

April 2, 1999

Refer to: HMHS-
CC59

Mr. J. M. Essex
Vice President, Sales
ENERGY ABSORPTION Systems, Inc.
One East Wacker Drive
Chicago, Illinois 60601

Dear Mr. Essex:

In your March 16 letter, you requested the Federal Highway Administration's (FHWA) acceptance of a new truck mounted attenuator (TMA) called the Safe-Stop TMA for use on Federal-aid projects as an National Cooperative Highway Research Program (NCHRP) Report 350 Test Level 3 (TL-3) device. To support your request, you provided copies of a March 1999 report entitled "Safe-Stop TMA System Qualification to NCHRP 350 Test Level 3 Engineering Summary." Incorporated into this summary report was a detailed report prepared by E-TECH Testing Services, Inc., entitled "NCHRP Report 350 Crash Test Results for the Safe-Stop TMA." The latter report contained data on the NCHRP Report tests 3-50 and 3-51, which are the basic tests required for acceptance of a TMA.

On March 26, you sent Mr. Richard Powers of my staff, a second report, also dated March 1999, entitled "Safe-Stop TMA System NCHRP 350 Test Level 3 Optional Tests Engineering Summary" which included E-TECH's detailed report, "Summary of Results Safe-Stop TMA NCHRP 350 Tests 3-52 and 3-53 (optional tests)." Video tapes of the tests that you conducted were included with each of your submissions.

The Safe-Stop TMA consists of a bi-folding articulating frame assembly which contains a Safe-Stop Type I Cartridge immediately behind the impact face and a Safe-Stop Type II Cartridge near the support vehicle. The Safe-Stop is 3940-mm long, 2360-mm wide at the impact face, and weighs approximately 815 kilograms. A schematic drawing of the Safe-Stop is included with this letter as Enclosure 1.

We note that in addition to tests 3-50 and 3-51, you also ran optional tests 3-52 (2000-kg pickup truck offset at 0 degrees) and test 3-53 (2000-kg pickup truck offset at 10 degrees). Enclosure 2 contains summary information on each of the four tests that were conducted. We concur with your decision to use the cab-mounted accelerometer data for test 3-51 and agree that the reported 10-ms occupant ridedown acceleration of 20 G's is consistent with our previous interpretation of appropriate rounding convention for this criterion.

We note also that the reported occupant ridedown acceleration in test 3-52 was 23 G's but acknowledge that this is an optional test and that the data obtained therefrom is primarily for informational purposes. Furthermore, test 3-53 did satisfy all evaluation criteria and we note that the impact speed was 103.9 km/h (compared to 98.3 km/h in test 3-52). Being an angle hit, test 3-53 is probably much more representative of field impacts since most drivers will swerve at the last minute to avoid an impact. The Safe-Stop TMA is the only truck-mounted attenuator to date that has been subjected to all four tests recommended in the NCHRP Report 350.

Based on the information you provided and our analysis of the data, we agree that the Safe-Stop TMA, as designed and tested, meets the appropriate evaluation criteria suggested in the NCHRP Report 350 for a TL-3 truck-mounted attenuator. It may be used on the National Highway System (NHS) when such use is requested by a State transportation agency. Since it is a proprietary product, its use on the NHS is subject to the provisions of Title 23, Code of Federal Regulations, Section 635.411 when such use is specified by the contracting agency.

Sincerely yours,

(original signed by Dwight A. Horne)

Dwight A. Horne
Director, Office of Highway Safety Infrastructure

2 Enclosures