50-382/84-19

LOUISIANA POWER & LIGHT
MIDDLE SOUTH UTILITIES SYSTEM

WATERFORD 3 LESSON PLAN

NUMBER: W3G-001-~~001~~ 2nd -003

SUBJECT	PROGRAM
General Employee Training	~~GE-GT-001~~ GET
LESSON	**TIME REQUIRED**
Station Security Plan	30 minutes

REFERENCES

10CFR73
ANSI/N 18.17
NUREG 0794

MATERIALS

Slide projector
Carousel with slides

LESSON OBJECTIVES

Upon completion of this lesson, the trainee will be able to:

1.0 State the purpose of the security plan at W-3.

2.0 List the three types of security areas in order of security level, from least security to highest order of security.

3.0 List the physical safeguards employed by the Security Force.

4.0 State the purpose of the ID badge at W-3.

4.1 State the function of the colored background behind the photograph.
4.2 State how the VISITOR ID badge differs from all other badges.

PREPARED BY Mike Hurshman DATE 2/12/84

REVIEWED BY John J. Redet DATE 3-1-84

APPROVED [signature] DATE 3-2-84
Training Superintendent

LESSON OBJECTIVES (Continued)

5.0 Define the procedure for processing through the Personnel Access Point into the Protected Area, including proper use of:

- 5.1 Badge issuance
- 5.2 Key card reader
- 5.3 Portal Metal Detector
- 5.4 X-ray Machine
- 5.5 Explosives Detector
- 5.6 Full length turnstile

6.0 Define the procedure for exiting the Protected Area, including proper use of:

- 6.1 Contamination Portal Monitor
- 6.2 Portal Metal Detector
- 6.3 Key card reader
- 6.4 Badge return

7.0 State how emergency exit from a locked area can be attained.

8.0 State how to properly respond to a telephone message indicating a bomb threat.

9.0 State his/her responsibilities regarding the protection of safeguard items.

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
		I. INTRODUCTION A. Purpose 1. 10 CFR 73 requires that the licensee must maintain a method for providing physical protection of this nuclear facility against intrusion and acts of sabotage. 2. This regulatory requirement is designed to protect the health and safety of the general public and workers at W-3. B. The Station Security Force has the responsibility for enforcing the LP&L procedures that have been established to ensure the physical integrity of this facility.	LP&L sets the policy, and the Security Force must see that the policy is adhered to.
1.0 State the purpose of the Station Security Plan at W-3.			
		II. PRESENTATION A. Types of Security Areas 1. Owner Controlled Areas a. Lowest level of security area b. Areas between the Protected Area fence and the Owner Controlled Area fence. (1) Parking lots (2) General grounds (3) LP&L Admin. Bldg. (4) Trailer City 2. Protected Areas a. Area within the Security fence b. Security ID badge required for access c. Access control and personnel accountability are required in the Protected Area.	
2.0 List the three types of security areas in order of security level, from least to highest order of security.			

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
		3. Vital Areas a. These are areas that contain systems, components or materials that are essential for the safe operation and shutdown of the nuclear reactor. (1) Portions of the Fuel Handling Building (2) Reactor Containment Building (3) Portions of the Reactor Auxiliary Building The three buildings above are collectively called the "nuclear island".	Slides of each vital area structure. Describe the major purpose of each structure.
		b. In addition to an ID badge, individuals must have specific authorization to enter the various localized areas with the buildings comprising the "nuclear island".	The details concerning the levels of access are contained in C.4. of this lesson.
3.0 List the physical safeguards employed by the Security Force.		B. Physical Safeguards 1. The purpose of the physical safeguards is to monitor the protected area and to control personnel access/egress for the area. 2. Types of physical safeguards a. Armed security force b. Fence c. Turnstiles d. Isolation Zone (1) 20 feet from either side of the Protected Area fence. (2) Monitored by cameras mounted on the fence and by patrolling Security Personnel.	

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
4.0 State the purpose of the ID badge t W-3.		C. Identification Badges 1. The purpose of the ID badge is to indicate that unescorted access has been granted within the Protected Area and Vital Area.	Specific authorization is required to be encoded on the key card for vital area access, as per C.4 of this lesson.
4.1 State the function of the colored background behind the photograph.		2. Types of Badges a. ~~Blue~~ WHITE background LP&L employee.	Slides for each badge
		b. Green background W-3 worker not employed by LP&L	Typical contractor
		c. Yellow background Non-LP&L, non-W-3 personnel	NRC inspectors, auditor, etc.
		d. Vertical Stripes To be used in portions of the Owner Controlled Area only.	Training Trailers

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
4.2 State how the VISITOR ID badge differs from all other badges.		e. Visitor Badge A visitor will be issued a red badge with no picture on it. (1) The visitor must be escorted by an individual with a picture ID badge at all times. (2) The authorized escort must maintain control of the visitor at all times. 3. Keycards a. The keycard will be coded on the back side of the picture ID badge and this code will authorize access to the Protected Area. b. Information on the key card will include personal data such as: (1) Name and ID number (2) Employer (3) Height (4) Weight, etc. 4. Status Levels a. The access system will have 128 designated status levels with each level being assigned to a specific location at W-3. b. Status levels may be assigned temporarily or permanently. c. Each supervisor must notify the Security office to assign status levels to workers.	"VISITOR" will be printed in red letters across the badge. Discuss the process for escorting a visitor into and out of the Protected Area. Who goes in/out first? They key card will also be used for Vital Area access when Security personnel are not physically controlling access.

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
5.0 Define the procedure for processing through the PAP into the Protected Area, including:		D. Entry Into The Protected Area	
		1. The Primary Access Point (PAP) is located in the Access Control Facility (ACF).	The ACF is the security area in the east side of the Administration Bldg.
5.1 Badge issuance		2. Workers must approach the PAP window and request the ID badge by badge number. The badge is to be worn on the upper front portion of the trunk.	3 or 4 digit number
5.2 Key card reader		3. Proceed to the key card reader and slide the card along the slot.	Slide sequence for proper key card use.
		4. Pass through the bumper turnstile if green light appears.	Discuss the purpose of the activated lights, yellow-green-red, and actions to be taken if red light activates.
		a. Each person must use his/her own key card to activate the card reader.	
		b. Tail-gating or "piggy-backing" is strictly forbidden. This practice would effect the integrity of the security and personnel accountability systems.	This applies to both entry and exit procedures.
5.3 Portal Metal Detector		5. Portal Metal Detector	Slides of metal detector sequence.
		a. Remove metal items and pass along outside slide tray to avoid alarming the detector.	
		b. Using the red-green light sequence, pass through the detector.	
		c. If the detector alarms, a hand held detector may be used by a Security Officer to locate the cause of the alarm.	Hand held detector is used if the alarm sounds again on the second try through the portal detector.
		d. 10% of all individuals will be checked at random with the hand held detector.	

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
5.4 X-ray machine		6. X-Ray Machine a. All hand held items must pass through. b. The purpose of the X-ray machine is to detect any contraband items, such as: (1) guns (2) knives (3) incendiary devices (4) drugs (5) alcohol (6) unauthorized cameras	Knives with blade longer than 3 inches are considered as weapons. Camera pass is required.
5.5 Explosives Detector		7. Explosives Detector a. Detects nitrogen-based vapors. b. Workers must pass through two stages, each with a red floor mat and reflectors. c. If the alarm sounds after two attempts to pass through the detector, a hands-on search is required. (1) Search room (2) Two officers must be present (3) Men search men, women search women	Slide sequence for detector. Discuss the proper sequence of advancement through the explosives detector.
5.6 Full length turnstile.		8. Full-Length Turnstile a. Personnel must proceed through all of the previous security devices before being allowed through the turnstile into the Protected Area. b. The turnstile is manually controlled by a Security Officer in the control station.	

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
6.0 Define the procedure for exiting the Protected Area, including:		E. Exit From The Protected Area	
		1. Pass through the full length turnstile into the search area.	
		2. Walk through the radiation portal monitor.	Slide - Discuss the purpose of this monitor.
6.1 Radiation Portal Monitor		(a) Carry any hand held items when passing through the monitor.	
		(b) Place both feet on the "foot print" shaped pads, then continue through the monitor.	
		(c) If contamination above established limits is detected, Health Physics will be notified and the individual will be detained.	
6.2 Portal Metal Detector		3. Pass through the Portal Metal Detector.	Slide - same as procedure as for entry.
6.3 Key card reader		4. Place key card into card reader and draw the card toward you to activate the reader.	Slide - stress Personnel Accountability.
		5. Pass through bumper turnstile.	
6.4 Badge return		6. Return ID badge to the Security Window.	
7.0 State how emergency exit from a locked area can be attained.		F. Emergency Exit	Stress that these are emergency procedures.
		1. Create a security alarm using the card reader, or;	
		2. Call the Central Alarm Station using;	Security Officer at the C.A.S. can open the door by remote signal.
		a. telephone b. radio c. Public Address System	

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
		3. Use the crash bar if necessary, or;	
		4. Security controls the keys that can unlock the doors from the outside.	
8.0 State how to properly respond to a telephone message indicating a bomb threat.		G. Bomb Threats	Slide of bomb threat report form.
		1. Bomb Threat Report Form	
		a. Review the portion to be completed by the individual receiving the call.	
		b. This type of information should be recorded even if the operator does not have the form at hand.	
		2. Security must be notified immediately.	
		3. Do not assume that the call was a joke or prank.	Emphasize this point.
9.0 State his/her responsibilities regarding the protection of safeguards items.		G. Safeguards Items AND Proprietary Information	Reference NUREG 0794
		1. Safeguards Items	
		a. Definition	
		Information that specifically identifies LP&L's detailed security measures for the physical protection of special nuclear material or security measures for the physical protection and location of certain plant equipment vital to the safety of the plant.	

OBJECTIVES	APP. TIME	CONTENTS	MATERIALS/TEACHING SUGGESTIONS/ METHODOLOGY
		b. Applies to: (1) Operating nuclear reactors (2) Spent fuel shipments 2. Types of information a. Physical Security Plans b. Drawings and plans of safeguard features c. Details of alarm features d. Guard orders e. Details of response force f. Detail drawings of equipment vital to the safeguard system g. Portions of guard training h. Correspondence and inspection reports 3. Rule of Safeguards No person who meets the above listed criteria shall divest any information or allow the information to be divested to unauthorized personnel. 4. Proprietary Information a. Information of a sensitive nature that is not for public disclosure. b. Information purchased from a vendor for sole use by LP&L. c. Materials stamped "proprietary information" are also not to be indiscriminately released.	Example: Security procedure for operation of the x-ray machine. Drawing and prints of specific systems, or training manuals owned by the vendor.

Mark Livesay

LOUISIANA POWER & LIGHT / INTER-OFFICE CORRESPONDENCE #4

MIDDLE SOUTH UTILITIES SYSTEM

April 6, 1983

SCD-75

W3P83-1128
Q-3-R42.01
3-A1.05.02

M E M O R A N D U M

TO: R. P. Barkhurst

FROM: F. J. Drummond

SUBJECT: Waterford SES Unit No. 3
Station Battery Equalizing Charge
Voltage Exceeds the Solenoid's Coil Rating

REFERENCES: (1) W3E83-0065, dated March 24, 1983
(2) Telecon of March 11, 1983 between J. Boardman of NRC and M. A. Livesay of LP&L on PRD-107, "Station Battery Equalizing Charge Voltage Exceeds Coil Rating"

ATTACHMENTS: (1) LP&L Letter W3S82-1989, dated December 14, 1982
(2) Automatic Switch Company's Letter dated January 4, 1983

This letter is in response to your Reference (1) letter W3E83-0065, dated March 24 and Reference (2) PRD-107.

The result of our evaluation for 125 VDC ASCO solenoid coils and other loads are as follows:

As far as solenoid coils are concerned, we have information from the ASCO publication NP-1, page 4 that these coils can withstand minimum 90 volt DC and maximum 140 volt DC, but as per the Attachment (2), an increase from 140 VDC to 142.5 VDC would result in the coil temperature increase of approximately 3°C. This increase in temperature will in turn decrease the life of the coil by approximately 10 percent. Therefore, increasing the voltage from 139.8 volts to 142 volts, for the subject matter, will result in premature failure of the 120 VDC and 125 VDC solenoid coils on the system. However, based on the ASCO publication and the attached letter, it is our opinion that PRD-107 is not reportable to the USNRC for the equalizing voltages set at 139.8 volts, therfore, we recommend that Waterford 3 Plant Organization write a CIWA in place of PRD-107.

FOIA-84-206
H/31

We also have looked into other loads such as switchgear trip circuits and other related DC controls on the 125 volt DC system. As per the specifications, these loads are specified minimum 105 VDC and maximum 140 VDC.

In a recent discussion of the equalizing charge voltage change request with staff members of Plant Maintenance and Engineering Departments it was indicated that, at 139.8 volts DC charge voltage, it would take 21 (twenty-one) days to equalize the station battery.

Our review of Gould Industrial Batteries and Chargers Instruction Manual, GB-3384A, dated July 1976, indicates that at 139.8 volts DC charge voltage we can equalize the station battery in 74 hours.

Due to this contradicting information, we request that Plant Engineering provide us documentation on variation of specific gravity and any other supporting documentation they might have. We have also requested Gould to furnish us their latest instruction manual on industrial batteries and chargers.

Upon receipt of the requested information, we will consult with Gould concerning the equalizing charge problem and provide the requested recommendations on proper equalizing charge procedures.

If you have any questions on this matter, please contact R. B. Pathak of my staff at 363-8906.

F. J. Drummond

FJD/RBP/bgu

Attachments

cc: G. B. Rogers, T. P. Brennan, C. J. Decareaux, M. I. Meyer, E. J. Senac, G. M. Wood, R. B. Pathak, P. V. Prasankumar, J. R. McGaha, M. P. Flasch, W. J. Prudhomme, R. W. Prados, W. Cross, L. L. Bass, T. F. Gerrets, Central Records, Nuclear Records (3), D. E. Baker

Automatic Switch Co.

Manufacturers of
DEPENDABLE CONTROL
Since 1888

FLORHAM PARK, NEW JERSEY 07932 • N.J.-(201) 966-2000 / N.Y.-(212) 344-3765

January 4, 1983

Louisiana Power & Light
Waterford 3 SES
Post Office Box B
Killona, LA. 70066

Attention: G. B. Rogers
Site Director

Subject: Maximum Operating Voltage of
DC Catalog NP-1 Valves

Dear Mr. Rogers:

This will reply to your letter of December 14, 1982 in connection with our telephone conversation with your Mr. John Lowd on December 13, 1982, with reference to the above subject.

A review of available solenoid coil temperature test data indicates that an increase in applied coil voltage from 140 volts to 142.5 volts DC would result in a coil temperature increase of approximately 3°C once the coil reached thermal equilibrium. Assuming the valve of interest is operating in a 60°C (140°F) continuous ambient at 142.5 volts DC, we estimated, based on available regression anaylsis data, that this 3°C increase over the life of the coil would result in a 10% reduction in coil life. In those cases where the coil is energized at the over-voltage condition for only a small percentage of time, the projected reduction in life would be proportionately smaller. In addition, for those cases where the coil is sometimes energized at less than 140 volts or is operating in an ambient temperature below the recommended maximum 60°C (140°F) the potential effect of this over-voltage condition would be further reduced.

We trust this information will be helpful to you and if anything further is needed, please do not hesitate to contact us.

Very truly yours,

AUTOMATIC SWITCH COMPANY

W. M. Brown, Supervisor,
Government & Nuclear Sales

WMB:mrk

CC: ASCO New Orleans
J. Shank

FOIA-84-206
14/32

LOUISIANA
POWER & LIGHT/Waterford 3 SES, P.O. Box B, Killona, LA 70066

December 14, 1982

W3S82-1989

Mr. Bill Brown
Automatic Switch Co.
50-56 Hanover Road
Florham Park, New Jersey

Subject: Maximum Operating Voltage -
125V DC ASCO Solenoid Valves

References: (1) Telephone conversation between John Lowd (LP&L) and Bill Brown (ASCO) on December 13, 1982

(2) ASCO Catalog NP-1

Dear Mr. Brown:

We have on site various 125V DC ASCO solenoid valves that are listed in Reference (2). Per Reference (2), these valves are equipped with continuous duty Class H coils and have a normal operating range from 90 to 140 volts DC.

Our maximum battery output voltage will be 142.5 volts for short periods during equalizing charge which exceeds the normal operating range of your solenoids.

Per Reference (1), you stated that you did not expect the increased maximum voltage to effect the performance of the valve but that it could possibly effect the life of the solenoid.

You also stated that you would present the problem to ASCO Engineering for assessment upon receipt of this letter.

Your prompt investigation and reply will be greatly appreciated.

G.B. Rogers
Site Director

GBR/JL/nfs

cc: L.V. Maurin, D.B. Lester, T.K. Armington, P.V. Prasankumar, L.D. Arnold, D.D. Wier, T. Pastor, J. Chapdelaine, T. Brennan, J. Lowd, Nuclear Records

FOIA-84-206
14/33

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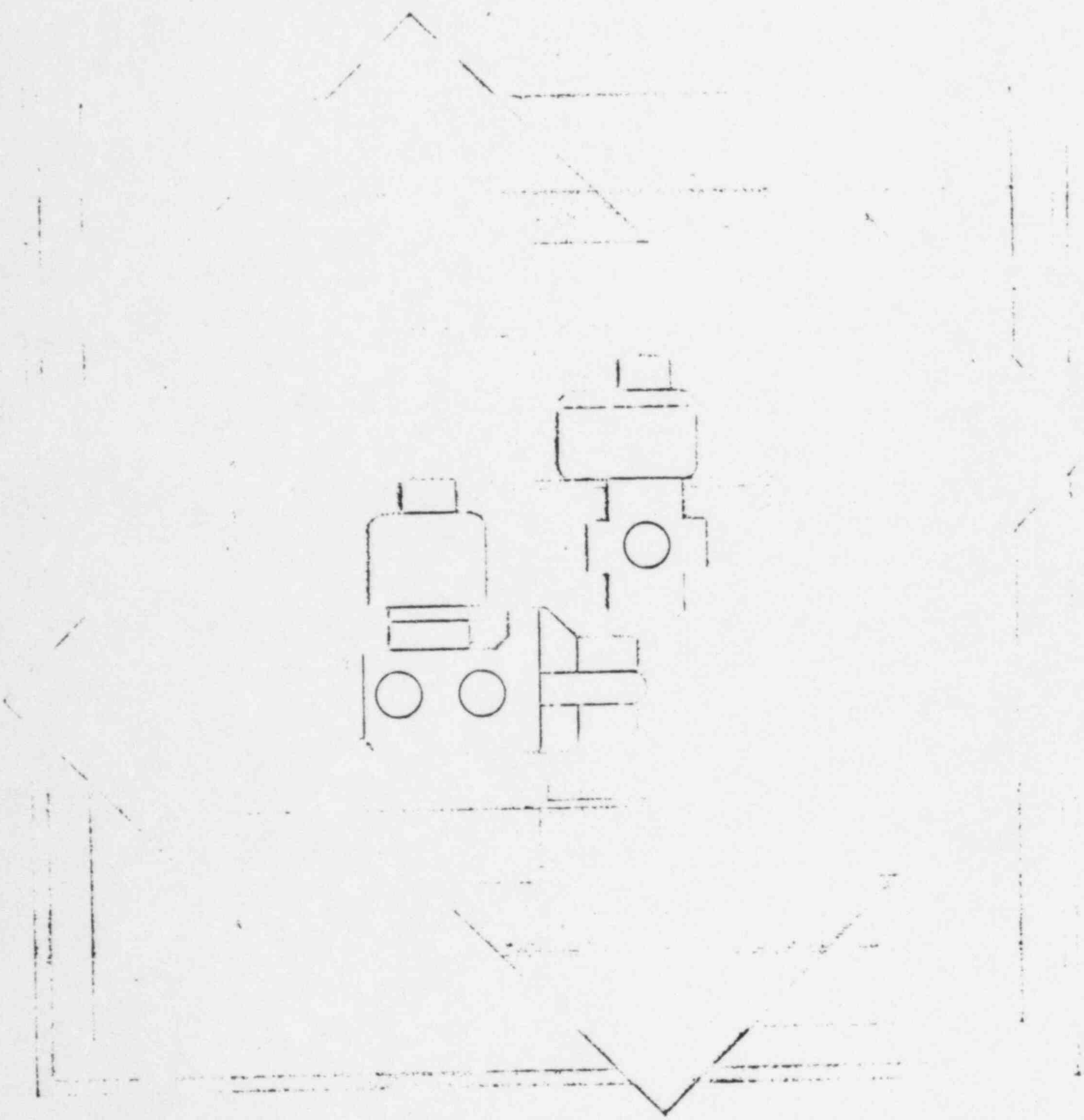
D[illegible] CYLINDER
OPERATI[illegible]
NUCLE[illegible] [illegible]S.



[illegible]

SOLENOID VALVES

ASCO three and four-way solenoid valves, designed and manufactured by the Automatic Switch Company of Florham Park, N.J., are widely used for pilot control of diaphragm and cylinder operated valves and other applications in nuclear power plants.

Selection of the proper valve for a specific application is of paramount importance. This engineering information section describes three and four-way valve constructions, types of operation and coil information.

I. Principle of Operation

A solenoid valve is a combination of two basic functional units: (1) a solenoid (electromagnet) with its plunger or core; (2) a valve body containing an orifice in which a disc or plug is positioned to stop or allow flow. The valve is opened or closed by movement of the magnetic plunger (or core) which is drawn into the solenoid when the coil is energized.

ASCO solenoid valves are of a packless construction with an enclosed solenoid mounted directly on the valve body with the solenoid core attached to the valve stem. The core is enclosed and free to move in a permanently sealed tube inside the solenoid coil. This construction provides a compact, leak-tight assembly, without the need of a stuffing box or sliding stem seal.

Direct Acting Valve
(Figs. 1A and 1B)

In a direct acting [illegible] valve, the core and disc [illegible] con-nected to the valve disc and directly opens or closes the orifice depending upon whether the solenoid is energized or de-energized. Operation is not dependent upon line pressure or rate of flow, and valve will operate from zero PSI to its maximum rated pressure.

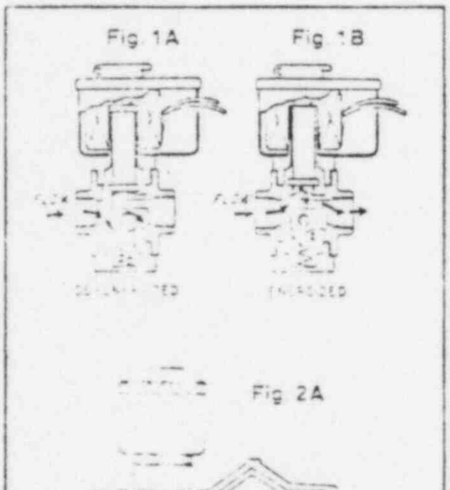
II. Types of Solenoid Valves

Three-Way Solenoid Valves
(Figs. 1A and 1B)

Three-way solenoid valves have three pipe connections and two orifices (one orifice is always open and one is always closed). These valves are commonly used to alternately apply pressure to and exhaust pressure from a diaphragm valve or single acting cylinder. They also may be used to [illegible] flow.

Four-Way Solenoid Valves
(Figs. 2A and 2B)

Four-way solenoid valves are generally used to operate double acting cylinders. These valves have four pipe connections — one pressure, two cylinder, and one exhaust.



III. Solenoid Enclosure

All valves listed in the catalog are supplied with either watertight or combination explosion proof watertight solenoid enclosures to withstand the [illegible] conditions of IEEE Std 382 [illegible] Loss of Coolant Accident. [illegible] stainless steel [illegible] conduit hub.

[illegible]

These enclosures meet the following NEMA solenoid enclosure requirements:

Watertight: Nema Type 4 and 4X (submersible), Nema Type 6; also meets Nema Type 3, 3S and 12.

Explosion-proof: Nema Type 7C and 7D, Watertight Nema 4 and 4X; also meets Nema Type 3, 3S, 9E, 9F, 9G and 12.

IV. Solenoid Construction

Internal parts in contact with the fluid are made of non-magnetic 300 and magnetic 400 Series stainless steel. In A-C constructions only, the shading coil is normally copper [illegible] used in [illegible]. Other [illegible] are available [illegible] required. No shading coil is used in D-C valves.

The core tube in ASCO valves is of 305 stainless steel and formed by deep drawing, eliminating silver brazed or welded joints otherwise necessary.

V. Maximum Operating Pressure Differential (M.O.P.D.)

The maximum operating pressure differential is the maximum differential pressure between the inlet and the outlet ports of the valve against which the solenoid can safely operate the valve. This is referred to as M.O.P.D. This pressure may be much less than the safe working pressure.

VI. Minimum Operating Pressure Differential

The minimum operating pressure differential is the lowest operating pressure differential required for dependable operation. For three and four-way pilot valves, the minimum operating pressure must be maintained throughout the operating cycle to insure complete transfer from one position to the other.

Note: Direct acting valves do not require a minimum pressure.

Coil Operating Voltage Ranges

All coils are rated for full rated operating voltage and can be used within the following voltage ranges.

A-C		D-C	
Nominal Voltage Rating	Operating Voltage Range	Nominal Voltage Rating	Operating Voltage Range
24	20 - 24	6	5 - 6.6
120	102 - 132	12	10.2 - 13.2
208	177 - 229	24	20 - 26
240	204 - 264	125	85 - 137
480	408 - 528	250	170 - 275

All ASCO valves are tested to operate at 15% under the nominal voltage and at maximum operating pressure differential, and are capable of operating for short periods at 10% over the nominal voltage. For wider voltage ranges than shown above, a different coil or valve may be used.

Power Consumption

Power consumption of solenoid valves may be determined from the rating in ASCO catalogs. For valves on A-C service, the watt rating, the volt-ampere inrush and the volt-ampere holding are given.

The volt-amp (VA) "inrush" is the high momentary surge of current which occurs at the moment an A-C solenoid is energized.

The volt-amp (VA) "holding" is the continuous rating after the initial "inrush."

Coil Temperature Limitations

Minimum Ambient Temperature

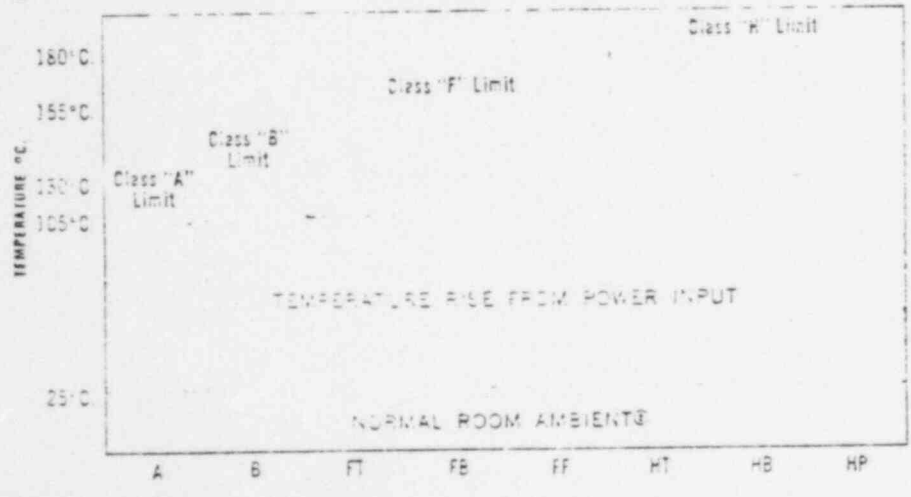
The normal limitation of -50°F is applicable to any valve. The actual minimum ambient temperature at which a valve can be safely operated is dependent upon both the installation and valve construction.

Maximum Ambient Temperature

The maximum ambient and coil temperatures listed are based primarily on test conditions used by Underwriters' Laboratories in determining safe limits for coil insulation. They are determined under continuously energized conditions and with maximum fluid temperatures existing in the valve. In many applications, the specific conditions existing will permit use at considerably higher ambient temperatures. In addition, modifications to valves and coil constructions are also available which can extend the maximum ambient temperature limitation to 180°F or more. Consult Factory with your specific needs.

A-C Solenoid Coils

A-C coils listed in this catalog are all designed for continuous duty Class H coils. These can be energized continuously, without danger of overheating or failure. Coils are provided with a conduit lead which can be connected to any conduit system. For threephase power systems the two leads can be connected to any two of the three phases. All coils are also supplied



LOUISIANA POWER & LIGHT / INTER-OFFICE CORRESPONDENCE

MIDDLE SOUTH UTILITIES SYSTEM

February 22, 1983

SCRATCH MEMO

TO: M.P. Flasch
D. Baker

FROM: J.R. McGaha

SUBJECT: Station Battery - FSAR Change

ENCLOSURE: W3P83-0460 dated February 9, 1983
with attachments

It is requested that Mike Flasch initiate action to resolve the open item indicated in the enclosure and Dwight Baker schedule a review of such resolution on the February 24, 1983 PORC meeting agenda. Note that subsequent to PORC meeting 82-31B, August 4, 1982 there was some followup action on this topic with respect to the possibility of exceeding voltage ratings on some DC relays.

J.R. McGaha

JRM:dc

cc: R.P. Barkhurst, M. Pecaut, M. Clary, W. Rodrigue, P.V. Prasankumar, B. Cross

FOIA-84-206
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LOUISIANA POWER & LIGHT / INTER-OFFICE CORRESPONDENCE

MIDDLE SOUTH UTILITIES SYSTEM

March 9, 1983

W3E83-0064

TO: M.P. Flasch

FROM: W.J. Prudhomme/Robert Sproles

SUBJECT: 120V & 125VDC - Solenoid Coil Failures

ATTACHMENTS:
(1) CIWA #001298
(2) ASCO Directive VC-11, dated 8-10-81
(3) ASCO letter by Geogre Laubenstein, dated 2-14-83
(4) List of Valves Affected (Derived From LP&L Purchasing Records)
(5) INPO Significant Events Report, dated 1-26-83

REFERENCE: (1) ME-4-231, Rev. 2

Due to problems with battery equalization, the charging voltage on the 125VDC System has been increased to a maximum of 142 volts through a revision to ME-4-231 (Reference 1). Also, an FSAR change has been proposed to raise the equalization charge voltage from 139.8 volts to 142 volts. All other voltage settings would remain the same (i.e., Float @ 132 volts, Alarm @ 144 volts, and System Shutdown @ 152 volts). This proposed change to the FSAR has not been approved at this time.

Raising the charge voltage, while solving the battery equalization problem, could result in early failure of the 120VDC and 125VDC solenoid coils throughout the site. Although there have been no coil failures to date attributable to higher system voltages, it should be noted that the annual (7 day duration) equalization charge at 142 volts has yet to be conducted.

In response to CIWA #001298, an engineering evaluation was conducted to determine alternate solutions to the potential problem of DC solenoid coil failures on 125VDC battery charging circuits. The following is a summary of the P.E. engineering review and recommendations:

(1) Many of the DC solenoid coils at Waterford 3 are of standard commercial construction rated at 120VDC, class A or F insulation. These coils are rated at a maximum voltage of 10% above nominal or 132 volts. While the application of these on the system at the original charge voltage of 139.8 volts is questionable, they are definitely unsuitable for use at the new charge voltage of 142 volts.

(2) The 125VDC coils with class A and F insulation have a maximum rating of +10% nominal (137.5 volts) and are also unsuitable for use at either the original (139.8 volts) or the new (142 volts) charging rate.

(3) The vendor, ASCO, no longer recommends the class A & F insulation for battery charging circuits. On August 10, 1981, ASCO issued a directive (VC-11) stating that "effective immediately, ASCO will enter all orders for solenoid valves for use on a battery voltage with a prefix of HC in place of the present HT." These coils are specifically designed for valves which are powered by battery charging circuits. The 125VDC HC coil is capable of operating continuously over a range of 90 - 140VDC (-18% to +12% nominal) at 140°F ambient.

(4) There are four HC replacement coils that will handle the majority of existing coils on site. These are shown on the attached letter from George Laubenstein of ASCO. In cases that involve existing high wattage coils, the substitution of an HC coil is not possible without either additional parts changes or de-rating of the valve or both. The vendor will need specific information on the application in order to recommend replacement components.

(5) In checking with ESSE, we've been advised verbally that the Ebasco specifications require ASCO solenoids, class H insulation, 120VDC ±5% or 125VDC ±5%. Copies of the Ebasco specification have been requested to confirm this.

(6) Other loads such as switchgear trip circuits and other related DC controls have not been evaluated at the higher charging voltage.

W J Prudhomme
W.J. Prudhomme

Robert Sproles/mdp
Robert Sproles

WJP/RS:md

cc: W.A. Lowrance, K. LeBlanc, M. Clary, M. Pecaut, W. Cross

KEYPUNCH USE ONLY | UNIT: W 3

WATERFORD NUCLEAR STATION
CONDITION IDENTIFICATION WORK AUTHORIZATION

C 1102

ORIGINATORS

CARD	TRN.	SYSTEM NO.	COMPONENT NO.	EQUIPMENT DESCRIPTION	QA TYPE
7,8,10	10 7	11	14 12B3A-S	27 125VDC BATTERIES	67 3

CIWA	REQUEST DATE (MO. DAY YR. HR. MIN.)	FAILURE STARTED (MO. DAY YR. HR. MIN.)	TECH. SPEC. DATE IF REQ'D. (MO. DAY YR. HR. MIN.)	FOLLOW UP TO CIWA	STATION MOD. NO.	PRIORITY	UNCONT. MIT
10 001298	12 7 19 82 7 45	12 7 19 82 7 10	MA	48 N/A	52 N/A	58 4 5	59 Y

Ammended 12-14-82

INITIAL PROBLEM OR FAILURE DESCRIPTION

According to the attached ASCO catalog information sheet, solenoid coils may be energized to voltages 10% above their nominal voltage for "short periods" of time. The 10% voltages for 120VDC and 125VDC coils are 132VDC and 137.5VDC respectfully. The information sheet also states that 125VDC coils may be obtained that will be utilized charging voltages up to 140VDC. The FSAR, Chapter 8, Section 8.3.2.1.2 as recently revised, sets the float voltage for the batteries at 132VDC and the charging voltage at 142VDC. A float voltage of 132VDC will apply 110% of a 120VDC coils nominal voltage for extended periods of time. A charging voltage of 142VDC will exceed the maximum allowable voltage.

SEE ADDENDUM PAGE ✓

14 WORK CENTER	10 ELEC.	11 MECH.	12 INST.	13 OTHER	CONDITION ID TAG	ORIGINATOR	DEPT.	NOS	DATE
	☐	☐	☒	☐	☐ YES ☐ NO	C.L. LeBlanc	I&C	N/A	

P&S

DISPOSITION ☐ INVALID ☐ TROUBLESHOOT ☐ REPLACE ☐ REWORK ☐ REPAIR ☐ USE-AS-IS ☑ ENG. EVAL. ☐ OTHER

TASK DESCRIPTION	DATE DUE (MO. DAY YR.)	DUR	P.R.NO.
13 EVAL SOLENOID COILS (Ammended 12-14-82)	50 12 52 31 54 82	56 019	N/A

CONTROLS REQUIRED	YES	NO
CONFINED SPACE ENTRY		✓
RADIATION WORK PERMIT		✓
TAGGING		✓
RETEST		✓
INSPECTION		✓
FIRE PROTECTION PERMIT		✓
PMN APPROVAL		✓
SPECIAL PROCESSES		✓

PROCEDURES: N/A

DRAWINGS: N/A

RETEST PROCEDURES: N/A

TECHNICAL MANUALS: See Attached Sheet

WORK INSTRUCTIONS: Perform Eng. Eval. and Inform I&C Dept. of Eval.

REVIEWED BY: G. Jorgensen

SEE ADDENDUM PAGE ☐

Q.C. COMMENTS: No Q.C. Required

SIGNATURE: Stephen Langley DATE: 12-15-82

NCR. NO. N/A

PREPARED BY: D M. Hoyzlett DATE: 12-14-82

APPROVED: G. Jorgensen DATE: 12/15/82

PMN IF REQ'D. N/A

ATTACHMENT 6 2 (1 of 2)

Two other chargers, 3AB1-S and 3AB2-S, are provided for battery 3AB-S. This charger is rated 200 A continuous capacity. | 18

All chargers are solid state, regulated units, with limited output of 115 percent of rated continuous current. Each is capable of maintaining the connected battery in a fully charged (float) condition at 132 V while supplying the normal continuous load on the dc bus and can also supply an equalizing charge at ~~139.8 V~~ 142 under the same conditions. Each charger can recharge a fully discharged battery and at the same time supply the steady state dc bus load. | 11

Each charger is supplied from a 480 V, three phase, 60 Hz MCC and can maintain its adjusted output voltage within 0.5 percent for any load from zero to full rated current, with input variations of 10 percent in voltage and five percent in frequency.

To assure equipment protection in the dc system from damaging overvoltages from the battery chargers that may occur due to a faulty regulation or operator error, each battery charger is equipped with built-in overvoltage shut down protection circuitry to sense output overvoltages (setpoint adjustable) and shut down the battery charger after a (adjustable) time delay. For the float and equalizing voltages set at 132 V and ~~139.8~~ 142 respectively, the charger alarms at 144 V and the shutdown circuitry is set at 152 V. In addition, local indication is provided in each battery charger which actuates a charger malfunction alarm to alert the operator in the main control room. | 1 | 11 | 18 | 11 | 1

Undervoltage relays, both ac and dc, and a dc voltmeter and ammeter are provided for each charger. Input and output circuit breakers are also provided.

8.3.2.1.3 DC Load Center | 11

a) DC Load Centers 3A-DC-S, 3B-DC-S, 3AB-DC-S

Each battery is connected via a two pole non-automatic breaker to an insulated bus in a metal-enclosed load center. Each two pole non-automatic breaker is housed in a metal enclosed cabinet with insulated buses and has provisions for connecting a portable battery load test device. Each of the two related chargers is connected to the bus through a circuit breaker. Molded case circuit breakers are used for all outgoing feeder circuits in load centers 3A-DC-S and 3B-DC-S; load center 3AB-DC-S employs fused disconnecting switches for two feeders to a non-safety related dc panels 3AB-DC-A and 3AB-DC-B, and fused circuit breakers for other feeders, because of the higher (30 kA) possible fault current from this battery. | 22

The dc buses are insulated for 600 V and braced for 20 kA (30 kA for bus 3AB-DC-S) short circuit current. | 11

Each load center is provided with a ground detector relay, as the dc systems operate ungrounded. A ground detector voltmeter (used to locate grounds), a bus voltmeter and an undervoltage relay are also

	CIWA ADDENDUM PAGE	CIWA NO. CC-127-E DATE

TITLE: 125 VDC BATTERIES

Voltages may exceed 142 VDC, in that an alarm is not received until 144 VDC and the battery chargers are not shutdown until 152 VDC.

A cursory survey of purchase orders indicates that we have at least twenty 120 VDC solenoids and eighty-five 125 VDC solenoids supplied by ASCO.

No further studies have been done to determine the voltage limits imposed on other DC components.

GENERAL INFORMATION
On ASCO Spare Parts Kits and Solenoid Coils

Spare Parts Kits for ASCO Solenoid Valves
Spare Parts Kits provide a convenient and economical way to make fast and complete repairs to ASCO valves. Keep them on hand to reduce expensive downtime.

Contents of Spare Parts Kits
Each kit includes all the internal parts that would require replacement in normal service. Included are resilient discs, seats, springs, cores with integral discs, and all gaskets. In addition, where applicable, diaphragms, piston rings or U-cup seals are also included. Wherever practicable, parts are furnished as assemblies to reduce installation time. Instruction sheets with each kit include an exploded view of the valve, indicating the location of each part in the kit to simplify installation.

Parts Not Included in Kits
Parts not included in kits are solenoid parts, and pressure boundary parts such as bodies, bonnets, and solenoid base assemblies. These parts, if needed, may be ordered separately by specifying the name of the part, and the valve catalog and serial numbers from the valve nameplate.

Spare Parts Kits for Standard Valves
The kits listed in this catalog are suitable for any standard valves of the catalog numbers listed, regardless of date of manufacture up to 15 years old or more. In some cases, where the valve construction has changed, parts are included for both old and current construction. For very old valves contact ASCO for recommendations.

Spare Parts Kits for Special Valves
Valve catalog numbers not listed, or valves with an "X" prefix to the catalog number, may require special kits. Similarly, many valves with a suffix letter to the catalog number also require special kits. Catalog numbers with some suffix letters are listed in this catalog. Refer to the listing by bulletin and valve catalog number beginning on page 5. For valve catalog numbers not listed, contact ASCO and specify valve catalog and serial numbers.

Selecting a Spare Parts Kit
Refer to the listing by valve catalog number beginning on page 5. On the same line as the catalog number find the kit numbers for AC and DC. (Example: For valve catalog number 8015A4, the AC kit number is 102-877 and the DC kit number is 102-878.)

If a coil number is shown after the valve catalog number, but no kit number, we can supply a kit to order even though a kit number has not been assigned.

If neither a coil nor kit number is shown, as in some cases for DC, that construction is not available.

Ordering Information for Spare Parts Kits
For standard valves listed in this catalog, specify the parts kit number. For valves not listed, specify valve catalog and serial numbers.

Refer to Form V5328 for Spare Parts Kit prices.

Solenoid Coils
ASCO solenoid valves are equipped with continuous duty coils, except where noted. These can be energized continuously without danger of overheating or failure. Coils are provided with two coil leads (or terminals where noted) which can be connected to any controlling device. For three-phase power systems, the two leads can be connected to any two of the three phases.

Standard lead length for all current solenoid coils is 18 inches. This is indicated by the letter D following the coil number. Other lead lengths are available on special order and are identified by suffix letters A through K. Some replacement coils for older solenoids are furnished with 8-inch leads and do not have suffix letter.

All coils are constructed in accordance with Underwriters' Laboratories, NEMA, AIEE, and other industry standards.

Coil Operating Voltage Ranges
All coils are designed for industrial operating voltages and can be used on the following voltage ranges:

Voltage Rating AC	Normal Operating Range	Voltage Rating DC	Normal Operating Range
24	22-24	6	5.1-6.3
120	110-120	12	10.2-12.6
240	220-240	24	20-25
480	440-480	120	102-126
		125	90-140

All ASCO valves are tested to operate at 15% under the nominal voltage, and are capable of operating for short periods at 10% over the nominal voltage. For wider voltage ranges than shown above, a different coil must be used.

125 volts and 250 volts DC are normally battery power sources, and the charging voltage frequently exceeds the maximum voltage rating for Class A coils. In order to safely withstand charging voltages up to 140 volts or 280 volts, a Class F or Class H high temperature coil must be substituted. These coils are listed with the Class A coils they replace in Coil Price Schedule Form V5328.

Coil Insulation Classes

Class A. Standard coil for general purpose applications. Most Class A coils are of molded construction (Code AM). Some replacement coils for older solenoids are paper-section construction (Code A).

Class B. Molded coil suitable for higher temperature service or for higher than normal voltage variations.

For preventive maintenance—or unexpected emergencies—keep Spare Parts Kits on hand.

Automatic Switch Co.

FLORHAM PARK, N.J. 07932
(201) 822-7700

INDIVIDUALS: DISTRICT OFFICES, FACTORY BRANCHES, VALVE REPRESENTATIVES & VALVE DISTRIBUTORS

DATE: 27 MAY 1981 (Released 13 July)

SUBJECT: DC GENERATED VOLTAGES vs DC BATTERY CHARGING VOLTAGES

1. ASCO advised the field, via VC-11, on 10 August 1981, that whenever 125 or 250 volts DC is specified, a special battery voltage coil must be furnished denoted by the prefix to the catalog number, "HC". The basic assumption has been that a battery has either a 125 or 250 volt DC output and that, for example, on a 125 volt DC nominal system, the voltage can fluctuate between 90 volts and 140 volts on charging.

2. When the valve has a class A coil as standard, an HC coil can be ordered without question. However, on those valves which have a high power class F or class H coil, Sales must ask the customer for more details of the system so that we can furnish the proper coil. In some cases, we are advised that it is a generated voltage, and therefore the voltage variation associated with batteries will not exist.

3. We have investigated and find that a generated voltage is normally 120 or 240 volts DC. Therefore, no special coil is required for these generated voltage systems.

4. Accordingly, we can make some changes in our order handling procedure to take advantage of this information. If the customer indicates that the system is a generated voltage, we will mark the shop order 120 or 240 volts DC. We do not have to use a special coil but can use the coil standard to the valve. If the customer insists on having either 125 DC or 250 DC marked on the nameplate, even though it is a generated voltage, we will still write up the order for 120 or 240 volt DC respectively and add a note underneath the specs of the valve to "mark the nameplate per customer's request".

5. Please contact the Supervisor OEM Sales if you have any questions.

BCF:GE
cc: Valve Sales & Service
International
Market Research
Production
R. Parsons
R. Colony
D. Titsworth

Automatic Switch Co.

VC-11

FLORHAM PARK, N.J. 07932
(201) 966-2000

TO: DISTRICT OFFICES, FACTORY BRANCHES, VALVE REPRESENTATIVES & AUTHORIZED VALVE DISTRIBUTORS (INDIVIDUALS)

DATE: AUGUST 10, 1981

SUBJECT: SOLENOID VALVES FOR BATTERY CHARGING CIRCUITS 125/DC AND 250/DC

1. Effective immediately, ASCO will enter all orders for solenoid valves for use on a battery voltage with the prefix "HC" in place of the present "HT".

2. Typical battery charging circuits range between 90-140 volts or 180-280 volts for nominal 125 volt and 250 volt systems, respectively. Special Class H high temperature coils are designed to operate the valves at the lower voltage ranges and also to withstand the increased current flowing through the coils at the high charging voltages. These coils also have a higher wattage rating than the standard Class H, HT coils, as follows:

SOLENOID	STANDARD DC WATTAGE:	"HC" COIL WATTAGE IS:
M6	9.7	13.3
MXX	11.2	17.4
M12	16.8	24.2

3. List Price Schedule, Form V5463, now indicates to add a prefix "HTX" for battery voltages on Bull. 8015 - 8025 (page 3) and Bull. 8308, 8309, 8310 and 8311 (page 6). Please change this note to specify "HCX".

4. When specifying the HC coil over a Class A coil (9.7, 11.2 or 16.8 watts), use the equivalent HT coil adder. Consult the factory for other wattages. Please note your records accordingly.

BCF:GZ

cc: Valve Sales, Service & International
R. G. Riefler
E. Berdela
D. J. Vollmer
C. Horbacz
J. Koroluk
W. Litterer
R. Parsons
R. Colony
D. Titsworth

[illegible] SUBJECT: [illegible] Codes for Special Construction Valves

[illegible] whenever possible. [illegible] respective usage.

PREFIX		SUFFIX II		SUFFIX III	
[illegible]	[illegible]	CODE	COIL	CODE	FEATURE
[illegible]	[illegible]	DA	Class A-Dual Voltage	M	Other Special Construction
[illegible]	Conduit Adapter [illegible]	DF	Class F-High Temp.-Dual Voltage		
[illegible]	[illegible] Core	DH	Class H-Dual Voltage-All Wattages		
[illegible]	Explosion-Proof	DP	Class F-Intermediate Power-Dual Voltage		
[illegible]	[illegible] Manifolds	FB	Class F-Intermediate Power (Winding)		
[illegible]	[illegible]	FF	Class F-High Power (Winding)	L	[illegible] Coil [illegible] or greater
[illegible]	[illegible] Strain Relief	FT	Class F-High Temperature		
[illegible]	[illegible] Enclosure	HB	Class H-Intermediate Power (Winding)		
[illegible]	[illegible] Construction	HC	Class H-Battery Charging Circuits		
[illegible]	[illegible] Splice Box	HF	Class H-High Power Class F Winding		
[illegible]	Junction Box	HP	Class H-High Power (Winding)		
[illegible]	Metal Retaining Clip	HT	Class H-High Temperature		
[illegible]	[illegible] Construction (8345)	K	Terminal Screws		
		KA	Class A-Terminal Screws		
[illegible]	Nuclear Power	KB	Class H-HB Winding Terminal Screws		
[illegible]	Panel Mounted	KC	Class H-Battery Charging Circuits-Terminal Screws		
[illegible]	Multiple Packaged Items	KF	Class F-High Temp.-Terminal Screws		
[illegible]	Rainproof	KH	Class H-High Temp.-Terminal Screws		
T	Threaded Conduit (1/2")	KP	Class F-Intermediate Power-Terminal Screws		
U	Open Frame	MA	Molded-Rectified (Class A)		
[illegible]	Submersible Splice Box	MF	Molded-Rectified (Class F)		
[illegible]	Watertight Junction Box (Submersible Nema 6/IEC)	S	Spade Terminal		
		SF	Class F-High Temp.-Spade Terminal		
		SP	Class F-Intermediate Power-Spade Terminal		
		TD	Time Delay on Energization		
[illegible]	Australian Gas Assoc.	BP	Class B-High Power		
[illegible]	Flameproof (BASEEFA std BS4683)	BD	Class B-High Temp.-Dual Voltage		
[illegible]	British Gas Council	LB	Class B-High Temp.		
[illegible]	Deutscher Verein Von Gas and Wasserfachmannern	SB	Class B-High Temp.-Spade Terminal		
EB	Explosion-Proof-Belgian				
EF	Explosion-Proof-France				
EG	European Gas Approval				
EI	Explosion-Proof-Italy				
ES	Explosion-Proof-Swiss S.E.V.(1)				
FA	Flameproof-Australia				
FP	Flameproof Buxton Agency, U.K.				
GB	Gas Council-Belgian				
GC	Cable Gland				
GE	Grommet European				
IS	Intrinsically Safe				
JE	Japan-Explosion-Proof				
NB	Flameproof (CENELEC, BASEEFA std. BS5501)				
ND	Flameproof (German P.T.B.)				
NF	Flameproof (CENELEC, L.C.I.E. std NFC23518)				
NV	Norske Veritas				
PV	Petrol Vending Industry Div 1 (U.K.)				
SC	Spade-Plug Connector				
VG	Vereniging van Gasfabrikanten in Nederland				
VI	G.I.V.E.G. Approved-Holland				
VP	Verband Deutscher Elektrotechniker				
W	Splashproof (IEC)				
[illegible]	Watson House Gas Approved				
6A	Valve Less Unit Solenoid (M-6 A/C)	VC	Virginia Chemical Unit Solenoid		
7A	Valve Less Unit Solenoid (Controlasco)				
9A	Valve Less Unit Solenoid (MXX A/C)				

SUFFIX I		SUFFIX II		SUFFIX III	
CODE	SEAT/DISC/ETC. MATERIAL	CODE	FORM	CODE	FEATURE
A	Cold Construction (-40°F) For Combustion Valves only	F	Form of Flow Norm. Closed	C	Proof of Closure
				HW	Hot Water Construction
B	Grain Dryer Burners	G	Form of Flow Norm. Open	LT	Low Temperature
D	CENELEC Approv by PTB			M	Metering Device
E	Ethylene Propylene			MB	Mounting Bracket
J*	Neoprene	U	Form of Flow Universal	MO	Manual Operator
K	Air Operated, 3-30 PSI			MS	Screw-Type Man. Oper.
KE	Air Operated, 1-5 PSI			NC	Normally Closed
L	Metal Seat	H	Form of Flow Diversion	NO	Normally Open
N	Oxygen	I	Form of Flow Selection	S	Steel Construction
P	Dry Gas, Non-Lub. Air Const.			SS	Stainless Steel Constr.
Q	Long Life Construction			ST	Steam Service
R	Resilient			SW	Switch
T	Teflon			VH	High Vacuum
V	Viton			VI	Visual Position Indicator
W	Cast Urethane Disc.			VM	Medium Vacuum
				Y	By-Pass

*Represents the plastic snap-in grommet in the 7/8" knowck-out hole.

**Place "D" in second position (GD, FD, etc.) except when used with "T" (DT).

(1) Can only be used with an FT coil.

The letters "C", "D", or "M" in place of the first catalog number (8) designate special constructions for Controlasco, ASCO (U.K.), or Ascomatica respectively; letter "R" signifies BSP pipe threads; letters "B" and "E" represent European solenoid for Controlasco with NPT and BSP pipe threads respectively; "VC" represents special construction for Virginia Chemicals.

Form 2063 R14

Automatic Switch Co.
INTEROFFICE CORRESPONDENCE

MAIN OFFICE & PLANT, FLORHAM PARK, N.J.
Telephone: 201-966-2000

TO: [redacted]

DATE: February 14, 1983

FROM: George Laubenstein

IN REPLY REFER TO: Louisiana Power & Light
Memo Dated 1/17/83,
HC Coils for Various Valves

Dear Oscar:

As you know, we offer coils specifically designed for valves which are to be powered by a battery or battery charging circuit. These coils have a designation of HC (NC) and are only offered with Class H insulation. For a circuit which has a nominal voltage of 125 VDC, the coil would have an operating voltage spread of 90-140 VDC at 140°F. Although we offer HC coils at other nominal voltages (i.e. 250 VDC), we do not offer a coil with a slightly higher nominal voltage and resulting voltage spread than the 125 VDC coil.

At the present time, all NP-1 catalog valves built in DC are constructed with HC coils. The proper coil number for these valves can be determined by using catalog information bulletin VC-25. Many of the valves on the L.P. & I. list are standard commercial valves, which normally are constructed with 120 VDC, Class A or Class F coils.

We believe Part of L.P. & I.'s problem to be the use of standard commerical valves on a battery circuit. The attached list will supply the correct HC coil for each valve. If the valve is constructed normally with a high power coil, the substitution of an HC coil is not possible without either additional parts changes or de-rating of the valve, or both.*

If additional information is required for L.P. & I.'s problem, we must know their complete application details.

If we can be of further service, please contact us.

Best regards,

George

George

GCL:jdc
cc: Quote File

Attachment

ASCO Valve Catalog No.	HC 125/DC Coil
8211D1	220-339-1-D
FT8211D32	98-824-16-D
8344A73	220-339-1-D
*HT8302C25	
8320A197E	220-339-1-D
HV 206-381-6	208-492-1-D
HT8320A20	103-834-20-D
NP831664V	220-339-1-D
HV 206-381-6	208-492-1-D
8223A10	220-339-1-D
83451	220-339-1-D
8210B3	220-339-1-D
8320A103	98-824-16-D
8262C36	103-834-20-D
*8210B54	
8223A21	220-339-1-D
8320A103	98-824-16-D
LB8320A7	98-824-16-D

Coil No.	List Each
220-339-1-D	$75.00
98-824-16-D	86.50
208-492-1-D	115.00
103-834-20-D	60.00

12/8 @ 8:30 AM

Bob,

This is a "quick" list compiled from old PRs in our file. I cannot say for sure it's complete, but it should give you a good overview.

CHS

O. #	ASCO NO.	COIL RATING	IN SERVICE
203419	* 8211D1	120VAC	4
"	* FT8211D32	125VDC	4
703435	8320C26	120VAC	20
"	8031A71	120VAC	1
"	8031A17	120VAC	2
"	8211B54	120VAC	1
703527	8262A227	120VAC	4
"	" 143	120VAC	8
"	" 142	120VAC	10
703414	8210C7	120VAC	1
703484	HT8302C26 NP	120VAC	57
"	NA 8342A2	120VAC	23
"	HB8302A90	120VAC	9
703570	8215020	120VAC	6
"	JBHT8320B83	120VAC	3
703492	* 8344A73	120VDC	3
"	HT8302C25	125VDC	4
703606	8320A197E	125VDC	2
"	HV206381-6	125VDC	6
703484	HV206B32-3F	120VAC	13
"	NP8316-64E	120VAC	7
"	8316C25F	120VAC	2
"	HT8316C5	120VAC	2
9102040	8302C27R	120VAC	2
"	8302C27F	120VAC	14
	HV-200926-1	120VAC	2
9303843	HT8320A20	125VDC	12

Co #	ASCO NUMBER	COIL	# IN SERVICE
403483	NP 831664V	125 VDC	51
"	NP 8344B46E	120VAC	4
9303843	HT 8321A6	120VAC	11
"	HT 834481	120VAC	8
"	HTX 8344B66E	120VAC	2
"	HT 8316C15E	120VAC	2
"	HB 8316C15E	120VAC	10
"	HBX 8316C15E	120VAC	2
"	HBX 8316C25E	120VAC	1
"	HV 200-926-1	120VAC	2
"	HV 206-832-3F	120VAC	13
"	HV 206-381-6	125VDC	6
403606	NP831664	120VAC	58
"	NP8344B46E	120VAC	4
403539	HT 8321A6E	120VAC	5
"	HT8321A6	120VAC	2
"	HTX 8321A6E	120VAC	4
"	HT 834481	120VAC	8
"	HTX 8344B66E	120VAC	2
403401	3225A10	140VDC	1
	83451	120VDC	1
	8210B3	120VDC	1
	8320A103	120VDC	3
	8262C36	120VDC	1
	8262C36	120VAC	1
	8320A7	120VAC	11
	8320A107	120VAC	3

703401	8210C13	120VAC	1
	8210B54	120VDC	1
703404	8223A21	120VDC	3
	8320A103	120VDC	1
	LB8320A7	120VDC	2

DOCUMENTATION OF
TELEPHONE COMMUNICATIONS

DATE: March 11, 1983 TIME: 1:25 [redacted], P.M.

PARTY CALLING: M. A. Livesay (Name) LP&L (Company)

PARTY ANSWERING: J. Boardman (Name) USNRC (Company)

SUBJECT: PRD 107, "Station Battery Equalizing Charge Voltage Exceeds Coil Ratings" FILE: Q-3-A35.07

SUMMARY: (INCLUDING DECISIONS AND OR COMMENTS)

It has been determined that a condition exists that may be reportable per 10CFR50.55(e). During review of a procedure change request to increase the station battery equalizing charge from 139 to 142 volts it was noted that both of these values exceed the 120V± 10% rating of many solenoid valves powered by the system. This may be considered a deficiency in the final design as released for construction at Waterford 3. The significance of this condition will be established within 30 days.

ACTION REQUIRED:

Followup report due to the USNRC on April 11, 1983.

DISTRIBUTION: R. P. Barkhurst, R. K. Stampley, F. J. Drummond, T. F. Gerrets, L. L. Bass
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TO: Bob ESNES

FROM: R. B. PATI

(1

ADVANCE COPY

SSINS No.: 6835
IN 83-08

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

March 9, 1983

SCD-75

ILN: 83-1264

IE INFORMATION NOTICE NO. 83-08: COMPONENT FAILURES CAUSED BY ELEVATED DC CONTROL VOLTAGE

#1

Addressees:

All holders of a nuclear power reactor operating license (OL) or construction permit (CP).

Purpose:

This information notice is provided as a notification of a potentially significant problem pertaining to premature degradation or failure of equipment, caused by elevated DC control voltage in safety-related circuits.

Because of the potential safety significance and related generic implications of this problem, addressees are expected to review the information for applicability to their facilities. No specific action or response is required.

Description of Circumstances:

The following three events, covered in Licensee Event Reports (LERs), indicate problems in safety-related DC control circuits where equipment degraded prematurely and caused short circuits and control problems, apparently as a result of DC voltages that exceeded the design voltage.

1. On October 3, 1982, at the Trojan Nuclear Plant, the indicating lamp socket associated with a control switch on a 125V DC system broke and fell into the panel, shorting out associated control circuitry. This caused the fuse to blow, resulting in the loss of control power for the startup of an emergency diesel generator, and thus the diesel startup capability was lost.

   This event occurred as a result of an excess voltage condition which led to thermal breakdown of the lamp socket. The 125V DC system continuously subjected the lamp socket to its maximum rated voltage of 130V DC. In this case a higher than nominal operating voltage caused the lamp socket to become brittle because excessive heat was generated and also necessitated more frequent lamp replacement.

   On the basis of the results of an engineering evaluation, two cells were removed from each station battery; this reduced the system voltage and battery charger output voltage. The licensee then conducted a load profile test to demonstrate adequate ampere-hour capacity for the design load. The bus voltage did not drop below the minimum acceptable level.

F.J. Drummond
L.V. Maurin/R.P. Barkhurst

Onsite Safety Review-Licensing Library

FOIA-84-206

2. On August 30, 1982, during preoperational testing of hydrogen monitors at the Fort Calhoun Nuclear Plant, a control room operator noticed that two associated containment isolation valves had no position indication. One of the solenoid valves had an internally shorted coil; the other valve had a coil shorted to ground. These shorts blew the fuse. The blown fuse caused the loss of valve position indication and allowed the valves to fail open. Followup evaluation indicated that the solenoid valves were intended for service at 125V DC ±10 percent. During the month preceding the failures, the station batteries had been placed on an equalizing charge of 140V DC. The licensee concluded that this elevated voltage caused the valves to fail since they remained energized for the entire period of time.

   The licensee intends to replace all solenoid valve coils with coils designed to operate at a higher voltage.

3. On March 15, 1982, at the Zion Nuclear Generating Station, a relay coil in a safety related reactor trip relay burned up and failed in a nonconservative mode. The failed relay coil was a replacement and had been rated at 120V DC; whereas the original relay coil had been rated at 125/130V DC. The licensee concluded that the replaced relay coil failed as the result of overheating that had been caused by five years of operation at elevated voltage. During a follow-up evaluation, five additional relays with 120V DC coil rating in a 130V DC system were identified. These relays were replaced.

These events show that DC safety-related control components and indicating circuit components which operate for a sustained period of time at elevated voltages or voltages above their rated design voltage are subject to accelerated degradation which may have some impact on plant safety. A careful balance of rated voltage for components in DC systems must be maintained to assure maximum voltage during equalizing charging doesn't adversely affect components and that those components which are required to function in an emergency remain operable at minimum battery voltages at design ampere-hour capacity.

No written response to this notice is required. If you have any questions regarding this matter, please contact the Regional Administrator of the appropriate NRC Regional Office, or this office.

Edward L. Jordan, Director
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

Technical Contact: W. Laudan
301-492-9759

Attachment:

Attachment
IN 83-08
March 9, 1983

LIST OF RECENTLY ISSUED
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
83-07	Nonconformities with Materials Supplied by Tube Line Corporation	03/07/83	All power reactor facilities holding an OL or CP
83-06	Nonidentical Replacement Parts	02/24/83	All power reactor facilities holding an OL or CP
83-05	Obtaining Approval for Disposing of Very-Low-Level Radioactive Waste - 10 CFR Section 20.302	02/24/83	All production and utilization facilities including nuclear power reactors and research and test reactors, holding an OL
83-04	Failure of ELMA Power Supply Units	02/18/83	All power reactor facilities holding an OL or CP
83-03	Calibration of Liquid Level	01/28/83	All power reactor facilities holding an OL or CP
83-02	Limitorque H0BC, H1BC, H2BC, and H3BC Gearheads	01/28/83	All power reactor facilities holding an OL or CP
83-01	Ray Miller, Inc.	01/26/83	All power reactor facilities holding an OL or CP
82-56	Robertshaw Thermostatic Flow Control Valves	12/30/82	All power reactor facilities holding an OL or CP
82-55	Seismic qualification of Westinghouse AR relay with latch attachments used in Westinghouse solid state protection system	12/28/82	All power reactor facilities holding an OL or CP

OL = Operating License
CP = Construction Permit

84-17

DAILY REPORT - REGION IV
MARCH 21, 1983

FOR: OFFICE OF THE REGIONAL ADMINISTRATOR

FACILITY	NOTIFICATION	ITEM OR EVENT	REGIONAL
		P. CHECK, DEPUTY ADMINISTRATOR, AND R. BANGART, DIRECTOR, DV&TP, ARE IN OMAHA, NEBRASKA, FOR A MEETING WITH SENIOR MANAGEMENT REPRESENTATIVES OF OPPD TO DISCUSS DRUG AND ALCOHOL PROGRAMS AT THE FORT CALHOUN STATION.	INFORMA
WATERFORD UNIT 3 DN: 50-382	TELEPHONE CALL FROM SITE LICENSING ON 3/18/83.	POTENTIALLY REPORTABLE CONSTRUCTION DEFICIENCY: LOUISIANA POWER AND LIGHT NOTIFIED RIV OF A POTENTIALLY REPORTABLE CONSTRUCTION DEFICIENCY CONCERNING NON-CONFORMING CONTAINMENT PURGE VALVE CLOSURE TIME AND FLOW RATE. DURING PREOPERATIONAL TESTING OF THE CONTAINMENT PURGE SYSTEM, IT WAS DISCOVERED THAT THE CLOSURE TIME FOR 5 OF THE 6 CONTAINMENT PURGE VALVES EXCEEDED THE DESIGN CLOSURE TIME OF 5 SECONDS. CLOSURE TIME ON ALL 6 VALVES RANGED FROM 4.5 TO APPROXIMATELY 18 SECONDS. IT WAS ALSO DETERMINED THAT ACTUAL FLOW RATE THROUGH EACH OF THE 6 PURGE LINES WAS 13,000 ACM IN LIEU OF THE DESIGN REQUIREMENT OF 17,000 ACM. THE LICENSEE PLANS TO ISSUE A 30 DAY REPORT.	FOLLOWUP ACCORDA MC 2592.

FOIA-84-204
11/38

84-17 (77)

SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 17
"INADEQUATE CONTAINMENT PURGE VALVES CLOSURE TIME AND FLOW RATE"
FINAL REPORT DOCUMENTATION
(FOLDER 2 of 2)

CIWA INDEX

CIWA NO.	DATE	DESCRIPTION
833974	3/14/83	Notes valves limited to 40° prevented HFT p ase - requires stop removal and limit switch adj. - notes 72° max. on CAP-104.
834307	3/17/83	Valves do not meet closure times - Ref's CIWA 833079 - adds second solenoid valve and 3/4" tubing, replaces "T" ring, refers to CIWA 835023 for connector retorquing, added copies of 835023 and 836391, all temporary modifications removed and replaced with permanent material 9/6/83 per CIWA 835023.
833079	3/1/83	Records stroke and closure times on valves - original test - (Strip charts of individual tests are contained in a separate administrative folder.)
833442	3/7/83	Requests ESSE Evaluation of valve traces of CIWA 833079 - notes that results were rpeorted to NRC on SCD-77.
834529	3/19/83	After stops removed, valve discs strike each other - response noted on DCN-ME-2 and DCN-ME-90.
835023	4/4/83	Incorporates DCN-IC-1415 - Adds solenoid valves.
835072	4/2/83	Flow characteristics not per vendor's documentation - ESSE issued DCN-HV-200R1 5/20/83 to reflect this CIWA's results.
835730	4/12/83	Valves do not hold pressure - rotate 180° - CIWA 836503 recorded retest.
836391	4/20/83	Revise duct work penetrations.
836503	4/21/83	Refers to retest from 835730, tests valves, including closure and opening times and leak tightness, replaced limit switches, makes DCN-1415 a test prerequisite, valves fail this closure retest. References CIWA 83A239 on limit switches and 838923 for another retest.
837565	5/12/83	Incorporates DCN-ME-30 to replace solenoids - notes that existing installation uses temporary wiring.

H&C Copy

FOIA-84-206
H/43
H/44

27. CIWA NUMBER 838923

RWP NUMBER NA

29. STA NUMBER NA

30. WORK GROUP SUPERVISOR — DATE 6/6/83 TIME 1100

31. CONSTRUCTION QA/QC NA — DATE — TIME

32. NCS AUTHORIZATION — DATE 6-6-83 TIME 1125

33. CORRECTIVE ACTION

Vendor may make any necessary adjustments required to correct the leakage of the "O" rings. Document all adjustments and write replacements and route thru Plant Engineering Unit. Hand clean-out for final evaluation."

Wayne Clement

6/6/83

VERBAL APPROVAL GIVEN BY EBEN BURNS 6/6/83

6-6-83 ASSISTED VENDOR IN TESTING VALVE

WALKER / COFER

8 MAN HOURS

6-7-83 STROKED FOR TIME CAP-MVAAA - 103 & 104

WALKER / COFER 20 M/HRS.

6-8-83 STROKED FOR TIME CAP-MVAAA - 203 & 204.

WALKER / COFER 20 M/HRS

6-10-83 STROKED FOR TIME CAP-MVAHA 107 & 205

WALKER / COFER 20 M/HRS

RECORDER CHARTS ATTACHED TO CIWA BY DALE SIMPSON AFTER CLOSURE

34. PARTS REPLACED:

NONE

35. M&TE EQUIP. MI-ET-25.21 MI-ET-25.13 MI-ET-25.12 MI-ET-20.123

36. WORKERS:

	DATE	TIME	ELEC.	MECH.	I & C	OPER.	H. PHY.	CHEM.	TECH.	SCTY.	OTHER	WORKER / CONTRACTOR
START	6-6-83	1130										
STOP	6-10-83	1700			0168							SUPERVISOR

ACTUAL MANHOURS EXPENDED

37. QA-QC SIGN — DATE 6/10/83 TIME 1450

38. EBASCO S/U NA — DATE — TIME

39. NCS TERMINATION — DATE 8/11/83 TIME 1225

REQUIRED ACTION BY ACTION ORGANIZATION	DATE ACTION INITIATED	REQ'D REQUIRED ACTION BY ACTION ORGANIZATION	DATE ACTION INITIATED	AI REVIEWED AND ACCEPTED BY:	DATE
☐ WORK AUTHORIZATION ☐ NORM. WORK AUTHORIZ. ☐ ENGINEERING EVALUATION ☐ SERVICE REQUESTED ☐ TEST / RETEST	—	☐ REVISE DOCUMENT ☐ LICENSEE EVENT REPORT ☐ CORRESPONDENCE ☐ NON-CONFORMANCE ☑ PCR ENTRY	~~8-11-83~~ 8-12-83	C. Cudworth 8/11/83 1221	TIME
				NSC ENTRY NPRD CLOSED Gary Barnett 8/12/83	

	CIWA ADDENDUM PAGE	CIWA NO. 23923
		DATE 7/19/83
BLOCK NO. 33	TITLE: Corrective Action - Startup Engr Comments {Sh 1 of 2}	

Fisher vendor representative David Wendt cleaned and adjusted the 'T' ring seat on CAP-104 such that the valve held penetration pressure (between CAP-103 and CAP-104) of 44 psig (Hiese gage, 0-100 psig, MI-PT-27.66, cal due 7/19/83 used through out this CIWA) as verified by a snoop bubble test around the circumference of the valve seat. After successful completion of the "T" ring adjustment and pressure test, valve CAP-104 was cycled for closure time. Average closure time for 3 consecutive runs was 4.23 seconds.

Startup Engr. Dell Simpson performed the 'T' ring adjustments on all remaining valves as per venders instructions. Basic adjustment procedure is as follows:

1. Back out all 'T' ring adjustment screws
2. Tighten each adjustment screw untill they just make contact with the metal tension ring, then tighten each screw an additional ¼ turn.
3. Pressurize penetration to 44 psig and bubble test for leaks
4. Tighten adjustment screws an additional ¼ turn at the leakage points untill all leaks are stopped.

NOTE: For valves where adjustment screws are inside the pressurized penetration (i.e. CAP-104 and CAP-203) omit step (4) and perform the following:

- (3a) Mark the leakage points and depressurize penetration
- (3b) Open valve and tighten screws at the leakage points an additional ¼ turn.
- (3c) Close valve, pressurize penetration and 'snoop' for leaks
- (3d) Repeat 3a, b & c until all leaks are stopped

Cleaned and readjusted the 'T' ring seat on CAP-103. After successful completion of 'T' ring adjustment and pressure test, valve CAP-103 was cycled for closure time. Average closure for 3 consecutive runs was 4.81 seconds.

	CIWA ADDENDUM PAGE	CIWA NO. 8 3 2 9 2 3
		DATE 7/18/83
BLOCK NO. 33	TITLE: Corrective Action - Startup Engr Comments (Sh 2 of 2)	

Cleaned and readjusted the 'T' ring seat on CAP-203 such that the valve held penetration pressure (between CAP-203 and CAP-204) of 44 psig. After successful completion of the 'T' ring adjustment and pressure test, value CAP-203 was streked for closure time. Average close time for 3 consecutive runs was 4.05 seconds.

Cleaned and readjusted the 'T' ring seat on CAP-204. After successful completion of 'T' ring adjustment and pressure test, valve CAP-204 was cycled for closure time. Average closure time for three consecutive runs was 4.69 seconds.

Cleaned and readjusted the 'T' ring seat on CAP-102. After successful completion of 'T' ring adjustment and pressure test, valve CAP-102 was cycled for closure time. Average closure time for 3 consecutive runs was 4.49 seconds.

Cleaned 'T' ring seat on CAP-205. Since this valve met the closure time of ≤ 5 seconds on CIWA 836503 no 'T' ring adjustment or pressure test was performed. The valve was cycled for closure time. Average closure time for 3 consecutive runs was 3.78 seconds.

Chart recordings for valve times are to remain attached to this CIWA.

This CIWA to be routed to Plant Engr. for review and comment per thier request.

W D Simpson 7/18/83

NOTE: LP&L QC, Steve Longhoff, was informed that testing would continue until completed on 6/7/83 @ 0920.

W D Simpson 7/19/83

	CIVA ADDENDUM PAGE	CIVA NO. 8 3 8 9 2. 3
		DATE 7/19/83
BLOCK NO. 33	TITLE: Tabulation of Valve Close Times	

VALVE UNID	RUN 1	RUN 2	RUN 3	AVERAGE
CAP-102	4.52	4.48	4.46	4.49
CAP-103	4.80	4.92	4.72	4.81
CAP-104	4.12	4.28	4.28	4.23
CAP-203	4.06	4.05	4.05	4.05
CAP-204	4.71	4.73	4.62	4.69
CAP-205	3.78	3.74	3.82	3.78

NOTE: All times in seconds.

Chart speed for all close times was 200 mm/sec.

A minimum of 5 minutes allowed between each run to allow actuator cylinder pressure to stabilize.

A D Simpson 7/18/83

REVIEWED DATA; PROCEED WITH CLOSEOUT.

Douglas Unruh
7/20/83
EB 7/20/83 (Plant Eng.)

	CIWA ADDENDUM PAGE	CIWA NO. 1838923 DATE
BLOCK NO.	TITLE:	

CONFIRMED THAT M&TE USED (BLOCK 35)
ARE WITH VALID CAL.

The technical results of this CIWA
have been reviewed and are acceptable.

V. Ghanekar. 8/11/83.
Signature Date

V. GHANEKAR (x 3382) 8/11/83

3339 DALE 84-17 SCD (77)

ORIGINATOR ASSIGNED: Dell Simpson	3376	CONDITION IDENTIFICATION WORK AUTHORIZATION	C.I.W.A. NO. 833974

ORIGINATOR	DEPT	3. DATE	TIME	4. SYSTEM NO. AND TITLE	5. EQUIP. LOC. BLDG ELEV.
Dell Simpson	SU	3/14/83	1034	46C RAB Normal Ventilation	RAB +46

6. COMPONENT NAME: Purge Iso Vlvs — ~~CAP-0102, 0103 & 0104 & 0105~~ CAP-0203, CAP-0204 & 0205 (3/14/83)

7a. REFERENCE: CWD 1128 R10

7b. REFERENCE: CWD 1129 R9

7c. REFERENCE: DCN-ME-002

8. DESCRIPTION & RECOMMENDATION

The Cntmt Purge Iso Valves are presently set to open to 40° per DCN-ME-002. This position does not allow adequate flow to purge the Cntmt during Hot Functional Testing.

Remove the travel stops on the referenced valves to allow valve travel to the full open position. ESSE HVAC to evaluate valve travel limits necessary to achieve the ~~design~~ purge flow rate.

HFT RUSH

SIGNATURE: [signature] — SEE ADDENDUM PAGE

9. PRIORITY	10. CONDITION ID TAG	11. CONDITION CATEGORY	12. CONDITION STATUS	13. Q.A. TYPE	14. LICENSEE EVENT REPORT	15. FAILURE MODE	16. FAILURE DETECTION	17. SYS. STATUS	18. EFF ON SYSTEM	19.	20. PLANT CODING
1.6	☐ YES ☑ NO	N/A	N/A	SR-QA ☑ NSR-QA ☐ NSR-NQA ☐	☐ YES ☑ NO	N/A	N/A	2	N/A	N/A	10

21. DISPOSITION

☐ ORIGINAL ☐ (IN RED) ☐

☐ PROC. DEFICIENCY ☐ DESIGN DEFICIENCY ☐ DWG. DEFICIENCY

☐ INVALID REPORT ☐ QUESTION TO ESSE ☐ USE AS IS

☐ CONST. SURVEILLANCE ☐ UNCONTROLLED MAINT. ☑ CONTROLLED MAINT

22. ASSIGNED WORK GROUP: MM/MI

ACTION DUE DATE: 3/15/83

23. CONTROLS REQUIRED	YES	NO	
CONFINED SPACE ENTRY		✓	PROCEDURES: MM-6-002 R0 / MI-5-213 R1
RADIATION WORK PERMIT		✓	DWGS OR OTHER REF MATL: N/A
TAGGING	✓		
INSPECTION	✓		OTHER: N/A
LSE / PMM APPROVAL RQD.		✓	

24. WORK DESCRIPTION (INCLUDE ANY SPECIAL PLANT CONDITIONS THAT MUST BE MET)

Remove the valve travel stops installed on the referenced valves and adjust limit switches. Work valves CAP-~~0102~~ 0203, CAP-0204 and CAP-0205 ~~first~~ 3/14/83 0103 & 0104

~~Contact Dell Simpson @ 3339 prior to adjusting limit switches.~~ 3/14/83

Coastal Air Balance to measure purge flow rate with Travel Stops removed and attach traverse data to this CIWA.

Approved for work [signature] 3/14/83

PREPARED BY: [signature] DATE: 3/14/83 APPROVED BY: [signature] DATE: 3/14/83 — SEE ADDENDUM PAGE

25. QC REVIEW COMMENTS — NCR YES ☐ NO ✓ NO. N/A

~~NO QC INSPECTION REQUIRED, WHEN TRAVEL STOPS ARE INSTALLED AFTER HOT FUNCTIONAL & LIMIT SWITCHES ARE ADJUSTED NOTIFY QC. AFTER HOT FUNCTION~~

RE-REVIEWED DUE TO ADDITION OF TWO VALVES Danny Beaty 3-15-83

QC SIGNATURE & DATE: Danny Beaty 3-14-83 26. LSE / PMM APPROVAL & DATE:

FOIA-84-206 H/45

27 CIWA NUMBER 833974

28. TWP NUMBER N/A

29 STA NUMBER 83-1079

30 WORK GROUP SUPERVISOR [signature] DATE 3/14/83 TIME 1350

31 CONSTRUCTION DATE N/A

32 NOS AUTHORIZATION [signature] DATE 3/14/83 TIME 1250

33. CORRECTIVE ACTION

ON 03-14-83 SECOND SHIFT BACKED TRAVEL STOPS ALL THE WAY OUT ON REFERENCED VALVES. VALVES CAN NOW BE OPENED 100% DID NOT REMOVE TRAVEL STOPS AS THIS WILL NECESITATE COMPLETE DISSASSEMBLY OF ACTUATOR AND VALVES CAN NOW BE OPENED 100% AFTER I&C HAS ADJUSTED LIMIT SWITCHES 2 MEN R.BAUER W.SCHIEWE 3 HOURS [signature] 03-14-83

ON 03-15-83 SECOND SHIFT REMOVED TRAVEL STOPS FROM FOLLOWING VALVE ACTUATOR'S CAP205, CAP 104, CAP203, CAP204 @ PER ATACHED DWG. SCHEM. REPLACED "O" RING @ R.O.S# 28504 ITEMS 31 AND ITEM 32 PAGE 15 OF MANUAL # 403483 (FISHER CONTENENTAL BUTTERFLY VALVES GHBETTIS ACTUATORS ON VALVES CAP204 CAP 104 CAP205 CAP203. THESE VALVES ARE LOCATED ONE IN WEST WING AREA 2 IN THE RCB ONE IN ANNULOUS AREA THE TRAVEL STOPS WERE PLACED IN IMPOUND CAGE SERVICE BUILDING MM SHOP 4 MEN 10 HOURS

3-16-83 - Removel STOP's ON 103 Valve. Parker "O" Rings were [illegible] used in Reassembley. [illegible] SER "O" Rings will Be used Later Refer To CIWA 834530 Fred Smith & D. Stulte

Note# Found 1, 1/2" X 1 1/2" socket head Allen Bolt missing. No safety related bolts were available, used NSR Temporarly

See Block 33 Addendum Pages [initials] 3/31/83

34. PARTS REPLACED: ~~NONE~~ WAS 3-4-D "O" RINGS

35. M&TE EQUIP N A

36. WORKERS: W.SCHIEWE R.BAUER I.CARIER IMHLIK

START DATE 3-14-83 TIME 1800

STOP DATE 3-16-83 TIME 1803

ACTUAL MANHOURS EXPENDED

ELEC.	MECH	I&C	OPER.	H. PHY	CHEM.	TECH	SCTY	OTHER
	0 0 3							

WORKER [signature] CONTRACTOR

SUPERVISOR [signature] 5/17/83

37 QA/QC SIGN 16 DATE 5/5/83 TIME 1305

38. EBASCO S/U N/A DATE TIME

39 NOS TERMINATION [signature] DATE TIME 1810

40 REQUIRED ACTION BY ACTION ORGANIZATION

- WORK AUTHORIZATION
- NORM. WORK AUTHORIZ.
- ENGINEERING EVALUATION
- SERVICE REQUESTED
- TEST / RETEST

DATE ACTION INITIATED

40B REQUIRED ACTION BY ACTION ORGANIZATION

- REVISE DOCUMENT
- LICENSEE EVENT REPORT
- CORRESPONDENCE
- NONCONFORMANCE
- PCR ENTRY

DATE ACTION INITIATED

41 REVIEWED AND ACCEPTED BY C. Cudworth DATE 4/25/83 TIME 1346

NSC ENTRY HOLD CLOSED [signature] 5-20-83 Gary Baum

5/20/83

	CIWA ADDENDUM PAGE	CIWA NO. 233974 DATE 3/15/83
BLOCK NO. 24	TITLE: RAB Normal Ventilation	

The intent of this CIWA is to disassembly the following valve actuators, remove the travel stop and reassembly the actuators.

CAP-0103, CAP-0104, CAP-0203, CAP-0204 and CAP-0205.

The valves shall be worked as follows

(1) Prepare scaffold for access to work CAP-0204

(1A) While scaffolds are ~~prepared~~ being prepared, work valves CAP-0203 and CAP-0204

(2) Work valve CAP-0204

(3) Prepare scaffold for access to work CAP-0103

(3A) While scaffolds are being prepared, work valve CAP-0104

(4) Work valve CAP-0103

[NOTE: Valve CAP-0104 is to be set to Limit opening to 72° or such that the valve disk will not strike CAP-0103, see sketch.]

(5) MI to set Limit switches as valve work is completed.

(6) Inform NOS when work is complete.

SKM - 285

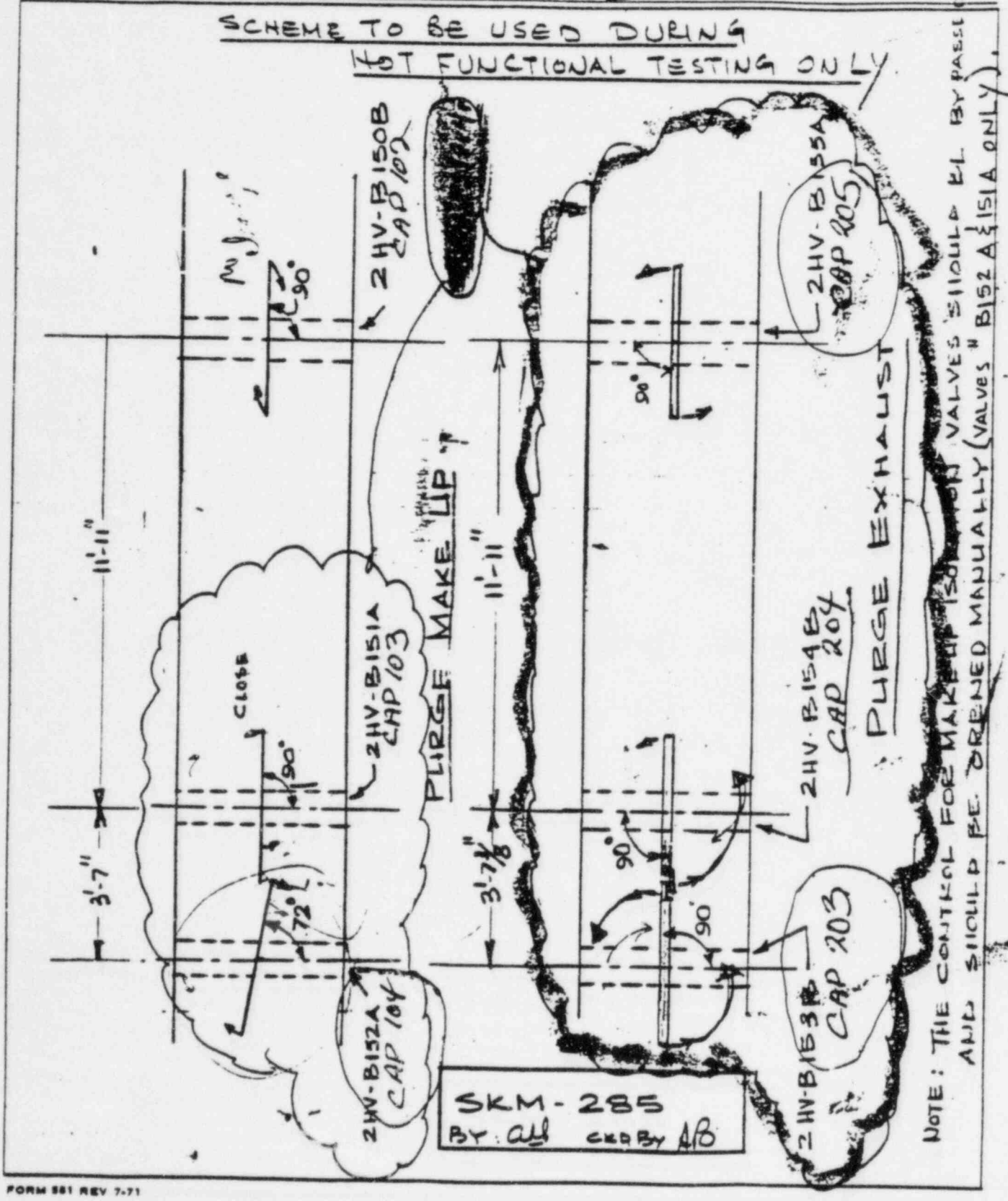
EBASCO SERVICES INCORPORATED
NEW YORK

BY A. BISWAS DATE 3/14
CHKD. BY A. BISHARAE 3/14
SHEET 1 OF 1
OFS NO. _____
DEPT. NO. HVAC

CLIENT LOUISIANA POWER & LIGHT CO.
PROJECT WATERFORD SES UNIT NO-3
SUBJECT PURGE VALVE LINE UP

DELL SIMPSON
3339

SCHEME TO BE USED DURING
HOT FUNCTIONAL TESTING ONLY



FORM 561 REV 7-71

LOUISIANA POWER & LIGHT CO.
WATERFORD 3
SAFETY TAG AUTHORIZATION

STA No 83-1079
Sheet 1 of 1

System No: 46C
System Title: RAB Normal Ventilation
Condition Identification Work Authorization No (s): 833974

Description of Work: (lb) Remove travel stops on CAP-0102, 0103, 0104, 0203, 0204 & 0205

REQUESTER/DATE: [signature] 3/14/83
REQUIRED DATE/TIME:
APPROVED BY: NOS/DATE: [signature] 3/14/83
TAGGING COMPLETE: NOS/DATE: [signature]

Remarks:

AUTHORIZATION TO REMOVE ALL TAGS: REQUESTER/DATE
APPROVAL TO REMOVE ALL TAGS: NOS/DATE
ALL TAGS REMOVED. NOS/DATE

Remarks: Cleared [signature]

PLACEMENT SEQUENCE NO.	TAG NUMBER	COMPONENT NAME AND/OR NUMBER	Component Position	PLACED BY INT/DATE	VERIFIED BY INT/DATE	PARTIAL REMOVAL REQUESTER INT/DATE	PARTIAL REMOVAL NOS INT/DATE	REQUIRED POSITION	REMOVAL SEQUENCE NUMBER	RESTORED BY INT/DATE	VERIFIED BY INT/DATE
1	83-1079 -1	Train A Purge Vlvs 120V PDP 360-SA CKT #26	OFF	[initials] 3-14-83	[initials] 3-14-83						
2	83-1079 -2	Train B Purge Vlvs 120V PDP-361-SB CKT #26	OFF	[initials] 3-14-83	[initials] 3-14-83						

2

MATERIAL TICKET — MULTI-PURPOSE

STORERCO. NUMBER 30 VENDOR ______ No. 28504

REQUISITIONED BY WESLEY SCHIEWE

MATERIAL USED FOR M-M (DEPARTMENT)

X	CODE	TICKET FUNCTION, Check One
X	70	REQUISITION ON STORES
	75	MATERIAL RETURNED TO STORES

	Safety Related/QA Required
X	Non Safety Related/QA Required
	Non Safety Related/No QA Required

CIWA ~~83375~~ 833974

P.O. No.	P.O. Item No.	QTY	Unit	DESCRIPTION
0600	1	E	EA	"O" Ring SET Parker L-515-80 QCRT# 5018

DISTRIBUTION VERIFIED BY:

MATERIAL TICKET APPROVED BY 3/15/83 (Date) [signature] (Dept. Head - Supervisor)

MATERIAL RECEIVED BY / RETURNED BY 3/15/83 (Date) Wesley Schiewe

MATERIAL ISSUED BY / RECEIVED BY 3/15/83 (Date) [signature]

57 79 00 Rev. St.

	CIWA ADDENDUM PAGE	CIWA NO. 833974
		DATE 3/19/83
BLOCK NO. 33	TITLE: SU Encr Comments W. D. Simpson	Sheet 1 of 2

The 40° travel stops were removed from Cntmt Purge Dmprs CAP-203 (2HV-B153B), CAP-204 (2HV-B154B), CAP-205 (2HV-B155A) and CAP-104 (2HV-B152A) on second shift 3-15-83. The travel stops were removed as follows:

1) Removed the hand wheel assembly
2) Removed the piston assembly outer end cap
3) Removed the piston assembly cylinder
4) Removed the piston rod outer retainer ring, split ring retainer and spacer
5) Removed the piston from the piston rod
6) Removed the piston rod inner retainer ring, split ring retainer and spacer
7) Removed the travel stop from the piston rod.

The actuator piston assembly was reassembled in the reverse order. During reassembly of each actuator the piston head seal "O" ring and the tie bar seal 'O' ring were damaged. These 'O' rings were replaced with Parker Non Safety/QA 'O' rings obtained from Parker set E515-80 P/O 20600. Also the hand wheel assembly seal 'O' ring was damaged and replaced with a commercial grade 'O' ring obtained from the MM shop.

The 40° travel stop on damper CAP-0103 (2HV-B151A) was removed by first shift 3-16-83 in the same manner as noted above. During reassembly of this actuator the same 'O' rings were replaced. Also one of the "allen" cap screws (attaches the hand wheel assembly to the actuator) was missing and was replaced with a NON-QA bolt obtained from the MM shop. The following temporary modification tags have been attached to the damper actuators,

CAP-MVAAA-0103 TM # 46C-67 & TM # 46C-7 3/4 each 3/19/83
CAP-MVAAA-0104 TM # 46C-68

	CIWA ADDENDUM PAGE	CIWA NO. 833977
		DATE 3/19/83
BLOCK NO. 33	TITLE: SU Enar. Comments	Sheet 2 of 2

CAP-MVAAA-0203 TM #46C-69
CAP-MVAAA-0204 TM #46C-70
CAP-MVAAA-0205 TM #46C-71

CIWA #831293 has been initiated to purchase and install permanent 'O' rings in CAP-0102 and CAP-0104

CIWA #834530 has been initiated to purchase and install permanent 'O' rings in CAP-0103, CAP-0203, CAP-0204 and CAP-0205

CIWA #834547 has been initiated to obtain and install a safety related/QA cap screw in CAP-0103.

On 3-16-83 and 3-17-83 MI set the Limit switchs for dmprs CAP-0203, CAP-0204, CAP-0205 and CAP-0103. It was determined that the 72° for CAP-0104 would not prevent the disks on CAP-0103 and CAP-0104 from striking when the dmprs were opened simultaneously. In order to support HFT, dmpr CAP-0104 supply air valve was tagged closed and the dmpr will be manually opened 50% to vent the Cntmt for HFT.

CIWA #834529 has been initiated as a question to ESSE to determine the necessary action to place CAP-0104 in normal operation.

On 3-17-83 Coastal Air Balance, performed traverses to obtain the approx air flow from the Cntmt. with the purge exhaust dmprs full open and the equipment hatch open for make-up air. Purge flow was found to be approx 61,000 afm.

R D Simpson 3/19/83
1447

C 21.01 REV. 01

MIDDLE SOUTH UTILITIES SYSTEM

VALVE / DAMPER AND/OR ACCESSORIES INFORMATION SHEET

WATERFORD - 3

UNID NO.	CAP-MUAAA-103
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00 (83-1920 CN 2-11-93)
REV'D BY / DATE	J.H. / 9-8-92

EQUIPMENT IDENTIFICATION

VALVE / DAMPER: YES [X] NO [ ]

SERVICE DESCRIPTION: CONTAINMENT PURGE ISOLATION VALVE

TAG NUMBER: 2HV-B151A

MANF./MOD. NO./SERIAL NO.: FISHER TYPE 9220 BF 226077

VLV. TYPE/BENCH SET/STR. LG.: BUTTERFLY 85 PSI UNA

VALVE ACTION, AIR TO: OPEN [X] CLOSE [ ]

VALVE FAIL ACTION: OPEN [ ] CLOSE [X] AS IS [ ]

LIMIT SWITCHES: YES [ ] NO [ ]

TAG NO(S)
SW. 1: NOTE 4
SW. 2: NOTE 4

MANF./MODEL NO.: NAMCO EA18031302

SWITCH SETTINGS
SW. 1: SW.1, OPEN
SW. 2: SW.2, CLOSED
SW. 3: SW.3, OPEN
SW. 4: SW.4, CLOSED

POSITIONER: YES [ ] NO [X]
TAG NUMBER:
MANF./MOD. NO./CAM TYPE:
ELEC. [ ] PNEU [ ] HYD [ ]

POS. TRANS.: YES [ ] NO [X]
TAG NUMBER:
MANF./MOD. NO./SERIAL NO.:
ELEC. [ ] PNEU [ ]

SOLENOID: YES [X] NO [ ]
TAG NUMBER: CAP-ISO-0103
MANF./MOD. NO.: ASCO NP 831664V
SUPPLY/VOLTAGE: PDP-360-SA CKT #26 120 VAC

SIGNAL FROM:
INPUT RANGE:
OUTPUT RANGE:
ACCURACY:

OUTPUT RANGE / ACCURACY:
CWD:
SIGNAL TO:
SUPPLY:

COIL ENERGIZED PERMISSIVE TO: OPEN [X] CLOSE [ ]

REGULATOR: YES [ ] NO [X]
MFGR./MOD. NO./SETTING:

DRAWING REF.

P.O. NO. 403483
SPEC. NO. 109A
CWD: 1128S 2846
BLDG./ELEV./BLDG. COORD.: RCB+52/COL.9
FLOW DIAG.: G853-S2-H10
INST. LOGIC & SCH.: 295S
INST. INST. DETAIL: V-31B

PRECAUTIONS & NOTES

1. LOC. & ARRNG. G391-S2-I12.
2. ROBOTARM ACTUATOR.
3. EBASCO SOLENOID NO. SV-HV-151.
4. SW.1, CAP-IZS-0103-1
   SW.2, CAP-IZS-0103-2
   SW.3, CAP-IZS-0103-3
   SW.4, CAP-IZS-0103-4

SEE PRECAUTIONS AND NOTES CONTINUATION SHEET ATTACHED

CAL. REF.

PROCEDURE NO.: MI-S-211 (MI-S-231 83-1920 CN 2-11-93) MI-S-213
CAL. FORM NO.: C20.01
TECH. MANUAL NO.: 457000263
CAL. CHECK INTERVAL: AS REQUIRED

SUGGESTED TEST EQUIPMENT

1. HEISE TEST RIG 0-100 PSI
2. TRIPLETT VOM MODEL 630

C 21,04 REV. 0

MIDDLE SOUTH UTILITIES SYSTEM

INSTRUMENT INFORMATION SHEET

PRECAUTIONS AND NOTES

CONTINUATION SHEET

WATERFORD - 3

UNID NO.	CAP-MUAAA-103
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00
REV'D BY / DATE	[illegible] / 9-2-86

PRECAUTIONS AND NOTES

5. ERASCO LIMIT SWITCH NUMBERS ARE ZS-HV-0151A1 AND ZS-HV-0151A2.

6. LIMIT SWITCHES CAP-IZS-0103-1, CAP-IZS-0103-2, CAP-IZS-0103-3, AND CAP-IZS-0103-4 PROVIDE:
   A. OPEN INDICATION. RED LIGHT ON CP-18, LOCATED IN CONTROL ROOM, SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY CLOSED.
   B. CLOSED INDICATION. GREEN LIGHT ON CP-18 IN CONTROL ROOM SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY OPEN.
   C. INPUTS TO COMPUTER POINTS:
      1. D51004
      2. D51005

ESD 21
REV 02

DAMPER AND/OR VALVE ACTUATOR CALIBRATION RECORD

TAG NO: CAP-HVAA-101
SYSTEM NO: 466 | REVISION NO: 00
REVIEWED BY/DATE: CRG/10-3-82

STROKE PRESSURE	INCHES / PERCENT STEM TRAVEL	MAXIMUM STROKE TIME
0 LBS TO 85 LBS	100%	5 SECONDS

BENCH SET ALIGNMENT

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT PSIG	OUTPUT INCHES OF TRAVEL	OUTPUT INCHES OF TRAVEL	ERROR	OUTPUT INCHES OF TRAVEL	ERROR
INCREASE	1	0	0	0%	0%	0	0%	0
	2	100	85	100%	100%	0	100%	0
	3	0	0	0%	0%	0	0%	0
DECREASE	4							
	5							
	6							
	7							

DAMPER AND/OR VALVE WITH POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	OUTPUT % / INCHES TRAVEL	INPUT	INPUT	ERROR	INPUT	ERROR
INCREASE	1							
	2							
	3							
DECREASE	4							
	5							
	6							
	7							

POSITION TRANSMITTER

☐ SET WITH POSITIONER ☐ SET WITHOUT POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT % / INCHES OF TRAVEL	OUTPUT % SIGNAL TO INDICATOR	OUTPUT % SIGNAL TO INDICATOR	ERROR	OUTPUT % SIGNAL TO INDICATOR	ERROR
INCREASE	1							
	2							
	3							
DECREASE	4							
	5							
	6							
	7							

C 21.01 REV. 01

MIDDLE SOUTH UTILITIES SYSTEM

VALVE / DAMPER AND/OR ACCESSORIES INFORMATION SHEET

Inst. Data Sheet
Field Copy
Expiration Date MAR 29 1983

WATERFORD - 3

UNID NO.	CAP-MVAAA-203
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00 (82-192 ON-2-19-82)
REV'D BY / DATE	J.H. / 9-7-82

EQUIPMENT IDENTIFICATION

VALVE / DAMPER: YES [X] NO [ ]

SERVICE DESCRIPTION: CONTAINMENT PURGE ISOLATION VALVE

TAG NUMBER: 2HV-B153B

MANF./MOD. NO./SERIAL NO.: FISHER TYPE 9220 BF 226079

VLV. TYPE/BENCH SET/STR. LG.: BUTTERFLY 85 PSI UNA

VALVE ACTION, AIR TO: OPEN [X] CLOSE [ ]

VALVE FAIL ACTION: OPEN [ ] CLOSE [X] AS IS [ ]

LIMIT SWITCHES: YES [X] NO [ ]

TAG NO(S)
SW. 1: NOTE 4
SW. 2: NOTE 4

MANF./MODEL NO.: NAMCO EA18031302 EA18032302

SWITCH SETTINGS
SW. 1
SW.1. OPEN
SW.2. CLOSED
SW. 2
SW.3. OPEN
SW.4. CLOSED

POSITIONER	POS. TRANS.	SOLENOID
YES [ ] NO [X]	YES [ ] NO [X]	YES [X] NO [ ]
TAG NUMBER	TAG NUMBER	TAG NUMBER: CAP-ISO-0203
MANF./MOD. NO./CAM TYPE	MANF./MOD. NO./SERIAL NO.	MANF./MOD. NO.: ASCO NP 831664V
ELEC. [ ] PNEU [ ] HYD [ ]	ELEC. [ ] PNEU [ ]	SUPPLY/VOLTAGE: PDP-361-2B CKT#26 120 VAC

SIGNAL FROM	OUTPUT RANGE / ACCURACY	COIL ENERGIZED OPEN [X] / PERMISSIVE TO: CLOSE [ ]
INPUT RANGE	CWD	REGULATOR: YES [ ] NO [X]
OUTPUT RANGE	SIGNAL TO	MFGR./MOD. NO./SETTING
ACCURACY	SUPPLY	

DRAWING REF.

P.O. NO. 403483
SPEC. NO. 109A

CWD: 1129 2846

BLDG./ELEV./BLDG. COORD.: RCB+56/COL. 14

FLOW DIAG.: G853-S2-I5

INST. LOGIC & SCH.: 295

INST. INST. DETAIL: 0-31B

PRECAUTIONS & NOTES

1. LOC. & ARR. G391-S2-JB.
2. EBASCO SOLENOID NO. SO-HV-153.
3. SW.1. CAP-IZS-0203-1
   SW.2. CAP-IZS-0203-2
   SW.3. CAP-IZS-0203-3
   SW.4. CAP-IZS-0203-4

SEE PRECAUTIONS AND NOTES CONTINUATION SHEET ATTACHED

CAL REF.

PROCEDURE NO.: MI-5-211 (MI-5-21) MI-5-213 (81-421)

CAL. FORM NO.: C20.01

TECH. MANUAL NO.: 457000263

CAL. CHECK INTERVAL: AS REQUIRED

SUGGESTED TEST EQUIPMENT

1. HEISE TEST RIG 0-100 PSI
2. TRIPLETT VOM MODEL 630

C 21.04 REV. 0

MIDDLE SOUTH UTILITIES SYSTEM

INSTRUMENT INFORMATION SHEET

PRECAUTIONS AND NOTES

CONTINUATION SHEET

WATERFORD - 3

UNID NO.	CAP-MVAAA-203
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00
REV'D BY / DATE	[signature] / 9-2-94

PRECAUTIONS AND NOTES

5. ERASCO LIMIT SWITCH NUMBERS ARE ZS-HV-0153B1 AND ZS-HV-0153B2.

6. LIMIT SWITCHES CAP-IZS-0203-1, CAP-IZS-0203-2, CAP-IZS-0203-3, AND CAP-IZS-0203-4 PROVIDE:
   A. OPEN INDICATION, RED LIGHT ON CP-18, LOCATED IN CONTROL ROOM, SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY CLOSED.
   B. CLOSED INDICATION, GREEN LIGHT ON CP-18 IN CONTROL ROOM SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY OPEN.
   C. INPUTS TO COMPUTER POINTS:
      1. D51008
      2. D51009

REV 01
REV 02

MIDDLE SOUTH UTILITIES SYSTEM

DAMPER AND/OR VALVE ACTUATOR CALIBRATION RECORD

TAG NO. CAP-FVAAA-293 | SYSTEM NO. 46C | REVISION NO. 00 | REVIEWED BY/DATE 8-5-82

STROKE PRESSURE	INCHES / PERCENT STEM TRAVEL	MAXIMUM STROKE TIME
0 LBS TO 85 LBS	100%	5 SECONDS

BENCH SET ALIGNMENT

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT PSIG	OUTPUT INCHES OF TRAVEL	OUTPUT INCHES OF TRAVEL	ERROR	OUTPUT INCHES OF TRAVEL	ERROR
OPEN	1	0	0	0%	0%	0	0%	0
	2	100	85	100%	40%	60%	100%	0
	3	0	0	0%	0%	0	0%	0
CLOSE	4							
	5							
	6							
	7							

DAMPER AND/OR VALVE WITH POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	OUTPUT %/INCHES TRAVEL	INPUT	INPUT	ERROR	INPUT	ERROR
OPEN	1							
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

POSITION TRANSMITTER

☐ SET WITH POSITIONER ☐ SET WITHOUT POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT %/INCHES OF TRAVEL	OUTPUT % SIGNAL TO INDICATOR	OUTPUT % SIGNAL TO INDICATOR	ERROR	OUTPUT % SIGNAL TO INDICATOR	ERROR
OPEN	1							
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

C21.01 REV. 01

MIDDLE SOUTH UTILITIES SYSTEM

VALVE / DAMPER AND/OR ACCESSORIES INFORMATION SHEET

Inst. Data Sheet
Field Copy
Expiration Date MAR 29 1983

WATERFORD - 3

UNID NO.	CAP-MUAAA-204
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00 (83-1422 CM 2-18-83)
REV'D BY / DATE	J.H. / 9-8-82

EQUIPMENT IDENTIFICATION

VALVE / DAMPER: YES [X] NO [ ]

SERVICE DESCRIPTION: CONTAINMENT PURGE ISOLATION VALVE

TAG NUMBER: 2HV-B154B

MANF./MOD. NO./SERIAL NO.: FISHER TYPE 9220 BF 226080

VLV. TYPE/BENCH SET/STR. LG.: BUTTERFLY 85 PSI UNA

VALVE ACTION, AIR TO: OPEN [X] CLOSE [ ]

VALVE FAIL ACTION: OPEN [ ] CLOSE [X] AS IS [ ]

LIMIT SWITCHES: YES [X] NO [ ]

TAG NO(S)
SW. 1: NOTE 4
SW. 2: NOTE 4

MANF./MODEL NO.: NAMCO EA18031302

SWITCH SETTINGS
SW. 1: SW.1, OPEN
SW. 2: SW.2, CLOSED
SW. 3: SW.3, OPEN
SW. 4: SW.4, CLOSED

POSITIONER: YES [ ] NO [X]
TAG NUMBER:
MANF./MOD. NO./CAM TYPE:
ELEC. [ ] PNEU [ ] HYD [ ]

POS. TRANS.: YES [ ] NO [X]
TAG NUMBER:
MANF./MOD. NO./SERIAL NO.:
ELEC. [ ] PNEU [ ]

SOLENOID: YES [X] NO [ ]
TAG NUMBER: CAP-ISV-0204
MANF./MOD. NO.: ASCO NP 831664V
SUPPLY VOLTAGE: PDP-361-58 CKT#26 120 VAC

SIGNAL FROM:
INPUT RANGE:
OUTPUT RANGE:
ACCURACY:

OUTPUT RANGE / ACCURACY:
CWO:
SIGNAL TO:
SUPPLY:

COIL ENERGIZED PERMISSIVE TO: OPEN [X] CLOSE [ ]

REGULATOR: YES [ ] NO [X]
MFGR./MOD. NO./SETTING:

DRAWING REF.

P.O. NO. 403483
SPEC. NO. 109A
CWO: 1129 2846
BLDG./ELEV./BLDG. COORD.: RCB+56/COL. 14
FLOW DIAG.: G853-S2-I5
INST. LOGIC & SCH.: 295
INST. INST. DETAIL: V-31B

PRECAUTIONS & NOTES

1. LOC. & ARR. G391-S2-K7.
2. EBASCO SOLENOID NO. SV-HV-154.
3. SW.1, CAP-IZS-0204-1
   SW.2, CAP-IZS-0204-2
   SW.3, CAP-IZS-0204-3
   SW.4, CAP-IZS-0204-4

SEE PRECAUTIONS AND NOTES CONTINUATION SHEET ATTACHED

CAL. REF.

PROCEDURE NO.: MI-5-211 MI-5-213 (MI-5-231 / 83-1422 CM 2-18-83)
CAL. FORM NO.: C20.01
TECH. MANUAL NO.: 457000263
CAL. CHECK INTERVAL: AS REQUIRED

SUGGESTED TEST EQUIPMENT

1. HEISE TEST RIG 0-100 PSI
2. TRIPLETT VOM MODEL 630

C21.04 REV.0

MIDDLE SOUTH UTILITIES SYSTEM

INSTRUMENT INFORMATION SHEET

PRECAUTIONS AND NOTES

CONTINUATION SHEET

WATERFORD - 3

UNID NO.	CAP-MVAAA-204
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00
REV'D BY / DATE	[signature] / 9-2-82

PRECAUTIONS AND NOTES

4. EBASCO LIMIT SWITCH NUMBERS ARE ZS-HV-0154B1 AND ZS-HV-0154B2.

5. LIMIT SWITCHES CAP-IZS-0204-1, CAP-IZS-0204-2, CAP-IZS-0204-3, AND CAP-IZS-0204-4 PROVIDE:
   A. OPEN INDICATION, RED LIGHT ON CP-18, LOCATED IN CONTROL ROOM, SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY CLOSED.
   B. CLOSED INDICATION, GREEN LIGHT ON CP-18 IN CONTROL ROOM SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY OPEN.
   C. INPUTS TO COMPUTER POINTS:
      1. D51010
      2. D51011

4020 01
REV 02

DAMPER AND/OR VALVE ACTUATOR CALIBRATION RECORD

TAG NO CAP-HVAA 204 | SYSTEM NO 466 | REVISION NO 03 | REVIEWED BY/DATE 2/9/10-5-82

STROKE PRESSURE	INCHES / PERCENT STEM TRAVEL	MAXIMUM STROKE TIME
0 LBS TO 85 LBS	100%	5 SECONDS

BENCH SET ALIGNMENT

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT PSIG	OUTPUT INCHES OF TRAVEL	OUTPUT INCHES OF TRAVEL	ERROR	OUTPUT INCHES OF TRAVEL	ERROR
OPEN	1	0	0	0%	0%	0%	0%	0%
	2	100	35	100%	40%	60%	100%	0%
	3	0	0	0%	0%	0%	0%	0%
CLOSED	4							
	5							
	6							
	7							

DAMPER AND/OR VALVE WITH POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	OUTPUT %/INCHES TRAVEL	INPUT	INPUT	ERROR	INPUT	ERROR
OPEN	1							
	2							
	3							
CLOSED	4							
	5							
	6							
	7							

POSITION TRANSMITTER

☐ SET WITH POSITIONER ☐ SET WITHOUT POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT % / INCHES OF TRAVEL	OUTPUT % SIGNAL TO INDICATOR	OUTPUT % SIGNAL TO INDICATOR	ERROR	OUTPUT % SIGNAL TO INDICATOR	ERROR
OPEN	1							
	2							
	3							
CLOSED	4							
	5							
	6							
	7							

C 21.01 REV. 01

MIDDLE SOUTH UTILITIES SYSTEM

VALVE / DAMPER AND/OR ACCESSORIES INFORMATION SHEET

Inst. Data Sheet
Field Copy
WATERFORD - 3
Expiration Date MAR 29 1983

UNID NO. CAP-MVAAA-205
SYSTEM NO. 46C
LOOP NO. N/A
REV. NO. 01 (88-2299 SN 2-23-88)
REV'D BY / DATE MYH 9.27.82

EQUIPMENT IDENTIFICATION

VALVE / DAMPER: YES [X] NO [ ]

SERVICE DESCRIPTION: CONTAINMENT PURGE ISOLATION VALVE

TAG NUMBER: 2HV-B155A

MANF./MOD. NO./SERIAL NO.: FISHER TYPE 9220 BF 226081

VLV. TYPE/BENCH SET/STR. LG.: BUTTERFLY 85 PSI UNA

VALVE ACTION, AIR TO: OPEN [X] CLOSE [ ]

VALVE FAIL ACTION: OPEN [ ] CLOSE [X] AS IS [ ]

LIMIT SWITCHES: YES [X] NO [ ]

TAG NO(S)
SW. 1: NOTE 2
SW. 2: NOTE 2

MANF./MODEL NO.: NAMCO EA18032302

SWITCH SETTINGS
SW. 1: SW.1, OPEN
SW. 2: SW.2, CLOSED
SW. 3: SW.3, OPEN
SW. 4: SW.4, CLOSED

POSITIONER: YES [ ] NO [X]
TAG NUMBER
MANF./MOD. NO./CAM TYPE
ELEC. [ ] PNEU [ ] HYD [ ]

POS. TRANS.: YES [ ] NO [X]
TAG NUMBER
MANF./MOD. NO./SERIAL NO.
ELEC. [ ] PNEU [ ]

SOLENOID: YES [X] NO [ ]
TAG NUMBER CAP-[illegible]-0205
MANF./MOD. NO. NP 831664U
SUPPLY VOLTAGE PDP-3A0-3A CKT #26 120 VAC

SIGNAL FROM
INPUT RANGE
OUTPUT RANGE / ACCURACY
CWD
OUTPUT RANGE
SIGNAL TO
ACCURACY
SUPPLY

COIL ENERGIZED PERMISSIVE TO: OPEN [X] CLOSE [ ]

REGULATOR: YES [ ] NO [X]
MFGR./MOD. NO./SETTING

DRAWING REF.

P.O. NO. 403483
SPEC. NO. 109A
CWD 1128
BLDG./ELEV./BLDG. COORD. RAB+46/5A-L
FLOW DIAG. G853-G2-I5
INST. LOGIC & SCH. 295
INST. DETAIL V-318

PRECAUTIONS & NOTES

1. LOC. & ARRNG. G391-S2-L7.
2. SW.1. CAP-I[illegible]S-0205-1
   SW.2. CAP-I[illegible]S-0205-2
   SW.3. CAP-I[illegible]S-0205-3
   SW.4. CAP-I[illegible]S-0205-4

SEE PRECAUTIONS AND NOTES CONTINUATION SHEET ATTACHED

CAL. REF.

PROCEDURE NO. MI-5-211 (88-2299 SN 2-23-88)
MI-5-213
CAL. FORM NO. C20.10
TECH. MANUAL NO. 457000263
CAL. CHECK INTERVAL AS REQUIRED

SUGGESTED TEST EQUIPMENT

1. HEISE TEST RIG 0-100 PSI
2. TRIPLETT VOM MODEL 630

C;21.04 REV. 0

MIDDLE SOUTH UTILITIES SYSTEM

INSTRUMENT INFORMATION SHEET

PRECAUTIONS AND NOTES

CONTINUATION SHEET

WATERFORD - 3

UNID NO.	CAP-MVAAA-205
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00
REV'D BY / DATE	mjm / 9-28-92

PRECAUTIONS AND NOTES

3. EBASCO LIMIT SWITCH NUMBERS ARE ZS-HV-0155A1 AND ZS-HV-0155A2.

4. LIMIT SWITCHES CAP-IZS-0205-1, CAP-IZS-0205-2, CAP-IZS-0205-3, AND CAP-IZS-0205-4 PROVIDE:
   A. OPEN INDICATION. RED LIGHT ON CP-18, LOCATED IN CONTROL ROOM, SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY CLOSED.
   B. CLOSED INDICATION. GREEN LIGHT ON CP-18 IN CONTROL ROOM SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY OPEN.
   C INPUTS TO COMPUTER POINTS:
      1. D51012
      2. D51013

#20.0?
REV. 02

DAMPER AND/OR VALVE ACTUATOR CALIBRATION RECORD

IAG '90
CAP-HVAAA-205
SYSTEM NO. 46C
REVISION NO. 00
REVIEWED BY/DATE

STROKE PRESSURE	INCHES / PERCENT STEM TRAVEL	MAXIMUM STROKE TIME
0 LBS TO 85 LBS	100%	5 SECONDS

BENCH SET ALIGNMENT

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT PSIG	OUTPUT INCHES OF TRAVEL	OUTPUT INCHES OF TRAVEL	ERROR	OUTPUT INCHES OF TRAVEL	ERROR
OPEN	1	0	0	0%	0%	0	0%	0
	2	100	85	100%	100%	0	100%	0
	3	0	0	0%	0%	0	0%	0
CLOSE	4							
	5							
	6							
	7							

DAMPER AND/OR VALVE WITH POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	OUTPUT %/INCHES TRAVEL	INPUT	INPUT	ERROR	INPUT	ERROR
OPEN	1	N/A						
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

POSITION TRANSMITTER

☐ SET WITH POSITIONER ☐ SET WITHOUT POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT %/INCHES OF TRAVEL	OUTPUT % SIGNAL TO INDICATOR	OUTPUT % SIGNAL TO INDICATOR	ERROR	OUTPUT % SIGNAL TO INDICATOR	ERROR
OPEN	1	N/A						
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

COOLING COIL AND DUCT TRAVERSE SHEET

PROCEDURE/REV. STM 214/1 | FAR UNIT E-62

DATE 2-17-83

TRAVERSE NO. (NOTE 5)	DUCT SIZE	EFFECTIVE AREA (NOTE 2)	REQUIRED VELOCITY	AVG. TEST VELOCITY (NOTE 1)	REQUIRED CFM	AVG. CALCULATED CFM (NOTES 3 & 4)
1	64x48	21.33		3271		69770

NOTES: (1) $\frac{\text{VELOCITY READINGS (LOOKING UPSTREAM) FPM}}{\text{TOTAL NUMBER OF MEASURING POINTS}}$ = AVERAGE VELOCITY IN FPM

(2) $\frac{\text{DUCT HEIGHT (IN.)} \times \text{DUCT WIDTH (IN.)}}{144 \text{ IN.}^2/\text{FT}^2} = \frac{X}{144}$ = EFFECTIVE AREA IN FT^2.

(3) AVG. CALCULATED CFM = EFFECTIVE AREA X AVG. TEST VELOCITY

(4) CALCULATED CFM ROUNDED OF TO NEAREST 5 CFM

(5) ◯ AROUND TRAVERSE NO. MEANS ONLY 2 DUCT DIAMETERS DOWNSTREAM

THIS IS HORIZONTAL SIDE ☒ VERTICAL SIDE ☐

SP 5.55

FACING AIR FLOW

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	.625	.68	.73	.67	.54	.56	.58	.49	.43	.42	.46										
2	.65	.70	.71	.70	.63	.63	.58	.48	.40	.45	.45										
3	.70	.69	.68	.71	.64	.66	.64	.58	.53	.55	.52										
4	.68	.69	.68	.69	.67	.68	.70	.73	.74	.64	.65										
5	.74	.70	.67	.62	.70	.71	.73	.76	.74	.71	.70										
6	.71	.72	.69	.67	.70	.74	.79	.79	.77	.73	.71										
7	.50	.75	.73	.69	.77	.78	.80	.73	.78	.75	.72		5.23 / 8	=	.667						
8	.43	.70	.74	.74	.79	.77	.72	.72	.75	.77	.70										

TEST EQUIPMENT

DESCRIPTION	MFR & MODEL	RANGE	ACC.	RECALL DATE	DESCRIPTION	MFR & MODEL	RANGE	ACC.	RECALL DATE
MANOMETER	MIPR 16.C4	10"	± 1%	5-7-83					
PITOT TUBE	MIPR 16.23	60"	100%	N/A					

COMMENTS: SMOKE PURGE

DUCT TEMP 90°

Content Purge flow is 69770 − 7946 = 61824 cfm

PERFORMED BY: David Ellis DATE: 3/17/83

WITNESSED BY: C. E. Bivens 3/17/83 ESSE-HVAC

REVIEWED BY: _____ DATE: _____

QC DATE | QA DATE

PAGE OF

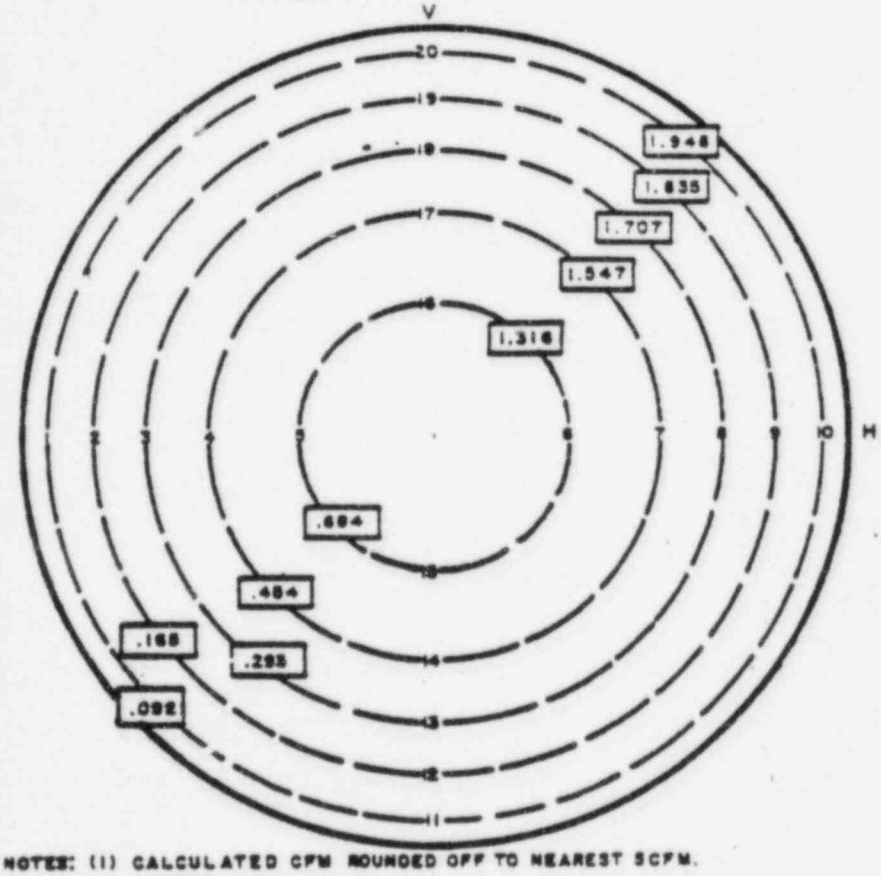
DUCT TRAVERSE SHEET
LARGER THAN 10" DIAMETER

PROCEDURE/REV.	FAN UNID
SP10.24/6	E22A
DATE 3-17-83	

ROOM DUCT NO.	TRAVERSE NO. (NOTE 3)	DUCT SIZE	EFFECTIVE AREA (NOTE 6)	REQUIRED VELOCITY	AVG. TEST VELOCITY (NOTE 5)	REQUIRED CFM	AVG. CALCULATED CFM (NOTES 1, 7)
		42"Ø	9.62		826		7946

LARGER THAN 10" DIAMETER

PT NO	PROBE DEPTH (NOTE 4)	TEST VELOCITY
1	1.09	.04
2	3.46	.045
3	6.15	.055
4	9.53	.055
5	14.36	.05
6	27.63	.04
7	32.48	.03
8	35.84	.03
9	38.53	.025
10	40.09	.02
11	1.09	.04
12	3.46	.04
13	6.15	.035
14	9.53	.035
15	14.36	.04
16	27.63	.045
17	32.48	.055
18	35.84	.06
19	38.53	.055
20	40.09	.055



SP .185

.85/20 = .0425

NOTES: (1) CALCULATED CFM ROUNDED OFF TO NEAREST 5CFM.

(2) ▭ PROBE DEPTH TO RADIUS RATIO.

(3) ○ AROUND TRAVERSE NUMBER MEANS ONLY 2 DUCT DIAMETERS DOWNSTREAM.

(4) SEE PROBE ATTACHMENT 8.11 (STP-29) FOR PROBE DEPTH CALCULATIONS.

(5) $\frac{\text{TOTAL VELOCITY POINTS}}{\text{TOTAL POINTS}}$ = AVERAGE VELOCITY FT./MIN.

(6) $\left[\frac{\text{DUCT DIA. IN.}}{2}\right]^2 \times \frac{3.1416}{144\ \text{IN.}^2}$ = EFFECTIVE AREA IN FT.^{2}

(7) AVG. CALCULATED CFM = EFFECTIVE AREA X AVG. TEST VELOCITY.

TEST EQUIPMENT

DESCRIPTION	M&TE	RANGE	ACC.	RECALL DATE	DESCRIPTION	M&TE	RANGE	ACC.	RECALL DATE
MANOMETER	MIPD 16.24	16"	1/10	6-7-83					
PITOT TUBE	MIPD 16.25	24"	1%C	N/A					
PITOT TUBE	MIPD 16.14	48"	1%C	N/A					

PERFORMED BY: David Lee DATE: 3/17/83

WITNESSED BY C. E. Burman Bode HVAC 3/17/83

REVIEWED BY: _____ DATE: _____

QC DATE

QA DATE

PAGE OF

84-17

LOUISIANA POWER & LIGHT / INTER-OFFICE CORRESPONDENCE

MIDDLE SOUTH UTILITIES SYSTEM

April 9, 1984

W3E84-0153

TO: Distribution

FROM: J. E. Howard

SUBJECT: Technical Specification Revision, Change Summary

ENCLSOURE: Revised Technical Specification

Attached are changed to Technical Specifications received from the NRC. I have not included minor changes-typos, page numbers etc. The "final draft" Technical Specifications should be received in about a week, at which time it will be distributed in controlled copies.

Listed below is a summary of significant changes. I also have included some notes to indicate possible further action on a few changes. Many of these changes were previously distributed to you in the referenced memo when they were still proposed before the NRC.

1. High Log Power Trip Setpoint was revised as calculated previously be LP&L.

2. High Containment Pressure Trip Setpoint (RPS & ESF) was lowered per NRC mandate.

   Note: We are still negotiating to restore the previous trip of 17.1 psia.

3. A new Boron Dilution Tech. Spec. and Bases were added.

   Note: New instrument requirements for surveillance

4. A revised PDIL Curve was included.

5. An exception to Tc limits during Reactor Power cutback was added.

FOIA-84-206
H/48

6. ASI Limits were revised.

7. CPC response times were revised.

8. The test requirement for response time testing on RTDs was clarified to require that all RTDs be tested every 18 months (vice one channel).

9. For CPC Pressure input, the Response time testing method previously required was deleted.

10. Response times for CSAS and CPIS were added. Also the detectors were exempted from testing on the RAD Monitors.

11. The alarm/trip setpoint limit for FHB Rad Monitor was raised to 100 mr/hr.

12. The chlorine monitor and ammonia monitor setpoints were revised upward.

13. An exception was added for inaccessible fire detectors, for check of the supervision circuit.

14. Calibration gas requirements for H_2 and O_2 monitors were revised (Waste gas and Containment).

15. Requirements for leak testing RCS Boundary valves were relaxed and limits for SDC valves were raised.

16. The pressure at which SITs can be isolated in MODE 4 was raised, but it is expected that the NRC will revise this back to the old limit due to lack of final concurrence by Combustion Engineering.

17. The surveillance requirement for hot leg injection valves was revised to require the valves be key locked shut rather than power removed.

18. TSP sampling requirements were revised to require PH of 7 in 3 hours to match the FSAR.

19. HPSI pump discharge head requirements were revised for ISI Testing.

20. SI throttled valve check wording was revised.

21. Table 3.6-1 was revised to include type B and C test requirements.

22. Figure 3.6-1 was added for Containment Pressure restrictions vs. temperature.

23. Containment Purge Valves - several changes including exception to at power leak testing during lst.cycle.

24. Containment Spray Pump head requirements for ISI testing was revised.

25. Setpoint for Containment vacuum relief was revised to be consistent with latest FSAR and setpoint document.

26. Quantitative Recirculation Flow requirements were deleted for EFW pumps. Wording was also revised concerning staggered testing.

27. CCW surveillance requirements associated with ESFAS signals were revised. Note that CSAS signal was inadvertently applied to the pumps rather than the valves. This will be corrected.

28. Wording was clarified for Control Room temperature requirement, to avoid interpretation that each train had to be run during each shift.

29. Surveillance requirement wording for leak testing startup sources and fission detectors was clarified.

30. Action statement for inoperable fire supression systems inside containment was revised to avoid frequent entries.

31. Action for fire hydrants was revised to include 24 hour period for other than primary protection hydrants. (All hydrants are classified secondary per FSAR).

32. Requirement to check CW pump and chiller start on SIAS was added.

33. New Tech. Spec. and Bases for the Basemat was added (3.7.13). Note this issue is still open and this may be revised.

34. Diesel Generator Frequency Limits were revised, for steady state only.

35. The wording for testing of the Diesel sequencer was revised to properly indicate timing requirements.

36. Several Action statements for electrical systems were revised to delete the requirement to vent the RCS, since LTOP protection automatically satisfies overpressure concern.

37. Revisions were made to Table 3.8-1, major one was deleting breaker ratings.

38. Load test and cutoff limits for the refueling machine and spent fuel machine were revised.

39. Minimum SDC Flow rate in refueling was lowered to 3000 gpm under certain conditions.

40. Revised methodology was provided to calculate Pressurizer Spray Valve usage factor.

41. New organization charts were included.

47. New requirement for a survey and report on Toxic Chemicals was added.

Should you have further questions concerning the exact changes or background please call either myself or Dennis Buschbaum.

J.E. Howard

JEH/DEB:jp

cc w/enclosures: P.V. Prasankumar, J.R. McGaha, O.D. Hayes, T. Payne, R. Sproles, H. Canavier, V. McAdams, A. Holder, R. Kenning, R. Allen, T.H. Smith

cc w/o enclosure: R.F. Barkhurst, L.F. Storz, S.A. Alleman

TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Linear Power Level - High		
Four Reactor Coolant Pumps Operating	≤ 110.1% of RATED THERMAL POWER	≤ 110.7% of RATED THERMAL POWER
3. Logarithmic Power Level - High (1)	≤ 0.257% of RATED THERMAL POWER	≤ 0.275% of RATED THERMAL POWER
4. Pressurizer Pressure - High	≤ 2365 psia	≤ 2372 psia
5. Pressurizer Pressure - Low	≥ 1684 psia (2)	≥ 1644 psia (2)
6. Containment Pressure - High	≤ 16.9 psia	≤ 17.1 psia
7. Steam Generator Pressure - Low	≥ 764 psia (3)	≥ 748 psia (3)
8. Steam Generator Level - Low	≥ 27.4% (4)	≥ 26.7% (4)
9. Local Power Density - High	≤ 21.0 kW/ft (5)	≤ 21.0 kW/ft (5)
10. DNBR - Low	≥ 1.205 (5)(6)	≥ 1.205 (5)(6)
11. Steam Generator Level - High	≤ 87.7% (4)	≤ 88.4% (4)
12. Reactor Protection System Logic	Not Applicable	Not Applicable
13. Reactor Trip Breakers	Not Applicable	Not Applicable
14. Core Protection Calculators	Not Applicable	Not Applicable
15. CEA Calculators	Not Applicable	Not Applicable
16. Reactor Coolant Flow - Low	≥ 23.8 psid (7)	≥ 23.6 psid (7)

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BORON DILUTION

LIMITING CONDITION FOR OPERATION

3.1.2.9 Boron concentration shall be verified consistent with SHUTDOWN MARGIN requirements of Specifications 3.1.1.1, 3.1.1.2, and 3.9.1. Boron dilution events shall be precluded by:

a. Either two startup channel high neutron flux alarms shall be OPERABLE or the primary makeup water flow path to the Reactor Coolant System shall be isolated, and

b. Removing power to at least two charging pumps in MODE 5 with reactor coolant loops not filled.

APPLICABILITY: MODES 3, 4, 5, and 6.

ACTION:

a. With the boron concentration not consistent with required SHUTDOWN MARGIN, initiate emergency boration.

b. With one startup channel high neutron flux alarm inoperable and the primary makeup water flow path to the Reactor Coolant System not isolated, determine Reactor Coolant System boron concentration within 1 hour and at least at the monitoring frequency specified in Table 3.1-1.

c. With both startup channel high neutron flux alarms inoperable and the primary makeup water flow path to the Reactor Coolant System not isolated, determine the Reactor Coolant System boron concentration by two independent means within 1 hour and at least at the monitoring frequency specified in Table 3.1-1; otherwise, immediately suspend all operations involving positive reactivity changes or CORE ALTERATIONS (if applicable).

d. With power applied to more than one charging pump in MODE 5 with the reactor coolant loops not filled, immediately remove power from charging pumps to comply with the above requirement or isolate the primary makeup water flow path to the Reactor Coolant System.

e. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.1.2.9.1 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 from MODE 2.

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SURVEILLANCE REQUIREMENTS (Continued)

4.1.2.9.2 Each required startup channel high neutron flux alarm shall be demonstrated OPERABLE by the performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months.

4.1.2.9.3 The required primary makeup water flow path to the Reactor Coolant System shall be verified to be isolated by either locked closed manual valves, deactivated automatic valves secured in the isolation position, or by power being removed from all charging pumps, at least once per 24 hours.

4.1.2.9.4 At least two charging pumps shall be verified to have power removed when required in MODE 5 with the reactor coolant loops drained at least once per 24 hours.

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TABLE 3.1-1

MONITORING FREQUENCIES FOR BORON DILUTION DETECTION FOR WATERFORD-3

OPERATIONAL MODE	Number of OPERABLE Charging Pumps* 0	1	2	3
3	24 hr	10 hr	4 hr	3 hr
4	24 hr	8 hr	4 hr	2 hr
5	8 hr	3 hr	1 hr	0.5 hr
5 (System drained for repairs)	8 hr	1 hr	Operation not allowed**	Operation not allowed**
6	24 hr	4 hr	2 hr	1 hr

*Charging pump OPERABILITY for any period of time shall constitute OPERABILITY for the entire monitoring frequency.

**In MODE 5 with the system drained for repairs, at lease two charging pumps shall be verified to be inoperable by racking out their motor circuit breakers.

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POSITION INDICATOR CHANNELS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.3.3 At least one CEA Reed Switch Position Transmitter indicator channel shall be OPERABLE for each shutdown, regulating or part-length CEA not fully inserted.

APPLICABILITY: MODES 3*, 4*, and 5*.

ACTION:

With less than the above required position indicator channel(s) OPERABLE, immediately open the reactor trip breakers.

SURVEILLANCE REQUIREMENTS

4.1.3.3 Each of the above required CEA Reed Switch Position Transmitter indicator channel(s) shall be determined to be OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at least once per 18 months. The provisions of Specification 4.0.4 are not applicable for performance of this surveillance testing.

*With the reactor trip breakers in the closed position.

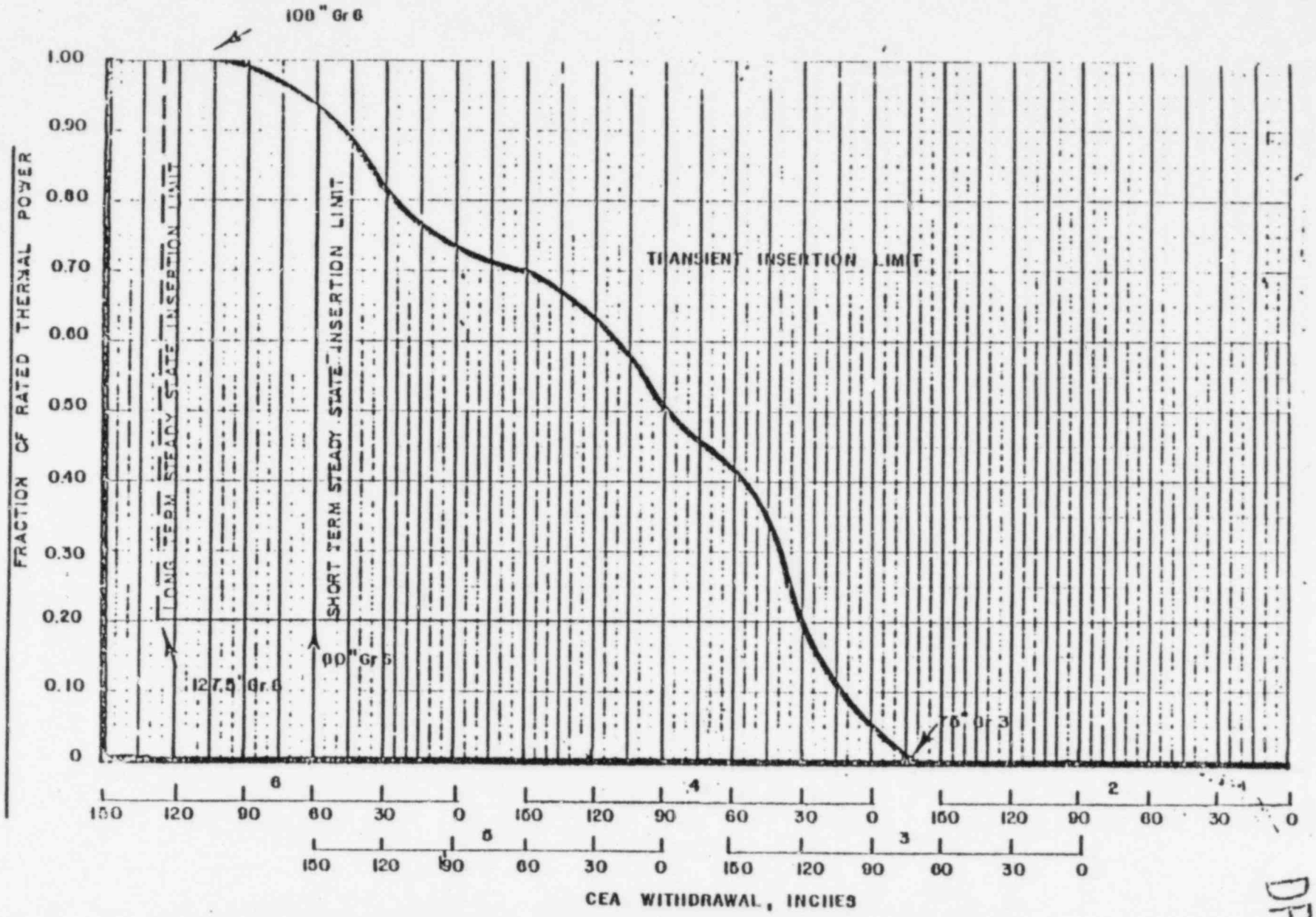

FIGURE 3.1-2

CEA INSERTION LIMITS VS THERMAL POWER

FOUR REACTOR COOLANT PUMPS OPERATING

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3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.2.6 The reactor coolant cold leg temperature (T_c) shall be maintained between 544°F and 558°F.*

APPLICABILITY: MODE 1 above 30% of RATED THERMAL POWER.

ACTION:

With the reactor coolant cold leg temperature exceeding its limit, restore the temperature to within its limit within 2 hours or reduce THERMAL POWER to less than 30% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.6 The reactor coolant cold leg temperature shall be determined to be within its limit at least once per 12 hours.

*Following a reactor power cutback in which (1) Regulating Groups 4 and/or 5 are dropped or (2) Regulating Groups 4 and/or 5 are dropped and the remaining Regulating Groups (Groups 1, 2, 3, and 4) are sequentially inserted, the upper limit on T_c may increase to 568°F for up to 30 minutes.

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POWER DISTRIBUTION LIMITS

3/4.2.7 AXIAL SHAPE INDEX

LIMITING CONDITION FOR OPERATION

3.2.7 The AXIAL SHAPE INDEX (ASI) shall be maintained within the following limits:

a. COLSS OPERABLE
$-0.23 \leq ASI \leq +0.50$

b. COLSS OUT OF SERVICE (CPC)
$-0.15 \leq ASI \leq +0.50$

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.*

ACTION:

With the AXIAL SHAPE INDEX outside its above limits, restore the AXIAL SHAPE INDEX to within its limit within 2 hours or reduce THERMAL POWER to less than 20% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.7 The AXIAL SHAPE INDEX shall be determined to be within its limit at least once per 12 hours using the COLSS or any OPERABLE Core Protection Calculator channel.

*See Special Test Exception 3.10.2.

TABLE 3.3-2

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME
1. Manual Reactor Trip	Not Applicable
2. Linear Power Level - High	≤ 0.40 second*
3. Logarithmic Power Level - High	≤ 0.40 second*
4. Pressurizer Pressure - High	≤ 0.90 second
5. Pressurizer Pressure - Low	≤ 0.90 second
6. Containment Pressure - High	≤ 1.70 seconds
7. Steam Generator Pressure - Low	≤ 0.90 second
8. Steam Generator Level - Low	≤ 0.90 second
9. Local Power Density - High	
a. Neutron Flux Power from Excore Neutron Detectors	≤ 0.634 second*
b. CEA Positions	≤ 0.645 second**
c. CEA Positions: CEAC Penalty Factor	≤ 0.429 second
10. DNBR - Low	
a. Neutron Flux Power from Excore Neutron Detectors	≤ 0.634 second*
b. CEA Positions	≤ 0.645 second**
c. Cold Leg Temperature	≤ 0.634 second#
d. Hot Leg Temperature	≤ 0.634 second#
e. Primary Coolant Pump, Shaft Speed	≤ 0.487 second**
f. Reactor Coolant Pressure from Pressurizer	≤ 0.634 second##
g. CEA Positions: CEAC Penalty Factor	≤ 0.429 second

TABLE 3.3-2 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME
11. Steam Generator Level - High	Not Applicable
12. Reactor Protection System Logic	Not Applicable
13. Reactor Trip Breakers	Not Applicable
14. Core Protection Calculators	Not Applicable
15. CEA Calculators	Not Applicable
16. Reactor Coolant Flow - Low	0.70 second

*Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.

**Response time shall be measured from the time the CPC/CEAC receives an input signal until the system outputs a trip signal.

#Response time shall be measured from the output of the sensor. RTD response time for all the RTDs shall be measured at least once per 18 months. The measured P_T of the slowest RTD shall be less than or equal to 6 seconds (P_T assumed in the safety analysis).

##Response time shall be measured from the output of the pressure transmitter. The transmitter response time shall be less than or equal to 0.70 second.

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TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. SAFETY INJECTION (SIAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 16.9 psia	≤ 17.1 psia
c. Pressurizer Pressure - Low	≥ 1684 psia(1)	≥ 1644 psia(1)
d. Automatic Actuation Logic	Not Applicable	Not Applicable
2. CONTAINMENT SPRAY (CSAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure -- High-High	≤ 17.7 psia	≤ 18.0 psia
c. Automatic Actuation Logic	Not Applicable	Not Applicable
3. CONTAINMENT ISOLATION (CIAS)		
a. Manual CIAS (Trip Buttons)	Not Applicable	Not Applicable
b. Manual SIAS (Trip Buttons)	Not Applicable	Not Applicable
c. Containment Pressure - High	≤ 16.9 psia	≤ 17.1 psia
d. Pressurizer Pressure - Low	≥ 1684 psia(1)	≥ 1644 psia(1)
e. Automatic Actuation Logic	Not Applicable	Not Applicable
4. MAIN STEAM LINE ISOLATION		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Steam Generator Pressure - Low	≥ 764 psia(2)	≥ 748 psia(2)
c. Containment Pressure - High	≤ 16.9 psia	≤ 17.1 psia
d. Automatic Actuation Logic	Not Applicable	Not Applicable

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TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
2. Pressurizer Pressure-Low	
a. Safety Injection (ECCS)	
(1) High Pressure Safety Injection	≤ 30.0*/18.5**
(2) Low Pressure Safety Injection	≤ 45.5*/34.0**
b. Containment Isolation	≤ 23.5*/12.0**
c. Containment Cooling	≤ 31.0*/19.5**
3. Containment Pressure-High	
a. Safety Injection (ECCS)	
(1) High Pressure Safety Injection	≤ 30.0*/18.5**
(2) Low Pressure Safety Injection	≤ 45.5*/34.0**
b. Containment Isolation	≤ 23.5*/12.0**
c. Main Steam Isolation	≤ 4.0*/4.0**
d. Main Feedwater Isolation	≤ 6.0*/6.0**
e. Containment Cooling	≤ 31.0*/19.5**
4. Containment Pressure--High-High	
a. Containment Spray Pump	≤ 15.2*/2.7**
b. Containment Spray Valves	≤ 11.0*/11.0**
5. Containment Area Radiation-High#	
Containment Purge Valves Isolation	≤ 6.0*/6.0**
6. Steam Generator Pressure-Low	
a. Main Steam Isolation	≤ 4.0*/4.0**
b. Main Feedwater Isolation	≤ 6.0*/6.0**
7. Refueling Water Storage Pool-Low	
Containment Sump Recirculation	≤ 120.0*/108.5**
8. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	
Loss of Power (0 volts)	≤ 2***
9. 480V Emergency Bus Undervoltage (Loss of Voltage)	
Loss of Power (0 volts)	N.A.
10. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	
Loss of Power	≤ 11***

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TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
11. Steam Generator Level-Low	
Emergency Feedwater	≤ 54.0*/42.0**
NOTE: Response time for all Motor-Driven and Steam-Driven Emergency Feedwater Pumps on all ESF signal starts.	≤ 54.0

TABLE NOTATIONS

*Diesel generator starting and sequence loading delays included. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

**Diesel generator starting and sequence loading delays not included. Offsite power available. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

***Response time measured from the sensing relay to the channel output only.

#Response time does not include the detector.

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITORS					
a. Fuel Storage Pool Area Fuel Handling Building Ventilation System Isolation	2	*	$\leq$ 100 mR/h	10^{-1} - 10^{4} mR/h	24
b. Containment - Purge & Exhaust Isolation	1/train	1, 2, 3, & 4	$\leq$ 2x background	1 - 10^{5} mR/h	25
2. PROCESS MONITORS					
a. Containment Atmosphere					
1) Gaseous Activity RCS Leakage Detection	1	1, 2, 3, & 4	Not Applicable	10^{-6} - 10^{-1} µCi/cc	23
2) Particulate Activity RCS Leakage Detection	1	1, 2, 3, & 4	Not Applicable	10^{-11} - 10^{-6} µCi/cc	23
b. Control Room Intake Monitors	1/intake	All MODES	$\leq$ 2x background	10^{-8} - 10^{-2} µCi/cc	26
c. Steam Generator Blowdown Monitor	1	1, 2, 3, & 4	10^{-3} µCi/cc	10^{-6} - 10^{-1} µCi/cc	28
d. Component Cooling Water System	1/line	All MODES	10^{-4} µCi/cc	10^{-7} - 10^{-2} µCi/cc	28
e. Component Cooling Water System	1	All MODES	10^{-4} µCi/cc	10^{-7} - 10^{-2} µCi/cc	28

*With irradiated fuel in the storage pool.

TABLE 3.3-6 (Continued)

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
3. EFFLUENT ACCIDENT MONITORS					
a. Containment High Range	2	1, 2, 3, & 4	Not Applicable	$1 - 10^8$ R/h	27
b. Plant Stack High Range	1	1, 2, 3, & 4	Not Applicable	$10^{-7} - 10^5$ µCi/cc	27
c. Condenser Vacuum Pump High Range	1	1, 2, 3, & 4	Not Applicable	$10^{-7} - 10^5$ µCi/cc	27
d. Fuel Handling Building Exhaust High Range	1	1, 2, 3, & 4	Not Applicable	$10^{-7} - 10^5$ µCi/cc	27
e. Main Steam Line High Range	1/steam line	1, 2, 3, & 4	Not Applicable	$1 - 10^5$ mR/h	27

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TABLE 3.3-6 (Continued)

ACTION STATEMENTS

ACTION 23 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.5.1.

ACTION 24 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.12.

ACTION 25 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.

ACTION 26 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.

ACTION 27 - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:

1. Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and

2. If the monitor is not restored to OPERABLE status within 7 days after the failure, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

ACTION 28 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, operation of the plant may continue for up to 30 days provided grab samples are taken once per 8 hours and these samples are analyzed for gross activity within 24 hours.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE
1. Containment Pressure	2	1
2. Reactor Coolant Outlet Temperature - T_{Hot} (Wide Range)	2	1
3. Reactor Coolant Inlet Temperature - T_{Cold} (Wide Range)	2	1
4. Reactor Coolant Pressure - Wide Range	2	1
5. Pressurizer Water Level	2	1
6. Steam Generator Pressure	2/steam generator	1/steam generator
7. Steam Generator Water Level - Narrow Range	2/steam generator	1/steam generator
8. Steam Generator Water Level - Wide Range	1/steam generator**	1/steam generator**
9. Refueling Water Storage Pool Water Level	2	1
10. Emergency Feedwater Flow Rate	1/steam generator**	1/steam generator**
11. Reactor Cooling System Saturation Margin Monitor	2	1
12. Safety Valve Position Indicator	1/valve	1/valve
13. Containment Water Level (Narrow Range)	1***	1***
14. Containment Water Level (Wide Range)	2	1
15. Core Exit Thermocouples	4/core quadrant	2/core quadrant
16. Containment Isolation Valve Position Indicators*	1/valve#	1/valve#
17. Condensate Storage Pool Level	2	1

#If the containment isolation valve is declared inoperable and the provisions of Specification 3.6.4 are complied with, position indicators may be inoperable; otherwise, comply with the provisions of Specification 3.3.3.6.

*Containment isolation valves listed in Table 3.6-2 (Category 1).

**These corresponding instruments may be substituted for each other.

***Operation may continue for up to 30 days with less than the Minimum Channels OPERABLE requirement.

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INSTRUMENTATION

CHEMICAL DETECTION SYSTEMS

CHLORINE DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.3.7.1 Two independent chlorine detection systems, with their alarm/trip setpoints adjusted to actuate at a chlorine concentration of less than or equal to 3 ppm, shall be OPERABLE.

APPLICABILITY: All MODES.

ACTION:

a. With one chlorine detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 6 hours initiate and maintain operation of the control room ventilation system in the recirculation mode of operation.

b. With no chlorine detection system OPERABLE, within 1 hour initiate and maintain operation of the control room ventilation system in the recirculation mode of operation.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7.1 Each chlorine detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

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INSTRUMENTATION

CHEMICAL DETECTION SYSTEMS

AMMONIA DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.3.7.2 Two independent ammonia detection systems, with their alarm/trip setpoints adjusted to actuate at an ammonia concentration of less than or equal to 50 ppm, shall be OPERABLE.

APPLICABILITY: All MODES.

ACTION:

a. With one ammonia detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 8 hours initiate and maintain operation of the control room ventilation system in the recirculation mode of operation.

b. With no ammonia detection system OPERABLE, within 1 hour initiate and maintain operation of the control room ventilation system in the recirculation mode of operation.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7.2 Each ammonia detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

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INSTRUMENTATION

FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.8 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3-11 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument is required to be OPERABLE.

ACTION:

a. With any, but not more than one-half the total in any fire zone Function A fire detection instruments shown in Table 3.3-11 inoperable, restore the inoperable instrument(s) to OPERABLE status within 14 days or within the next 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment or annulus, then inspect that containment or annulus zone at least once per 8 hours or for the containment, monitor air temperature at least once per hour at the locations listed in Specification 4.6.1.5.

b. With more than one-half of the Function A fire detection instruments in any fire zone shown in Table 3.3-11 inoperable, or with any Function B fire detection instruments shown in Table 3.3-11 inoperable, or with any two or more adjacent fire detection instruments shown in Table 3.3-11 inoperable, within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment or annulus, then inspect that containment or annulus zone at least once per 8 hours or for the containment, monitor air temperature at least once per hour at the locations listed in Specification 4.6.1.5.

c. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.8.1 Each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months by performance of a CHANNEL FUNCTIONAL TEST. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by the performance of a CHANNEL FUNCTIONAL TEST during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

4.3.3.8.2 The NFPA Standard 72D supervised circuits supervision associated with the detector alarms of each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months. Circuits which are not accessible during plant operation shall be demonstrated OPERABLE during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. RADIOACTIVITY MONITORS PROVIDING ALARMS AND AUTOMATIC TERMINATION OF RELEASE				
a. Boric Acid Condensate Discharge	P	P	R(3)	Q(1)
b. Waste Condensate and Laundry Discharge	P	P	R(3)	Q(1)
c. Dry Cooling Tower Sumps	D	M	R(3)	Q(5)
d. Turbine Building Industrial Waste Sump	D	M	R(3)	Q(5)
2. RADIOACTIVITY MONITORS PROVIDNG ALARM BUT NOT PROVIDING AUTOMATIC TERMINATION OF RELEASE				
a. Circulating Water Discharge (Blowdown Heat Exchanger and Auxiliary Component Cooling Water Pumps)	D	M	R(3)	Q(2)
3. FLOW RATE MEASUREMENT DEVICES				
a. Boric Acid Condensate Discharge	D(4)	N.A.	R	Q
b. Waste Condensate and Laundry Discharge	D(4)	N.A.	R	Q
c. Turbine Building Industrial Waste Sump	D(4)	N.A.	R	Q
d. Dry Cooling Tower Sumps	N.A.	N.A.	N.A.	N.A.
e. Circulating Water Discharge (Blowdown Heat Exchangers and Auxiliary Component Cooling Water Pumps)	N.A.	N.A.	N.A.	N.A.

TABLE 4.3-9 (Continued)

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TABLE NOTATIONS

*At all times.

**During WASTE GAS HOLDUP SYSTEM operation.

(1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:

1. Instrument indicates measured levels above the alarm/trip setpoint.
2. Circuit failure.
3. Instrument indicates a downscale failure.

(2) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

1. Instrument indicates measured levels above the alarm setpoint.
2. Circuit failure.

(3) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.

(4) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. Zero volume percent hydrogen, balance nitrogen, and
2. Four volume percent hydrogen, balance nitrogen.

(5) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. Zero volume percent oxygen, balance nitrogen, and
2. Four volume percent oxygen, balance nitrogen.

(6) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway occurs if the instrument indicates measured levels above the alarm/trip setpoint and that control room alarm annunciation occurs if any of the following conditions exists:

1. Instrument indicates measured levels above the alarm set.
2. Circuit failure.
3. Instrument controls not set in operate mode.

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3/4.4.3 PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.3 The pressurizer shall be OPERABLE with:

a. A steady-state water volume greater than or equal to 25% indicated level (350 cubic feet) but less than or equal to 62.5% indicated level (900 cubic feet), and,

b. At least two groups of pressurizer heaters powered from 1E buses each having a nominal capacity of 150 kW.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With only one group of the above required pressurizer heaters OPERABLE, restore at least two groups to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With the pressurizer otherwise inoperable, be in at least HOT STANDBY with the reactor trip breakers open within 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1 The pressurizer water volume shall be determined to be within its limit at least once per 12 hours.

4.4.3.2 The capacity of each of the above required groups of pressurizer heaters shall be verified to be at least 150 kW at least once per 92 days.

4.4.3.3 The emergency power supply for the pressurizer heaters shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying the above pressurizer heaters are automatically shed from the emergency power sources upon the injection of an SIAS test signal.

b. Verifying that the above heaters can be manually placed and energized on the emergency power source from the control room without an SIAS test signal present.

SURVEILLANCE REQUIREMENTS (Continued)

b. The steam generator shall be determined OPERABLE after completing the corresponding actions (plug all tubes exceeding the plugging limit and all tubes containing through-wall cracks) required by Table 4.4-2.

4.4.4.5 Reports

a. Within 15 days following the completion of each inservice inspection of steam generator tubes, the number of tubes plugged in each steam generator shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2.

b. The complete results of the steam generator tube inservice inspection shall be submitted to the Commission in a Special Report pursuant to Specification 6.9.2 within 12 months following completion of the inspection. This Special Report shall include:

1. Number and extent of tubes inspected.

2. Location and percent of wall-thickness penetration for each indication of an imperfection.

3. Identification of tubes plugged.

c. Results of steam generator tube inspections which fall into Category C-3 shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days and prior to resumption of plant operation. This report shall provide a description of investigations conducted to determine cause of the tube degradation and corrective measures taken to prevent recurrence.

TABLE 4.4-2

STEAM GENERATOR TUBE INSPECTION

1ST SAMPLE INSPECTION			2ND SAMPLE INSPECTION		3RD SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S. G.	C-1	None	N. A.	N. A.	N. A.	N. A.
	C-2	Plug defective tubes and inspect additional 2S tubes in this S. G.	C-1	None	N. A.	N. A.
			C-2	Plug defective tubes and inspect additional 4S tubes in this S. G.	C-1	None
					C-2	Plug defective tubes
					C-3	Perform action for C-3 result of first sample
			C-3	Perform action for C-3 result of first sample	N. A.	N. A.
	C-3	Inspect all tubes in this S. G., plug defective tubes and inspect 2S tubes in each other S. G. Notification to NRC pursuant to §50.72 (b)(2) of 10 CFR Part 50	All other S. G.s are C-1	None	N. A.	N. A.
			Some S. G.s C-2 but no additional S. G. are C-3	Perform action for C-2 result of second sample	N. A.	N. A.
			Additional S. G. is C-3	Inspect all tubes in each S. G. and plug defective tubes. Notification to NRC pursuant to §50.72 (b)(2) of 10 CFR Part 50	N. A.	N. A.

$S = \frac{6}{n}\%$ Where n is the number of steam generators inspected during an inspection

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SURVEILLANCE REQUIREMENTS (Continued)

d. Performance of a Reactor Coolant System water inventory balance at least once per 72 hours.

e. Monitoring the reactor head flange leakoff system at least once per 24 hours.

4.4.5.2.2 Each Reactor Coolant System pressure isolation valve specified in Table 3.4-1 shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. At least once per 18 months,

b. Prior to entering MODE 2 whenever the plant has been in COLD SHUTDOWN for 72 hours or more and if leakage testing has not been performed in the previous 9 months,

c. Prior to returning the valve to service following maintenance, repair, or replacement work on the valve,

d. Within 24 hours following valve actuation for valves in Section B due to automatic or manual action or flow through the valve:

1. Within 24 hours by verifying valve closure, and
2. Within 31 days by verifying leakage rate.

The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

4.4.6.2.3 Each Reactor Coolant System pressure isolation valve power-operated valve specified in Table 3.4-1 shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. At least once per 18 months, and

b. Prior to returning the valve to service following maintenance, repair, or replacement work on the valve.

The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

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TABLE 3.4-1

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

SECTION A

SI-329A	SIT Check
SI-329B	"
SI-330A	"
SI-330B	"
SI-336A	Cold Leg Injection Check
SI-336B	"
SI-335A	"
SI-335B	"
SI-510A	Hot Leg Injection Check
SI-512A	"
SI-510B	"
SI-512B	"
SI-241	HPSI Check
SI-242	"
SI-243	"
SI-244	"

SECTION B

SI-142A	LPSI Check
SI-142B	"
SI-143A	"
SI-143B	"

POWER-OPERATED VALVES

SI-401A	SDC Suction Isolation
SI-401B	"
SI-405A	"
SI-405B	"

(a) Maximum Allowable Leakage (each valve):

1. Except as noted below, leakage rates greater than 1.0 gpm are unacceptable.
2. For power-operated valves (POVs) only, leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are acceptable if the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between previous measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.
3. For power-operated valves (POVs) only, leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.
4. Leakage rates greater than 5.0 gpm are unacceptable.

(b) To satisfy ALARA requirements, leakage may be measured indirectly (as from the performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.

(c) Minimum test differential pressure shall not be less than 200 psid.

schedule in Table 4.4-5. The results of these examinations shall be used to update Figures 3.4-2 and 3.4-3. The adjusted reference temperature resulting from neutron irradiation shall be calculated based on the greater of the following:

a. Actual shift in the RT_{NDT} as measured by impact testing of 88114/0145 weld metal;

b. Predicted shift in RT_{NDT} for E8018/BOCA weld metal as determined by Regulatory Guide 1.99, "Effects of Residual Elements on Predicted Radiation Damage to Reactor Vessel Materials."

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3/4.4.9 STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.4.9 The structural integrity of ASME Code Class 1, 2, and 3 components shall be maintained in accordance with Specification 4.4.9.

APPLICABILITY: All MODES.

ACTION:

a. With the structural integrity of any ASME Code Class 1 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature more than 70°F above the minimum temperature required by NDT considerations.

b. With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F, except during hydrostatic testing of components that are nonisolable from the Reactor Coolant System, then restore the structural integrity prior to increasing the Reactor Coolant System temperature more than 30°F above the minimum temperature required by NDT considerations.

c. With the structural integrity of any ASME Code Class 3 component(s) not conforming to the above requirements, restore the structural integrity of the affected component to within its limit or isolate the affected component from service.

d. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.9 In addition to the requirements of Specification 4.0.5, each reactor coolant pump flywheel shall be inspected per the recommendations of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, August 1975.

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3/4.4.10 REACTOR COOLANT SYSTEM VENTS

LIMITING CONDITION FOR OPERATION

3.4.10 At least one Reactor Coolant System vent path consisting of at least two valves in series powered from emergency busses shall be OPERABLE and closed at each of the following locations:

a. Reactor vessel head, and

b. Pressurizer steam space.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With one of the above Reactor Coolant System vent paths inoperable, STARTUP and/or POWER OPERATION may continue provided the inoperable vent path is maintained closed with power removed from the valve actuator of all the vent valves and block valves in the inoperable vent path; restore the inoperable vent path to OPERABLE status within 30 days, or, be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With two or more Reactor Coolant System vent paths inoperable; maintain the inoperable vent path closed with power removed from the valve actuators of all the vent valves and block valves in the inoperable vent paths, and restore at least one of the vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.10 Each Reactor Coolant System vent path shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying all manual isolation valves in each vent path are locked in the open position.

b. Cycling each vent valve through at least one complete cycle of full travel from the control room during COLD SHUTDOWN or REFUELING.

c. Verifying flow through the Reactor Coolant System vent paths during venting during COLD SHUTDOWN or REFUELING.

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3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3/4.5.1 SAFETY INJECTION TANKS

LIMITING CONDITION FOR OPERATION

3.5.1 Each Reactor Coolant System safety injection tank shall be OPERABLE with:

a. The isolation valve open,

b. A contained borated water volume of between 1679 (78%) and 1807 (83.8%) cubic feet,

c. Between 1720 and 2300 ppm of boron, and

d. A nitrogen cover-pressure of between 600 and 625 psig.

APPLICABILITY: MODES 1, 2, 3*, and 4*.

ACTION:

a. With one safety injection tank inoperable, except as a result of a closed isolation valve, restore the inoperable tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one safety injection tank inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in at least HOT STANDBY within 1 hour and be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.1 Each safety injection tank shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1. Verifying the contained borated water volume and nitrogen cover-pressure in the tanks, and

2. Verifying that each safety injection tank isolation valve is open.

---

*With pressurizer pressure greater than or equal to 1750 psia. When pressurizer pressure is less than 1750 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 235 psig and a maximum pressure of 625 psig, and a contained borated water volume of between 1332 (60%) and 1807 (83.8%) cubic feet. With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 235 psig and a maximum pressure of 625 psig, a boron concentration of between 1720 and 2300 ppm boron, and a contained borated water volume of between 888 (39%) and 1807 (83.8%) cubic feet. In MODE 4 with pressurizer pressure less than 700 psia, the safety injection tanks may be isolated.

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EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the following valves are in the indicated positions with the valves key-locked shut:

Valve Number	Valve Function	Valve Position
a. 2SI-V1556 (SI-506A)	a. Hot Leg Injection	a. SHUT
b. 2SI-V1557 (SI-502A)	b. Hot Leg Injection	b. SHUT
c. 2SI-V1558 (SI-502B)	c. Hot Leg Injection	c. SHUT
d. 2SI-V1559 (SI-506B)	d. Hot Leg Injection	d. SHUT

b. At least once per 31 days by:

1. Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position, and

2. Verifying that the ECCS piping is full of water by venting the ECCS pump casings and accessible discharge piping high points.

c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the safety injection system sump and cause restriction of the pump suctions during LOCA conditions. This visual inspection shall be performed:

1. For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY, and

2. Of the areas affected within containment at the completion of containment entry when CONTAINMENT INTEGRITY is established.

d. At least once per 18 months by:

1. Verifying automatic isolation and interlock action of the shutdown cooling system from the Reactor Coolant System when the Reactor Coolant System pressure (actual or simulated) is 700 ± 20 psia.

SURVEILLANCE REQUIREMENTS (Continued)

2. A visual inspection of the safety injection system sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or corrosion.

3. Verifying that a minimum total of 97.5 cubic feet of solid granular trisodium phosphate dodecahydrate (TSP) is contained within the TSP storage baskets.

4. Verifying that when a representative sample of 0.05 ± 0.01 lbs of TSP from a TSP storage basket is submerged, without agitation, in 5 ± 0.1 gallons of 120 ± 10 °F water borated within RWSP boron concentration limits, the pH of the mixed solution is raised to greater than or equal to 7 within 3 hours.

5. A visual inspection of the TSP storage baskets for evidence of aggregation and the mechanical dispersal of any aggregations found.

e. At least once per 18 months, during shutdown, by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on SIAS and RAS test signals.

2. Verifying that each of the following pumps start automatically upon receipt of a safety injection actuation test signal:

a. High pressure safety injection pump.

b. Low pressure safety injection pump.

3. Verifying that on a recirculation actuation test signal, the low pressure safety injection pumps stop, the safety injection system sump isolation valves open.

f. By verifying that each of the following pumps required to be OPERABLE performs as indicated on recirculation flow when tested pursuant to Specification 4.0.5:

1. High pressure safety injection pumps develop a total head of greater than or equal to 1400 psid for pump A, 1431 psid for pump B and 1429 psid for pump A/B.

2. Low pressure safety injection pump discharge pressure greater than or equal to 177 psig.

SURVEILLANCE REQUIREMENTS (Continued)

g. By verifying the correct position of each electrical and/or mechanical position stop for the following ECCS throttle valves by verifying that each ECCS throttle valve opens to the proper throttled position each time the valve is cycled:

HPSI System Valve Number				LPSI System Valve Number	
a.	SI-225A	e.	SI-227A	a.	SI-138A
b.	SI-225B	f.	SI-227B	b.	SI-138B
c.	SI-226A	g.	SI-228A	c.	SI-139A
d.	SI-226B	h.	SI-228B	d.	SI-139B

h. By performing a flow balance test, during shutdown, following completion of modifications to the ECCS subsystems that alter the subsystem flow characteristics and verifying the following flow characteristics:

HPSI System - Single Pump (Cold leg injection mode)

a. Injection Leg 1, greater than or equal to 218 gpm

b. Injection Leg 2, greater than or equal to 218 gpm

c. Injection Leg 3, greater than or equal to 218 gpm

d. Injection Leg 4, greater than or equal to 218 gpm

With the total developed head greater than or equal to 1015 feet but less than or equal to 1120 feet.

HPSI SYSTEM - Single Pump (Hot/cold leg injection mode)

With the system operating in the hot/cold leg injection mode, the hot leg flow must be greater than or equal to 436 gpm and within ± 10% of the cold leg flow with the total developed head greater than or equal to 1015 feet but less than or equal to 1120 feet.

LPSI System - Single Pump

Flow for each pump is greater than or equal to 4810 with the total developed head greater than or equal to 268 feet but less than or equal to 292 feet.

TABLE 3.6-1

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.	TEST TYPE
7	Demineralized Water	2DW-V609A/B (PMU 151) 2DW-V610 (PMU 162)	Bypass/Type C
8	Station Air	2SA-V610A/B (SA 908) 2SA-V602A/B (SA 909)	Bypass/Type C
9	Instrument Air	2IA-F601A/B (IA 908) 2IA-V602A/B (IA 909)	Bypass/Type C
10	Containment Purge Inlet	2HV-B151A (CAP 103) 2HV-B152A (CAP 104)	Type C
11	Containment Purge Exhaust	2HV-B154B (CAP 204) 2HV-B153B (CAP 203)	Type C
12	Containment Vacuum Relief	2HV-B157B (CVR 101) 2HV-B181B (CVR 102	Type C
13	Containment Vacuum Relief	2HV-B156A (CVR 201) 2HV-V181B (CVR 202)	Type C
14	Nitrogen Systems Supply to Reactor Bldg	2NG-F604 (NG 157) 2NG-V666 (NG 158)	Bypass/Type C
*23			
*24			
25	Fuel Transfer Containment & Fuel Handling Building		Bypass/Type B

*These penetrations shall be tested prior to STARTUP following first refueling outage.

TABLE 3.6-1 (Continued)

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
26	Chemical & Volume Control Letdown Line	2CH-F151BA/B 1CH-F250IA/B	(CVC 109) (CVC 103)	Bypass/Type C
28	Sampling Line from Reactor Coolant Line	2SL-F1504A/B 2SL-F1501A/B	(PSL 107) (PSL 105)	Bypass/Type C
29	Sampling Line from Pressurizer Surge Line	2SL-F1505A/B 2SL-F1502A/B	(PSL 204) (PSL 203)	Bypass/Type C
30	Sampling Line from Pressurizer Steam Space	2SL-F1506A/B 2SL-F1503A/B	(PSL 304) (PSL 303)	Bypass/Type C
31	Waste Management from Containment Vent Header	2WM-F158A/B 2WM-F157A/B	(GMW 105) (GMW 104)	Bypass/Type C
42	Containment Sump Pump Discharge/Post Accident Sample Return	2WM-F105A/B 2WM-F104A/B	(SP 106) (SP 105)	Bypass Type C
43	Boron Management Reactor Drain Tank Outlet	2BM-F109A/B 2BM-F108A/B	(BM 110) (BM 109)	Bypass/Type C
44	Chemical & Volume Control from Reactor Pump Controlled Bleedoff	2CH-F1512A/B 2CH-F1513A/B	(CVC 401) (CVC 606)	Bypass/Type C
45	CARS Makeup to Containment	2HV-B187B 2HV-V185B	(CAR 101B) (CAR 102B)	Bypass/Type C
46	CARS Makeup to Containment	2HV-B188A 2HV-V184A	(CAR 101A) (CAR 102A)	Bypass/Type C
47	CARS Exhaust from Containment	2HV-B192B 2HV-F254B	(CAR 202B) (CAR 201B)	Bypass/Type C

TABLE 3.6-1 (Continued)

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
48	CARS Exhaust from Containment	2HV-B190A	(CAR 202A)	Bypass/Type C
		2HV-F253A	(CAR 201A)	
49	Containment Atmosphere	2CA-E605A	(ARM 110)	Type C
		2CA-E604B	(ARM 109)	
	Monitoring Inlet and Outlet	2CA-V607	(ARM 104)	
		2CA-E606A	(ARM 103)	
51	Refueling Cavity Purification Inlet	2FS-V145A/B	(FS 405)	Bypass/Type C
		2FS-V144A/B	(FS 406)	
59	Safety Injection System from SI Tank to Refueling Water Storage Pool	2SI-V1570	(SI 344)	Bypass/Type C
		2SI-V1561A/B	(SI 343)	
60	Fire Protection System to Reactor Building	2FP-F127	(FP 601A)	Bypass/Type C
		2FP-V128	(FP 602A)	
61	Fire Protection System to Reactor Building	2FP-F129	(FP 601B)	Bypass/Type C
		2FP-V130	(FP 602B)	
62	Water from Refueling Cavity to RWSP	2FS-V165A/B	(FS 416)	Bypass/Type C
		2FS-V164A/B	(FS 415)	
63	Misc Reactor Auxiliary	2SA-V114	(LRT 101)	Type C Type C
65	Containment Leakage Rate Test Connection and Instrument H&V	2SA-V609	(LRT 202)	Type C
		2SA-V611	(LRT 204)	Type C
66	Hydrogen Analyzer Supply and Return	2HA-E609A	(HRA 110A)	Type C
		2HA-E608A	(HRA 109A)	
		2HA-E610A	(HRA 126A)	
		2HA-E637A	(HRA 128A)	

TABLE 3.6-1 (Continued)

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
67	Hydrogen Analyzer Supply and Return	2HA-E629B 2HA-E628B 2HA-E630B 2HA-E638B	(HRA 110B) (HRA 109B) (HRA 126B) (HRA 128B)	Type C
71	Demineralized Water	2DW-V642 2DW-V643	(CMU 244) (CMU 243)	Bypass/Type C
Escape Lock	NA	None		Bypass/Type B
Personnel Lock	NA	None		Type B
Electrical Penetrations	NA	All Primary Canisters except welded spares		Type B

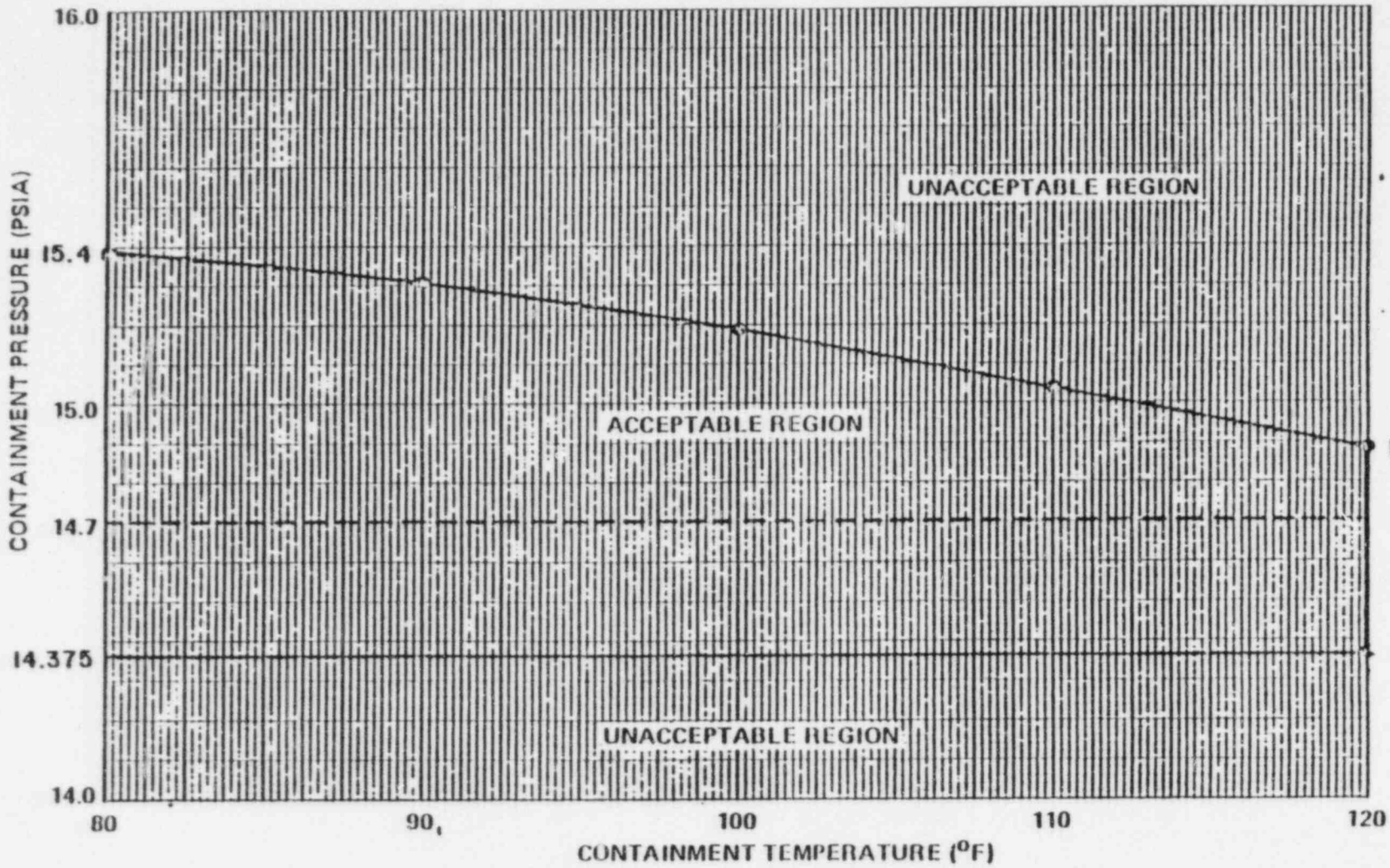

FIGURE 3.6-1

CONTAINMENT PRESSURE VS TEMPERATURE

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CONTAINMENT SYSTEMS

CONTAINMENT VESSEL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.6 The structural integrity of the containment vessel shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the structural integrity of the containment vessel not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.6 The structural integrity of the containment vessel shall be determined during the shutdown for each Type A containment leakage rate test (reference Specification 4.6.1.2) by a visual inspection of the exposed accessible interior and exterior surfaces of the vessel and verifying no apparent changes in appearance of the surfaces or other abnormal degradation. Any abnormal degradation of the containment vessel detected during the above required inspections shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days.

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CONTAINMENT SYSTEMS

CONTAINMENT VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.7 Each containment purge supply and exhaust isolation valve (CAP 103, CAP 104, CAP 203, and CAP 204) shall be OPERABLE and may be open at no greater than the 40° open position allowed by the mechanical stop for less than or equal to 90 hours per 365 days.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With a containment purge supply and/or exhaust isolation valve(s) open for more than 90 hours per 365 days at any open position, close the open valve(s) or isolate the penetration(s) within 4 hours, otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With a containment purge supply and/or exhaust isolation valve(s) having a measured leakage rate exceeding the limits of Surveillance Requirement 4.6.1.7.2, restore the inoperable valve(s) to OPERABLE status within 24 hours, otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.7.1 The cumulative time that the purge supply or exhaust isolation valves are open during the past 365 days shall be determined at least once per 7 days.

4.6.1.7.2 At least once per 3 months* each containment purge supply and exhaust isolation valve with resilient material seals shall be demonstrated OPERABLE by verifying that the measured leakage rate is less than or equal to 0.06 L_a when pressurized to P_a.

4.6.1.7.3 Each containment purge supply and exhaust isolation valve shall be demonstrated OPERABLE during each COLD SHUTDOWN exceeding 24 hours by verifying that the mechanical stops limit the valve opening to a position $\leq$ 40° open.

*Until STARTUP following the first refueling outage, the containment purge supply and exhaust isolation valves shall be tested during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 92 days.

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CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two independent containment spray systems shall be OPERABLE with each spray system capable of taking suction from the RWSP on a containment spray actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal. Each spray system flow path from the safety injection system sump shall be via an OPERABLE shutdown cooling heat exchanger.

APPLICABILITY: MODES 1, 2, 3, and 4*.

ACTION:

With one containment spray system inoperable, restore the inoperable spray system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable spray system to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each containment spray system shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the water level in the containment spray header riser is $\geq$ 149.5 feet MSL elevation.

b. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is correctly positioned to take suction from the RWSP.

c. By verifying, that on recirculation flow, each pump develops a total head of greater than or equal to 219 psi when tested pursuant to Specification 4.0.5.

d. At least once per 18 months, during shutdown, by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on a CSAS test signal.

*When shutdown cooling is in operation, no independent containment spray systems are required to be OPERABLE.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

	PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1.	Containment Isolation (Continued)			
	68	2SL-F604 (PSL406B)	Steam Generator Blowdown Sample	10
	68	2SL-F603 (PSL404B)	Steam Generator Blowdown Sample	10
2.	Containment Purge (CIAS/CPIS)			
	10	2HV-B151A (CAP103)	Containment Purge Inlet	5
	10	2HV-B152A (CAP104)	Containment Purge Inlet	5
	11	2HV-B154B (CAP204)	Containment Purge Outlet	5
	11	2HV-B153B (CAP203)	Containment Purge Outlet	5
3.	Safety Injection Actuation Signal (SIAS)			
	26	1CH-F2501A/B(CVC103)	CVCS Letdown	10
	32	2SI-L101A	SI from SIS Sump	N.A.
	33	2SI-L102B	SI from SIS Sump	N.A.
4.	Main Steam Isolation Signal (MSIS)			
	1	2MS-V602A	Main Steam	N.A.
	1	2MS-F714	Main Steam Sample	N.A.
	2	2MS-V604B	Main Steam	N.A.

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3/4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN ANALYZERS

LIMITING CONDITION FOR OPERATION

3.6.4.1 Two independent containment hydrogen analyzers shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With one containment hydrogen analyzer inoperable, restore the inoperable analyzer to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

b. With both containment hydrogen analyzers inoperable, restore at least one analyzer to OPERABLE status within 72 hours and comply with the requirements of ACTION a, or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.4.1 Each hydrogen analyzer shall be demonstrated OPERABLE by the performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days, and at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using sample gases containing:

a. Zero volume percent hydrogen, balance nitrogen.

b. 9.5 volume percent hydrogen, balance nitrogen.

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CONTAINMENT SYSTEMS

3/4.6.5 VACUUM RELIEF VALVES

LIMITING CONDITION FOR OPERATION

3.6.5 The primary containment to annulus vacuum relief valves shall be OPERABLE with an actuation setpoint of less than or equal to 0.307 psid (8.5 inches H_2O).

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one primary containment to annulus vacuum relief valve inoperable, restore the valve to OPERABLE status within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.5 No additional Surveillance Requirements other than those required by Specification 4.0.5.

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CONTAINMENT SYSTEMS

SHIELD BUILDING STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.6.3 The structural integrity of the shield building shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.6.3.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION

With the structural integrity of the shield building not conforming to the above requirements, restore the structural integrity to within the limits within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.3 The structural integrity of the shield building shall be determined during the shutdown for each Type A containment leakage rate test (reference Specification 4.6.1.2) by a visual inspection of the exposed accessible interior and exterior surfaces of the shield building and verifying no apparent changes in appearance of the concrete surfaces or other abnormal degradation. Any abnormal degradation of the shield building detected during the above required inspections shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days.

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PLANT SYSTEMS

EMERGENCY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator emergency feedwater pumps and associated flow paths shall be OPERABLE with:

a. Two feedwater pumps, each capable of being powered from separate OPERABLE emergency busses, and

b. One feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one emergency feedwater pump inoperable, restore the required emergency feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With two emergency feedwater pumps inoperable be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With three emergency feedwater pumps inoperable, immediately initiate corrective action to restore at least one emergency feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 The emergency feedwater system shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Verifying on a STAGGERED TEST BASIS that each motor-driven pump develops a discharge pressure of greater than or equal to 1298 psig on recirculation flow, and that the turbine-driven pump develops a discharge pressure of greater than or equal to 1342 psig on recirculation flow when the secondary steam supply pressure is greater than 880 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 for the turbine-driven pump.

2. Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

PLANT SYSTEMS

3/4.7.3 COMPONENT COOLING WATER AND AUXILIARY COMPONENT COOLING WATER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.3 At least two independent component cooling water and associated auxiliary component cooling water trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With only one component cooling water and associated auxiliary component cooling water train OPERABLE, restore at least two trains to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.3 Each component cooling water and associated auxiliary component cooling water train shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per 18 months during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on an SIAS test signal.

c. At least once per 18 months by verifying that each component cooling water and associated auxiliary component cooling water pump starts automatically on SIAS and CSAS test signals.

3/4.7.6 CONTROL ROOM AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6 Two independent control room air conditioning systems shall be OPERABLE.

APPLICABILITY: All MODES.

ACTION:

MODES 1, 2, 3, and 4:

With one control room air conditioning system inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6:

a. With one control room air conditioning system inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE control room air conditioning system in the recirculation mode.

b. With both control room air conditioning systems inoperable, or with the OPERABLE control room air conditioning system, required to be in the recirculation mode by ACTION a, not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.7.6 Each control room air conditioning system shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is maintained less than or equal to 110°F, by the operating system(s).

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 hours continuous with the heaters on.

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

SURVEILLANCE REQUIREMENTS (Continued)

b. Stored sources not in use - Each sealed source and fission detector shall be tested prior to use or transfer to another licensee unless tested within the previous 6 months. Sealed sources and fission detectors transferred without a certificate indicating the last test date shall be tested prior to being placed into use.

c. Startup sources and fission detectors - Each sealed startup source and fission detector shall be tested within 31 days prior to being subjected to core flux or installation and following repair or maintenance to the source or detector.

4.7.9.3 Reports - A report shall be prepared and submitted to the Commission on an annual basis if sealed source or fission detector leakage tests reveal the presence of greater than or equal to 0.005 microcurie of removable contamination.

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PLANT SYSTEMS

SPRAY AND/OR SPRINKLER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.10.2 The following spray and/or sprinkler systems shall be OPERABLE:

Sprinkler No.	Bldg./Elev.	Location
FPM-1	RCB	Reactor Coolant Pumps 1A, 1B
FPM-2	RCB	Reactor Coolant Pump 2A, 2B
FPM-3A	RAB +21, +46	Diesel Generator Area A, Feed Tank Room A
FPM-4B	RAB +21, +46	Diesel Generator Area B, Feed Tank Room B
FPM-11A	RAB -35	Emergency D/G Fuel Oil Tank A
FPM-12B	RAB -35	Emergency D/G Fuel Oil Tank B
FPM-16	FWPH +15	Fire Water Pump House
FPM-17	RAB +35	Cable Vault Area
FPM-18	RAB +35	Electrical Penetration Area 1
FPM-19	RAB +35	Electrical Penetration Area 2
FPM-22	RAB -4	Corridor and Blowdown Tank Rooms
FPM-23	RAB -35	Corridor, Shutdown Heat Exchanger Rooms, ECW Pump Room
FPM-24	RAB +21	Corridors CCW Area
FPM-25B	RAB +21	North High Voltage Switchgear Room
FPM-26	RAB +46	Ventilation Equipment Rooms
FPM-27	RAB +7	HVAC Rooms
FPM-28	RAB -35	Auxiliary Component Cooling Water Pump Rooms
FPM-29	RAB +35	Relay Room, Corridor
FPM-30A	RAB +21	South High Voltage Switchgear Room

APPLICABILITY: Whenever equipment protected by the spray/sprinkler system is required to be OPERABLE.

ACTION:

a. With one or more of the above required spray and/or sprinkler systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged unless the spray and/or sprinkler system(s) is located inside the containment, then inspect that containment area at least once per 8 hours or monitor air temperature at least once per hour at the locations listed in Specification 4.6.1.5; for other areas, establish an hourly fire watch patrol.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.2 Each of the above required spray and/or sprinkler systems shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power operated, or automatic) in the flow path is in its correct position.

b. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

c. At least once per 18 months:

1. By performing a system functional test which includes simulated automatic actuation of the system, and:

a) Verifying that the automatic valves in the flow path actuate to their correct positions on a thermal/preaction test signal, and

b) Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

2. By a visual inspection of the dry pipe spray and sprinkler headers to verify their integrity, and

3. By a visual inspection of each nozzle's spray area to verify the spray pattern is not obstructed.

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YARD FIRE HYDRANTS AND HYDRANT HOSE HOUSES

LIMITING CONDITION FOR OPERATION

3.7.10.5 The yard fire hydrants and associated hydrant hose houses shown in Table 3.7-5 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the yard fire hydrants is required to be OPERABLE.

ACTION:

a. With one or more of the yard fire hydrants or associated hydrant hose houses shown in Table 3.7-5 inoperable, within 1 hour have sufficient additional lengths of 2-1/2-inch diameter hose located in an adjacent OPERABLE hydrant hose house to provide service to the unprotected area(s) if the inoperable fire hose is the primary means of fire suppression; otherwise, provide the additional hose within 24 hours.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.5 Each of the yard fire hydrants and associated hydrant hose houses shown in Table 3.7-5 shall be demonstrated OPERABLE:

a. At least once per 31 days by visual inspection of the hydrant hose house to assure all required equipment is at the hose house.

b. At least once per 12 months by:

1. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above maximum fire main operating pressure, whichever is greater.

2. Inspecting all the gaskets and replacing any degraded gaskets in the couplings.

3. Performing a flow check of each hydrant to verify its OPERABILITY.

4. Visually inspecting each yard fire hydrant and verifying that the hydrant barrel and the hydrant are not damaged.

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3/4.7.12 ESSENTIAL SERVICES CHILLED WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.12 Two independent essential services chilled water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

With only one essential services chilled water loop OPERABLE, restore two loops to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.12.1 Each of the above required essential services chilled water loop shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per 31 days by verifying that the water outlet temperature is $\leq$ 42°F at a flow rate of $\geq$ 500 gpm.

c. At least once per 18 months during shutdown, by verifying that each automatic valve servicing safety-related equipment actuates to its correct position on a safety injection actuation test signal.

d. At least once per 18 months, by verifying that each essential services chilled water pump and compressor starts automatically on a safety injection actuation test signal.

4.7.12.2 The backup essential services chilled water pump and chiller shall be demonstrated OPERABLE in accordance with Specification 4.7.12.1 whenever it is functioning as part of one of the required essential services chilled water loops.

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3/4.7.13 COMMON FOUNDATION BASEMAT

LIMITING CONDITION FOR OPERATION

3.7.13 The structural integrity of the Nuclear Plant Island Structure (NPIS) Common Foundation Basemat shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

With the NPIS Common Foundation Basemat inoperable, perform an engineering evaluation to determine the effects of the condition on the structural integrity of the NPIS Common Foundation Basemat; prepare and submit a Special Report to the Commission within 14 days pursuant to Specification 6.9.2: (1) detailing the results of the engineering evaluation, and (2) justifying the acceptability of continued operation; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.13 The NPIS Common Foundation Basemat shall be demonstrated OPERABLE:

a. At least once per 92 days by verifying that the measured differential settlement of the Common Foundation Basemat does not exceed 1/2 inch and the total differential settlement does not exceed 1 inch.

b. At least once per 92 days by analyzing a sample of groundwater obtained in proximity to the NPIS Common Foundation Basemat and verifying that the chloride content does not exceed 250 ppm.

c At least once per 18 months during shutdown by verifying that no cracking exists with a width in excess of 40 mils at the lowest levels of each of the buildings on the NPIS Common Foundation Basemat.

SURVEILLANCE REQUIREMENTS (Continued)

2. Within 1 week after obtaining the sample, verify an impurity level of less than 2 mg of insolubles per 100 ml when tested in accordance with ASTM-D2274-70.

3. Within 2 weeks of obtaining the sample verify that the other properties specified in Table 1 of ASTM-D975-77 and Regulatory Guide 1.137 Position 2.a are met when tested in accordance with ASTM-D975-77.

d. At least once per 18 months during shutdown by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.

2. Verifying the generator capability to reject a load of greater than or equal to 498 kW (HPSI pump) while maintaining voltage at 4160 ± 420 volts and frequency at 60 +4.5, -1.2 Hz.

3. Verifying the generator capability to reject a load of 4400 kW without tripping. The generator voltage shall not exceed 4784 volts during and following the load rejection.

4. Simulating a loss-of-offsite power by itself, and:

a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.

b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds after the auto-start signal, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 + 1.2, -0.3 Hz during this test.

5. Verifying that on an SIAS actuation test signal (without loss-of-offsite power) the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The steady-state generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the generator voltage and frequency shall be maintained within these limits during this test.

SURVEILLANCE REQUIREMENTS (Continued)

6. Simulating a loss-of-offsite power in conjunction with an SIAS actuation test signal, and

   a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.

   b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds after the auto-start signal, energizes the auto-connected emergency loads through the load sequencer and operates for greater than or equal to 5 minutes. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 + 1.2, -0.3 Hz during this test.

   c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with a safety injection actuation signal.

7. Verifying the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 4840 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to greater than or equal to 4400 kW. The generator voltage and freqency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal; the steady-state generator voltage and frequency shall be 4160 ± 420 volts and 60 + 1.2, -0.3 Hz during this test. Within 5 minutes after completing this 24-hour test, perform Surveillance Requirement 4.8.1.1.2.d.4b.

8. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 4400 kW.

9. Verifying the diesel generator's capability to:

   a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

   b) Transfer its loads to the offsite power source, and

   c) Be restored to its standby status.

10. Verifying that with the diesel generator operating in a test mode (connected to its bus), a simulated safety injection signal overrides the test mode by (1) returning the diesel generator to standby operation and (2) automatically energizes the emergency loads with offsite power.

11. Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the diesel oil feed tank of each diesel via the installed cross connection lines.

12. Verifying that the automatic load sequence timer is OPERABLE with the time of each load block within ±5% of the sequenced load block time.

13. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

    a) turning gear engaged
    b) emergency stop
    c) loss of D.C. control power
    d) governor fuel oil linkage tripped

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 600 rpm (60 ± 1.2 Hz) in less than or equal to 10 seconds.

f. At least once per 10 years by:

1. Draining each diesel generator fuel oil storage tank, removing the accumulated sediment, and cleaning the tank using a sodium hypochlorite solution or equivalent, and

2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code at a test pressure equal to 110% of the system design pressure.

g. By performing a visual inspection of the interior of the diesel generator fuel oil storage tanks each time the tank is drained and, if necessary, clean the tank with a sodium hypochlorite solution, or equivalent.

4.8.1.1.3 Reports - All diesel generator failures, valid or nonvalid, shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests (on a per nuclear unit basis) is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

DRAFT

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. One diesel generator with:

1. A diesel oil feed tank containing a minimum volume of 337 gallons of fuel,

2. The diesel fuel oil storage tanks containing a minimum volume of 38,760 gallons of fuel, and

3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel, or crane operation with loads over the fuel storage pool. In addition, when in MODE 5 with the reactor coolant loops not filled, or in MODE 6 with the water level less than 23 feet above the reactor vessel flange, immediately initiate corrective action to restore the required sources to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1, 4.8.1.1.2, (except for Surveillance Requirement 4.8.1.1.2a.5.) and 4.8.1.1.3.

ELECTRICAL POWER SYSTEMS

D.C. SOURCES

DRAFT

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, one 125-volt battery bank (3A-S or 3B-S) and one associated full capacity charger shall be OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

a. With the required battery bank inoperable, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes or movement of irradiated fuel; initiate corrective action to restore the required battery bank to OPERABLE status as soon as possible.

b. With the required full capacity charger inoperable, demonstrate the OPERABILITY of its associated battery bank by perfoming Surveillance Requirement 4.8.2.1a.1. within 1 hour, and at least once per 8 hours thereafter. If any Category A limit in Table 4.8-2 is not met, declare the battery inoperable.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The above required 125-volt battery bank and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.1.

ELECTRICAL POWER SYSTEMS

DRAFT

ONSITE POWER DISTRIBUTION

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.3.2 As a minimum, the following electrical busses shall be energized in the specified manner:

a. One division of A.C. ESF busses consisting of one 4160 volt and one 480-volt A.C. ESF bus (3A3-S and 3A31-S or 3B3-S and 3B31-S).

b. Two 120-volt A.C. SUPS busses energized from their associated inverters connected to their respective D.C. busses (3MA-S, 3MB-S, 3MC-S, or 3MD-S).

c. One 120-volt A.C. SUPS Bus (3A-S or 3B-S) energized from its associated inverter connected to its respective D.C. bus.

d. One 125-volt D.C. bus (3A-DC-S or 3B-DC-S) connected to its associated battery bank.

APPLICABILITY: MODES 5 and 6.

ACTION:

With any of the above required electical busses not energized in the required manner, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, or movement of irradiated fuel, initiate corrective action to energize the required electrical busses in the specified manner as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.3.2 The specified busses shall be determined energized in the required manner at least once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

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TABLE 3.8-1

CONTAINMENT PENETRATION

CONDUCTOR OVERCURRENT

PROTECTIVE DEVICES

6.9 kV POWER FROM MEDIUM VOLTAGE SWITCHGEAR

ITEM NO.	SYSTEM POWERED	BREAKER PROTECTION	OVERCURRENT PROTECTIVE DEVICES (NOTE 3) DEVICE TYPE AND TRIP SETPOINT (NOTE 1) SHEET NO.	LINE NO.	TIME-CURRENT CHARACTERISTIC	REMARKS
1	Reactor Coolant Pump 1A	Primary Backup 1 Backup 2	11A1 Adjust Transfer Trip Relay 2/220 to 4 s (TDPU)	15, 16, 17	Note 2	Items 1 thru 4 - Backup protection is provided by Transfer Trip Relays to Startup Transformer and Unit Auxiliary Transformer Breakers.
2	Reactor Coolant Pump 1B	Primary Backup 1 Backup 2	12A1 Adjust Transfer Trip Relay 2/230 to 4 s (TDPU)	15, 16, 17	Note 2	
3	Reactor Coolant Pump 2A	Primary Backup 1 Backup 2	11A1 Adjust Transfer Trip Relay 2/240 to 4 s (TDPU)	18, 19, 20	Note 2	
4	Reactor Coolant Pump 2B	Primary Backup 1 Backup 2	12A1 Adjust Transfer Trip Relay 2/250 to 4 s (TDPU)	18, 19, 20	Note 2	
						Operation of Primary and Backup Overcurrent Protection is illustrated on FSAR Figure 8.3-28.

TABLE 3.8-1 (Continued)

480 VOLTS POWER FROM MCCs

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			DEVICE	TYPE	TRIP SETPOINT (NOTE 1)	TIME-CURRENT CHARACTERISTIC	
1	Safety Inj. Tank 1A Iso. Val. 1SI-V1505 Tk 1A (SI-331A)	Primary	Breaker	EF	61	Notes 2, 3	
		Backup	Fuse	TRS	61	Note 4	
2	Safety Inj. Tank 2A Iso. Val. 1SI-V1507 Tk 2A (SI-332A)	Primary	Breaker	EF	61	Notes 2, 3	
		Backup	Fuse	TRS	61	Note 4	
3	LP-311	Primary	Breaker	EF	62	Notes 2, 3	
		Backup	Fuse	TRS	62	Note 4	
4	RCS Loop 2 SDC Iso. Val. 1SI-V1504A (SI-401A)	Primary	Breaker	EF	63	Notes 2, 3	
		Backup	Fuse	TRS	63	Note 4	
5	CARS Suction Val. 2HV-F253A (CARS-201A)	Primary	Breaker	EF	64	Notes 2, 3	
		Backup	Fuse	TRS	64	Note 4	
6	Hydraulic Pump For Val. 1SI-V1503A (SI-405A)	Primary	Breaker	EF	64	Notes 2, 3	
		Backup	Fuse	TRS	64	Note 4	

TABLE 3.8-1 (Continued)

480 VOLTS POWER FROM MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			DEVICE	TYPE	TRIP SETPOINT (NOTE 1)	TIME-CURRENT CHARACTERISTIC	
7	Safety Inj. Tank 1B Iso. Val. 1SI-V1506 Tk 1B (SI-331B)	Primary	Breaker	EF	65	Notes 2, 3	
		Backup	Fuse	TRS	65	Note 4	
8	Safety Inj. Tank 2B Iso. Val. 1SI-V1508 Tk 1B (SI-332B)	Primary	Breaker	EF	65	Notes 2, 3	
		Backup	Fuse	TRS	65	Note 4	
9	LP-310	Primary	Breaker	EF	66	Notes 2, 3	
		Backup	Fuse	TRS	66	Note 4	
10	RCS Loop 1 SDC Iso. Val. 1SI-V1502B (SI-401B)	Primary	Breaker	EF	67	Notes 2, 3	
		Backup	Fuse	TRS	67	Note 4	
11	CARS Suction Val. 2HV-F254B (CAR-201B)	Primary	Breaker	EF	68	Notes 2, 3	
		Backup	Fuse	TRS	68	Note 4	
12	Hydraulic Pump For Val. 1SI-V1501B (SI-405B)	Primary	Breaker	EF	68	Notes 2, 3	
		Backup	Fuse	TRS	68	Note 4	

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TABLE 3.8-1 (Continued)

480 VOLTS POWER FROM MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			DEVICE	TYPE	TRIP SETPOINT (NOTE 1)	TIME-CURRENT CHARACTERISTIC	
13	Cont. 30KVA Transf. PDP 377A	Primary	Breaker	EF	71	Notes 2, 3	
		Backup	Fuse	TRS	71	Note 4	
14	RCP 2A Oil Lift Pump A	Primary	Breaker	EF	71	Notes 2, 3	
		Backup	Fuse	TRS	71	Note 4	
15	RCP 1A Oil Lift Pump A	Primary	Breaker	EF	71	Notes 2, 3	
		Backup	Fuse	TRS	71	Note 4	
16	SG 1 Vent Val. 2MS-V668 (MS-101A)	Primary	Breaker	EF	71	Notes 2, 3	
		Backup	Fuse	TRS	71	Note 4	
17	Moveable Detector Drive Mach. 1	Primary	Breaker	EF	72	Notes 2, 3	
		Backup	Fuse	TRS	72	Note 4	
18	SG 2 Vent. Val. 2MS-V667 (MS-101B)	Primary	Breaker	EF	74	Notes 2, 3	
		Backup	Fuse	TRS	74	Note 4	
19	RCP 1B Oil Lift Pump A	Primary	Breaker	EF	74	Notes 2, 3	
		Backup	Fuse	TRS	74	Note 4	
20	RCP 2B Oil Lift Pump A	Primary	Breaker	EF	74	Notes 2, 3	
		Backup	Fuse	TRS	74	Note 4	

TABLE 3.8-1 (Continued)

480 VOLTS POWER FROM MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			DEVICE	TYPE	TRIP SETPOINT (NOTE 1)	TIME-CURRENT CHARACTERISTIC	
21	Moveable Detector Drive Mach. 2	Primary	Breaker	EF	74	Notes 2, 3	
		Backup	Fuse	TRS	74	Note 4	
22	Cont. 30KVA Transf. MDP 378B	Primary	Breaker	EF	75	Notes 2, 3	
		Backup	Fuse	TRS	75	Note 4	
23	H_2 Recombiner Power Supply A	Primary	Breaker	FJ	77	Notes 2, 3	
		Backup	Fuse	TRS	77	Note 4	
24	Reactor Cavity Cooling Sys. Fan S-2 (3A)	Primary	Breaker	EF	78	Notes 2, 3	
		Backup	Fuse	TRS	78	Note 4	
25	Radiation Removal Unit E-13 (3A)	Primary	Breaker	EF	78	Notes 2, 3	
		Backup	Fuse	TRS	78	Note 4	
26	RCP 1A Oil Lift Pump B	Primary	Breaker	EF	78	Notes 2, 3	
		Backup	Fuse	TRS	78	Note 4	
27	RCP 2A Oil Lift Pump B	Primary	Breaker	EF	78	Notes 2, 3	
		Backup	Fuse	TRS	78	Note 4	
28	H_2 Recombiner Power Supply B	Primary	Breaker	FJ	80	Notes 2, 3	
		Backup	Fuse	TRS	80	Note 4	

TABLE 3.8-1 (Continued)

480 VOLTS POWER FROM MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			DEVICE	TYPE	TRIP SETPOINT (NOTE 1)	TIME-CURRENT CHARACTERISTIC	
29	Reactor Cavity Cooling Sys. Fan S-2 (3B)	Primary	Breaker	EF	81	Notes 2, 3	
		Backup	Fuse	TRS	81	Note 4	
30	Radiation Removal Unit E-13 (3B)	Primary	Breaker	EF	81	Notes 2, 3	
		Backup	Fuse	TRS	81	Note 4	
31	RCP 1B Oil Lift Pump B	Primary	Breaker	EF	81	Notes 2, 3	
		Backup	Fuse	TRS	81	Note 4	
32	RCP 2B Oil Lift Pump B	Primary	Breaker	EF	81	Notes 2, 3	
		Backup	Fuse	TRS	81	Note 4	
33	Missile Shield Truck Receptacle	Primary	See Remarks				Item 33 - Primary Breaker is Locked Out in the Open Position during MODES 1, 2, 3, and 4. Therefore, inoperable Primary or Backup Protection is not a LCO.
		Backup					
34	Cont. Cooling Unit AH-1(3A-SA)	Primary	Breaker	JL	97	Notes 2, 3	
		Backup (Note 5)	Breaker	ECS	20A1	Notes 6, 7, 8	
			Relay	IAC66T	20A2		

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TABLE 3.8-1 (Continued)

480 VOLTS POWER FROM MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			DEVICE	TYPE	TRIP SETPOINT (NOTE 1)	TIME-CURRENT CHARACTERISTIC	
35	Cont. Cooling Unit AH-1 (3C-SA)	Primary	Breaker	JL	97	Notes 2, 3	
		Backup (Note 5)	Breaker Relay	ECS IAC66T	20A1 20A2	Notes 6, 7, 8	
36	Cont. Cooling Unit AH (3B-SB)	Primary	Breaker	JL	97	Notes 2, 3	
		Backup (Note 5)	Breaker Relay	ECS IAC66T	21A1 21A2	Notes 6, 7, 8	
37	Cont. Cooling Unit AH-1 (3D-SB)	Primary	Breaker	JL	97	Notes 2, 3	
		Backup (Note 5)	Breaker Relay	ECS IAC66T	21A1 21A2	Notes 6, 7, 8	
38	Cont. Sump Pump A	Primary	Breaker	EF	45	Notes 2, 3	
		Backup	Fuse	TRS	45	Note 4	
39	LP-306	Primary	Breaker	EF	45	Notes 2, 3	
		Backup	Fuse	TRS	45	Note 4	
40	LP-301	Primary	Breaker	EF	45	Notes 2, 3	
		Backup	Fuse	TRS	45	Note 4	
41	LP-302	Primary	Breaker	EF	45	Notes 2, 3	
		Backup	Fuse	TRS	45	Note 4	

TABLE 3.8-1 (Continued)

480 VOLTS POWER FROM MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			DEVICE	TYPE	TRIP SETPOINT (NOTE 1)	TIME-CURRENT CHARACTERISTIC	
42	LP-304	Primary	Breaker	EF	45	Notes 2, 3	
		Backup	Fuse	IRS	45	Note 4	
43	Cont. Elevator B	Primary	Breaker	EF	47	Notes 2, 3	
		Backup	Fuse	IRS	47	Note 4	
44	Refueling Cavity Drain Pump	Primary	Breaker	EF	48	Notes 2, 3	
		Backup	Fuse	IRS	48	Note 4	
45	Refueling Equipment	Primary	Breaker	EF	50	Notes 2, 3	
		Backup	Fuse	IRS	50	Note 4	
46	Refueling Equipment	Primary	Breaker	EF	48	Notes 2, 3	
		Backup	Fuse	IRS	48	Note 4	
47	Cont. Sump Pump B	Primary	Breaker	EF	49	Notes 2, 3	
		Backup	Fuse	IRS	49	Note 4	
48	LP-303	Primary	Breaker	EF	49	Notes 2, 3	
		Backup	Fuse	IRS	49	Note 4	
49	LP-305	Primary	Breaker	EF	49	Notes 2, 3	
		Backup	Fuse	IRS	49	Note 4	

TABLE 3.8-1 (Continued)

480 VOLTS POWER FROM MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			DEVICE	TYPE	TRIP SETPOINT (NOTE 1)	TIME-CURRENT CHARACTERISTIC	
50	LP-300	Primary	Breaker	EF	49	Notes 2, 3	
		Backup	Fuse	TRS	49	Note 4	
51	SDC Loop 1 Vacuum Priming Pump	Primary	Breaker	EE	45	Notes 2, 3	
		Backup	Fuse	ATM	43	Note 4	
52	SDC Loop 2 Vacuum Priming Pump	Primary	Breaker	EE	47	Notes 2, 3	
		Backup	Fuse	ATM	47	Note 4	
53	PDP 365A Receptacles	Primary	Breaker	TED	104	Notes 2, 3	
		Backup	Breaker	TED	104	Notes 2, 3	
54	PDP 366B Receptacles	Primary	Breaker	TED	104	Notes 2, 3	
		Backup	Breaker	TED	104	Notes 2, 3	

TABLE 3.8-1 (Continued)

208 VOLTS CONTROL POWER FROM PDPs OR MCCs

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES SHEET NO.	DEVICE	TYPE/CHARACTERISTIC (NOTE 2)
1	RCP 1A Heater	Primary	CWD 2269	Breaker	TEB
		Backup	CWD 2269	Breaker	TEB
2	RCP 2A Heater	Primary	CWD 2269	Breaker	TEB
		Backup	CWD 2269	Breaker	TEB
3	RCP 1B Heater	Primary	CWD 2270	Breaker	TEB
		Backup	CWD 2270	Breaker	TEB
4	RCP 2B Heater	Primary	CWD 2270	Breaker	TEB
		Backup	CWD 2270	Breaker	TEB

TABLE 3.8-1 (Continued)

120 VOLTS CONTROL POWER FROM PDPs OR MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES				REMARKS
			TRIP SETPOINT (NOTE 1) SHEET NO.	CIRCUIT NO.	DEVICE	TYPE/TIME-CURRENT CHARACTERISTIC (NOTE 2)	
78	Sol. Valve 1CH-E2505A (CVC-216A)	Primary	147	Ckt. 31	Breaker	CD	
		Backup	147A	Ckt. 31	Fuse	FRN	
79	Sol. Valve 1CH-E2505B (CVC-216B)	Primary	148	Ckt. 31	Breaker	CD	
		Backup	148A	Ckt. 31	Fuse	FRN	
80	Sol. Valve 7WM-E677 (SP-102B)	Primary		CB 2	Breaker	IP	15a Breakers on Skid #4 (5817-6368)
		Backup		Ckt. H4	Breaker	NQO	
81	Sol. Valves 2RC-2557A (RC-3184) 2RC-2559A (RC-1015) 2RC-2561A (RC-3186)	Primary	212	Ckt. 2	Breaker	EE	
		Backup	120A	F2	Fuse	TRS	
82	Sol. Valves 2RC-2558B (RC-3183) 2RC-2560B (RC-1014) 2RC-2562B (RC-1017)	Primary	213	Ckt. 2	Breaker	EE	
		Backup	121A	F1	Fuse	TRS	
83	1SI-V1505IK1A (SI-331A) Space HTR	Primary	186	Ckt. 13	Breaker	CD	
		Backup	186A	Ckt. 13	Fuse	FRN	

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TABLE 3.8-1 (Continued)

120 VOLTS CONTROL POWER FROM PDPs OR MCCs (Continued)

ITEM NO.	SYSTEM POWERED	PROTECTION	OVERCURRENT PROTECTIVE DEVICES TRIP SETPOINT (NOTE 1) SHEET NO.	CIRCUIT NO.	DEVICE	TYPE/TIME-CURRENT CHARACTERISTIC (NOTE 2)	REMARKS
91	Pzr Spray Valves 1RC-F1501A (RC301A)	Primary	150	Ckt. 4	Breaker	TEB	
	& 1RC-F1502B (RC301B)	Backup	CWD 296	F1	Fuse	ATM	
92	Movable Incore Det. Drive Mach. #1 Control	Primary	126	Ckt. 32	Breaker	EE	
		Backup	CWD 158		Fuse	FRN	
93	Movable Incore Det. Switching Device	Primary	136	Ckt. 7	Breaker	EE	
		Backup	CWD 158		Fuse	ABV	
94	Refueling Machine Control	Primary	CWD 182		Fuse	TRS	
		Backup	CWD 182		Fuse	KTN	
95	1SI-V1506IK1B (SI-331B)	Primary	187	Ckt. 13	Breaker	CD	
	Space HTR	Backup	187A	Ckt. 13	Fuse	FRN	
96	1SI-V1506IK1B (SI-331B)	Primary	148	Ckt. 6	Breaker	CD	
	Limit Switch & Ind. Lights	Backup	148A	Ckt. 6	Fuse	FRN	

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TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
2SI-V1534 (SI-219A)	HPSI Hdr. A Orifice Bypass	No
2SI-V1556 (SI-506A)	RC Loop 1 Hot Leg Inj. Isol.	No
2SI-V1557 (SI-502A)	RC Loop 1 Hot Let Inj. F.C.	No
2HV-8168B (CAR-204B)	CARS Disch.	Yes
3HV-B207B (HVR-313B)	CVAS B Train Outlet	Yes
3HV-B209B (HVR-304B)	CVAS B Train Inlet	Yes
2MS-V663 (MS-120B)	Steam Line 2 Upstream Normal Drain	No
2MS-V664 (MS-119B)	Steam Line 2 Upstream Emerg. Drain	No
2SI-V811B (SI-219B)	HPSI Hdr. B Orifice Bypass	No
2SI-V1558 (SI-502B)	RC Loop 2 Hot Leg Flow Contr.	No
2SI-V1559 (SI-506B)	RC Loop 2 Hot Leg Inj. Isol.	No
- (MS-416)	Emerg. Feed Water Pump Turbine Stop	No
1SI-V1501B (SI-405B)	Hyd. Pump Motor RCS Loop 1 Shutdown Cooling Isolation	No
1SI-V1503A (SI-405A)	Hyd. Pump Motor RCS Loop 2 Shutdown Cooling Isolation	No

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TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
2SI-V1534 (SI-219A)	HPSI Hdr. A Orifice Bypass	No
2SI-V1556 (SI-506A)	RC Loop 1 Hot Leg Inj. Isol.	No
2SI-V1557 (SI-502A)	RC Loop 1 Hot Let Inj. F.C.	No
2HV-B168B (CAR-204B)	CARS Disch.	Yes
3HV-B207B (HVR-313B)	CVAS B Train Outlet	Yes
3HV-B209B (HVR-304B)	CVAS B Train Inlet	Yes
2MS-V663 (MS-120B)	Steam Line 2 Upstream Normal Drain	No
2MS-V664 (MS-119B)	Steam Line 2 Upstream Emerg. Drain	No
2SI-V811B (SI-219B)	HPSI Hdr. B Orifice Bypass	No
2SI-V1558 (SI-502B)	RC Loop 2 Hot Leg Flow Contr.	No
2SI-V1559 (SI-506B)	RC Loop 2 Hot Leg Inj. Isol.	No
- (MS-416)	Emerg. Feed Water Pump Turbine Stop	No
1SI-V1501B (SI-405B)	Hyd. Pump Motor RCS Loop 1 Shutdown Cooling Isolation	No
1SI-V1503A (SI-405A)	Hyd. Pump Motor RCS Loop 2 Shutdown Cooling Isolation	No

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TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
2SI-V1534 (SI-219A)	HPSI Hdr. A Orifice Bypass	No
2SI-V1556 (SI-506A)	RC Loop 1 Hot Leg Inj. Isol.	No
2SI-V1557 (SI-502A)	RC Loop 1 Hot Let Inj. F.C.	No
2HV-B168B (CAR-204B)	CARS Disch.	Yes
3HV-B207B (HVR-313B)	CVAS B Train Outlet	Yes
3HV-B209B (HVR-304B)	CVAS B Train Inlet	Yes
2MS-V663 (MS-120B)	Steam Line 2 Upstream Normal Drain	No
2MS-V664 (MS-119B)	Steam Line 2 Upstream Emerg. Drain	No
2SI-V811B (SI-219B)	HPSI Hdr. B Orifice Bypass	No
2SI-V1558 (SI-502B)	RC Loop 2 Hot Leg Flow Contr.	No
2SI-V1559 (SI-506B)	RC Loop 2 Hot Leg Inj. Isol.	No
- (MS-416)	Emerg. Feed Water Pump Turbine Stop	No
1SI-V1501B (SI-405B)	Hyd. Pump Motor RCS Loop 1 Shutdown Cooling Isolation	No
1SI-V1503A (SI-405A)	Hyd. Pump Motor RCS Loop 2 Shutdown Cooling Isolation	No

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TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
2SI-V1534 (SI-219A)	HPSI Hdr. A Orifice Bypass	No
2SI-V1556 (SI-506A)	RC Loop 1 Hot Leg Inj. Isol.	No
2SI-V1557 (SI-502A)	RC Loop 1 Hot Let Inj. F.C.	No
2HV-B168B (CAR-204B)	CARS Disch.	Yes
3HV-B207B (HVR-313B)	CVAS B Train Outlet	Yes
3HV-B209B (HVR-304B)	CVAS B Train Inlet	Yes
2MS-V663 (MS-120B)	Steam Line 2 Upstream Normal Drain	No
2MS-V664 (MS-119B)	Steam Line 2 Upstream Emerg. Drain	No
2SI-V811B (SI-219B)	HPSI Hdr. B Orifice Bypass	No
2SI-V1558 (SI-502B)	RC Loop 2 Hot Leg Flow Contr.	No
2SI-V1559 (SI-506B)	RC Loop 2 Hot Leg Inj. Isol.	No
- (MS-416)	Emerg. Feed Water Pump Turbine Stop	No
1SI-V1501B (SI-405B)	Hyd. Pump Motor RCS Loop 1 Shutdown Cooling Isolation	No
1SI-V1503A (SI-405A)	Hyd. Pump Motor RCS Loop 2 Shutdown Cooling Isolation	No

F4.17

EBASCO SERVICES INCORPORATED

DESIGN CHANGE NOTIFICATION

612/9-79

PROJECT: WATERFORD SES UNIT NO. 3 | OPS NO. | DESIGN CHANGE NO.: DCN- ME-90 R1

o W. Taeger (SR) RESIDENT ENGINEER - Dept Construction | Location Jobsite | Date 6/13/83 7/14/83 R1

Re: ☒ Drawing No. 1564-2506 Dwg. | Title Vendor Dwg

☒ Specification No. 1564-3363 | Page Vendor Dwg

☐ Other

ANTICIPATED REVISIONS TO FINAL DOCUMENTS

AREA OF CHANGE: Technical ☐ Major; Cost ☐ Major (≥ $100,000); Schedule ☐ Major (Critical Path); ☒ Minor; ☒ Minor; ☒ Minor (Non-critical Path)

EBASCO SERVICES, INC. WATERFORD III DOCUMENT CONTROL JUL 27 1983 Document Accountable AND RETURNABLE CONTROL NUMBER

EBASCO SERVICES, INC. RECEIVED JUL 26 1983 ENGINEERING DOCUMENT DEPT. WATERFORD 3 FIELD

☐ Engineering "Hold" placed on construction activities in area defined herein pending receipt of formally revised document(s) and/or revised DCN. PE signature not required.

☒ Released for construction on basis of modification(s) prescribed by this DCN.

Applicable documents will be revised by:

☒ Home Office Vendor Dwgs.

☐ Ebasco Site Support Engineers (Project Engineer to assign Open Engineering Item No.)

☒ As-built drawing by Resident Engineer's staff ☐ Other

PROPOSED CHANGE — DESCRIPTION

Install variable limit stop on valves:

2HV-B151A

2HV-B152A

2HV-B153B

2HV-B154B

R1 Pg 385 Revised to Show As-Built

REASON FOR CHANGE

☐ Field Change Request (FCR No.)

☒ Required modifications to design ~~or specification~~

☐ Disposition of nonconforming item

☐ Changes in regulatory or other requirements

☒ Operational experience

☒ Other See Comments. R1 Per LP&L shop request

EXHIBITS ATTACHED ☐ No ☒ Yes – If Yes, Check Applicable Boxes)

☐ Copies of marked-up area of drawing(s)

☐ Field Change Request (FCR No.)

☒ Other (Describe) Detailed Installation Sketches

COMMENTS: 1) Method described by this DCN will alleviate problems encountered during HFT. ⚠ S. O'Connor 7-16-83

NOTES: 2) Work required under Witness of Bettis Rep.

3) Actual valve's open will determined by DCN-ME-2 R1

SCHEDULED ERECTED/PLACEMENT DATE(S) IMMINENT

ORIGINATOR S. O'Connor DATE 6-13-83

DISTRIBUTION (Check as applicable and fill in name. Indicate with an asterisk (*) personnel who are to perform a QA review)

☒ M-N Engr	I Sydoriak	☒ Design	J. Hannick	☒ Project Mgr	
☒ Civil Engr	R Seshadri	☒ Design	G. Georges	☒ Project Engr	J Padalino
☒ Elec Engr	[redacted]	☐ Design		☒ Coordinator	R Johnson
☒ HVAC Engr	A Bishara	☐ Design		☒ Orig Dist. Supvr	T Horvath
☒ Plumbing Engr	S O'Connor	☐ Design		☐ Nuc Safety	
☐ I&C Engr		☐ Design		☐ PQAE	
☐ WT Engr		☐ Design		☒ Project Supt	
☒ PO&B – Site		☐ RW Engr		☐ Appl Phys	
☐ PO&B – HO		☐ ADDRES Design		☐ Vendor QA	
☒ Project File				☒ ESSE PE	J DeBruin
☒ Site Manager		☒ Constr Ctrl Supt		☒ Proj Cost/Sched Engr	

NOTE: Personnel indicated with an asterisk (*) are to perform a QA review and inform Originator of any comments, or approve and sign.

as applicable, by N.A. (dated) 7/19/83

LEAD DISCIPLINE ENGR OR ESSE DESIGNEE (Signature) A Khilnani AB — DATE 6/13/83

PROJ ENGR OR ESSE PROJ ENGR APPROVAL — DATE 6/13/83

QA REVIEWER (If indicated above)

☐ COMMENTS (Attached) ☐ NO COMMENTS

SIGNATURE — DATE

SUPER ENGR OR ESSE DESIGNEE (After resolution of all reviews) R. Feehan 7/19/83 — R. Feehan 6/13/83

SIGNATURE — DATE

FIELD EVALUATION

☒ Implement Recommended Disposition ☐ Defer Recommended Disposition

☐ Generic Impact – For feedback consideration ☐ Copy to Mgr – Reliability Engineering (PO&B – HO).

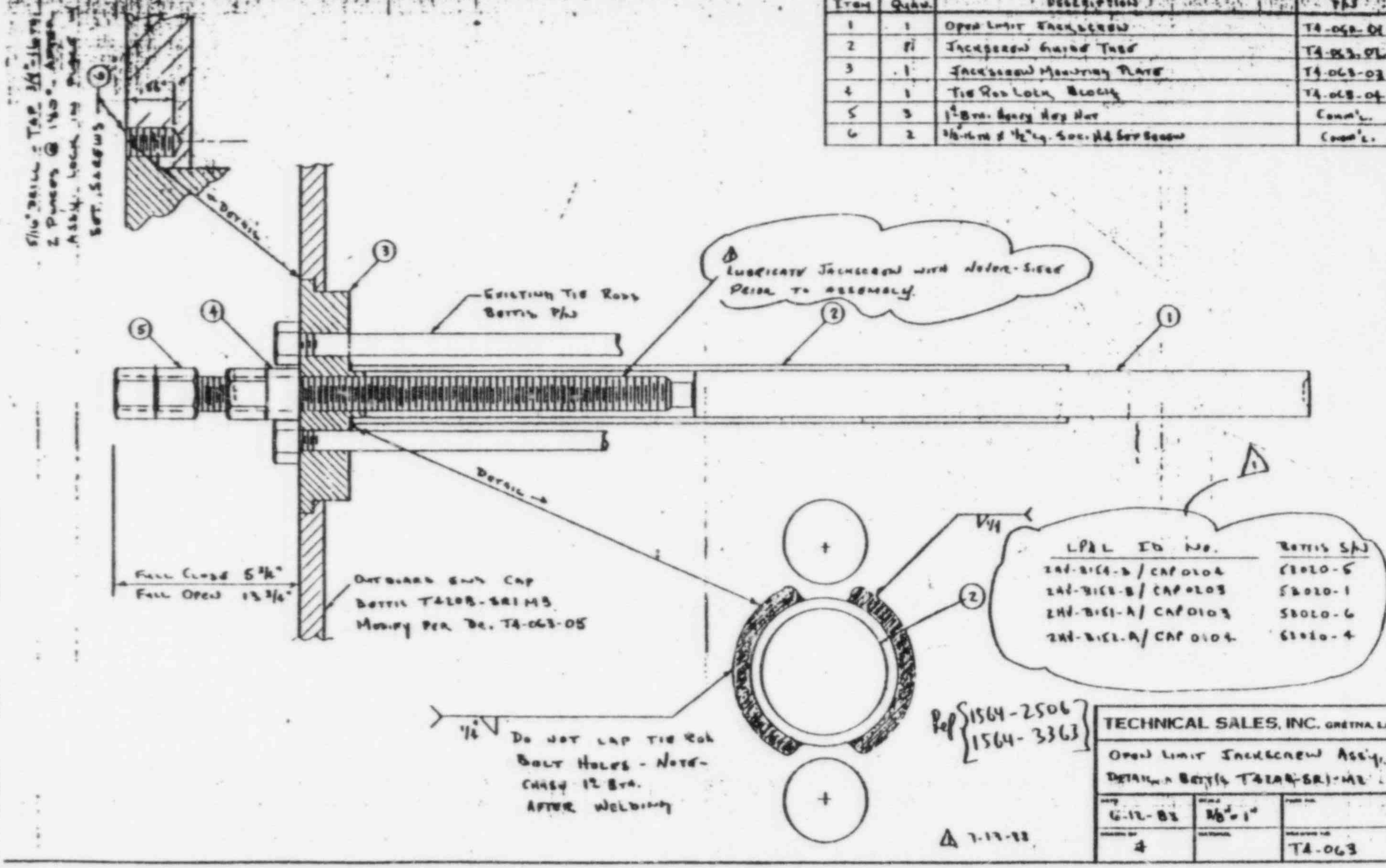
6/13/83

(SR) RESIDENT ENGINEER (SIGNATURE) — DATE 7/22/83

FOIA-84-206
H149

DCN-ME-9C Rev 1
SHEET 3 OF 4

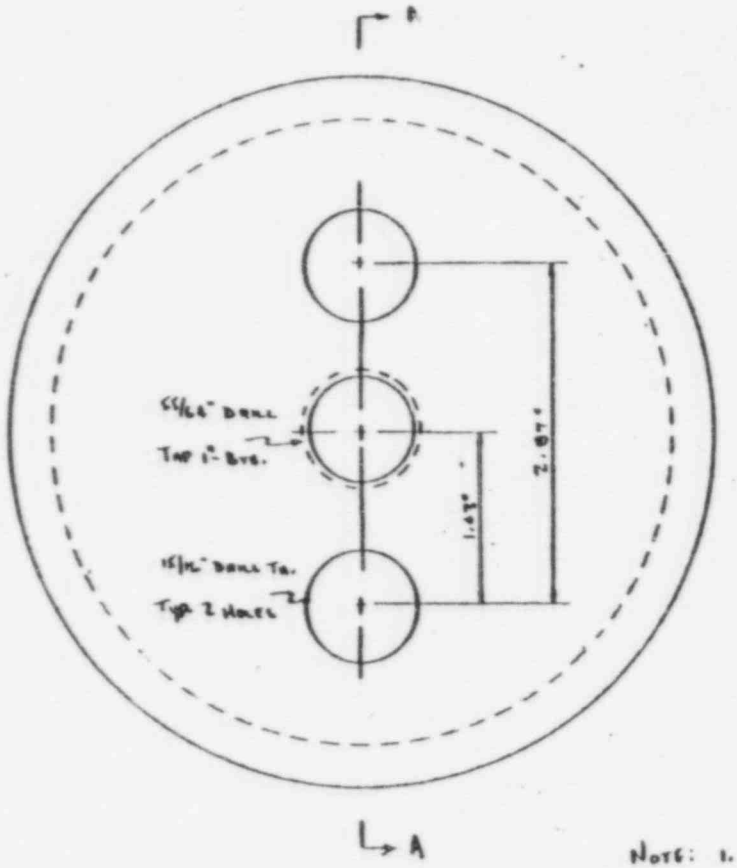
Item	Quan.	Description	P/N
1	1	Open Limit Jackscrew	T4-063-01
2	A/R	Jackscrew Guide Tube	T4-063-02
3	1	Jackscrew Mounting Plate	T4-063-03
4	1	Tie Rod Lock Block	T4-063-04
5	3	1" 8UN Heavy Hex Nut	Comm'l.
6	2	5/16-18UNC x 1/2" Lg. Soc. Hd Set Screw	Comm'l.

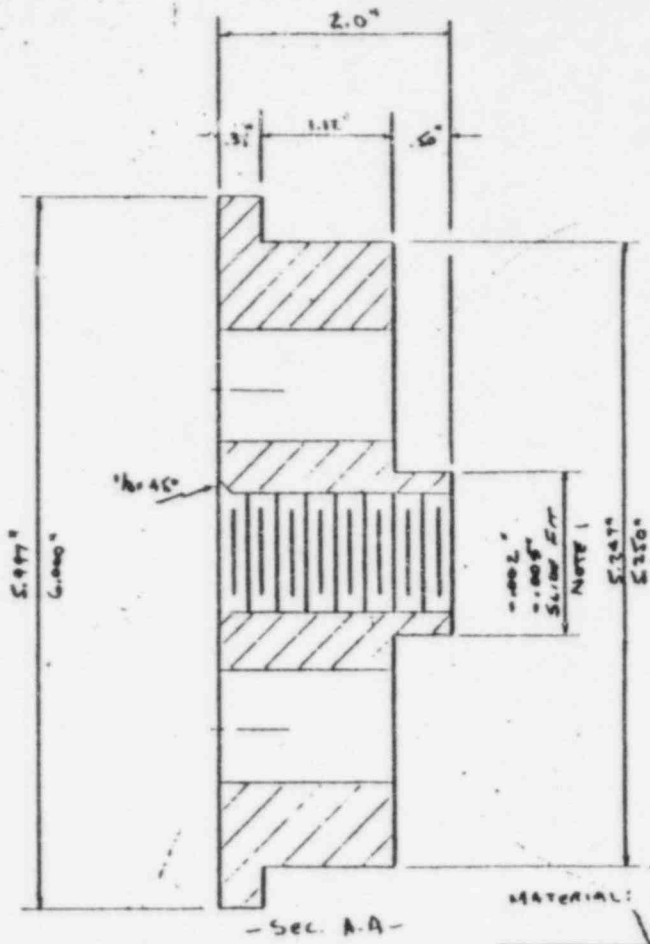


TECHNICAL SALES, INC. GRETNA LA	
Open Limit Jackscrew Ass'y. Details Bettis T420-SR1-M2	
6-12-83	3/8" = 1"
4	T4-063

DCN-ME 90 R 1
SHEET 4 OF 9

FABRICATION DETAIL ONLY





– SEC. A-A –

MATERIAL: 2" SA36 STEEL PLATE
HT # R42355

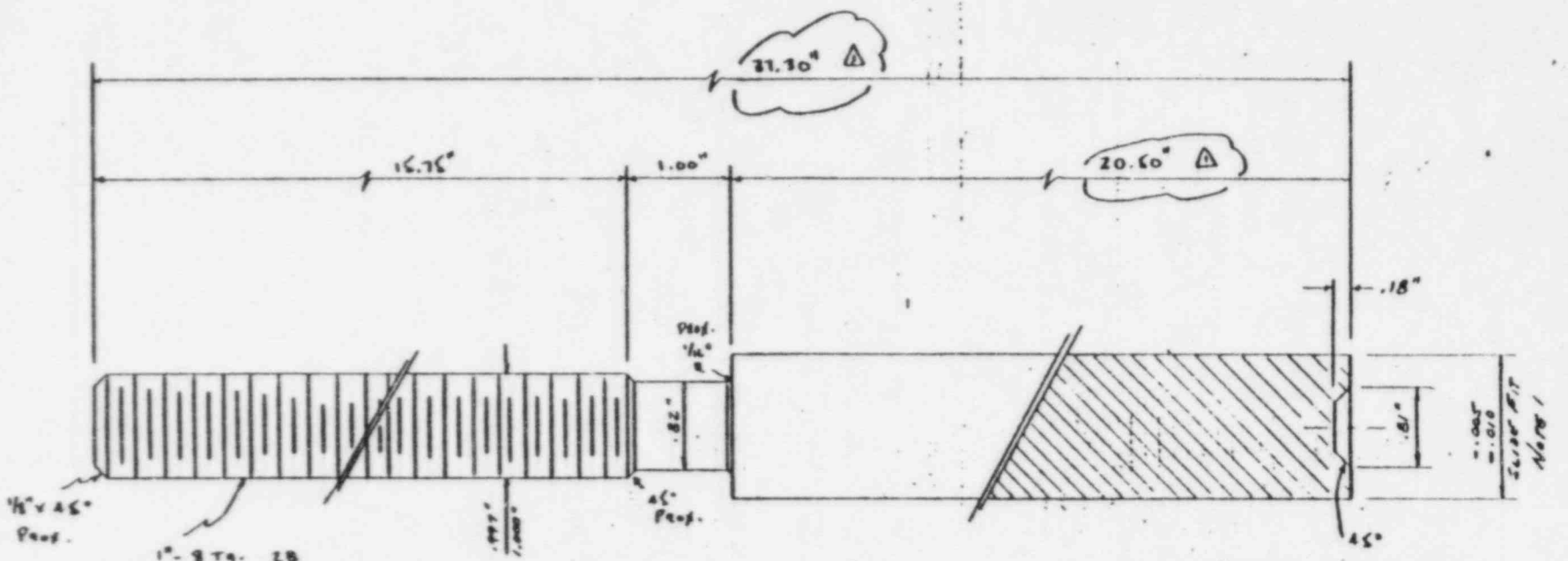
NOTE: 1. -.002/-.005" SLIP FIT INTO 2 1/4" DIA FOR JACK SCREW GUIDE
2. BREAK ALL SHARP CORNERS

△ 9/13/83

TECHNICAL SALES, INC. "TSI"		
JACKSCREW MOUNTING PLATE FOR BETTIS T4108-SR1		
6-10-83	FULL	T4-063-03
4		T4-063-03

DCN-ME 90 Rev 1
SHEET 5 OF 9

30°C



PARTIAL SECTION

MATERIAL: A193 B7 STEEL BAR

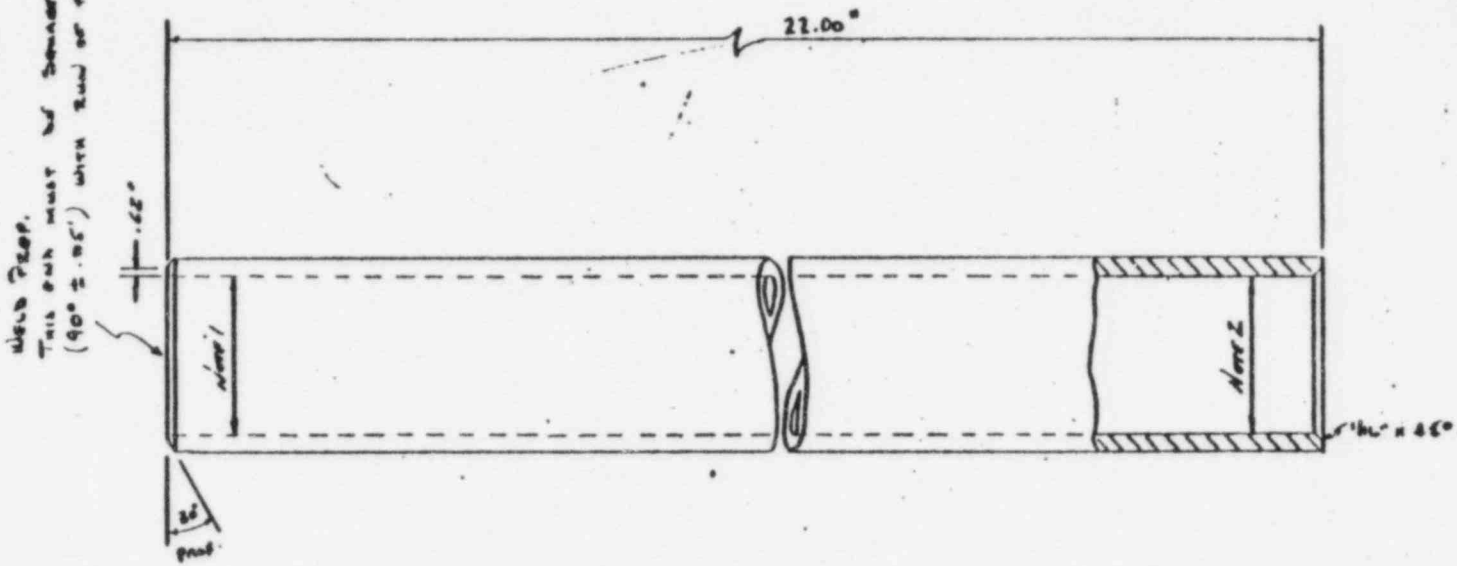
NOTES: 1. THIS DIMENSION DETERMINED AFTER JACKSCREW GUIDE TUBE IS HONED - AS BUILT 1.850" OD
2. BREAK ALL SHARP CORNERS

Δ1 6-17-83

TECHNICAL SALES, INC. ORETNA, LA		
OPEN LIMIT JACKSCREW FOR BOTTLE T4108-SK1		
6-11-88	NTS	T4-068-01
4		T4-068-01

DCN- ME - 90
SHEET 6 OF 9

FABRICATION DETAIL ONLY



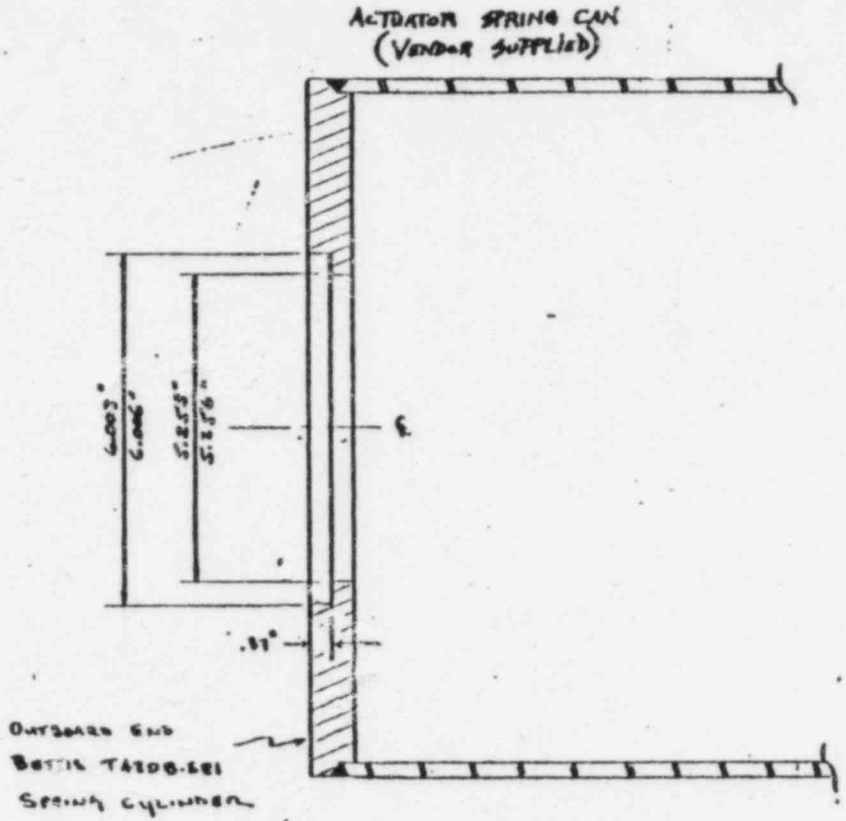
MATERIAL: 1 1/4" SCH. 40
GALV. STEEL PIPE
A106 GRB

NOTE: 1. MIKE I.D. TO DETERMINE SLIDE FIT TO JACKSCREW MOUNTING PLATE.
2. MIKE I.D. TO DETERMINE SLIDE FIT FOR JACKSCREW

TECHNICAL SALES, INC. ONEONTA, N.Y.

JACKSCREW GUIDE TUBE

6-11-84	NTS	T4.063-02
JF		T4.063-02



FABRICATION DETAIL ONLY

DCN - ME - 90

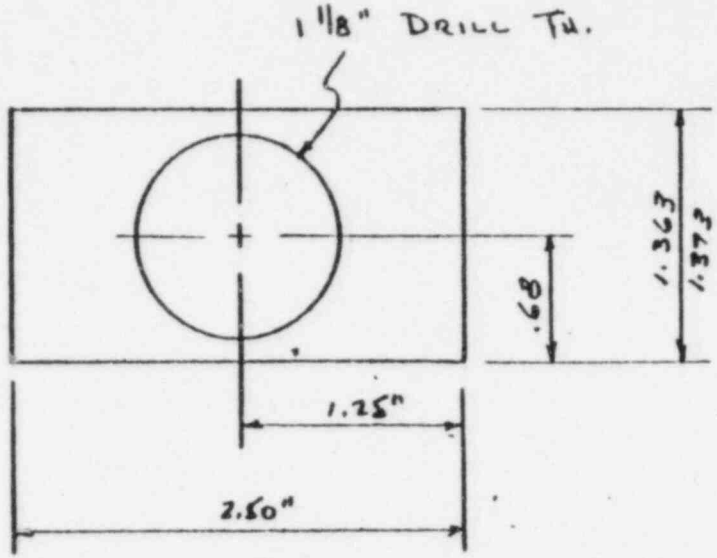
SHEET 7 OF 9

TECHNICAL SALES, INC. "TSI"

SPRING CYLINDER MODIFICATION FOR OPEN LIMIT SWITCH SCREW

6-10-82	1/2"=1"	
JF		T4 063-06

DCN-ME 40 REV 1
SHEET 8 OF 9



1

MATERIAL: 1" SA 36 STEEL PLATE
HT # A11K 7631

NOTE: BREAK ALL SHARP CORNERS

TECHNICAL SALES, INC. GREINA LA.		
TIE ROD LOCK BLOCK FOR OPEN LIMIT JACK SCREW		
DATE 6-11-83	SCALE FULL	PART NO. T4-063-04
DRAWN BY J	MATERIAL	DRAWING NO. T4-063-04

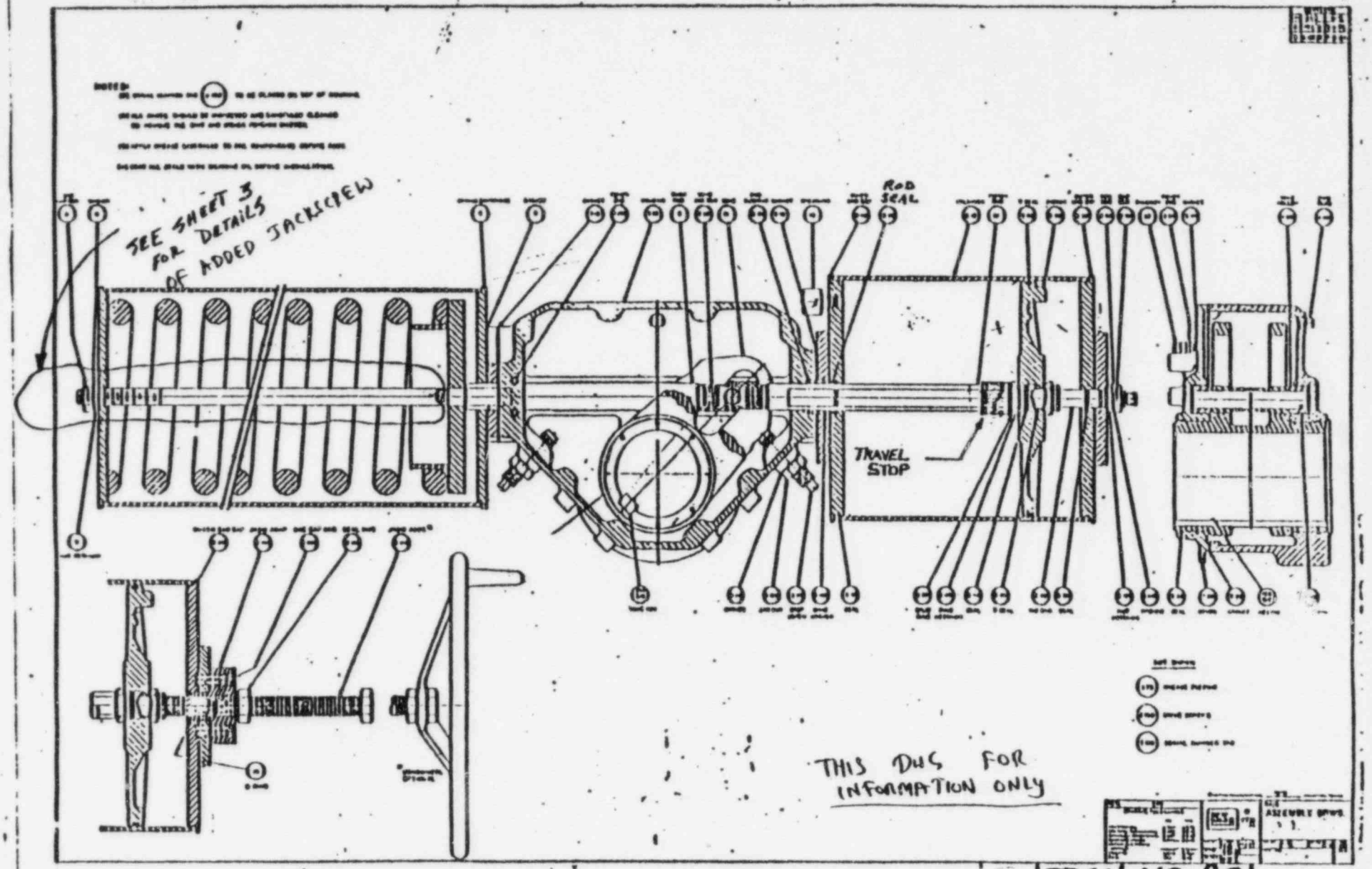


FIGURE 1

DCN-ME-90
SHEET 9 OF 9

SYSTEM SCOPING DETAILS

~~ER~~/DCN-ME-90 R0 R1

Date-7-22-83

Page	Description	SUS	Work Required		M-S	CIWA / Documentation Only
	VARIABLE LIMIT STOP	46C	✓		✓	Closed CIWA 839275 - From 7/25/83
	REVISE R.1 AS BUILT	46C		V	V	Documentation Only, Contractor Eng.

SYSTEM STATUS SHEET

RUSH☐ POD☐

DATE 7/16/83

~~For~~ DCN No. ME-90 REV 1

AREA _____

Start-Up System * WRS

* See System Scoping Details sheet

1a) System Release Cut-Off has occurred _____

b) Complete work before System Release:

Yes / (No) (LP&L START-UP)

c) Priority No. 1.9 (LP&L START-UP)

2) System was released on

5/27/82 (Complete Item 3)

3) Post System Release Work Authorization No. Documentation Only If now CWA Not Required 7/22/83 (Obtain from LP&L Start-Up)

4) Work Assignment

a) Affected by/Contractor

_____ / _____

b) Code _____ Non-Code _____

c) Work Assigned To:

1) EBSU or EBFA ☐
- HVAC ☐
- Civil ☐
- Mech ☐
- I&C ☐
- Elect ☐

2) Contractor

AS-BUILT
PAPER CHANGE

1) System Release Cut-Off has not occurred _____

Below review not required if ☐ Block Checked.

Review By:

John Schabel 7/22/83
LP&L START-UP

MATERIAL: _____

REQ: _____

P.O. _____

MRR: _____

RMR: _____

MISC: _____

App. R.		CCB	
Env. Reg.		CIWA	
IE Bull.		FJO	
Lic. Comm.		N/A	✓
NRC Quest.		TMI	

DAILY REPORT - REGION IV
JUNE 24, 1983

[illegible] ADMINISTRATOR

FACILITY	NOTIFICATION	ITEM OF INTEREST	REGIONAL ACTION
[illegible]	[illegible] SNUPPS [illegible]	POTENTIAL [illegible] DEFICIENCY: SNUPPS REPRESENTATIVE REPORTED AN APPARENT DESIGN DEFICIENCY IN CONTROL CIRCUITS. UNDER CERTAIN VOLTAGE CONDITIONS, VOLTAGE MIGHT BE LOW ENOUGH SO THAT RELAYS WOULD NOT PICK UP OR DROP OUT FOR SOME SAFETY RELATED EQUIPMENT. SNUPPS IS INVESTIGATING, WILL ALSO INFORM REGION III, AND PLANS TO ISSUE A 30 DAY WRITTEN REPORT.	FOLLOWUP PER MC 2512.
[illegible]	TELEPHONE CALL FROM LICENSEE [illegible]	POTENTIALLY REPORTABLE CONSTRUCTION DEFICIENCY: LOUISIANA POWER AND LIGHT NOTIFIED RIV OF A POTENTIALLY REPORTABLE CONSTRUCTION DEFICIENCY CONCERNING DAMAGE TO INCORE INSTRUMENTATION (ICI) GUIDE TUBES. UPON DISASSEMBLY OF REACTOR VESSEL INTERNALS AFTER HOT FUNCTIONAL TESTING, FOUR ICI GUIDE TUBES ON ONE [illegible] CLUSTER WERE DISCOVERED TO BE BROKEN AT THE POINT WHERE THEY ENTER THE LOWER FLANGE OF THE CLUSTER. ADDITIONALLY, POINTS OF CONTACT BETWEEN THE UPPER FLANGE OF THE CLUSTER ASSEMBLY AND THE NOZZLE IN THE VESSEL HEAD WERE NOTED ON THIS CLUSTER AND ON 2 OTHER CLUSTERS WHICH HAVE NO APPARENT VISUAL DAMAGE. INSPECTION AND DATA GATHERING IS CONTINUING. EVALUATION HAS BEGUN BY C-E. THE LICENSEE PLANS TO ISSUE A 30 DAY REPORT.	FOLLOWUP IN ACCORDANCE WITH MC 2592.

PRD-118

84-17

5-20-85

FOIA-84-206
H/51

84-17

DOCUMENTATION OF
TELEPHONE COMMUNICATION

DATE: [illegible] TIME: [illegible] A.M., P.M.

PARTY CALLING: [illegible] (Name) [illegible] (Company)

PARTY ANSWERING: [illegible] (Name) NRC (Company)

SUBJECT: [illegible] "Instrumentation Guide Tubes" FILE: [illegible]

SUMMARY: (INCLUDING DECISIONS AND OR COMMENTS)

I advised Mr. Oberg that PRD 118 would be reported as SCD 85. I also stated the 30 day report which was due July 22, would not be submitted until July 29. Mr. Oberg stated that this would be acceptable.

ACTION REQUIRED

Submit first interim report of SCD 85 by July 29, 1983.

(21)

DISTRIBUTION: [illegible], [illegible] Maurin, F. J. Drummond, R. P. Barkhurst, [illegible], S. A. Alleman, T. F. Gerrets, T. K. Armington, C. J. Decareaux, L. L. Bass, [illegible] Rogers, G. L. Constable, W. M. Morgan, W. F. Axtman, H. J. Kunis, L. A. Stinson, Z. A. Sabri, D. E. Baker, [illegible] Burski, K. R. Iyengar, R. A. Savoie, M. I. Meyer, R. J. Milhiser, [illegible], Central Records, Nuclear Records, Licensing Library

FOIA-84-206
H/52

84-17

[illegible] NO. 45

[illegible]S"

DESCRIPTION

SCD 685 reported [illegible] to the incore instrumentation guide tubes discovered [illegible] after Hot Functional Testing.

Four (4) incore instrumentation (ICI) guide tubes, on one guide tube cluster, were found to be damaged at the point where they entered the lower flange of the cluster. Additionally, wear at points of contact between the upper flange of the tube cluster assembly and the nozzle in the RV head were noted on this cluster and two (2) others.

The NSSS Vendor and Architect Engineer evaluated the condition. The analysis confirmed that the damage was the result of resonant vibration. The natural frequency of the cluster and tubes was very close to the frequency and harmonics of the Reactor Coolant Pumps. This, coupled with the use of tack welds to hold the individual tubes, led to a failure.

CORRECTIVE ACTION

NCR-W3-6422 (closed) was issued to document the deficiency and track corrective action.

All ten (10) clusters were either modified or refabricated to avoid the critical frequency.

Seven (7) existing clusters were reduced in length by six (6) inches

One (1) cluster was fabricated with the six (6) inch reduction to replace the one which had the damaged tubes. The damaged cluster was destructively evaluated in the vendors metallurgical laboratory.

Two (2) new clusters were fabricated for the locations which contained the HJTC probe. This was necessary since the existing clusters would be damaged upon removal in order to preserve the guide tubing for the HJTC probes.

Additionally tack welds were not used at the tube flange interface of the ten (10) clusters.

The ICI installation tool and bullet noses and locking rods were modified to accommodate the length change to eight (8) of the clusters.

This modification was not required for the two (2) HJTC clusters.

FOIA 84-20

84-17

DOCUMENTATION OF
TELEPHONE COMMUNICATIONS

DATE: 8/16/83 TIME: 1:30 XXXX P.M.

PARTY CALLING: W. J. Baldwin (LP&L) LP&L
(Name) (Company)

PARTY ANSWERING: W. Crossman NRC Region (IV)
(Name) (Company)

SUBJECT: PDR-122 "GE 480V Breakers AKR-4A-50", Wiring Error FILE: Q-3-A-35.07

SUMMARY: (INCLUDING DECISIONS AND OR COMMENTS)

During troubleshooting of a breaker, maintenance discovered an additional wire not shown on EMBRAC (Vendor) drawing.

The additional jumper installed by GE is between the 52X contacts and the 52W coil and can cause the 52W relay to pick up early when attempting to close the breaker. This interrupts the circuit to the closing coil and could prevent the breaker from operating.

GE has examined the problem and agrees that the correct fix is to eliminate the jumper LP&L maintenance will do the work.

LP&L has under evaluation.

ACTION REQUIRED:

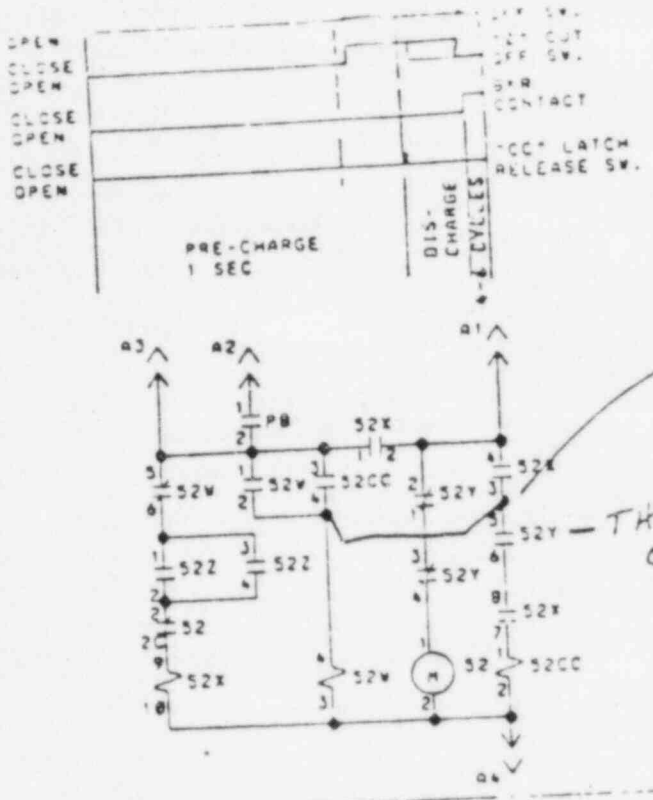
Per discussion with Mr. Crossman, LP&L will evaluation and submit a written report and/or Part 50.55(e) by 9/15/83.

DISTRIBUTION:

FOIA-84-206
M/55

T4-17

87



THIS WIRE IS IN THE BKRS. BUT IS NOT ON THE DWGS.

THIS IS A 52X CONTACT

UNCONTROLLED

NOTE: FOR SWITCHGEAR DEVICE STANDARD DEVICE AND ABBREVIATIONS

FIG.

P9.585

87-17

CLASS

87

AKR-4A/SA-32/50

BREAKER DESCRIPTION

ATION OF CONT. PWR. ENERGIZES MOTOR "M" WHICH CHARGES
D SPRING UNTIL CUT-OFF AT PROPER POINT BY SWITCHES
AT THIS TIME, SWITCHES S22 CLOSE IN CCT. CIRCUIT OF 52X,
IS PREVENTED FROM CLOSING BKR. BY MECHANICAL LATCH.
LOSING CIRCUIT IS ENERGIZED 52X PICKS UP AND ENERGIZES
RELEASE SOLENOID 52CC WHICH ALLOWS THE SPRING TO CLOSE
R. 52CC PICKS UP 52W WHICH SEALS ITSELF IN THUS
ING THE PUMP-FREE FEATURE. 52X AND 52CC ARE DEENERGIZED
. SWITCHES S2Y AND S22 RETURN TO POSITION SHOWN. MOTOR
ARGES CLOSING SPRING UNTIL CUT-OFF BY SWITCHES S2Y.

TIMES SHOWN ARE AVERAGE AT RATED VOLTAGE

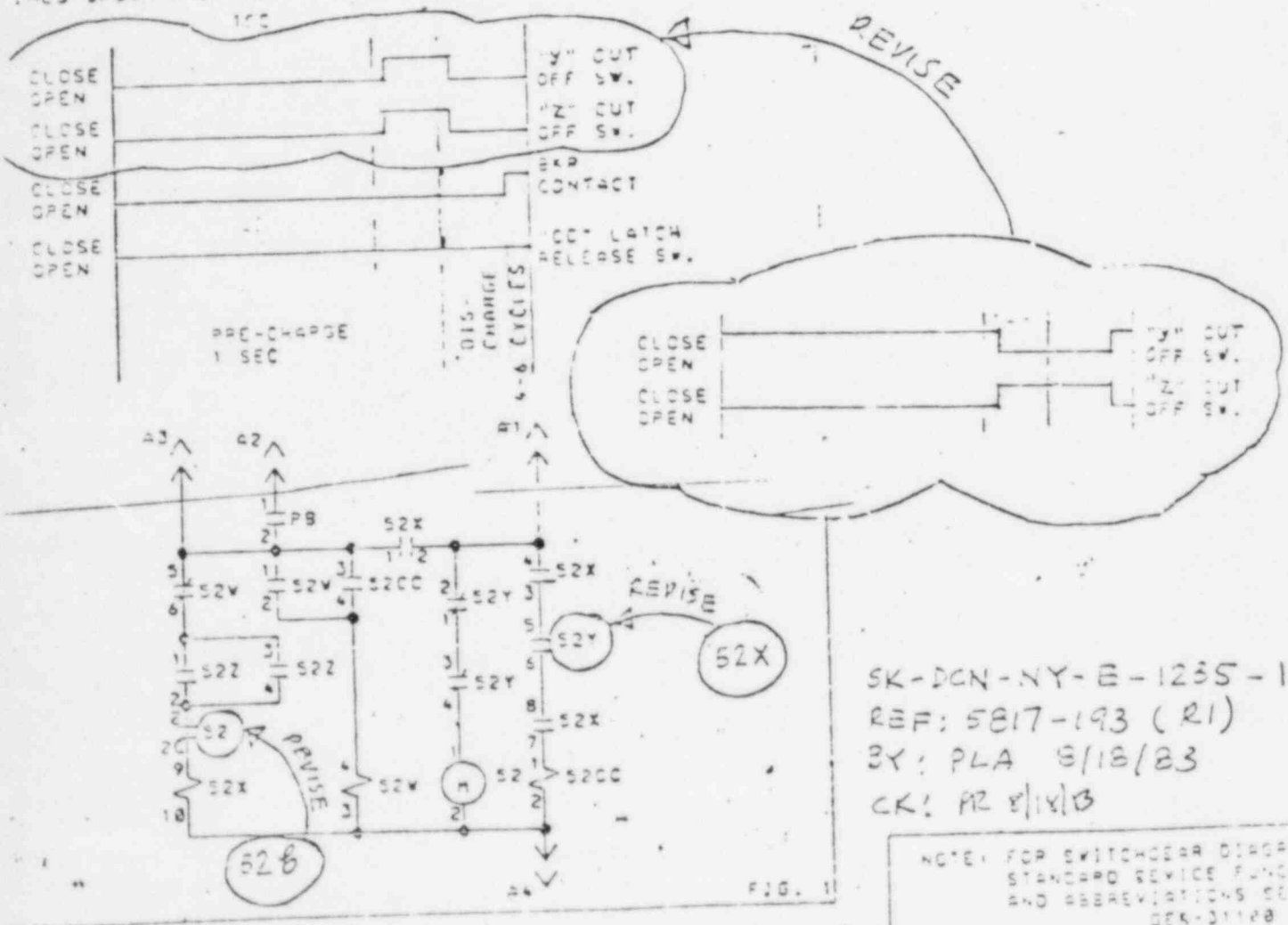


FIG. 11

SK-DCN-NY-E-1235-1
REF: 5817-193 (R1)
BY: PLA 8/18/83
CK: AR 8/18/83

NOTE: FOR SWITCHGEAR DIAGRAM AND STANDARD DEVICE FUNCTION AND ABBREVIATIONS SEE DEK-31128

7A

FOIA-84-206
4/58

84-17

4/[illegible]

SCD-87

Review of the work sheets provided to CIWA [illegible]
733312 Did not let me confirm that the following breakers had the wire removed per NCR W3-6566

Bus	Cubicle	Function
3A31	7B	Space
~~3A32~~	~~7A~~	Relay works – my error.
~~3A32~~	~~7B~~	
~~3A32~~	~~7C~~	
~~3A32~~	~~7D~~	

[signature]
NRC

FOIA-84-206
H/59

P-37

WATERFORD NUCLEAR STATION
CONDITION IDENTIFICATION WORK AUTHORIZATION

C11-02

Z | KEYPUNCH USE ONLY 60 | UNIT | LOUISIANA POWER & LIGHT

ORIGINATOR CRSISS

SYSTEM	UNID 2	COMPONENT DESCRIPTION 3	QA TYPE 4
SSD	EBKR3117B	ECS TRIP UNIT SPARE	[X] SAFETY RELATED [ ] POWER GEN. RELATED [ ] OTHER

CIWA 5	REQUEST DATE 6 (MO. DAY YR. HR. MIN.)	FAILURE STARTED 7	TECH. SPEC. DATE 8	Follow Up To CIWA 9	Station Mod. No. 10	PRIORITY 11	12
01	06 18 19 04 15 84					5	[ ] Uncont. Maint. [X] Cont. Maint.

INITIAL PROBLEM OR FAILURE DESCRIPTION 13

Need to procure new ECS Trip Unit for Breaker 3A31 Cub 7B (which is spare) due to the fact that this ECS Trip Unit was installed in 3A21 Cub 8C because the original ECS Trip Unit in 3A21 Cub 8C Failed. ME-7-060

SEE ADDENDUM PAGE [ ]

WORK CENTER 14: ELEC. [X] MECH. [ ] INST. [ ] OTHER [ ]

15 CONDITION ID TAG [ ] YES [X] NO

ORIGINATOR 16: D. Bailey X3218 DEPT. PME

CRS/SS 17: JOBrien DATE 4/15/84

P&S

18 EVALUATION

[ ] INVALID [ ] TROUBLE SHOOT [ ] MAINT. ITEM [ ] NONCONFORMANCE [ ] TECH. EVAL. [ ] OTHER

NOTIFICATION: [ ] CRS/SS [ ] QUALITY [ ] TECH. SUPP. [ ] OTHER

COMMENTS

SIGNATURE

DATE

SEE ADDENDUM PAGE [ ]

TECH

19 NONCONFORMANCE [ ] YES [ ] NO

CAUSE

DISPOSITION: [ ] REWORK [ ] REPLACE [ ] REPAIR [ ] USE AS IS

REPORTABLE [ ] YES [ ] NO

CORRECTIVE ACTION

SIGNATURE

DATE

SEE ADDENDUM PAGE [ ]

WORK PACKAGE

TASK DESCRIPTION 20

DATE DUE 21 (MO. DAY YR.)

DUR. 22

PR.NO. 23

CONTROLS REQUIRED 24	YES	NO
CONFINED SPACE ENTRY		
RADIATION WORK PERMIT		
TAGGING		
RETEST		
INSPECTION		
FIRE PROTECTION PERMIT		
SPECIAL WORK INSTRUCTION		
SPECIAL PROCESSES		
CLEANLINESS CONTROL		
HOUSEKEEPING ZONE CHANGE		

PROCEDURES 25

DRAWINGS 26

RETEST PROCEDURES 27

TECHNICAL MANUALS 28

REVIEWED BY:

WORK DESCRIPTION 29

SEE ADDENDUM PAGE [ ]

PREPARED BY 30

APPROVED BY 31 DATE

QUALITY GROUP 32 DATE

Form-84-206 4/60

DA REPORT - REGION IV
SEPTEMBER 12, 1983

FROM: OFFICE OF THE REGIONAL ADMINISTRATOR

FACILITY	NOTIFICATION	ITEM OR EVENT	[illegible]
WATERFORD 3 DN 50-382	TELEPHONE CALL FROM LICENSEE ON 9/9/83.	POTENTIAL CONSTRUCTION DEFICIENCY: GE AK50/AK30 SWITCHGEAR BREAKER CAMSHAFT RETAINING RINGS (PRD 125). CAMSHAFT BEARINGS ON SUBJECT BREAKERS SLIP OUT OF HOUSING ALLOWING MISALINGMENT OF SHAFT AND RELATED LIMIT SWITCHES. GE VENDOR REP VERIFIED NEED FOR RETAINING RING INSTALLATION. THE BREAKERS ARE USED IN SAFETY RELATED SYSTEMS. THE LICENSEE WILL ISSUE A 30 DAY REPORT. THE VENDOR INSPECTION BRANCH HAS BEEN NOTIFIED.	FOLLOW-UP IN ACCORDANCE WITH [illegible]
FORT CALHOUN DN 50-285		AN ENFORCEMENT CONFERENCE WAS HELD ON 9/9/83 IN THE NRC REGION IV OFFICE WITH THE OMAHA PUBLIC POWER DISTRICT. THE VIOLATION DISCUSSED WAS THE LICENSEE'S FAILURE TO TAKE PROMPT CORRECTIVE ACTION ON PREVIOUS VIOLATIONS AND A DEVIATION CONCERNING QA RECORDS RETENTION AND STORAGE.	NONE REQUIRED ISSUED BY RI

FOIA-84-206
M/61

74-17

DOCUMENTATION OF
TELEPHONE CONVERSATIONS

DATE: 9/9/83

TIME: 3:30 P.M.

PARTY CALLING: C. N. Hooper

COMPANY: LP&L

PARTY ANSWERING: C. Oberg

COMPANY: NRC (Region IV)

SUBJECT: PRD-125 - GE AK 50/AK 30 Switchgear Breakers Cam Shaft Bearing Retaining Ring

FILE: Q-3-A35.07

SUMMARY: (INCLUDING DECISIONS AND OR COMMENTS)

Cam shaft bearings on subject breakers slip out of housing allowing misalignment of shaft and related limit switches. Vendor representative verified the need for retaining ring installation. Systems involved safety related inverters and distribution system.

ACTION REQUIRED

Per discussion with Mr. Oberg, LP&L will evaluate and submit a written report and/or Part 50.55(e) by October 10, 1983.

DISTRIBUTION: R. S. Leddick, F. J. Drummond, R. P. Barkhurst, W. A. Cross, S. A. Alleman, T. F. Gerrets, M. Wise, C. J. Decareaux, L. L. Bass, G. B. Rogers, G. L. Constable, W. M. Morgan, W. F. Axtman, H. J. Kunis, L. A. Stinson, D. E. Baker, R. F. Burski, K. R. Iyengar, R. A. Savoie, M. I. Meyer, R. J. Milhiser, J. Pertuit, Central Records, Nuclear Records, Licensing Library

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SUMMARY OF
"SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 89"

Camshaft bearing slips out of housing an moves along shaft allowing misalignment of shaft and related limit switches. The camshaft has a groove cut next to the bearing that may accept a lock ring. There are no lock rings supplied on any breakers. Possible generic problem. This problem occured on 3A31-9A and 3B31-8B.

ATTACHMENT NO. 1, 2 and 3

08/29/83 NCR W3-6766
CIWA 839451
This is a Non Conforming condition and represents a Significant Deficiency.

ATTACHMENT 4A

06/30/83 CIWA 839665
On switchgear 3A31 BKR 8B and 9B and switchgear 3B31, BKR 8B and 9B inspect rework and use a snap ring to retain housing support bearing. Retest per ME-7-003/ME-3-330

ATTACHMENT NO. 5

06/15/83 CIWA 839451
ESSE evaluation of Non Conforming condition listing all breakers reworked and retested.

ATTACHMENT NO. 6

10/12/83 Service advise and procedure for performing rework on breakers.

ATTACHMENT NO. 7

11/11/83 Listing of switchgear, serial numbers and cubicles reworked and retested. Switchgear 3A31, Cubicles 6b, 6a, 9a, 5c, 8c, 8a, 8b, 5b, 7c, 6c, 7a, 4b and 5a.

ATTACHMENT NO. 8-3A21

11/13/83 Listing of switchgear, serial numbers and Cubicles reworked and retested.
Switchgear 3A21, Cubicles, 5a, 7a, 8b, 8c, 5b and 6b.

ATTACHMENT NO. 9 - 3A31

11/13/83 Listing of switchgear, serial numbers and cubicles reworked and retested.
Cubicles-3b, 1c, 5a, 4a, 4c, 3a, 2c and 1b.

ATTACHMENT NO. 10 - 3A22

11/11/83 Listing of switchgear serial numbers and cubicles reworked and retested.
Cubicles Numbers-4b, 5c, 5b, 6c and 6b.

ATTACHMENT NO. 11 - 3A32

10/23/83 Listing of switchgear, serial numbers and cubicles reworked and retested.
Cubicles-5b, 5a, 4c, 5c, 6b, 4d, 6d, 6c, 6a, 5d and 4b.

ATTACHMENT NO. 12 - 3B32

10/22/83 Listing of switchgear, serial numbers and cubicles reworked and retested.
Cubicles-4c, 5b, 6b, 5d, 5a, 4d, 4b and 5c.

ATTACHMENT NO. 13 - 3B21

11/13/83 Listing of switchgear serial numbers and cubicles reworked and retested.
Cubicles-5a, 7a, 6c, 6b, 8c, 8b, 5b and 5c.

ATTACHMENT NO. 14 - 3B31

10/26/83 Listing of switchgear serial numbers and cubicles reworked and retested.
Cubicles-7a, 7c, 7b, 4b, 8b, 5b, 5a, 5c, 9b, 6c and 9a.

ATTACHMENT NO. 15 - 3B22

11/10/83 Listing of switchgear, serial numbers and cubicles rework and retested.
Cubicles-4b, 6b, 6c, 5b, 5c and 4c.

(91)

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SUMMARY OF

"SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 91"

"GE AKR-30/50 CIRCUIT BREAKERS (SERVICE ADVISE 175-9.11)"

Corrective Action Taken

NCR-W3-7144 was initiated to replace all potentially improperly heat treated parts and defective switches installed on AKR-30 and AKR-50 circuit breakers. All of the after mentioned corrective action was performed and verified as being completed.

Ebasco Engineering and Quality Assurance has reviewed the supporting documentation for this deficiency and considers this deficiency closed.

Attachment No. 1 and 2

10/11/83 NCR-W3-7144
General Electric Letter
Instruction on replacement of closing spring prop
on AKR 30/50 electrically operated breakers.
1352 Form - Devation/Noncompliance evaluation
CIWA - 83C977

Attachment No. 3 - 3B31

12/14/83 Listing of switchgear, serial numbers reworked and retested - switchgear 3B31, cubicles 4b, 5a, 5c, 7a, 7b, 7c, 5b, 6c, 8b, 9b, and 9a.

Attachment No. 4 - 3B21

12/14/83 Listing of switchgear, serial numbers and cubicles reworked and retested - cubicles 5c, 6c, 6b, 7a, 5a, 8c, 8b, and 5b.

Attachment No. 5 - 3A21

12/14/83 Listing of switchgear, serial numbers and cubicles reworked and retested - cubicles 5a, 7a, 8b, 8c, 5b, and 6b.

Attachment No. 6 - 3A22

12/14/83 Listing of switchgear, serial numbers and cubicles reworked and retested - cubicles 6c, 6b, 5b, 5c, and 4b.

Attachment No. 7 - 3B22

12/14/83 Listing of switchgear, serial numbers and cubicles reworked and retested - cubicles 5b, 4b, 6c, 4c, 5c, and 6b.

Attachment No. 8 - 3AB31

12/14/83 Listing of switchgear, serial numbers and cubicles reworked and retested - cubicles 1b, 5a, 3b, 4c, 1c, 2c, 3a, and 4a.

Attachment No. 9 - 3B32

12/14/83 Listing of switchgear, serial numbers and cubicles reworked and retested - cubicles 6a, 4c, 4d, 5a, 5c, 4b, 6b, 5d, and 5b.

Attachment No. 10 - 3A31

12/4/83 Listing of switchgear, serial numbers and cubicles reworked and retested - cubicles 8a, 9a, 8b, 9b, 4b, 5b, 5c, 5a, 6a, 6c, 7a, 7c, 6b, and 8c.

Attachment No. 11 - 3A32

12/4/83 Listing of switchgear, serial numbers and cubicles reworked and retested - cubicles 5b, 5d, 6a, 4c, 4d, 5a, 6c, 6d, 4b, 6b, and 5c.

Attachment No. 12 - 3A21, 3B21

12/4/83 CIWA's 004587, 83C977, 839451, and 004588. Listing of switchgear, serials numbers and cubicles reworked and retested - cubicles 3A21 - 5c, 6a, 7b and 7c; cubicles 3B21 - 6a and 7c.

DAILY REPORT - REGION IV
AUGUST 17, 1983

FACILITY	IDENTIFICATION	ITEM/EVENT	REGIONAL ACTION
[illegible]		/1/1 [illegible] WILL BE MEETING WITH THE RIV [illegible] REGIONAL DISCUSSION OF NRC-OA INITIATIVES.	INFORMATION
[illegible]		/1/1 [illegible] WILL BE MEETING WITH THE RIV [illegible] REGIONAL DISCUSSION OF NRC-OA INITIATIVES.	
[illegible] UNIT [illegible] [illegible]	TELEPHONE CALL FROM LICENSEE ENGINEERING CONSULTANT ON 8/15/83.	POTENTIALLY REPORTABLE CONSTRUCTION DEFICIENCY: [illegible] CIRCULAR INDICATION (DR-121): VISUAL EXAMINATION OF AN ANCHOR/DARLING VALVE REVEALED [illegible] IN THE VALVE BODY. [illegible] OF THE VALVE BODY BY ULTRASONIC [illegible] THAT A PLUG (1/16" DIA x 3/4" [illegible] IS IN THE BODY AND WELDED. THE [illegible] DRAWING THE VALVE DID NOT SHOW [illegible] IN THE VALVE. THE VALVE IS CODE CLASS 2 [illegible] SYST-. THE VALVE IS SAT, 14" FOR 300# [illegible] LICENSEE IS EVALUATING THE DEFECT [illegible] A 30-DAY REPORT.	FOLLOWUP IN ACCORDANCE WITH MC 2512. THE DEFICIENCY HAS GENERIC IMPLICATIONS.
[illegible] UNIT [illegible] [illegible]	TELEPHONE CALL FROM LICENSEE ENGINEER ON 8/16/83.	POTENTIALLY REPORTABLE CONSTRUCTION DEFICIENCY WIRING ERROR - 6A 480 V BREAKERS, ARE 4A-50 (DR-122): DURING TROUBLE-SHOOTING OF THE SUBJECT BREAKERS, A JUMPER WAS FOUND IN THE BREAKERS THAT COULD NOT BE IDENTIFIED IN THE CONTROL WIRING DIAGRAM. IT WAS DETERMINED THAT THE JUMPER COULD CAUSE A RELAY COIL TO PICK UP EARLY AND THE BREAKER COULD FAIL TO OPERATE. THE SITE QE REPRESENTATIVE EXAMINATION ACKNOWLEDGED THAT THE WIRING WAS NOT IN ACCORDANCE WITH THE DRAWING. THE LICENSEE IS EVALUATING THE WIRING ERROR AND CONDUCTING AN INSPECTION TO DETERMINE EXTENT OF INSTALLATION. THE LICENSEE PLANS TO SUBMIT A 30-DAY REPORT.	FOLLOWUP IN ACCORDANCE WITH MC 2512. THE PROBLEM HAS GENERIC IMPLICATIONS.

84-17

FOIA-84-206

JANUARY 13, 1983

FACILITY	NOTIFICATION	ITEM OR EVENT	REGIONAL ACTION
[illegible]	TELEPHONE CALL FROM [illegible] IN REGION IV TRAX ELECTRIC REPRESENTATIVE IN [illegible].	POTENTIAL CONSTRUCTION DEFICIENCY 50.55(E), GE 480 VOLT SWITCHGEAR TRIP COILS DO NOT DROP OUT. PREOP TESTING HAS REVEALED AN EBASCO DESIGN ERROR IN CIRCUITRY THAT KEEPS THE TRIP COILS ENERGIZED ON A TRIP SIGNAL. LP&L AND EBASCO ARE EVALUATING. A WRITTEN REPORT WILL BE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF [illegible] CFR 50.55(E).	REGIONAL FOLLOWUP IN ACCORDANCE WITH MC 2512.
[illegible] UNIT 1 [illegible]	TELEPHONE CALL FROM [illegible] ELECTRIC CONSTRUCTION SUPERVISOR ON 1/12/83.	POTENTIALLY REPORTABLE CONSTRUCTION DEFICIENCIES: DR-75: LINEAR INDICATIONS IN TUBE STEEL USED FOR PIPE SUPPORTS. RADIOGRAPHIC INSPECTION OF INSTALLED PIPE SUPPORTS REVEALED A LINEAR INDICATION IN 4"X4"(1/4" TUBE STEEL OF UNKNOWN-MANUFACTURER SUPPLIED PIPE SUPPORTS. THE DEFECT, NOTED DURING FITUP, APPEARS TO BE CRACKS IN THE SEAM OF THE TUBE STEEL WHICH RUN THE FULL LENGTH OF THE SECTION. A "HOLD" HAS BEEN PLACED ON THE COMPLETED BATCH OF MATERIAL. THE EXTENT OF THE USE OF THIS [illegible] IS BEING INVESTIGATED. DR-77: DEFECTIVE GE TYPE CR AUXILIARY RELAYS. GENERAL ELECTRIC SERVICE ADVICE 721-PMS-171.1 IDENTIFIED NEW RELAYS FABRICATED IN 1974 THAT HAD INSUFFICIENT CLEARANCE BETWEEN AN ARMATURE TAIL-PIECE AND THE SOLDER PART ON EITHER SIDE OF THE TAIL-PIECE. THE RELAY HAS BEEN IDENTIFIED IN THE [illegible] CONTROL. GSU IS INVESTIGATING FOR FURTHER APPLICATION OF THE RELAYS. DR-78: DEFECTIVE [illegible] CONTROL SWITCHES. GENERAL ELECTRIC SERVICE ADVICE 721-PMS-203.1 IDENTIFIES [illegible] CONTROL SWITCHES THAT OCCASIONALLY FAIL TO CLOSE. RECENT TROUBLES ENCOUNTERED WITH INDICATION OF THE SWITCHES APPARENTLY RESULTS IN A DEFECT THAT ALLOWS CONTACT RESISTANCE FAILURE. RELAYS FABRICATED BETWEEN 7/75 AND 10/82 ARE SUSPECTED. THE EXTENT OF ITS INVESTIGATION/APPLICATION OF THE CONTACT SWITCHES. THE LICENSEE PLANS TO SUBMIT A 30-DAY REPORT	FOLLOWUP IN ACCORDANCE WITH MC 2512.

F01A-84-206
II/2

84-24

SIGNIFICANT CONSTRUCTION DEFICIENCY [illegible] 70

"G.E. 480 VOLT TRIP COILS DO NOT DROP OUT AFTER TRIPPING"

"EXECUTIVE SUMMARY"

DESCRIPTION

During preoperational testing of the pressurizer heater circuits, some of the 480 volt switchgear breakers failed to close after tripping. It was determined that the green light circuits which monitor trip coil continuity were allowing excessive current to flow through the coils after tripping. This prevented them from dropping out and disabled the closing mechanism.

The following switchgear utilize control circuits which had this problem:

3A21	3B21	3AB31-S
3A31-S	3B31-S	
3A32	3B32	
3A22	3B22	

CORRECTIVE ACTION

Non-conformance Report No. W3-5737 was initiated to implement Corrective Action in accordance with revised design documents (DCN-IC-1424 R1 and 1425 R2) which eliminated the capability of excessive current flowing through the trip coils thereby allowing proper breaker action.

NCR-W3-5737 is closed.

SCD 10 P-2

Z | KEYPUNCH USE ONLY 80 | UNIT

LOUISIANA POWER & LIGHT — MIDDLE SOUTH UTILITIES SYSTEM

WATERFORD NUCLEAR STATION
CONDITION IDENTIFICATION WORK AUTHORIZATION

C11-02

ORIGINATOR CRSISS

SYSTEM	UNID 2	COMPONENT DESCRIPTION 3	QA TYPE 4
SSD	BKR 31 1B5C&7B	BREAKERS	X SAFETY RELATED; ☐ POWER GEN. RELATED; ☐ OTHER

CIWA 5	REQUEST DATE 6 (MO. DAY YR. HR. MIN.)	FAILURE STARTED 7	TECH. SPEC. DATE 8	Follow Up To CIWA 9	Station Mod. No. 10	PRIORITY 11	12
016176	04 19 84 10 30			8317141414			☐ Uncont. Maint. X Cont. Maint.

INITIAL PROBLEM OR FAILURE DESCRIPTION 13

DOCUMENT REVIEW REVEALS THAT BKR 31B#5C AND 31B#7B ARE NOT INCORPORATED BY DCN-1C-1425 Rev1 - PME SHALL INCORPORATE DCN-1C-1425 Rev1 OR VERIFY THAT DCN-1C-1425 Rev1 WAS INCORPORATED ON THE ABOVE BREAKERS FUNCTIONAL TEST THE BREAKER (CYCLE) AS PER ME-7-003

SEE ADDENDUM PAGE ☐

WORK CENTER 14	ELEC.	MECH.	INST.	OTHER	15 CONDITION ID TAG	ORIGINATOR 16	DEPT.	CRS/SS 17	DATE
	X	☐	☐	☐	☐ YES X NO	KET VAN LE	I.E	W.H. Rodgers	4/19/84

P&S

18 EVALUATION	NOTIFICATION	COMMENTS	SIGNATURE	DATE
☐ INVALID ☐ TROUBLE SHOOT ☐ MAINT. ITEM ☐ NONCONFORMANCE ☐ TECH. EVAL. ☐ OTHER ☐ CRS/SS ☐ QUALITY ☐ TECH. SUPP. ☐ OTHER				

SEE ADDENDUM PAGE ☐

TECH

19 NONCONFORMANCE	DISPOSITION	CORRECTIVE ACTION	SIGNATURE	DATE
☐ YES ☐ NO CAUSE	☐ REWORK ☐ REPLACE ☐ REPAIR ☐ USE AS IS REPORTABLE ☐ YES ☐ NO			

SEE ADDENDUM PAGE ☐

WORK PACKAGE

TASK DESCRIPTION 20	DATE DUE 21 (MO. DAY YR.)	DUR. 22	PR.NO. 23

CONTROLS REQUIRED 24	YES	NO
CONFINED SPACE ENTRY		
RADIATION WORK PERMIT		
TAGGING		
RETEST		
INSPECTION		
FIRE PROTECTION PERMIT		
SPECIAL WORK INSTRUCTION		
SPECIAL PROCESSES		
CLEANLINESS CONTROL		
HOUSEKEEPING ZONE CHANGE		

PROCEDURES 25

DRAWINGS 26

RETEST PROCEDURES 27

TECHNICAL MANUALS 28

WORK DESCRIPTION 29

REVIEWED BY:

SEE ADDENDUM PAGE ☐

PREPARED BY 30

APPROVED BY 31 — DATE

QUALITY GROUP 32 — DATE

UNT-5-002 Rev. 2 Form W3-1001 Rev. 12-83

Attachment 8.2 (1 of 2)

FOIA-84-206 I/10

4-27-84

P-2

WATERFORD NUCLEAR STATION
CONDITION IDENTIFICATION WORK AUTHORIZATION

C11-02

LOUISIANA POWER & LIGHT

ORIGINATOR

Z	KEYPUNCH USE ONLY 80	UNIT

SYSTEM	UNID 2	COMPONENT DESCRIPTION 3	QA TYPE 4
KVC	EBKR 131 A B4C	BREAKERS	X SAFETY RELATED ☐ POWER GEN. RELATED ☐ OTHER

CIWA 5	REQUEST DATE 6 (MO. DAY YR. HR. MIN.)	FAILURE STARTED 7 (MO. DAY YR. HR. MIN.)	TECH. SPEC. DATE 8 (MO. DAY YR. HR. MIN.)	Follow Up To CIWA 9	Station Mod. No. 10	PRIORITY 11	12
0 0 4 6 8 ☐ ☐	0 4 1 9 8 4 1 0 3 0						☐ Uncont. Maint. X Cont. Maint.

CRS/SS

INITIAL PROBLEM OR FAILURE DESCRIPTION 13

DOCUMENT REVIEW REVEALS THAT BKR 31B CUB# 6C AND 31AB CUB# 4C ARE NOT INCORPORATED BY DCN-IC-1425 REV1 - PNE SHALL INCORPORATE DCN-IC-1425 REV#1 OR VERIFY THAT DCN-IC-1425 REV1 WAS INCORPORATED ON THE ABOVE BREAKERS - FUNCTIONAL TEST THE BREAKER (CYCLE) AS PER ME-7-003

SEE ADDENDUM PAGE ☐

WORK CENTER 14	15 CONDITION ID TAG	ORIGINATOR 16	DEPT.	CRS/SS 17	DATE
ELEC. X MECH. ☐ INST. ☐ OTHER ☐	☐ YES X NO	KET VAN LE	P.E	[signature]	4/19/84

P&S

18 EVALUATION	NOTIFICATION	COMMENTS	SIGNATURE	DATE
☐ INVALID ☐ TROUBLE SHOOT ☐ MAINT. ITEM ☐ NONCONFORMANCE ☐ TECH. EVAL. ☐ OTHER ☐ CRS/SS ☐ QUALITY ☐ TECH. SUPP. ☐ OTHER				

SEE ADDENDUM PAGE ☐

TECH

19 NONCONFORMANCE	DISPOSITION	CORRECTIVE ACTION	SIGNATURE	DATE
☐ YES ☐ NO CAUSE	☐ REWORK ☐ REPLACE ☐ REPAIR ☐ USE AS IS REPORTABLE ☐ YES ☐ NO			

SEE ADDENDUM PAGE ☐

WORK PACKAGE

TASK DESCRIPTION 20	DATE DUE 21 (MO. DAY YR.)	DUR. 22	PR.NO. 23

CONTROLS REQUIRED 24	YES	NO
CONFINED SPACE ENTRY		
RADIATION WORK PERMIT		
TAGGING		
RETEST		
INSPECTION		
FIRE PROTECTION PERMIT		
SPECIAL WORK INSTRUCTION		
SPECIAL PROCESSES		
CLEANLINESS CONTROL		
HOUSEKEEPING ZONE CHANGE		

PROCEDURES 25

DRAWINGS 26

RETEST PROCEDURES 27

TECHNICAL MANUALS 28

WORK DESCRIPTION 29

REVIEWED BY:

SEE ADDENDUM PAGE ☐

PREPARED BY 30

APPROVED BY 31	DATE	QUALITY GROUP 32	DATE

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1. E.U. ENGINEER ASSIGNED	EX	CONDITION IDENTIFICATION WORK AUTHORIZATION		I. C. I. W. A. NO.
Dell Simpson	3211			83A326

2. ORIGINATOR	DEPT.	3. DATE	TIME	4. SYSTEM NO. AND TITLE	5. EQUIP. LOC. BLDG. ELEV.
Dell Simpson	PREOP	7/13/83	0734	46C RAB Normal Ventilation	RCB +46

6. COMPONENT NAME AND UNID NO.	CAP-MVAAA-	7a REFERENCE	
Cntmt Purge Valves	0103, 0104, 0203 0204	CIWA 839275	{E 834530} 7/22/83
7b REFERENCE		7c REFERENCE 7/13/83	
DCN-ME-90 R0		DCN-~~DAL~~ HV-200 R1	

8. DESCRIPTION & RECOMMENDATION

After incorporation of DCN-ME-90 (CIWA # 839275) Cntmt Purge valves CAP-103 104, 203 and 204 travel must be Limited to 46° open (per DCN-HV-200 R1) and retested.

SIGNATURE W D Simpson ☐ SEE ADDENDUM PAGE

9. PRIORITY	10. CONDITION ID TAG	11. CONDITION CATEGORY	12. CONDITION STATUS	13. Q A TYPE SR-QA NSR-QA NSR-NQA	14. L/C ENSEE EVENT REPORT	15 FAILURE MODE	16. FAILURE DETECTION	17. SYS STATUS	18. EFF. ON SYSTEM	19. EFF. ON PLANT	20. PLANT COND.
1.7	☐ YES ☒ NO	3	9,6	☐ ☐ ☐	☐ YES ☒ NO	—		2	5	7	10

21 DISPOSITION

☐ ~~ORIGINAL~~ ☐ PROC. DEFICIENCY ☐ INVALID REPORT ☐ CONST. SURVEILLANCE
☐ _____ ☐ DESIGN DEFICIENCY ☐ QUESTION TO ESSE ☐ UNCONTROLLED MAINT.
☐ (UN RED) ☐ DWG. DEFICIENCY ☐ USE AS IS ☒ CONTROLLED MAINT.

22 ASSIGNED WORK GROUP ~~MI - MM~~ PE

ACTION DUE DATE 7/20/83

23. CONTROLS REQUIRED	YES	NO
CONFINED SPACE ENTRY		✓
RADIATION WORK PERMIT		✓
TAGGING	✓	~~✓~~
INSPECTION		✓
LSE / PMN APPROVAL REQ.		✓

PROCEDURES: MI-5-213 MM 6-002
DWGS OR OTHER REF MATL: CWD's 1128 & 1129
OTHER: DCN-HV-200 R1

24. WORK DESCRIPTION (INCLUDE ANY SPECIAL PLANT CONDITIONS THAT MUST BE MET)

(1) Update calibration packages for CAP-103, 104, 203 and 204 to show valve travel in accordance with DCN-HV-200 R1.
(2) Calibrate valves CAP-103, 104, 203 and 204 in accordance with MI-5-213
(3) Use a soap bubble test to verify valve seats are Leak tight @ ≈ 44 psig. Pressurize between valves CAP-103 & 104 and CAP-203 & 204.
(4) Record closure time (3 consecutive runs) for valves CAP-103, 104, 203 & 204 using Gould chart recorder @ 200 mm/sec.

PREPARED BY: W D Simpson DATE: 7/13/83 APPROVED BY: W D Simpson DATE: 7/13/83 ☒ SEE ADDENDUM PAGE

25. QC REVIEW COMMENTS

NCR. YES ☐ NO ☐ NO. _____

NO INSPECTION REQUIRED, ATTACH COPIES OF DATA SHEETS FOR CLOSING REVIEW. DOCUMENT FULLY IN BLK. 33 ALL WORK PERFORMED. REQUIRED FOR coil REPLACEMENT - NUREG Requirements 7/19/83

Reviewed Block 22. J. Parker 7/22/83
QC SIGNOFF FOR PROCEDURE COMPLETE 10 CFR 50.55(e)(2)

SEE ADDENDUM PAGE

QC SIGNATURE & DATE 7/13/83 26. LSE / PMN APPROVAL & DATE 7/13/83

SAP-08 Attachment 5.1 1 of 2 Revision 5

F01A-84-206
H/46

PAGE 1 of 5 7/14/83

CIWA

ADDENDUM PAGE #1

CIWA NO. 8 3 A 3 2 6

DATE 7/14/83

Block 24

TITLE: Work Description

MI: Replace bad solenoid coil found on CAP-MVAAA-104

S.D. Simpson 7/14/83

CAP-MVAAA-103 is binding per Walbro's comments in block 33. Troubleshoot problem under supervision of vendor and rework as required. Also, replace "O" rings in CAP-MVAAA-204.

C. Cudworth 7/15/83
1516

Plant Engineering recommends that this CIWA be reassigned to MM to perform the following:

1) Disassemble CAP-MVAAA-103 under the vendor's guidance and troubleshoot. Contact PE prior to any rework for review of rework requirements.
2) Disassemble CAP-MVAAA-204 actuator to replace O-rings under vendor's guidance and reinstall.

Following all work, MI may continue.

George E Wallis 7/15/83
WR 7/15/83

Reviewed, No Rework To Be Performed. Only Troubleshooting. When Problem Is Found QC To Review Rework Description.

J. Parker 7/15/83

PERFORM WORK DESCRIBED ON ADDENDUM PAGES 2-5 AT VENDOR REP'S DISCRETION. P.E TO REVIEW ALL REWORK AND/OR PARTS REPLACEMENT PRIOR TO CIWA CLOSEOUT.

Douglas Ulrich 7/20/83
WR 7/20/83

Kap 7/24/83	CIWA 7/24/83	CIWA NO.	83A326
PAGE ~~2 of 5~~	ADDENDUM PAGE # 2	DATE	7-20-83
BLOCK NO. 24/33	TITLE: CAP-MVAAA-103 (ACTUATOR)		

REMOVE, DISASSEMBLE, AND REWORK AS NECESSARY, TO CORRECT PROBLEM DESCRIBED IN BLOCK 24. LIST ALL INFORMATION CONCERNING THIS ACTUATOR ON THIS PAGE.

BLOCK# 33

Wes Kaylor 7-20-83

7/20/83 Removed the key between the valve shaft and the operator assemble to allow cycling of the actuator without operating the valve. Without the valve attached the actuator stroked smooth and quite.

Replaced the key to stroke the valve assemble. Operation of the valve was "jerky". The valve is sticking in the closed position and jumping off the seat. Inspected the valve seat and 'T' ring and found the lubricate on the 'T' ring and the seat to be gummy and sticky. Appears that dust and dirt in the air passing over the valve has settled on the seat lubricate and created a sticky paste. Cleaned the valve seat with alcohol and applied a thin film of GE 300 silicone grease. Stroked the valve and found valve movement to be smooth. It appears the use of silicone lubricate on the valve seat is not the correct lubricate for this application. Suggest that Plant Engineering evaluate the use of a dry type lubricate which will not collect dust present in the air duct. Technical Sales Rep suggests using "Molylube" which is a dry spray lubricate.

Inspected the 'T' ring closely and found no damage. Adjusted the actuator close stop until the valve disk closed "plum" with the seating surface. This corrected the apparent misalignment between the

water and actuator.

It should be noted that there was no need to disassemble the valve actuator.

W D Simpson 7/20/83

2 men - 7 HRS K. Plaisance / J. Braxton

Plant Engineering and/or ESSE to evaluate the need to replace the valve stop found broken off the valve body. Please note that the Bettis (Technical Sales) Rep. says the actuator stop is sufficient to stop the valve, although after some number of cycles the actuator stop may tend to "mushroom". The actuator stop is made to be easily replaceable. to correct this condition.

Plant Eng. and/or ESSE to evaluate the use of a dry type lubricant for these valve seat 'T' rings or establish a PM program for regular cleaning and relubrication of the valve seats.

Please note - after the 'T' ring on CAP-103 was cleaned, the valve was stroked once with a dry 'T' ring (no lubricant) and it operation observed from inside the penetration. The valve wafer took approx 5-8 seconds to fully seat. The 'T' ring seat will require lubrication to meet the ≤ 5 second close time.

Also note that the dust content inside the containment is high at this time and should be greatly reduce once the cntmt. is under operation conditions.

W D Simpson 7/20/83

Rev 7/21/83	CIWA Rev 7/21/83 ADDENDUM PAGE # 14	CIWA NO.	X 2 4 3 2 6
PAGE 4 ~~of 5~~		DATE	7-20-83
BLOCK NO. 24/33	TITLE: CAP - MV AAA - 204 (ACTUATOR)		

REMOVE, DISASSEMBLE, AND REWORK AS NECESSARY TO CORRECT PROBLEM DESCRIBED IN BLOCK 24. LIST ALL INFORMATION CONCERNING THIS ACTUATOR ON THIS PAGE.

Wes Kaylor 7-20-83

REREVIEW: WHEN PROBLEM IS FOUND, AFTER DISASSEMBLY, AND BEFORE ANY REWORK IS PERFORMED, CONTACT LP&L QC to REVIEW REWORK ON EACH OF THE FOUR ACTUATORS ~~UNITS~~ LISTED, FOR INSPECTION REQUIREMENTS - 7/20/83 (Rev 7/21/83)

BLOCK #33

QC 10 LP&L contacted Prior to starting work. Inspected Valve actuator Piston & Seal. Seal had been turned up during Previous restoration. QC 14 LP&L 7/21/83

7/21/83 Dissembled the piston actuator and found the seal ring around the piston (~~p~~ backup ring) had been distorted during assemble. MM to replace the piston T seal and backup rings and any 'O' rings damaged during reassembly.

QC inspected piston and cylinder for cleanliness. OK to reassemble. Replaced piston T rod seals. QC 14 LP&L 7/21/83 and 'O' rings. Lubed with Sc. Silicone grease.

3 MEN - 6½ HRS

K. PLAISANCE
T. ANDRY
J. BRAXTON

Returned air pressure to CAP-204 and found NO leakage. WD Simpson 7/21/83

1688 7/21/83	CIWA 1688 7/21/83	CIWA NO.	83A3266
PAGE 5 ~~of 5~~	ADDENDUM PAGE # 5	DATE	7-20-83
BLOCK 24/33	TITLE: CAP - MVAAA - ~~0104~~ WR 7-20-83		(ACTUATOR)

REMOVE, DISASSEMBLE, AND REWORK AS NECESSARY TO CORRECT PROBLEM DESCRIBED IN BLOCK 24. LIST ALL INFORMATION CONCERNING THIS ACTUATOR ON THIS PAGE.

Wes Kaylor 7-20-83

BLOCK 33

Dismassembled the piston actuator and inspected the piston cyclinder T seal and found no domage.

Remaved the piston from the the piston rod and tie bore and found the piston rod 'O' ring broken, also found some domage on the tie bar 'T' seals.

The following will be replaced and the actuator reassembled:

① Piston Rod 'O' ring
② The tie ~~rod~~ 8/21/01 rod 'T' seals
③ Upper & lower 'O' rings on each tie rod.

Replaced piston rod 'O' ring. W D Sinks 7/21/83
and tie rod 'T' seals, upper & lower 'O' rings. Lubed with D.E. 300 Silicon Grease

3 men - 1 Hr. K. PLAISANCE
T. AUDRY
J. BRAXTON

QC notified to inspect for cleanliness
OK to reassemble 7/21/83

Reassembled actuator CAP-0104.

K. PLAISANCE

	CIWA	CIWA NO	S 3 A 3 2 6
Page 6	ADDENDUM PAGE # 6	DATE 7/21/83	
BLOCK NO. 33	TITLE: Corrective Action CAP-MVAAA-104		

Returned air pressure to CAP-104 and found no leakage.

W D Simpson 7/21/83

DACEK 5	CIWA ADDENDUM PAGE	CIWA NO.	33A226
		DATE	7-20-83
BLOCK NO. 24/33	TITLE: CAP-MUAAA-203 (ACTUATOR)		

REMOVE, DISASSEMBLE, AND REWORK AS NECESSARY TO CORRECT PROBLEM DESCRIBED IN BLOCK 24. LIST ALL INFORMATION CONCERNING THIS ACTUATOR ON THIS PAGE.

Wes Kaylor 7-20-83

BLOCK 33

Disassembled the piston actuator and inspected the piston cylinder 'T' seal and found no damage.

Removed the piston from the piston rod and tie rods and found no 'O' ring on the piston rod and some damage to the tie bar 'T' seal.

The following will be replaced and the actuator reassembled.

1. Piston rod 'O' ring
2. Tie bar 'T' seals
3. Upper & lower 'O' rings on each tie rod.

notified QC Jim Eggerly 7/21/83 W.D. Simpson 7/21/83

Replaced piston rod 'O' ring and tie bar 'T' seals and upper & lower 'O' rings on tie bars. Lubricated with G.E. 300 silicone grease. 3 men 1 HR K. Plaisance, T. Andry, J. Broxton

Inspected valve prior to reassembly actuator clean and ready for assembly James R. Eggerly 7/21/83

Reassembled actuator cap-0203 K. Plaisance

	CIWA ADDENDUM PAGE #8	CIWA NO	8343265
PAGE #8		DATE	7/21/83
BLOCK NO. 33	TITLE: Corrective Action CAP-MVAAA-203		

Pressurize CAP-203 and found no leaks.

WD Simpson 7/21/83

(I&C work to continue)

J Jorgensen 7/22/83 (1300)

7-22-83 LEAK CHECKED 204 & 203 - SAT. ATTEMPTED TO CHECK 103 & 104 FOUND 104 LEAKING SUCH THAT BOUNDRY COULD ONLY BE PRESSURIZED TO 33 PSIG.

WALKER/COFER
10 MAN HOURS.

7-23-83 CLEANED AND ADJUSTED T RING ON 104. LEAK RATE CHECKED ON 103 & 104 - SAT. ADJUSTED STOPS ON 104 FOR 46°. ADJUSTED STOP ON 103 & SET LIMIT SWITCHES FOR 46°. STROKED 103, 104, 203, & 204 FROM CONTROL ROOM PER MI-5-211, MI-5-213 AND WORIC PACKAGE. FOUND INDICATING LIGHTS AND COMPUTER POINTS SAT.

WALKER/COFER
20 MAN HOURS

7-24-83 STROKED FOR TIME CAP-MVAAA-103, 104, 203 AND 204 - ALL STROKED WITHIN 5 SECONDS.

WALKER/COFER
20 MAN HOURS

7-25-83 SUE DALE SIMPSON UNHAPPY WITH CHARTS ON CAP 103 & CAP 203. MM LUBRICATED ACTUATOR ON 103 & MI CHANGED POSITION POTENTIOMETER ON TEST RIG. RETESTED CAP 103; NEW CHART SAT. CLEANED AND LUBRICATED SEAT ON CAP 203. RETESTED CAP 203; NEW CHART. SAT.

WALKER/COFER 16 MAN HOURS

	CIWA	CIWA NO.	P 3 A 3 2 6
	ADDENDUM PAGE	DATE	7/22/83
BLOCK NO. 24	TITLE: Work Discribtion		

7/22/83 Startup Engr. Dell Simpson to adjust 'T' ring on CAP-104 such that the value will hold penetration pressure of 44 psig. The 'T' ring ~~was~~ is to adjusted such that no bubbles are present around the T ring circumference with penetration pressurized to 44 psig. The T ring is to be adjusted per ~~Fisch~~ Fisher vendors instructions noted on CIWA 838923.

D D Simpson 7/22/83

QC. REVIEW: NO INSPECTION REQUIRED FOR T-RING ADJUSTMENT
7/22/83 R Woodham AP&L QC

P.E. Review by W. Kaufman 7/22/83

7-22-83

	CIWA ADDENDUM PAGE	CIWA NO.	2 3 A 3 2 1
		DATE	7/22/83
BLOCK NO. 33	TITLE: Corrective Action - Startup Eng. Comments		

7/22/83 MI techs pressurized between CAP-203 and CAP-204 to 44 psig.

Applied a snoop solution around the circumference of CAP-203 'T' ring and found no bubble leaks.

Applied a snoop solution around the circumference of CAP-204 'T' ring and found no bubble leaks.

W D Simpson 7/22/83

MI techs pressurized between CAP-103 and CAP-104, Maximum pressure attainable was 32 psig. Excessive leakage was found around CAP-104 'T' ring. This 'T' ring will require adjustment.

W D Simpson 7/22/83

7/23/83 Performed 'T' ring adjustment on CAP-104 untill no bubble leaks were found around Valve 'T' ring circumference with the penetration pressurized to 44 psig.

With 44 psig in the penetration, snooped the seating surface on CAP-103 and found no leaks.

Pressure test of both Purge penetrations complete. Valves are ready for closure time test.

W D Simpson 7/23/83

	CIWA ADDENDUM PAGE	CIWA NO. 2 3 A 3 2 4
		DATE 7/26/83
BLOCK NO. 33	TITLE: Startup Engr Comments	

The closure time chart obtained for CAP-103 on 7/24/83 was considered unacceptable. It appears the potentiometer used to monitor valve position was dirty and giving erratic voltage changes to the chart recording. MM lubricated the valve actuator to ensure the actuator was not sticking and MI installed a new potentiometer to monitor valve position. The close time chart recording for CAP-103 dated 7/25/83 indicates acceptable valve operation.

The closure time chart obtained for CAP-203 on 7/24/83 indicated that the valve 'T' ring seat had become tacky due to dust mixing with the silicone used to lubricate the seat. The seat was cleaned and GE 300 silicone re-applied to the seat. The chart recording for CAP-203 obtained on 7/25/83 shows valve operation with a clean lubricate seat.

Final closure times obtained for the 4 reworked Purge Valves are as follows: (closure time is from 46° open to closed)

VALVE	RUN 1	RUN 2	RUN 3	AVERAGE
CAP-103	2.51	2.48	2.44	2.48
CAP-104	3.04	3.08	3.08	3.07
CAP-203	2.87	2.82	2.84	2.84
CAP-204	2.60	2.40	2.61	2.54

This CIWA to be routed to Plant Engineering for review & comment prior to closure.

W D Simpson 7/26/83

	CIWA ADDENDUM PAGE	CIWA NO 83A326
		DATE 7/29/83
BLOCK NO. 33	TITLE: CAP-103, 104, 203 & 204	

P.E. WILL "INVESTIGATE THE POSSIBILITY OF USING A DRY LUBRICANT IN LIEU OF GE 300 SILICON GREASE FOR FUTURE APPLICATIONS.

THE BROKEN STOP ON VALVE CAP 103 SHOULD BE REPLACED. THIS WORK HOWEVER SHOULD BE PERFORMED UNDER A SEPERATE CIWA.

THE REMAINDER OF THE WORK PERFORMED IS ACCEPTABLE. PROCEED WITH FINAL CIWA CLOSE-OUT.

Douglas Unruh.
7/28/83

Initiated CIWA # 83B519 to replace the valve stop on CAP-103.
W D Simpson 8/18/83

THE Technical Results of this CIWA have been reviewed & are acceptable. T E Chenault 8/31/83

REQUESTED BY	DATE / TIME	EXT. (1)	LOUISIANA POWER & LIGHT CO. WATERFORD 3 CLEARANCE REQUEST FORM	CLEARANCE NO. 83-3018
W.D. Simpson	7/22/83 1309	3211		PAGE 1 OF 1

SYSTEM / COMPONENT TO BE TAGGED (INCLUDE UNID NO.) (2) 83A 32L

46C / RAB Exhaust Fans (HVR-MFAN-0009A & 9B)

DATE TAGS HUNG

REASON / SCOPE OF WORK TO BE PERFORMED (3)

Leak check CAP-204

EXPECTED DURATION OF WORK (4) 1 day

REMARKS (5)

ACCEPTS TAG PLACEMENT (7)	DATE	EXT.	RELEASE REQUEST (8)	DATE	NOS AUTHORIZATION / DATE (9)
					7/22/83

TAG REMOVAL (CANCELLATION) (12) AUTHORIZATION NOS / DATE

TAG NO.	STEP NO. ISSUING	COMPONENT NAME AND NUMBER	REQUIRED POS ISSUING	PLACED BY INIT / DATE	VERIFIED BY INIT / DATE	PARTIAL RELEASE: RELEASE REQUEST	PARTIAL RELEASE: NOS	STEP NO. RELEASING	REQUIRED POS RELEASE	REMOVED BY INIT / DATE	VERIFIED BY INIT / DATE
83-3018		RAB Exhaust Fan									
1		A Control Switch	NORM D.N.O.	7-22-83	7-22-83						
2		RAB Exhaust Fan B Control Switch	NORM D.N.O.	7-22-83	7-22-83						
3		HVR-EBKR-3[illegible]-S	ARCED OPEN	7-22-83	7-22-83						
4		HVR-EBKR-3[illegible]-S Knife Switch	OPEN	7-22-83	7-22-83						
5		HVR-EBKR-3[illegible]3-S	ARCED OPEN	7-22-83	7-22-83						
6		HVR-EBKR-3[illegible]3-S Knife switch	OPEN	7-22-83	7-22-83						

ATTACHMENT TO CIWA 83A326

S-U. ENGINEER ASSIGNED: Dell Simpson	EX 3376	CONDITION IDENTIFICATION WORK AUTHORIZATION
I.C.L.W.A. NO. 838923		

2. ORIGINATOR	DEPT.	3. DATE	TIME	4. SYSTEM NO. AND TITLE	5. EQUIP. LOC. BLDG. ELEV
Dell Simpson	PREOP	6/6/83	0630	HBC RAB Normal Ventilation	RCB

6. COMPONENT NAME AND UNID NO.: Cntmt Purge Valves CAP-103, 104, 203, 204	7a REFERENCE: G 853-S02
7b REFERENCE: CIWA 836503 & 834307	7c REFERENCE: N/A

8. DESCRIPTION & RECOMMENDATION

Cntmt Purge Valves CAP-103 & 204 will not meet the design closure time of 5 sec. max.
Cntmt Purge Valves CAP-104 & 203 will not seat from the annulus direction (i.e. not bi-directional) while also meeting the design closure time of 5 sec. max.

Fisher to supply vendor to make valve adjustments

[redacted]

SIGNATURE [signature]

☐ SEE ADDENDUM PAGE

9. PRIORITY	10. CONDITION ID TAG	11. CONDITION CATEGORY	12. CONDITION STATUS	13. Q A TYPE	14. LICENSEE EVENT REPORT	15. FAILURE MODE	16. FAILURE DETECTION	17. SYS STATUS	18. EFF. ON SYSTEM	19. EFF. ON PLANT	20. PLANT COND.
1.7	☐ YES ☑ NO	3	1	SR-QA ☑ NSR-QA ☐ NSR-NQA ☐	☐ YES ☑ NO	1		2	5	7	10

21. DISPOSITION

ORIGINAL

☐ (IN QA)	☐ PROC. DEFICIENCY	☐ INVALID REPORT	☐ CONST. SURVEILLANCE
☐	☐ DESIGN DEFICIENCY	☐ QUESTION TO ESSE	☐ UNCONTROLLED MAINT.
☐	☐ DWG. DEFICIENCY	☐ USE AS IS	☑ CONTROLLED MAINT.

22. ASSIGNED WORK GROUP: ~~MI~~ PE
ACTION DUE DATE: 6/10/83

23. CONTROLS REQUIRED	YES	NO	
CONFINED SPACE ENTRY		✓	PROCEDURES: N/A
RADIATION WORK PERMIT		✓	DWGS OR OTHER REF MATL: G-853 S02
TAGGING	✗	✓	
INSPECTION		✓	OTHER: N/A
LSE / PMM APPROVAL REQ		✓	

24. WORK DESCRIPTION (INCLUDE ANY SPECIAL PLANT CONDITIONS THAT MUST BE MET)

Fisher Rep. to make seat adjustments on valves CAP-104 & 203 which will make the valves bi-directional. MI to verify leak tightness using a bubble test @ 44 psig and verify closure time of less than 5 seconds for 3 consecutive runs.
Fisher Rep. to make seat adjustments on valves CAP-103 & 204 which will make the valves hold 44 psig cntmt pressure and meet the 5 second max closure time. MI to verify leak tightness using bubble test @ 44 psig and verify closure time of less than 5 seconds.

PREPARED BY: [signature] DATE: 6/6/83 APPROVED BY: [signature] DATE: 6/6/83 ☐ SEE ADDENDUM PAGE

25. QC REVIEW COMMENTS — NCR: YES ☐ NO ☒ NO. ____

[illegible]

QC SIGNATURE & DATE [stamp] 6/6/83 — 26. LSE / PMM APPROVAL & DATE ____

Attachment To CIWA 83A326

	CIWA ADDENDUM PAGE	CIWA NO. 23A923
		DATE 7/18/83
BLOCK NO. 33	TITLE: Corrective Action - Startup Engr Comments (Sh 1 of 2)	

Fisher vendor representative David Wendt cleaned and adjusted the "T" ring seat on CAP-104 such that the valve held penetration pressure (between CAP-103 and CAP-104) of 44 psig (Hiese gage, 0-100 psig, M.I. PT. 27.66, cal due 7/19/83 used through out this CIWA) as verified by a snoop bubble test around the circumference of the valve seat. After successfull completion of the "T" ring adjustment and pressure test, valve CAP-104 was cycled for closure time. Average closure time for 3 consecutive runs was 4.23 seconds.

Startup Engr. Dell Simpson performed the 'T' ring adjustments on all remaining valves as per vendors instructions. Basic adjustment procedure is as follows:

1. Back out all 'T' ring adjustment screws
2. Tighten each adjustment screw untill they just make contact with the metal tension ring, then tighten each screw an additional ¼ turn.
3. Pressurize penetration to 44 psig and bubble test for Leaks
4. Tighten adjustment screws an additional ¼ turn at the Leakage points untill all leaks are stopped.

Note: For valves where adjustment screws are inside the pressurized penetration (i.e CAP-104 and CAP-203) omit step (4) and perform the following:

- (3a) Mark the leakage points and depressurize penetration
- (3b) Open valve and tighten screws at the Leakage points an additional ¼ turn
- (3c) Close valve, pressurize penetration and snoop for Leaks
- (3d) Repeat 3a, b & c until all Leaks are stopped

Cleaned and readjusted the 'T' ring seat on CAP-103. After successful completion of 'T' ring adjustment and pressure test, valve CAP-103 was cycled for closure time. Average closure for 3 consecutive runs was 4.81 seconds.

Attachment to CIWA 83A326

	CIWA	CIWA NO.	8 3 2 4 2 3
	ADDENDUM PAGE	DATE	7/18/83
BLOCK NO. 33	TITLE: Corrective Action - Startup Engr Comments (Sh 2 of 3)		

Cleaned and readjusted the 'T' ring seat on CAP-203 such that the valve held penetration pressure (between CAP-203 and CAP-204) of 44 psig. After successful completion of the 'T' ring adjustment and pressure test, valve CAP-203 was stroked for closure time. Average close time for 3 consecutive runs was 4.05 seconds.

Cleaned and readjusted the 'T' ring seat on CAP-204. After successful completion of 'T' ring adjustment and pressure test, valve CAP-204 was cycled for closure time. Average closure time for three consecutive runs was 4.69 seconds.

Cleaned and readjusted the 'T' ring seat on CAP-102. After successful completion of 'T' ring adjustment and pressure test, valve CAP-102 was cycled for closure time. Average closure time for 3 consecutive runs was 4.49 seconds.

Cleaned 'T' ring seat on CAP-205. Since this valve met the closure time of ≤ 5 seconds on CIWA 836503 no 'T' ring adjustment or pressure test was performed. The valve was cycled for closure time. Average closure time for 3 consecutive runs was 3.78 seconds.

Chart recordings for valve times are to remain attached to this CIWA.

This CIWA to be routed to Plant Engr. for review and comment per their request.

R D Simpson 7/18/83

NOTE: LP&L QC, Steve Longhoff, was informed that testing would continue until completed on 6/7/83 @ 0920

R D Simpson 7/19/83

Attachment to CIWA 82A326

	CIWA ADDENDUM PAGE	CIWA NO. 8 3 0 9 2 3
		DATE 7/18/83
BLOCK NO. 33	TITLE: Tabulation of Valve Close Times	

Valve Unid	Run 1	Run 2	Run 3	Average
CAP-102	4.52	4.48	4.46	4.49
CAP-103	4.80	4 92	4.72	4.81
CAP-104	4.12	4.28	4.28	4.23
CAP-203	4.06	4.05	4.05	4.05
CAP-204	4.71	4 73	4.62	4.69
CAP-205	3.78	3.74	3.82	3.78

Note · All times in seconds.

Chart speed for all close times was 200 mm/sec.

A minimum of 5 minutes allowed between each run to allow actuator cylinder pressure to stabilize.

G D Shipley 7/18/83

Attachment to CIWA 83A326

1. S.U. ENGINEER ASSIGNED	ext	CONDITION IDENTIFICATION WORK AUTHORIZATION	C.I. W.A. NO.
Dell Simpkin	3211		833519

2. ORIGINATOR	DEPT	3. DATE	TIME	4. SYSTEM NO. AND TITLE	5. EQUIP. LOC. BLDG. ELEV.
Dell Simpkin	BOP	8/18/83	1254	46C RAB Normal Ventilation	A-B +46

6. COMPONENT NAME AND UNID NO	7a REFERENCE
Purge Makeup Vlv CAP-103	CIWA 83A326
7b REFERENCE	7c REFERENCE
N/A	N/A

8. DESCRIPTION & RECOMMENDATION

CAP-103 valve disk stop is broken off the valve body. The valve actuator stop is presently being used to stop valve travel at the closed position.

SIGNATURE [signature] ☐ SEE ADDENDUM PAGE

9. PRIORITY	10. CONDITION ID TAG	11. CONDITION CATEGORY	12. CONDITION STATUS	13. Q A TYPE	14. 10 CFR 21 REPORT	15. FAILURE MODE	16. FAILURE DETECTION	17. SYS. STATUS	18. EFF. ON SYSTEM	19. EFF. ON PLANT	20. PLANT COND.
1.9	☐ YES ☑ NO	3	2	SR – QA ☑ NSR – QA ☐ NSR – NQA ☐	☐ YES ☑ NO	—	—	2	3	7	10

21 DISPOSITION

☐ _____ ☐ PROC. DEFICIENCY ☐ INVALID REPORT ☐ CONST. SURVEILLANCE
☐ _____ ☐ DESIGN DEFICIENCY ☐ QUESTION TO ENGR ☐ UNCONTROLLED MAINT.
☐ _____ ☐ DWG. DEFICIENCY ☐ USE AS IS ☑ CONTROLLED MAINT.

22 ASSIGNED WORK GROUP: PE

ACTION DUE DATE: 10/1/83

23. CONTROLS REQUIRED	YES	NO
CONFINED SPACE ENTRY		✓
RADIATION WORK PERMIT		✓
TAGGING	✓	
INSPECTION		✓
LSE / PSRB APPROVAL REQD.		✓

PROCEDURES: N/A

DWGS OR OTHER REF MATL: P/O 403483 Manual 45100063

OTHER: N/A

24. WORK DESCRIPTION (INCLUDE ANY SPECIAL PLANT CONDITIONS THAT MUST BE MET)

Replace the valve stop on CAP-103. Refacing this stop will require grinding and welding on the valve body. Plant Engineering to provide direction to MM for performing this work.

PREPARED BY [signature] DATE: 8/18/83 APPROVED BY [signature] DATE: 8/18/83 ☐ SEE ADDENDUM PAGE

25. QC REVIEW COMMENTS

NCR: YES ☐ NO ☐ NO. _____

QC SIGNATURE & DATE _____ 26. LSE / PSRB APPROVAL & DATE _____

SAP-08 Attachment 5.1 Revision 5

C 21.01 REV. 01

MIDDLE SOUTH UTILITIES SYSTEM

VALVE / DAMPER AND/OR ACCESSORIES INFORMATION SHEET

Inst. Data Sheet
Field Copy WATERFORD 3
Expiration Date JUL 27 1983

UNID NO.	CAP-MVAAA-204
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	88-4970 / 0 (88-1922 CM 2-10-89) (85-7163 CM 7-12-85)
REV'D BY / DATE	J.H. / 9-8-82

EQUIPMENT IDENTIFICATION

VALVE / DAMPER: YES [X] NO [ ]

SERVICE DESCRIPTION: CONTAINMENT PURGE ISOLATION VALVE

TAG NUMBER: 2HV-8154B

MANF./MOD. NO./SERIAL NO.: FISHER TYPE 9220 BF 226080

VLV. TYPE/BENCH SET: BUTTERFLY (85-7163) 85 PSI ~~GNA~~ 0-46°

VALVE ACTION, AIR TO: OPEN [X] CLOSE [ ]

VALVE FAIL ACTION: OPEN [ ] CLOSE [X] AS IS [ ]

LIMIT SWITCHES: YES [X] NO [ ]

TAG NO(S)
SW. 1: NOTE 4
SW. 2: NOTE 4

MANF./MODEL NO.: NAMCO EA18031302

SWITCH SETTINGS
SW. 1
SW.1, OPEN
SW.2, CLOSED
SW. 2
SW.3, OPEN
SW.4, CLOSED

POSITIONER	POS. TRANS.	SOLENOID
YES [ ] NO [X]	YES [ ] NO [X]	YES [X] NO [ ]
TAG NUMBER	TAG NUMBER	TAG NUMBER: CAP-ISS-0204
MANF./MOD. NO./CAM TYPE	MANF./MOD. NO./SERIAL NO.: 88-4970 CM 5-2-89 → NP8316GSE (QTY 2)	MANF./MOD. NO.: ASCO ~~HP-8316A4V~~
ELEC. [ ] PNEU [ ] HYD [ ]	ELEC. [ ] PNEU [ ]	SUPPLY VOLTAGE: PDP-3A1-5B CKT #26 120 VAC

SIGNAL FROM	OUTPUT RANGE / ACCURACY	COIL ENERGIZED / PERMISSIVE TO: OPEN [X] CLOSE [ ]
INPUT RANGE	CWD	REGULATOR: YES [ ] NO [X]
OUTPUT RANGE	SIGNAL TO	MFGR./MOD. NO./SETTING
ACCURACY	SUPPLY	

DRAWING REF.

P.O. NO. 403483
SPEC. NO. 109A
CWD: 1129 2846
BLDG./ELEV./BLDG. COORD.: RCB+56/COL. 14
FLOW DIAG.: G8[illegible]3-S2-I5
INST. LOGIC & SCH.: 29[illegible]
INST. LOC. DETAIL: C-31B

CAL. REF.

PROCEDURE NO.: MI-5-211 MI-5-213 (MI-5-231 / 85-1922 CM 2-10-89)
CAL. FORM NO.: C20.01
TECH. MANUAL NO.: 457000263
CAL. CHECK INTERVAL: AS REQUIRED

PRECAUTIONS & NOTES

1. LOC. & ARR. G391-S2-K7.
2. EBASCO SOLENOID NO. SV-HV-154.
3. SW.1, CAP-ISS-0204-1
   SW.2, CAP-ISS-0204-2
   SW.3, CAP-ISS-0204-3
   SW.4, CAP-ISS-0204-4

SEE PRECAUTIONS AND NOTES CONTINUATION SHEET ATTACHED

SUGGESTED TEST EQUIPMENT

1. HP SE TEST RIG 0-100 PSI
2. TRIPLETT VOM MODEL 630

MIDDLE SOUTH UTILITIES SYSTEM

INSTRUMENT INFORMATION SHEET

PRECAUTIONS AND NOTES

CONTINUATION SHEET

WATERFORD - 3

UNID NO.	CAP-MUAAA-204
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00
REV'D BY / DATE	MHa / 9-2-82

PRECAUTIONS AND NOTES

4. EBASCO LIMIT SWITCH NUMBERS ARE ZS-HV-0154B1 AND ZS-HV-0154B2.

5. LIMIT SWITCHES CAP-IZS-0204-1, CAP-IZS-0204-2, CAP-IZS-0204-3, AND CAP-IZS-0204-4 PROVIDE:
   A. OPEN INDICATION, RED LIGHT ON CP-18, LOCATED IN CONTROL ROOM, SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY CLOSED.
   B. CLOSED INDICATION, GREEN LIGHT ON CP-18 IN CONTROL ROOM SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY OPEN.
   C. INPUTS TO COMPUTER POINTS:
      1. D51010
      2. D51011

C20.01
REV 02

MIDDLE SOUTH UTILITIES SYSTEM

DAMPER AND/OR VALVE ACTUATOR CALIBRATION RECORD

TAG NO	SYSTEM NO	REVISION NO.	REVIEWED BY/DATE
CAP-IIVAAA 204	66C	00	[illegible] 10-5-82

E3-716-C (H 7-19-82)

STROKE PRESSURE	INCHES / PERCENT STEM TRAVEL	MAXIMUM STROKE TIME
0 LBS TO 85 LBS	100%	5 SECONDS

BENCH SET ALIGNMENT

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT PSIG	OUTPUT INCHES OF TRAVEL	OUTPUT INCHES OF TRAVEL	ERROR	OUTPUT INCHES OF TRAVEL	ERROR
OPEN	1	0	0	0° ~~0%~~	0°	0°	0°	0°
	2	100	85	46° ~~100%~~	~~46~~ 90°	~~0~~ 44°	46°	0°
	3	0	0	0° ~~0%~~	0°	0°	0°	0°
CLOSE	4			E3-716-C				
	5							
	6							
	7							

DAMPER AND/OR VALVE WITH POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	OUTPUT % / INCHES TRAVEL	INPUT	INPUT	ERROR	INPUT	ERROR
OPEN	1							
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

POSITION TRANSMITTER

☐ SET WITH POSITIONER ☐ SET WITHOUT POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT % / INCHES OF TRAVEL	OUTPUT % SIGNAL TO INDICATOR	OUTPUT % SIGNAL TO INDICATOR	ERROR	OUTPUT % SIGNAL TO INDICATOR	ERROR
OPEN	1							
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

C 21.01 REV. 01

MIDDLE SOUTH UTILITIES SYSTEM

VALVE / DAMPER AND/OR ACCESSORIES

INFORMATION SHEET

st. Data Sheet"
, Copy
WATERFORD - 3
tion Date JUL 27 1983

UNID NO.	CAP-MVAAA-203
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00 (83-1921 CN 2-19-92) (83-7163 CN 7-13-87)
REV'D BY / DATE	J.H. / 9-7-92

EQUIPMENT IDENTIFICATION

VALVE / DAMPER: YES [X] NO [ ]

SERVICE DESCRIPTION: CONTAINMENT PURGE ISOLATION VALVE

TAG NUMBER: 2HV-B153B

MANF./MOD. NO./SERIAL NO.: FISHER TYPE 9220 BF 226079

VLV.TYPE/BENCH SET/STR. LG.: BUTTERFLY 85 PSI ~~DIA~~ C-46 (83-7163 CN 7-13-87)

VALVE ACTION, AIR TO: OPEN [X] CLOSE [ ]

VALVE FAIL ACTION: OPEN [ ] CLOSE [X] AS IS [ ]

LIMIT SWITCHES: YES [X] NO [ ]

TAG NO(S)
SW. 1: NOTE 4
SW. 2: NOTE 4

MANF./MODEL NO.: NAMCO EA18031302 EA18032302

SWITCH SETTINGS
SW. 1: SW.1. OPEN
SW. 2: SW.2. CLOSED
SW. 2: SW.3. OPEN
SW. 4. CLOSED

POSITIONER	POS. TRANS.	SOLENOID
YES [ ] NO [X]	YES [ ] NO [X]	YES [X] NO [ ]
TAG NUMBER	TAG NUMBER	TAG NUMBER: CAP-ISV-0203
MANF./MOD. NO./CAM TYPE	MANF./MOD. NO./SERIAL NO.	MANF./MOD. NO.: ASCO NP 831664V
ELEC. [ ] PNEU [ ] HYD [ ]	ELEC. [ ] PNEU [ ]	SUPPLY/VOLTAGE: PDP-361-SB CKT#26 120 VAC
SIGNAL FROM	OUTPUT RANGE / ACCURACY	COIL ENERGIZED PERMISSIVE TO: OPEN [X] CLOSE [ ]
INPUT RANGE	CWD	REGULATOR: YES [ ] NO [X]
OUTPUT RANGE	SIGNAL TO	MFGR./MOD. NO./SETTING
ACCURACY	SUPPLY	

DRAWING REF.

P.O. NO. 403483
SPEC. NO. 109A
CWD: 1129 2846
BLDG./ELEV./BLDG. COORD.: RCB+56/COL.14
FLOW DIAG.: G853-S2-I5
INST. LOGIC & SCH.: 295
INST. INST. DETAIL: ~~0-31F~~

CAL. REF.

PROCEDURE NO.: MI-5-211 MI-5-213 (MI-5-211 / 83-1921 CN 2-19-92)
CAL. FORM NO.: C20.01
TECH. MANUAL NO.: 457000263
CAL. CHECK INTERVAL: AS REQUIRED

PRECAUTIONS & NOTES

1. LOC. & ARR. G391-S2-J8.
2. EBASCO SOLENOID NO. SV-HV-153.
3. SW.1. CAP-IZS-0203-1
   SW.2. CAP-IZS-0203-2
   SW.3. CAP-IZS-0203-3
   SW.4. CAP-IZS-0203-4

SEE PRECAUTIONS AND NOTES CONTINUATION SHEET ATTACHED

SUGGESTED TEST EQUIPMENT

1. HEISE TEST RIG 0-100 PSI
2. TRIPLETT VOM MODEL 630

C 21.04 REV. 0

MIDDLE SOUTH UTILITIES SYSTEM

INSTRUMENT INFORMATION SHEET

PRECAUTIONS AND NOTES

CONTINUATION SHEET

WATERFORD - 3

UNID NO.	CAP-MVAAA-203
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00
REV'D BY / DATE	[signature] / 9-2-3L

PRECAUTIONS AND NOTES

5. ERASCO LIMIT SWITCH NUMBERS ARE ZS-HV-0153B1 AND ZS-HV-0153B2.

6. LIMIT SWITCHES CAP-IZS-0203-1, CAP-IZS-0203-2, CAP-IZS-0203-3, AND CAP-IZS-0203-4 PROVIDE:
   A. OPEN INDICATION. RED LIGHT ON CP-18, LOCATED IN CONTROL ROOM, SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY CLOSED.
   B. CLOSED INDICATION. GREEN LIGHT ON CP-18 IN CONTROL ROOM SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY OPEN.
   C. INPUTS TO COMPUTER POINTS:
      1. DS1008
      2. DS1009

C20.01
REV 02

DAMPER AND/OR VALVE ACTUATOR CALIBRATION RECORD

MIDDLE SOUTH UTILITIES SYSTEM

REVIEWED BY/DATE 11/30/10-5-82

SYSTEM NO 46C | REVISION NO. 00

TAG NO CAP-HVAA-293

STROKE PRESSURE	INCHES / PERCENT STEM TRAVEL	MAXIMUM STROKE TIME
0 LBS TO 85 LBS	100%	5 SECONDS

BENCH SET ALIGNMENT

		INPUTS	DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT PSIG	OUTPUT INCHES OF TRAVEL	OUTPUT INCHES OF TRAVEL	ERROR	OUTPUT INCHES OF TRAVEL	ERROR
OPEN	1	0	0	0" ~~0%~~	0°	0°	0°	0°
	2	100	85	~~4" 100%~~	90°	44°	~~46°~~ 46°	0°
	3	0	0	0" ~~0%~~	0°	0°	0°	0°
CLOSE	4			83-716-4				
	5							
	6							
	7							

DAMPER AND/OR VALVE WITH POSITIONER

		INPUTS	DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	OUTPUT % / INCHES TRAVEL	INPUT	INPUT	ERROR	INPUT	ERROR
OPEN	1							
	2							
	3							
CLOSED	4							
	5							
	6							
	7							

POSITION TRANSMITTER

☐ SET WITH POSITIONER ☐ SET WITHOUT POSITIONER

		INPUTS	DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT % / INCHES OF TRAVEL	OUTPUT % SIGNAL TO INDICATOR	OUTPUT % SIGNAL TO INDICATOR	ERROR	OUTPUT % SIGNAL TO INDICATOR	ERROR
OPEN	1							
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

C 21.01 REV. 01

MIDDLE SOUTH UTILITIES SYSTEM

VALVE / DAMPER AND/OR ACCESSORIES

INFORMATION SHEET

Inst. Data Sheet
Field Copy WATERFORD - 3
Expiration Date ~~JUL 27 1992~~

UNID NO.	CAP-MVAAA-104
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	0 (83-2162 MI-5-231-03; 83-4972 CH 5-A-83; 83-7161 CH 2-3-84)
REV'D BY / DATE	JH / 9-8-82

EQUIPMENT IDENTIFICATION

VALVE / DAMPER: YES [X] NO [ ]

SERVICE DESCRIPTION: CONTAINMENT PURGE ISOLATION VALVE

TAG NUMBER: 2HV-B152A

MANF./MOD. NO./SERIAL NO.: FISHER TYPE 9220 BF 226078

VLV. TYPE/BENCH SET/STR. LG.: BUTTERFLY 85 PSI ~~UNA~~ 0-46° (83-7161)

VALVE ACTION, AIR TO: OPEN [X] CLOSE [ ]

VALVE FAIL ACTION: OPEN [ ] CLOSE [X] AS IS [ ]

LIMIT SWITCHES: YES [X] NO [ ]

TAG NO(S)
SW. 1: NOTE 4
SW. 2: NOTE 4

MANF./MODEL NO.: NAMCO EA18031302 EA18032302

SWITCH SETTINGS
SW. 1: SW.1. OPEN; SW.2. CLOSED
SW. 2: SW.3. OPEN; SW.4. CLOSED

POSITIONER	POS. TRANS.	SOLENOID
YES [ ] NO [X]	YES [ ] NO [X]	YES [X] NO [ ]
TAG NUMBER	TAG NUMBER	TAG NUMBER: CAP-ISO-0104
MANF./MOD. NO./CAM TYPE	MANF./MOD. NO./SERIAL NO. (83-4972 CH 5-A-83)	MANF./MOD. NO.: ~~ASCO~~ ~~NP8316A5V~~ NP8316G5E (QTY 2)
ELEC. [ ] PNEU [ ] HYD [ ]	ELEC. [ ] PNEU [ ]	SUPPLY VOLTAGE: PDP-360-SA CKT#26 120 VAC
SIGNAL FROM	OUTPUT RANGE / ACCURACY	COIL ENERGIZED PERMISSIVE TO: OPEN [X] CLOSE [ ]
INPUT RANGE	CWD	REGULATOR: YES [ ] NO [X]
OUTPUT RANGE	SIGNAL TO	MFGR./MOD. NO./SETTING
ACCURACY	SUPPLY	

DRAWING REF.

P.O. NO. 403483
SPEC. NO. 109A
CWD: 1128S 2846
BLDG./ELEV./BLDG. COORD.: RCB+52/COL. 9
FLOW DIAG.: G853-S2-H10
INST. LOGIC & SCH.: 295S
INST. ~~INST.~~ DETAIL: V-318

PRECAUTIONS & NOTES

1. LOC. & ARRNG. G391-S2-I12.
2. ROBOTARM ACTUATOR.
3. EBASCO SOLENOID NO. SV-HV-152.
4. SW.1. CAP-IZS-0104-1
   SW.2. CAP-IZS-0104-2
   SW.3. CAP-IZS-0104-3
   SW.4. CAP-IZS-0104-4

SEE PRECAUTIONS AND NOTES CONTINUATION SHEET ATTACHED

CAL. REF.

PROCEDURE NO.: ~~MI-5-231~~ MI-5-211 (83-2162 Add 2-21-83) MI-5-213
CAL. FORM NO.: C20.01
TECH. MANUAL NO.: 457000263
CAL. CHECK INTERVAL: AS REQUIRED

SUGGESTED TEST EQUIPMENT

1. HFISE TEST RIG 0-100 PSI
2. TRIPLETT VOM MODEL 630

C 21.04 REV. 0

MIDDLE SOUTH UTILITIES SYSTEM

INSTRUMENT INFORMATION SHEET

PRECAUTIONS AND NOTES

CONTINUATION SHEET

WATERFORD - 3

UNID NO.	CAP-MVAAA-104
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00
REV'D BY / DATE	[illegible] / 9-2 [illegible]

PRECAUTIONS AND NOTES

5. ERASCO LIMIT SWITCH NUMBERS ARE ZS-HV-0152A1 AND ZS-HV-0152A2.

6. LIMIT SWITCHES CAP-IZS-0104-1, CAP-IZS-0104-2, CAP-IZS-0104-3, AND CAP-IZS-0104-4 PROVIDE:
   A. OPEN INDICATION. RED LIGHT ON CP-18, LOCATED IN CONTROL ROOM, SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY CLOSED.
   B. CLOSED INDICATION. GREEN LIGHT ON CP-18 IN CONTROL ROOM SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY OPEN.
   C. INPUTS TO COMPUTER POINTS:
      1. DS1006
      2. DS1007

C20.01
REV 02

DAMPER AND/OR VALVE ACTUATOR CALIBRATION RECORD

TAG NO: CAP-FV/MA-104
SYSTEM NO: 46C | REVISION NO: 00
REVIEWED BY/DATE: Sept 10-5-82

93-716-2

STROKE PRESSURE	INCHES / PERCENT STEM TRAVEL	MAXIMUM STROKE TIME
0 LBS TO 85 LBS	100%	5 SECONDS

BENCH SET ALIGNMENT

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT PSIG	OUTPUT INCHES OF TRAVEL	OUTPUT INCHES OF TRAVEL	ERROR	OUTPUT INCHES OF TRAVEL	ERROR
OPEN	1	0	0	~~0°~~ 93	0°	-0°	0°	0°
	2	100	85	~~46~~ 100%	90°	44°	46°	0°
	3	0	0	~~0°~~ 0%	0°	0°	0°	0°
CLOSE	4			(93-716-2)				
	5							
	6							
	7							

DAMPER AND/OR VALVE WITH POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	OUTPUT % / INCHES TRAVEL	INPUT	INPUT	ERROR	INPUT	ERROR
OPEN	1							
	2							
	3							
CLOSED	4							
	5							
	6							
	7							

POSITION TRANSMITTER

☐ SET WITH POSITIONER ☐ SET WITHOUT POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT % / INCHES OF TRAVEL	OUTPUT % SIGNAL TO INDICATOR	OUTPUT % SIGNAL TO INDICATOR	ERROR	OUTPUT % SIGNAL TO INDICATOR	ERROR
OPEN	1							
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

C 21.01 REV. 01

MIDDLE SOUTH UTILITIES SYSTEM

VALVE / DAMPER AND/OR ACCESSORIES INFORMATION SHEET

Inst. Data Sheet
Field Copy
WATERFORD - 3
Expiration Date JUL 27 1983

UNID NO.	CAP-MUAAA-103
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO	83-4773 INC-10 / 00 / 83-1920 CN 2-11-93 / 83-7154 CN 7-13-83
REV'D BY / DATE	J.N / 9-8-82

EQUIPMENT IDENTIFICATION

VALVE / DAMPER: YES [X] NO [ ]

SERVICE DESCRIPTION: CONTAINMENT PURGE ISOLATION VALVE

TAG NUMBER: 2HV-B151A

MANF./MOD. NO./SERIAL NO.: FISHER TYPE 9220 BF 226077

VLV.TYPE/BENCH SET/STR. LGTH: BUTTERFLY 85 PSI ~~UNA~~ 0-46° (83-7154)

VALVE ACTION, AIR TO: OPEN [X] CLOSE [ ]

VALVE FAIL ACTION: OPEN [ ] CLOSE [X] AS IS [ ]

LIMIT SWITCHES: YES [ ] NO [ ]

TAG NO(S)
SW. 1 - NOTE 4
SW. 2 NOTE 4

MANF./MODEL NO.: NAMCO EA18031302

SWITCH SETTINGS
SW. 1
SW.1. OPEN
SW.2. CLOSED
SW. 2
SW.3. OPEN
SW.4. CLOSED

POSITIONER	POS. TRANS.	SOLENOID
YES [ ] NO [X]	YES [ ] NO [X]	YES [X] NO [ ]
TAG NUMBER	TAG NUMBER	TAG NUMBER CAP-ISO-0103
MANF./MOD. NO./CAM TYPE	MANF./MOD. NO./SERIAL NO. 83-4773 CN 5 & 83	MANF./MOD. NO. ASCO ~~NP 8316B4E~~ NP8316655E (QTY 2)
ELEC. [ ] PNEU [ ] HYD [ ]	ELEC. [ ] PNEU [ ]	SUPPLY/VOLTAGE PDP-360-SA CKT #26 120 VAC

SIGNAL FROM
INPUT RANGE
OUTPUT RANGE
ACCURACY

OUTPUT RANGE / ACCURACY
CWD
SIGNAL TO
SUPPLY

COIL ENERGIZED PERMISSIVE TO: OPEN [X] CLOSE [ ]

REGULATOR: YES [ ] NO [X]
MFGR./MOD. NO./SETTING

DRAWING REF.

P.O. NO. 403483
SPEC. NO. 109A
CWD 1128S 2846
BLDG./ELEV./BLDG. COORD. RCB+52/COL.9
FLOW DIAG. G853-S2-H10
INST. LOGIC & SCH. 295S
INST. INST. DETAIL V-31B

PRECAUTIONS & NOTES

1. LOC. & ARRNG. G391-S2-I12.
2. ROBOTARM ACTUATOR.
3. EBASCO SOLENOID NO. SV-HV-151.
4. SW.1. CAP-IZS-0103-1
   SW.2. CAP-IZS-0103-2
   SW.3. CAP-IZS-0103-3
   SW.4. CAP-IZS-0103-4

SEE PRECAUTIONS AND NOTES CONTINUATION SHEET ATTACHED

CAL. REF.

PROCEDURE NO. MI-5-211 MI-5-231 / MI-5-213 83-1920 CN 2-11-93
CAL. FORM NO. C20.01
TECH. MANUAL NO. 457000263
CAL. CHECK INTERVAL AS REQUIRED

SUGGESTED TEST EQUIPMENT

1. HEISE TEST RIG 0-100 PSI
2. TRIPLETT VOM MODEL 630

C 21.04 REV. 0

MIDDLE SOUTH UTILITIES SYSTEM

INSTRUMENT INFORMATION SHEET

PRECAUTIONS AND NOTES

CONTINUATION SHEET

WATERFORD - 3

UNID NO.	CAP-MVAAA-103
SYSTEM NO.	46C
LOOP NO.	N/A
REV. NO.	00
REV'D BY / DATE	[illegible] / 9-2-94

PRECAUTIONS AND NOTES

5. EBASCO LIMIT SWITCH NUMBERS ARE ZS-HV-0151A1 AND ZS-HV-0151A2.

6. LIMIT SWITCHES CAP-IZS-0103-1, CAP-IZS-0103-2, CAP-IZS-0103-3, AND CAP-IZS-0103-4 PROVIDE:
   A. OPEN INDICATION, RED LIGHT ON CP-18, LOCATED IN CONTROL ROOM, SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY CLOSED.
   B. CLOSED INDICATION, GREEN LIGHT ON CP-18 IN CONTROL ROOM SHOULD BE ILLUMINATED EXCEPT WHEN VALVE IS FULLY OPEN.
   C. INPUTS TO COMPUTER POINTS
      1. D51004
      2. D51005

C20.01
REV. 02

MIDDLE SOUTH UTILITIES SYSTEM

DAMPER AND/OR VALVE ACTUATOR CALIBRATION RECORD

TAG NO: CAP-HVAA-103
SYSTEM NO: 46C
REVISION NO: 00
REVIEWED BY/DATE: 10-2-82

STROKE PRESSURE	INCHES / PERCENT STEM TRAVEL	MAXIMUM STROKE TIME
0 LBS TO 85 LBS	100%	5 SECONDS

BENCH SET ALIGNMENT

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT PSIG	OUTPUT INCHES OF TRAVEL	OUTPUT INCHES OF TRAVEL	ERROR	OUTPUT INCHES OF TRAVEL	ERROR
OPEN	1	0	0	~~0°~~	0°	0°	0°	0°
	2	100	85	~~46°~~ ~~100~~	90°	44°	46°	0°
	3	0	0	~~0°~~ ~~0~~	0°	0°	0°	0°
CLOSE	4			E3-7160				
	5							
	6							
	7							

DAMPER AND/OR VALVE WITH POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	OUTPUT % / INCHES TRAVEL	INPUT	INPUT	ERROR	INPUT	ERROR
OPEN	1							
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

POSITION TRANSMITTER

☐ SET WITH POSITIONER ☐ SET WITHOUT POSITIONER

INPUTS			DESIRED		AS FOUND		AS LEFT	
ACTION	TEST POINT	% OPEN	INPUT % / INCHES OF TRAVEL	OUTPUT % SIGNAL TO INDICATOR	OUTPUT % SIGNAL TO INDICATOR	ERROR	OUTPUT % SIGNAL TO INDICATOR	ERROR
OPEN	1							
	2							
	3							
CLOSE	4							
	5							
	6							
	7							

[2]

MATERIAL TICKET — MULTI-PURPOSE

No. 46503

STOREROOM NUMBER 30 VENDOR

REQUISITIONED BY T. Arnnry

MATERIAL USED FOR NPM

DEPARTMENT

X	CODE	TICKET FUNCTION. Check One
X	70	REQUISITION ON STORES
	75	MATERIAL RETURNED TO STORES

	Safety Related/QA Required
	Non Safety Related/QA Required
X	Non Safety Related/No QA Required

CIWA: 83-A326

P.O. No.	P.O. Item No.	QTY	Unit	DESCRIPTION
				7/8 flat washer, 140-C84629
86603		2	EA	
				7/8 lock washers, 140-C84638
16814		2	ea	

DISTRIBUTION VERIFIED BY

MATERIAL TICKET APPROVED BY 7-16-83 B. Thompson

MATERIAL RECEIVED BY / RETURNED BY 7-16-83 M.P. Parkin

Date

MATERIAL ISSUED BY / RECEIVED BY 7-16-83 J.W. Hattaway

Date Storekeeper

F 667 79 00 Rev. 51

2

MATERIAL TICKET — MULTI-PURPOSE

No. 42512

STOREROOM NUMBER 30 VENDOR

REQUISITIONED BY T. Andry

MATERIAL USED FOR M/A
DEPARTMENT

X	CODE	TICKET FUNCTION, Check One
X	70	REQUISITION ON STORES
	75	MATERIAL RETURNED TO STORES

	Safety Related/QA Required
	Non Safety Related/QA Required
X	Non Safety Related/No QA Required

CIWH # 83A32C

P.O. No.	P.O. Item No.	QTY	Unit	DESCRIPTION Commercial Grade
				Bettis Actuator ORing Seal Kit Model T420-S R1-M3
17185		1	EA	Actuator part 30541 Stock# 101-C38465 QCRT 4780
				G.E. 3000 Versilube Silicone (8 oz tubes)
19656		3	Tub	Stock 142-E80767

DISTRIBUTION VERIFIED BY

MATERIAL TICKET APPROVED BY 7/1/83 [signature]

MATERIAL RECEIVED BY / RETURNED BY 7/2/83 [signature]

MATERIAL ISSUED BY / RECEIVED BY 7/2/83 Dana Robiskie

Date Storekeeper

F 667 79 00 Rev. 5

2

MATERIAL TICKET — MULTI-PURPOSE

STOREROOM NUMBER 30 VENDOR Code 2237 No. 46575

REQUISITIONED BY Acctg. T. Avery

MATERIAL USED FOR MM DEPARTMENT

X	CODE	TICKET FUNCTION. Check One
X	70	REQUISITION ON STORES
	75	MATERIAL RETURNED TO STORES

	Safety Related/QA Required
	Non Safety Related/QA Required
X	Non Safety Related/No QA Required

CIWA: 83A326

Comm. Grade

P.O. No.	P.O. Item No.	QTY	Unit	DESCRIPTION
17185	001	1	EA	Bettis Actuator Seal Ring R.T. Model T420-S-R1-M3
				Seal R.T. - Bettis Md. T420-SR1-M3
				Adaptor (Cust Pn. 101-C58465)
				(Q.C. RT #4190)

DISTRIBUTION VERIFIED BY:

MATERIAL TICKET APPROVED BY: 7-21-83 L.O. Johnson

MATERIAL RECEIVED BY / RETURNED BY: 7-21-83 Date

MATERIAL ISSUED BY / RECEIVED BY: 7-21-83 Date L.O. Johnson Storekeeper

F 667 79 00 Rev. 5L

2

MATERIAL TICKET — MULTI-PURPOSE

STOREROOM NUMBER 30 VENDOR Code 7937 No. 46577

REQUISITIONED BY T. Aundry

MATERIAL USED FOR MM DEPARTMENT

X	CODE	TICKET FUNCTION, Check One
X	70	REQUISITION ON STORES
	75	MATERIAL RETURNED TO STORES

	Safety Related/QA Required
	Non Safety Related/QA Required
X	Non Safety Related/No QA Required

CWA# 830326

Comm. Dewde

P.O. No.	P.O. Item No.	QTY	Unit	DESCRIPTION
				Bettis Seal Ring Kit md T420-SR1-M3
17185	001	1	EA	Actuator (Cost Kn. 101-C38465)
				(Q.C. Rec 4180)

DISTRIBUTION VERIFIED BY

MATERIAL TICKET APPROVED BY 7-21-83 John M. Hundred
Date

MATERIAL RECEIVED BY / RETURNED BY 7-21-83 [signature]
Date

MATERIAL ISSUED BY / RECEIVED BY 7-21-83 A. G. [signature]
Date

F-MAT 79 00 Rev. 5

.2

MATERIAL TICKET — MULTI-PURPOSE

No. 42530

STOREROOM NUMBER 30 VENDOR

Acctg.

REQUISITIONED BY K. PLAISANCE

MATERIAL USED FOR MIA

DEPARTMENT

X	CODE	TICKET FUNCTION, Check One
	70	REQUISITION ON STORES
X	75	MATERIAL RETURNED TO STORES

	Safety Related/QA Required
	Non Safety Related/QA Required
X	Non Safety Related/No QA Required

CIWA: 83A326

Comm. Grade

P.O. No.	P.O. Item No.	QTY	Unit	DESCRIPTION
				Bettis Seal Ring Kit MD T420-SR1-M3
17185	001	1	EA	Actuator (PN# 3054 Stock #101-C38465) QC RT #4180
				(Parts used from kit)
				#025891-2ea, #029229-1ea, #005H5-4ea.
				Bettis Seal Ring Kit MD# F420-SR1-M3 Actuator
17185	001	2	EA	(PN# 30541 Stock #101-C35965) QC RT #4180
				(Parts used from kit)
				#02591-2ea, ~~#029929-1ea~~ #005H5-4ea, #005129-1ea
				Parts used were needed at this time
				... ... to be ... ...
				... ...SC.

DISTRIBUTION VERIFIED BY

MATERIAL TICKET APPROVED BY 7/22/83 John M. [illegible] Date Dept. Head – Supervisor

MATERIAL RECEIVED BY RETURNED BY 7/22/83 Karl Plaisance Date

MATERIAL ISSUED BY RECEIVED BY 7-22-83 S. [illegible] Date Storekeeper

1 667 79 00 Rev. 5s

2

MATERIAL TICKET — MULTI-PURPOSE

No. 46389

STOREROOM NUMBER 30

VENDOR

REQUISITIONED BY Dave Cofer

MATERIAL USED FOR CIWA 83A326

DEPARTMENT

X	CODE	TICKET FUNCTION. Check One
X	70	REQUISITION ON STORES
	75	MATERIAL RETURNED TO STORES

X	Safety Related/QA Required
	Non Safety Related/QA Required
	Non Safety Related/No QA Required

QCRT 2320

P.O. No.	P.O. Item No.	QTY	Unit	DESCRIPTION
				Coil, Solenoid A-99 Q 27-502-1-D
07880		1	ea	ST/H 135-C07731
				Loc B5K

DISTRIBUTION VERIFIED BY

MATERIAL TICKET APPROVED BY 7/14/83 Robert [illegible]

Date

MATERIAL RECEIVED BY / RETURNED BY 7-14-83 David Cofer

MATERIAL ISSUED BY / RECEIVED BY 7/14/83 [illegible] Robinson

Date Storekeeper

F 667 79 00 Rev. 51

WPP CHECK LIST

CIWA No. 83A326

Answer & Initials

1. On a SAP-08 CIWA, are blocks 1 thru 8 adequately filled out? If not, resolve discrepancies with the Originator or the CSM. — Yes JC

2. On a SAP-08 CIWA, are blocks 9 thru 24 adequately filled out? If not, resolve discrepancies with the Approval Authority or the CSM. — Yes JC

3. On a UNT-5-002 CIWA, is the ORIGINATOR/NOS section adequately filled out? If not, resolve discrepancies with the Originator or NOS. — NA JC

4. Have you field scoped this CIWA? — NO JC

5. Does this CIWA require work in a Radiation Zone? If yes, the Health Physics and RWP blocks on the CIWA Work Package Planning Sheet are to be marked. — NO JC

6. Does this CIWA require work in a confined space? If yes, the Health Physics and CSWP blocks on the CIWA Work Package Planning Sheet are to be marked. — NO JC

7. Does this CIWA require the breaking of a system boundary or involve chemical cleaning, lay up or flushing? If yes, the Chemistry and CCF blocks on the CIWA Work Package Planning Sheet are to be marked. — NO JC

8. Does this CIWA require work on the Fire Protection System or any of its components? If yes, check Attachment 8.1 of FP-1-006 for required inspections and list the inspections required on the CIWA or CIWA Addendum Page and mark the Fire Protection Coordinator block on the CIWA Work Package Planning Sheet. — NO JC

9. Does this CIWA involve a modification to permanent plant equipment? If yes, mark the Plant Engineering block in the opening review column and enter "Station Modification" in the Notes section of the CIWA Work Package Planning Sheet. — NO JC

10. Does this CIWA require work on a Section XI, Class 1,2, or 3 valve, pump, vessel or associated piping? If yes, mark the Plant Engineering block in the opening review column of the CIWA Work Package Planning Sheet. — Yes JC

11. Is this CIWA dispositioned "use as is" or "repair"? NO JC
If yes, mark the Plant Engineering block in the opening review column of the CIWA Work Package Planning Sheet.

12. Does this CIWA involve the use of an ignition source? NO JC
If yes, mark the HWP (FP-1-002) block on the CIWA Work Package Planning Sheet.

13. Does this CIWA involve the use of transient combustibles? NO JC
If yes, determine the transient fire loading using FP-1-001. If the transient fire loading exceeds the low fire load, mark the Fire Protection Coordinator block in the opening review column and the HWP (FP-1-001) block on the CIWA Work Package Planning Sheet.

14. Does this CIWA involve welding? NO JC
If yes, determine the material to be welded using applicable drawings and manuals and/or visual observation. Determine the approved welding procedure (See Attachment 5.9 of MMG-016), welding method and material to be used. Mark the WSDS and FMCS blocks on the CIWA Work Package Planning Sheet. Also, if review, evaluation or approval by Plant Engineering is required or desired, mark the Plant Engineering block in the opening review column on the CIWA Work Package Planning Sheet.

15. Have you checked the Mechanical Maintenance Procedure List (Attachment 5.9 of MMG-016) for procedures that are applicable to this CIWA? YES JC

16. Have you checked the Mechanical Maintenance Standards and Guidelines List (Attachment 5.10 of MMG-016) for standards and guidelines that are applicable to this CIWA? YES JC

17. Have you checked the applicable System Information Package (see Attachment 5.11 of MMG-016) for information applicable to this CIWA? YES JC

18. Does this CIWA require the use of replacement parts or consumables (gaskets, packing, fittings, etc.)? YES JC
If yes, verify their availability with the Spare Parts Group.

SYSTEM STATUS SHEET

DATE 7/16/83

RUSH ☐ POD ☐

~~PCR or~~ DCN No. ME-90 Rev 1

AREA _____

Start-Up System * WRS

* See System Scoping Details sheet

1a) System Release Cut-Off has occurred _____

b) Complete work before Syutem Release:

Yes / (No)
(LP&L START-UP)

c) Priority No. 1.9
(LP&L START-UP)

2) System was released on

5/27/82
(Complete Item 3)

3) Post System Release Work Authorization No.
Documentation Only Flow Chgs Not Required 7/22/83
(Obtain from LP&L Start-Up)

4) Work Assignment
a) Affected by/Contractor

_____ / _____

b) Code _____ Non-Code _____

c) Work Assigned To:
1) EBSU or EBFA ☐
- HVAC ☐
- Civil ☐
- Mech ☐
- I&C ☐
- Elect ☐

2) Contractor
AS-BUILT
PAPER CHANGE

1) System Release Cut-Off has not occurred _____

Below review not required if ☐ Block Checked.

Review By:

John Schubel 7/22/83
LP&L START-UP

FOR 3-3

INFORMATION ONLY

MATERIAL: _____

REQ: _____

P.O. _____

MRR: _____

RMR: _____

MISC: _____

App. R.	_____	CCB	_____
Env. Reg.	_____	CIWA	_____
IE Bull.	_____	FJO	_____
Lic. Comm.	_____	N/A	✓
NRC Quest.	_____	TMI	_____

EBASCO SERVICES INCORPORATED

DESIGN CHANGE NOTIFICATION

PROJECT: WATERFORD SES UNIT NO. 3 | CPS NO. | DESIGN CHANGE NO.: DCN- ME-90 R1

To: R. Taeger - Dept: Construction Location: Jobsite Date: 6/13/83

(SR. RESIDENT ENGINEER)

Re: ☒ Drawing No. 1564-2506 Title: VENDOR DWG

☒ Specification No. 1564-3563 Page: VENDOR DWG

☐ Other

ANTICIPATED REVISION DATE OF FORMAL DOCUMENTS

EBASCO SERVICES, INC.
RECEIVED
JUL 26 1983
ENGINEERING DOCUMENT DEPT. WATERFORD 3 FIELD

AREA OF CHANGE: Technical, Cost, Schedule

☐ Major ☐ Major (≥ $100,000) ☐ Major (Critical Path)

☒ Minor ☒ Minor (< $100,000) ☒ Minor (Noncritical Path)

☐ Engineering "Hold" placed on construction activities in area defined herein pending receipt of formally revised document(s) and/or revised DCN. PE signature not required.

☒ Released for construction on basis of modification(s) prescribed by this DCN.

Applicable documents will be revised by:

☒ Home Office Vendor Dwgs.

☐ Ebasco Site Support Engineers (Project Engineer to assign Open Engineering Item No. _____)

☒ As-built drawing by Resident Engineer's staff ☐ Other _____

PROPOSED CHANGE

DESCRIPTION

Install variable limit stop on valves:

2HV-8151A
2HV-8152A
2HV-8153B
2HV-8154B

R1 Pg 385 Revised to Show As-Built

REASON FOR CHANGE

☐ Field Change Request (FCR No. _____)

☒ Required modifications to design as-constructed

☐ Disposition of nonconforming item

☐ Changes in regulatory or other requirements

☒ Operational experience

☒ Other Site Comments R1

Per LP&L Shop request

EXHIBITS ATTACHED ☐ No ☒ Yes – If Yes, Check Applicable Boxes)

☐ Copies of marked-up area of drawing(s)

☐ Field Change Request (FCR No. _____)

☒ Other (Describe) Detailed Installation Sketches

COMMENTS: 1) Method described by this DCN will alleviate problem encountered during HFT. SCHEDULED ERECTED/PLACEMENT DATE(S): IMMINENT

NOTES: 1) Work required under Witness of Bettis Rep.'s

3) Actual valve's open will determined by DCN-ME-2 R1

ORIGINATOR: S. O'CONNOR DATE: 6-13-83

DISTRIBUTION (Check as applicable and fill in name. Indicate with an asterisk (*) personnel who are to perform a QA review)

☒ M-N Engr	I Sydoriak	☒ Design	J. Hannick	☒ Project Mgr	
☒ Civil Engr	R Seshadri	☒ Design	G. Georges	☒ Project Engr	J Padalino
☒ Elec Engr	[redacted]	☐ Design		☒ Coordinator	R Johnson
☒ HVAC Engr	A Bishara	☐ Design		☒ Orig Disc Supvr	J Horvath
☒ Plumbing Engr	S O'Connor	☐ Design		☐ Nuc Safety	
☐ I&C Engr		☐ Design		☐ PQAE	
☐ MT Engr		☐ Design		☒ Proj Cost/Sched	
☒ PO&B – Site		☐ RW Engr		☐ Appl Engr	
☐ PO&B – HO		☐ ADDRES Design		☐ Vendor	
☒ Project File				☒ ESSE PE	J DeBruin
☒ Site Manager		☒ Constr Ctrl Supt		☒ Proj Cost/Sched Engr	

INFORMATION ONLY

NOTE: Personnel indicated with an asterisk (*) are to perform a QA review and inform Originator of any comments, or approve and sign.

as applicable, by N.A. (date)

LEAD DISCIPLINE ENGR OR ASSE DESIGNEE (Signature): R Khitani AB DATE: 6/13/83

PROJ ENGR OR ASSE PROJ MGR APPROVAL: [signature] DATE: 7/19/83 6/13/83

QA REVIEWER (If indicated above)

☐ COMMENTS (Attached) ☐ NO COMMENTS

SIGNATURE DATE

SUPER ENGR OR ASSE DESIGNEE (After incorporation of all reviewers)

R. Seshadri 7/19/83

R. Seshadri 6/13/83

SIGNATURE DATE

FIELD EVALUATION

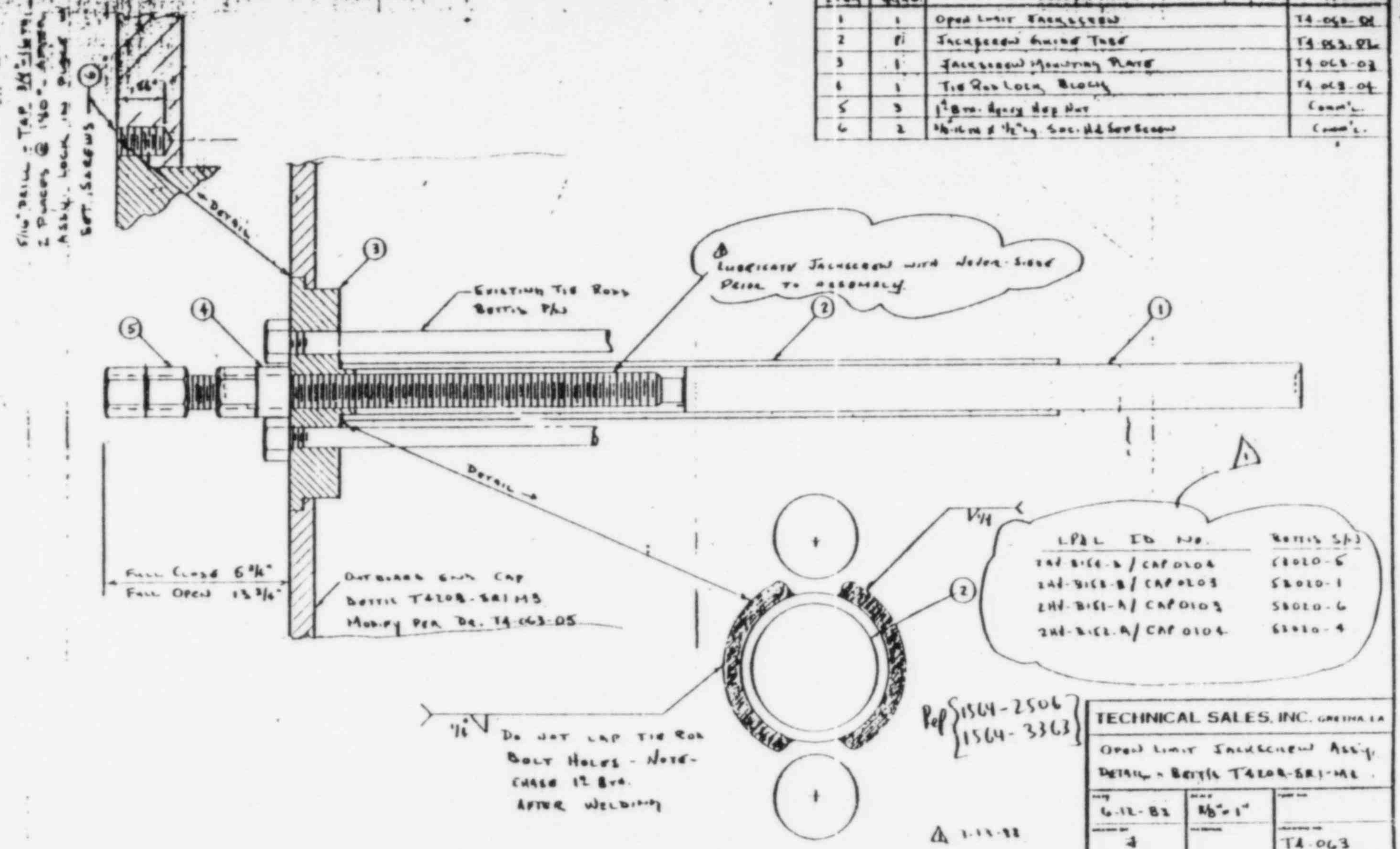
☒ Implement Recommended Disposition ☐ Defer Recommended Disposition

☐ Generic Impact – For feedback consideration ☐ Copy to Mgr – Reliability Engineering (PO&B – HO)

[signature] 7/3/83

(SR.) RESIDENT ENGINEER (SIGNATURE) DATE

SHEET



Item	Qty	Description	Dwg
1	1	Open Limit Jackscrew	T4-063-01
2	1	Jackscrew Guide Tube	T4-063-02
3	1	Jackscrew Mounting Plate	T4-063-03
4	1	Tie Rod Lock Block	T4-063-04
5	3	1" Bore Heavy Hex Nut	Comm'l.
6	2	3/8-16 NC x 1/2" lg. Soc. Hd Set Screw	Comm'l.

1-13-83

TECHNICAL SALES, INC. GRETNA, LA

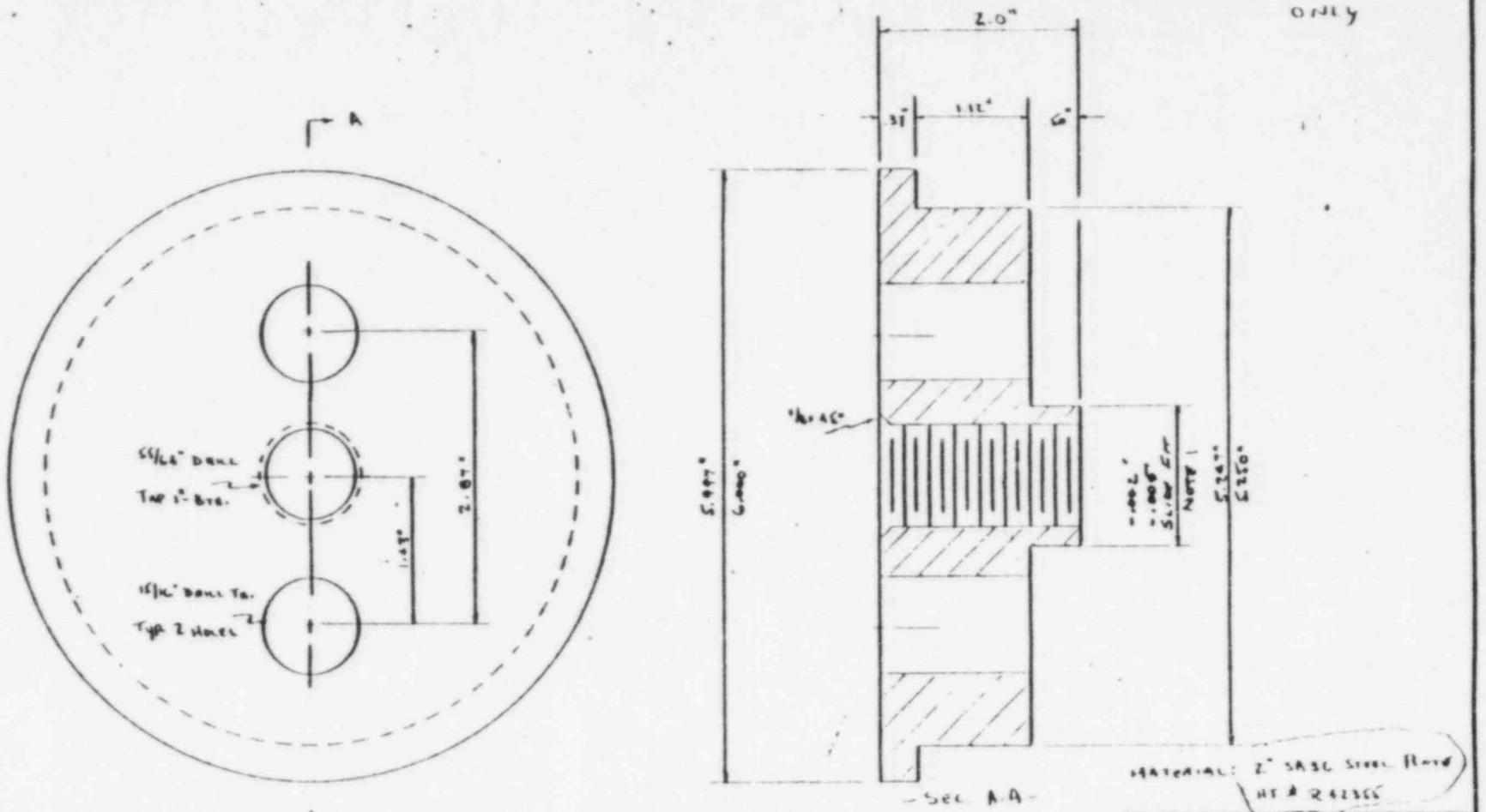
Open Limit Jackscrew Assy. Detail – Bettis T420B-SR1-ME

Date	Scale	
6-12-83	1/2" = 1"	
[illegible]		T4-063

DCN-ME 90 REV 1
SHEET 4 OF 9

20

FABRICATION DETAIL ONLY



NOTE: 1. -.002/-.005 SLIP FIT INTO 5" PIPE FOR JACK SCREW GUIDE
2. BREAK ALL SHARP CORNERS

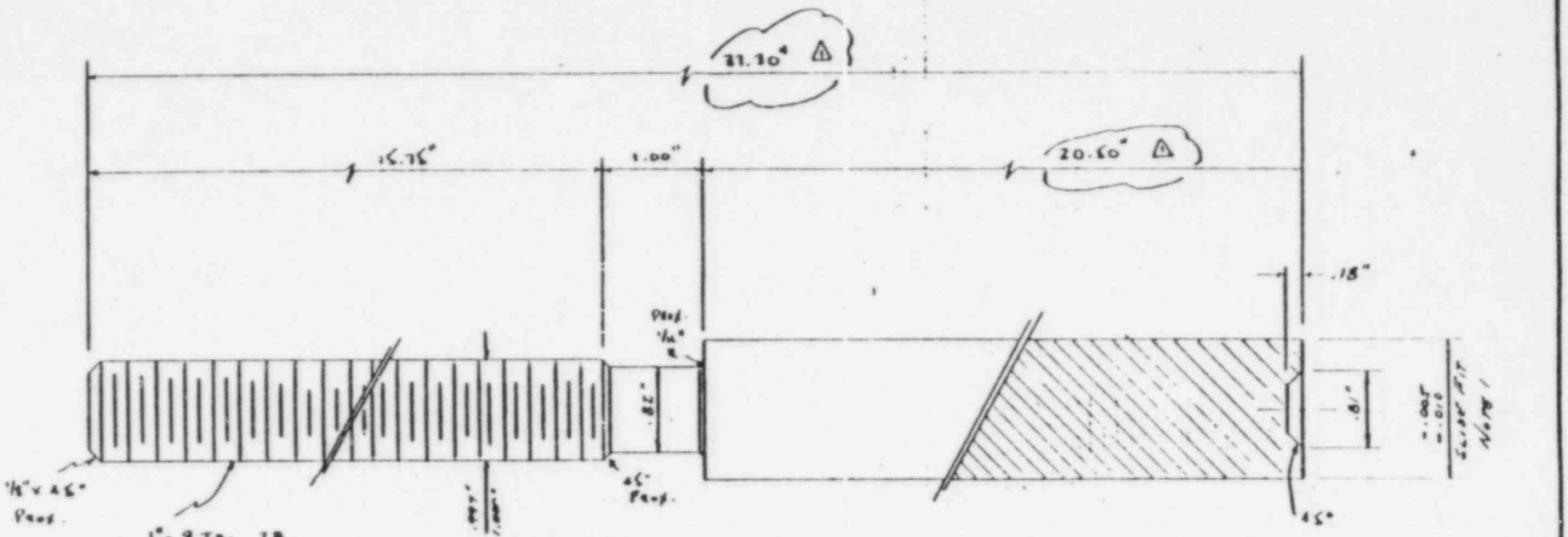
MATERIAL: 2" SA36 STEEL PLATE HT # R42355

TECHNICAL SALES, INC. "TSI"		
JACKSCREW MOUNTING PLATE FOR BETTIS T4108-SR1		
6-10-87	Full	T4 063 02
4		T4 063 03

△ 9/13/89

DCN-ME 90 REV 1
SHEET 5 OF 9

30°C



PARTIAL SECTION

MATERIAL: A193 B7 STEEL BAR

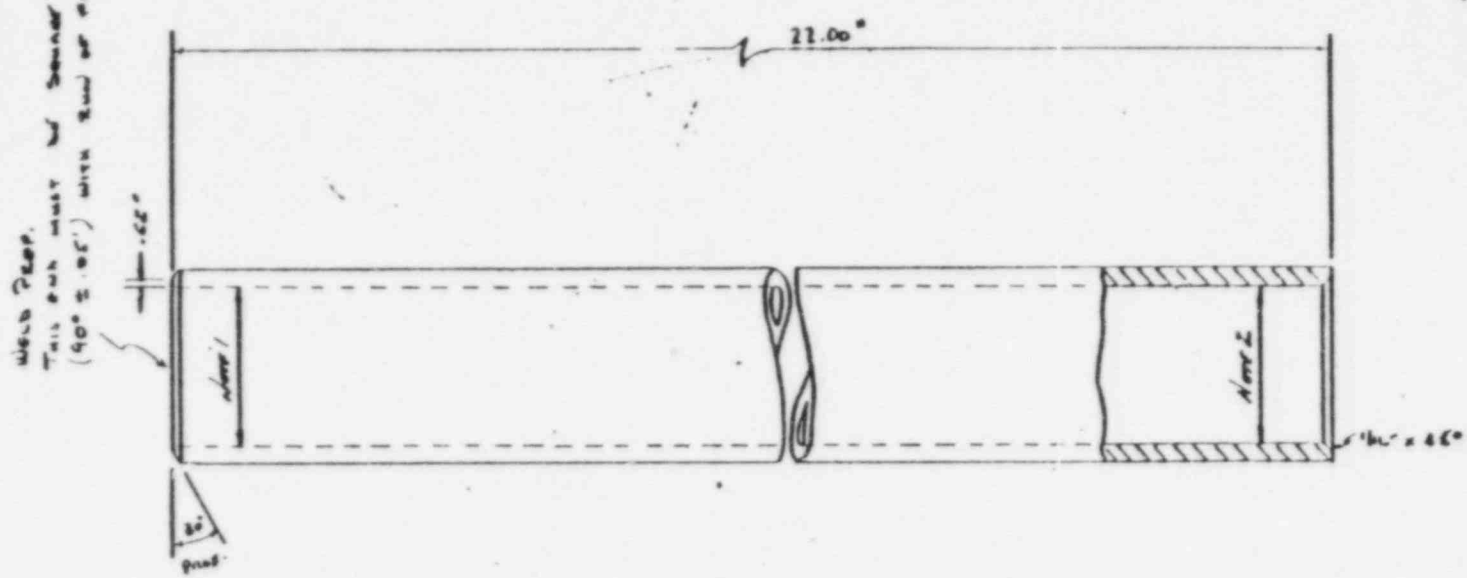
NOTE: 1. THIS DIMENSION DETERMINED AFTER JACKSCREW GUIDE TUBE IS MADE. — AS BUILT 1.250" OD
2. BREAK ALL SHARP CORNERS

Δ1 6-11-83

TECHNICAL SALES, INC. GREENACRES		
UPPER LIMIT JACKSCREW FOR BOTTLE TR600-501		
6-11-88	NTS	TA-063-01
1		TA-063-01

DCN-ME-90
SHEET 6 OF 9

FABRICATION DETAIL ONLY



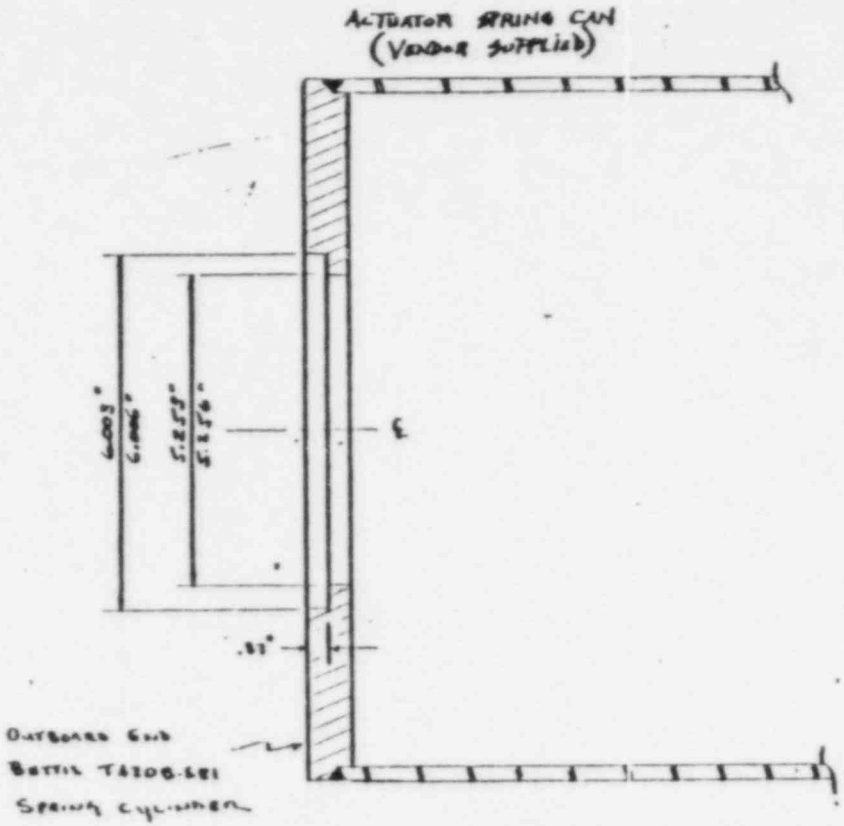
MATERIAL: 1¼" SCH 40
GAL. STEEL PIPE
A106 GRB

NOTE: 1. MARK I.D. TO DETERMINE SLIDE FIT TO JACKSCREW MOUNTING PLATE.
2. MARK I.D. TO DETERMINE SLIDE FIT FOR JACKSCREW

TECHNICAL SALES, INC. GRETNA, LA

JACKSCREW GUIDE TUBE

6-11-82	NTS	TS 0693-02
1		TS 0693-01



FABRICATION DETAIL ONLY

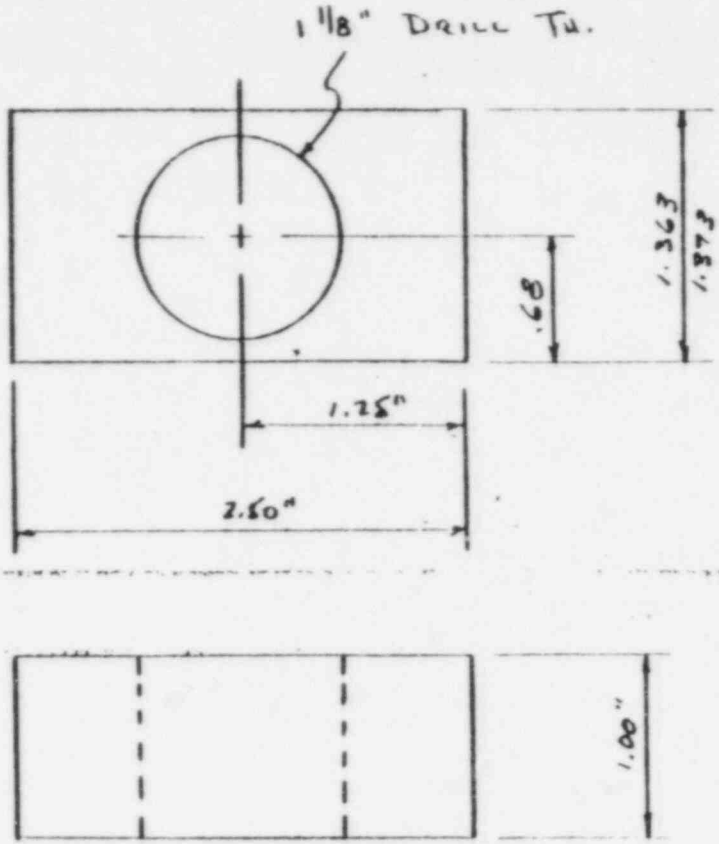
DCN - ME - 90

SHEET 7 OF 9

TECHNICAL SALES, INC.

SPRING CYLINDER MODIFICATION
FOR OPEN LIMIT SWITCHES

1 TO 81	1/2 - 1"	
7		14 OF 3 OF



1

MATERIAL: 1" SA 36 STEEL PLATE
HT # A11K 7631

NOTE: BREAK ALL SHARP CORNERS

TECHNICAL SALES, INC. GRETNA, LA.		
TIE ROD LOCK BLOCK FOR OPEN LIMIT JACK SCREW		
DATE 6-11-83	SCALE FULL	PART NO T4-063-04-
DRAWN BY J-	MATERIAL	DRAWING NO T4-063-04-

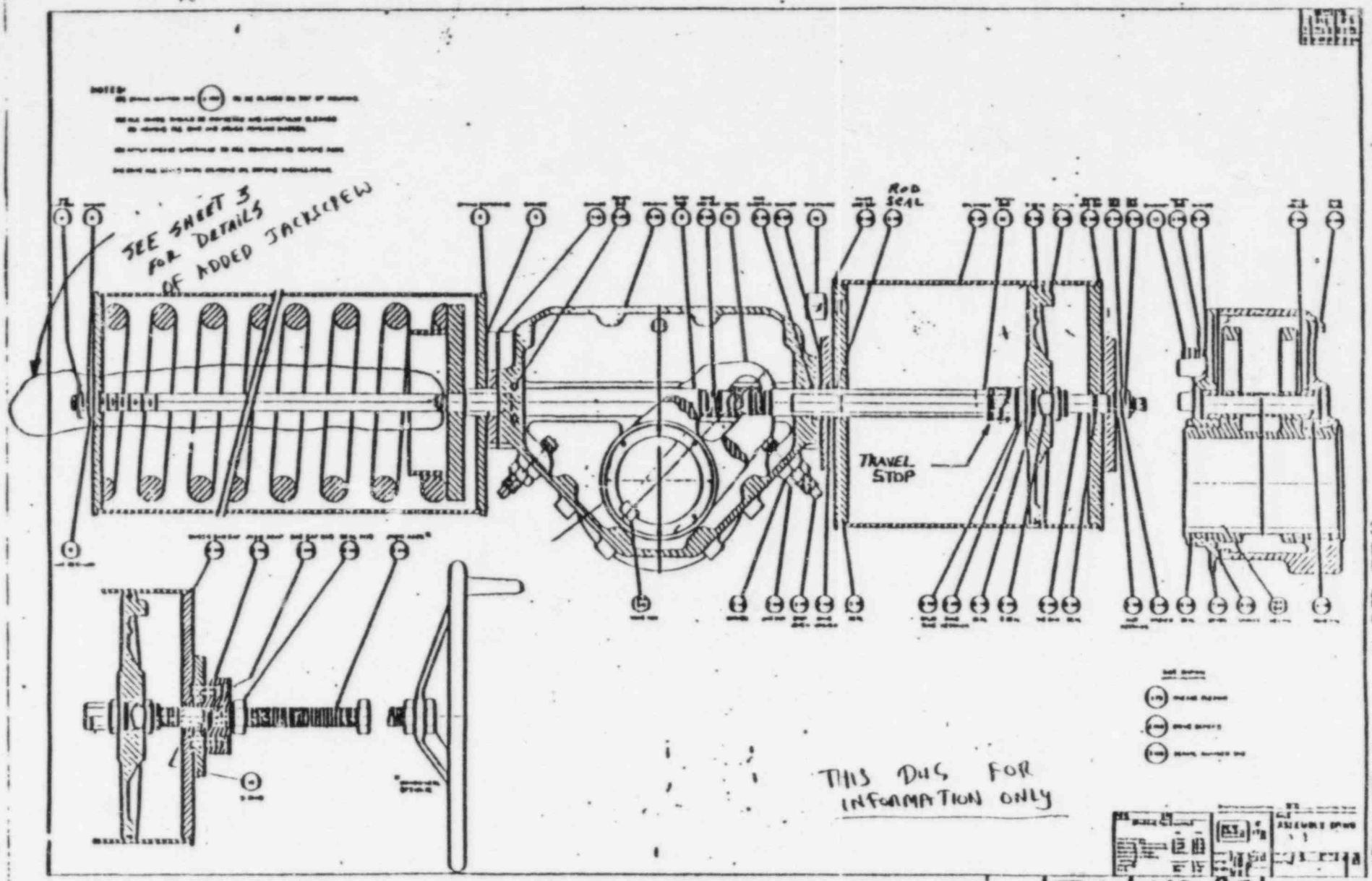

SEE SHEET 3
FOR DETAILS
OF ADDED JACKSCREW
ROD SEAL
TRAVEL STOP
THIS DWG FOR INFORMATION ONLY
DCN-ME-90
SHEET 9 of 9

FIGURE 1

84-24

SCD-92

Ingersol Rand

1482

I 1.03

LOUISIANA POWER & LIGHT

MIDDLE SOUTH UTILITIES SYSTEM

DISCREPANCY NOTICE

DN No 1489-84

Date 1/6/84

Response Due 2/3/84

P/f DN1450

COMPONENT HPSI - Pump. VENDOR Ingersol Rand LOCATION Level 78 Hold

SR/QAR ☒ NSR/QAR ☐ RIR NO 5368-83 P.O./P.R. NO. L-45659-K CNG/SPEC/REV. NO —

DESCRIPTION OF DISCREPANCY: Item 1 - Repair of HSPI Pump - Rotating Element

P.O required "All repairs, test reworks & inspection shall be documented recorded for LPL review" - Not provided (supplied)

Vendor supplied CofC needs reference to LPL P.O. 45659 K, as well as signature of QA - Manager (not G. Young for QA Manager) attestant.

COMMENTS Require compliance.

ASSIGNED WORK GROUP Waterford Purchasing / R. Bacon

QC INSP: [signature] DATE 1/6/84

COMPLETED, FORWARD ON TO AFFECTED WORK GROUP

ACTION TAKEN: ☐ WORK NOT ACCOMPLISHED — SEE COMMENTS

☐ WORK ACCOMPLISHED (WORK AUTH. NO. _____) ☐ ACCEPT AS IS ☐ REPAIR ☐ REPLACE/REWORK ☐ OTHER

COMMENTS Conditional Release.

Inspection reports rec'd - N.C.'s C of C supplied. accept. [signature]

WHEN COMPLETE, FORWARD TO QUALITY CONTROL GROUP

[signature] 3/15/84

GROUP HEAD/STA. DEPT. HEAD DATE

QC REVIEW:

☒ ACCEPTED ☐ NOT ACCEPTED

☒ INSP. REQUIRED ☐ INSP. NOT REQUIRED ☐ CTWA SUBMITTED (NO _____)

COMMENTS No Logging - 5 pages attached.

OK to close Cond. Conditional Release.

[signature] 3/16/84

☒ DN CLOSED QUALITY CONTROL INSPECTOR DATE

WHEN DN IS ACCEPTED/COMPLETED, CLOSE OUT ON LOG AND FILE

F01A-84-206

I/11

Bryc.- Ward
Ref: P.O. L-45657-K

DN 1489-84
165

INGERSOLL-RAND
PUMPS
VIA TELECOPY - 504-464-3262

Engineered Pump Division
Ingersoll-Rand Company
942 Memorial Parkway
Phillipsburg, NJ 08865

16 DE 83

Louisiana Power & Light Co.
Waterford III
P.O. Box B
Killona, LA 70066

Attention: Mr. Jerry Begnaud

Reference: 4X9C-9 HIPSI S/N 0672-174
I-R 001-36125
CE 9101519
CE SPEC 9270-PE-410 Rev. 2

Gentlemen:

Confirming our telecon of 16 DE 83 regarding above subject pump.

The above referenced pump was inspected and repaired by Ingersoll-Rand, Cameron Pump Division, Phillipsburg, N.J., in accordance with the above purchase order and specification.

If you have any questions, please feel free to contact this office.

Very truly yours,

D. M. Rose
Field Service Engineer
Engineered Pump Division

M. F. Hagerstrom by
12/19/83

M. F. Hagerstrom
Manager Quality Assurance & Quality Control
Engineered Pump Division

DMR/MFH:kab

FOIA-84-206
I/12

Ref DW 1450-87 1484-84 2065

INGERSOLL-RAND
PUMPS

Engineered Pump Division
Ingersoll-Rand Company
942 Memorial Parkway
Phillipsburg, NJ 08865

VIA TELECOPY - 504-464-3262

16 DE 83

Louisiana Power & Light Co.
Waterford III
P.O. Box B
Killona, LA 70066

Attention: Mr. Jerry Begnaud

Reference: 4X9C-9 HIPSI S/N 0672-174
I-R 001-36125
CE 9101519
CE SPEC 9270-PE-410 Rev. 2
LPL P.O. L-45659-K

Gentlemen:

Confirming our telecon of 16 DE 83 regarding above subject pump.

The above referenced pump was inspected and repaired by Ingersoll-Rand, Cameron Pump Division, Phillipsburg, N.J., in accordance with the above purchase order and specification.

If you have any questions, please feel free to contact this office.

Very truly yours,

D M Rose

D. M. Rose
Field Service Engineer
Engineered Pump Division

M. F. Hagerstrom

M. F. Hagerstrom
Manager Quality Assurance & Quality Control
Engineered Pump Division

DMR/MFH:kab

FOIA-84-206
I/13

DN 1484-84

3065

Reference: 4X9C-9 HIPSI S/N 0672-174
IR 001-36125
CE 9101919
CE SPEC 9270-PE-410 Rev. 2
LPL P.O. 1-45659-X

Gentlemen:

Confirming our telecon of 14 MR 84 regarding above subject pump.

The above referenced pump was returned to Ingersoll-Rand Co., Engineered Pump Division, on 9 DE 83 for inspection and possible weld repair.

After careful disassembly inspection and examination by Ingersoll-Rand personnel, Ingersoll-Rand determined that no repair work was required. LP&L Start-up Engineer, Mr. Jim Connors, was present for all witness inspections.

The referenced pump was returned to LP&L on 15 DE 83.

If you have any questions, please feel free to contact this office.

Very truly yours,

D M. Rose

D. M. Rose
Field Service Engineer
Engineered Pump Division

M. F. Hagerstrom

M. F. Hagerstrom
Manager Quality Assurance & Quality Control
Engineered Pump Division

DMR/MFH:il

FOIA-84-206
I/14

DN 1489-84
465

PART NAME Barrel

DATE 1/12 DRWG NO 4X9-9C55AE1-B

BRANCH ORDER NUMBER R026-49369 JOB NO HKZ-3918

SERIAL NUMBER _____ HT NO _____

INSPECTOR'S NAME A. T. Mauk (Manual)

ENTER INSP CODE

5

DIA

OD?

0

TAKE 4PT MEAS

DIA= 16.2218

ENTER INSP CODE

1

CONCENTRICITY

NBR DIA?

2

NO OF PTS?

4

180° TURN?

0

TAKE 4PT REF

TAKE MEAS

CONCEN WITHIN 00.0056 - 13.218 Bore

00.0053

00.0018

TAKE MEAS

CONCEN WITHIN 00.0064 - S. B. Bush.

00.0052

00.0037

ENTER INSP CODE

3

PARA

TAKE 3PT MEAS

2ND PLANE

DEV IN INCH/INCH 00.0017 - Seen 16.218 To Seen 13.218

ENTER INSP CODE

Using 16.218 Bore as Ref and with R Switch on Seen.

FOIA/84-206
I/15

DN
1487-84
5065

PART NAME Barrel

DATE 12/12/13 DRWG NO 459-9C359AX1-B

BRANCH ORDER NUMBER L-026-4936 JOB NO 4267-3918

SERIAL NUMBER _____ HT NO _____

INSPECTOR'S NAME S. I. Moore

ENTER INSP CODE

.1
ENTER INSP CODE

1
CONCENTRICITY
NBR DIA?
3
NO OF PTS?
4
180^ TURN?
0
TAKE 4PT REF
TAKE MEAS
CONCEN WITHIN 00.0040
-00.0005
-00.0039
TAKE MEAS
CONCEN WITHIN 00.0058
00.0050
00.0031
TAKE MEAS
CONCEN WITHIN 00.0059
00.0051
00.0031
ENTER INSP CODE

3
PARA
TAKE 3PT MEAS

2ND PLANE

DEV IN INCH/INCH 00.0022
ENTER INSP CODE

4
PERPEND
TAKE 3 IPT MEAS ON SURFACE

TAKE A 4PT MEAS OF TOP OF BORE

TAKE A 4PT MEAS OF BOTTOM

FOIA-84-206
H/16