

§ 193.2443 [Reserved]

§ 193.2445 Sources of power.

(a) Electrical control systems, means of communication, emergency lighting, and firefighting systems must have at least two sources of power which function so that failure of one source does not affect the capability of the other source.

(b) Where auxiliary generators are used as a second source of electrical power:

(1) They must be located apart or protected from components so that they are not unusable during a controllable emergency; and

(2) Fuel supply must be protected from hazards.

**Subpart F—Operations**

SOURCE: Amdt. 193-2, 45 FR 70405, Oct. 23, 1980, unless otherwise noted.

§ 193.2501 Scope.

This subpart prescribes requirements for the operation of LNG facilities.

§ 193.2503 Operating procedures.

Each operator shall follow one or more manuals of written procedures to provide safety in normal operation and in responding to an abnormal operation that would affect safety. The procedures must include provisions for:

(a) Monitoring components or buildings according to the requirements of § 193.2507.

(b) Startup and shutdown, including for initial startup, performance testing to demonstrate that components will operate satisfactory in service.

(c) Recognizing abnormal operating conditions.

(d) Purging and inerting components according to the requirements of § 193.2517.

(e) In the case of vaporization, maintaining the vaporization rate, temperature and pressure so that the resultant gas is within limits established for the vaporizer and the downstream piping;

(f) In the case of liquefaction, maintaining temperatures, pressures, pressure differentials and flow rates, as applicable, within their design limits for:

(1) Boilers;

(2) Turbines and other prime movers;

(3) Pumps, compressors, and expanders;

(4) Purification and regeneration equipment; and

(5) Equipment within cold boxes.

(g) Cooldown of components according to the requirements of § 193.2505; and

(h) Compliance with § 193.2805(b).

§ 193.2505 Cooldown.

(a) The cooldown of each system of components that is subjected to cryogenic temperatures must be limited to a rate and distribution pattern that keeps thermal stresses within design limits during the cooldown period, paying particular attention to the performance of expansion and contraction devices.

(b) After cooldown stabilization is reached, cryogenic piping systems must be checked for leaks in areas of flanges, valves, and seals.

§ 193.2507 Monitoring operations.

Each component in operation or building determined under § 193.2805(a)(2) in which a hazard to persons or property could exist must be monitored to detect fire or any malfunction or flammable fluid which could cause a hazardous condition. Monitoring must be accomplished by watching or listening from an attended control center for warning alarms, such as gas, temperature, pressure, vacuum, and flow alarms, or by conducting an inspection or test at intervals specified in the operating procedures.

§ 193.2509 Emergency procedures.

(a) Each operator shall determine the types and places of emergencies other than fires that may reasonably be expected to occur at an LNG plant due to operating malfunctions, structural collapse, personnel error, forces of nature, and activities adjacent to the plant.

(b) To adequately handle each type of emergency identified under paragraph (a) of this section and each fire emergency identified under § 193.2817(a), each operator shall follow one or more manuals of written procedures. The procedures must provide for the following: