

# Exelon Nuclear

## Job Performance Measure

### **Locally Start-Up a Diesel Generator With a Failure of the Vent Fan to Start**

JPM Number: 2014 ILT NRC JPM i

Revision Number: 00

Date: 10/18/2013

Developed By: \_\_\_\_\_  
Instructor Date

Validated By: \_\_\_\_\_  
SME or Instructor Date

Reviewed By: \_\_\_\_\_  
Operations Representative Date

Approved By: \_\_\_\_\_  
Training Department Date

## JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation.  
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

- \_\_\_\_\_ 1. Task description and number, JPM description and number are identified.
- \_\_\_\_\_ 2. Knowledge and Abilities (K/A) references are included.
- \_\_\_\_\_ 3. Performance location specified. (in-plant, control room, simulator, or other)
- \_\_\_\_\_ 4. Initial setup conditions are identified.
- \_\_\_\_\_ 5. Initiating cue (and terminating cue if required) are properly identified.
- \_\_\_\_\_ 6. Task standards identified and verified by SME review.
- \_\_\_\_\_ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- \_\_\_\_\_ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- \_\_\_\_\_ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:  
     Procedure QCOP 6600-11 Rev: 29  
     Procedure QCOA 6600-08 Rev: 11  
     Procedure QCOA 6600-06 Rev: 10
- \_\_\_\_\_ 10. Verify cues both verbal and visual are free of conflict.
- \_\_\_\_\_ 11. Verify performance time is accurate
- \_\_\_\_\_ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

## **Revision Record (Summary)**

**Revision 00**, renamed to 2014 ILT NRC JPM i. Restarted numbering accordingly.

### **Previous revisions were**

**Revision 10**, This JPM is developed IAW guidelines established in NUREG 1021 Rev 8 ES-301 and Appendix C. This JPM meets the criteria of Category B.2 "In-Plant Systems," for RO/SRO candidates.

JPM revised to match procedure revision.

**Revision 11**, JPM revised to match procedure revision.

**Revision 12**, JPM revised to match procedure revision.

**Revision 13**, JPM revised to match procedure revision.

**Revision 14**, JPM revised to update expected completion time based upon JPM usage.

**Revision 15**, JPM revised to match procedure revision.

**Revision 16**, JPM revised to match procedure revision.

**Revision 17**, JPM revised objective to allow flexibility to perform task on more than one diesel. Added note to instructor to verify the operator dons double hearing protection.

**Revision 18**, JPM revised to match procedure revision.

**Revision 19**, Revised Evaluator cues and notes.

### INITIAL CONDITIONS

- A loss of off-site power has occurred on Unit 1. The U-1(U1/2) Diesel failed to start.
- A fire in the plant has damaged fire detection cabling associated with the U1(U1/2) Diesel Room as indicated by control room alarms.
- A manual start from the Control Room was attempted but was not successful due to a faulty control switch.
- QCOA 6600-01 has been entered and other operators are taking action directed by that procedure.
- U1(U1/2) Diesel Day Tank level is 90% and the storage tank level is 95%.
- Another operator is standing by at bus 14-1 (13-1) to assist.

### INITIATING CUE

The Unit Supervisor directs you to locally start the U-1(U1/2) Diesel Generator in accordance with QCOP 6600-11, to energize Bus 14-1(13-1) and ensure the U1(U1/2) Diesel is operating properly. Report to the US when Diesel Generator is ready to be loaded.

**{When candidate acknowledges the cue, provide the candidate with the procedure QCOP 6600-11}**

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

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### Information For Evaluator's Use:

UNSAT requires written comments on respective step.

- \* Denotes critical steps.
- Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

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JPM I QCOA



JPM I QCOA



JPM I QCOP

6600-06, Rev 010, 1(6600-08, Rev 011, U16600-11, Rev 029, D:

JPM Start Time: \_\_\_\_\_

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE:	If contacted at any time during execution of this task, report as NSO, that “Annunciator 901-8 G-8, DIESEL GEN 1 RELAY TRIP (901-5 G-5, DIESEL GEN ½ RELAY TRIP), is <u>NOT</u> alarming.				
F.1	Verify DG has <u>NOT</u> automatically started.	Confirms that EDG is NOT running (using lack of sound, lack of engine RPM, etc.)	—	—	—
NOTE: In the following step, the “MAINTENANCE SW” is labeled “SELECTOR SW”.					
F.2.	At Engine Mounted Control Panel, <b>verify</b> MAINTENANCE SW (toggle switch) is in REMOTE AUTO START position.	Verifies maint. switch in REMOTE AUTO START position ("up" position).	—	—	—
CUE:	Point to the maintenance switch up position and state, “This switch is here.”				
F.3.	Determine status of DG output breaker. a. DG 1: Bus 14-1 cubicle 10. c. DG 1/2: Bus 13-1 cubicle 1 <b>AND</b> Bus 23-1 cubicle 10.	Contacts control room OR dispatches EO to the one of the following:  DG 1: Bus 14-1 cubicle 10 DG ½: Bus 13-1 <u>AND</u> Bus 23-1	—	—	—
CUE:	When contacted, as NSO/EO, respond that the “DG output breaker is open” (or breakers are open)				
NOTE: F.4 is N/A based on the breaker(s) being open.					
NOTE: The governor is on the engine and out of reach without climbing on the machine. Therefore, the steps regarding governor switch positions cannot be demonstrated. The candidate should describe the pointer position and the reply cue will be that the pointer is in the position described by the candidate.					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
F.5.	<b>Verify</b> Governor Speed Droop set at 0 (upper left knob).	At governor, ensures “SPEED DROOP” knob set on “0” (upper left knob rotated fully counter-clockwise).	—	—	—
<b>CUE:</b>	<b>Point to governor and state the upper left knob is pointing at “0” (or as described by the student).</b>				
*F.6.	●At Panel 2251-10 (U-1 EDG) or 2212-45 (U-1/2 EDG) <b>isolate</b> DG controls by placing TRANSFER SWITCH to LOCAL.●	Positions “Transfer switch” to “LOCAL” at the 2251-10 (2212-45) panel.	—	—	—
<b>CUE:</b>	<b>Point to the local position on the transfer switch and state, “This switch is in this position.” Point to annunciator C-1 on the 2251-10(2212-45) panel and state, “This annunciator is alarming.”</b>				
F.7.	<b>Notify</b> plant personnel of starting the engine.	Notifies the CR to announce the impending engine start, or uses page to announce it to the plant.	—	—	—
<b>CUE:</b>	<b>As appropriate state, “I understand you are about to start the U1(U1/2) EDG, I will make an announcement.” Or the announcement has been delivered to the plant via the page.</b>				
<b>NOTE: The candidate should indicate that they are wearing double hearing protection.</b>					
*F.8.	● <b>Depress</b> DG START pushbutton, located on Engine Mounted Control Panel.●	Depresses “DG START” pushbutton. (Engine Mounted Control Panel)	—	—	—
<b>CUE:</b>	<b>State the diesel is running.</b> <b>If the candidate asks the status of the output breaker, as the EO at the Bus, report that the output breaker has closed.</b> <b>If the candidate asks the status of the DGCWP, state the DGCWP red light is LIT.</b>				
<b>NOTE: Alternate path begins here.</b>					

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.9.	Verify DG Room Vent Fan automatically starts.	Observes fan red run light on 2251-37 (2212-50) panel is NOT lit  OR flow of air has not changed.	—	—	—
CUE:	As appropriate state, “Red light is out, green light is lit.” OR “Air flow has NOT changed.”				
CUE:	IF the candidate chooses to align the alternate power source to the Vent Fan by placing the VENT FAN SELECTOR SWITCH to ALT, then give the following cues: “The alternate power yellow light is LIT, the Vent Fan red light is OUT and green light is LIT. Air Flow has NOT changed.”				
EVALUATOR NOTE: Per the Initial Conditions, the operator should identify that the Vent Fan is locked out due to cable damage. The Fire Protection Bypass SW may be moved to Bypass per step E.3, OR QCOA 6600-08 (QCOA 6600-06). 4E-1350B sh 3 indicates that the fan will start after the selector switch is taken to “Bypass”.					
EVALUATOR NOTE: in the following steps, D.2.b steps are from QCOA 6600-06/08 while the E.3 step comes from QCOP 6600-11 (the original procedure). QCOP 6600-11 step E.3 directs referencing QCOA 6600-06 or -08, so the QCOA 6600-06 or -08 D.2 steps will be performed.					
D.2.b.(1)	Unlock and open Diesel Generator Room Vent fan key locked box.	Diesel Generator Room Vent fan box opened and unlocked.	—	—	—
CUE:	The examinee may either break the glass or go to the WEC and obtain the key from the Shift Manage Key Cabinet. If the latter is chosen, state “you have the key”.  Point to the EDG vent fan key lock box and state, “Box is open” or “the glass is broken” as appropriate.				
*D.2.b.(2) OR * Step E.3.	Place the D.G. 1 (1/2) VENT FAN FIRE PROTECTION BYPASS SWITCH in BYPASS position.	Position the D.G. 1 (1/2) Vent Fan Fire Prot. Bypass switch to Bypass (QCOA 6600-08, D.2.b., QCOA 6600-06, D.2.b., or QCOP 6600-11, E.3.).	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE:	Point to bypass switch and state, “This switch is in Bypass position and you feel additional air flow.” Point to the DG Fan on F.P. Bypass red light (above bypass switch) and state “this light is lit.”				
D.2.b.(3)	Close and lock Diesel Generator Room Vent fan box.	Diesel Generator Room Vent Fan box closed and locked.	—	—	—
CUE:	If applicable, state “the EDG vent fan lock box is closed and locked.”				
D.4.	Verify proper operation of associated dampers.	Observes louvers are open.	—	—	—
CUE:	Point to dampers and state, “These are open.”				
EVALUATOR NOTE: The remaining steps are from QCOP 6600-11 (the original procedure).					
F.10.	Verify DGCWP automatically starts.	Verifies DGCWP red run light lit (2251-37/2212-50 panel)  OR Verifies pressure on DG HX SW gauges.  OR Observes flow meter outside DG room > 900 gpm (FI 1-3941-26/FI 1½-3941-27).	—	—	—
CUE:	As appropriate state, “The DGCWP red light is lit” OR point to 50 psig on the Diesel heat exchanger pressure gauge and state, “Pressure is here” OR pointing at 950 gpm on flowmeter, “Gauge indicates here.”				
CUE:	At the 2251-10 (2212-45) panel, POINT to the following indications when the information is requested by the candidate.				



<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
F.11.	At Engine Mounted Control Panel, <b>adjust</b> DG Frequency to 60 Hz with engine governor switch by turning to RAISE or LOWER.	Checks DG frequency meter.	—	—	—
CUE:	Point to 60HZ on the gauge and state, “Frequency is here.”				
EVALUATOR NOTE: The EDG is shutdown with voltage as close as possible to 4200V					
F.12.	At Panel 2251-10 (U-1 EDG) or 2212-45 (U-1/2 EDG) <b>adjust</b> DG voltage to approximately 4160 Volts with VOLTAGE REGULATOR ADJUST by turning to RAISE or LOWER.	Checks DG Voltage meter. Candidate may lower voltage slightly to reach 4160V	—	—	—
CUE:	Point to 4200 on the gauge and state, “Voltage is here.”				
	Report DG status to CR.	Reports to CR to provide them with the current status of the DG.	—	—	—
CUE:	As Unit Supervisor state: Bus 14-1 (U-1 EDG) or Bus 13-1 (U-1/2 EDG) is energized and another operator will be dispatched to monitor voltage, frequency, and load.				
EVALUATOR: The candidate should inform you that the task is complete.					

JPM Stop Time: \_\_\_\_\_

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**JPM SUMMARY**

**Operator's Name:** \_\_\_\_\_ **Job Title:** ☐ EO ☐ RO ☐ SRO ☐ FS  
☐ STA/IA ☐ SRO Cert

JPM Title: Locally Start-Up a Diesel Generator With a Failure of the Vent Fan to Start

JPM Number: 2014 ILT NRC JPM i Revision Number: 00

Task Number and Title:

**SRN-6600-P04** (Freq: LIC=B NF=B) Given a condition where the 1/2 (U1) Emergency DG has failed to auto start, Bus 18 (19) is de-energized, and fire detection cable damage has locked out the 1/2 (U1) DG vent fan, locally start the 1/2 (U1) Emergency DG and energize Bus 13-1(14-1) in accordance with QCOP 6600-11, QCOA 6600-06 (QCOA 6600-08) and QOP 6500-10.

K/A Number and Importance: **K/A:** 264000 A2.08 **Rating:** 3.3/3.7

Ability to (a) predict the impacts of the following on the EMERGENCY GENERATORS (DIESEL/JET) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

Initiation of emergency generator room fire protection system

Suggested Testing Environment: Plant

Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCOP 6600-11, Rev. 29, DIESEL GENERATOR LOCAL OPERATION  
 QCOA 6600-08, Rev. 11, UNIT 1(2) DIESEL GENERATOR ROOM VENT FAN FAILURE  
 QCOA 6600-06, Rev. 10, ½ DIESEL GENERATOR ROOM VENT FAN FAILURE

**Actual Testing Environment:** ☐ Simulator ☐ Control Room ☒ In-Plant ☐ Other

**Testing Method:** ☒ Simulate ☐ Perform

Estimated Time to Complete: 20 minutes

**Actual Time Used:** \_\_\_\_\_ minutes

**EVALUATION SUMMARY:**

The task is successfully completed when the examinee locally starts the EDG and takes action to start the DG Vent Fan by placing the D.G. 1 (1/2) Vent Fan Fire Prot. Bypass switch to the Bypass position.

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

**Comments:** \_\_\_\_\_  
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**Evaluator's Name:** \_\_\_\_\_ (Print)

**Evaluator's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

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## **INITIAL CONDITIONS**

- A loss of off-site power has occurred on Unit 1. The U-1(U1/2) Diesel failed to start.
- A fire in the plant has damaged fire detection cabling associated with the U1(U1/2) Diesel Room as indicated by control room alarms.
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## **INITIATING CUE**

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