

Actions To Correct Emergency Generator Problems

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All hospitals, nursing homes, and ambulatory surgery centers in the State of Florida are required to have a Level 1 Emergency Power Supply System (EPSS). When a problem is discovered with the EPSS during routine maintenance check or actual power outage to the building, it will be necessary to follow these procedures. It is the intent of this guideline to aid facilities in taking corrective action when there are problems with the emergency generator. These guidelines are not all-inclusive of all possible conditions and requirements for AHCA approval but are meant to assist the facility managers in correcting a serious problem.

- 1) Determine if the generator is still sufficiently functional to meet demand during a power outage to the building. If it is determined the generator cannot function properly, the facility shall activate its emergency plan to compensate for a sudden power outage. If there is a power loss to the building while the generator is non-functional, basic life safety systems such as ventilators, fire alarm, egress lighting, and nurse call will be interrupted. Therefore the facility must activate its emergency management plan to provide alternate interim life safety measures during a power loss to the building without a functioning emergency generator.

The facility should immediately contact the Office of Plans and Construction and make arrangements for a temporary replacement generator to be connected and brought online with all necessary temporary connections required to fulfill the facility emergency requirements of a Level 1 Emergency Power Supply System (EPSS). The temporary generator need not meet all of the Level 1 requirements of a permanent installation and once installed and inspected by the Agency's electrical engineer surveyor, this generator can remain in use while the facility is preparing the design, submission, and installation of a new electrical generator.

However it must still meet the following items that will be checked by the Agency's surveyor.

- a) Is the temporary generator of an equal or higher capacity than the original generator?
- b) Is the temporary wiring protected by conduit or other means?

- c) Is the temporary wiring rated for the maximum generator output current?
 - d) Is an on-site fuel supply for 64 hours of operation available? If there is not a 64-hour fuel supply, is there a sensor alarm for a ½ full fuel tank and an agreement for 24-hour fuel delivery? Does the fuel tank meet safety requirements of NFPA 101 (Life Safety Code), NFPA 1 (Fire Prevention Code), NFPA 30 (Flammable and Combustive Liquids Code), NFPA 58 and 59A (Standard for Liquefied Natural Gas)?
 - e) Is the emergency battery lighting and life safety lighting installed at the temporary generator location?
 - f) Is the temporary generator and temporary wiring protected from traffic/public access?
 - g) Is the generator properly grounded?
 - h) Does the generator derangement panel show all the required safety indicators as required by NFPA 99 and indicated on Table 3-5.5.2 (d) of NFPA 110 (2013 edition) including overcrank, high engine temperature, low oil pressure, low fuel main tank, and etc or is there a 24-hour "generator watch" involving an hourly check of the temporary generator area including all gauges and alarms?
 - i) Will the Automatic Transfer Switch (ATS) properly start the temporary generator within 10 seconds?
 - j) Does the temporary generator produce the rated voltage @ 60 Hz.
 - k) Does the generator "kill" switch work properly?
 - l) Will the temporary generator be in use for more than 60 days? If it will be in use for more than 60 days, lightning protection shall be added to the generator case.
 - m) If the facility is located north of the "freeze line", is the temporary generator fitted with a block heater and a battery heater?
 - n) Is there a fire extinguisher at the temporary generator?
 - o) If there are locked doors enclosing the generator are multiple sets of keys located in areas accessible to only authorized personnel?
- 2) If the existing generator is still functional and currently able to meet demand but is not functioning within normal operating ranges, then contact the Office of Plans and Construction (OPC) to inform the office of the problem and the current status. A failure to quickly inform OPC of known essential electrical system problems that may place residents/patients at-risk could result in a finding of immediate jeopardy in the facility. If a replacement of the generator is necessary,

submission to OPC of drawings, documents, and work phases detailing the new work will be required.

- 3) During the plan review process for a planned generator replacement, OPC reviewers will check the submittals for the following items:
- a) Generator feeder overcurrent protection including temporary feeders and grounding connections.
 - b) Derangement panel with all annunciators for alarm/pre alarm conditions at a 24 hr. manned area
 - c) If the generator uses natural gas there should be automatic changeover to LP if that is the secondary fuel
 - d) If the generator is exterior it should be separated from the service transformer by at least 25 feet or a wall, also a minimum of five feet must be maintained from any opening of the building.
 - e) If the generator is located indoors, it shall be enclosed by a two-hour fire rated wall and disconnecting means shall be located outside of the room.
 - f) If remote cooling radiators are used, cooling tower fans, water pumps, and controls should be on the non-delayed equipment branch and not be part of load shedding
 - g) If the generators are used for peak shaving or base load, verify they will automatically switch to emergency service upon loss of normal power
 - h) Verify that no emergency circuits are used for other occupancies unless there are two or more generators
 - i) Verify fuel storage location for safety
 - j) Check overcurrent protection on coordination study for generator damage curve, decrement curve, and transfer switch damage curve including all events .03 seconds or longer.
 - k) Check that general task lighting, battery powered lighting, and convenience receptacles are connected to the life safety branch
 - l) Battery and block heaters with automatic disconnection are required by Section 3-3.1 of NFPA 110.
 - m) Elevation and fuel system details are in accordance with Section 5-9 of NFPA 110 and Section 5-5.2 of NFPA 37.
 - n) Fuel consumption calculations with regard to the low fuel sensor and minimum of 64 hours run time.
 - o) Require a certified factory test report and a load test at the site as required by Section 5-13 of NFPA 110
 - p) Grounding details
 - q) Ground fault sensing if required
 - r) Day tank high/low level alarm

- s) Hand pump if a day tank is utilized
 - b) Replacement and temporary generator full load capacity
 - t) Generator acceptance test requirements
 - u) Work phasing plan to minimize the emergency system down time during the temporary generator and feeder cutover period
- 4) If all that is required is a repair to the generator with no upgrade, the facility should write a letter to OPC describing the repair and scope of work. If the generator has not been replaced, OPC will indicate, by return letter, that no further review is required by the Agency. An on site survey may still be scheduled depending on the severity of the repairs.
- 5) During annual life safety surveys of the facility, surveyors will check the following regarding generator maintenance:
- a) Is the existing ATS system UL-rated and unmodified?
 - b) Is the existing wiring separated for normal and emergency power?
 - c) Has the existing generator log noted a monthly ATS exercise, yearly load test, and weekly battery inspection by a competent technician?
 - d) Has the power plant been checked regularly for oil and coolant?
 - e) Does the generator location have a required life safety receptacle?