

PI-92-0105

July 2, 1992

INFORMATION: Section 192.187

Cesar De Leon, Director  
Pipeline Safety Regulatory Programs, DPS-1

Richard Sanders, Manager  
Pipeline Safety Division, DTI-60

By memo of June 17, 1992, you asked me to explain the difference between the sizes of areas for ventilation under paragraphs (a) and (c) of § 192.187. The difference is explained as follows: Ventilation under paragraph (a) is by means of two ducts that extend aboveground. Differential pressure forces vault gases through the ducts; so only small openings are needed for proper ventilation. Under paragraph (c), ventilation is by means of surface openings in the vault. This method requires a large open area, because ventilation is accomplished by dispersion, or mixing of vault gases with the air above the vault.

Memorandum

U.S. Department of Transportation  
Research and  
Special Programs Administration

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Subject: ACTION: Part 192.187, Vented Vaults

From: Richard Sanders  
Manager, Pipeline Safety Division, DTI-60

To: Cesar DeLeon  
Director, DPS-10

On April 20, 1992, Mr. Alex Dankanich of the Maryland Public Service Commission contacted Mr. Jack Edwards of our office to discuss a concern about the sizing requirements for vents on vaults per Part 192.187. The sections of concern are:

Part 192.187 Vaults: Sealing, venting and ventilation.

Each underground vault or closed top pit containing either a pressure regulating or reducing station, or a pressure limiting or relieving station, must be sealed, vented or ventilated, as follows:

- (a) When the internal volume exceeds 200 cubic feet:
  - (1) The vault or pit must be ventilated with two ducts, each having at least the ventilating effect of a pipe 4 inches in diameter.
- (b) When the internal volume is more than 75 cubic feet but less than 200 cubic feet:
  - (3) If the vault or pit is ventilated, paragraph (a) or (c) of this section applies.
- (c) If a vault or pit covered by paragraph (b) of this section is ventilated by openings in the covers or grating and the ratio of the internal volume, in cubic feet, to the effective ventilating area of the cover or grating, in square feet, is less than 20 to 1, no additional ventilation is required.

The mathematics works out to require 25 square inches of effective ventilating area for a vault greater than 200 cubic feet per Part 192.187(a)(1).

Ventilated vaults under Part 192.187(b)(3), for vaults greater than 75 cubic feet, but less than 200 cubic feet, require a minimum effective ventilating area as illustrated below:

<u>VAULT SIZE</u>	<u>MINIMUM VENT AREA</u>
76 cubic feet	3.8 square feet or 547 square inches
100 cubic feet	5.0 square feet or 720 square inches
199 cubic feet	9.9 square feet or 1,433 square inches

It is difficult to justify that a smaller vault requires considerably more effective ventilating area.

I would appreciate an opinion on the reason for this seeming discrepancy in the code. Thank you for the assistance.