

September 16, 1994

Mr. John J. Closner
Preload, Inc.
839 Stewart Avenue
Garden City, NY 11530

Dear Mr. Closner:

You have proposed a design loading for the outer wall of a double-wall prestressed concrete LNG storage tank where the outer wall is to serve as a dike. You asked whether the proposed loading would meet 49 CFR 193.2161(b) if the tank is to be constructed further than 6100 m from a runway serving large aircraft. Section 193.2161(b) provides that “an outer wall of a component served by an impounding system may not be used as a dike except for a concrete wall designed to comply with the requirements of § 193.2155(c) or equivalent design impact loading. Section § 193.2155(c) provides that “if an LNG storage tank is located within a horizontal distance of 6,100 m (20,000 ft) from the nearest point of the nearest runway serving large aircraft as defined in 14 CFR Part 1.1, a Class 1 impounding system must be used which is designed to withstand collision by, or explosion of, the heaviest aircraft which can take off or land at the airport.”

Since § 193.2155(c) does not apply, you have decided to use as an “equivalent design impact loading” the impact of a Cessna 150 airplane, traveling at a landing speed of 42 knots (71 ft/sec) and impacting on a 31.5-inch diameter circle (the engine diameter) with a weight of 550 pounds (engine plus fuselage). You said this impact would penetrate a 10-inch thick concrete wall about 2 inches, but would not perforate the wall. Because this proposed loading seems to be a reasonable approximation of an aircraft collision that might occur outside the domain of § 193.2155(c), we would have no objection to use of the loading to meet § 193.2161(b).

Sincerely,

Cesar De Leon
Deputy Associate Administrator for
Pipeline Safety