011 64) 1RY8028 108 1W0020B 20) 1FC011 64) 1RY8028 109 1W0056A 21) 1FC012 65) 1RY8033 109 1W0056A 22) 11A065 67) 1RY8047 111) 1PR002E 23) 11A066 67) 1RY8047 111) 1PR002E 24) 11A091 68) 1SA032 112) 1PR002G 24) 11A091 68) 1SA033 113) 1PR033A 25) 1CGC57A 69) 1SA033 113) 1PR033A 25) 1CGC57A 69) 1SA033 113) 1PR033B 25) 1CGC57A 69) 1SD002A 114) 1PR03B 27) 1CG080 71) 1SD002B 115) 1PR002F 27) 1CG080 72) 1SD002B 115) 1PR002F 28) 1CGC84 73) 1SD002B 116) 1PR002F 29) 1CG082 73) 1SD002B 116) 1PR003B 30) 1CG083 74) 1SD002B 31) 1CGC64 75) 1SD002B 32) 1CG085 76) 1SD002B 33) 1PR01A 77) 1SD002B 33) 1PR032 79 1SD005B 34) 1PR032 79 1SD005B 35) 1PR032 79 1SD005B 36) 1PR066 80 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS228A 81) 1SD005D 39) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18880 40) 1PS230B 86) 1S18964 42) 1PS230B 86) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A						
15) 1CV8113 59) 1RE1003 103) 1W0006A 15) 1CV8160 60) 1RF026 104) 1W0006B 16) 1CV8152 61) 1RF027 105) 1W0007B 17) 1CV8152 62) 1RY8025 106) 1W0007B 18) 1FC009 63) 1RY8026 107) 1W0020A 19) 1FC011 64) 1RY8028 108 1W0020B 20) 1FC011 65) 1RY8033 109 1W0056A 21) 1FC012 65) 1RY8033 109 1W0056A 22) 11A065 66) 1RY8046 110) 1W0056B 23) 11A066 67) 1RY8047 111) 1PR002E 23) 11A061 68) 1SA032 112) 1PR002G 24) 11A091 68) 1SA033 113) 1PR033A 25) 1CGC57A 69) 1SA033 113) 1PR033A 25) 1CGC57A 69) 1SA033 113) 1PR033B 26) 1CGC79 70) 1SD002A 114) 1PR033B 27) 1CGC80 71) 1SD002B 115) 1PR002F 28) 1CGC81 73) 1SD002B 115) 1PR002F 28) 1CGC82 73) 1SD002B 116) 1PR002F 28) 1CGC83 74) 1SD002B 116) 1PR003B 30) 1CGC83 74) 1SD002B 117) 1PR033C 30) 1CGC84 75) 1SD002F 32) 1CGC85 76) 1SD002B 33) 1PR001A 77) 1SD002B 33) 1PR001B 78) 1SD005B 33) 1PR066 80) 1SD005C 37) 1PS22BA 81) 1SD005D 38) 1PS22BB 82) 1S18871 39) 1PS22BA 81) 1SD005D 38) 1PS22BB 82) 1S18880 40) 1PS230A 85) 1S18888 41) 1PS230A 85) 1S188964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQCO1B					102)	
16) 1CV8160 60) 1RF026 104) 1W0006B 16) 1CV8152 61) 1RF027 105) 1W0007B 17) 1CV8152 61) 1RF027 105) 1W0007B 18) 1FC009 62) 1RY8025 106) 1W0007B 19) 1FC010 63) 1RY8026 107) 1W0020B 20) 1FC011 64) 1RY8028 108) 1W0020B 21) 1FC012 65) 1RY8033 109) 1W0056B 22) 1IA065 66) 1RY8046 110) 1W0056B 22) 1IA066 67) 1RY8047 111) 1PR002E 23) 1IA066 67) 1RY8047 111) 1PR002E 24) 1IA091 68) 1SA032 112) 1PR002G 24) 1IA091 68) 1SA032 112) 1PR002B 25) 10G057A 70) 1SD002A 114) 1PR033B 26) 10G079 70) 1SD002A 114) 1PR033B 27) 10G080 71) 1SD002B 115) 1PR002F 28) 10G081 72) 1SD002C 116) 1PR002F 29) 10G082 73) 1SD002D 117) 1PR033C 30) 10G083 74) 1SD002B 31) 10G084 75) 1SD002E 32) 10G085 76) 1SD002B 33) 1PR001A 77) 1SD002B 34) 1PR001B 78) 1SD005B 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S1888B 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A					103)	
16)					104)	
18) 1FC009 62) 1RY8025 106) 1W00078 19) 1FC010 63) 1RY8026 107) 1W00208 20) 1FC011 64) 1RY8028 108) 1W00208 21) 1FC012 65) 1RY8033 109) 1W00568 21) 1FC012 65) 1RY8046 110) 1W00568 22) 1IA065 66) 1RY8047 111) 1PR002E 23) 1IA066 67) 1RY8047 111) 1PR002E 24) 1IA091 68) 1SA032 112) 1PR002G 24) 1IA091 68) 1SA033 113) 1PR033A 25) 10G057A 69) 1SA033 113) 1PR033A 26) 10G079 70) 1SD002A 114) 1PR003B 27) 10G080 71) 1SD002B 115) 1PR002F 28) 10G081 72) 1SD002C 116) 1PR002F 29) 10G082 73) 1SD002C 116) 1PR002H 29) 10G083 74) 1SD002E 118) 1PR033D 30) 10G084 75) 1SD002E 33) 1PR001A 77) 1SD002H 33) 1PR001B 78) 1SD005B 34) 1PR001B 78) 1SD005B 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228B 82) 1S18880 40) 1PS229A 83) 1S18880 40) 1PS229A 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A					105)	
18) 1FC010 63) 1RY8026 107) 1W0020A 19) 1FC010 64) 1RY8028 108) 1W0020B 20) 1FC011 64) 1RY8033 109) 1W0056B 21) 1FC012 65) 1RY8033 109) 1W0056B 22) 11A065 66) 1RY8046 110) 1W0056B 23) 1IA066 67) 1RY8047 111) 1PR002E 24) 1IA091 68) 1SA032 112) 1PR002G 24) 1IA091 69) 1SA033 113) 1PR033A 25) 1OG057A 69) 1SA033 113) 1PR033B 26) 1OG079 70) 1SD002A 114) 1PR033B 27) 1OG080 71) 1SD002B 115) 1PR002F 28) 1OG081 72) 1SD002C 116) 1PR002F 28) 1OG082 73) 1SD002C 116) 1PR002H 29) 1OG082 74) 1SD002E 118) 1PR033D 30) 1OG083 74) 1SD002E 118) 1PR033D 31) 1OG084 75) 1SD002F 32) 1OG085 76) 1SD002F 33) 1PR001A 77) 1SD002H 34) 1PR001B 78) 1SD005B 35) 1PR032 79) 1SD005D 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228A 81) 1SD005D 39) 1PS229B 84) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A					106)	1W0007B
20) 1FC011 64) 1RY8028 108) 1W00208 121) 1FC012 65) 1RY8033 109) 1W0056A 121) 1FC012 65) 1RY8033 110) 1W0056A 111) 1PC002E 123) 1IA065 66) 1RY8046 111) 1PR002E 123) 1IA066 67) 1RY8047 111) 1PR002E 124) 1IA091 68) 1SA032 112) 1PR002G 125) 10G057A 69) 1SA033 113) 1PR033A 126) 10G080 71) 1SD002A 114) 1PR033B 10G080 72) 1SD002C 116) 1PR002F 128) 10G082 73) 1SD002C 116) 1PR002H 129) 10G082 73) 1SD002C 116) 1PR003H 13D002E 133) 1PR003A 75) 1SD002F 133) 1PR003A 75) 1SD002F 133) 1PR001A 75) 1SD002F 133) 1PR001B 76) 1SD005B 135) 1PR032 79) 1SD005B 135) 1PR032 79) 1SD005B 135) 1PR032 79) 1SD005D 13005B 11PS228A 81) 1SD005D 13D005D 1					107)	1W0020A
21) 1FC012 65) 1RY8033 109) 1W0056A 22) 1IA065 66) 1RY8046 110) 1W0056B 23) 1IA066 67) 1RY8047 111) 1PR002E 24) 1IA091 68) 1SA032 112) 1PR002G 25) 10G057A 69) 1SA033 113) 1PR033A 26) 10G079 70) 1SD002A 114) 1PR033B 27) 10G080 71) 1SD002B 115) 1PR002F 28) 10G081 72) 1SD002C 116) 1PR002F 29) 10G082 73) 1SD002D 117) 1PR033C 29) 10G083 74) 1SD002E 118) 1PR033D 30) 10G083 74) 1SD002E 118) 1PR033D 31) 10G084 75) 1SD002F 32) 10G085 76) 1SD002G 33) 1PR001A 77) 1SD002H 32) 10G085 76) 1SD005A 33) 1PR001B 78) 1SD005B 33) 1PR001B 78) 1SD005B 34) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A					108)	1W0020B
21) 1FC012 22) 1IA065 66) 1RY8046 110) 1W0056B 23) 1IA066 67) 1RY8047 111) 1PR002E 24) 1IA091 68) 1SA032 112) 1PR002G 25) 10G057A 69) 1SA033 113) 1PR033A 25) 10G057A 70) 1SD002A 114) 1PR033B 26) 10G079 70) 1SD002B 115) 1PR002F 27) 10G080 71) 1SD002B 115) 1PR002F 28) 10G081 72) 1SD002C 116) 1PR002H 29) 10G082 73) 1SD002D 117) 1PR033C 30) 10G083 74) 1SD002B 118) 1PR033D 31) 10G084 75) 1SD002F 32) 10G085 76) 1SD002F 33) 1PR001A 77) 1SD002H 34) 1PR001B 78) 1SD005A 35) 1PR032 79 1SD005B 35) 1PR032 79 1SD005B 36) 1PR066 80) 1SD005C 37) 1FS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS228A 81) 1SD005D 36) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A					109)	
22) 11A065 23) 11A066 67) 1RY8047 24) 11A091 68) 1SA032 25) 10G057A 69) 1SA033 26) 10G079 70) 1SD002A 27) 10G080 71) 1SD002B 28) 10G081 72) 1SD002C 28) 10G082 73) 1SD002C 29) 10G082 74) 1SD002E 29) 10G083 74) 1SD002E 30) 10G083 75) 1SD002F 32) 10G085 76) 1SD002F 33) 1PR001A 77) 1SD002H 32) 1OG085 76) 1SD002G 33) 1PR001B 78) 1SD005B 34) 1PR001B 78) 1SD005B 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1SI8871 39) 1PS229A 83) 1SI8888 40) 1PS229B 84) 1SI8888 41) 1PS230A 85) 1SI8964 42) 1PS230B 86) 1SI8968 43) 1PS231A 87) 1VQ001B						1W0056B
23) 11A066 24) 11A091 68) 1SA032 112) 1PR002G 25) 10G057A 69) 1SA033 113) 1PR033A 26) 10G079 70) 1SD002A 114) 1PR033B 27) 10G080 71) 1SD002B 115) 1PR002F 28) 10G081 72) 1SD002C 116) 1PR002H 29) 10G082 73) 1SD002D 117) 1PR033C 30) 10G083 74) 1SD002E 118) 1PR033D 31) 10G084 75) 1SD002F 32) 10G085 76) 1SD002F 33) 1PR001A 77) 1SD002H 34) 1PR001B 78) 1SD005A 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230B 85) 1S18968 41) 1PS230B 86) 1S18968 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A						1PROD2E
24) 11A091 25) 10G057A 69) 1SA033 113) 1PR033A 26) 10G079 70) 1SD002A 114) 1PR033B 26) 10G080 71) 1SD002B 115) 1PR002F 27) 10G080 72) 1SD002C 116) 1PR002H 28) 10G081 72) 1SD002C 116) 1PR003C 29) 10G082 73) 1SD002D 117) 1PR033C 30) 10G083 74) 1SD002E 118) 1PR033D 31) 10G084 75) 1SD002F 32) 10G085 76) 1SD002G 33) 1PR001A 77) 1SD002H 34) 1PR001B 78) 1SD005A 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1SI8871 39) 1PS228A 81) 1SD005D 39) 1PS229A 84) 1SI8880 40) 1PS229B 84) 1SI8888 41) 1PS230A 86) 1SI8964 42) 1PS230B 86) 1SI8968 43) 1PS231A 87) 1VQ001A						1PR002G
25) 10GG57A 70) 1SD002A 114) 1PR033B 26) 10G079 70) 1SD002B 115) 1PR002F 27) 10G080 71) 1SD002B 115) 1PR002F 28) 10G081 72) 1SD002C 116) 1PR003H 29) 10G082 73) 1SD002D 117) 1PR033C 30) 10G083 74) 1SD002E 118) 1PR033D 31) 10G084 75) 1SD002F 32) 10G085 76) 1SD002F 33) 1PR001A 77) 1SD002H 32) 10G085 76) 1SD005A 35) 1PR032 79) 1SD005B 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 37) 1PS228A 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A						1PR033A
26) 10G079 27) 10G080 28) 10G081 29) 10G082 29) 10G082 30) 10G083 31) 10G084 32) 10G085 33) 1PR001A 34) 1PR001B 35) 1PR032 36) 1PR032 37) 1SD005C 37) 1PS228A 38) 1PS228A 39) 1PS228A 39) 1PS229A 40) 1PS229A 40) 1PS229B 41) 1PS230A 42) 1PS231A 87) 1VQ001A 87) 1VQ001A 88) 1PS231A 87) 1VQ001A						1PR033B
27) 10G080 72) 1SD002C 116) 1PR002H 28) 10G081 72) 1SD002C 117) 1PR033C 29) 10G082 73) 1SD002E 117) 1PR033C 30) 10G083 74) 1SD002E 118) 1PR033D 31) 10G084 75) 1SD002F 32) 10G085 76) 1SD002G 33) 1PR001A 77) 1SD002H 34) 1PR001B 78) 1SD005A 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1SI8871 39) 1PS229A 83) 1SI8880 40) 1PS229B 84) 1SI8888 41) 1PS230A 85) 1SI8964 41) 1PS230A 85) 1SI8964 42) 1PS231A 87) 1VQ001A						1PR002F
28) 10G081 72) 1SD002D 117) 1PR033C 10G082 73) 1SD002D 118) 1PR033D 30) 10G083 74) 1SD002E 118) 1PR033D 31) 10G084 75) 1SD002F 32) 10G085 76) 1SD002G 33) 1PR001A 77) 1SD002H 34) 1PR001B 78) 1SD005A 35) 1PR032 79) 1SD005C 37) 1PS228A 81) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A	27)					
29) 10G082 30) 10G083 31) 10G084 32) 10G085 33) 1PR001A 34) 1PR001B 35) 1PR032 36) 1PR066 37) 1PS228A 38) 1PS228B 39) 1PS229A 40) 1PS229B 41) 1PS230A 42) 1PS230A 43) 1PS231A 87) 1VQ001A 87) 1VQ001A	281					
30) 10G083 31) 10G084 32) 10G085 33) 1PR001A 34) 1PR001B 35) 1PR032 36) 1PR066 37) 1PS228A 38) 1PS228B 39) 1PS229A 40) 1PS229B 41) 1PS230A 42) 1PS230B 43) 1PS231A 87) 1VQ001A 87) 1VQ001B	29)					1PR033D
32) 10G085 76) 1SD002G  33) 1PR001A 77) 1SD002H  34) 1PR001B 78) 1SD005A  35) 1PR032 79) 1SD005B  36) 1PR066 80) 1SD005C  37) 1PS228A 81) 1SD005D  38) 1PS228B 82) 1S18871  39) 1PS229A 83) 1S18880  40) 1PS229B 84) 1S18888  41) 1PS230A 85) 1S18964  42) 1PS230B 86) 1S18968  43) 1PS231A 87) 1VQ001A	30)					
32) 1PR001A 77) 1SD002H 34) 1PR001B 78) 1SD005A 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A	31)					
33) 34) 1PRO01B 78) 1SD005A 35) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A	32)					
34) 1PR032 79) 1SD005B 36) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A	33)					
35) 1PR066 80) 1SD005C 37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 41) 1PS230B 86) 1S18968 42) 1PS231A 87) 1VQ001A	34)					
37) 1PS228A 81) 1SD005D 38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 42) 1PS231A 87) 1VQ001A	35)					
38) 1PS228B 82) 1S18871 39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 42) 1PS231A 87) 1VQ001A	36)					
39) 1PS229A 83) 1S18880 40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 42) 1PS231A 87) 1VQ001A	37)					
40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 42) 1PS231A 87) 1VQ001A	38)	1P\$228B				
40) 1PS229B 84) 1S18888 41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A		1PS229A				
41) 1PS230A 85) 1S18964 42) 1PS230B 86) 1S18968 43) 1PS231A 87) 1VQ001A		1PS229B				
42) 1PS230B 86) 1S18966 43) 1PS231A 87) 1VQ001A		1PS230A				
43) 1PS231A 87) 1VQ001A		1PS230B				
A STATE OF THE STA		1PS231A				
		1PS231B	88)	1A5001R		

VR-1

# 1. Valve Number: (continued)

	VALVE #		VALVE #		VALVE #
119)	200685 2009413A 2009414 2009416 2009438 2009486 2009518 2009534 2009534	1631	2PS9354A	207)	2VQ002A
120)	2CC9413A	1641	2PS9354B	208)	2VQ002B
121)	2009414	1651	2PS9355A	209)	270003
1221	2009416	166)	2PS9355B	210)	2VQ004A
123)	2009438	167)	2PS9356A	2111	2VQ004B
1241	2009486	168)	2PS9356B	212)	2VQ005A
125)	2009518	1691	2PS9357A	2133	2VQ005B
126)	2009534	170)	2PS9357B	2145	2700050
127)	2009518 2009534 2009534	171)	2RE9157	2151	2VQ016
128)	2CS007B	171)	2RE9159A	216)	240017
129)	2CS008A	1731	2RE9159B	217)	20018
130)	2CS008B	1741	2RE9160A	L18)	2VQ019
131)	2CV8100	175)	2RE9160B	219)	2WM190
132)	2CV8112	1761	2RE9170	220)	2WM191
133)	2CV8113	177)	2RE1003	221)	2W0006A
134)	2CV8160	1781	2RF026	2223	2W0006B
135)	2CV8152	1791	2RF027	223)	2W0007A
1361	2FC009	180)	2RY8025	224)	2W0007B
137)	2CV8152 2FC009 2FC010	181)	ZRY8026	225)	2W0020A
1381	2FC011	182)	2848028	226)	2W0720B
1391	2FC012	1831	2RY8033	2271	2W0056A
140)	21A065	184)	2RE9159B 2RE9160A 2RE9160B 2RE9170 2RE1003 2RF026 2RF027 2RY8025 2RY8026 2RY8028 2RY8033 2RY8046 2RY8047 2SA032 2SA033 2SD002A 2SD002B 2SD002C	228)	2W00568
141)	21A066	185)	2RY8047	2291	2PR002E
	21A091	186)	2SA032	230)	2PR002G
	Z0G057A	1871	28A033	231)	2PR033A
	200079	188)	2SD002A	232)	2PR033B
145)	200080	1891	2SD0028	233)	2PR002F
	20G081	190)	2SD002C	234)	2PROO2H
147)	200082	191)	2SD002D	235)	2PR033C
148)	20G082 20G083	1921	2 SD002 E	236)	ZPR033D
149)	20G084 20G085 2PR001A 2PR001B 2PR032	193)	2SD002F		
150)	200085	194)	2SD002G		
151)	2PR001A	195)	2SD002H		
152)	2PR001B	196)	2SD005A		
153)	2PR032	197)	2500058		
154)	2PR066	198)	2SD005C		
155)	2PS228A	199)	2SD005D		
156)	2PS228B	200)	2518871		
157)	2CS007A 2CS007B 2CS008B 2CV8100 2CV8112 2CV8113 2CV8152 2FC009 2FC010 2FC011 2FC012 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA065 2IA066 2IA091 2OG080 2OG080 2OG080 2OG083 2OG083 2OG085 2PR001B 2PR001B 2PR001B 2PR001B 2PR032 2PR066 2PS228A 2PS228A 2PS228B 2PS229A	201)	2518880		
158)	2PS229B	202)	2818888		
159)	2PS230A	203)	ZSI8964		
160)	2PS230B	204)	2818968		
161)	2PS231A	205)	2VQ001A		
162)	2PS231B	206)	2VQ001B		
		4441	6.1 6.2 2.2		

- 2. Number of Items: 236.
- 3. ASME Code Category: A.
- 4. ASME Code, Section XI Requirements:

Seat Leakage Measurement per TWV-3420.

# 5. Basis for Relief:

Primary containment isolation valves will be seat leak tested in accordance with 10 CFR 50. Appendix J. For these valves. Section XI testing requirements are essentially equivalent to those of Appendix J.

# fi. Alternate Testing:

Primary containment isolation valves will be seat leak tested in accordance with the Appendix J requirements of 10 CFR 50.

The results of such leak rate measurements shall be analyzed and corrected, as necessary in accordance with the guidelines set forth in ASME Code Section XI, Subsection IWV, Paragraphs IWV-3426 and IWV-3427 (A).

# 7. Justification:

No additional information concerning valve leakage would be gained by performing separate tests to both Section XI and Appendix 3. Therefore, overall plant safety is not affected.

### 8. Applicable Time Period:

- 1. <u>Valve Number: 1CS020A 2CS020A</u> 1CS020B 2CS020B
- 2. Number of Items: 4
- 3. ASME Code Category: C
- 4. ASME Code, Section XI Requirements:

Exercise for operability (Ct) of check valves every 3 months, per IWV 3521.

5. Basis for Relief:

These check valves in the spray additive system cannot be stroked without introducing NaOH into the CS system.

6. Alternate Testing:

These valves will be dismantled each refueling outage in order to demonstrate operability. In addition to this, they will be full flow tested once every five years, per Braidwood Technical Specifications. The full flow test may be performed in lieu of dismantling the valves, if desired.

7. Justification:

This alternative will adequately maintain the system in a state of operational readiness, while not sacrificing the safety of the plant, by testing the valves as often as is safely possible.

8. Applicable Time Period:

- 1. Valve Number: 1818922A.B 2818922A.B
- 2. Number of Items: 4
- 3. ASME Code Category: C
- 4. ASME Code. Section XI Requirements:

Exercise for operability (Ct) of check valves every 3 months. per IWV-3521.

# 5. Basis for Relief:

These check valves cannot be full flow tested during operation as the shutoff head of the Safety Injection pump is lower than the reactor coolant system pressure. Performance of this test with the RCS depressurized, but intact, could lead to inadvertent overpressurization of the system. The alternate method of protecting against overpressurization by partially draining the RCS to provide a surge volume is not considered a safe practice due to concerns of maintaining adequate water level above the reactor core.

# 6. Alternative Testing:

These valves will be full stroke tested during refueling outages.

#### 7. Justification:

This alternative will adequately maintain the system in a state of operational readiners, while not sacrificing the safety of the plant, by testing the valves as often as safely possible.

#### 8. Applicable Time Period:

- 1. Valve Number: 1CS008A, B 2CS008A, B 1CS003A, B 2CS003A, B
- 2. Number of Items: 8
- 3. ASME Code Category: AC & C
- 4. ASME Code, Section XI Requirements:

Exercise for operability (Ct) of check valves every 3 months, per 1WV-3521 and IWV-3412.

# 5. Basis for Relief:

The full flow testing of these check valves during periods of cold shutdown, using the CS pumps, would fill the Reactor Refueling cavity with contaminated water from the Refueling Water Storage Tank. The filling of this cavity, via temporarily installed large bore piping connected at spool piece hookups, would by neccessity require the removal of the reactor wessel head so as to preclude equipment damage from borated water.

Currently, full flow recirculation flow paths do not exist from the discharge at the CS pumps through the afore noted check valves to the Refueling Water Storage Tank. The addition of such flow paths would require extensive plant modifications to existing plant designs, to and include penetrating unit containment integrity.

These valves cannot be full flow tested during unit operation as water from the CS pumps would be discharged through the CS ring headers causing undesirable effects on system components inside containment.

Partial stroking of the ICS008A,B and 2CS008A,B valves using air does not provide adequate insurance of valve operability and may be detrimental for the following reasons:

- a. There is no correlation between air flow and angle of disc movement.
- b. Venting and draining the appropriate piping quarterly may cause deposition of boric acid residue which could in turn promote binding of the check valve internals.

#### 6. Alternate Testing:

The ICS008A,B and 2CS008A,B valves will be either full flow tested, or dismantled to demcastrate operability each refueling outage.

The ICSOO3A.B and 2CSOO3A.B valves will be partial stroke tested during the quarterly pump surveillance and full flow tested, or dismantled, to demonstrate operability, each refueling outage.

# 7. Justification:

This alternative will adequately maintain the system in a state of operational readiness, while not sacrificing the safety of the plant, by testing the valves as often as safely possible.

# 8. Applicable Time Period:

VROS

 Valve Number: 1518986A-D 1518948A-D 1518986A-D 1518948A-D

- 2. Number of Items: 16
- 3. ASME Code Category: AC
- 4. ASME Code, Section XI Requirements:

Exercise for operability (Ct) of check valves every 3 months, per IWV-3521 and IWV-3412.

# 5. Basis for Relief:

The accumulator check valves cannot be tested during unit operation due to the pressure differential between the accumulators (650 psig) and the reactor coolant system (2235 psig). Full stroke exercising of these valves could occur only with a rapid depressurization of the reactor coolant system.

### 6. Alternate Testing:

Braidwood Station Technical Specifications require leak testing to be performed on these valves if the unit is in cold shutdown and if such leak rate testing has not been performed within nine months. Therefore, Braidwood Station will full stroke exercise (Ct) these check valves on the same schedule. This will be accomplished by providing a surge volume in the pressuriter and "burping" the accumulator discharge valves.

As a minimum, the accumulators will be discharged into the reactor wessel during refueling outages to perform a full stroke exercise (Ct) of these valves. Fositive verification of valve operability will be by noting a change in accumulator level.

### 7. Justification:

Stroke exercising the check valves on the same schedule as their required Technical Specification leak rate testing will adequately maintain the system in a state of operational readiness without causing unnecessary personnel radiation exposure.

#### Applicable Time Period:

ソネード

- 1. Valve Number: 1518926 2518926
- 2. Number of Items: 3
- 3. ASME Code Category: C
- 4. ASME Code, Section XI Requirements:

Exercise for operability (Ct) of check valves every 3 months, per IWV-3521.

# 5. Basis for Relief:

Full stroke exercising of the Safety Injection pump suction valves cannot be demonstrated during unit operation as the reactor coolant system pressure prevents the pumps from reaching full flow injection conditions. Performance of this test with the reactor coolant system depressurized, but intact could lead to an inadvertent overpressurization of the system. The alternate method of protecting against overpressurization by partial draining of the reactor coolant system to provide a surge volume is not considered a safe practice due to concerns of maintaining adequate water level above the reactor core.

# 6. Alternate Testing:

The 1S18926 and 2S18926 valves will be partial stroke tested during periodic inservice tests with the SI pumps in the recirculation mode. Full Stroke exercising for this valve will be done during refueling outages at a minimum, but no more frequently than once per quarter.

### 7. Justification:

This alternative will adequately maintain the system in a state of operational readiness, while not sacrificing the safety of the plant, by testing the valves as often as safely possible.

# 8. Applicable Time Period:

-DELETED-

Incorporated into Valve Relief Request VR-12 and UR-17.

1. Valve Number	100685	1.009438	2009914
	1009413A	1009486	2009415
	1009414	200685	2009438
	1009416	2CC9413A	2009486

- 2. Number of Items: 12
- 3. ASME Code Category: A
- 4. ASME Code, Section XI Requirements:

Exercise for operability (St) of Category A and B valves every 3 months, per IWV-3411.

# 5. Basis for Relief:

Component cooling water flow to the reactor coolant pumps is required at all times while the pumps are in operation and for an extended period of time while in cold shutdown. Failure of one of these valves in a closed position during an exercise test would result in a loss of cooling flow to the pumps and eventual pump damage and/or trip.

# 6. Alternate Testing:

These valves will be exercised during cold shutdown, provided all of the reactor coolant pumps are not in operation. This testing period will be each refueling outage as a minimum, but no more frequently than once per guarter.

Check valves 1009486 and 2009486 will be stroke tested (Ct) closed on the same frequency as the seat leakage test per TWV-3420. This frequency is at least once per two years, to be performed during reactor refueling outages.

#### 7. Justification:

This alternative will adequately maintain the system in a state of operational readiness, while not sacrificing the safety of the plant, by testing the valves as often as safely possible.

Stroke exercising check valves 1CC9486 and 2CC9486 on the same schedule as their leak rate testing will adequately maintain the system in a state of operational readiness without causing unnecessary personnel radiation exposure or possible damage to the Reactor Coolant Pumps.

#### 8. Applicable Time Period:

- 1. Valve Number: 1CV8100 2CV8100 1CV8112 2CV8112
- 2. Number of Items: 4
- 3. ASME Code Category: A
- 4. ASME Code, Section XI Requirements:

Exercise for operability (St) of Category A & B valves every 3 months per IWV-3411.

5. Basis for Relief:

These valves cannot be tested during unit operation as seal water flow to the reactor coolant pumps is required at all times while the pumps are in operation. Failure of one of these valves in the closed position during an exercise test would result in seal water flow being diverted to the PRT by lifting a relief valve upstream of the isolation valves.

6. Alternate Testing:

These valves will be exercise tested during cold shutdown, providing all reactor coolant pumps are not in operation. This testing period will be each refueling outage as a minimum, but no more frequently than once per guarter.

7. Justification:

This alternative will adequately maintain the system in a state of operational readiness, while not sacrificing the safety of the plant, by testing the valves as often as safely possible.

8. Applicable Time Period:

- 1. Valve Number: 11A066 21A066 11A065 21A065
- 2. Number of Items: 4
- 3. ASME Code Category: A
- 4. ASME Code, Section XI Requirements:

Exercise for operability (St and Pt) of category A and B valves every 3 months per IWV-3411.

5. Basis for Relief:

Stroke testing of these valves during plant operation or cold shutdown would, by design, isolate the air operated instruments and valves inside the containment building.

6. Alternate Testing:

These valves will be exercised during refueling outages.

This testing period will be each refueling outage as a minimum, but no more frequently than once per quarter.

7. Justification:

The full stroke exercising of the instrument air containment isolation valves during unit power operations or cold shutdowns, introduces the possibility of causing major operating perturbations and/or personnel safety concerns should these valves fail to re-open during testing activities.

The failure of these valves in the closed position, as a result of testing activities during plant operation or cold snutdown, would subsequently isolate the air operated instruments and valves inside the containment building thus resulting in one or more of the following scenarios:

A) Loss of Pressurizer Pressure Control

The pressurizer spray valves 1/2 RY4558 & C and the pressurizer auxiliary spray valve 1/2 CV6145 would fail closed and not be available for pressurizer pressure control.

B) Loss of Chemical Volume Control System Let Down Flow (both normal and excess) and Charging Flow -

The loss of instrument air would cause a disruption in the unit letdown flow paths resulting in pressurizer level increases. Such valves as the letdown orifice containment outlet header isolation valve 1/2 CV8160, the letdown line isolation valves 1/2 CV459 and 1/2 CV460, the letdown orifice outlet isolation valves 1/2 CV8149 A, B & C, the excess letdown heat exchanger inlet isolation valves 1/2 CV8153A & B, and the regen heat exchanger letdown inlet isolation valves 1/2 CV8389 A & . would go to their fail closed positions. Additionally, the ability to normally make up reactor coolant inventory and adjust the reactor chemical shim (i.e. normal boration/dilution) would also be lost as the regenerative heat exchanger inlet isolation valves 1/2 CV8324 A & B would fail to their respective closed positions.

C) Loss of Component Cooling to Containment penetrations -

The loss of instrument air supply would cause the penetration cooling supply flow control valve 1/2 CC053 to go to its fail closed position. The loss of penetration cooling would result in elevated temperature being imposed on the penetrations being supported by the component cooling system.

D) Loss of Personnel Breathing Air -

The loss of instrument air supply to the service air downstream isolation "alve 1/2 SA033 would cause this valve to go to is fail closed position. This loss of service air in the containment building would eliminate the normal source of supplied breathing air needed to support numerous maintenance and component inspection activities in a contaminated radiological environment.

8. Applicable Time Period:

- DELETED -

1. Valve number: Valves that normally stroke in 2 seconds or less:

Valve #	Valve #	Valve #	Valve #
1MS018A-D 1PS228A.B 1PS229A.B	1RE9160A.B	2MS018A-D 1PS228A.B 2PS229A.B	2RE9160A.B
1PS230A,B 1RC014A-D 1RE9157 1RE9159A,B	1RY8033	2PS230A.B 2RC014A-D 2RE9157 2RE9159A.B	2RY8033

- 2. Number of Items: 40
- 3. ASME Code Category: A & B
- 4. ASME Code. Section XI Requirements:

Verification, by trending of power operated valve times, that an increase in stroke time of 50% or more, from the previous test, does not occur, per IWV-3417(a).

### 5. Basis for Relief:

Minor timing inaccuracies, with small stroke times can lead to substantial increases (percent wise) in stroke times. For example, a valve with a stroke time of 1 second in an initial test, and 1.6 seconds in the subsequent test, has experienced an apparent 60% increase in stroke time.

If the accuracy requirements of IWV-3413(b) are utilized, it could be argued that stroke times between 1 and 2 seconds could constitute as much as a 100% increase in stroke time when in fact, only a 0.2 second increase occurred. For instance, if the initial stroke time was 1.4 seconds, (which measured to the nearest second is 1.0 seconds) and the next stroke time is 1.6 seconds, (which measured to the nearest second is 2.0 seconds) the percent increase is 100%.

#### 6. Alternate Testing:

Fast-acting valves can be defined as those valves that normally stroke in 2 seconds or less. No trending of stroke times will be required and upon exceeding 2 seconds, corrective action shall be taken immediately in accordance with IWV-3417(b).

44

# 7. Justification

For short stroke times, the trending requirements are too stringent for the accuracies specified in the code. The alternative specified will adequately maintain the system in a state of operational readiness, while not imposing undue hardship or sacrificing the safety of the plant.

# 8. Applicable Time Period:

1. Valve Numbers: 1DG5182A.B 2DG5182A.B 1DG5183A.B 2DG5183A.B 1DG5184A.B 2DG5185A.B 1DG5185A.B 2DG5185A.B

2. Number of Items: 16

3. ASME Code Category: B & C

# 4. ASME Code Section XI Requirements:

These valves are not within the scope of ASME Dode, Section XI, Subsection IWV requirements. However, the requirements for stroke timing and trending of the valves associated with the Diesel Air Start System are being mandated by the NRC as an augmented testing requirement pursuant to 10CFR50.35 (a) (g).

Therefore, valves associated with the Diesel Air Start System shall be exercised to the position required to fulfill their function during plant operation per IWV-3412 and IWV-3522. Additionally, the stroke testing of power operated valves shall be measured to the nearest second and such stroke times trended to document continued valve operational readiness per IWV 3413 (b) and IWV-3417.

# 5. Basis for Relief:

The monthly Diesel Generator testing program, outlined in Braidwood Station's Technical Specifications and implemented by station operating procedures, exceeds the intent of the quarterly valve testing program which would be required by ASME Code. Section XI. Additionally, the stroke timing of solenoid operated valves associated with the Diesel Air Start System is impractical due to the fast actuation of these valves.

#### 6. Alternate Testing:

The performance of Braidwood Station's Diesel Generator operability monthly surveillance will verify the operational readiness of the valves associated with the Diesel Air Start System.

This surveillance testing will require the recording of the air pressures contained in both trains A & B of the Diesel Generator Air Start Receiver Tanks both before and immediately after diesel generator start.

By the comparison of these values between starts, the satisfactory operation of the power operated and self-actuated check values associated with the Diesel Air Start System can be adequately demonstrated.

# 7. Justification

Proper valve ope. tion will be demonstrated on a monthly basis by the verification of liesel generator air start capability. Such verification will compare the air pressures contained in the receiver tanks both "efore and after the diesel generator start, thus verifying the operability of the air start control valves. The proposed testing methodology at the increased frequency satisfies the intent of the Section KI requirements without posing undue hardships or difficulties.

# 8. Applicable Time Period:

- DELETED -

1. Valve Number: 1CV8481A.B 2CV8481A.B 1CV8546 2CV8546 1SI8815 2SY8815 1SI8819A-D 2518819A-D 1SI8841A.B 2SI8841A.B 1S18900A-D 2518900A-D 1SI8905A-D 2S18905A-D 1SI8949A-D 2SI8949A-D

- 2. Number of Valve. 44
- 3. ASME Code Catego AC
- 4. ASME Code, Section XI Requirements:

Check valves that cannot be exercised during plant operation shall be specifically identified by the owner and shall be full stroke exercised during cold shutdowns per IWV-3412 and IWV-3522.

### 5. Basis for Relief:

The full stroke exercicing of check valves not stroked quarterly is required to be performed during cold shutdowns. Acwever, the stroking of check valves ISI8815. ISI8900A-D. ISI8841A-B. 2SI8815. 2SI8900A-D and 2SI8841A.3 associated with Emergency Core Cocling System, during cold shutdowns will induce thermal stresses on their respective reactor vessel nottles as the Reactor Cholant System (maintained approximately 180 F) is injected with water from the Refueling Water Storage Tank (maintained approximately 65 F). This also applies to the stroking of check valves 1/2 CV8546 and 1/2 CV8481A.B because the full stroke of these check valves causes stroking of the 1/2 SI8815 and 1/2 SI8900A-D located in the full flow path.

Additionally, Braidwood Station Technical Specifications require all Safety Injection Pumps and all but one Charging Pump to be inoperable during Modes 4, 5 and 6, except when the reactor vessel head is removed. This requirement minimizes the possibility of low temperature overpressurization of the Reactor Coolant System. Therefore, check valves ISI8819A-D, ISI8905A-D, ISI8949A-D, 2SI8819A-D, 2SI8905A-D, and 2SI8949A-D, cannot be full stroke exercised during routine Mode 5 cold shutdowns as required by IWV-3412 and IWV-3522.

In add tion to the stroke test exercise used to verify operational readiness of these check valves, the act of such stroking cause the necessity for Technical Specification required leak rate testing of these valves prior to unit criticality. This testing, in conjunction with the stroke exercising of these check valves, adds approximately one week to the duration of any outage and additional radiation exposure to workers who must connect flowmeters and differential pressure gauges directly to pipes containing radioactive fluids.

# 6. Alternate Testing:

Braidwood Stations's Technical Specifications require leak rate testing to be performed on these valves if the unit is in cold shutdown and if such leak rate testing has not been performed within nine months. Therefore, Braidwood Station will stroke exercise check valves ISI8815, ISI8900A-D, ISI8841A-B, 2SI8815, 2SI8900A-D, and 2SI8841A,B on the same schedule. To prevent unnecessary stroking of check valves 1/2 SI8815 and 1/2 SI8900A-D, check valves 1/2 SI8546 and 1/2 CV8481A,B will be stroke exercised on the same schedule as check valves 1/2 SI8815, 1/2 SI8900A-D and 1/2 SI8841A,B. Stroke exercising of check valves I378819A-D, 1SI8905A-D, 1SI8949A-D, 2SI8919A-D, 2SI8905A-D, and 2SI8949A-D can only be safely performed in mode 6 with the reactor vessel head removed. Full stroke exercising of these check valves will be performed as plant conditions allow, but at a minimum frequency of once each refueling outage.

#### 7. Justification:

Stroke exercising the 1SI8815, 1SI8900A-D. 1SI8841ASB. 2SI8815.
2SI8900A-D, and 2SI8841ASB. check valves on the same schedule as their required Technical Specification leak rate testing, will adequately maintain the system in a state of operational readiness without creating additional undue hardship. Valves 1/2 SI8949A-D. 1/2 SI8945A-D and 1/2 SI8819A-D can not be stroked during cold shutdown without exceeding Technical Specification limiting condition for operation (LCO 3/4.5.3). Since stroking these valves requires starting an SI pump. Stroke exercising check valves 1SI8819A-D. 1SI8905A-D. 1SI8949A-D. 2SI8819A-D. 2SI8819A-D. and 2SI8949A-D. at least once per reactor refueling will insure compliance with Braidwood Station Technical Specifications and minimize the possibility of low temperature overpressurization of the reactor Coolant System.

# 8. Applicable Time Period:

- 1. Valve Numbers: 1SI8811A, B 2SI8811A, B
- 2. Number of Valves: 4
- 3. ASME Code Category: B
- 4. ASME Code, Section XI Requirements:

Valves that cannot be exercised during plant operation shall be specifically identified by the owner and shall be full stroke exercised during cold shutdowns per IWV-3412.

### 5. Basis for Relief:

The full stroke exercising of valves not stroked quarterly is required to be performed during cold shutdowns. However, the stroking of the Containment Sump Outlet Isolation Valves, ISI8811A.B requires the nuction of the Residual Heat Removal Pumps to be drained, thus rendering one train of the system inoperable.

For Cold Shutdown operations with the Reactor Coolant Loops filled and one train of Residual Heat Removal declared inoperable. Braidwood Station's Technical Specifications require two steam generators with a secondary side narrow range water level greater than 41% (Unit 1) and greater than 18% (Unit 2). However, if the cold shutdown was necessitated by a problem requiring draining of the secondary side of the Steam Generators (i.e. tube leaks). Braidwood Station's Technical Specification 3.4.1.4.1 would preclude the testing of the containment sump outlet isolation valves until such time as the affected steam generators had been refilled.

For Cold Shutdown operations with the Reactor Coolant Loops not filled (i.e. drained down to suport Reactor Vessel Incore Seal Table, Loop Stop Valve, Reactor Coolant Pump and Seal Maintenance or primary leakage), Braidwood Station's 1.chnical Specification 3.4.1.4.2 would preclude the testing of the Containment Sump Outlet Isolation Valves as it mandates that "two residual heat removal (RHR) Loops shall be operable and at least one RHR Loop shall be in operation.

# 6. Alternate Testing:

Braidwood Station will full strok exercise the Containment Sump Outlet Isolation Valves, 1/2 SI8811A, B during refueling outages vice cold shutdown.

# 7. Justification:

The full stroke testing of the 1/2 SI8811A,B valves: in conjunction with system draining, filling and venting of each train, accounts for an additional six days (3 days per train) of scheduling requirements and increased radiation dose to operators and radiological control personnel. Process. g of thousands of gallons of contaminated water and subsequent required liquid effluent discharges would also result from the draining, refilling and venting of the RHR system. This time duration required to perform the surveillance testing of the Containment Sump Outlet Isolation Valves during Cold Shutdown activities, could, as a result, cause a violaiton of the action raquirements for Braidwood Station's Technical Specifications 3.4.1.4.1 and 3.4.1.4.2. The violations would occur since these Action statements require (as noted in their respective foot note sections) the return of the inoperable residual heat removal loop to service within 2 hours, if such loop was removed for surveillance testing provided the other RHR Loop is operable and in operation.

In addition, NRC Generic Letter 88-17, Loss of Decay Heat Removal, highlights the consequences of a loss of RM during reduced Reactor Coolant System inventory (below three feet below the reactor vessel flange). If the operating RH pump is lost due to air entrainment, and the other train is inoperable for the stroke test, then the "operable" train must be vented to restore decay heat removal. Under worst conditions, boiling in the core would occur in approximately 10 minutes, the core would be uncovered in approximately 30 minutes, and fuel damage would occur in approximately 1 hour.

Given the apparent disparity between the Technical Specification time requirments for an inoperable RHR Loop return to service (2 hours) and the time required to perform surveillance stroke testing of the Containment Sump Outlet Isolation valves (3 days) during Cold Shutdown, the proposed alternate testing frequency of refueling outage periodicity will adequately maintain the system in a state of operational readiness, while not imposing undue hardships or sacrificing the safety of the plant.

#### 8. Applicable Time Period:

1. Valve Numbers: 15X101A 25X101A

2. Number of Valves: 2

3. ASME Code Category: B

4. ASME Code, Section XI Requirements:

Stroke time and trend the stroke time for power operated values per IWV-3413 and IWV-3417.

# 5. Basis for Relief:

ISXICIA and ZSXICIA are the essential service water outlet isolation valves for the motor driven auxiliary feedwater pump lube oil coolers. These valves are completely encapsulated per design and do not have local or remote position indicators which could be used to time the valve stroke.

# 6. Alternate Testing:

ISX101A and 2SX101A will be verified to open during each quarterly surveillance of the motor driven auxiliary feedwater pumps. No stroke timing or trending will be performed.

### 7. Justification:

These valves will be stroke exercised to their required safety position each quarter during the applicable motor driven auxiliary feedwater pump ASME surveillance. These pumps are also tested monthly for proper equipment operation per Technical Specification requirements. This testing will adequately maintain the systems in a state of operational readiness, while not sacrificing the safety of the plant.

#### 8. Applicable Time Period:

COMMONAGALTH EDISON

INSERVICE TESTING PROGRAM

BRAIDWOOD MUCLEAR POWER STATION

											75 10 1			
VALVE NUMBER P	01 3	CLASS	VALVE	VALVÍ S178 (TN.)	VALVE LYFE	ACT.	MORMAL PRISTITION	STROKE DTRECT.	MAX.STROKE TIME	11: S1 ME 114(5)	11: S.T. MODIL	RELITE REQUEST	KI MARKS	10
1/2AF 001A	H-37	**		6.9	×3	5.4		0	N/A					
172Af 001B	H-32	M	ę	6.4	CK	S.A.		0	67.8	N2/4.4	04/45		Notte	
	H- 122									XL/CL	OP/CS		Stort e	2
172AF003A	M-37	ari.	)	0.3	ŏ	5. A.	U.	0	N/A					
	M-122									Xt/Ct	0975.5		Note	2
17.2AF 88 38	N-37			0.3	8	S.A.		0	N/A					
CASTOR A	27 H					10. 10				*17Ct	01/7.5		Note	4
record union	N 122			0.0	5	n E		5	9.75	10.0	10			
1724FB08-R	17 - H		4	4. 6	0.0	8 D			36.00		AN COLO			
	M-122										0.00			
L/2A5 0 L3A	M-37	74	9	4.0	13	м. б.	0	ų.	30.0		- 40			
	M 122									11	RK			
1/24/9138	18-37	The .	æ	4.6	Œ	9. и	0	ú	0.0	25	.10			
	M-122									1	88			
1/2AF013C	M-37	Sec.	- 8	0.0	ä	M 0	0	Sec	30.0	35	60			
	H-122									11	SR			
1,231.0130	H-37	15W	5	9.7		H. 0.	0		0.00	35	40			
	84-122									11	KK			
172AF013E	M-37	Na.	9	0.1	3	M. 0.	0		10.00	35	d0			
	M-122									11	RR			
172AFB13F	M-32		9	9.0	3	E .	0	×	9.0%	3.	8			
172688136	H-13	•		44.63		N 03			-0.4		CAD			
	H-122										200			
T/24f013H	M-37	84	au	4.0	3	М.О.	0		30.05	51	90 0			
	M 122										KK			
172s, 014s	H-37	2	U	4.8		SA	J	9	A/W		20		Note	
	771-4													
1/24/0148	M-37	es.		4.0	š	S. A.		0	14/A	5	53		Note 12	12
	N-122													

COMMONWEALTH EDISON

INSERVICE TESTING PROGRAM

BRAIDSOND MUCLEAR POWER STATION

										2 at 42		
0	CLASS	VACUE P & 1D CLASS CATEGORY	VALVE S17t LJN.;	VALVE	ACT. IYPE	MORMAL POSTITION	STROKE DTRECT.	MAK_STROKE TIME (SEL.)	TLST FR. UNUD	1687 MOM	RELTH F	REMARKS
M-12			<b>\$</b>	*	S. A.		0	N/A		ŝ		Note 12
M-37 M-122	2 2		9.0		V 5		¢	4/14		Ľ.		Burt o 12
M-33	2 2	2	4.8	ž	S. A.		0	ti/A	5	5		Note 12
M-37 M-122	***		9 9	č	S. A.	٠	6	N/A	ā	\$3		that e 12
M-57	N N		4.0	*	S.A.			M/A	ě.	S		that e 12
H-37	N		4.9	ŏ	5 A.		0	11/2	5	S		Motte 12
M-37 M-122			0.3	49	М. О.	Ü		15.0	5 1	OP RR		
M-37 M-172	. 24	20	0.9	3	0 E		•	# SA	5 1	OP KR		
M-37	m N		6.9	8	× 5			M/A	5	2		Note 12
M-37 M-122	m 		0.3	ă	S. A.		0	N/A	ō	53		Note 12

COMMONAGALTH EDISON

INSERVICE RESIDNS PROGRAM

BRATTHOOD RUCLEAR POWER STATTOM

Harden   H									*		3 of 42		
2         A         A, B         GA         M.O.         G         10.0         S1         CS         99-58           3         C         A         A, B         GA         M.O.         0         C         10.0         S1         CS         99-58           3         B         12.0         GA         M.O.         C         0         120.0         S1         CS         99-81           3         B         12.0         GA         M.O.         C         0         120.0         S1         CS         99-81           2         A         5.0         GA         M.O.         C         10.0         S1         CS         99-81           2         A         5.0         GA         M.O.         C         10.0         S1         CS         99-81           2         A         5.0         GA         M.O.         C         10.0         S1         CS         99-81           2         A         6.0         GA         M.O.         C         10.0         S1         CS         99-81           2         A         6.0         GA         C         C         10.0         S1		& 16 CLASS	GORY	VALVI S12E 11N. J	VALVE	ACT. TYPE	N0RM11 P051150N	STROKE DIRECT.	MAN. STROKE TIME (SEC.)	71.5 78.11800	1EST M06E	RELITY REQUEST	RF PICER S
2         A         GA         M.O.         C         10.0         St         CS         VR-16           3         B         12.0         GA         M.O.         C         0         120.0         S1         GP           2         A         6.0         GA         M.O.         C         0         120.0         S1         GP           2         A         6.0         GA         M.O.         C         10.0         S1         GP           2         A         6.0         GA         M.O.         C         10.0         S1         GS         VR-1           2         A         6.0         GA         M.O.         C         10.0         S1         GS         VR-1           2         A         6.0         GA         M.O.         C         10.0         S1         CS         VR-1           2         A         6.0         GA         M.O.         C         10.0         S1         CS         VR-1           2         A         6.0         GA         M.O.         C         10.0         S1         CS         VR-1           2         B         5.0         GA				12.0	×	N.		0	21/A		до		
1   12   15   15   15   15   15   15			<	9.6	3	0 1	0		10.0	35	53	VR - 85	
3         B         12.0         GA         M.O.         C         0         120.0         St         OPP           2         A         6.0         A.O.         C         0         120.0         St         0P           2         A         6.0         A.O.         C         10.0         St         0P           2         A         6.0         A.O.         C         10.0         St         0P           2         A         6.0         A.O.         C         10.0         St         0S         0P           2         A         6.0         A.O.         C         10.0         St         0S		M-139-1								90° 1	KK		
3   8   12,0   6A   860   C   0   120 0   55   000     2   A   5.0   6A   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.0   6.			623	12.6	6.4	M.0.	3		120.0	21.5	(A)	VK-I	
3         B         12,0         GA         #0.0         C         10.0         St         GS         WR-B           2         A         6.0         6.0         4.0         C         10.0         St         CS         WR-B           2         A         6.0         6.0         4.0         C         10.0         St         WR-B           2         A         6.0         6.0         6.0         6.0         6.0         10.0         St         WR-B           2         A         6.0         6.0         6.0         6.0         10.0         St         WR-B           2         A         6.0         6.0         6.0         6.0         9.0         11         RR         WR-B           2         B         5.0         6.0         6.0         6.0         11         RR         WR-B           2         B         5.0         6.0         6.0         6.0         11         RR         WR-B           3         B         5.0         6.0         6.0         6.0         11         RR         WR-B           4         B         5.0         6.0         6.0         6.0		M-139-2								-	88		
Z         A         6.0         GA         A10         C         10.0         S1         CS         VR-B           Z         A         6.0         6.A         A10         0         C         10.0         S1         CS         VR-B           Z         A         6.0         6.A         A10         0         C         10.0         S1         CS         VR-B           Z         A         6.0         6.A         A10         C         10.0         S1         VR-B         VR-B           Z         B         5.0         C         10.0         S1         C         VR-B         VR-B           Z         B         5.0         C         10.0         S1         CS         VR-B           Z         A         5.0         C         10.0         S1         CS         VR-B           Z         B         5.0         C         10.0         S1         CS         VR-B         CS         VR-B           Z         B         5.0         C         10.0         CS         VR-B         CS         VR-B         CS         VR-B           Z         B         C         B </td <td></td> <td></td> <td>œ</td> <td>12.0</td> <td>6.4</td> <td>ж 0.</td> <td></td> <td>0</td> <td>179 0</td> <td>St</td> <td>90</td> <td></td> <td></td>			œ	12.0	6.4	ж 0.		0	179 0	St	90		
2 A 5.0 6A 4.0 0 C 10.0 51 C		M 159.2								14	200		
11	1721.C3413A		V.	6.9	6A	4.0			10.0	25	63	VR-8	
Z         A         6.0         GA         M.O.         G         10.0         S1         CS         VR-1           Z         A         6.0         GA         M.O.         G         10.0         S1         CS         VR-1           Z         A         6.0         GA         M.O.         C         10.0         S1         VR-1           Z         B         5.0         GA         M.O.         C         10.0         S1         VR-1           Z         B         5.0         GA         M.O.         C         10.0         S1         VR-1           Z         A         1.0         A.O.         C         10.0         C         10.0         VR-1           Z         A		M-139-1								47	KK		
2 A 6.0 GA 71.0 G 1 10.0 S1 CS VR-18  2 A 6.0 GA 71.0 G C 10.0 C 10.0 S1 CS VR-18  2 B 5.0 GA 71.0 G C 10.0 C 10.0 S1 S1  2 A 1 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  3 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  4 G GA 71.0 G C 10.0 G C 10.0 G  4 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10.0 G  5 G GA 71.0 G C 10.0 G C 10										**	×	VP-1	
11   88   98   15     2			et.	0. 3	6.4	M. 0.	0		10.0		5.7	VR-R	
The control of the		M-139-1								1	KK		
2										1	N.K.	VR- 1	
11   88   98-11   11   88   98-11   12   88   98-11   13   88   98-11   14   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   88   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98-11   15   98   98   98   98   98   98   98   9			4	0.9	full	. 0. ж	9	3	10.0	54	5.5	WP-H	
F B 5.8 GA A G C G 10.0 51 0P  Z B 3.8 GA A G C G 10.0 51 0P  Z A H G GA M O C G 10.0 11 RR  S C 12.0 GK S.A. C G G C GG G  3 B 15.8 GA M O C G G G G G  3 B 15.8 GA M O C G G G G G  3 B 15.8 GA M O C G G G G G G  3 B 15.8 GA M O C G G G G G G G G G G G G G G G G G G		M-139-1									XX		
2 B 5.0 G A.0 C G 16.0 S1 UP  2 B 5.0 G A.0 B C 16.0 IS G G G G G G G G G G G G G G G G G G										41	RR	VR-1	
Z         B         3.0         Ca         16.0         TI         RR           Z         A         Ca         A.0         0         C         16.0         11         RR           Z         A         Ca         A.0         C         16.0         12         0P           3         C         12.0         CK         S.A         C         0         90.0         RR           3         C         12.0         CK         S.A         C         0         90.0         RR           3         C         12.0         CK         S.A         C         0         120.0         C         0P           3         B         15.0         CA         N.0         C         0         120.0         St         C           3         B         15.0         CA         O         120.0         St         C         OP			H	1.49		20			0.01	- 15	- 00		Passine.
Z         B         S,B         GA         M, GA         GB         C         16.B         11         RR           Z         A         4.5         6A         M, G         10         11         RR           3         C         12.B         CA         S, A         C         10.B         11         RR           3         C         12.B         CA         S, A         C         B         N/A         Ct         OP           3         B         15.B         GA         M, B         C         B         12B.G         St         OP		M-139-1								11	RR		
7 8 1.0 6.0 20 C 16.0 11 88 2 A 1 6.0 20 C 10.0 11 86 3 C 12.0 CK 5.A C 0 70/A Ct 09 3 B 15.0 CA 7.0 C 0 125.6 5t 09 3 B 15.0 CA 7.0 C 0 125.6 5t 09										3.1	- 40		
2 A 10 0A PLO B C 10.0 11 RR RR S C 12.0 CK S.A. C 0 17.0 CK S.A. C 0 17.0 CK GP S C 12.0 CK S.A. C 0 17.0 CK GP S C 17.0 CK S.A. C 0 17.0 CK GP S C 17.0 CK S.A. C 0 17.0 CK GP S C 17.0 CK S.A. C 0 17.0 CK GP S C 17.0 CK S			20	1.0		A.0.	0	9	0.01	-	RR		
2 A 10 0A PLO B C 10.0 11 RR 11 BK 5 C 12.0 (K 5.A. C 0 B/A Ct 0P 3 E 12.0 (K 5.A. C 0 B/A Ct 0P 3 B 15.0 (A PLO C 0 B 125.6 51 0P		M-139-1									0.0		
3 C 12.0 OK S.A. C 0 nvA Ct 09 3 E 12.0 OK S.A. C 0 120.0 OP 3 B 15.0 OK S.A. C 0 120.0 St 0P			٧		Vely	.0 W	0		10.0	1	26.65	9.86. 1	
3 C 12.0 CK 5.A. C 0 10.A Ct 09° 3 E 12.0 CK 5.A. C 0 N/A Ct 09° 3 B 15.0 GA 14.0. C 0 120.0 5t 0P° 31 B 15.0 GA 14.0. C 0 120.0 5t 0P°		1.951-19								1	Вж		
3 C 12.0 CK S.A. C 0 NVA Ct 3 E 12.0 CK S.A. C 6 NVA Ct 3 B 15.0 GA M.D. C 0 120.0 St										25	4.5	VR-6	
3 E 12.0 CK 5.A. ( 6 N/A (t 3 B 15.0 GA M.O. ( 0 120.6 St			0	17.0	×	S. A.	9	0	47.4	t	à		
3 B 15.8 s.A M.B. ( 0 1,50.6 St. 18.				12.0	×			9	M/A	+)	à		
			83	16.0	1,4	M. 0.		0	1.10.6	25	ŝ		
										17	35		

COMMONWEALTH ED. 30%

INSERVICE TESTING PROGRAM

BRAIDHOUD MUCLEAR POWER STATION

									RE V15.10%		PAGE 4 of 42		
VALVE NUMBER P	8 IB CU	ASS	VALVE VALVE NUMBER P 8 ID CLASS CATEGORY	VALVE 5128 5128	VALVE 17771	VALVE ACT.	ACT FIORMAL STROKE LYPE FOSTIKON DIRECT.	STROKE	MAX. STROKE TEST TEST THE PETHOD MODE (SEC.)	TE S.1 PRE 11/1000	TEST	RELEGE REMARKS REQUEST	KE MARK S.
1/20094738 R-66-38 3	M-66-3B	~	*	H 16 0	3	м. О	U	9	120.0	3.0	90 88		
172009486 N-66-1A 2 H-139-1	M-66-1A H-139-1	2	AC	41.0	8.0 EK S.A	2.2			ft/A	10 m	S N N	VR-1	
172019518 H-66-1A H-139-1	M-66-1A	2	AL	0.75 1.8	×	5.A.			N/A	=	XX	VR 1	Pass ree
1/2CC9534 M-66-1A M-139-1	M-66-1A	N	AL	0.75 +18		5.8		2	C N/A UX	13	XX	VR-1	Passive

COMMUNICAL TH EDISON

INSERVICE TESTING PROGRAM

BRAIDWOOD MUCLEAR POWER STALLON

										2 01 42		
VALVE NUMBER P	P & 10 CLASS	VALVE	VALVE S126 (TN.)	VALVE IYM	ACI. IYPE	NORMAL PUSTITON	STROKE DIRECT.	MAX.STROKE I.ME	7£57 ML1600	TEST MUDE	RELIEF REQUEST	REMARKS
1/2(SB03A	M-61-4 2	30	14.6	F.A	м.0	0	J	0.00	25			
	M-136-4								Ti.	N. N.		
1720530018	M-61-4 2	an	14.0	Ą	D H	0		36.0	51	à i		
1/2CS003A	M-46-1A 2	3	10.0	CK	K 2		0	M/A	X+7C3	SAP / DE	VD-A	
	47											
172.05038	M-46-1A 2		10.01	š	S.A.		0	87.8	MAZE	0F/RR	V.2.	
1/2CS007a	M-46-10 2	A	16.0	CA	M 0.	2	6	9 95		200	4.75	
	M-129-10								74 -	10		
172CS007B	M-46-10 2	A	18.6	S	М.О.		72	30.0		2 12	1.6	
	M-129-10								25	10		
									11	KK		
1/2C \$008A	M-45-10 2	AC.	10.0	Э	et s		9	847.8		258	VR-1	
	M-129-1C								11	KK	VR-1	
1/2CS008B	M-46-11 2	Aı,	0 01	Č	S.A.		9	10,15	5	X	VK1	
	J								11	KK	VR-1	
1/2C\$009A	M-61-4 2	9	16.8	60	M.0.		0	0.0	25	40		
									11	KR		
96085 1771	M-61-4 2	35	9.91	5	H. 0		0	0.0	5 -	10 X		
1,22CS011A	M-46-1A 2		6.9	š	5.A.		0	te.ns	5	\$		
1/20/58118	M-46-1A 2		0.0	ž	5. A.	J	0	8.7A	5	40		
1/205019A	M-46-18 2		9 %	6.4	0 H	ú		15.0	51	à i		
177.050198	M-46-18 2	8	3.0	L.A.	W 03			10.00		98		
										88		
1/20.04	M-46-18 2 M-129-1A		0	š	4 %		0	N/A		¥	VR-C	
172050208	M-46-18 2		0.0	š	S.A.		0	N/A	3	20	VR-Z	
	A4 100 1A											

1911au(010689)

### INSERVICE IESTING PROGRAM

### COMMONWEALTH EDISON

### BRAIDWOOD NUCLEAR POWER STATION

									RE***\$10N		PAGE 6 of 4		
VALVE MOMBER P	& ID CLAS	5	VALVE	VALVE SIZE 1.1.1	VALVE	ACT. TYPE	NORMAL POSTITION	STROKE	MAX.STROKE FIRE (SEC.)	TEST METHOR	FEST MODE	RELIEF	KI MARK S
1/2CV112B	M=64-4 M=138-4B	2	P	4.9	GA	H.O.	0		10.0	51 1t	CS RR		turte d
1/2CV112C	M-64-4 M-138-48	2	В	4.6	GA	M.O.	0		0.01	51	CS RR		Note 4
1/2CV1120	M-64-4 M-138-4A	2	В	8.0	GA	н.ө.		- 0	15.0	St.	CS RR		Note 7
172EV112E	M-64-4 M-138-4A	2	В	8.0	GΑ	м.о.		- 0	15.0	St	KS RR		Note /
1/20V8100	M-64-2 M-138-2	2	Α	2.0	-61	М.О.	0		16.0	St. It	US. RR	VR-9	
/2CV8104	M-64-4 M-138-4A	2	e e	2.0	i i	9.0	(	-0	tü.0	St	RR CS RR	VR-1	hote 2
1/2CV8105		2	B	1.0	ξA	M.O.	0	Ç.	10.0	St.	CS RR		Note 4
/2EV8106	h-64-38 M-136-38	2	β	3.0	i iA	M.O.	.0		19.0	St It	US RR		Note 4
/2CV8110	M-64-3A M-138-3A	2	В	2.0	61	м. О.	0	0	10.0	St.	OP RR		
/2CV8111	M-64-3A M-138-3A	Z	В	7.0	. 54	M.O.	0		10.0	5t.	(H) RR		
/2EV8112	M-64-2 M-138-2	2	A	Z.0		H.O.	0	E	10.0	St It	ES RR	VR-9	
/2(VB113	M-64-2 M-138-2	2	At	.75	G.	S.A.			N/A	II.	RR RR	VR-1	Passive
/ZCV8114		2	В	2.0	fali	S.O.	9	· ¢	5.0	51 15	OF RR		Note 2
/2CV8116	M-64-3A M-138-3A	2	B	2.0	61	5.0.	0		5.0	St	OP RR		Note /

COMMONINE AL TH EGISON

INCLUMENTED THISTING PROGRAM

BRATUMOUD MULITAR POWER STATION

7 of 42	TEST TEST RELITE REPARKS. RELIGIO MIDIE REQUEST	CS thots	US Note a	RR VR-1	CS Note 4	C.S. Mort.	VR-1	CS Note	8	ðo	ct C\$Z0F VR-15	CC CS/0F VR-15	CS VK-F', follo	CS Notes
	154 HE HE HOLD (SEC.)	10.0 54		11	10.0			17.A C.L	11/A Ct	N/A Ct	N/A CE/KE	N/A E./XC	N/A CC	10 0 51
	STRUKE.				ů,			0	0	0	0	0	0	9
	POSTITION	0			0					-				
	AC 1. FVPE	Α.0			A.6.			4	S. A.	S.A.	S. A.	V 7	4	0 %
	VALVE LYPT	3			5			8	ă	ŏ	ž	ă	ð	6.A
	VAT VE S12k (16,)	3.0			3.0			0.7	Ø 72	2.0	4.0	4.0	8 0	<b>0</b>
	VALVE	4			4									4
	P & 19 CLASS CATEGORY	M-64-5 2 M-138-5			M-64-5 2			M-64-4 2	M-64-3A 2	M-64-3A 2	M-64-34 2		M-64-4 /	
	VALVE NUMEER P	1/20/8152			1/20,48160			1725.08442	7.21.V8486A	172Cv84808	/2CV8481A M-64-3A M-138-3A	1/2cV8+818	/2CV8546	72CV8804A

							REVESTOR: 4		PAGE 8 of 42	
VALVE VALUE CIASS CAT	VALVE	VALVE STA	VALVE	ACT.	MINHAL FUSITION	STROKE DIRECT.	MAX. STROKE TIME	TEST METHOD	HEST MODE	RECTOS REQUESS
1/2905182A N-54-4 NOW	63		3	2.0			N/A	ă	ô	VR. 1
720651828 N-152-20 NOME	90	*	5	5.0			N/A	X	10	VR-13
172055183A H-54-4 NOME	8		23	5.0			N/A	53	â	VR-11
1/20551838 M-54-4 NONE	2		64	5.0			14/A	55	90	VK-113
172065184A M-152-20 NBME	,		Š	S. A.	3	0	N/A	8	à	VR- 13
1720651848 M-152-20 NONE	j.		š	S. A.	9	٠	N/A		AS	VR-13
17/2065185A M-152-26 NONE			*	S. A.	u	0	N/A	5	96	VS-13
1720651856 M-152-20 NORE	J.		*	S. A.	,	0	19/A	2	à	VR-13

	Cristophilate At 15a s. Dr. C. Com	FOICOM			INSFRVI	INSERVICE TESTING PROGRAM	FRUGRAM					
		MAC 1003		BRAIL	MOOD NO	BRAITHARD MIKLEAR POWEK STALLUN	STATION					
								RIVISION 4		PAGE 9 of 62	2	
VALVE MUMBER P	MIMBER P & ID CLASS	VALVE	VALVI S17f (TN.)	VALVE VALVE SEZE TYPE (TN.)	ACT.	VAEVE VALVE VALVE ACT, ROBMAL STHOKE STEGGRY STZE TYPE TYPE POSITION DIRECT.	STROKE BIRECT.	MAX STROKE TEST TEST RELIEF REMA TIME METHOD MODE REQUEST (SEC.)	10.51 ME 1H00	TEST MOBIL	RELIEF REQUEST	RE PIL
17200003A M-50-18	M-50-18 3		4.5 (4	÷	S.A.			N/A Cr	Ü	do		
172500038		0	127 m1	C 1.5 CK S.A.	S. A.		0	N/A	5	20		
1/200003C			1.5	Š	5.4			517A	5	â		
1/2000030	1/2000030 N-50-1A 3		C 1.5 CK	*	5. A.			17.W	5	40		

INSERVICE RESTING, PROGRAM

BRAIDWOOD MULLIAR PORTR STATEOR

	RI MARKS	Passave	Passive	Passive	Passing
42	RELECT REQUEST	RR VR-1 Pathister	RR VR-1	VR-1	RR VR-1 Passive
PAGE 10 of 42	1EST MODE	N. N.	R	N.S.	X.
	TFST ME344Qs	ž			
REVISION 4	HAM, STRONE TEST TEST RELIEF LINE METHOD MODE REQUEST (SEC.)	N/A 11	14/A 118	14.A 14	14/14
	VALVE VALVE ACT, NORMAL STROKE S12E IYPE 1YPE POSTITON DIRECT (18.)				
	ACT. TVPE	Σ	£	Ξ	Σ
	VALVE	4		4	
	VALVE SLZE (TB.)	Α 3.9	А 4.0 Р	0.1	A 3.0
	VALVE	4	Þ	A	*
	25	N	8	N	7
	& 10 CLA	M-63-1A	1/2FC010 M-63-1A 2	M-63-1C M-63-18	M-61-10 M-63-18
	VALVE VALVE VALVE VALVE ACT, NGRHAU STROKE NUMBER P. & ID CLASS CAFFORRY \$120 IVPL IVPE PUSITION UINLITE (IN.)	1/2ff 009 M-63-1A 2	1/27/0116	1/2FC011 M-63-1C	1/2FC012

INSERVICE TESTING PROGRAM

BRAIDINGED MELLFAR PONTR STATION

P & 10 CLASS CALEGORY SLAT 17P1 17P1 17P2 17P3 17P1 1 11PE 1 11PE 1 12P3 1 12P3 1 12P3 1 12P4							REVISION 4		PAGE 11 of 42	42	
B 4.0 GA A.0. 0 C 12.0 SI	VALVE ASS CATEGORY		VALVE LYPE	ACT.	MORPHALL POST TRIKE	STROKE BIRECI.	MAX.STROKE 13ME	7.6.5.1 59.111-0.05	1E.5.1 MODE	RELECT REQUESTS	REMORES.
		4.0	43	A.0.	0	ų	12.0	5.1	40		
								11	RR		
								1.4	do		

	COMPUNITAL TH FOLSOM	MUSTURE M				INSERVIC	INSERVICE RESTING PRINGRAM	PROGRAM						
					BRAT DA	AUGU MUC	BRATOWOOD MICLEAR PUWER	C STATION						
									REVISION 4		PAGE 12 of 42			
VALVE	& 10 CLASS	VALVE S CATEGORY	VE	VALVE STRE	VAL VI TYPE	AC 1.	NORMAL POSTITON	STROKE DIRECT.	MAX STROKE	TEST PM THOD	16.51 MODE	RELIEF REQUEST	REMARKS	8
1/2FW089A	M-36-1 M-121-18	~	30	16.0	5	0 H	9		0.5	St/xt	(5/0)		Note	
1/2140098	N-36-1 N-121-10	*	m	16.0	40	H 0	0		9 4	\$4.7Xt	20/57		Note	
1/2140090	M-36-1 M-121-1A	2	8	6.01	153	11.0	9		5.0	517.81	C3/0#		Note	*
1721 90090	M-36-1	2	an .	16.0	3	11.0	0	J	5.0	StyKi	15/05		Note	
1/21 MD 34A	H-36-1 M-121-18	NOM	20	2.0	3	A. 0	0		14/A		KR		Mate	
1721146 548	M-36-1 M-121-10	NOME	<b>a</b>	9.2	19	4.0	0		N/A		KR		Note	91
172FW034C	M-36-1	NOME	20	2.0	6	Α.0.	0		MAN		SK SK		Note	91
1721WB34D		MORE	33	0	3	A.0.			N/A	z	ž		Note 13	133
1/2FW035A						Α.0			•	3 = :	d0 88			
1/21 W0359	N-36-1 N-121-10	54	5	0		A.0.			6.9	: # = :	b # 1			
1/2550 150	M-36-1 M-121-14		G2	3 0		0 V	٠		6.9		8 8 8			
1/27W035B	M-36-1 M-121-1C	N	m	0		0			0.0	25:	8 2 8			
17.25 WB 59.A	M. 36-1 M. 171-18		20	0.4	5	Ş .	0		0.3	* = =	0 # 0		Mot.c	2 9

	7	

# BRAIDWOOD MUCLEAR POWER STATEON

INSTRUCCE TESTING PROGRAM

									ktytsion 4		PAGE 13 of	4		
VALVE NUMBER P	P & 10 CLASS		YALVE CATEGORY	VALVE SIZE (174.)	VALVE	ACT. TYPE	1051110tt	STROKE DIRECT.	MAX STROKE TTME (SEC.)	TEST PRETROD	TF ST MODE	RELIEF	REMARKS	
1721 w6396	N-121-10	έų	#	0.0	(P)	A 0.	0		6.0	3 = 3	SX			01
3/2EM0.59C	M-36-1 M-121-1A	4	Φ	6.0	4	Α 0			6.9	= = = =	00 # 0		Note:	9 9 9
1725 WB 590	M-36-1 M-123-1C	7	<b>1</b>	0.0	5	Α.0.	•	Unin	0.0	2 = 1	5 % 0			9 8
172F W043A	M-36-1 M-121-18		20	•		A.0			0.0	a a a	98 g			
1721-w0436	M-36-1 M-121-10	N	00	3.0	3	V.0			0 9	3 = 1	6 % S			
L/2FW0A3C	M-36-1 M-121-1A	N	#	9	0	0 V			0 9	×=:	à ¥ à			
172FW0430	M-36-1 PF-121-1C	84	*	0	ĕ	A.6			0 3		8 % 8			
1/21.85.16	1 121-1	NOM NOM	D 2	16.0	100	A.0.	0		N/A		¥ 3			
1/21 WS20	M-121-1 M-36-1 M-121-1	NONE		111111111111111111111111111111111111111	5 14				N/A		¥ 12		Note: 12	
1/21W520A	M-36-1 N-121-1	NOME	80		3	0.4			N/A	ž	24 24		Note 17	
1/259/530	M-36-1 M-121-1A	MORE	di)	16.0	M	A.0			N/A	I I	ž		Mort. 16.	

INSTRUICE RESTING PROGRAM

BRAIDHOOD MUCLEAR POWER STAILON

510th PAGE 14 of 42	MAX.STROKE 11.51 TEST RELITE REMARKS TIME METHOD MODE REQUEST 15EC.1	Note 17	A ft RR Mote No	A it RR Mote 17	
REVISION A	MAX. STROKE TIME 1 SEC. 1	ta/A	N/A	N/A	
	VALVE VALVE ACT. NORMAL STROKE SIZE TYPE TYPE PUSTITOR DINECT. (IN.)				
	VALVE VALVE ACT. NORMAL STROKE SIZE TYPE EVPE PUSTITION DIRECT		0		
	ACT	Α.0	A.6.	4.0 GA A.0.	
	17 17 T	5	AN	3	
		4 0	0.30	0.0	
	MALVE ATEGÓRY	TO .	4	4	
	ASS	NONE	M-36-1 NONE M-121-1C	HONE	
	8 TO C	M-16-1		H-36-1	
	VALVE VALVE NUMBER P. 8. TO CLASS CATEGORY	1/2FW530A M-36-1 NONE N-121-1A	1/2FW5d0	1/2FW540A M-36-1 HONE M-121-1C	

INSERVICE TESTING PROSRAM

BRAIDWOOD MUCICAR POWER STATION

VALVE NUMBER P. 8	VALVE VALVE NUMBER P. & 1B CLASS CATEGORY	VALVE	VALVE S178 (TN.)	VALVE TYPE	ACT.	MÜRMAL STROKE POSTITUR DIRECT.	STROKE DIRECT.	MAK. STROKE TIME TSEC. )	14.5.t 201 (16.0)	1E ST NORE	MELTEF REQUEST	REMARKS
1/214065	M-55-2 2	4	3.0		A.0.	0		15.0	-	KK	VR- 1	
	M-55-2								St	NN	VR-10	
										KK	VR-30	
									11	KK		
17214066	M-55-2 2	A	0.1	1.0 GI A.6.	A.6.	0		15.6	7.4	1616	VR-1	
	M-55-2								35	KR	VR-10	
										KK	VR-16	
									11	88		
161	1/21A091 M-55-2 2 R-55-2	W.	0.75	0.75 CK 5.A. C	S.A.			NCA.		28	- 34	VR. 1 Passave

		-	
	3		
	٠		
		E	
		-	

į				
é				
1				
W 18 18 18 18				10000
- W. W. W. W.				1
W 10 10 10 10 10 10 10 10 10 10 10 10 10				7 10 10 10 10
THE RESERVED				7
The second				7
The second				7
The second				
The second second				
The second second				
The second second				The Control of the Co
The second second				Photograph - Activities
The second second				California de la companya del companya de la companya de la companya del companya de la companya
The second second				Contract to the contract of th
The second secon				the company of the company of
The second second				the company of the company of the
THE RESERVE OF THE PARTY OF THE				Part of Particular Action and Property and
The same of the same				Charles of the Charles of the Control of the Contro
The second secon				State of the State
THE PERSON NAMED IN COLUMN				the Party of Party day of the Party and the
THE PARTY OF THE P				A Property of Party and Property and Propert
THE PERSON NAMED IN COLUMN 1				the state of the capture of the same of the same of
THE RESERVE OF THE PARTY OF THE				THE RESIDENCE OF TAXABLE PARTY AND ADDRESS OF TAXABLE PARTY.
THE RESERVE OF THE PARTY OF THE				THE R. P. LEWIS CO. LANSING MICH. LANSING MI

WAIVE   VAIVE   VAIVE   VAIVE   P.S. F.											16 of 42	
H-150-2   2   B   30-75   GA   11 G   G   C     H-150-1   2   B   32-75   GA   11 G   G   C     H-150-1   2   B   32-75   GA   11 G   G   C     H-150-1   2   B   32-75   GA   11 G   G   C     H-150-1   2   B   32-75   GA   11 G   G   C     H-150-1   2   C   G   G   G   G   G   G   G     H-150-1   2   C   G   G   G   G   G   G   G     H-150-1   2   C   G   G   G   G   G   G   G   G     H-150-1   2   C   G   G   G   G   G   G   G   G     H-150-1   2   C   G   G   G   G   G   G   G   G     H-150-1   2   C   G   G   G   G   G   G   G   G     H-150-1   2   C   G   G   G   G   G   G   G   G     H-150-2   2   C   G   G   G   G   G   G   G   G     H-150-2   2   C   G   G   G   G   G   G   G   G   G	VALVE MIMBER P	\$ 10 CLASS	VALVE		VALVE	ACT. TYPE	NORMA  FIDST11000	STROKE BIRECE.	MAX.STROKE TINE USEC.	1£51 ME 0.000	HEST RELEASE MODE REQUEST	REMARKS
H-15G-1 2 B 32.75 GA 16.0 0 C H-12G-1 2 B 32.75 GA 16.0 0 C H-15G-2 2 B 32.75 GA 16.0 0 C H-15G-1 2 B 32.75 GA 16.0 0 C H-15G-1 2 B 36.75 GA 16.0 0 C H-15G-1 2 C 6.0×10.0 SV 5.A. C 0 H-12G-1 2 C 6.0×10.0 SV 5.A. C 0 H-12G-1 2 C 6.0×10.0 SV 5.A. C 0 H-12G-1 2 C 6.0×10.0 SV 5.A. C 0 H-15G-2 2 C 6.0×10.0 SV 5.A. C 0 H-15G-1 2 C 6.0×10.0 SV 5.A. C 0	/2MS001A	~			6A	0 11	0			Strkt	CS/OV RR	Mote
H-120-2	/2MS0618			Ŕ	15	н 0				St/Xt	C*/0P	Note 1
H-150-1 2 B 30-25 GA HO, O C C H-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-2 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C M-120-1 2 C 6.0×10.0 SV S.A. C O C C M-120-1 2 C 6.0×10.0 SV S.A. C O C C M-120-1 2 C 6.0×10.0 SV S.A. C O C C M-120-1 2 C 6.0×10.0 SV S.A. C O C C M-120-1 2 C 6.0×10.0 SV S.A. C O C C M-120-1 2 C 6.0×10.0 SV S.A. C O C C M-120-1 2 C 6.0×10.0 SV S.A. C O C C M-120-1 2 C 6.0×10.0 SV S.A. C O C C M-120-1 2 C 6.0×10.0 SV S.A. C O C C C M-120-1 2 C 6.0×10.0 SV S.A. C C C C C C C C C C C C C C C C C C	72MS001E				3	0	0		0	\$17.74	CS/0P RR	flate 1
H-35-2         2         C         6.0810.0 SV         S.A.         C         0           H-120-2         2         C         6.0810.0 SV         S.A.         C         0           H-120-1         2         C         6.0810.0 SV         S.A.         C         0           H-120-1         2         C         6.0810.0 SV         S.A.         C         0           H-120-2         2         C         6.0810.0 SV         S.A.         C         0	ZMS001D		40		3	, i	0		0.0	Se/Xt	(5/0P	Note 1
2 C 6.0X10.0 Sy S.A. C 0	1/2MS013A		9			S.A.		0	N/A	ž	KK	
M-35-2         2         6         6.0×10.0 SV         5.A.         C         0           M-120-2         2         6.0×10.0 SV         5.A.         C         0           M-120-2         2         C         6.0×10.0 SV         S.A.         C         0           M-120-1         C         6.0×10.0 SV         S.A.         C         0           M-120-1 <td>72MS0138</td> <td></td> <td></td> <td>9×10</td> <td></td> <td></td> <td></td> <td>0</td> <td>N/A</td> <td>ž</td> <td>1</td> <td></td>	72MS0138			9×10				0	N/A	ž	1	
M-15g-1         Z         C         6-0x16-0         Sv         S.A.         C         0           M-12g-1         Z         C         6-0x16-0         Sv         S.A.         C         0           M-12g-1         Z         C         0.0x10-0         Sv         S.A.         C         0           M-12g-1         Z         C         6.0x10-0         Sv         S.A.         C         0           M-12g-2         Z         C         6.0x10-0         Sv         S.A.         C         0           M-12g-1         Z         C         6.0x10-0         Sv         S.A.         C         0           M-12g-2         Z         C         6.0x10-0         Sv         S.A.         C	72MS013C			01 XO		ď.		0	11/4	ž	¥	
M-15-2         2         C         6.08410.0 SV         S.A.         C         0           M-120-2         2         C         6.08410.0 SV         S.A.         C         0           M-120-1         2         C         6.08410.0 SV         S.A.         C         0           M-120-2         2         C         6.08410.0 SV         S.A.         C         0           M-120-1         2         C         6.08410.0 SV         S.A.         C         0           M-120-2         2         C         6.08410.0 SV         S.A.         C         0           M-120-1         2         C         6.08410.0 SV         S.A.         C         0           M-120-2         2         C         6.08410.0 SV         S.A.         C         0           M-120-1         2         C         6.08410.0 SV         S.A.         C         0           M-120-2         2         C         6.08410.0 SV         S.A.         C         0           M-120-1         2         C         6.08410.0 SV         S.A.         C         0           M-120-2         2         C         6.08410.0 SV         S.A.         C <t< td=""><td>/2MS013D</td><td></td><td></td><td>6.0X10.1</td><td></td><td>5. A.</td><td>~</td><td>0</td><td>M/A</td><td>ž</td><td>KK</td><td></td></t<>	/2MS013D			6.0X10.1		5. A.	~	0	M/A	ž	KK	
M-15-1       2       C       0.00x10.0 SV       5.A.       C       0         M-120-2       C       0.00x10.0 SV       5.A.       C       0         M-120-2       C       6.00x10.0 SV       5.A.       C       0         M-120-1       C       6.00x10.0 SV       5.A.       C       0         M-120-2       C       6.00x10.0 SV       5.A.       C       0         M-120-2       C       6.00x10.0 SV       5.A.       C       0         M-120-2       C       6.00x10.0 SV       5.A.       C       0         M-120-1       C       6.00x10.0 SV       5.A.       C       0	/2MS814A			0 × × 0		N N	o -	0	N/A	*	K.	
PH-12@-2         C         6.00x10.0 SV         S.A.         C         0           PH-12@-2         C         6.00x10.0 SV         S.A.         C         0           PH-12@-1         C         6.00x10.0 SV         S.A.         C         0           PH-12@-2         C         6.00x10.0 SV         S.A.         C         0           PH-12@-1         C         6.00x10.0 SV         S.A.         C         0           PH-12@-1         C         6.00x10.0 SV         S.A.         C         0	/2MS8148			01×0		S.A.	ų	9	W/A	ž	X	
M-150-1 2 C 6.0x10.0 SV 5.4. C 0 0 H-120-1	/2MS014C			01 X 10		4	÷		10/3	ž	XX	
M-120-2 2 C 6.6X10.0 SV 5.A C 0 M-120-2 R-35-1 2 C 6.6X10.0 SV 5.A. C 0 N-120-1 C 6.0X10.0 SV 5.A. C 0	72MS014B			01 X I				0	N/A	ŭ	ž.	
M-35-1 2 C 6.6X10.0 SV S.A. C 0 N-120-1 H-35-2 2 C 6.0X10.0 SV S.A. C 0	/2MS0154			01 X 6		4 %		9	MA	ž.	#R	
H-35-2 2 C 6.0x10.6 SV S.A. C 0	/2MSB15B			0X10		S. A.		0	N/A	ž.	RR	
7 0/21 M	35105H27			0 × 10		4 5		0	N/A	N.	KK	

COPPONEAL THE EDISON

INSERVICE TESTING PROGRAM

BRAIDWOOD HUCLEAR POHER STAILON

1749   POSTITION DIRECT   1784   PREST     5.A.   C   0   N/A   RE     6.A.   C   0   N/A   RE     7.A.   RE     8.A.   C   0   N/A   RE     8.A.   C   0   N/A   RE     9.A.   RE							4EVESTON 4		17 of	42	
S.A.     C     0     N/A     R1     RR       N.O.     C     C     0     N/A     R1     RR       N.O.     C     C     C     0     N/A     R1     RR       N.O.     C     C     C     C     0     N/A     R1     RR       N.O.     C     C     C     C     C     C     O     N/A       N.O.     C     C     C     C     C     O     N/A     R1       N.O.     C     C     C     C     C     C     O     O       N.O.     C	P & ID CLASS CATEGORY SIZE (IN.)	VALVE SIZE LIM. I	VALVE TYPE	ACT.	NORMAL PUSTITION	STROKE DTREET,	MAX. STROKE TIME (SEC.)	TEST MLTHOB	TE \$1 M006	RELITE REQUEST	REMARKS
S.A. C 0 N/A RE RR H.O. C C 2 0 SE OF HE RR H.O. C C 2 0 SE OF HE RR H.O. C C 2 0 SE OF HE RR H.O. C C C 2 0 SE OF HE RR H.O. C C C 2 0 SE OF HE RR H.O. C C C 2 0 SE OF HE RR H.O. C C C 2 0 SE OF HE RR H.O. C C C 2 0 SE OF HE RR H.O. C C C 2 0 SE OF HE RR H.O. C C C C C C C C C C C C C C C C C C	2 C 6.0X10.0	6. 0×19	AS 8	S. A.		8	N/A	Rt	28		
S.A.         C         0         N/A         Rt         RR           H.O.         C         0         N/A         Rt         RR           H.O.         C         0         0         N/A	2 C 6.0x+0.0	6.0×10		5. A.		0	N/A	Rt	28 28		
S.A. C 0 N/A Rt RR SR	Z C 6.0X16.0	6.0×10.		S. A.		0	N/A	RI	K.K.		
5.A. C 0 N/A RE RR SR SA. C 0 N/A RE RE SR SA. C 0 N/A RE RR SR SA. C 0 N/A RE SR SA. C 0 N/A RE SR SA. C 0 N/A SA. OF SA	2 ( 6.0×16.0	6.0x10 (		S. A.		0	N/A	Rt	25		
5.A. C 0 N/A Rt RR 11 RR 11 RR 11 OF 11	2 ( 6.9xi6.0	6.9X10.0		S. A.		٠	4/7	Rt	8.8		
S.A. C 0 N/A R1 KR S.A. C 0 N/A R2 KR S.A. C 0 N/A R2 KR H.O. C C 2 0 S1 00P H.O. C C 1 2 0 S1 00P H.O. C C 2 0 S1 00P H.O. C C 2 0 S1 00P H.O. C C 2 0 S1 0P	2 C 6.0×10.0	6.0X10.0	AS	5.A.	Ü		N/A	26 20 20 20 20 20 20 20 20 20 20 20 20 20	OK OK		
S.A. C 0 N/A Rt KR S.A. C 0 N/A Rt KR H.O. C C Z 0 St 0P	2 C 6.0x10.0 S	0 × 10 · 0	>	S. A.		0	N/A	Ri	RR		
5.A. C. 0 11/A Rt. RR H.O. C. C. 2.0 51 00 H.O. C. C. 2.0 51 00	C 6.0×16.0 Sv			5. A		0	11/A	ž	KK		
H.O. C. C. Z.O. St. 049 H.O. C. C. Z.O. St. 044 H.O. C. C. C. C. Z.O. St. 044 H.O. C. C. Z.O. St. 044 H.O. C. C. Z.O. St. 044 H.O. C. C. Z.O. St. 044 H.O. C. Z.O. St. 044 H.O. Z.O. Z.O. Z.O. Z.O. 044 H.O. Z.O. Z.O. Z.O. Z.O. 044 H.O. Z.O	Z C 6.0x10.0 S			S. A.			ti/A	ž	32		
H 6. C 1 7.0 St 09  H 0. C 2 7.0 St 09  H 0. C 2 09  H 0. C 1 09  H 0.	2 B 6.0x6.0 P		DEV	н 0			2	X = :	9 X 0	VR- 12	
H.D. C. C. 7, U. St. OP. 11 & RR. H.D. C. C. 2.0 St. OP. 11 & RR. M.R. M.	Z H 6, 8X1, B F		O.K.	9 #				3.2	8 8 8	VR-12	
H.O. C C 2.0 St OF	2 8 to 0ke, 0 P		OKV.	0.10				3 = 1	6 8 6	VR-17	
	2 8 6,0Xt, 6 P		Olicy	0 1				3 11 1	8 % 8	VR. 1.2	

### INSERVICE TESTING PROGRAM

### COMMONWEALTH EDISON

### BEATINOOD NUCLEAR POWER STATION

									MIVISTON V		PAGE 18 of	42	
VALVE NUMBER P	8 10 CLAS	S	VALVE	VALVE SIZE (IN.)	VALVE	ACT. TYPE	NORMAL POSTITION	STROKE DIRECT.	MAX.STROKE FIME (SEC.)	TEST ME 1900	TEST HOOK	RELIEF REQUEST	REMARKS
1/2MS101A	M-35-2									St	03*		
	M-120-Z	2	8	4.0	6A	A.0.			6.0	11	886		
										FL	Ur-		
172M5.101B	M-35-1									St	0P		
	M-120-1	2	8	4.0	6A	A.G.			6.0	It .	RR		
										Ft	00		
172M51010	M-35-2									St	- 98		
	M-120-2	2	- 8	4.0	GA	Α.Ο.			f. 0	11	RR		
										11	6P		
/2MS1010	M-35-1									St	- DP		
	H-120-1	2	8	4.0	GA	A.O.			6.0	It .	FR		
										Fig. 1	GP		

### INSERVICE TESTING PROGRAM

### COMMONWEALTH EDISON

### BRAILWOOD NUCLEAR POWER STATION

									REVISION 4		PAGE 19 of	42	
VALVE SUMBER P	8 ID CLA	\$5	VALVE EATEGORY	VALVE STZE (IN.)	VALVE	ACT. TYPE	NORMAL POSTFION	STROKE DIRECT.	MAX.STROKE I (ME (SEC.)	ME THOD TEST	EE S.I MODE	RELIEF REQUEST	RI MARKS
7206357A	M-42-2 M-150-2	2	A	1.0	811	М.О.	6	¢	6.0.0	it St It	KR OP RR	VR-1	
/206079	M-47-Z M-150-Z	2	Α	0.3	611	M.O.	·	·	£.0 . 0	it St	RR OP RR	VR-1	
/205080	M-47-2 M-150-2	2	Α	1.0	-811	M_0.			b0.0	11 51 11	RR OP	VR-1	
/20G081	M-47-2 M-150-2	2	A	3.0	BIF	M.O.	C.		60.0	it St.	88 88 94 88	VR-1	
/206082	M-47-2 M-150-2	Z	A	3.6	atr	M.O.			60.0	st It	RH OP RR	VR-1	
/206083	H-47-2 H-150-2	2	A	3.0	ВП	M.O.			60 1	tt St	RR OF RR	VR-1	
/206084	M-47-2 M-150-2	2	A	\$.0	Ви	M. 0.			0.00	it St	SK OL KK	Vir−1	
/206085	M-47-2 M-150-2	2	Α	3:0	811	м.О.			60.0	it St	ER OP KR	VR-1	

INSERVICE TESTING PROGRAM

### BRAIDWOC. NUCLEAR POWER \$!ATION

									REVISION		PAGE 20 of	42	
/ATVE QUMBER P	8 10 CLA	\$5	VALVE CATEGORY	VALVE S17E (IN.)	VALVE TYPE	ACT. TYPE	NORMAL POSITION	STROKE DIRECT.	MAX.SIROKE TIME (SEC.)	TEST METHOD	1FSI MOIN	REQUES!	RE MARKS
1/2PR001A	M-78-10		А	1.0	1.6	A.0.	0	1,	4.5	11	98	VK-1	
	M-151-1									H	-045		
										St	OP		
										.11	RR		
/ZPR0010	M-78-10	2	A	1.0	tel	A.0.	.0		4.5	Lt	RE	VR-1	
	M-151-1									11	06		
										St	012		
										11	NR		
/2PR002E	M-78-6	2	A	2.0		M			M-A		RR	VR-1	Passiv
/2PR002F	M-38-6	2	A	2.0	Gi	M		10	N/A	£ŧ.	RR	VR-1	Passiv
/2PR002G	M-78-6	2	AC	2.0	CK	5.A.	C		N/A	11	RR	VR-1	Passiv
/29R002H	H-78-6	2	AC	7.0	ĹK.	S.A.	C		ti/A	l t	RR	VR-I	Passev
/2PR032	M-78-10	2	A(	1.0	£K.	5.A.	F (		N/A	H	RR	VR-1	Passiv
	M-151-1										RR	VR-1	Passive
/2PR033A	M-78-6	2	A	-2.0	61	М		-6	ti/A	13	NK	**	7,852.194
/2PR0338	M-78-6	2	A	2.0	61	14	10.0		11/6	DE	KR	VR-1	Passive
/2PR033C	M-78-6	2	A	7.0		М		0	N/A	i.t	KK	VR-1	Passive
/ZPR0 13D	M-78-6	2	А	2.0		м	· e		H/A	i.e	RN.	VR - I	P
/2PR066	M-78-10	2	А	1.0	GL	A.0.	0		5.0	ii.	RR	VR-1	
ZI KUUD	M-151-1									Et	06		
	H=131=1									16	RR		
										54	1917		

INSERVICE TESTING PROGRAM

### BRAIDWOOD NUCLEAR POWER STATION

									REVISION 4		PAGE 21 of	42	
VALVE NUMBER P	& IB CLA	SS	VALVE CATEGORY	VALVE S17E	VALVE TYPE	ACT.	NORMAL POSTLION	STROKE DIRECT	MAX.STROKE TIME (SCC.)	FEST RETHIND	11 S.T NOON	REQUEST	PE MARKS
1/2PS228A				(114.)						11	RH	VR-1	
L/ LF SELON	M-68-7	2	A	0.50		5.0.	0		. 0	St	OF	VR-12	
	M-140-6									ft.	GP		
	74-7-384-52									It.	RR		Note 2
/2PS228B										11	88	VR-1	
	M-68-7	2	a de la composição de l	0.50		5.0.	. 0	100	2.0	25	0.0	VR-17	
	M-140-6									086	0P		
										Tt.	RR		Note 3
172PS229A										16	NR.	VW-1	
	M-68-7	2	Α	0.50		5.0			2.0	St	0.0	VR-12	
	M-140-5									11	-011		
										11	KR		Note 2
72PS229B										Lt.	RR	Vic-1	
	M-68-7	2	Α	9.50		5.0.	0		27.00	St	0.0	VR=17	
	M-140-6									F3:	0.0		
										III.	RR		Note 2
72PS230A										11	RR	VR-1	
	14-68-7	-7	- A	1.00	Gr -	5.0.			2.0	51	(3)P	VR-12	
	M-148-6									31	(D)*		
											RR		Note 2
72P52308										17	RN	VK-1	
	M-68-7	19	A	1 (00)		5.0.	( )	100	2.0	58	137	VR-12	
	M-140-6									11	.00		
										11	10.07		Note 3
72P5231A	M-68-7	2	AC	0.75	EK	S.A.		6.5	h/A	18	RR	78-1	
_	H-140-6							0	11/A	-01	-01"		Note 2
/2PS231B		2	AL	0.75	(K	S.A.		, C	N/A	11	RK	VK-1	
	M-140-6							- 0	N/A	Ct.	0.0		Note 2
/2P\$9354A										St			
	M-68-1	2	A	375	lid.	1.0.			10.0	33	KK	VK-1	
	M-140-1									It .	RR		
										11	OP.		

### INSERVICE TESTING PROGRAM

### COMMONWEALTH EDISON

### BRAIDWOOD MUCLEAR FOWER STATION

								REVISION 4		PAGE 22 of	42	
VALVE NUMBER P	8 ID CI		ANTAL	VALVE SIZE (IN.)	VALVE	ACT. TYPE	MORMAL POSTTION	MAX.STROKE TIME (SEL.)	TEST METHOD	TEST MODE	RELIEF REQUEST	RE MARKS
1/2759 1548									St	OP		
	M-68-1	2	А	. 175	(d.	4.0.		10.0	11	NR.	VR-1	
	M-1:10-1								11	RR		
									16	OF		
/2PS9355A									St	6P		
	M-68-1	2	A	.375	Gt.	A.0.		10.0	11	RR	VR-1	
	M-140-1								14	RR		
									11	OF		
72PS9355B									St	UP		
	M-68-1	1	A	17%	GL	A.O.		10.0	tt	RR	VR-1	
	M-140-1								Tt .	88		
									Fit	OP-		
/2PS9356A									St	0P		
	M-68-1	2	А	375	Gi	A.0		 19.8	do.	RR	VK-)	
	M-149-1								11	KK		
									in .	06		
72P\$9356B									St	09		
	M-68-1	-2	. A		64	3.0.		10.0	11	RK	VR-1	
	M-140-1								11	RR		
									11	QP		
/2PS9357A									54	Oh		
	M-68-1	2	A	375	Est.	A.0.	70-1	 16.0	16.	RR	VH-1	
	M-1-10-1								34.1	RR		
									FE	00		
72PS93578									St	OP		
	M-68-1	2	Α	. 375		A.0.		10.0	11	ER	VR-1	
	M-140-1								14	RR		
										OP		

COMMONACAL THE FOLSON

o O INSERVICE RESTING PROGRAM

BRAIDWOOD MUCLEAR FORCE STATION

								#1 V1 S10%		73 of 42		
VALVE NUMBER P	VALVE P & 15 CLASS CALEGORY	VALVE	VALVE 5176 (176.1	VALVE	AC1. 17095	MQRMAS PREST F FORM	STROKE DURECT.	PAR STABOL TYPE USIC.)	TKST PETHATO	TEST MODE	RE1 157 REQUES!	REPARKS
1/28C014A	8-60-19 1 M-135-1B	80	0.7	ă	5.0.			2.8	* = =	200	N.	Note 7 fute 7 fate 20
1/28(0)48	N-60-16 1	80	0.		5.0.				3 C E	200	77	State 7 State 7 Sigts 78
9140	1/28C014C 8-60-18 F	100	9		0 0		4 -		7 2 2	5 0 \$	VR-12	Note 7 Note 7
1/2RC014B	H-135-18 1 H-135-18	α)	1.0	19	0 5				X 5 5	2 J 3	91K52	faste ? faste ? flate of

Part		WESTER HITS. 364403	DR 54	115041		BRAID	MODD 340.	BRAITHOGO MULLEAR POMEN STATION	STATION					
F & 15 CLASS   CATEGORY   SiA   1977   POSTTERN   STREET   STREE										REVISTORS 4		PM2 24 eth		
N-70-1   2	VALVE NUMBER P	& 10 CLA		VALVE	MOLVE SAAR FIRE, )	VALVE	ACT. 1YPK	MOSPAL F051118W	STROKE PERKECT.	MAX.STRONE UPR USEC. I	14.51 PB 1400	14.51 MODE	RECTOR REPORTS	VE MARKS S
N-76-1         2         A         1.0         -         -         17         88           N-141-1         2         A         1.5         B         A.3.         B         C         2.0         12         R         R           N-141-1         2         A         1/5         B         A.3.         B         C         2.0         B         B         B           N-141-1         2         A         1/5         B         A.3.         B         C         2.0         B         B         B         B           N-141-1         2         A         1/5         B         A.0.         C         C         C         B         B         B           N-141-1         2         A         1/5         B         A.0.         C         C         C         C         B         B           N-141-1         2         A         1/6         A         B         C         C         C         B         B           N-141-1         2         A         1/6         A         B         C         C         C         C         B         B           N-141-1         2	172FF 1803	N-70-1 M-141-1	214		9		a. 0			0 93	# E # E	8 2 2 2	i	
N-10-1         2         A         15         0         C         2.0         51         90           N-101-1         2         A         15         0         A         0         C         2.0         51         80           A-101-1         2         A         15         5         A         0         C         2.0         11         80           N-101-1         2         A         1:0         0         A         0         C         2.0         11         80           N-101-1         2         A         1:0         0         A         0         C         2.0         51         80           N-101-1         3         4         1:0         0         A         0         C         2.0         51         80           N-101-1         3         4         1:0         0         A         0         C         2.0         51         80           N-101-1         2         4         3:0         0         6         2.0         51         80           N-101-1         2         4         3:0         0         0         0         0         0 <t< td=""><td>U28E9157</td><td>M-76-1 M-141-1</td><td>N</td><td>*</td><td>1.0</td><td></td><td></td><td></td><td></td><td>ž</td><td>8 E E E</td><td>0 N 0 N</td><td>98-12</td><td></td></t<>	U28E9157	M-76-1 M-141-1	N	*	1.0					ž	8 E E E	0 N 0 N	98-12	
# #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #-70-1 # #	L/26E 9159A		74	4	3		¥ 0	•		7.0	3 4 2 5	5 8 5 8	# # 1	
N-70-1         2         A         1.0         0         C         2.0         St         00           N-101-1         2         A         1.0         0         C         2.0         St         00           N-70-1         2         A         1.0         0         C         2.0         St         00           N-70-1         2         A         1.0         A         0         C         2.0         St         00           N-70-1         2         A         3.0         C         2.0         St         00           N-70-1         2         A         3.0         C         1.1         St         00           N-70-1         2         A         3.0         C         1.0         5.1         00           N-70-1         2         A         3.0         A         5.0         0         5.1         00           N-70-1         2         A         3.0         A         3.0         0         5.1         00           N-70-1         3         A         3.0         A         0         5.1         0         5.1           N-70-1         3         A <td>B6516382</td> <td></td> <td></td> <td>4</td> <td>3</td> <td></td> <td>0 1</td> <td>u</td> <td></td> <td></td> <td>* = = =</td> <td>8 M F 8</td> <td>VK-12</td> <td></td>	B6516382			4	3		0 1	u			* = = =	8 M F 8	VK-12	
# #4.70-1 2	1/2RE9168A		~				0 7	5		8.7	* * * * *	5 % 5 %	24 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -	
M-76-1 2 4 5.9 B A.S. B ( 10.8 St OF 11.8 KR N-141-4 KR 121-14 KR	281.916.08	N-70-1 M-141-3					A. 0	6				8 % 8 %	VR-127	
	3/28E9136	M-76-1 M-141-4		*			0 4			0.01	x = z =	\$ E E E	9	

ø

BRATINGUE MELLER PEREN STATION

CUMPRONAE ALTH ER ON

	REMARKS			
¥		NK.	1.50	
PACE ZS at 42	74.ST NODE	# 5 # 5	3 3 3 8	
	14.51 M. 1980	: × = :	1851	
REVESTOR.	1156 1650 (265.)	*		
	STROKE			
	ACT. MORMAL STROKE TYPE ROSITION DIRECT.	٠		
	ACT. TYPE		X D	
	WALVE TYPE	4		
	VALUE SOUR		4	
	VALUE CATEGURY	4		
	VALUE P. B. IB. CLASS CATEGORY	24 - 433 - 64 - 54 - 54 - 54 - 54 - 54 - 54 - 54	8-49-6	
	NE P.	2KF026 M-48-6	781827	

INSERVICE LESTING PROGRAM

### BRAIDWOOD MUCIEAR POWER STAILON

									REVISION 4		PAGE 26 ut 42	
VALVE NUMBER P	& ID (LA		VALVE	VALVE 512E 11N. ;	VALVE	ACT. TYPE	MORMAL POSITION	SIRGRE MIRECI.	MAX.STRIKE TIME (SLL.)	14.53 96.51990	MEDIE RELIEF	«EMARKS
1/2RH6701A	M=62-1 M=137-1		A	12.0	C.A.	M.O.			529.4	51 11	KÉ RE	Note 5
1/28H8701B	M-62-1 M-132-1	1	Δ	12.0	( <sub>1</sub> 0	H.O.				13. 34. 34.	6.5 MR	Note 5
1778H8702A	%-62-1 %-137-1		А	12.0	(A	M.G.		ď	129 9	\$6 . 10	KR KS RR	Note 6 Note 5
1729H87028	#-62-1	1	A	12.0	GA.	11.0.		0	120.0	St.	CS RE	Motor 5
728H8705A	H-1:7-1 H-62-1		AC	0.75	ex.	5.A.			n/A	15	RK KK	Note to
/28H87858		2	Δ(	0.75	.68	5.A.			56/A.	11	28	Note 6 Fussies
ZZRH87084	#-137-1 - + +2-1 B-137-1	7		7.0%	o sy	5 A.		. 0	N/A	81	XX.	
72RHB768B	H-62-1 H-137-1	7		c.0x1.		S.A.		0	6/A	X1.	NR CC-000	flotic 8
72RH5730A	M-137-1					5.A.			N/A H/A	CE/RE		Note of
72KH6730B	M-62-1 M-137-1					S.A.						11.0

COMMONACAL THE EDISON

Value         Value <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>**</th><th></th><th>27 64 42</th><th>¥</th><th></th></th<>										**		27 64 42	¥	
H-60-5   1   H   1.0   F004   A.0   C   0   2.5   51   00     H-135-5   1   H   1.0   F004   A.0   C   0   2.5   51   00     H-135-5   1   H   1.0   F004   A.0   C   0   2.5   51   00     H-135-5   1   H   1.0   2.0   4.0   C   10.0   51   10     H-135-5   1   C   6.0   5.0   5.0   C   10.0   51   60     H-135-5   1   C   6.0   5.0   5.0   C   10.0   51   60     H-135-5   1   C   6.0   5.0   5.0   C   0   MA   H   H   H   H     H-135-5   1   C   6.0   5.0   5.0   C   0   MA   H   H   H     H-135-5   1   C   6.0   5.0   5.0   C   0   MA   H   H   H     H-135-5   1   C   6.0   5.0   5.0   C   0   MA   H   H   H     H-135-5   1   C   6.0   5.0   5.0   C   0   0   H   H   H     H-135-6   2   A   1.75   5.0   A.0   C   C   10.0   11   H   H     H-135-6   2   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   2   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   2   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   5   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   5   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   5   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   5   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   5   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   5   A   1.75   0   A.0   0   C   10.0   11   H     H-135-6   5   A   1.75   0   A.0   0   C   10.0   0   C   10.0   11   H     H-135-6   5   A   1.75   0   A.0   0   C   10.0   C   10.0   C   10.0   C     H-135-6   5   A   1.75   0   A.0   0   C   10.0   C   10.0   C   10.0   C     H-135-6   5   A   1.75   0   A.0   0   C   10.0   C   10.0   C     H-135-6   5   A   1.75   0   A.0   0   C   10.0   C   10.0	26	& 10 CLA	55	VALVE	10,100 S1,28	Waters CVPt	1486	1904/191 PUSTITOR		MA SHIRE LIME	14.5.1		RELETTY 81 Qui ST	Rt misses S.
R-60-5         1         8         3.0         PORY         4,0         C         9         2.5         91         OP           R-175-5         1         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	ZKY45SA			20	5	F0P/V	A. 0				2 2	10 N		
8 H-64-5         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1<	28.9.456	M-60-5 M-135-5		10	3.0	PORY	A.0.		*		= = = =	3 8 2 8		
8 Hedd-5         1         6         3.0         GA         Ht 0.         0         6         11         5R           8 Hedd-5         1         6         6.3         5.4         6         0         M/A         81         68           8 Hedd-5         1         6         6.3         5.4         6         0         M/A         81         86           1 Hod-5         1         6         6         5.4         6         0         M/A         81         88           1 Hod-5         1         6         6         5.4         6         0         M/A         81         88           1 Hod-5         1         6         6         5.4         6         0         M/A         81         88           1 Hod-6         2         4         375         54         A.0         6         6         14         88         98-1           1 Hod-6         2         4         3.0         6         6         6         6         14         88         98-1           1 Hod-6         2         4         3.0         0         0         0         0         0         0         0 <td>28YB000A</td> <td>H-66-5</td> <td></td> <td>2</td> <td>0 .:</td> <td>P. C.A.</td> <td>н. О.</td> <td>0</td> <td></td> <td>0.00</td> <td>3.5</td> <td>8 8</td> <td></td> <td></td>	28YB000A	H-66-5		2	0 .:	P. C.A.	н. О.	0		0.00	3.5	8 8		
No. 406.5         1         C         6.3         SA         C         0         MAA         81         86           No. 45.0.5         1         C         6.0         SA         C         0         MAA         81         88         88           No. 175.5         1         C         6.0         SA         C         0         MAA         81         88         88           No. 175.6         3         SA         SA         C         0         MAA         81         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88         88 <td>SRYSBOOB</td> <td>H-60-5</td> <td></td> <td>.6</td> <td>3.0</td> <td>49</td> <td>M. 0.</td> <td>0</td> <td>0</td> <td>10.0</td> <td>4 5</td> <td>00 88</td> <td></td> <td></td>	SRYSBOOB	H-60-5		.6	3.0	49	M. 0.	0	0	10.0	4 5	00 88		
8 No.60-5         1         C         6.0         SA         E         0         RAB         RR         RR           1-135-5         1         C         6.0         SA         E         0         RAB         RR         RR           8-135-5         3         SA         SA         E         0         RAB         RR         RR         RR           8-135-6         2         A         375         SA         A         C         10         RR         RR         RR           8-135-6         2         A         375         SA         A         C         10         RR         RR         RR           8-135-6         2         A         375         SA         A         C         10         RR         RR         RR           8-135-6         2         A         375         SA         A         C         10         RR         RR         RR           8-60-6         2         A         3.0         A         A         3.0         RR	28.486.184	N-66-5 R-135-5	-		1/1 1/4	257	S. A.	U		MA	z =	0.3		
8-60-5         1         6-0-5         1         6-0-5         1         88         88           8-135-5         2         3-15-5         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1         6-1 </td <td>2KY3010B</td> <td>1-135-5</td> <td></td> <td></td> <td>0.3</td> <td>AS</td> <td>45</td> <td></td> <td>0</td> <td>N.A</td> <td>2 4</td> <td>2 2</td> <td></td> <td></td>	2KY3010B	1-135-5			0.3	AS	45		0	N.A	2 4	2 2		
Pr. (35-6)         2         A         375         54         A. 0         C         C         60-6         17         842         942-1           Pr. (35-6)         2         A         375         54         A. 0         C         104.0         17         842-1         942-1           Pr. (15-6)         2         A         3.75         54         A. 0         C         104.0         17         842-1         942-1           Pr. (15-6)         2         A         3.0         B         A. 0         C         104.0         12         842-1         942-1           Pr. (15-6)         2         A         3.0         B         A. 0         C         104.0         12         842-1         14         842-1         14         842-1         14         842-1         14         842-1         14         842-1         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14	2KY8010C	M-60-5 M-135-5	an.	-	0.3	AS	5.4		0	10.72	<i>ii</i> =	8 8		
#-166-6. 2 A 375 GA A.B. G C 100.0 GR G G G G G G G G G G G G G G G G G G	2KY8625	M-60-6 M-135-6	N	*	325					0.01	* 1 = 1	111	ā	Easistore
8-60-6 2	2R Y RB 26	M-648-6 M-175-6			333	3	0 4			8.00		5 5 5 5 3		
8-40-6 2 A .75 D A.0. 0 .1 24 ER ER 81.35-6 E E E St OF ER	2PY8628	8-60-6 8-115-6			3.0		0.0	•		16.0	5321	23.23	305	
		8-60-6 8-135-6	N	*			A.0	•			222	8 8 2 3	VR-31 VR-12	

COMPRONAEDLTH EDISON

BEALTHAIGH MINICEAR POLICE STATEGY

	RE MISSAS	Parities	Parame
24	FEST RELIEF MODE REQUESE	, a	3
PAGE 28 of 42	TEST MODIT	16.55	38
	1631 TEST PETHOR MODE		
REVISION A	VAX. STRIBER 16:SE T2NE PS 1960 1365.3	100	N/N
	Station.		
	NUCKSAL STRONGS POSITION OTHER		
	ACI.	3,4	ž
	VARME WATER ACT. STOR THE TWPE ITM. 1	š	
	WAENE STOR FTM. 1	6.7	52
	VALVE	M	¥
	MAINE A 1B CLASS CATEGORY	1/28Y8646 N-56-6 2 N-135-6	N-60-6 2
	66 C.	Marie M.	72RY8847 M-68-6 M-135-6
	VALVE NUMBER	1728YB	172818

COMMODALE ALTH EDISON

PRSERVICE RESTING PROGRAM

BRAIDAGOD MUCLEAR FOWER STATION

						of the second		23 or 42	24		
VALVE VALUE NUMBER P & 1D CLASS CATEGORY	VALVE	VALVE 512E 118.3	VALVE TYPE	13/61.	NOSMAL SIROKE POSITION DIRECT.	STRUKE MAX. STRUKE 14-51 TEST DIRECT. TIME ME (1600 MODE 1581: 1	74.53 PE (1450)	115.51		RELEGY REMARKS REDGESS	
1/25AB32 8-54-2 2	<	1.5	3				282	X 6 X	VR.		
17.25A633 H-54-2 Z	*	5.1	3	4				5 8 5 8 8	3		

	COMMERCE AT THE COLUMN	787 67	NT COM								
	Constitution		2000		BRn.(D	700 mil	BRAIDWAND MACLIAR POWER STATION	STATION			
									44 V1510tu		77.4GE 10. o.f
VALVE NUMBER P	& 1B CLASS	8	VALVE	VALVE S124	VALVE	1-96	TOPIST TOPE	STROKE DIRECT.	MAX STRIKE TEME	18.51 ME 1000	TEST
1/250002A	M-18-5A H-48-58	TV	×	2.0		0.4	0		7.5	18	W 0
											0 N
1/2596718	M-48-5A	thi.	K	2.0		4.0.					25
	M-48-5d									N 2	6 3
											46
1/2508027	M-48-54	714	4	2.0		4.0.				1	N N
	#-28-58									3/5	
											ď.
										1.5	dio
172500620	M-48-5A	nv.	×	5.40		Α.0.			1 K. W. T.	10	X
	M-28-58									5	B
										1	REK
										4	à
3/2/SIN002E	94-48-5A		12	0.75		A 0					×
	# 28-56									7,6	90
										11	XX
										11	-00
1/250002F	M-48-5A	24	*	7.0		Α.0.			3.5	7	80
	H-28-58									#	400
											888
											100
172500026	M-488-5A	74	et.			Α.0.	100				SSC
	M-28-58										1964
											100
177,50006741	M-48-5A		٧	5.0		A. 19.			1.5		XX
	M.28.58									ž	di
											N.N

78.1

7. YA

VK.

RELIEF REMARKS
REQUEST

-	
20	
-26	
200	
-	
53	
75	
10	
bes	
-	
22	
22	
2	
22	
22	
22	
182	
22	
182	
182	
182	

									REVTS10B		PAGE 31 of 42	2	
VALVE NUMBER P	P & TH CLASS	9	VALVE	VALVE S178	VALVE	ACT. TYPE	MIRMAL	STROKE DTRECT.	128.518086 (198 (587.)	17.53 PR 11658	11.51 1100E	RELIEV RE	RE MAKKS
17250005A	M.48.5		et.	305	15	A. 0.		٠		3 1	60 N	We-I	
										= =	68 04		
177500058									3.0	25	400		
Tree, perent out	88.48.5		A	377		4.0.	0			3.5	KK	VR 1	
										-	878		
										FI	96		
1. VORTABRET										×	-00		
TO SOURCE STATE	2000		4	543.		A.B.	40	141			RR	VR-3	
										134	XX		
										1,1			
A STATE OF THE PARTY OF THE PAR										×	-06-		
050005771	10.0	0	4	37.5	10.0	A. D.				- 1	NR	VR-1	
										1	KK		
										P.C.	- d0		

COMMONSHEAL THE EDISORS

TNSTRVICE TESTING PRIGRAM

BRAIDHDOC MULLEAR FUMER STATION

											S at		
WALVE MURBLE P	P. R. LD. CLASS CALLOBRY	9	VALVE ATEGREY	SALVE SAZE (TR.)	SARE VE EVPE	ACT.	7608111004 FOST11001	STROKE DIRECT.	TSA STEGAE LIPE	1251 PM 1400	12.5.1	801.TEC 81.00(5)	EF Miles S
1/2518801A	M-61-2 8-136-2		85	4.0		N 0			10.0	*			Mest
1,225,136018			89	4.0	5	N 0		٠	10.01	. 5	0		State 13
N.2518802A		N	60	4.0	275	0			4 84	25.00	50		Note 13
1725186028		N	œ	0 1	g.	M.0.			9.8		\$ C 8		Note 11
1725188848	M-136-1	N	8	8.0	698	H 0		*	9-701	5.6	00		
1/2513806		10	80	8.0	5	W. C.	0		17.30	7 5 5	20		Motte 18
1/2518807A				0.9	ti .	0 10				- A.	1 1		
87.0880.78		30		6.9	3	M (0)			15.6	X 4	1 3 3		
17.2.5.18HB9A		N	*	# 8	3.	0	۰		10.0		0.0		More jox
1/251880-48	M-61-4			9.8		0.0	0		16.9	3 5	2 8		Soty 11
1/2ST9811A	M-61-4 M-136-1		e e	24.50	ď.	0 H	u	0		3 2	3 8	108-16	
1/25188118	M-61-4 M-136-4			24.0		W 0		0	1600.0		2.3	98-19	
1/2518812A	M-61-4 M-136-4		20	17.4	5	H 0				5 2	8 8		
1725188129		64	**	0.71	3	н.0.	0		62-19	3 2	0 1		
1/2518813		ty.	æ	2.0		0	0		6.04	3.1	5 5		Martin 13
172518814		OV.	25		ş	M 0	٠		0.0	3.1	8 1		
											N.W.		

INSERVICE TESTING PRIGRAM

BRAIDHOOD MUCLEAR POWER STATION

	RF MASK S		Mote to	Rote 9	Sorte 5	Bote to	Most, 4	Stote to	Motor S	flotte to	Saste to		Note 6		Note 6		Note 5						No. 2 10	Slote 14		Note 6		Borto A.
	RE11111 REQUEST	VR-15										VR-15		VR 15		VR-15		WR-15									VR 115	
FALA 11 of 42	1151	Š	X	5 1	¥ 5	KK	5.3	RE	Ó	828	N	NN	XX	KK	25	8.8	36	N. N.		XX	(00)	W. 1	7 8	2	KK	KK	5	N.H.
	16.51 ME11600	2					1	13	ă	13	2	5.1	1	ŭ			- 11		Š.	11	e e		7. ±	35			100	40
A VISTOR	MAR. STROKE TIME (SEC.)	N/A		N/A	112.0		8/8		21/4		1779		1000		11/13		47.70		115.00		10.0		70.0	27.48		\$1/A		10/4
	STRUKE DIRECT.								10		ġ.				0		07		jų.				Ä	÷		8		
	108MA1 P051110M	3															J		0		ф.			G		Ų		
	ACT. 1 YORK	5.4.			5.20		S.A.		5.4.		S.A.		, a		S.A.		× 4 ×		0 10		M 0			9.0		5.4.		N. N.
	WAT VE T'PA'T	×		6			×		*		8		CX.		CK		3		5		(lak			ä		ŏ		×
	VALVE S128 1178.1	3.0	0				8.9		69		5.0		5.0		0.7		5.0		0.0		0.0	4 6		97.21		0.8		
	VALVE	W			AC		AC		AC		N.		AC		AC		AC		6		D			da		W		AL
		-			-		-		-		200				ás:		200		č4		¥.			*		100		
	& 10 CLASS	M-61-2	A 4.1 A	Marine d	PH-61-4	M-132-9	M-61-4	N-156-0	M-61-4	M-135-4	M-61-3	M-136-3	M-61-3	H-136-3	M-61-3	M-136-3	M-61-3	M-135-3	M-61-3	M-136-3	M-61-3	M 6.1 2	M-136-3	M-61-3	M-136-3	M-61-3	M-136-3	M-61-3
	VALVE MUNISER P	17.25.18815	1226100104	W.C.S.I.O.O.I.O.A.	1725186188		17.251.88180		1725158180		17.25.18B 19A		17.75188148		1/25188190		1/25188190		172518821A		177.31662.16	172518836		172518840		LYTSIBBATA		1725188418

COMPUNEALTH EDISON

INSERVICE RESTING PROGRAM

BRAIDWOOD MELEAR POWER STATTON

141   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171   171	A A AC										
H-61-6 2 A 75 30 A-0 C C 100 11 688 98-17 H-61-5 2 A 1-0 G C 100 11 688 98-17 H-61-5 2 A 1-0 G G A-0 C C 10-0 G G G G G G G G G G G G G G G G G G	M-61-6 2 A M-136-6 2 A M-136-6 2 A M-136-6 2 A M-136-3 2 A M-61-2 1 AC M-136-2 1 AC M-136-2 1 AC M-136-2 1 AC M-136-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-3 1 AC M-61-3 1 AC M-61-3 1 AC M-61-1 2 C M-61-1 2 C M-61-1 2 C		WAFWE TYPE	al.1. 1998	MORNAL POST150h	STROKE DERECT.	MAX. STROKE TIPE	16.51 ME 13.00	11.5.1	REGINES.	A1 PUNE 5
H-61-6   2	H-61-6 2 A H-136-6 2 A H-136-3 2 A H-136-3 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-3 AC H						The same of the sa	51	do		
Helie	M-136-6 M-136-6 M-136-6 M-136-3 M-136-3 M-136-2 M-136-2 M-136-2 M-136-2 M-136-2 M-136-2 M-136-3 M-136-1 M-136-			A.63.	0		0.01	1.1	RR	VR-1	Passing
H-61-6 2 A 1.9 G1 A-0 C C 1 G0 W 197	H-61-6 2 A H-136-6 H-136-3 2 A H-61-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-1 2 C H-136-1 2 C							¥ ,	ă.		
H-13c-6 2 A 1.8 GR A.0 C C 10.0 SH WR	M-61-6 2 A M-136-6 M-136-3 2 A M-136-2 1 AC M-136-2 1 AC M-136-2 1 AC M-136-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-3 1 AC M-61-3 1 AC M-61-3 1 AC M-61-1 2 C M-136-3 H-61-1 AC M-136-3 H-61-1 AC M-136-3 H-61-1 AC M-136-1 AC							sart Notes	à		
H-61-3 2 A 75 GG A.O. C G GO.G. GO.G	M-136-6 M-61-3 2 A M-136-3 2 A M-136-2 1 AC M-61-2 1 AC M-61-3 1 AC M-61-1 1 AC M-136-3 AC M-61-1 2 C M-136-1 2 C M-61-1 2 C							X 5	60 W	7.86.7	Proceeding
H-136-3 2 A 75 GL A.O. C G GO GO GL GO GO GL GO	H-61-3 2 A H-61-2 1 AC H-61-2 1 AC H-61-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 2 C H-61-1 2 C H-61-1 2 C								KK		
H-61-3         Z         A         75         G1         A.0         C         C         G0-0         G1         RB         VR-11           H-136-2         1         AC         1.5         GK         5.4         C         0         R/4         G         G         VR-15           H-136-2         1         AC         1.5         GK         5.4         C         0         R/4         G         G         VR-15           H-136-2         1         AC         1.5         GK         5.4         C         0         R/4         G         G         VR-15           H-136-2         1         AC         1.5         GK         5.4         C         0         R/4         G         G         VR-15           H-136-2         1         AC         1.5         GK         5.4         C         0         R/4         G         G         VR-15           H-136-2         1         AC         1.5         GK         5.4         C         0         R/4         G         G         VR-15           H-136-2         1         AC         1.5         G         5.4         C         0         R/4 </td <td>H-61-3 2 A H-61-2 1 AC H-61-2 1 AC H-61-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 2 C H-61-1 2 C H-61-1 2 C</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>40</td> <td></td> <td></td>	H-61-3 2 A H-61-2 1 AC H-61-2 1 AC H-61-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 2 C H-61-1 2 C H-61-1 2 C								40		
H-61-3   2	M-61-3 2 A M-136-3 M-136-3 H-61-2 1 AC M-136-2 H-61-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-3 1 AC M-136-3 H-61-1 2 C M-136-3 H-61-1 2 C M-136-1 2 C							35	305		
H-156-3	M-136-3 H-61-2 1 AC H-61-2 1 AC H-136-2 1 AC H-61-2 1 AC H-61-3 1 AC H-61-1 AC H-136-3 C H-61-1 AC H-136-1 A			A.0.			0.01		RR	VR-1	Passage
H-61-2 1 AC 1.5 CR 5.4 C 0 ALA C1 C5 WR-15 H-156-2 1 AC 1.5 CR 5.4 C 0 B ALA C1 C5 WR-15 H-156-2 1 AC 1.5 CR 5.4 C 0 B ALA C1 C5 WR-15 H-156-2 1 AC 1.5 CR 5.4 C 0 B ALA C1 C5 WR-15 H-156-2 1 AC 1.5 CR 5.4 C 0 B ALA C1 C5 WR-15 H-156-2 1 AC 1.5 CR 5.4 C 0 ALA C1 C5 WR-15 H-156-2 1 AC 1.5 CR 5.4 C 0 B ALA C1 C5 WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 C8 WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 C8 WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 RR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 RR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 RR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 RR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 RR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 RR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 RR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 RR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-3 1 AC 2.0 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4 C 0 B ALA C1 CR BR WR-15 H-156-1 C 1.5 CR 5.4	H-61-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 2 C H-61-1 2 C							1	KK		
H-61-2   1	M-61-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 1 AC H-61-3 2 C H-61-1 2 C H-61-1 2 C							11	-00		
H-61-2   1	H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-2 1 AC H-136-3 1 AC H-136-3 1 AC H-136-3 1 AC H-136-3 1 AC H-136-3 2 C H-136-3 2 C		×	S. A.		0	\$1/A	ō.	2	VR-15	
H-51-2   1	M-61-2 1 AC M-136-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-2 1 AC M-61-3 1 AC M-61-1 1 AC M-136-3 1 AC M-61-1 2 C M-136-3 1 AC M-61-1 2 C							11	NR		Mote to
He block	M-136-2 M-61-2 M-61-2 M-61-2 M-61-3 M-61-3 M-61-3 M-61-3 M-61-3 M-61-4 M-136-3 M-61-1 M-61-		×	5.4		0	M/A	5	53	28 15	
H-61-2         1         AC         LS         CK         S.A.         C         0         NVA         CR         CS         VR-15-15           H-136-2         1         AC         1.5         CK         S.A.         C         0         NVA         CR         CS         VR-15-15           H-136-2         1         AC         2.0         CK         S.A.         C         0         NVA         CR         CS         VR-15-15           H-136-3         1         AC         2.0         CK         S.A.         C         0         NVA         CR         KR         VR-15-15           H-61-2         1         AC         2.0         CK         S.A.         C         0         NVA         CR         KR         VR-15-15           H-61-3         1         AC         2.0         CK         S.A.         C         0         NVA         CR         KR         VR-15-15           H-61-3         1         AC         2.0         CK         S.A.         C         0         NVA         CR         KR         VR-15-15           H-136-3         1         AC         2.0         CK         S.A.         C <td>M-61-2 1 AC M-136-2 1 AC M-61-2 1 AC M-61-3 1 AC M-61-1 1 AC M-136-3 1 AC M-136-3 2 C M-136-3 2 C M-136-3 2 C</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.1</td> <td>KK</td> <td></td> <td>Note 6</td>	M-61-2 1 AC M-136-2 1 AC M-61-2 1 AC M-61-3 1 AC M-61-1 1 AC M-136-3 1 AC M-136-3 2 C M-136-3 2 C M-136-3 2 C							1.1	KK		Note 6
M-136-2         H         SA         C         D         MA         CL         SS         VR-15-5           M-61-2         1         AC         2.0         CR         S.A         C         0         MA         CL         SR         VR-15-5           M-61-2         1         AC         2.0         CR         S.A         C         0         MA         CL         RR         VR-15-5           M-61-3         1         AC         2.0         CR         S.A         C         0         MA         CL         RR         VR-15-5           M-61-3         1         AC         2.0         CR         S.A         C         0         MA         CL         RR         VR-15-5           M-61-3         1         AC         2.0         CR         S.A         C         0         N/A         CL         RR         VR-15-7           M-61-3         1         AC         2.0         CR         S.A         C         0         N/A         CL         RR         VR-15-7           M-61-3         1         AC         2.0         CR         S.A         C         0         N/A         CL         RR	M-136-2 M-136-2 M-61-2 1 AC M-61-3 1 AC M-136-3 1 AC M-136-3 1 AC M-136-3 1 AC M-136-3 C-136-3 C-136-1 C-136-3 C-136-3 C-136-3 C-136-3 C-136-3 C-136-3 C-136-3 C-136-1 C-136-3		£.8.	5.A.		0	N/A.	13	0	VR-15	
H-61-2         1         AC         1.5         CR         5.2         C         9         Number (c)         CR         CS         VR-15-3           H-61-3         1         AC         2.0         CR         S.A         C         0         Number (c)         RR         VR-15-3           H-61-3         1         AC         2.0         CR         S.A         C         0         Number (c)         RR         VR-15-3           H-61-3         1         AC         2.0         CR         S.A         C         0         Number (c)         RR         VR-15-3           H-61-3         1         AC         2.0         CR         S.A         C         0         Number (c)         RR         VR-15-3           H-61-3         1         AC         2.0         CR         S.A         C         0         Number (c)         RR         VR-15-3           H-61-4         1         AC         2.0         CR         S.A         C         0         Number (c)         RR         VR-15-3           H-61-1         2         C         1.5         CR         S.A         C         0         Number (c)         RR         CR	M-61-2 1 AC M-61-3 1 AC M-61-3 1 AC M-61-3 1 AC M-61-3 1 AC M-61-1 AC M-136-3 C M-61-1 2 C M-136-1 2 C							11	N.K.		flote 6
H-136-2         H-136-2         H-136-2         H-136-2         H-136-3         H-136-3 <t< td=""><td>M-136-2 M-61-3 1 AC M-61-3 1 AC M-13 1 AC M-136-3 1 AC M-136-3 C M-136-3 C</td><td></td><td>EK</td><td>5.4.</td><td>-</td><td>0.</td><td>M.A</td><td></td><td>ď</td><td>VR. 15,</td><td></td></t<>	M-136-2 M-61-3 1 AC M-61-3 1 AC M-13 1 AC M-136-3 1 AC M-136-3 C M-136-3 C		EK	5.4.	-	0.	M.A		ď	VR. 15,	
M-61-3         1         AC         2.0         CK         S.A         C         0         M/A         CE         RR         VR-15           M-61-3         1         AC         2.0         CK         S.A         C         0         M/A         CE         RR         VR-15           M-61-3         1         AC         2.0         CK         S.A         C         0         M/A         CE         RR         VR-15           M-61-3         1         AC         2.0         CK         S.A         C         0         M/A         CE         RR         VR-15         Total           M-61-3         1         AC         2.0         CK         S.A         C         0         M/A         CE         RR         VR-15         Total           M-136-3         1         AC         2.0         CK         S.A         C         0         M/A         CE         RR         VR-15           M-136-3         C         1.5         CK         S.A         C         0         M/A         CE         RR         VR-15           M-136-1         C         1.5         CK         S.A         C         0	M-61-3 1 AC M-61-7 1 AC M-13, 4 AC M-136, 1 AC M-136-3 C M-136-3 C M-61-1 2 C								88		Motor L
H-61-7   AC 2.0 CR S.A C 0 N/A Ct RR VR-15   Hotelers   H-61-3   AC 2.0 CR S.A C 0 N/A Ct RR VR-15   Hotelers   H-61-3   AC 2.0 CR S.A C 0 N/A Ct RR VR-15   Hotelers   H-61-1   AC 2.0 CR S.A C 0 N/A Ct RR VR-15   Hotelers   H-61-1   C I S CR S.A C 0 N/A Ct RR VR-15   Hotelers   H-61-1   C I S CR S.A C 0 N/A Ct O N/	H-61-2 1 AC H-13 1 AC H-136-3 1 AC H-136-3 C H-136-3 C H-136-1 2 C		*	S. A.	w	0	N/A		XX	VR-15	
H-61-3   1 AC   2-0   CK   S.A   C   0   No/A   Ct   RR   VR-15   Tate   No.136-3   1 AC   2-0   CK   S.A   C   0   No/A   Ct   RR   VR-15   Tate   No.136-3   No.136-3   CK   S.A   C   0   No/A   Ct   RR   VR-15   No.136-3   No.136-3   CK   S.A   C   0   No/A   Ct   CK   CK   No.136-3   No.136-3   No.136-3   No.136-3   No.136-3   CK   S.A   C   0   No/A   Ct   OP   No.156-3   No.156-3   No.156-3   CK   S.A   C   0   No/A   Ct   OP   No.156-3   No.156-3   No.156-3   CK   S.A   C   0   No.256-3   CK   C   C   C   C   C   C   C   C	M-13 1 AC M-136-3 1 AC M-136-3 1 AC M-136-3 C M-61-1 2 C								XX :		foto to
Hebi-3   1   AC   2 0   CK   S.A.   C   0   No.A.   Ct   RR   VR.15   Total   No.B.   VR.15   No.B.	M-61-3 1 AC M-136-3 1 AC M-136-3 C M-61-1 2 C M-136-1 2 C		5	ă A		0	8/8		i i	VR-15	
M-136-3	M-136-3 AC M-136-3 C M-136-1 2 C M-136-1 2 C								X		
H-61-1 1 AC 2.0 CK S.A. C 0 NA/A CC KR VK-15 Uota H-61-1 2 C 1.5 CK S.A. C 0 NA/A CC OF NA/A CO H-156-1 H-156-1 C C 1.5 CK S.A. C 0 NA/A CC OF NA/A CO OF	M-61- 1 AC M-136-3 C M-61-1 2 C M-136-1 2 C			2.4		2	W.A.		100 M	VR-15	
M-136-3 Lt	M-136-3 M-136-3 M-61-1 2 C M-136-1							1	XX		
M-61-1 2 C 15 (K 5.A. ( 0 M/A Ct 0)P Mule M-136-1 C 1.5 (K 5.A. ( 0 4/A Ct 0)P	M-61-1 2 C M-136-1 2 C		×3			0	17/W	5	X I	VR-15	
M-61-1 2 C 1.5 CK 5.A. ( 0 N/A Ct. M-136-1 M-61-1 2 C 1.5 CK 5.A. ( 0 N/A St.	M-61-1 2 C							tt	NE		
M-61-1 2 C 1.5 GK 5.A. C 0 42A ST	M-61-t 2 C	ANC .	ž	S. A.		0	187A	5	0b		
			6.8	5.4	*	0	47.55	1.0	40		

ENSERT		

### BRATEWOOD NUCLEAR POWER STATION

									4 NEVISION		PAGE 15 of 4		
VALVE NUMBER P	8 ID (12	ss	VALVE CATEGORY	VALUE SEZE (TNL)	VALVE 14PF	AC t.	NORMAL POSTITIÓN	SIMMI	MAX STRUKT TIME (SEC.)	TEST METODO	13-54 MODE	86 ( 11 ) RT QOLS I	REPURES
172518920	M-61-1	-2	В	1.5		м.0.	- 0		10.0	St	.049		
	M-136-1									14	RR		
1/25189Z2A		2		4.0	1.8	5.A.			N/A	43	88	VR- s	
1/25189228	M-61-1	2	c	4.0	ER	5.A.	*	9	16/A	£1	RR	VR-3	
1/2518924	M-136-1 M-61-1	3	В	6.0	64	м.0.	à		150	St.	OP RR		
172518926	M-136-1 M-61-1	2		8.0	CK	5.A.		. 0	N/A	CE/XE	W870P	390-0	
1/2518948A			AC	10.0	(K	S.A.		- 0	16/A	E E	AR (S/RR	VR-5	Note to
1 8948B		,	AC.	10.0	(K.	5.A.	*	- 10	NZA	ER	68	VR-5	Note t
1/25189480		1	AC	10.0	(R	S.A.		. 0	N/A	CI.	RIC CS/RR		Bule 6
1/25189480		1	AC	.0.0	( K	5.A.	c	- 6	N/A	EL	P.2	VK-5	Note t
1/2\$18949A	M-136-0 M-61-3		At	6.0	(K.	5.A.		. 0	N/A	11	RH	VR-15	Note 5
1/2518949B	M-136-3 M-61-3	1	ΑČ	(.,0)	(K	5.A.		0	NZA	11	RR	V8-45	Bot e-6
1/2518949C	M-136-3 M-61-3	ì	A.C	tr. 0	(K	S.A.		9	R/A	11	- RR - RR	VR-15	hate t
775189490	M-136-3 M-61-3	,	AC	60	(8.	S.A.	r	9	N/A	Ct.	根梁		Note 6
/2518956A	M-136-3 M-61-5	1	AC	10.0	CK.	5.A		0	N/A	Ct.	RK RK	VR_15	Note 6
72518956B	M-136-5 M-61-5	-	Aξ		£K.	S.A.		0	N/A	G .	US/RR RN		Note 6
	M-116-5	1	āí	10.0	(8	S.A.		0	tiva .	G	1.5/RR RR	VH	Note to
1725189560	M-136-6		241							44	C2/88	VH-5	

		-	
- 200		160	
. 200		30	
KAR		364	
100			
RORG		20	
J. F.			
320			
556		-855	
1000			
		.520	
2		- 1427	
27		3	
100		:354	
200			
10		380	
386		280	
790			
400			
100		32	
100		22	
N.		1	
52		(DN000	
- 25		-01	
		X (66)	
		44	
		1.85	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
		8	
	0M		
	SON		
	150M		
	20		
	E E E E		
	20		
	E E E E		
	E E E E		
	E E E E		
	E E E E	8	
	E E E E	8	
	E E E E		
	E E E E		
	E E E E		
	E E E E		
	E E E E		
	E E E E		
	E E E E		
	E E E E		

			VALVE	VALVE	VALVE	ACS.	MORNAL	STRUME	PACK .	J Strik r	NAK STRIKE 1551	22.51	RELIEF	STPLANS
number R P	P. & ID. CLASS CATEGORY	32	CATEGORY	\$173	1883	1,13,1	P051110N	1116911	- 3	F198	155915 84	M3036	REQUEST.	
89560	1725189560 M-51-6 R-136-6	dec	¥	10.0	š	48				Taring .	1.5	28R C5768	2.70	factor to
8958A	1/2518958A M-61-4 N-136-4	190	3	12.0	ŏ	T 5	G.			hu'a	ō	5		Marter 9
89568	1725189588 M-61-4 M-136-4	2		12.9	ð	N . N				NUA	T.	5)		flatte 9
1/2518964	M-61-6 M-136-6	64	ď	8	3	4				0.0	XSEE	5 4 8 5	WR- 1	Passive
8.34.8	17.2518948 H-61-6 H-136-6	14	AC	9	ŏ	N. N.				N/A	=	8	VK-1	Passive

	LUMBING ALTE LULDEN	12.5	DI som		BRAID	ADDO NUC	BRAIDWOOD NUCLEAR POWER STATION	STATION					
									REVISIOR 4		PAGE 17 of 42		
ALVE KUMBER P	P. B. IB. CLASS CATEGORY	8	VALVE CATEGORY	VALVE SIZE	VALVE VVE	ACT.	MORPHAL POSITION	STRUKE	MAX.STROKE TENE (SEC.)	1E ST 7R 1400	11.51 NADE	RELLIFF REQUEST	REF PESSON S
/25x8824	N-42-18	m		96.4E	×	5.A.			N/A	5	00		
725X062B	M-42-1A	m		36.9	as V-1	S. A.		•	N/A		40		
225x016A	M-42-58 M-126-3		20	16.0	ii.	0	0			× =	88		Bassine
725X016B	M-126-3	2	*	96.0	813	м. 0.	9	0	92.0	5 H	e a		Passing
725X027A	M-42-5B	2		16.0	101	. O				3 5	0 N		Parking
87.28X8278	M-42-5A	7		16.8	816	W 0			15:0	* 5	RR		Passive
25X101A	M-42-3	(M)	æ	5.7	3	5.0		٠	W/W	2.2	8 8	VR-17	
A21128	N-42-3 H-126-1	on .	8	12.8	613	, a					3 % 8		
25X1128	1-921-W			9.71		y 0				XII	8 8 8		
25×114A	M-42-3 N-126-1		100	9.73	ā	Α.0				# # E	8 2 8		
/25x,148	N-42-3 N-126-1				i	A.0					8 8 O		

COMPONAEALT" EDISON

INSERVICE RESIDNG PROGRAM

BRAIDHDUD MUCIEAR POWER STATION

								REVISTOR 4		PAGE 15 of 42		
ALVE UMBER P	ALVE VALVE MHER P & 10 CLASS CATEGORY	VALVE CATEGORY	VALVE STZE CIN.3	VALV <sup>K</sup> TYPE	ACT. TVPE	MORPAL POST110N	STRÜKE BIRECT.	MAX.STROKE TEST CIPE MEDING (SEC.)	1E.S.F. ME. DHUD	16.5T 9006	RECTEF REGUEST	REMARKS
/25x1694 8-42-3 H-126	8-42-3 3 8-126-x	m		118	A.0.			26.6	X = 5	90 8 to		
/25x1698 8-42-3 8-126-7	91-42-3 3 91-126-7	100	0 0)	11.0	A. 05.			0 0.7	* = :	8 8 6		
/25K173	R-42-1 3 R-126-1	8	6.0	5	Α.0.		÷	10.0	3 5	90		
725x178 R-42-3	M-126-1	æ	6.9	6.04	A.0.		0	0.01	X 5	20		

COMMONIAL IN COLSON

### INSERVICE TESTING PROGRAM

## BRAIDAGGO BUCLEAR POWER STATISM

	EL PRINCES.	Note 11 Passive	Mate 13	Sets 13 Passing	flate 11 Faystee	State 11 Prescion	Note 11 Passive	Note 11	Note 11 Passive	Botte 13 Faccing	flate 31 Fassius	Passave
	RECEIVE	N. C	1.00	, K.	78-1	78-1	VK.	VR-1	VR- )	77	VB. 1	1.95
PAGE 39 at 42	11-5.1 MOIG	~ O #	~ 0 8	w 20 8	w 0 %	8 8 2	5.8	8 8 2	b b 8	8 8 8	8 8 8	26.25
	18.51 PE, 114,000	2 X Z	2 % 2	5 4 2	2 % 4	ZXZ	232	5 \$ 5	101	- 8 -	2 % 2	
A A A A A A A A A A A A A A A A A A A	PACK_STROBEE 17896 (364.1)	8 8	8 8	9 5	9.5	0.5	2	0	0	Ş	8	N/A
	STROKE PURECT.			¥	Ü		-	<b>.</b>				ú
	1808781 PSS1110W								-4		9	
	1709	1 °C	9	0.0	# 6	A. D.	0 Y	9	A. O.	ν.0	4.0	20
	741 VE 1107 i	18	à	20	11	911	ě	# 14 14	1	31.0	B.T.	
	VALVE S121 [174,]	48.0	48.8	48.0	16.0	9 9	8 0	6	0.9	6	8.0	.50
	VALVE	4	4	4	*	*		* 1	*	rd,	42	A
		N	~	24	N			8	N.	N	N	14
	& FD CLASS	M-105-1 M-106-1	M-185-1 M-186-1	M-105-1 M-106-1	N-105-1 N-106-1	M-105-1 M-106-1	H-105-1 H-106-1	H-105-1 H-196-1	N-105-1 N-106-1	M-105-1 M-106-1	M-105-1 M-106-1	21-105-3
	VALVE NUMBER P	1/2VQ981A	1/2000018	172VQ882A	1/2VQ002B	1/2vq663	1/2%Q684A	172VQ0048	17299005A	17290058	172VQ005C	17799016

INSERVICE RESTING PROGRAM

BRAIDWOOD MINITAR FORTH STATION

COMMONACALTH EDISON

	KI 1935A S	Parities	Passive	Passive							
	MELTEY WEIGHT ST	78.1	*	- N							
40 of 42	14.51	NK.	N. N.	×							
	14.5.1 HE THOO		2								
1SIBN	7376 7376 (54C.)	N/A	th/A	N/A							
	NONEM STROKE AUSTITION DIRECT.										
	ACT. TYPE	ε	£	E							
	VALVE TYPE										
	VALVE SLA	20		20							
	VALVE CATESORY	40	**	×							
	53	PV	24	N							
	P & 1D CLASS	R-105-3	H-105-3	H-105-3							
	VALVE. NUMBER P	17240017	1/2/19918	1/2vg019							

COMMONSEAL THE EDISON

INSCRYICE TESTING PROGRAM

									REVESTOR 4.	PAGE 41 of 42	7		
VALVE NUMBER	F 8 36	CLASS	P. 8. 10. CLASS CATEGORY	VAR 9E 5174 618 3	VALVE TYPE	ACT.	PUSTITUR	STROKE DIRECT.	MAK. STRUKE FIRM A COLL	1651	RELUCE REQUEST	REPOSES	
17/248190	0 M-49-1	2 1			3	E			N/W	28	VK. 1	Parities	
161MM271	N-49-1	2 7	AC	2.0	×	, p			6774	KK.	VR-1	Parsive	

	COMM	CUMMERGEALTH EDISON	M02103		BEATON	4690 NUC	BRAIDWEED MYCLEAR POWER STAFLER	STAFEON					
									REVESTORS 4		PAGE 42 of 42	73	
VALVE MUMBER P	20	P-& 10 CLASS	VALVE	VALVE S12E CIR.)	VALVE 1799	ACT.	MOSTIT.ON	STROKE DIRECT.	HAK. STRUKE TEME (SEC. 1	1ESF MC1990	11,51	ACCULT	RE MARKS.
1/2w0006A	x x	H-118-5 2 H-118-7	4	0.01	5	и о	o		58.6	a 5, 5	8 % 8		
17.2409968	* *	M-118-5 2	45	16.0	5	. O. H			9 86	X 3 5	5 2 2	1	
1/2/a0907A	± ±	M-118-5 2 M-118-7	AC	0.00	Š	5.4			N/A		is is	15	Parkstree
87.000M271	E 2	m-118-5 2 M-118-7		6 01	ŏ	S. A.		ur.	M/A		ž	VIC. 1	Passave
1/280020A	ž ž	M-118-5 2 M-118-7	<	10.0	3				9,	5 = =	8 2 2 1	7 - 85	
1/29/00/208	* =	M-118-5 Z	đ	0.0	5	D #			800	*==	8 8 9		
17240056A	* *	H-118-5 Z H-118-7	«	16.0	5	0 11	۰		0.0%	X 5 4 3	2.3	1-86	
172W0056B	x x	M-118-5 2 M-118-7	4	10.0	5	0 8			8	* = =	5 X X	XK. I	