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ENGINEERING DATA TRANSMITTAL

Page 1 of 1
1. EDT 626604

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5. Proj./Prog./Dept./Div.: ESPC 291-Z	6. Design Authority/Design Agent/Cog. Engr.: G. R. Silvan	7. Purchase Order No.: N/A
8. Originator Remarks: A USQ is not required for the test procedure since the test is done off-line at MO-016. A USQ will be issued with the software ECN at the completion of the test.		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: 93/2721-Z
		12. Major Assem. Dwg. No.: N/A
11. Receiver Remarks:		13. Permit/Permit Application No.: N/A
11A. Design Baseline Document? ☐ Yes ☒ No		14. Required Response Date: 3/10/99

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	HNF-4108		0	Acceptance Test Procedure	SQ	2	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D OR N/A (See WHC-CM-3-S, Sec. 12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	I	Design Authority	<i>GR Silvan</i>	3-2-99	74-20	1	I	Elec. Cog.	<i>GR Silvan</i>	3/3/99	74-20
1	I	Design Agent	<i>GR Silvan</i>	3-2-99	74-20	1	I	HVAC Cog.	<i>GR Silvan</i>	3/3/99	74-20
1	I	Cog. Eng.	<i>GR Silvan</i>	3-2-99	74-20						
1	I	Cog. Mgr.	<i>GR Silvan</i>	3-3-99	74-20						
1	I	QA	<i>GR Silvan</i>	3-03-99	74-15						
1	I	Safety	<i>GR Silvan</i>	3-03-99	75-11						
		Env.									

18. Signature of EDT Originator <i>GR Silvan</i> Date 3-2-99	19. Authorized Representative for Receiving Organization <i>GR Silvan</i> Date 3-2-99	20. Design Authority/Cognizant Manager <i>GR Silvan</i> Date 3/3/99	21. DOE APPROVAL (if required) Ctrl No. N/A ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
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Acceptance Test Procedure MICON Software Exhaust Fan Control Modifications

G. R. Silvan

Babcock & Wilcox Hanford Company, Richland, WA 99352
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Abstract: This acceptance test verifies the MICON program changes for the new automatic transfer switch ATS-2 alarms, the Closed Loop Cooling isolator status, the CB-3 position alarm, and the alarms for the new emergency fan damper backup air compressor.

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Release Approval

3/8/99
Date

Approved for Public Release

Acceptance Test Procedure
MICON Software
Exhaust Fan Control

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Acceptance Test Procedure
MICON Software
Exhaust Fan Control

1. GENERAL

1.1 Scope

This test procedure specifies instructions for acceptance testing of software modifications for alarm changes and additions to the exhaust fan control under Project ESPC (Energy Savings Performance Contract). The software controls the operation of two emergency exhaust fans when there is a power failure.

1.2 References

Drawings

400474-101 Rev. A - "RVSS Wiring Diagram 9ITE W/CPT NEMA 12 w/Isolation"

Engineering Change Notices (ECN)

ESPC-643006

Prior to final test approval, enter below ECNs written against this ATP.

1.3 Responsibilities

1.3.1 General

Each company or organization participating in this ATP will designate personnel to assume the responsibilities and duties as defined herein for their respective roles. The designees shall become familiar with this ATP and the systems involved to the extent that they can perform their assigned duties.

1.3.2 Test Director (PFP Electrical Power and Control Cognizant Engineer or MICON Cognizant Engineer)

Coordinates and directs acceptance testing.

Initials each test section as it is completed.

Initiates ECNs to document required changes to the ATP.

Reviews recorded data, discrepancies, and exceptions.

Obtains information or changes necessary to clear or resolve objections during the performance of the test.

Signs Test Approval page when test has been performed.

Obtains required signatures on the ATP Master prior to reproduction and distribution.

1.3.3 WITNESSES (Provided by Participating Organizations. One witness shall be a QC inspector.)

Witness the tests.

Review results of testing.

Assist the Test Director when requested.

1.4 Software Requirements

The following software changes shall be verified during this test:

1. Both the ATS-2 Start Call and ATS-2 Emergency Power Bypass inputs shall cause alarms and command the generators to start.
2. The ATS-2 Normal Power Bypass, Lo Damper Air Pressure, and CB-3 Closed inputs shall cause alarms.
3. The Load Isolator Status input shall cause a status change on the generator display.
4. The CB-3 Open/Closed outputs have been disabled.
5. The generator sequence does not reset to 123 whenever the lamp test button is pushed.

1.5 Test Conditions and Equipment Required

Supplied by Test Operator unless otherwise noted.

There will be one analog and one digital test box to simulate inputs to the MICON controller cards in order to test and verify the MICON logic.

1.6 Change Control

Technical changes to this test procedure shall be authorized by an ECN. Technical changes shall be signed by the Cognizant Engineer and the QA Engineer or his representative. Record these changes on the exception sheet in Section 3 and section 1.2. Administrative changes, including order of turning on/off inputs or verifications, may be authorized by the Electrical Power and Control or MICON Cognizant Engineer and shall be recorded in black ink on the instruction page. Errors/exceptions in the ATP itself shall NOT be processed as test exceptions. Also, individual test sections may be done in any order at the Test Director's discretion.

1.7 Occupational Safety and Health

In order to accomplish the work in this ATP, it is necessary to have the equipment or circuit energized. Complete testing requires installation and removal of a 24 VDC test box.

1.8 Exceptions

Exceptions to the required test results shall be sequentially numbered and recorded on the exception forms.

Number each exception sequentially as it occurs and record it on the exception form.

Enter disposition to resolve each exception when such determination is made.

NOTE: Errors/exceptions in the ATP itself shall NOT be processed as test exceptions (see Section 1.6 CHANGE CONTROL). Also, individual test sections may be done in any order at the Test Director's discretion and this practice shall not be considered a test exception.

2. ACCEPTANCE TEST

2.1 Test Conditions

2.1.1 Test Terminology

Turn ON Move switch on test box from OFF (Open) position to ON (Closed) Position.

Turn OFF Move switch on test box from ON (Closed) position to OFF (Open) Position.

Verify ON Verify the output LED on the specified point is ON.

Verify OFF Verify the output LED on the specified point is OFF.

Verify alarm Verify alarm on DCS monitor.

Verify Indication Verify status or analog indication on DCS monitor.

Verify DCS Event Printed Verify event printed on DCS line printer.

Set analog Adjust knob on analog test box until desired value is obtained (values can be approximate at the Test Director's discretion)

2.1.2 Analog Test Box Connections

Connect the Analog Test Box to the following inputs with all inputs set to their normal values.

Input #	Description	Slot No.	Point No.
1	NP-VF1-3 Voltage	IV	1
16	NP-VF1-3 Frequency	III	1
26	Exhaust Plenum Pressure	III	11
27	Exhaust Plenum Pressure (redundant)	IV	15
28	Fuel Tank Level	IV	14

2.3 Re-test of ATS-2 Start Call (Partial)

Action	ATS-2	ATS-2 Bypass
Turn ON	Gen 1 Mode in Auto (2) Gen 2 Mode in Auto (8) Gen 3 Mode in Auto (14) ATS-2 Engine Start Call (5)	Gen 1 Mode in Auto (2) Gen 2 Mode in Auto (8) Gen 3 Mode in Auto (14) ATS-2 Emer Pwr Bypass (12)
Verify ON	Gen 1 Start (Slot I Point 4) Gen 2 Start (Slot II Point 4) Gen 3 Start (Slot III Point 4)	Gen 1 Start (Slot I Point 4) Gen 2 Start (Slot II Point 4) Gen 3 Start (Slot III Point 4)
Verify alarm and DCS event printed	ATS-2 Normal Power Fail	ATS-2 Emergency Power Bypass
Turn ON	Gen 1 Running (3)	Gen 2 Running (9)
Verify a 0.2 second pulse repeating every 12 sec	Gen 1 Sync Aux (Slot I Point 7)	Gen 2 Sync Aux (Slot II Point 7)
Turn ON	Gen 1 On Line (4)	Gen 2 On Line (10)
Verify OFF	CB-3 Close (Slot II Point 11)	CB-3 Close (Slot II Point 11)
Verify pulse stops	Gen 1 Sync Aux (Slot I Point 7)	Gen 2 Sync Aux (Slot II Point 7)
Verify ON	Generator On Line (Slot I Point 17)	Generator On Line (Slot I Point 17)
Wait 30 sec		
Verify alarm and DCS event printed	"ATS-2 failed to transfer"	"ATS-2 failed to transfer"
Turn ON	CB-3 Closed (11)	CB-3 Closed (11)
Turn OFF	Gen 1 On Line (4)	Gen 2 On Line (10)
Verify OFF	CB-3 Open (Slot II Point 12)	CB-3 Open (Slot II Point 12)
Test Successful		

2.4 Test Alarms

Action	Alarm
Turn ON	ATS-2 Normal Power Bypass (18)
Verify alarm and DCS event printed	ATS-2 Normal Power Bypass
Turn OFF	ATS-2 Normal Power Bypass (18)
Verify alarm cleared	ATS-2 Normal Power Bypass
Turn ON	Damper Air Low Pressure (19)
Verify alarm cleared	Damper Air Low Pressure
Turn OFF	Damper Air Low Pressure (19)
Verify alarm and DCS event printed	Damper Air Low Pressure
Turn ON	CB-3 Closed (11)
Verify alarm cleared	CB-3 Open No Emergency Power to Fans
Turn OFF	CB-3 Closed (11)
Verify alarm and DCS event printed	CB-3 Open No Emergency Power to Fans
Turn ON	CLC Load Isolator Status (17)
Verify Closed	CLC isolation contact display
Turn OFF	CLC Load Isolator Status (17)
Verify Open	CLC isolation contact display
Test Successful	

2.5 Test Generator Sequence Selection

Action	Generator Sequence
Turn ON for two seconds, then turn OFF	123 Sequence (20)
Verify ON	123 Sequence Light (Slot I, Point 3)
Verify OFF	231 Sequence Light (Slot II, Point 3) 312 Sequence Light (Slot III, Point 3)
Turn for five seconds, then turn OFF	Lamp Test (23)
Verify ON	123 Sequence Light (Slot I, Point 3)
Verify OFF	231 Sequence Light (Slot II, Point 3) 312 Sequence Light (Slot III, Point 3)
Turn ON for two seconds, then turn OFF	231 Sequence (21)
Verify ON	231 Sequence Light (Slot II, Point 3)
Verify OFF	123 Sequence Light (Slot I, Point 3) 312 Sequence Light (Slot III, Point 3)
Turn ON for five seconds, then turn OFF	Lamp Test (23)
Verify ON	231 Sequence Light (Slot II, Point 3)
Verify OFF	123 Sequence Light (Slot I, Point 3) 312 Sequence Light (Slot III, Point 3)
Turn ON for two seconds, then turn OFF	312 Sequence (22)
Verify ON	312 Sequence Light (Slot III, Point 3)
Verify OFF	123 Sequence Light (Slot I, Point 3) 231 Sequence Light (Slot II, Point 3)
Turn ON for five seconds, then turn OFF	Lamp Test (23)
Verify ON	312 Sequence Light (Slot III, Point 3)
Verify OFF	123 Sequence Light (Slot I, Point 3) 231 Sequence Light (Slot II, Point 3)
Test Successful	

5. TEST APPROVAL

Without
exceptions _____

With exceptions
resolved _____

With exceptions
outstanding _____

PFP Electrical Cognizant Engineer Date

MICON Cognizant Engineer Date

QC Inspector Date

[illegible]