

Log H. 343E

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: May 25, 1983

Forwarded to:

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P.O. Box 81002
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SAFETY RECOMMENDATION(S)

H-83-20

About 12:12 a.m. P.s.t., on April 7, 1982, several vehicles on westbound California State Route 24 entered the north, No. 3 Bore of the Caldecott Tunnel near Oakland, California. A Honda car driven by an intoxicated driver struck the raised curbs inside the tunnel and came to rest at the left edge of the roadway about one-third of the way through the tunnel. It was struck soon afterward by a following gasoline tank truck and tank trailer and then by an Alameda/Contra Costa (AC) Transit bus which subsequently struck the tank trailer. The busdriver was ejected, and the empty bus continued west, exited the tunnel, and struck a concrete road support pier. The tank trailer overturned, and gasoline was spilled inside the tunnel. A fire erupted and heavy black smoke quickly filled the tunnel. The tank truck and tank trailer, the Honda car, and four other vehicles that had entered the tunnel were completely destroyed by the fire. Seven persons were killed, and two people were treated for minor smoke inhalation. The tunnel incurred major damage. 1/

Based on impact damage to the Honda, the bus, and the tank truck and trailer, the Safety Board believes that the tank truck collided with the Honda before the subsequent collisions between the bus and the Honda and between the bus and the tank truck.

On April 28, and 29, 1982, the California Transportation Department (CalTrans) conducted traffic volume counts on State Route 24 to determine the average daily traffic (ADT) immediately east of the tunnel. The count indicated that 63,700 vehicles traveled the westbound route daily; of the 1,126 trucks, 26, including 8 flammable materials tankers, carried hazardous materials.

The Safety Board reviewed accident records to determine the number of accidents that have occurred in the limits of the three bores of the Caldecott Tunnel. According to these data, 39 accidents occurred in a 3-year period ending December 31, 1981, resulting in 18 injuries and no fatalities; 16 of these accidents involved westbound motorists. Twenty accidents were rear-end collisions; 9 involved a stopped vehicle; 8 involved a slowing vehicle; and 3 involved a vehicle changing lanes. Eight accidents were sideswipe accidents, seven of which involved a vehicle changing lanes. Eight were hit-object accidents, of which three involved vehicles changing lanes. Two were broadside accidents, and one was an overturn accident.

1/ For more detailed information, read Highway Accident Report—"Multiple Vehicle Collision and Fire, Caldecott Tunnel, Near Oakland, California, April 7, 1982 (NTSB/HAR-83/1).

The Safety Board reviewed the tank truck driver's planned route of travel (east on Route 4 to I-680, south to State Route 24, west on Route 24 to State Route 17, and then southwest on Fruitvale Avenue to 24th Street) and determined that alternate routes either to the north or the south of the planned route would have avoided the tunnel.

The "Explosions Routes and Stopping Places" map issued by the California Highway Patrol (CHP) in 1973 specifies alternate routes north and south of the Caldecott Tunnel for explosives transportation and does not permit the use of Route 24 through the tunnel.

A further consideration in route selections is that east of State Route 13, the Bay Area Rapid Transit (BART) system runs in the median of State Route 24 for about 7 miles, with two stations between the east and westbound roadways. At certain locations, the westbound roadway is elevated 10 to 15 feet above the BART system, separated only by a concrete median barrier and a chain link fence. The Safety Board has investigated a previous accident in which a tank trailer rolled over median barriers, ruptured, and as a result gasoline was spilled and ignited. An accident of this type would endanger BART passengers, and, according to the Oakland fire officials, firefighting efforts would be difficult because of the lack of hydrants.

The 49 CFR Section 397.9 (a) states that:

(a) Unless there is no practicable alternative, a motor vehicle which contains hazardous materials must be operated over routes which do not go through or near heavily populated areas, places where crowds are assembled, tunnels, narrow streets, or alleys. Operating convenience is not a basis for determining whether it is practicable to operate a motor vehicle in accordance with this paragraph. This paragraph does not apply to radioactive materials.

The Armour Oil Company management acknowledged its responsibility under 49 CFR Parts 386-399 for safe route selection for the shipment of hazardous materials. It did survey the area for feasible, alternate routes. Also, the Company involved the responsible drivers in its decisionmaking and decided that Route 24 through the Caldecott Tunnel was the safest and most convenient route and that there was no feasible alternate route.


In retrospect, considering the inadequacy of motorist protection and the consequences of the fire within the tunnel, it is easy to find fault with the Company's decision. It is difficult to envision an area along an alternate route where a similar accident would result in losses of similar magnitude. Consequently, the Safety Board feels that additional evaluation of hazardous materials delivery routes should be made by both the carriers and agencies of the State of California to provide guidance and regulations that are compatible with Federal regulations. The carriers and agencies should make use of the recently published Federal Highway Administration's (FHWA) Implementation Package, "Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials" (FHWA-IP-80-15) to provide hazardous materials cargo truckdrivers with the most recent information available, so that they will be able to make the safest route selection.

Therefore, the National Transportation Safety Board recommends that the Armour Oil Company:

Review the delivery routes traveled by its hazardous materials transporters and make changes as necessary to insure compliance with Federal Motor Carrier Safety Regulations, and give top priority to the safe driving environment. (Class II, Priority Action) (H-83-20)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "...to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations." (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendation(s). Therefore, we would appreciate a response from you regarding action taken or contemplated with respect to the recommendation(s) in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, McADAMS, BURSLEY, and ENGEN, Members, concurred in this recommendation.

By:  Patricia A. Halaman
Jim Burnett
Chairman

