March 11, 2003

HSA-10/CC64C

Mr. Albert W. Unrath Sr.
ALBERT W. UNRATH, INC.
PO Box 317
Line Lexington, PA 18932-0317

Dear Mr. Unrath:

In your December 27, 2002 letter to Mr. Frederick G. Wright, Jr., former Director of the Office of Highway Safety, you requested the Federal Highway Administration's (FHWA) acceptance of a modified U-MAD truck mounted attenuator (TMA) at the National Cooperative Highway Research Program (NCHRP) Report 350 test level 1 (TL-1). The Federal Highway Administration has previously accepted both a TL-2 unit (U-MAD 70K) with a length of 7.5 feet and a TL-3 unit (U-MAD 100K) a total length of approximately 10 feet with for use on the National Highway System.

The modified TMA design, called the U-MAD 50K, consists of an aluminum box with internal compartments filled with variable density energy-dissipating material. The first 24 inches is comprised of the softest material, followed by 21 inches of a stiffer material, and ending with 3 inches of a yet stiffer composition. The unit is rectangular, measuring 1220-mm (48-in) long by 2286-mm (90 inches) wide. It is 711-mm (28-in) deep and is 317 mm (12.5 in) above the roadway surface when deployed.

To support your request, you included an analysis of the results of your earlier 70 km/h and 100 km/h tests and extrapolated these results to the shorter TL-1 design. Since the impact energy to be dissipated in a 50 km/h test is approximately half that in a 70 km/h impact and the first two feet of all three designs consists of the same crushable material, followed by 18 or 21 inches of a stiffer material, I agree that the U-MAD 50K would likely meet the evaluation criteria for an NCHRP Report 350 TMA at the TL-1 speed of 50 km/h. Therefore, it may be used on the National Highway System (NHS) when such use is deemed appropriate by the contracting authority when expected impact speeds are near or less than 50 km/h.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, durability, or conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.

- Should the FHWA discover that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was accepted for use on the NHS, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance.
- To prevent misunderstanding by others, this letter of acceptance, designated as number CC64C shall not be reproduced except in full. This letter, and the documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- The U-MAD50K includes patented components and is considered to be a proprietary device. The use of proprietary work zone traffic control devices in Federal-aid projects is generally of a temporary nature. They are selected by the contractor for use as needed and removed upon completion of the project. Under such conditions they can be presumed to meet requirement "a" given below for the use of proprietary products on Federal-aid projects. On the other hand, if proprietary devices are specified for use on Federal-aid projects, except exempt, non-NHS projects, they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with existing highway facilities or that no equally suitable alternative exists or; (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which has been previously provided for your ready reference.

Sincerely yours,

(original signed by Michael S. Griffith)

Michael S. Griffith
Acting Director, Office of Safety Design
Office of Safety