

1-LPT-FP-018 "Emergency Switchgear Room Halon System Cylinder Pressure and Weigh Test"

9/29/03	SAT	Spares were found unsat
4/03/03	SAT	Spares were found unsat
2/07/03	SAT	Test of spares
10/22/02	SAT	problem with spare cylinders
6/13/02	n/a	WO 004713 system verification
5/31/02	n/a	Support work in ESGR
5/08/02	n/a	Support DCP 90-15
3/20/02	SAT	
3/19/02	n/a	Vendor work on pnl.
10/03/01	SAT	
4/04/01	SAT	Spares were found unsat
9/13/00	SAT	
4/12/00	SAT	
10/27/99	SAT	one system cylinder found low
4/14/99	SAT	Spares were found unsat
10/21/98	SAT	Two spares unsat
9/17/98	SAT	Cylinder swap DR. 2280
4/29/98	SAT	One spare unsat
11/18/97	SAT	One spare unsat
5/16/97	SAT	

SURRY POWER STATION

Section 1: Surveillance Assignment

Unit	Procedure Number	Task #	Title	Frequency
	1-LPT-FP-018	25	Emerg Swgr. Rm. Halon Sys Cyc. Press & We	6M

Department	Due Date	Late Date	FRA
LP	09/04/2003	10/19/2003	N

This test can be performed in mode *: 1,2,3,4,5,6,7

This test can be performed if unit shuts down to mode *:

Section 2: Procedure Completion Summary

Completed Date & Time	Completed Within Grace ?	Department Signature
9-29-03 2200	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>[Signature]</i>

NOTE: Surveillance can not be marked 'Satisfactory' until all mark numbers in the procedure are tested.

This is generally accomplished using one assigned procedure. IF more than one procedure is used, or some procedure other than the assigned type is used, or if the procedure includes a PAR, THEN

1. Include VPAP 1102, Attachment 4 in this package.
2. Attach all procedures used.
3. Indicate below that System Engineer and Supervisor Engineering/Testing review is required.

Satisfactory Unsatisfactory

Required Reviews:

Team Engineer	ISI	Supervisor Engineering/Testing
_____	_____	_____

Action Taken: PI Submitted _____ Other _____

Rescheduled _____

Section 3: NOTES

Section 4: Routing of Completed Procedure

DATE RECEIVED	SIGNATURE	SENT TO	DATE OUT
10-1-03	<i>[Signature]</i>	Devin Hampton	10-1-03
10-01-03	Devin Hampton	Mike Holle	10-01-03

Return this Procedure to Engineering/Testing

*Mode Definitions for PTSS use only:

1=At-power, 2=HSD, 3=ISD, 4=350/450, 5=CSD, 6=Refueling, 7= Empty vessel

User: mindview,SPS,,

Request: SEC_ADMIN-7417 from suncux01

Date Printed: Wed Sep 3 06:45:48 EDT 2003

VERIFIED
9-29-03
Kull

Procedure: **1-LPT-FP-018**

Rev: **006** PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **03/21/2003**

Station: **Surry** Docbase: **SUMIND**

If this procedure is initiated OR re-initiated
24 hours following the print time & date shown,
then the revision and PAR must be verified.

This leader page is part of the controlled
document and must remain with the procedure
as a permanent record.

Approval signatures for electronically distributed
procedures are maintained on file.

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UNIT ONE



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
6

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revised in response to Loss Prevention feedback.

- Revised Initial Condition 3.4 to require a fire watch IAW the TRM, not a continuous fire watch.
- Revised Initial Condition 3.5 to state that ALARMS "may" actuate, not "will".

UNIT ONE

Appendix

PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-OBS02N

Unit Verif

3.0 INITIAL CONDITIONS

 AW

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

 AW

3.2 The units may be in any mode.

 SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

 AW

3.4 Advise the Operations Shift Supervisor that a fire watch will be established IAW the TRM in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

 AW

3.5 Advise Operations Shift Supervisor that system activation alarms may occur during testing.

 AW

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

h
6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 5501A

SQC No. 593

h
6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

h
6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder.
(Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder.
(Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

AW
AW AW

AW AW

AW

AW

N/A

AW

AW
6.3.6 Verify Halon System Cylinder placement from Attachment 5.

AW
6.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

AW
AW
AW
AW
SS
6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

AW
6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

W
7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

W
7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A
7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

W
7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

- N/A
- Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.
 - Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
 - Notify System Engineer of unsatisfactory condition.
- N/A

W/A

d. Initiate a Plant Issue and record the number below.

PI Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

W

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<u>ms</u>	DOUGLAS WILLIAMS
<u>ALH</u>	ALVIN L. HAMPTON
<u>ae</u>	AL E. COBB
<u>T</u>	T. L. KENKLE

Comments: _____

Completed by: *J. Will* Date: 9-29-03
Time: 2200

7.4 Review

Comments: _____

Reviewed by: *Rob S L* Date: 10-1-03
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: _____ **Engineering Review** Date: _____
Not Required
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 94 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0796	500	444	399	SAT
14898	480	444	399	SAT
0899	480	444	399	SAT
0866	480	444	399	SAT
0931	460	444	399	SAT
0974	460	444	399	SAT
0619	460	444	399	SAT
0741	460	444	399	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0583	460	444	399	SAT
0977	480	444	399	SAT
0944	480	444	399	SAT
0849	500	444	399	SAT
0812	460	444	399	SAT
0888	360	444	399	UNSAT
0876	440	444	399	SAT
0882	440	444	399	SAT
0845	450	444	399	SAT

COMPLETED BY: JL. Smith

DATE: 9-29-03

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0796	605	575	589	SAT
14898	681	581	625	SAT
0899	601	571	609	SAT
0866	517	491	514	SAT
0931	506	481	502	SAT
0974	613	582	615	SAT
0619	599	569	602	SAT
0741	603	573	613	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0888	611	580	571	UNSAT
0583	615	583	622	SAT
0977	612	581	631	SAT
0944	513	487	516	SAT
0849	602.5	572	620	SAT
0812	595.5	566	601	SAT
0876	506	480	507.5	SAT
0882	509.5	484	513.0	SAT
0845	600	570	637	SAT

COMPLETED BY: _____

DATE: _____

9-29-03

ATTACHMENT 4

(Page 1 of 1)

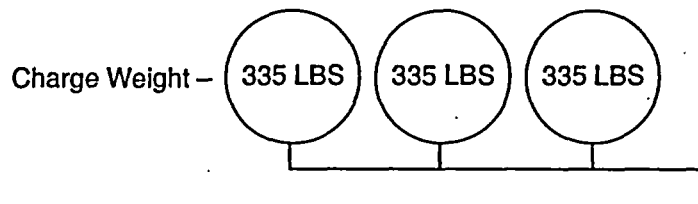
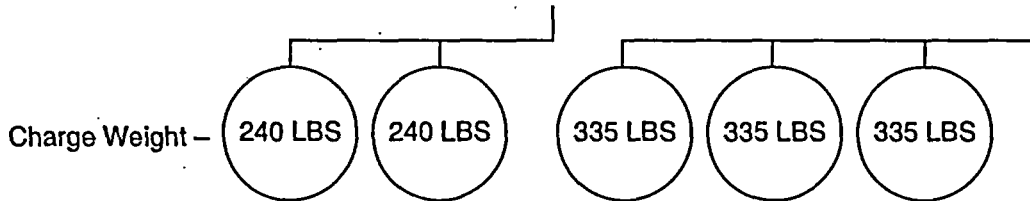
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

SURRY POWER STATION

Section 1: Surveillance Assignment

Unit	Procedure Number	Task #	Title	Frequency
	1-LPT-FP-018	24	Emerg Swgr. Rm. Halon Sys Cyc. Press & We	6M

Department	Due Date	Late Date	PRA
LP	03/06/2003	04/08/2003	N

This test can be performed in mode *: 1,2,3,4,5,6,7

This test can be performed if unit shuts down to mode *:

Section 2: Procedure Completion Summary

Completed Date & Time Completed Within Grace ? Department Signature

4-3-03 1000 Yes No *J. D. ...*

NOTE: Surveillance can not be marked 'Satisfactory' until all main numbers in the procedure are tested. This is generally accomplished using one assigned procedure. If more than one procedure is used, or some procedure other than the assigned type is used, or if the procedure includes a PAR, THEN

1. Include VPAP 1102, Attachment 4 in this package.
2. Attach all procedures used.
3. Indicate below that System Engineer and Supervisor Engineering/Testing review is required.

Satisfactory Unsatisfactory

Required Reviews:

System Engineer _____ ISI: _____ Supervisor Engineering/Testing _____

Action Taken: PI Submitted _____ Other _____
Rescheduled _____

Section 3: NOTES 10/22 - Remove 12 days of grace from this performance. Request on file. Holle

Section 4: Routing of Completed Procedure

DATE RECEIVED	SIGNATURE	SENT TO	DATE OUT
4-8-03	<i>Bob S. ...</i>	Alvin Hampton	4-8-03
4-8-03	Alvin J. Hampton	Mike Holle	4-8-03

Return this Procedure to Engineering/Testing

*Mode Definitions for PTSS use only:

1=At-power, 2=HSD, 3=ISD, 4=350/450, 5=CSD, 6=Refueling, 7= Empty vessel

User: mindview,SPS,,

Request: SEC_ADMIN-6979 from suncux01

Date Printed: Tue Apr 1 07:06:29 EST 2003

Procedure: **1-LPT-FP-018**

Rev: **006** PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **03/21/2003**

Station: **Surry** Docbase: **SUMIND**

If this procedure is initiated OR re-initiated
24 hours following the print time & date shown,
then the revision and PAR must be verified.

This leader page is part of the controlled
document and must remain with the procedure
as a permanent record.

Approval signatures for electronically distributed
procedures are maintained on file.

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UNIT ONE



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
6

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revised in response to Loss Prevention feedback.

- Revised Initial Condition 3.4 to require a fire watch IAW the TRM, not a continuous fire watch.
- Revised Initial Condition 3.5 to state that ALARMS "may" actuate, not "will".

UNIT ONE



PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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3 Halon System Cylinder Weight Data Sheet	16
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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Unit Verif

3.0 INITIAL CONDITIONS

h

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

h

3.2 The units may be in any mode.

SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

h

3.4 Advise the Operations Shift Supervisor that a fire watch will be established IAW the TRM in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

h

3.5 Advise Operations Shift Supervisor that system activation alarms may occur during testing.

h

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 5501A

SQC No. 593

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = _____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder. (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder. (Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

DW

AW AWA

AW AWA

K

N

N/A

DW

W
6.3.6 Verify Halon System Cylinder placement from Attachment 5.

W
6.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

W AYH
W AYH
W AYH
W AYH
BP
SS
6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM)
has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

W
6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

SW
7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (✓)

- ✓ All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- ✓ All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

SW
7.1.2 Document the test results. (✓)

✓ Satisfactory ___ Unsatisfactory

7.2 Follow-On Tasks

N/A
7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

SW
7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

- N/A
- a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.
 - b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
 - c. Notify System Engineer of unsatisfactory condition.
- N/A

N/A

d. Initiate a Plant Issue and record the number below.

PI Number: _____

e. Initiate a Work Request and record the number below.

WR Number: _____

N/A

7.3 Notification, Documentation, and Procedure Closeout

SW

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
DW	Douglas D. Williams
ALH	ALVIN L. HAMPTON
DP	DR. Bill Park
SM	Stephen Wightman

Comments: SPARE CYLINDER # 0888 FAILED
IT WILL BE REMOVED FROM SERVICE + SENT
OUT FOR REPAIR/REFILL

Completed by: *J. Swell* Date: 4-3-03
Time: 1000

7.4 Review

Comments: _____

Reviewed by: *Rob S L* Date: 4-8-03
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

**Engineering Review
Not Required**

Reviewed by: _____ Date: _____
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 75° F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0796	440	376.5	338.4	SAT
14898	400	376.5	338.4	SAT
0899	400	376.5	338.4	SAT
0866	400	376.5	338.4	SAT
0931	380	376.5	338.4	SAT
0974	400	376.5	338.4	SAT
0619	400	376.5	338.4	SAT
0741	380	376.5	338.4	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0583	380	376.5	338.4	SAT
0944	440	376.5	338.4	SAT
0888	300	376.5	338.4	UNSAT
0977	420 300	376.5	338.4	SAT
0849	440	376.5	338.4	SAT
0812	400	376.5	338.4	SAT
0876	380	376.5	338.4	SAT
0882	380	376.5	338.4	SAT
0845	380	376.5	338.4	SAT

COMPLETED BY: Dr. E. M.

DATE: 4-3-03

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0796	605	575	589	SAT
14898	611.5	581	616	SAT
0899	601	571	606	SAT
0866	517	491	508.0	SAT
0931	506	481	494.5	SAT
0974	613	582	611	SAT
0619	599	569	595	SAT
0741	603	573	600	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0583	615	581	619	SAT
0944	513	487	522	SAT
0888	611	580	567	UNSAT
0977	612	581	622	SAT
0849	602.5	572	613.5	SAT
0812	595.5	566	598.5	SAT
0876	506	480	508	SAT
0882	509.4	484	510.5	SAT
0845	600	570	630	SAT

COMPLETED BY: J. D. Dull

DATE: 4-3-03

ATTACHMENT 4

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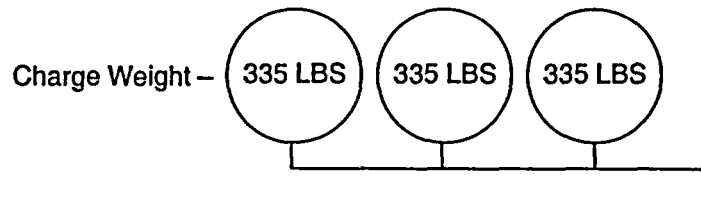
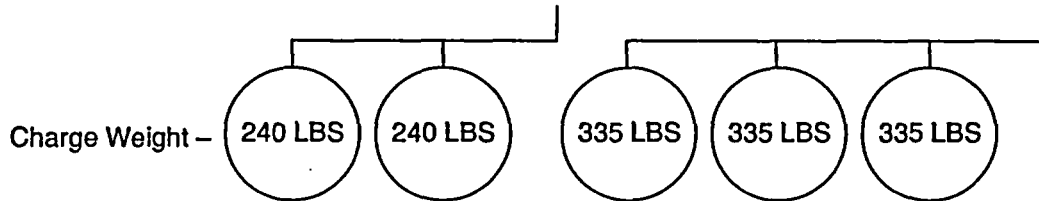
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

2/7/03



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
5

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revision of procedure due to the relocation of fire requirements / compensatory measures from VPAP-2401 to the TRM.

- Modified Purpose 1.2 by deleting "3.3 and".
- Deleted Technical Reference 2.3.4 "Technical Requirements Manual, Section 3.3, Instrumentation (when issued)" and renumbered accordingly.
- Modified Step 2.3.4 and Substep 7.2.2.a.
- Modified Note prior to Step 4.1.

UNIT ONE



PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Unit Verif

3.0 INITIAL CONDITIONS

- N/A
- 3.1 Notify the Operations Shift Supervisor that the system will be inoperable.
- N/A
- 3.2 The units may be in any mode.
- N/A
SS
- 3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)
- Remove solenoid valve from all pilot valves.
 - Remove the discharge piping from all suppression cylinders.
- N/A
- 3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable
- N/A
- 3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.
- N/A
- 3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

h 6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 593

SQC No. 5517

h 6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

N/A 6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

W
6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

W
6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

W
6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

W
6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A
6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

W
6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

AW

N/A N/A

N/A N/A

AW

AW

N/A

AW

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder. (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder. (Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

N/A

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

N/A

6.3.7 Perform the following.

N/A N/A

- Reinstall cylinder.

N/A N/A

- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)

N/A N/A

- c. Insure the solenoid is not energized.

N/A N/A

- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

N/A
SS

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

N/A

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

W

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (✓)

- ✓ All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- ✓ All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

W

7.1.2 Document the test results. (✓)

✓ Satisfactory ___ Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

~~N/A~~ W

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

- a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.
- b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
- c. Notify System Engineer of unsatisfactory condition.

N/A

N/A

Comments: THIS PROCEDURE WAS USED IN PART
TO TEST SPARE CYLINDERS THAT WERE SERVICED
BY AN OFF SITE VENDOR BEFORE RETURNING
THE BOTTLES TO THE SPARE RACK INTO US BASEMENT.

Completed by: _____

J. Gull

Date: _____

2-7-03

Time: _____

1500

7.4 Review

Comments: _____

Reviewed by: _____

Rob S. L.

Date: _____

02-10-03

Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

**Engineering Review
Not Required**

Reviewed by: _____ Date: _____
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 45° F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0977	300	289	260.1	SAT
0944	300	289	260.1	SAT
0849	300	289	260.1	SAT

COMPLETED BY: J.P. Smith
DATE: 2-7-03

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)

N/A

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0977	612	581	612	SAT
0944	513	487	526.5	SAT
0849	6025	572	623	SAT

COMPLETED BY: *J. Smith*

DATE: 2-7-03

ATTACHMENT 4

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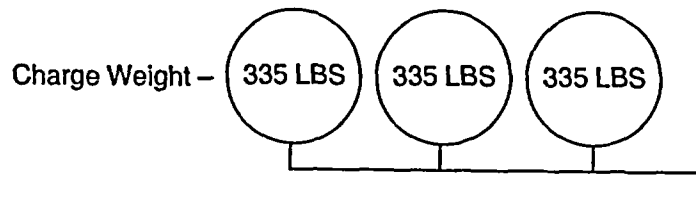
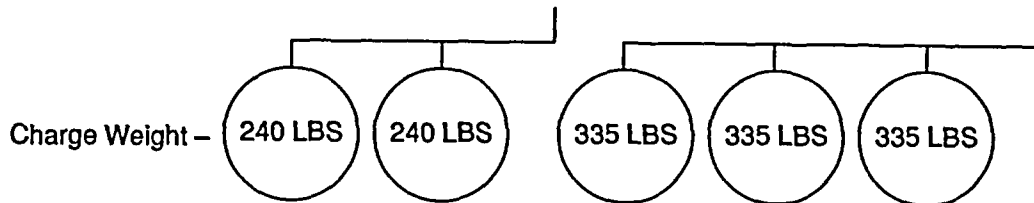
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

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UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

mindview

HEWLETT
PACKARD

10/22/02

User: mindview,SPS,,

Request: SEC_ADMIN-8672 from suncux01

Date Printed: Wed Oct 9 16:01:06 EDT 2002

Procedure: **1-LPT-FP-018**

Rev: **005** PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **01/30/2001**

Station: **Surry** Docbase: **SUMIND**

If this procedure is initiated OR re-initiated
24 hours following the print time & date shown,
then the revision and PAR must be verified.

This leader page is part of the controlled
document and must remain with the procedure
as a permanent record.

Approval signatures for electronically distributed
procedures are maintained on file.

CONTROLLED COPY

UNIT ONE

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Unit Verif

3.0 INITIAL CONDITIONS

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

3.2 The units may be in any mode.

SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 5517

SQC No. 593

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = _____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

6.2.5 **IF** any cylinder has a difference in As Found and Allowable Pressure > 10%, **THEN** replace with tested spare cylinder **AND** record replacement information in Comments, Step 7.3. **IF** no cylinders are replaced, **THEN** enter N/A for this step.

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder.
(Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder.
(Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

SW

SW

SW

SW

SW

SW

SW
6.3.6 Verify Halon System Cylinder placement from Attachment 5.

SW
6.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

SW SW
SW SW
SS
6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM)
has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

SW
6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

SW

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (✓)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

SW

7.1.2 Document the test results. (✓)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

SW

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

NA

d. Initiate a Deviation Report and record the number below.

DR Number: _____

NA

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

JW

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<u>JF</u>	J. Fisher
<u>LW</u>	L. White
<u>TR</u>	T. Ringler
<u>DW</u>	DOUG WILLIAMS

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 81 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0796	420	396	356.4	SAT
14898	420	396	356.4	SAT
0899	440	396	356.4	SAT
0866	440	396	356.4	SAT
0931	420	396	356.4	SAT
0974	440	396	356.4	SAT
0619	440	396	356.4	SAT
0741	420	396	356.4	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0583	380	396	356.4	SAT
0977	360	396	356.4	SAT
0888	360	396	356.4	SAT
0944	320	396	356.4	UNSAT
0849	320	396	356.4	UNSAT
0812	380	396	356.4	SAT
0876	360	396	356.4	SAT
0882	360	396	356.4	SAT
0845	360	396	356.4	SAT

COMPLETED BY: J. W. L.

DATE: 10-22-02

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 4

(Page 1 of 1)

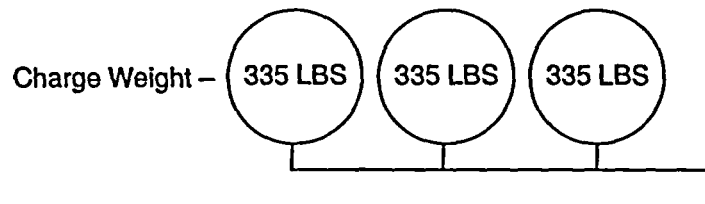
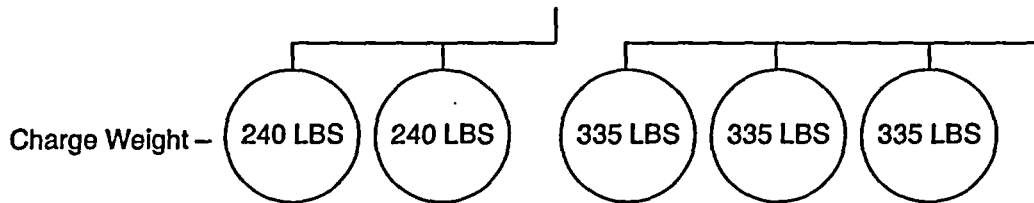
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

6/13/02

User: mindview,SPS,,

Request: SEC_ADMIN-1852 from suncux01

Date Printed: Thu Jun 13 09:11:31 EDT 2002

Procedure: **1-LPT-FP-018**

Rev: **005** PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **01/30/2001**

Station: **Surry** Docbase: **SUMIND**

If this procedure is initiated OR re-initiated
24 hours following the print time & date shown,
then the revision and PAR must be verified.

This leader page is part of the controlled
document and must remain with the procedure
as a permanent record.

Approval signatures for electronically distributed
procedures are maintained on file.

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UNIT ONE



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
5

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revision of procedure due to the relocation of fire requirements / compensatory measures from VPAP-2401 to the TRM.

- Modified Purpose 1.2 by deleting "3.3 and".
- Deleted Technical Reference 2.3.4 "Technical Requirements Manual, Section 3.3, Instrumentation (when issued)" and renumbered accordingly.
- Modified Step 2.3.4 and Substep 7.2.2.a.
- Modified Note prior to Step 4.1.

UNIT ONE



PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-OBS02N

Unit Verif

3.0 INITIAL CONDITIONS

h

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

h

3.2 The units may be in any mode.

SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

h

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

a

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

h

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. N/A

SQC No. N/A

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

[Handwritten signature]

N/A

~~N/A~~ *[Handwritten initials]*

1

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

N/A
6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

N/A
6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

N/A
6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

N/A
6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A
6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

N/A
6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder. (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder. (Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

N/A N/A

N/A

N/A

N/A

N/A

N/A
bu
1/2 1/2
1/2 1/2
SS
Y
6.3.6 Verify Halon System Cylinder placement from Attachment 5.

6.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

N/A

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

N/A

7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

N/A

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

- a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.
- b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
- c. Notify System Engineer of unsatisfactory condition.

N/A

N/A

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

e. Initiate a Work Request and record the number below.

WR Number: _____

N/A

7.3 Notification, Documentation, and Procedure Closeout

N/A

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<u>W</u>	L. W. Worely
<u>DC</u>	D. Cobb
<u>JD</u>	Douglas Williams
<u>HW</u>	LLOYD WHITE

Comments: THIS PROCEDURE WAS USED FOR REPAIR
+ TESTING OF THE EMERG. SWGR HALON
SYSTEM WO# 004713 01

Completed by: J. Hill Date: 6-13-02
Time: 1400

7.4 Review

Comments: _____

Reviewed by: [Signature] Date: 6-19-02
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

**Engineering Review
Not Required**

Reviewed by: _____ Date: _____
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE _____ °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

COMPLETED BY: _____
DATE: _____

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)

COMPLETED BY: _____ *W/A*

DATE: _____ *W/A*

ATTACHMENT 4

(Page 1 of 1)

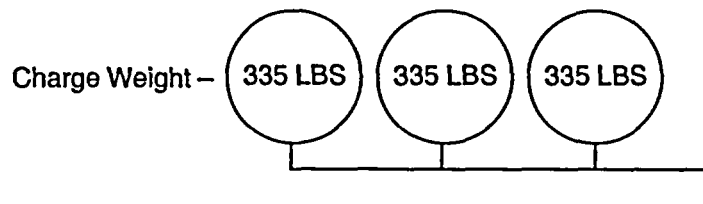
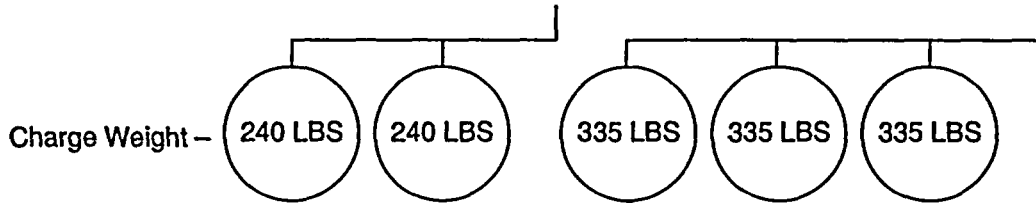
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

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UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

5/31/02



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
5

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revision of procedure due to the relocation of fire requirements / compensatory measures from VPAP-2401 to the TRM.

- Modified Purpose 1.2 by deleting "3.3 and".
- Deleted Technical Reference 2.3.4 "Technical Requirements Manual, Section 3.3, Instrumentation (when issued)" and renumbered accordingly.
- Modified Step 2.3.4 and Substep 7.2.2.a.
- Modified Note prior to Step 4.1.

UNIT ONE



PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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3 Halon System Cylinder Weight Data Sheet	16
4 Halon System Cylinder Weight Chart	17
5 Unit 1 Emergency Switchgear Halon System Cylinder Bottle Alignment	18

1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Unit Verif

3.0 INITIAL CONDITIONS

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

3.2 The units may be in any mode.

SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

N/A

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

N/A

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

N/A

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

N/A

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. _____

SQC No. _____

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

N/A
L15-21-02
AF dw

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

N/A

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

N/A

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

N/A

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

N/A

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ______ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A

6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

N/A

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

N/A

DW m

N/A N/A

N/A

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder.
(Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder.
(Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

N/A

N/A

N/A

W/A

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

W/A

6.3.7 Perform the following.

W/A W/A

- Reinstall cylinder.

W/A W/A

- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)

W/A W/A

- c. Insure the solenoid is not energized.

W/A W/A

- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

W/A
SS

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

W/A

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

N/A

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (✓)

- ___ All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- ___ All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

N/A

7.1.2 Document the test results. (✓)

___ Satisfactory ___ Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

N/A

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

N/A
d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A
e. Initiate a Work Request and record the number below.

WR Number: _____

N/A
7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<u>M</u>	<u>U. TURNER</u>
<u>W</u>	<u>Douglas Williams</u>
<u>m</u>	<u>Pat Ryan</u>

Comments: THIS PROCEDURE WAS USED TO REMOVE THE
AUTOMATIC ACTIVATION OF FPM SERVICES, REMOVING OF
THE DISCHARGE SOLENOIDS FROM THE DISCHARGE HEAD.

Completed by: _____

J. Smith

Date: _____

5-31-02

Time: _____

1230

7.4 Review

Comments: _____

Reviewed by: _____

John Smith

Date: _____

6-6-02

Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: _____ **Engineering Review** _____ Date: _____
~~System Engineer~~ ~~Not Required~~

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE _____°F _____°C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

COMPLETED BY: _____

M/g

DATE: _____

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)

COMPLETED BY: _____

DATE: _____

ATTACHMENT 4

(Page 1 of 1)

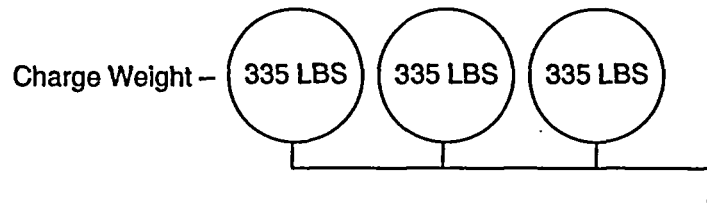
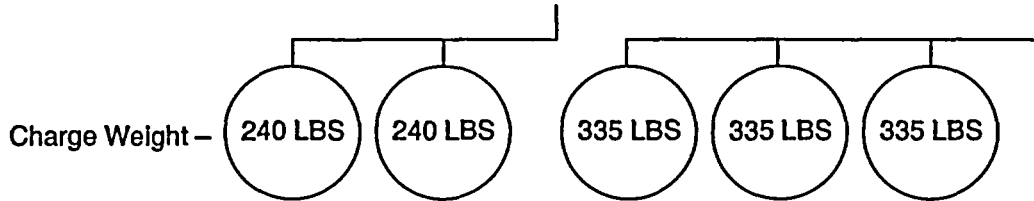
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

5/08/02



SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
5

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revision of procedure due to the relocation of fire requirements / compensatory measures from VPAP-2401 to the TRM.

- Modified Purpose 1.2 by deleting "3.3 and".
- Deleted Technical Reference 2.3.4 "Technical Requirements Manual, Section 3.3, Instrumentation (when issued)" and renumbered accordingly.
- Modified Step 2.3.4 and Substep 7.2.2.a.
- Modified Note prior to Step 4.1.

UNIT ONE



PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Init Verif

3.0 INITIAL CONDITIONS

dw

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

dw

3.2 The units may be in any mode.

dw
SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.

dw

- Remove the discharge piping from all suppression cylinders.

N/A

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

N/A

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

dw

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

N/A

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. N/A

SQC No. N/A

N/A

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

N

6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. **(Reference 2.4.1)**

N/A

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

N/A

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

N/A

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

N/A

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = _____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A

6.2.5 **IF** any cylinder has a difference in As Found and Allowable Pressure > 10%, **THEN** replace with tested spare cylinder **AND** record replacement information in Comments, Step 7.3. **IF** no cylinders are replaced, **THEN** enter N/A for this step.

N/A

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder.
(Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder.
(Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

W

W LW

N/A N/A

N/A

N/A

N/A

N/A

N/A
JW

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

N/A N/A
N/A N/A

6.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

JW JW
JW JW

SS
SS

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

JW

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

N/A

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

N/A

7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

N/A

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

√/A

c. Notify System Engineer of unsatisfactory condition.

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

N/A

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
dw	Douglas Williams
LW	LLOYD WHITE
R	D. Lobb

Comments: THIS PROCEDURE WAS USED ONLY TO REMOVE
THE SOLENOIDS FROM THE SOLENOID VALVES TO
DISABLE THE ELECTRIC ACTIVATION OF THE HALON
SYSTEM IN SUPPORT OF DCP 90-15 WITH 465165-01

Completed by: _____

J. Devell

Date: _____

5-8-02

Time: _____

1220

7.4 Review

Comments: _____

Reviewed by: _____

Robert L. L.

Date: _____

05-09-02

Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: _____ **Engineering Review** _____ Date: _____
~~System Engineer~~ ~~Not Required~~

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE N/A °F N/A °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

COMPLETED BY: N/A
DATE: N/A

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
N/A				

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
N/A				

COMPLETED BY: N/A

DATE: N/A

ATTACHMENT 4

(Page 1 of 1)

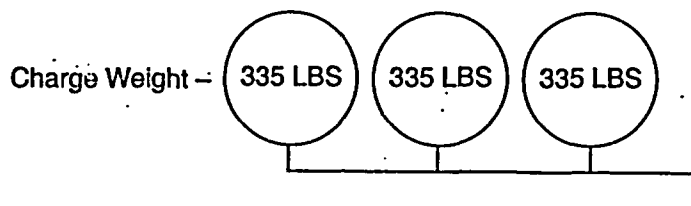
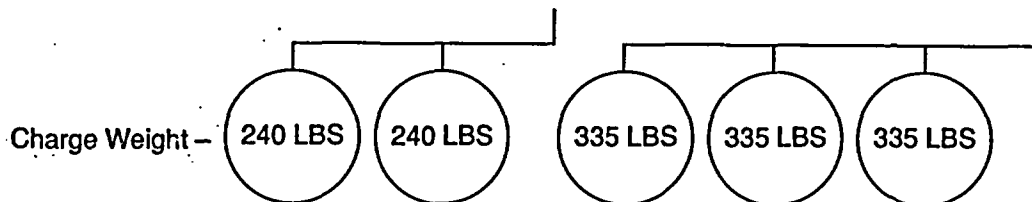
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

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UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

SURRY POWER STATION

Section 1: Surveillance Assignment

Unit	Procedure Number	Task #	Title	Frequency
	1-LPT-FP-018	22	Emerg Swgr. Rm. Halon Sys Cyc. Press & We	6M

Department	Due Date	Late Date	PRA
LP	03/07/2002	04/21/2002	N

This test can be performed in mode *: 1,2,3,4,5,6,7

This test can be performed if unit shuts down to mode *:

Section 2: Procedure Completion Summary

Completed Date & Time	Completed Within Grace ?	Department Signature
3-20-02 1800	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>D.P. Smith</i>

NOTE: Surveillance can not be marked 'Satisfactory' until all mark numbers in the procedure are tested. This is generally accomplished using one assigned procedure. IF more than one procedure is used, or some procedure other than the assigned type is used, or if the procedure includes a PAR, THEN

1. Include VPAP 1102, Attachment 4 in this package.
2. Attach all procedures used.
3. Indicate below that System Engineer and Supervisor Engineering/Testing review is required.

Satisfactory Unsatisfactory

Required Reviews:

System Engineer _____ ISI: _____ Supervisor Engineering/Testing _____

Action Taken: PI Submitted _____ Other _____

Rescheduled _____

Section 3: NOTES

Section 4: Routing of Completed Procedure

DATE RECEIVED	SIGNATURE	SENT TO	DATE OUT
3-28-02	<i>John D. L.</i>	<i>LINDA WILSON</i>	3-28-02
_____	_____	_____	_____
_____	_____	_____	_____

Return this Procedure to Engineering/Testing

*Mode Definitions for PTSS use only:

1=At-power, 2=HSD, 3=ISD, 4=350/450, 5=CSD, 6=Refueling, 7= Empty vessel

mindview



User: mindview,SPS,,

Request: LIC_ADM_2ND-2599 from suncux01

Date Printed: Thu Mar 14 06:40:26 EST 2002

Procedure: **1-LPT-FP-018**

Rev: **005** PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **01/30/2001**

Station: **Surry** Docbase: **SUMIND**

If this procedure is initiated OR re-initiated
24 hours following the print time & date shown,
then the revision and PAR must be verified.

This leader page is part of the controlled
document and must remain with the procedure
as a permanent record.

Approval signatures for electronically distributed
procedures are maintained on file.

CONTROLLED COPY

UNIT ONE



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
5

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revision of procedure due to the relocation of fire requirements / compensatory measures from VPAP-2401 to the TRM.

- Modified Purpose 1.2 by deleting "3.3 and".
- Deleted Technical Reference 2.3.4 "Technical Requirements Manual, Section 3.3, Instrumentation (when issued)" and renumbered accordingly.
- Modified Step 2.3.4 and Substep 7.2.2.a.
- Modified Note prior to Step 4.1.

UNIT ONE

Appendix

PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Init Verif

3.0 INITIAL CONDITIONS

DL

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

M

3.2 The units may be in any mode.

TR
SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

DL

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

DL

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

DL

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. SQC 5517

SQC No. 3663B

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ______ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

W

W JW

W JW

W

W

N/A

W

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder. (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder. (Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

SW
6.3.6 Verify Halon System Cylinder placement from Attachment 5.

SW
6.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

SW SW
SW SW
SW SW
SW SW
SS
6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

SW
6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

DW
7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

DW
7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A
7.2.1 **IF** vendor scales used, **THEN** attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

DW
7.2.2 **IF** the test was satisfactory, **THEN** discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. **IF** the test was unsatisfactory, **THEN** enter N/A for this step and perform the following.

- a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.
- b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
- c. Notify System Engineer of unsatisfactory condition.

N/A

N/A

N/A

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

e. Initiate a Work Request and record the number below.

WR Number: _____

N/A

7.3 Notification, Documentation, and Procedure Closeout

h

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
TR	Terry Ringler
DW	DOUGLAS WILLIAMS
LW	LLOYD WHITE

Comments: _____

Completed by: *J. Miller* Date: 3-20-02
Time: 1200

7.4 Review

Comments: _____

Reviewed by: *Robert L. ...* Date: 3-28-02
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: _____ Date: _____
Engineering Review
Not Required
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 85 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0888	370	411	369.9	SAT
14898	420	411	369.9	SAT
0899	420	411	369.9	SAT
0866	440	411	369.9	SAT
0931	420	411	369.9	SAT
0974	420	411	369.9	SAT
0619	440	411	369.9	SAT
0741	420	411	369.9	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0583	400	411	369.9	SAT
0796	440	411	369.9	SAT
0249	370	411	369.9	SAT
0812	420	411	369.9	SAT
0876	400	411	369.9	SAT
0882	380	411	369.9	SAT
0845	400	411	369.9	SAT

COMPLETED BY: _____

D. J. Smith

DATE: 3-20-02

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0888	611	580	581	SAT
14898	611.5	581	619.5	SAT
0899	601	571	604	SAT
0866	517	491	508	SAT
0931	506	481	493	SAT
0974	613	582	612	SAT
0619	599	569	597	SAT
0741	603	573	603	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0583			619	
0796	605	575	598	SAT
0849	602.5	572	603.5	SAT
0812	595.5	566	598.5	SAT
0876	506	480	508.5	SAT
0882	509.5	484	511.0	SAT
0845	600	570	608.5	SAT

COMPLETED BY: _____

D. J. [Signature]

DATE: 3-20-02

ATTACHMENT 4

(Page 1 of 1)

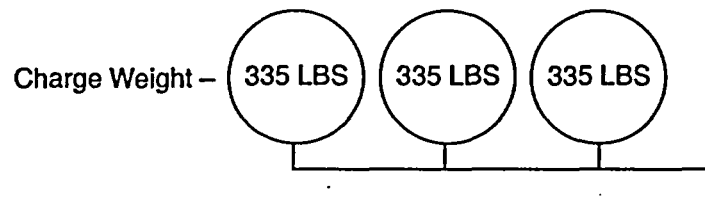
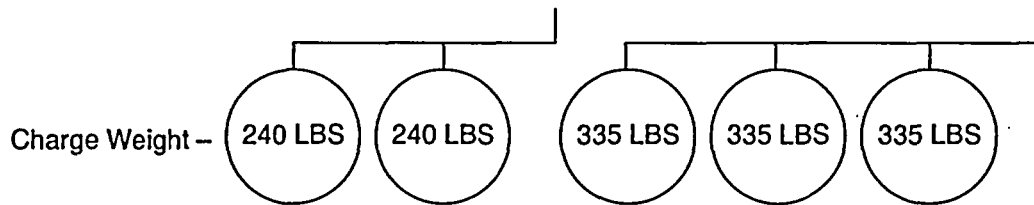
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

3/19/02



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
5

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revision of procedure due to the relocation of fire requirements / compensatory measures from VPAP-2401 to the TRM.

- Modified Purpose 1.2 by deleting "3.3 and".
- Deleted Technical Reference 2.3.4 "Technical Requirements Manual, Section 3.3, Instrumentation (when issued)" and renumbered accordingly.
- Modified Step 2.3.4 and Substep 7.2.2.a.
- Modified Note prior to Step 4.1.

UNIT ONE



PROCEDURE WRITER: Pat Kessler / Henry Burbridge

VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Init Verif

3.0 INITIAL CONDITIONS

W

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

W

3.2 The units may be in any mode.

DM
SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

N/A

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable OPS (SITE) FIRE WATCH IAW WITH TRM

N/A

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

N/A

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

N/A

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. N/A

SQC No. N/A

N/A

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

N/A

6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

N/A
6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

N/A
6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

N/A
6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

N/A
6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = _____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A
6.2.5 **IF** any cylinder has a difference in As Found and Allowable Pressure > 10%, **THEN** replace with tested spare cylinder **AND** record replacement information in Comments, Step 7.3. **IF** no cylinders are replaced, **THEN** enter N/A for this step.

N/A
6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

N/A
AW SW

N/A

N/A

N/A

N/A

N/A

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder. (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder. (Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

N/A

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

N/A

6.3.7 Perform the following.

N/A

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)

S/A

c. Insure the solenoid is not energized.

AW SW

- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

AW SW

WR
SS

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

N/A

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

N/A

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

N/A

7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

N/A

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

N/A
d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A
e. Initiate a Work Request and record the number below.

WR Number: _____

N/A
7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<u>DW</u>	Douglas Williams
<u>LW</u>	LLOYD WHITE

Comments: PROCEDURE WAS USED TO REMOVE
BOTTLES FROM SERVICE WHILE VENDOR WORKS
IN FIRE PANEL

Completed by: *J. J. Smith* Date: 3-19-02
Time: 1200

7.4 Review

Comments: _____

Reviewed by: *Robert L. Smith* Date: 3-19-02
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Engineering Review
Not Required

Reviewed by: _____ Date: _____
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE _____ °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

COMPLETED BY: _____

DATE: _____

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

3.6

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)

COMPLETED BY: _____

DATE: _____

ATTACHMENT 4

(Page 1 of 1)

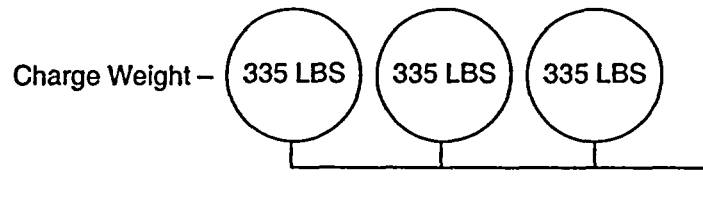
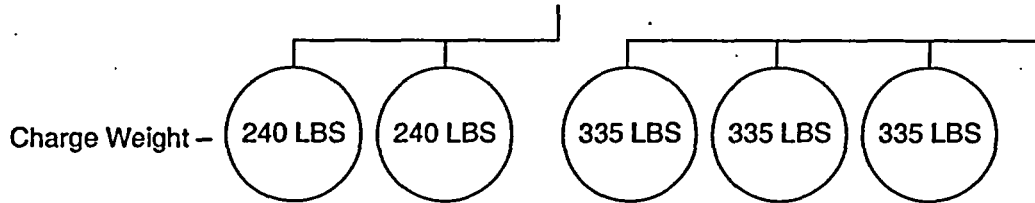
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

PERIODIC SURVEILLANCE SCHEDULING SHEET
SURRY POWER STATION

10/3/01

Section 1: Surveillance Assignment

Procedure Number	Task #	Title	Frequency
1-LPT-FP-018	21	Emerg Swgr. Rm. Halon Sys Cyc. Press & We	6M

Department	Due Date	Late Date	PRA
LP	09/08/2001	10/23/2001	N

This test can be performed in mode *: 1,2,3,4,5,6,7
 This test can be performed if unit shuts down to mode *:

Section 2: Procedure Completion Summary

Completed Date & Time	Completed Within Grace ?	Department Signature
10-3-01 1030	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>[Signature]</i>

NOTE: Surveillance can not be marked 'Satisfactory' until all mark numbers in the procedure are tested. This is generally accomplished using one assigned procedure. If more than one procedure is used, or some procedure other than the assigned type is used, or if the procedure includes a PAR, THEN
 1. Include VPAP, 1102, Attachment 4 in this package.
 2. Attach all procedures used.
 3. Indicate below that System Engineer and Supervisor Engineering/Testing review is required.

Satisfactory _____ Unsatisfactory _____

Required Reviews:

System Engineer _____ ISI: _____ Supervisor Engineering/Testing _____

Action Taken: PI Submitted _____ Other _____
 Rescheduled _____

Section 3: NOTES

Section 4: Routing of Completed Procedure

DATE RECEIVED	SIGNATURE	SENT TO	DATE OUT
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Return this Procedure to Engineering/Testing

*Mode Definitions for PTSS use only:
 1=At-power, 2=HSD, 3=ISD, 4=350/450, 5=CSD, 6=Refueling, 7= Empty vessel

mindview



User: mindview,SPS,,

Request: LIC_ADM_2ND-6375 from suncux01

Date Printed: Thu Sep 13 06:26:54 EDT 2001

Procedure: **1-LPT-FP-018**

Rev: **005**

PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **01/30/2001**

Station: **Surry**

Docbase: **SUMIND**

If this procedure is initiated OR re-initiated
24 hours following the print time & date shown,
then the revision and PAR must be verified.

This leader page is part of the controlled
document and must remain with the procedure
as a permanent record.

Approval signatures for electronically distributed
procedures are maintained on file.

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UNIT ONE



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
5

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revision of procedure due to the relocation of fire requirements / compensatory measures from VPAP-2401 to the TRM.

- Modified Purpose 1.2 by deleting "3.3 and".
- Deleted Technical Reference 2.3.4 "Technical Requirements Manual, Section 3.3, Instrumentation (when issued)" and renumbered accordingly.
- Modified Step 2.3.4 and Substep 7.2.2.a.
- Modified Note prior to Step 4.1.

UNIT ONE



PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Init Verif

3.0 INITIAL CONDITIONS

DB

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

h

3.2 The units may be in any mode.

DB
SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

h

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

h

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

h

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

AW
6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 5517

SQC No. 5598

AW
6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

AW
6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

W
6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

W
6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

W
6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

W
6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

Allowable Pressure = (Gauge Pressure Value x 0.9) = (x 0.9) = psig

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

NA
6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

W
6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder.
(Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder.
(Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

AW

Jan 2011

AW AW

AW

AW

NA

AW

AW
AW
AW LW
AW LW
AW LW
AW LW
OB
SS
AW

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

6.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

7.1.2 Document the test results. (√)

Satisfactory ___ Unsatisfactory

7.2 Follow-On Tasks

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

- Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.
- Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
- Notify System Engineer of unsatisfactory condition.

W

W

NA

AA del 10-3-01

NA

NA

NA

NA
d. Initiate a Deviation Report and record the number below.

DR Number: _____

NA
e. Initiate a Work Request and record the number below.

WR Number: _____

W
7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
DW	DOUGLAS WILLIAMS
DB	DAVID L. BARDON
LW	LLOYD WHITE

Comments: _____

Completed by: J. Dull Date: 10-3-01
Time: 1030

7.4 Review

Comments: _____

Reviewed by: S. J. White Date: 10-4-01
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

**Engineering Review
Not Required**

Reviewed by: _____ Date: _____
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 84°-86° F 28.9 - 30.4 C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0888	360	407	329	SAT
14898	420	407	329	SAT
0899	420	407	329	SAT
0866	440	414	335	SAT
0931	420	414	335	SAT
0974	420	414	335	SAT
0619	440	414	335	SAT
0741	400	414	335	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0583	360	414	335	SAT
0977	360	414	335	SAT
0796	400	414	335	SAT
0944	320	414	335	SAT
0849	300	414	335	SAT
0812	360	414	335	SAT
0376	340	414	335	SAT
0883	340	414	335	SAT
0845	340	414	335	SAT

COMPLETED BY: D.J. Welsh

DATE: 10-3-01

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0888	611	580	588	SAT
14898	611	581	619.5	SAT
0899	601	571	606	SAT
0866	517	491	511.5	SAT
0931	506	481	497.5	SAT
0974	613	582	607.5	SAT
0619	599	569	596.5	SAT
0741	603	573	600.	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0583	615	585	619	SAT
0977	612	581	580	SAT
0796	605	575	600	SAT
0944	513	487	490	SAT
0849	602.5	572	603.5	SAT
0812	595.5	566	599	SAT
0376	504	480	509	SAT
0882	508	484	511	SAT
0845	600	570	625	SAT

COMPLETED BY: D.P. Kish

DATE: 10-3-01

ATTACHMENT 4

(Page 1 of 1)

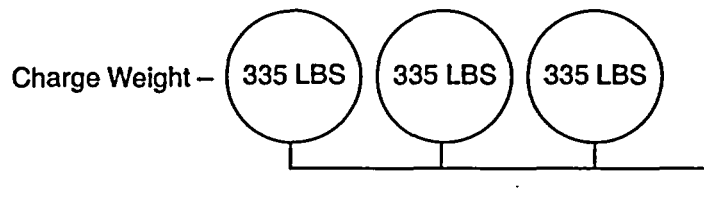
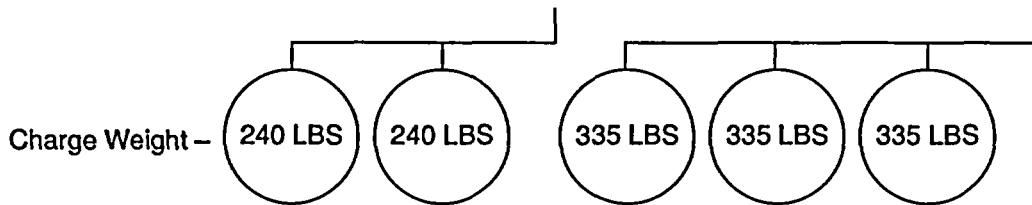
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619 ✓	335	260	599	569
0741 ✓	335	264.5	603	573
0796 ✓	335	266	605	575
0812 ✓	335	256	595.5	566
0828	335	267	606	576
0845 ✓	335	260	600	570
0849 ✓	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866 ✓	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888 ✓	335	265	611	580
0899 ✓	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931 ✓	240	262	506	481
0944 ✓	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974 ✓	335	274	613	582
0977 ✓	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No: LD2529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

4/4/01

PERIODIC TEST SCHEDULING DATA SHEET

2/24/2001

POWER STATION

DATED APR 11 2001

COMPLETED BY ENGINEERING TESTING:

UNIT	DEPT	PT NUMBER	TASK NUMBER: 20		
1	LP	1-LPT-FP-018			
DUE DATE	LATE DATE	FREQUENCY	MULTIPLIER	PRA	
03/12/2001	04/26/2001	6M	1	N	

SYSTEM ENGINEER REVIEW REQUIRED: _____ ISI REVIEW REQUIRED: _____

COMPLETED BY DEPARTMENT RESPONSIBLE FOR PERFORMING TEST:

SIGNED *[Signature]* DATE COMPLETED 4/4/01 TIME 1338

<input checked="" type="checkbox"/> SATISFACTORY	<input checked="" type="checkbox"/> WITHIN GRACE	<input type="checkbox"/> PROCEDURE ACTION
<input type="checkbox"/> UNSATISFACTORY	<input type="checkbox"/> OUTSIDE GRACE	<input type="checkbox"/> REQUEST

ACTION TAKEN:

DEVIATION REPORT SUBMITTED RESCHEDULED

OTHER _____

NOTES:

DATE RECEIVED	SIGNATURE	SENT TO	DATE OUT

RETURN TO ENGINEERING TESTING

mindview

User: mindview,SPS,,

Request: IC_SHOP_05-78 from suncux01

Date Printed: Tue Apr 3 06:51:42 EDT 2001

Procedure: **1-LPT-FP-018**

Rev: **005**

PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **01/30/2001**

Station: **Surry**

Docbase: **SUMIND**

If this procedure is initiated OR re-initiated after the print date shown, then the current revision\PAR numbers must be verified.

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VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
5

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revision of procedure due to the relocation of fire requirements / compensatory measures from VPAP-2401 to the TRM.

- Modified Purpose 1.2 by deleting "3.3 and".
- Deleted Technical Reference 2.3.4 "Technical Requirements Manual, Section 3.3, Instrumentation (when issued)" and renumbered accordingly.
- Modified Step 2.3.4 and Substep 7.2.2.a.
- Modified Note prior to Step 4.1.

UNIT ONE

Appendix

PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.7, Plant Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-OBS02N

Init Verif

3.0 INITIAL CONDITIONS

IB 3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

IB 3.2 The units may be in any mode.

SAS
SS 3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

IB 3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

IB 3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

IB 3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible compensatory measures in accordance with applicable the TRM.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 1121B

SQC No. 5517

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

IB

IB

IB

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (\underline{\quad} \times 0.9) = \underline{\quad} \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

6.2.5 **IF** any cylinder has a difference in As Found and Allowable Pressure > 10%, **THEN** replace with tested spare cylinder **AND** record replacement information in Comments, Step 7.3. **IF** no cylinders are replaced, **THEN** enter N/A for this step.

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder. (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder. (Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

TS
TS
TS
TS
TS
TS
N/A TS
TS

JB
AW
AW JB
AW JB
AW JB
AW JB

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

5.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

6.3.9 Release the fire watch.

SS
JB

7.0 FOLLOW-ON

7.1 Acceptance Criteria

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (✓)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

7.1.2 Document the test results. (✓)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

- a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with TRM Section 3.7, Plant Systems.
- b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
- c. Notify System Engineer of unsatisfactory condition.

JA B

d. Initiate a Deviation Report and record the number below.

DR Number: _____

LA TS

e. Initiate a Work Request and record the number below.

WR Number: _____

B

7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
JB	HENRY BURBRIDGE
DS	Douglas D. Williams
SW	Stephen Wightman

Comments: _____

Completed by: H. R. [Signature] Date: 4/3/01
Time: 1338

7.4 Review

Comments: _____

Reviewed by: H. R. [Signature] Date: 4/3/01
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: _____
System Engineer

Engineering Review
~~Not Required~~

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE _____ °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

	Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
75.2°F	0888	350	377.16	339.44	SAT
76.3°F	14898	400	380.79	342.71	SAT
77.9°F	0899	400	386.07	347.46	SAT
79.9°F	0866	420	392.67	353.40	SAT
80.7°F	0931	380	395.52	355.97	SAT
76.0°F	0741	380	379.80	341.82	SAT
77.6°F	0619	400	385.08	346.57	SAT
78.7°F	0974	400	388.71	349.84	SAT

SPARE CYLINDERS

	Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
79.5°F	0583	370	391.35	352.22	SAT
79.2°F	0977	360	390.36	351.32	SAT
79.3°F	0796	420	390.69	351.62	SAT
79.0°F	0944	360	389.70	350.73	SAT
79.2°F	0849	320	390.36	351.32	UNSAT
79.0°F	0812	380	389.70	350.73	SAT
78.2°F	0876	360	387.06	348.35	SAT
78.3°F	0882	360	387.39	348.65	SAT
78.1°F	0845	360	386.73	348.06	SAT

COMPLETED BY:

Henry Bierbridge

DATE: 4/2/01

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

KALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0888	612	580	588	U
14898	611.5	581	617	U
0899	601	571	601.5	U
0866	517	491	519	U
0931	506	481	497	U
0741	603	573	599	U
0619	599	569	593.5	U
0974	613	582	605.5	U

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0583	615	585	616	SAT
0977	615	581	557	UNSAT
0796	605	575	601	SAT
0944	513	487	497	SAT
0849	601.5	572	604	SAT
0812	601.5	566	597.5	SAT
0876	504	480	508.0	SAT
0882	508	484	511.0	SAT
0845	601.5	570	625.0	SAT

COMPLETED BY: 

DATE: 4/3/01

ATTACHMENT 4

(Page 1 of 1)

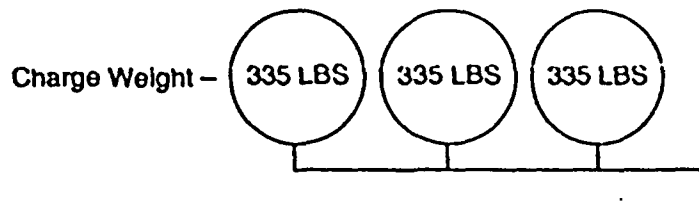
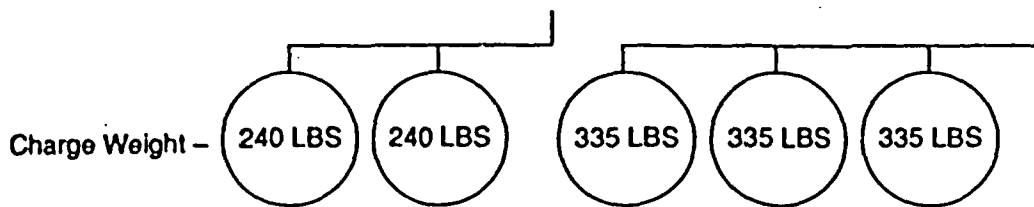
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No. LD8379

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

PERIODIC TEST SCHEDULING DATA SHEET

9/13/00

POWER STATION

9/6/2000

8:35 AM

NOTES: SEP 26 2000 A.D.H. 20

COMPLETED BY ENGINEERING TESTING:

UNIT	DEPT	PT NUMBER	TASK NUMBER	19	%
1	LP	1-LPT-FP-018			

DUE DATE	LATE DATE	FREQUENCY
09/25/2000	11/09/2000	6M 1

SYSTEM ENGINEER REVIEW REQUIRED: X

ISI REVIEW REQUIRED:

COMPLETED BY DEPARTMENT RESPONSIBLE FOR PERFORMING TEST:

SIGNED *[Signature]* DATE COMPLETED 9/13/00 TIME 0900

<input checked="" type="checkbox"/> SATISFACTORY	<input checked="" type="checkbox"/> WITHIN GRACE	<input type="checkbox"/> PROCEDURE ACTION
<input type="checkbox"/> UNSATISFACTORY	<input type="checkbox"/> OUTSIDE GRACE	<input type="checkbox"/> REQUEST

ACTION TAKEN:

DEVIATION REPORT SUBMITTED RESCHEDULED
 OTHER

NOTES:

DATE RECEIVED	SIGNATURE	SENT TO	DATE OUT

RETURN TO ENGINEERING TESTING



NUCLEAR POWER

Level 3
Controlled Copy

PROCEDURE NO:
1-LPT-FP-018

SURRY POWER STATION

REVISION NO:
4

PROCEDURE TYPE:
LGSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revised in accordance with DR S-98-2280 (CTS 4536).

- Added Attachment 5.
- Added Step 6.3.6.

Appendix **R**

PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.3 and 3.7.

2.0 REFERENCES

2.1 Source Documents

- 2.1.1 10 CFR 50, Appendix R, Part E
- 2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

- 2.3.1 VPAP-2401, Fire Protection Program
- 2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems
- 2.3.3 Safety Evaluation No. S-98-0026
- 2.3.4 Technical Requirements Manual, Section 3.3, Instrumentation (When Issued)
- 2.3.5 Technical Requirements Manual, Section 3.7, Plant Systems (When Issued)

2.4 Commitment Documents

- 2.4.1 QA Audit 92-05-0BS02N

Init Verif

3.0 INITIAL CONDITIONS

IB

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

IB

3.2 The units may be in any mode.

MS
SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

IB

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

IB

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

IB

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical References.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 5501A

SQC No. 1121B

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

JB

JB

JB

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

IB

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

IB

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

IB

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

IB

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (\underline{444.6} \times 0.9) = \underline{400.14} \text{ psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A

6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

IB

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

IB
Rev IB
Rev IB

6.3.1 Perform the following for each cylinder listed in Attachment 1.

- (TM) Disconnect the solenoid valve from each pilot cylinder. (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder. (Reference 2.3.3)
- Remove cylinder and place on scales.

IB

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

IB
N/A

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

IB

6.3.5 Record test results on Attachment 3 for each cylinder tested.

IB

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

IB

6.3.7 Perform the following:

see IB

- Reinstall cylinder.

DW IB

- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)

RW IB

- c. Insure the solenoid is not energized.

RW IB

- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

SS

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

IB

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

IB

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

IB

7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

IB

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

W/K

d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

R

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<u>HB</u>	HENRY BURBRIDGE
<u>WG</u>	W.R. GROSS
<u>DW</u>	DOUG WILLIAMS

Comments: _____

Completed by: H. B. G. Date: 9/13/00
Time: 0900

7.4 Review

Comments: _____

Reviewed by: [Signature] Date: 09/25/00
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

~~Engineering Review~~
Not Required

Reviewed by: _____ Date: _____
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

0752 HPS

AMBIENT ROOM TEMPERATURE 94 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0888	420	444.6	400.14	SAT
14898	440	444.6	400.14	SAT
0899	440	444.6	400.14	SAT
0866	460	444.6	400.14	SAT
0931	440	444.6	400.14	SAT
0874	440	444.6	400.14	SAT
0619	440	444.6	400.14	SAT
0741	420	444.6	400.4	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0583	613.5 440	444.6	400.4	SAT
0812	599.0 440	444.6	400.4	SAT
0876	503.5 420	444.6	400.4	SAT
0882	507.0 420	444.6	400.4	SAT
0845	623.0 420	444.6	400.4	SAT

COMPLETED BY: Henry Burbridge
DATE: 9-13-00

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0888	611	580	590	SAT
14898	611.5	571	604	SAT
0899	601	571	598.5	SAT
0866	517	491	508.5	SAT
0931	506	481	493	SAT
0974	614	582	607	SAT
0619	599	569	593	SAT
0741	603	573	597.1	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0583	615	585	613.5	SAT
0812	601.5	566	594.0	SAT
0876	504	480	503.5	SAT
0882	508	484	507.	SAT
0845	601.5	570	623.	SAT
0796			596	
0977			552.5	
0944			505.5	

0840

595.5

COMPLETED BY:

H. B. [Signature]

DATE:

9/13/00

ATTACHMENT 4

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	340	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

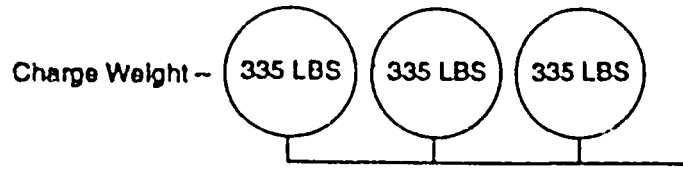
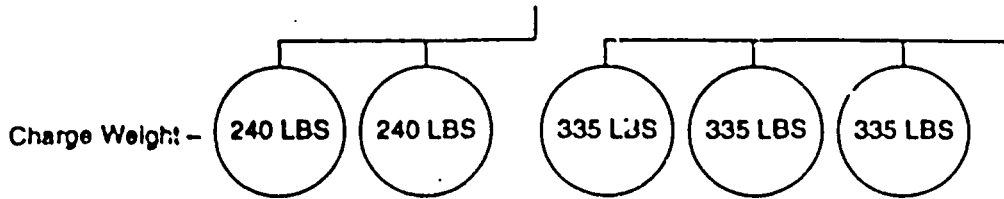


Diagram No. LD3537

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

4/12/00



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO
1-1.PT-FP-018

REVISION NO
4

PROCEDURE TYPE
LOSS PREVENTION PERIODIC TEST

UNIT NO
1

PROCEDURE TITLE
EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST

EFFECTIVE DATE
ON FILE

EXPIRATION DATE
Temporary Procedures Only
N/A

REVISION SUMMARY

Revised in accordance with DR S-98-2280 (CTS 4536).

- Added Attachment 5.
- Added Step 6.3.6.

Appendix

PROCEDURE WRITER: Pat Kessler / Henry Burbidge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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5 Unit 1 Emergency Switchgear Halon System Cylinder Bottle Alignment	18

1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.3 and 3.7.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.3, Instrumentation (When Issued)

2.3.5 Technical Requirements Manual, Section 3.7, Plant Systems (When Issued)

2.4 Commitment Documents

2.4.1 01-11-02-02-000000

uit Verif

3.0 INITIAL CONDITIONS

- JB
JB
JB
SS
- 3.1 Notify the Operations Shift Supervisor that the system will be inoperable.
- 3.2 The units may be in any mode.
- 3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)
- Remove solenoid valve from all pilot valves.
 - Remove the discharge piping from all suppression cylinders
- JB
- 3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable
- JB
- 3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.
- JB
- 3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical References.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

JB

6.1.1 Record the SQC numbers for the SQC items that are used

SQC No. 5501A

SQC No. 559A

JB

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

JB

6.1.3 Establish fire watch for Emergency Switchgear Room

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

6.3.1 Perform the following for each cylinder listed in Attachment 1:

- (TM) Disconnect the solenoid valve from each pilot cylinder (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder (Reference 2.3.3)
- Remove cylinder and place on scales.

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

TS
DN
TS

TS

TS

N/A

TS

JB

6.3.6 Venty Halon System Cylinder placement from Attachment 5

JB

6.3.7 Perform the following.

JB / JB

- Reinstall cylinder.

JB / JB

- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)

JB / JB

- c. Insure the solenoid is not energized

JB / JB

- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

SS

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System (Reference 2.3.3)

JB

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria: (X)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

7.1.2 Document the test results. (X)

Satisfactory ___ Unsatisfactory

7.2 Follow-On Tasks

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

- a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.
- b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
- c. Notify System Engineer of unsatisfactory condition.

B

B

N/A

B

N/A

N/A

N/A

N/A

d. Initiate a Deviation Report and record the number below.

DR Number

J/A

e. Initiate a Work Request and record the number below.

WR Number: _____

B

7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Shift Supervisor that the test is complete

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
H	HENRY BURRIDGE
DW	Douglas D William

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: *Thomas A. Lanning* Date: *10/2/92*
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 88° F ~~70~~ C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0888	420	405	379.6 ^{B 4/11/00}	364.5 SAT
14898	430	414	379.6 ^{B 4/11/00}	372.6 SAT
6899	430	423	379.6 ^{B 4/11/00}	380.7 SAT
0866	440	429	379.6 ^{B 4/11/00}	356.1 SAT
0931	420	429	386.1	SAT
0741	420	423	380.7	SAT
0619	440	426	383.4	SAT
0974	430	429	386.1	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0583	400	393	353.7	SAT
0812	420	393	353.7	SAT
0876	400	393	353.7	SAT
0882	400	393	353.7	SAT
0845	400	393	353.7	SAT

COMPLETED BY: Henry Burlingame
DATE: 4/12/00

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (°C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
888	611	580	599	SAT
14898	611.5	581	620.5	SAT
899	601	571	603	SAT
866	517	491	514.5	SAT
731	506	481	497.5	SAT
741	603	573	605	SAT
0619	599	569	596.5	SAT
974	613	582	610.5	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0583	615	583	612.0	SAT
0812	595.5	566	595	SAT
0876	506	480	503	SAT
0882	509.5	484	505.5	SAT
08451	600	570	623	SAT

COMPLETED BY: Henry Burbridge
 DATE: 4/12/00

ATTACHMENT 4

(Page 1 of 1)

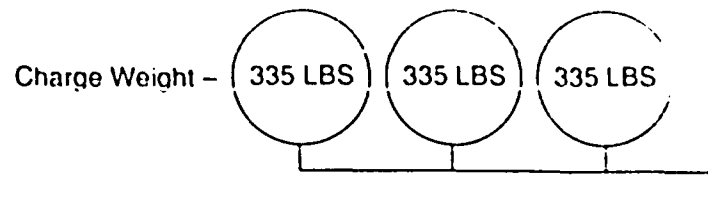
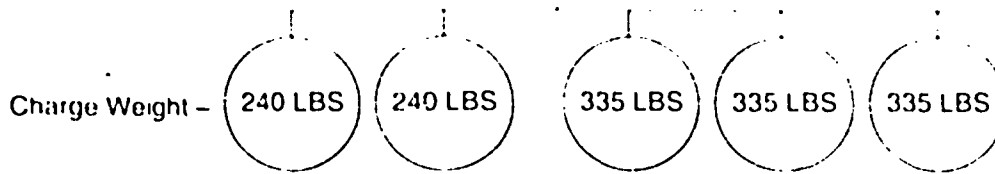
BALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	BALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphic No. 102529

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

PERIODIC TEST SCHEDULING DATA SHEET

5/8/2000

POWER STATION

9:41 AM

NOTED ON 5 2000 DCS

NOTED *Gunning* W.P.

COMPLETED BY ENGINEERING TESTING:

UNIT DEPT PT NUMBER TASK NUMBER 4 %
 0 LP 0-LSP-FP-004-SEC-C
 DUF DATE LATE DATE FREQUENCY
 05-05/2000 05/28/2000 92 1

SYSTEM ENGINEER REVIEW REQUIRED: X ISI REVIEW REQUIRED

COMPLETED BY DEPARTMENT RESPONSIBLE FOR PERFORMING TEST:

SIGNED *Henry Burbidge* DATE COMPLETED *5/25/00* TIME *1400*

SATISFACTORY WITHIN GRACE PROCEDURE ACTION
 UNSATISFACTORY OUTSIDE GRACE REQUEST

ACTION TAKEN:

DEVIATION REPORT SUBMITTED RESCHEDULED
 OTHER

NOTES:

DATE RECEIVED	SIGNATURE	SENT TO	DATE OUT
<i>05-30 00</i>	<i>Robert L. L.</i>	<i>Linda Wadley</i>	<i>5-30 00</i>

RETURN TO ENGINEERING TESTING

**PERIODIC TEST SCHEDULING DATA SHEET
POWER STATION**

10/27/99
PAGE 6

9/30/1999

NOTED DEC 02 1999 W.P.

COMPLETED BY ENGINEERING TESTING:

UNIT DEPT PT NUMBER TASK NUMBER: 17

1 LP 1-LPT-FP-018

DUPLICATE DATE LATE DATE FREQUENCY

10/01/1999 11/15/1999 180

SYSTEM ENGINEER REVIEW REQUIRED.

ISI REVIEW REQUIRED.

COMPLETED BY DEPARTMENT RESPONSIBLE FOR PERFORMING TEST:

SIGNED

Henry Burbridge

DATE COMPLETED

10/27/99
26 @ 10-27-99

TIME

0651
1438 @ 10.27.99

<input checked="" type="checkbox"/> SATISFACTORY	<input checked="" type="checkbox"/> WITHIN GRACE	<input type="checkbox"/> PROCEDURE ACTION
<input type="checkbox"/> UNSATISFACTORY	<input type="checkbox"/> OUTSIDE GRACE	<input type="checkbox"/> REQUEST

ACTION TAKEN:

DEVIATION REPORT SUBMITTED RESCHEDULED

OTHER

NOTES:

DATE RECEIVED	SIGNATURE	SENT TO	DATE OUT
11-10-99	<i>[Signature]</i>	LINDA KANON	11-10-99

RETURN TO ENGINEERING TESTING

mindview

User: mindview,SPS,,

Request: LIC_ADM_2ND-6730 from suncux01

Date Printed: Tue Oct 26 06:24:05 EDT 1999

Procedure: **1-LPT-FP-018**

Rev: **004**

PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **03/31/1999**

Station: **Surry**

Docbase: **SUMIND**

If this procedure is initiated OR re-initiated after the print date shown, then the current revision\PAR numbers must be verified.

This leader page is part of the controlled document and must remain with the procedure as a permanent record.

Approval signatures for electronically distributed procedures are maintained on file.

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VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO.
1-LPT-FP-018

REVISION NO:
4

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

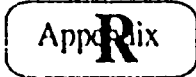
EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

Revised in accordance with DR S-98-2280 (CTS 4536).

- Added Attachment 5.
- Added Step 6.3.6.



PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.3 and 3.7.

2.0 REFERENCES

2.1 Source Documents

- 2.1.1 10 CFR 50, Appendix R, Part E
- 2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

- 2.3.1 VPAP-2401, Fire Protection Program
- 2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems
- 2.3.3 Safety Evaluation No. S-98-0026
- 2.3.4 Technical Requirements Manual, Section 3.3, Instrumentation (When Issued)
- 2.3.5 Technical Requirements Manual, Section 3.7, Plant Systems (When Issued)

2.4 Commitment Documents

Init Verif

3.0 INITIAL CONDITIONS

IB

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

IB

3.2 The units may be in any mode.

WAS
SS

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

IB

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

IB

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

IB

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical References.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

IB

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 560

SQC No. 5501A

IB

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

IB

6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

IB

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

IB

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

IB

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

IB

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = _____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A
10.26.99
IB

6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

IB

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

IB

6.3.1 Perform the following for each cylinder listed in Attachment 1.

IB PLW

- (TM) Disconnect the solenoid valve from each pilot cylinder.
(Reference 2.3.3)

IB PLW

- (TM) Disconnect flexible tubing and discharge piping at cylinder.
(Reference 2.3.3)

- Remove cylinder and place on scales.

IB

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

IB

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

IB

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

IB

6.3.5 Record test results on Attachment 3 for each cylinder tested.

IB

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

IB

6.3.7 Perform the following.

IB DW

- Reinstall cylinder.

IB DW

- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)

IB DW

- c. Insure the solenoid is not energized.

IB DW

- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

WMC
SS

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

IB

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

TB

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (V)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

TB

7.1.2 Document the test results. (V)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

TB

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

U/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

e. Initiate a Work Request and record the number below.

WR Number: _____

1/A

7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
WAC	WA Kechely
FB	Henry BURBRIDGE
RW	Doug Williams

B

Comments: _____
_____ SWAPPED OUT 0977 FOR ANOTHER BTL
_____ I.A.W. ATTACHMENT 5.

Completed by: H. B. [Signature] Date: 10.26.99
Time: 1438

7.4 Review

Comments: _____

Reviewed by: [Signature] Date: 11-10-99
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____
SWAPPED CTS 0977 FOR ANOTHER B.T.C.
B.A.W. ATTACHMENT 5 10.27.99

Reviewed by: _____ Engineering Review
System Engineer Not Required Date: _____

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 80 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0741	400	393	353.7	SAT
0619	400	393	353.7	SAT
0974	400	393	353.7	SAT
0977	320	393	353.7	UNSAT
14989	400	393	353.7	SAT
0899	400	393	353.7	SAT
0866	420	393	353.7	SAT
0931	400	393	353.7	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0845	400	393	353.7	SAT
0882	380	393	353.7	SAT
0876	380	393	353.7	SAT
0812	400	393	353.7	SAT
0849	270	393	363.7	UNSAT
0944	320	393	353.7	UNSAT
0977	300	393	353.7	UNSAT
0796	480	393	353.7	UNSAT
0583	400	393	353.7	SAT

COMPLETED BY:

10/21/2012
Andy Bell

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0741	603	573	598	SAT
0619	599	569	592.5	SAT
0974	613	582	606	SAT
0977	612	581		
0888	611	580	600	SAT
0899	601	571	601	SAT
0866	517	491	510	SAT
0931	506	481	493	SAT
14898	611.5	581	619	SAT
0845	606	570	626	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0583	615	583	612	SAT
0796	605	575	606	SAT
0977	612	581	551	UNSAT
0944	513	487	506	SAT
0849	602.5	572	580	SAT
0812	595.5	566	595	SAT
0876	506	480	503	SAT
0882	509.5	484	506.5	SAT

COMPLETED BY: H. B. [Signature]

DATE: 10.26.99

ATTACHMENT 4

(Page 1 of 1)

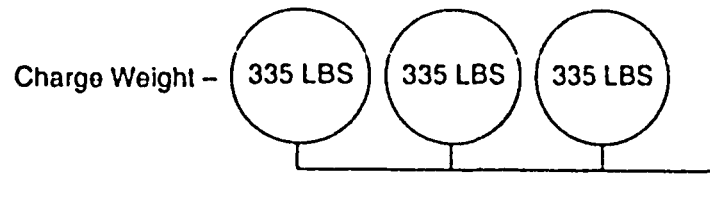
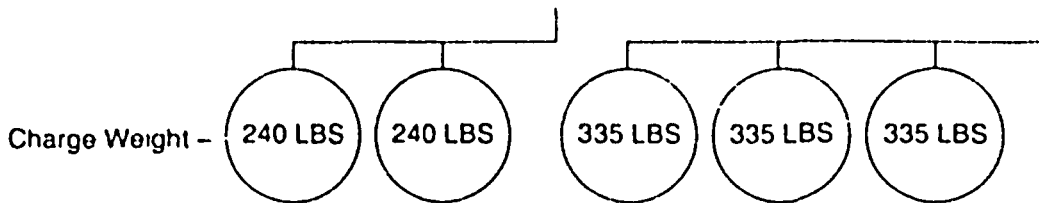
HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	27.	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Graphics No. 1103329

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

4/14/99

PERIODIC TEST SCHEDULING DATA SHEET
SURRY POWER STATION

COMPLETED BY ENGINEERING TESTING:

NOTED MAY 11 1999 W.E.P.

UNIT 1 1	DEPT 2 LP	PT NUMBER 1/LPT-FP-018	3	TASK NUMBER 12	4
EARLY DATE 04/01/99	5	LATE DATE 05/16/99	6	FREQUENCY 6M	7
SYSTEM ENGINEER REVIEW REQUIRED: <input type="checkbox"/> F.					
COMPLETED BY DEPARTMENT RESPONSIBLE FOR PERFORMING TEST:					
SIGNED <i>Henry Burbridge</i>	8	DATE COMPLETED 4/14/99		TIME 1042	9
<input checked="" type="checkbox"/> SATISFACTORY	10	<input checked="" type="checkbox"/> WITHIN GRACE	11	<input type="checkbox"/> PROCEDURE ACTION REQUEST	12
<input type="checkbox"/> UNSATISFACTORY		<input type="checkbox"/> OUTSIDE GRACE			
ACTION TAKEN:					
<input type="checkbox"/> DEVIATION REPORT SUBMITTED		<input checked="" type="checkbox"/> RESCHEDULED			13
<input type="checkbox"/> OTHER					
NOTES: PER CHANGE REQUEST RESET (BROUGH FORWARD) EARLY DATE TO 04/01/99 TO MATCH 2/LPT-FP-018.					
DATE RECEIVED 5-7-99	14	SIGNATURE <i>John S. L...</i>	15	SENT TO <i>Linna Higgins</i>	16
				DATE OUT 5-7-99	17

RETURN TO ENGINEERING TESTING

mindview

User: MindView acct,,,

Request: LIC_ADM_2ND-5382 from sunc10

Date Printed: Wed Apr 14 06:43:13 EDT 1999

Procedure: **1-LPT-FP-018**

Rev: **004**

PAR: **0**

Title: **EMERGENCY SWITCHGEAR ROOM HALON
SYSTEM CYLINDER PRESSURE AND
WEIGHT TEST**

Effective Date: **03/31/99**

Station: **Surry**

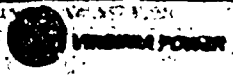
Docbase: **SUMIND**

If this procedure is initiated OR re-initiated after the print date shown, then the current revision\PAR numbers must be verified.

This leader page is part of the controlled document and must remain with the procedure as a permanent record.

Approval signatures for electronically distributed procedures are maintained on file.

CONTROLLED COPY



SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
4

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
ON FILE

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

- REVISION SUMMARY:
- Revised in accordance with DR S-98-2280 (CTS 4536).
 - Added Attachment 5.
 - Added Step 6.3.6.

UNIT ONE



PROCEDURE WRITER: Pat Kessler / Henry Burbridge | VALIDATOR: Bob Lynch

APPROVAL:

APPROVAL ON FILE

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Requirements Manual 3.7.**
- 1.2 This procedure shall be performed semiannually in accordance with the frequency specified in Technical Requirements Manual 3.3 and 3.7.**

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

None

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 Safety Evaluation No. S-98-0026

2.3.4 Technical Requirements Manual, Section 3.3, Instrumentation (When Issued)

2.3.5 Technical Requirements Manual, Section 3.7, Plant Systems (When Issued)

2.4 Commitment Documents

2.4.1 QA Audit 92-05-OBS02N

Init Verif

3.0 INITIAL CONDITIONS

3.1 Notify the Operations Shift Supervisor that the system will be inoperable.

3.2 The units may be in any mode.

3.3 Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Reference 2.3.3)

- Remove solenoid valve from all pilot valves.
- Remove the discharge piping from all suppression cylinders.

3.4 Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

3.5 Advise Operations Shift Supervisor that system activation alarms will occur during testing.

3.6 Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

IB
IB
AC
SS

IB
IB
IB

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical References.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 Record the SQC numbers for the SQC items that are used.

SQC No. 560

SQC No. 5501A

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

IB

IB

IB

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. (Reference 2.4.1)

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (\underline{\quad} \times 0.9) = \underline{\quad} \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

6.2.5 **IF** any cylinder has a difference in As Found and Allowable Pressure > 10%, **THEN** replace with tested spare cylinder **AND** record replacement information in Comments, Step 7.3. **IF** no cylinders are replaced, **THEN** enter N/A for this step.

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

IB

6.3.1 Perform the following for each cylinder listed in Attachment 1.

DAW A

- (TM) Disconnect the solenoid valve from each pilot cylinder. (Reference 2.3.3)
- (TM) Disconnect flexible tubing and discharge piping at cylinder. (Reference 2.3.3)
- Remove cylinder and place on scales.

DAW IB

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

IB

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

IB

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

N/A

6.3.5 Record test results on Attachment 3 for each cylinder tested.

IB

IB
IB

AW IB

AW IB

AW IB

AW IB

SS
IB

6.3.6 Verify Halon System Cylinder placement from Attachment 5.

6.3.7 Perform the following.

- Reinstall cylinder.
- (TM) Reconnect flexible tubing and discharge piping.
(Reference 2.3.3)
- c. Insure the solenoid is not energized.
- (TM) Reconnect solenoid valve for each pilot cylinder.
(Reference 2.3.3)

6.3.8 Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System.
(Reference 2.3.3)

6.3.9 Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

IB

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (✓)

- All cylinders tested have a pressure difference of less than or equal to 10 percent between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

IB

7.1.2 Document the test results. (✓)

Satisfactory ___ Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 **IF** vendor scales used, **THEN** attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

IB

7.2.2 **IF** the test was satisfactory, **THEN** discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. **IF** the test was unsatisfactory, **THEN** enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

H

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
H	HENRY BURBRIQUE
DW	DOUGLAS D. WILLIAMS

Comments: _____

Completed by: Henry Bealbridge Date: 4/14/99
Time: 1044

7.4 Review

Comments: _____

Reviewed by: [Signature] Date: 5-7-99
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: _____
Engineering Review
Not Required
System Engineer Date: _____

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 80 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0931	400	393.8	353.7	SAT
0866	400	398.3	353.7	SAT
0899	420	393	353.7	SAT
14898	420	393	353.7	SAT
0977	380	393	353.7	SAT
0974	400	393	353.7	SAT
0619	420	393	353.7	SAT
0741	400	393	353.7	SAT
		393	353.7	5-6-99
		393	353.7	5-6-99

AMBIENT Rm. Temp 83° SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
583	380	403.8	363.4	SAT
0796	460	403.8	363.4	SAT
0888	360	403.8	363.4	UNSAT
0944	300	403.8	363.4	UNSAT
0849	260	403.8	363.4	UNSAT
0812	380	403.8	363.4	SAT
0876	360	403.8	363.4	UNSAT
0882	360	403.8	363.4	UNSAT
0845	360	403.8	363.4	UNSAT

COMPLETED BY: Henry Burlbridge
DATE: 4/14/99

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0931	506	481	492	SAT
0866	517	491	510	SAT
0899	601	571	601	SAT
14898	611.5	581	616.5	SAT
0977	612	581	556.5	SAT
0974	614	582	608	SAT
0619	599	569	598	SAT
0741	603	573	596.5	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
583	614	585	612.0	SAT
0796	605	575	603.5	SAT
0888	611	580	509.5 509.5	SAT
0944	513	487	509.5 509.5	SAT
0849	602.5	572	578.5 578.5	SAT
0812	595.5	566	578.5 578.5	SAT
0876	506	480	508.5 508.5	SAT
0882	509.5	484	508.5 508.5	SAT
0845	600	570	620.0	SAT

COMPLETED BY: Henry Burbridge

DATE: 4/14/99

ATTACHMENT 4

(Page 1 of 1)

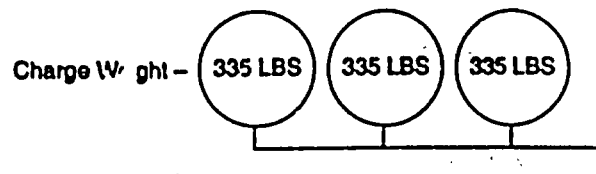
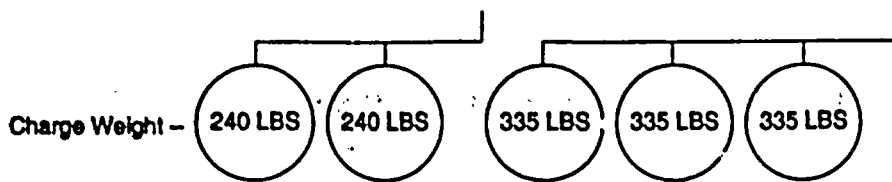
HALON SYSTEM CYLINDER WEIGHT CHART

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0849	335	263	602.5	572
0856	240	273.5	514	488
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0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

ATTACHMENT 5

(Page 1 of 1)

UNIT 1 EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT



Order No. LD952

UNIT 1
EMERGENCY SWITCHGEAR
HALON SYSTEM CYLINDER BOTTLE ALIGNMENT

10/21/98



VIRGINIA POWER

Level 3
Controlled Working Copy

Procedure Action Request (PAR)

VPAP-0502 - Attachment 2

Instructions for completing this form are included in VPAP-0502.

1. Procedure Number 1-LPT-FP-018	2. Revision 2-P1	3. Change Number P98-025	4. Page 1 of 19	5. Effective Date (if not approval date) APR 20 1998
-------------------------------------	---------------------	-----------------------------	--------------------	---

6. Procedure Title EMERGENCY SWITCHGEAR ROOM HALON SYSTEM CYLINDER PRESSURE AND WEIGHT TEST	7. Expiration Date
---	--------------------

8. Type of Request New Procedure Procedure Change Procedure Revision Procedure Deletion Vendor Procedure

9. Reason and Description of Change **E-PAR**
 ADD IN COMMENTS FROM SAFETY EVALUATION # S-98-0026 PART (A) STEP (7)
 ADD IN FOR I.V. STEPS FOR ANY FUNCTION INVOLVING RETURNING A COMPONENT TO
 IT'S ORIGINAL POSITION.
 ADD I.V. FOR ANY STEP INVOLVING THE TM.

SNSOC Approval Determination - If "Yes" to any of the following, SNSOC approval required. Check item 25 and skip items 13 through 22.

10. Is this request for a new procedure?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11. Does this change result in a "Yes" answer to any questions on the Activity Screening Checklist (Form No. 730914)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
12. Is this a "Special Test" procedure, an EPIP or Security procedure, an EOP, or CH-94.300, or is an ICCE portion(s) of an ICCE-designated procedure being affected?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Change of Intent Checklist - If "Yes" to any of the following questions, Cognizant Management "B" approval required. Check item 26. If "No" to all of the following questions, Cognizant Management "A" approval required. Check item 27.

13. A change to the stated Purpose of the procedure or deletion of the procedure?	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. A change in the stated Initial Conditions that must be satisfied prior to performing the procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. A change in the stated Acceptance Criteria that must be satisfied for satisfactory completion of this procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. A modification or deletion of setpoints, independent, or simultaneous verification.	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. A change that affects specific actions that are required to be accomplished to ensure the satisfactory completion of the task. This includes changes that affect personnel safety, decrease fire protection effectiveness, affect equipment qualification, or involve a less conservative method of performing the task.	<input type="checkbox"/> Yes <input type="checkbox"/> No
18. A change that relocates or deletes a required hold point. This does not include deleting a section of a procedure which includes a hold point.	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. A change to CAUTION or WARNING statements. This does not include adding CAUTION or WARNING statements or deleting a section of a procedure which includes CAUTION or WARNING statements.	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. A change that modifies or deletes the method for meeting a commitment identified in the procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
21. A change in system/component as left conditions.	<input type="checkbox"/> Yes <input type="checkbox"/> No
22. A change to a procedure that is marked "Infrequently Conducted or Complex Test or Evolution".	<input type="checkbox"/> Yes <input type="checkbox"/> No

23. Requested By Name (Please Print) HENRY BURBRIDGE	24. Date 04/10/98	If SNSOC approval is required for a procedure change, it is not necessary for the Shift Supervisor to approve the procedure change, place N/A in blocks 30 and 36.
---	----------------------	--

Required Approval Authority - Determination From Above

25. SNSOC 26. Cognizant Management B 27. Cognizant Management A

Surry Procedure Approvals		North Anna Procedure Approvals	
28. Required Approval Authority (Signature)	29. Date	34. Required Approval Authority (Signature)	35. Date
<i>[Signature]</i>	4/16/98		
30. Shift Supervisor Approval For Changes (Signature)	31. Date	36. Shift Supervisor Approval For Changes (Signature)	37. Date
32. Station Manager Approval If Required (Signature)	33. Date	38. Station Manager Approval If Required (Signature)	39. Date

Key: SNSOC-Station Nuclear Safety and Operating Committee; EPIP-Emergency Plan Implementing Procedures; EOP-Emergency Operating Procedure; PAR-Procedure Action Request; SPS-Surry Power Station; NAPS-North Anna Power Station

Form No. 730682 (Nov 96)



VPAP-3001

1. Identification of Governing Document 1-LPT-FP-018	2. Applicable Station <input type="checkbox"/> North Anna Power Station <input checked="" type="checkbox"/> Surry Power Station	3. Applicable Unit <input checked="" type="checkbox"/> Unit 1 <input type="checkbox"/> Unit 2
---	--	--

4. Brief Description of the Activity

- See block 9 (Reason and Description of Change) on page 1 of PAR Form.

5. General Screening (Definitions are provided in VPAP-3001.)

A. Does this activity require a change to the Operation License or Technical Specifications?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
B. Does this activity alter (temporarily or permanently) the information, design, function, ability to function, or method of performing the function of a structure, system, or component as described in the SAR?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C. Does this activity modify a procedure or method of operation as described, outlined, or summarized in the SAR?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
D. Does this activity perform a test or experiment that is not described in the SAR?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
E. Does this activity involve a change to the Environmental Protection Plan, or a change, test, or experiment that may affect the environment?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
F. Does this activity involve a temporary modification?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

6. Discussion and References

SAFETY EVALUATION S-98-0026

THE E-PAR REFLECTS THE COMMENTS FROM THE ABOVE SAFETY EVALUATION.

IT ALSO ADDS I.V. FOR STEPS THAT REFERENCE THE TM AND STEPS THAT REFERENCE CONFIGURATION MANAGEMENT.

Note: If Any Response is "YES," a Safety Evaluation Must be Performed In Accordance With VPAP-3001, Safety Evaluations.

7. Preparer Name (Please Print) HENRY BURBRIDGE	8. Title Procedure Writer
9. Preparer Signature <i>Henry Burbridge</i>	10. Date 04/10/98
11. Reviewer Name (Only If Non-Authorized Preparer-Please Print) THOMAS SCUNNING	12. Title STAFF ENG
13. Reviewer Signature <i>Thomas Scunning</i>	14. Date 4/3/98

Key: SAR-Safety Analysis Report



SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
2-P1

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
SEE ATTACHED PAR

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

PAR INCORPORATION PLAN

This revision incorporates intent of Par Change 940254.

E-PAR {P1} This par adds step for removal of the system solenoid by a (TM) written in Safety Evaluation # S-98-026. This par also adds steps for simultaneous verification of steps involving configuration management

UNIT ONE



PROCEDURE WRITER: **SHELBY POOLE**

VALIDATOR:

APPROVAL:

PROCEDURE CHANGE - SEE ATTACHED PAR

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Specification 3.21.A.7.
- 1.2 This procedure shall be performed semi-annual in accordance with the frequency specified in Technical Specification 4.18.E.1.b.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

2.2.1 Technical Specification 3.21.A.7

2.2.2 Technical Specification 4.18.E.1.b

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 {P1} Safety Evaluation No. S-98-026

2.4 Commitment Documents

2.4.1 QA Audit 92-05-OBS02N

Init Verif

3.0 INITIAL CONDITIONS

IF

3.1 {P1} Notify the Operations shift supervisor that the system will be inoperable.

IF

3.2 {P1} The units may be in any mode.

SS

3.3 {P1} Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Ref.2.3.3)

- **{P1} Remove solenoid valve from all pilot valves.**
- **{P1} Remove the discharge piping from all suppression cylinders.**

IF

3.4 {P1} Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

IF

3.5 {P1} Advise Operations Shift Supervisor that system activation alarms will occur during testing.

IF

3.6 {P1} Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical Specifications.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 {P1} ~~Self-calibrating calimeter or~~ Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 ~~{P1} Check type of test equipment to be used for determining cylinder weight.~~
(A)

~~Currently Calibrated Scales~~ ~~Self Calibrating Calimeter~~

6.1.1 {P1} Record the SQC numbers for the SQC items that are used.

SQC No. 5517

SQC No. 1121B

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

IB

IB

IB

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. [Reference 2.4.1]

B

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

B

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

B

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

B

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A

6.2.5 **IF** any cylinder has a difference in As Found and Allowable Pressure > 10%, **THEN** replace with tested spare cylinder **AND** record replacement information in Comments, Step 7.3. **IF** no cylinders are replaced, **THEN** enter N/A for this step.

IP

6.2.6 Record test results on Attachment 1 for each cylinder tested.

IP

6.3 Cylinder Weight Test

AW IP

6.3.1 {P1} ~~IF scales are being used to determine cylinder weight, THEN~~ Perform the following for each cylinder listed in Attachment 1. ~~IF calimeter is being used to determine weight, THEN enter N/A for this step:~~

AW IP

- {P1} (TM) Disconnect the solenoid valve from each pilot cylinder.
[Ref.2.3.3]
- {P1} (TM) Disconnect flexible tubing and discharge piping at cylinder.
[Ref.2.3.3]
- Remove cylinder and place on scales.

IP

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

IB

N/A

IB

IB

DAW IB

DAW IB

DAW IB

DAW IB

SS

IB

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 ~~IF~~ any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. ~~IF~~ no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

6.3.6 ~~IF~~ scales were used to determine cylinder weight, THEN Perform the following. ~~IF~~ calimeter was used, THEN enter N/A for this step.

- Reinstall cylinder.
- {P1} (TM) Reconnect flexible tubing and discharge piping. [Ref.2.3.3]
- c. {P1} Insure the soleniod is not energized.
- {P1} (TM) Reconnect solenoid valve for each pilot cylinder. [Ref.2.3.3]

6.3.7 {P1} Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System. (Ref.2.3.3)

6.3.8 {P1} Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

IB

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10% between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

IB

7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

IB

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

IB

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
IB	HENRY BURRIDGE
DW	DOUGLAS D. WILLIAMS
WAM	william A. Moore

Comments: _____

Completed by: Henry Burbidge Date: 10/21/98
Time: 1200

7.4 Review

Comments: _____

Reviewed by: Henry Burbidge Date: 10/13/98
Supervisor Safety/Loss Prevention or Designee

VIRGINIA POWER
SURRY POWER STATION

1-LPT-FP-018
REVISION 2-P1
PAGE 13 OF 17

Forward original procedure to Engineering Testing.

Comments: _____

**Engineering Review
Not Required**

Reviewed by: _____ Date: _____
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 98 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0931	440	460	414	SAT
0866	460	460	414	SAT
0899	480	460	414	SAT
14898	480 ⁴⁴⁰ ₄₈₀	460	414	SAT
0977	440	460	414	SAT
0974	460	460	414	SAT
0619	480	460	414	SAT
0741	480	460	414	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0796	500	460	414	SAT
0888	400	460	414	SAT
0812	440	460	414	SAT
0845	400	460	414	SAT
0876	400	445	400	SAT
0882	400	445	400	SAT
0583	420	445	400	SAT
0944	350	445	400	UNSAT
0949	300	445	400	UNSAT

94°

COMPLETED BY: Henry Burbridge
 DATE: 10/2/99

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0931	506	481	495	SAT
0866	517	491	514	SAT
0899	601	571	603	SAT
14898	611.5	581	620	SAT
0977	612	581	585	SAT
0974	613	582	612	SAT
0619	599	569	599	SAT
0741	603	573	602	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0796	605	575	607	SAT
0888	611	580	606	SAT
0812	595.5	566	594	SAT
0845	600	570	623	SAT
0876	504	480	504	SAT
0882	508	484	511	SAT
0583	615	582	613	SAT
0944	513	487	516	SAT
0849	602.5	572	581	SAT

COMPLETED BY: Henry Burbridge

DATE: 10/13/98 ^{10/21/98}

ATTACHMENT 4

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570



VIRGINIA POWER

9/17
NOTED SEP 20 1998 Level 3 Working Copy

9/11/98
Procedure Action Request (PAR)

VPAP-0502 - Attachment 2

Instructions for completing this form are included in VPAP-0502.

1. Procedure Number 1-LPT-FP-018	2. Revision 2-P1	3. Change Number P98-025	4. Page 1 of 19	5. Effective Date (or approval date) APR 20 1998
6. Procedure Title EMERGENCY SWITCHGEAR ROOM HALON SYSTEM CYLINDER PRESSURE AND WEIGHT TEST				7. Expiration Date
8. Type of Request <input type="checkbox"/> New Procedure <input checked="" type="checkbox"/> Procedure Change <input type="checkbox"/> Procedure Revision <input type="checkbox"/> Procedure Deletion <input type="checkbox"/> Vendor Procedure				
9. Reason and Description of Change E-PAR ADD IN COMMENTS FROM SAFETY EVALUATION # S-98-0026 PART (A) STEP (7) ADD IN FOR I.V. STEPS FOR ANY FUNCTION INVOLVING RETURNING A COMPONENT TO IT'S ORIGINAL POSITION. ADD I.V. FOR ANY STEP INVOLVING THE TM.				

SNSOC Approval Determination - If "Yes" to any of the following, SNSOC approval required. Check item 25 and skip items 13 through 22.

10. Is this request for a new procedure?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11. Does this change result in a "Yes" answer to any questions on the Activity Screening Checklist (Form No. 730914)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
12. Is this a "Special Test" procedure, an EPIP or Security procedure, an EOP, or CH-94.300, or is an ICCE portion(s) of an ICCE-designated procedure being affected?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Change of Intent Checklist - If "Yes" to any of the following questions, Cognizant Management "B" approval required. Check item 26. If "No" to all of the following questions, Cognizant Management "A" approval required. Check item 27.

13. A change to the stated Purpose of the procedure or deletion of the procedure?	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. A change in the stated Initial Conditions that must be satisfied prior to performing the procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. A change in the stated Acceptance Criteria that must be satisfied for satisfactory completion of this procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. A modification or deletion of setpoints, independent, or simultaneous verification.	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. A change that affects specific actions that are required to be accomplished to ensure the satisfactory completion of the task. This includes changes that affect personnel safety, decrease fire protection effectiveness, affect equipment qualification, or involve a less conservative method of performing the task.	<input type="checkbox"/> Yes <input type="checkbox"/> No
18. A change that relocates or deletes a required hold point. This does not include deleting a section of a procedure which includes a hold point.	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. A change to CAUTION or WARNING statements. This does not include adding CAUTION or WARNING statements or deleting a section of a procedure which includes CAUTION or WARNING statements.	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. A change that modifies or deletes the method for meeting a commitment identified in the procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
21. A change in system/component as left conditions.	<input type="checkbox"/> Yes <input type="checkbox"/> No
22. A change to a procedure that is marked "Infrequently Conducted or Complex Test or Evolution".	<input type="checkbox"/> Yes <input type="checkbox"/> No

23. Requested By Name (Please Print) HENRY BURBRIDGE	24. Date 04/10/98	If SNSOC approval is required for a procedure change, it is not necessary for the Shift Supervisor to approve the procedure change, place N/A in blocks 30 and 36.
---	----------------------	--

Required Approval Authority - Determination From Above

25. SNSOC 26. Cognizant Management B 27. Cognizant Management A

Surry Procedure Approvals		North Anna Procedure Approvals	
28. Required Approval Authority (Signature)	29. Date	34. Required Approval Authority (Signature)	35. Date
<i>[Signature]</i>	4/16/98		
30. Shift Supervisor Approval For Changes (Signature)	31. Date	36. Shift Supervisor Approval For Changes (Signature)	37. Date
32. Station Manager Approval If Required (Signature)	33. Date	38. Station Manager Approval If Required (Signature)	39. Date

Key: SNSOC-Station Nuclear Safety and Operating Committee; EPIP-Emergency Plan Implementing Procedures; EOP-Emergency Operating Procedure; PAR-Procedure Action Request; SPS-Surry Power Station; NAPS-North Anna Power Station Form No. 730682 (Nov 96)



VPAP-3001

1. Identification of Governing Document 1-LPT-FP-018	2. Applicable Station <input type="checkbox"/> North Anna Power Station <input checked="" type="checkbox"/> Surry Power Station	3. Applicable Unit <input checked="" type="checkbox"/> Unit 1 <input type="checkbox"/> Unit 2
---	--	--

4. Brief Description of the Activity

- See block 9 (Reason and Description of Change) on page 1 of PAR Form.

5. General Screening (Definitions are provided in VPAP-3001)

A. Does this activity require a change to the Operation License or Technical Specifications?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
B. Does this activity alter (temporarily or permanently) the information, design, function, ability to function, or method of performing the function of a structure, system, or component as described in the SAR?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C. Does this activity modify a procedure or method of operation as described, outlined, or summarized in the SAR?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
D. Does this activity perform a test or experiment that is not described in the SAR?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
E. Does this activity involve a change to the Environmental Protection Plan, or a change, test, or experiment that may affect the environment?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
F. Does this activity involve a temporary modification?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

6. Discussion and References

SAFETY EVALUATION S-98-0026

THE E-PAR REFLECTS THE COMMENTS FROM THE ABOVE SAFETY EVALUATION.

IT ALSO ADDS I.V. FOR STEPS THAT REFERENCE THE TM AND STEPS THAT REFERENCE CONFIGURATION MANAGEMENT.

Note: If Any Response is "YES," a Safety Evaluation Must be Performed In Accordance With VPAP-3001, Safety Evaluations.

7. Preparer Name (Please Print) HENRY BURBRIDGE	8. Title Procedure Writer
9. Preparer Signature <i>Henry Burbridge</i>	10. Date 04/10/98
11. Reviewer Name (Only If Non-Authorized Preparer-Please Print) <i>THOMAS SCUNNING</i>	12. Title <i>STAFF ENG</i>
13. Reviewer Signature <i>Thomas Scunning</i>	14. Date <i>4/13/98</i>

Key: SAR-Safety Analysis Report



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
2-P1

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
SEE ATTACHED PAR

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

PAR INCORPORATION PLAN

This revision incorporates intent of Par Change 940254.

E-PAR {P1} This par adds step for removal of the system solenoid by a (TM) written in Safety Evaluation # S-98-026. This par also adds steps for simultaneous verification of steps involving configuration management

UNIT ONE



PROCEDURE WRITER: **SHELBY POOLE**

VALIDATOR:

APPROVAL:

PROCEDURE CHANGE - SEE ATTACHED PAR

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Specification 3.21.A.7.
- 1.2 This procedure shall be performed semi-annual in accordance with the frequency specified in Technical Specification 4.18.E.1.b.

2.0 REFERENCES

2.1 Source Documents

- 2.1.1 10 CFR 50, Appendix R, Part E
- 2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

- 2.2.1 Technical Specification 3.21.A.7
- 2.2.2 Technical Specification 4.18.E.1.b

2.3 Technical References

- 2.3.1 VPAP-2401, Fire Protection Program
- 2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems
- 2.3.3 {P1} Safety Evaluation No. S-98-026

2.4 Commitment Documents

- 2.4.1 QA Audit 92-05-0BS02N

Init Verif

B
3.0 INITIAL CONDITIONS

B
3.1 {P1} Notify the Operations shift supervisor that the system will be inoperable.

B
3.2 {P1} The units may be in any mode.

R/
SS
3.3 {P1} Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Ref.2.3.3)

- {P1} Remove solenoid valve from all pilot valves.
- {P1} Remove the discharge piping from all suppression cylinders.

B
3.4 {P1} Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

B
B
3.5 {P1} Advise Operations Shift Supervisor that system activation alarms will occur during testing.

3.6 {P1} Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical Specifications.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 {P1} ~~Self-calibrating calimeter or~~ Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 ~~{P1} Check type of test equipment to be used for determining cylinder weight.~~

~~(A)~~

~~_____ Currently Calibrated Scales _____ Self Calibrating Calimeter~~

6.1.1 {P1} Record the SQC numbers for the SQC items that are used.

SQC No. _____

SQC No. _____

6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

6.1.3 Establish fire watch for Emergency Switchgear Room.

N/A

N/A

IB

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. [Reference 2.4.1]

N/A

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

N/A

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

N/A

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

N/A

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ______ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A

6.2.5 **IF** any cylinder has a difference in As Found and Allowable Pressure > 10%, **THEN** replace with tested spare cylinder **AND** record replacement information in Comments, Step 7.3. **IF** no cylinders are replaced, **THEN** enter N/A for this step.

N/A

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

IB

6.3.1 {P1} ~~IF scales are being used to determine cylinder weight, THEN~~ Perform the following for each cylinder listed in Attachment 1. ~~IF calimeter is being used to determine weight, THEN~~ enter N/A for this step:

Jaw IB

- {P1} (TM) Disconnect the solenoid valve from each pilot cylinder.
[Ref.2.3.3]

IB IB

- {P1} (TM) Disconnect flexible tubing and discharge piping at cylinder.
[Ref.2.3.3]

- Remove cylinder and place on scales.

N/A

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

N/A

N/A

N/A
B

AW B
AW B

AW B
AW B

M
SS

B

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

6.3.5 Record test results on Attachment 3 for each cylinder tested.

6.3.6 ~~IF scales were used to determine cylinder weight, THEN~~ Perform the following. ~~IF calimeter was used, THEN~~ enter N/A for this step.

- Reinstall cylinder.
- {P1} (TM) Reconnect flexible tubing and discharge piping. [Ref.2.3.3]
- c. {P1} Insure the soleniod is not energized.
- {P1} (TM) Reconnect solenoid valve for each pilot cylinder. [Ref.2.3.3]

6.3.7 {P1} Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System. (Ref.2.3.3)

6.3.8 {P1} Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

N/A

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (✓)

- All cylinders tested have a pressure difference of less than or equal to 10% between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

IB

7.1.2 Document the test results. (✓)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

IB

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

- Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.
- Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
- Notify System Engineer of unsatisfactory condition.

N/A

N/A

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

JB

7.3 Notification, Documentation, and Procedure Closeout

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
DW	DOUGLAS D. WILLIAMS
R	RUFFIN R. YZZI
B	HENRY B. BIRZIDGES

Comments: _____
A HALON BOTTLE WAS SWITCHED FROM UNIT 1
TO UNIT 2 EMERGENCY SWITCHING FOR HALON.

DR-# 2280

Completed by: Henry Burbridge ^{FOR} Daughtrian Date: 9/17/98
Time: 1800

7.4 Review

Comments: _____

Reviewed by: Henry Burbridge Date: 9/18/98
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

**Engineering Review
Not Required**

Reviewed by: _____ Date: _____

System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE _____°F _____°C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
		N/A		

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)

COMPLETED BY: _____
 DATE: _____

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
		N/A		

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)

COMPLETED BY: _____

DATE: _____

ATTACHMENT 4

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570



VIRGINIA POWER

Level 3 Controlled Working Procedure Action Request (PAR)

4/29/98

VPAP-0502 - Attachment 2

Instructions for completing this form are included in VPAP-0502.

1. Procedure Number 1-LPT-FP-018	2. Revision 2-P1	3. Change Number P98-025	4. Page 1 of 19	5. Effective Date, (if not approval date) APR 20 1998
-------------------------------------	---------------------	-----------------------------	--------------------	--

6. Procedure Title EMERGENCY SWITCHGEAR ROOM HALON SYSTEM CYLINDER PRESSURE AND WEIGHT TEST	7. Expiration Date
---	--------------------

8. Type of Request New Procedure Procedure Change Procedure Revision Procedure Deletion Vendor Procedure

9. Reason and Description of Change **E-PAR**
 ADD IN COMMENTS FROM SAFETY EVALUATION # S-98-0026 PART (A) STEP (7)
 ADD IN FOR I.V. STEPS FOR ANY FUNCTION INVOLVING RETURNING A COMPONENT TO
 IT'S ORIGINAL POSITION.
 ADD I.V. FOR ANY STEP INVOLVING THE TM.

SNSOC Approval Determination - If "Yes" to any of the following, SNSOC approval required. Check item 25 and skip items 13 through 22.

10. Is this request for a new procedure?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11. Does this change result in a "Yes" answer to any questions on the Activity Screening Checklist (Form No. 730914)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
12. Is this a "Special Test" procedure, an EPIP or Security procedure, an EOP, or CH-94.300, or is an ICCE portion(s) of an ICCE-designated procedure being affected?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Change of Intent Checklist - If "Yes" to any of the following questions, Cognizant Management "B" approval required. Check item 26. If "No" to all of the following questions, Cognizant Management "A" approval required. Check item 27.

13. A change to the stated Purpose of the procedure or deletion of the procedure?	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. A change in the stated Initial Conditions that must be satisfied prior to performing the procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. A change in the stated Acceptance Criteria that must be satisfied for satisfactory completion of this procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. A modification or deletion of setpoints, independent, or simultaneous verification.	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. A change that affects specific actions that are required to be accomplished to ensure the satisfactory completion of the task. This includes changes that affect personnel safety, decrease fire protection effectiveness, affect equipment qualification, or involve a less conservative method of performing the task.	<input type="checkbox"/> Yes <input type="checkbox"/> No
18. A change that relocates or deletes a required hold point. This does not include deleting a section of a procedure which includes a hold point.	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. A change to CAUTION or WARNING statements. This does not include adding CAUTION or WARNING statements or deleting a section of a procedure which includes CAUTION or WARNING statements.	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. A change that modifies or deletes the method for meeting a commitment identified in the procedure.	<input type="checkbox"/> Yes <input type="checkbox"/> No
21. A change in system/component as left conditions.	<input type="checkbox"/> Yes <input type="checkbox"/> No
22. A change to a procedure that is marked "Infrequently Conducted or Complex Test or Evolution".	<input type="checkbox"/> Yes <input type="checkbox"/> No

23. Requested By Name (Please Print) HENRY BURBRIDGE	24. Date 04/10/98	If SNSOC approval is required for a procedure change, it is not necessary for the Shift Supervisor to approve the procedure change, place N/A in blocks 30 and 36.
---	----------------------	--

Required Approval Authority - Determination From Above

25. SNSOC 26. Cognizant Management B 27. Cognizant Management A

Surry Procedure Approvals		North Anna Procedure Approvals	
28. Required Approval Authority (Signature)	29. Date	34. Required Approval Authority (Signature)	35. Date
30. Shift Supervisor Approval For Changes (Signature)	31. Date	36. Shift Supervisor Approval For Changes (Signature)	37. Date
32. Station Manager Approval If Required (Signature)	33. Date	38. Station Manager Approval If Required (Signature)	39. Date

Key: SNSOC-Station Nuclear Safety and Operating Committee; EPIP-Emergency Plan Implementing Procedures; EOP-Emergency Operating Procedure; PAR-Procedure Action Request; SPS-Surry Power Station; NAPS-North Anna Power Station Form No. 730682 (Nov 96)



VPAP-3001

1. Identification of Governing Document 1-LPT-FP-018	2. Applicable Station <input type="checkbox"/> North Anna Power Station <input checked="" type="checkbox"/> Surry Power Station	3. Applicable Unit <input checked="" type="checkbox"/> Unit 1 <input type="checkbox"/> Unit 2
---	--	--

4. Brief Description of the Activity
• See block 9 (Reason and Description of Change) on page 1 of PAR Form.

5. General Screening (Definitions are provided in VPAP-3001.)

A. Does this activity require a change to the Operation License or Technical Specifications?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
B. Does this activity alter (temporarily or permanently) the information, design, function, ability to function, or method of performing the function of a structure, system, or component as described in the SAR?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C. Does this activity modify a procedure or method of operation as described, outlined, or summarized in the SAR?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
D. Does this activity perform a test or experiment that is not described in the SAR?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
E. Does this activity involve a change to the Environmental Protection Plan, or a change, test, or experiment that may affect the environment?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
F. Does this activity involve a temporary modification?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

6. Discussion and References

SAFETY EVALUATION S-98-0026
 THE E-PAR REFLECTS THE COMMENTS FROM THE ABOVE SAFETY EVALUATION.
 IT ALSO ADDS I.V. FOR STEPS THAT REFERENCE THE TM AND STEPS THAT REFERENCE CONFIGURATION MANAGEMENT.

Note: If Any Response is "YES," a Safety Evaluation Must be Performed in Accordance With VPAP-3001, Safety Evaluations.

7. Preparer Name (Please Print) HENRY BURBRIDGE	8. Title Procedure Writer
9. Preparer Signature <i>Henry Burbridge</i>	10. Date 04/10/98
11. Reviewer Name (Only if Non-Authorized Preparer-Please Print) THOMAS SCUNNING	12. Title STAFF ENG
13. Reviewer Signature <i>Thomas Scunning</i>	14. Date 4/3/98



VIRGINIA POWER

SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
2-P1

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
SEE ATTACHED PAR

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

PAR INCORPORATION PLAN

This revision incorporates intent of Par Change 940254.

E-PAR {P1} This par adds step for removal of the system solenoid by a (TM) written in Safety Evaluation # S-98-026. This par also adds steps for simultaneous verification of steps involving configuration management

UNIT ONE



PROCEDURE WRITER: **SHELBY POOLE**

VALIDATOR:

APPROVAL:

PROCEDURE CHANGE - SEE ATTACHED PAR _____

DATE: _____

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Specification 3.21.A.7.
- 1.2 This procedure shall be performed semi-annual in accordance with the frequency specified in Technical Specification 4.18.E.1.b.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

2.2.1 Technical Specification 3.21.A.7

2.2.2 Technical Specification 4.18.E.1.b

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.3.3 {P1} Safety Evaluation No. S-98-026

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Init Verif

3.0 INITIAL CONDITIONS

IB

3.1 {P1} Notify the Operations shift supervisor that the system will be inoperable.

IB

3.2 {P1} The units may be in any mode.

X
SS

3.3 {P1} Notify the Operations Shift Supervisor that the Temporary Modification (TM) will perform the following. (Ref.2.3.3)

- {P1} Remove solenoid valve from all pilot valves.
- {P1} Remove the discharge piping from all suppression cylinders.

IB

3.4 {P1} Advise the Operations Shift Supervisor that a continuous fire watch will be established in the affected area and that the Operations Shift Supervisor will be notified when the system is inoperable

IB

3.5 {P1} Advise Operations Shift Supervisor that system activation alarms will occur during testing.

IB

3.6 {P1} Advise Operations Shift Supervisor when the system is operational and ask to release the fire watch.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical Specifications.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 ~~{P1}Self-calibrating-calimeter or~~ Calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

6.1.1 ~~{P1} Check type of test equipment to be used for determining cylinder weight.~~
(v)

~~————— Currently Calibrated Scales ————— Self Calibrating Calimeter~~

B
6.1.1 {P1} Record the SQC numbers for the SQC items that are used.

SQC No. 5517

SQC No. 1400 A

B
6.1.2 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

B
6.1.3 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. [Reference 2.4.1]

B

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

B

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

B

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

B

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = _____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A

6.2.5 **IF** any cylinder has a difference in As Found and Allowable Pressure > 10%, **THEN** replace with tested spare cylinder **AND** record replacement information in Comments, Step 7.3. **IF** no cylinders are replaced, **THEN** enter N/A for this step.

IB

6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

N/A

6.3.1 {P1} ~~IF scales are being used to determine cylinder weight, THEN~~ Perform the following for each cylinder listed in Attachment 1. ~~IF calimeter is being used to determine weight, THEN~~ enter N/A for this step.

DW IB

- {P1} (TM) Disconnect the solenoid valve from each pilot cylinder.
[Ref.2.3.3]

DW IB

- {P1} (TM) Disconnect flexible tubing and discharge piping at cylinder.
[Ref.2.3.3]

- Remove cylinder and place on scales.

IB

6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

FB

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

NA

6.3.4 ~~IF~~ any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. ~~IF~~ no cylinders are replaced, THEN enter N/A for this step.

DW

6.3.5 Record test results on Attachment 3 for each cylinder tested.

DW

6.3.6 ~~IF scales were used to determine cylinder weight, THEN~~ Perform the following. ~~IF calimeter was used, THEN~~ enter N/A for this step:

DW FB

- Reinstall cylinder.

DW FB

- {P1} (TM) Reconnect flexible tubing and discharge piping.
[Ref.2.3.3]

DW FB

- c. {P1} Insure the soleniod is not energized.

DW FB

- {P1} (TM) Reconnect solenoid valve for each pilot cylinder.
[Ref.2.3.3]

SS

6.3.7 {P1} Notify the Operations Shift Supervisor that the Temporary Modification (TM) has been removed from the Unit One Emergency Switchgear Halon System. (Ref.2.3.3)

FB

6.3.8 {P1} Release the fire watch.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

B

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10% between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

IB

7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

IB

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

B

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<u>B</u>	HENRY BURBRIDGE
<u>DDW</u>	DOUGLAS D. WILLIAMS

Comments: _____

Completed by: Henry Burbridge Date: 4/29
Time: 1314

7.4 Review

Comments: _____

Reviewed by: Robert L. L. Date: 4-30-98
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: Thomas L. Lanning Date: 5/5/98
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 80 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0974	400	393	353.7	SAT
0619	420	393	353.7	SAT
0741	390	393	353.7	SAT
0143	400	393	353.7	SAT
0977	380	393	353.7	SAT
14898	410	393	353.7	SAT
0866	420	393	353.7	SAT
0931	390	393	353.7	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0882	340	393	353.7	UNSAT
0796	470	393	353.7	SAT
0888	360	393	353.7	SAT
0812	400	393	353.7	SAT
0845	380	393	353.7	SAT

COMPLETED BY
 DATE: 4/29/98

Henry Burbridge

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0974	613	582	609	SAT
0619	599	569	599	SAT
0741	603	573	602	SAT
0143	526	500	522	SAT
0977	612	581	583	SAT
14898	611.5	581	619	SAT
0866	517	495	512	SAT
0931	506	481	499	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0882	509.5	484	505	SAT
0796	605	575	607.5	SAT
0888	611	580	608	SAT
0812	595.5	566	597	SAT
0845	600	570	629	SAT

COMPLETED BY: Henry Burbridge

DATE: 4/29/98

ATTACHMENT 4

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

11/18/97



SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
2

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
MAY 31 1994

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

PAR INCORPORATION PLAN

This revision incorporates intent of Par Change 940254.

Appendix **R**

ENTERED BY
MAY 1994
LSR

PROCEDURE WRITER: **SHELBY POOLE** | VALIDATOR: **N/A**

RECOMMENDED APPROVAL:
Shelby Poole

DATE: **5/27/94**

APPROVAL:
Tom Halcomb **J.A. Price**

DATE: **MAY 31 1994**

STA-94-041

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Specification 3.21.A.7.
- 1.2 This procedure shall be performed semi-annual in accordance with the frequency specified in Technical Specification 4.18.E.1.b.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

2.2.1 Technical Specification 3.21.A.7

2.2.2 Technical Specification 4.18.E.1.b

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Init Verif

3.0 INITIAL CONDITIONS

- TS
- 3.1 Notify the Shift Supervisor before beginning test.
- TS
- 3.2 Review Technical Specification Section 3.21 for LCO applicability and VPAP-2401 for compensatory measures.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical Specifications.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Self calibrating calimeter or calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

BS
6.1.1 Check type of test equipment to be used for determining cylinder weight. (√)

Currently Calibrated Scales Self Calibrating Calimeter

BS
6.1.2 IF temperature measuring device is being used to determine ambient room temperature, THEN record SQC Number. IF temperature measuring device is NOT being used, THEN enter N/A for this step.

SQC No. 1401A

BS
6.1.3 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

BS
6.1.4 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. [Reference 2.4.1]

~~13~~
6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

~~13~~
6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

~~13~~
6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

~~13~~
6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = ____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

~~13~~
6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

TB
6.2.6 Record test results on Attachment 1 for each cylinder tested.

6.3 Cylinder Weight Test

TB
6.3.1 IF scales are being used to determine cylinder weight, THEN perform the following for each cylinder listed in Attachment 1. IF calimeter is being used to determine weight, THEN enter N/A for this step.

- Disconnect the solenoid valve from each pilot cylinder.
- Disconnect flexible tubing and discharge piping at cylinder.
- Remove cylinder and place on scales.

TB
6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

IB

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

N/A

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

IB

6.3.5 Record test results on Attachment 3 for each cylinder tested.

IB

6.3.6 IF scales were used to determine cylinder weight, THEN perform the following. IF calimeter was used, THEN enter N/A for this step.

AW IB

- Reinstall cylinder.

AW IB

- Reconnect flexible tubing and discharge piping.

AW IB

- Reconnect solenoid valve for each pilot cylinder.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

IB

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10% between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

7.1.2 Document the test results. (√)

Satisfactory ___ Unsatisfactory

IB

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

IB

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

a. Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.

N/A

b. Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.

N/A

c. Notify System Engineer of unsatisfactory condition.

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

HB

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
HB	HENRY BURBRIDGE
DDW	DOUGLAS D. WILLIAMS

Comments: _____

Completed by: Henry Burbridge Date: 11/18/97
Time: 1915

7.4 Review

Comments: _____

Reviewed by: [Signature] Date: 11-19-97
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: _____ **Engineering Review
Not Required** Date: _____
System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 83/85 °F _____ °C (STEP 6.2.2)

83°

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0974	420	403.8	363.42	SAT
0619	440	403.8	363.42	SAT
0741	400	403.8	363.42	SAT
0143	420	403.8	363.42	SAT
0977	400	403.8	363.42	SAT
14898	420	403.8	363.42	SAT
0866	440	403.8	363.42	SAT
0931	400	403.8	363.42	SAT
		403.8	363.42	
		403.8	363.42	

SPARE CYLINDERS

85°

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0845	380	411	369.9	SAT
0849	380	411	369.9	SAT
0812	420	411	369.9	SAT
0888	380	411	369.9	SAT
0796	500	411	369.9	SAT
0882	380	411	369.9	SAT

COMPLETED BY: Henry Burbridge

DATE: 11/18/97

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0974	613	582	614 ^W	SAT
0619	599	569	602 ^W	SAT
0741	603	573	605 ^W	SAT
0143	526	500	522 ^W	SAT
0977	612	581	584 ^B	SAT
14898	611.5	581	620 ^B	SAT
0866	517	491	515 ^W	SAT
0931	506	481	491 ^W	SAT

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0845	600	570	^B 622	SAT
0849	602.5	572	^B 556	UNSAT
0812	595.5	566	^B 591	SAT
0848	611	580	^B 605	SAT
0796	605	575	^B 602	SAT
0882	509.5	484	^W 501.5	SAT

COMPLETED BY: Henry Burbridge

DATE: 11/18/97

ATTACHMENT 4

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
✓0796	335	266	605	575
√0812	335	256	595.5	566
0828	335	267	606	576
✓0845	335	260	600	570
√0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
√0876	240	264	506	480
√0882	240	268	509.5	484
√0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570

5/16/97



SURRY POWER STATION

PROCEDURE NO:
1-LPT-FP-018

REVISION NO:
2

PROCEDURE TYPE:
LOSS PREVENTION PERIODIC TEST

UNIT NO:
1

PROCEDURE TITLE:
**EMERGENCY SWITCHGEAR ROOM HALON SYSTEM
CYLINDER PRESSURE AND WEIGHT TEST**

EFFECTIVE DATE:
MAY 31 1994

EXPIRATION DATE:
(Temporary Procedures Only)
N/A

REVISION SUMMARY:

PAR-INCORPORATION PLAN

This revision incorporates intent of Par Change 940254.

Appendix **R**

ENTERED BY
MAY 1 1994
LSR

PROCEDURE WRITER: **SHELBY POOLE** | VALIDATOR: **N/A**

RECOMMENDED APPROVAL:
Shelby Poole

DATE: **5/27/94**

APPROVAL:
Tom Helms **J.A. Price**

DATE: **MAY 31 1994**

STA-94-041

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1.0 PURPOSE

- 1.1 To provide instructions for testing the Emergency Switchgear Room Halon System cylinder pressure and weight in accordance with Technical Specification 3.21.A.7.
- 1.2 This procedure shall be performed semi-annual in accordance with the frequency specified in Technical Specification 4.18.E.1.b.

2.0 REFERENCES

2.1 Source Documents

2.1.1 10 CFR 50, Appendix R, Part E

2.1.2 UFSAR 9.10.4

2.2 Technical Specifications Surry Power Station Units 1 and 2

2.2.1 Technical Specification 3.21.A.7

2.2.2 Technical Specification 4.18.E.1.b

2.3 Technical References

2.3.1 VPAP-2401, Fire Protection Program

2.3.2 NFPA 12A, Halon 1301 Fire Extinguishing Systems

2.4 Commitment Documents

2.4.1 QA Audit 92-05-0BS02N

Init Verif

3.0 INITIAL CONDITIONS

- IB
- IB
- 3.1 Notify the Shift Supervisor before beginning test.
 - 3.2 Review Technical Specification Section 3.21 for LCO applicability and VPAP-2401 for compensatory measures.

4.0 PRECAUTIONS AND LIMITATIONS

NOTE: The Operations Shift Supervisor is responsible for evaluating the Emergency Switchgear Room Halon System for continued operability in accordance with VPAP-2401 and for possible LCO in accordance with applicable Technical Specifications.

- 4.1 If the Halon System is found to be inoperable, the Operations Shift Supervisor must be notified immediately.
- 4.2 Performance of this procedure could result in the accidental release of Halon 1301 gas.
- 4.3 The initials identification block in Subsection 7.3 must be completed before the procedure is closed out.

5.0 SPECIAL TOOLS AND EQUIPMENT

- 5.1 Self calibrating calimeter or calibrated scales
- 5.2 Temperature Measuring Device

6.0 INSTRUCTIONS

6.1 Pre-Work Instructions

IB
6.1.1 Check type of test equipment to be used for determining cylinder weight. (v)

Currently Calibrated Scales Self Calibrating Calimeter

IB
6.1.2 IF temperature measuring device is being used to determine ambient room temperature, THEN record SQC Number. IF temperature measuring device is NOT being used, THEN enter N/A for this step.

SQC No. 1472A

IB
6.1.3 Fill out the M&TE Usage Log for all issued test equipment used in performance of this procedure.

IB
6.1.4 Establish fire watch for Emergency Switchgear Room.

6.2 Cylinder Pressure Test

NOTE: When taking the As Found Gauge Pressure reading, the reading should be taken at the trailing edge of the indicator. This will result in a conservative reading (10-15 psi) from the center of the indicator. [Reference 2.4.1]

IB

6.2.1 Record the following information on Attachment 1 for each cylinder to be tested:

- Serial Number
- As Found Pressure

IB

6.2.2 Measure the Ambient Room Temperature and record on Attachment 1.

NOTE: Gauge Pressure equals Storage Pressure.

IB

6.2.3 For each cylinder, determine the Gauge Pressure Value from Attachment 2, Storage Pressure Chart, that corresponds to the Ambient Room Temperature recorded on Attachment 1. Interpolate for temperatures that do not match chart values.

IB

6.2.4 Calculate the Allowable Pressure in accordance with following formula provided below. Record Allowable Pressure at this step and on Attachment 1 for each cylinder.

$$\text{Allowable Pressure} = (\text{Gauge Pressure Value} \times 0.9) = (_ \times 0.9) = _____ \text{psig}$$

NOTE: A tested cylinder shall be considered satisfactory if the difference between the As Found and Allowable Pressure is equal to or less than 10%.

N/A

6.2.5 IF any cylinder has a difference in As Found and Allowable Pressure > 10%, THEN replace with tested spare cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

JB
6.2.6 Record test results on Attachment 1 for each cylinder tested.

JB
6.3 Cylinder Weight Test

6.3.1 IF scales are being used to determine cylinder weight, THEN perform the following for each cylinder listed in Attachment 1. IF calimeter is being used to determine weight, THEN enter N/A for this step.

- Disconnect the solenoid valve from each pilot cylinder.
- Disconnect flexible tubing and discharge piping at cylinder.
- Remove cylinder and place on scales.

JB
6.3.2 Record on Attachment 3 the following information for each cylinder to be weighed.

- Serial Number
- The Full Weight from Attachment 4
- The Recharge Weight from Attachment 4

IB

6.3.3 Determine weight of cylinders. Initial each cylinder weight, and record results of As Found Weight on Attachment 3 and on card attached to each cylinder.

N/A

6.3.4 IF any cylinder As Found Weight is NOT above Recharge Weight, THEN replace with spare full weight cylinder AND record replacement information in Comments, Step 7.3. IF no cylinders are replaced, THEN enter N/A for this step.

IB

6.3.5 Record test results on Attachment 3 for each cylinder tested.

IB

6.3.6 IF scales were used to determine cylinder weight, THEN perform the following. IF calimeter was used, THEN enter N/A for this step.

Q IB

- Reinstall cylinder.

Q IB

- Reconnect flexible tubing and discharge piping.

Q IB

- Reconnect solenoid valve for each pilot cylinder.

7.0 FOLLOW-ON

7.1 Acceptance Criteria

IB

7.1.1 Evaluate the test results by reviewing the following Acceptance Criteria. (√)

- All cylinders tested have a pressure difference of less than or equal to 10% between As Found Pressure and Allowable Pressure or were replaced with a spare cylinder maintaining satisfactory pressure.
- All cylinders tested weighed greater than or equal to 95 % of full weight or were replaced with a spare cylinder having satisfactory weight.

IB

7.1.2 Document the test results. (√)

Satisfactory Unsatisfactory

7.2 Follow-On Tasks

N/A

7.2.1 IF vendor scales used, THEN attach vendor certificate of calibration for scales to procedure. Otherwise, enter N/A for this step

IB

7.2.2 IF the test was satisfactory, THEN discontinue fire watch for Emergency Switchgear Room and enter N/A for the following substeps. IF the test was unsatisfactory, THEN enter N/A for this step and perform the following.

N/A

- Verify Shift Supervisor has been notified that possible LCO condition may exist and that compensatory measures may be required in accordance with VPAP-2401.
- Notify Supervisor Safety/Loss Prevention or designee of the unsatisfactory condition.
- Notify System Engineer of unsatisfactory condition.

N/A

N/A

N/A

d. Initiate a Deviation Report and record the number below.

DR Number: _____

N/A

e. Initiate a Work Request and record the number below.

WR Number: _____

7.3 Notification, Documentation, and Procedure Closeout

B

7.3.1 Notify the Shift Supervisor that the test is complete.

The Initials in this procedure will be identified by the Printed Name.

Initials	Printed Name
<u>B</u>	HENRY BURBRIDGE
<u>W</u>	LARRY E. WALKER

Comments: _____

Completed by: Henry Berbridge Date: 5/16/97
Time: 0950

7.4 Review

Comments: _____

Reviewed by: Robt S. L. Date: 5-19-97
Supervisor Safety/Loss Prevention or Designee

Forward original procedure to Engineering Testing.

Comments: _____

Reviewed by: _____ Date: _____

System Engineer

ATTACHMENT 1

(Page 1 of 1)

HALON SYSTEM CYLINDER PRESSURE DATA SHEET

AMBIENT ROOM TEMPERATURE 80 °F _____ °C (STEP 6.2.2)

SYSTEM CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0931	410	393	353.7	SAT
0866	440	393	353.7	SAT
0143	420	393	353.7	SAT
0977	420	393	353.7	SAT
0974	430	393	353.7	SAT
0619	440	393	353.7	SAT
0741	410	393	353.7	SAT
14898	420	393	353.7	SAT

SPARE CYLINDERS

Serial Number (STEP 6.2.1)	As Found Pressure (STEP 6.2.1)	Gauge Pressure (STEP 6.2.3)	Allowable Pressure (STEP 6.2.4)	Test Results Sat/Unsat (STEP 6.2.6)
0845	400	393	353.7	SAT
0849	480	393	353.7	SAT
0812	420	393	353.7	SAT
0888	380	393	353.7	SAT
0996	480	393	353.7	SAT
0882	380	393	353.7	SAT

COMPLETED BY: Henry Burbidge
 DATE: 5/16/97

ATTACHMENT 2

(Page 1 of 1)

HALON SYSTEM CYLINDER STORAGE PRESSURE CHART

TEMPERATURE °F (C)	GAUGE PRESSURE (PSIG)
-20 (-29.0)	167
-10 (-23.0)	181
0 (-17.7)	196
+10 (-12.2)	213
+20 (-6.6)	232
+30 (-1.1)	253
+40 (4.4)	277
+50 (9.9)	302
+60 (15.6)	330
+70 (21.0)	360
+80 (26.8)	393
+90 (32.1)	429
+100 (37.7)	468
+110 (43.0)	510
+120 (49.0)	556
+130 (54.0)	606

ATTACHMENT 3

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT DATA SHEET

SYSTEM CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0931	506	481	495	SAT
0866	517	491	511	Sat
0143	526	500	520	SAT
14898	611.5	581	619.5	SAT
0977	612	581	591.5	Sat
0974	613	582	612	SAT
0619	599	569	596	SAT
0741	603	573	600.5	Sat

0952.7

SPARE CYLINDERS

Serial Number (STEP 6.3.2)	Full Weight (STEP 6.3.2)	Recharge Weight (STEP 6.3.2)	As Found Weight (STEP 6.3.3)	Test Results Sat/Unsat (STEP 6.3.5)
0845	600	570	625	SAT
0849	602.5	572	607	SAT
0812	595.5	566	596.5	SAT
0888	611	580	608.5	SAT
0796	605	575	608.5	SAT
0882	509.5	484	509	SAT

COMPLETED BY: Henry Burbridge

DATE: 5/16/92

ATTACHMENT 4

(Page 1 of 1)

HALON SYSTEM CYLINDER WEIGHT CHART

SERIAL NUMBER	HALON WEIGHT	EMPTY WEIGHT	FULL WEIGHT	RECHARGE WEIGHT
0143	240	281	526	500
0619	335	260	599	569
0741	335	264.5	603	573
0796	335	266	605	575
0812	335	256	595.5	566
0828	335	267	606	576
0845	335	260	600	570
0849	335	263	602.5	572
0856	240	273.5	514	488
0865	335	273.5	612	581
0866	240	272	517	491
0873	335	272	612	581
0876	240	264	506	480
0882	240	268	509.5	484
0888	335	265	611	580
0899	335	261	601	571
0919	335	264	603.5	573
0925	335	261.5	600.5	570
0931	240	262	506	481
0944	240	273	513	487
0945	240	284	526	500
0952	335	272	611.5	581
0966	335	273.5	613	582
0974	335	274	613	582
0977	335	273	612	581
0981	335	261.5	600.5	570