



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

May 8, 2007

400 Seventh St., S.W.  
Washington, DC 20590

In Reply Refer To:  
HSSD/CC-87C

Mr. Barry D. Stephens, P.E.  
Sr. Vice President Engineering  
Energy Absorption Systems, Inc.  
3617 Cincinnati Avenue  
Rocklin, CA 95765

Dear Mr. Stephens:

Thank you for your letter dated January 26, 2007, requesting the Federal Highway Administration's (FHWA) review and acceptance of a new high speed version of your QUEST 70/100 redirective, non-gating crash cushions called the QUEST 115 System. To support your request, you supplied a NCHRP 350 compliance report prepared by E-TECH Testing Services, Inc. that describes the QUEST 115 and documents the successful results of a 2000 kg pickup truck impacting the system head-on at a speed of 113.7 km/h (70.7 mph). The QUEST crash cushion was originally found acceptable in the FHWA acceptance letter CC-87 dated February 15, 2005.

Although the NCHRP Report 350 testing guidelines do not include impact speed over 100 km/h, your QUEST 115 System met all the evaluation criteria for a test level 3 (TL-3) (100 km/h) crash at the higher impact speed of 113.7 km/h (70.7 mph) and the test vehicle was stopped in a distance of 7.2 m (23' 8") with minimal roll, pitch, or yaw. The occupant impact velocity from this test was 8.9 m/s and the subsequent ride-down g levels were -14.7. Both of these values were below the NCHRP Report 350 preferred values of 9 m/s and 15 g's respectively.

Based on our review of the information you provided, we conclude that the QUEST 115 System, as tested, has demonstrated additional capacity for the pickup truck in head-on crashes at an impact speed in excess of 113 km/h (70 mph). Your QUEST 115 System also remains an acceptable NCHRP 350 TL-3 (100 km/h) redirecting, non-gating crash cushion with nominal backup widths ranging from 610 mm to 915 mm (24 to 36 inches) for both uni- and bi-directional traffic applications when anchored to either concrete or asphalt and appropriately transitioned with the specified transitions. Since the selection of cost-effective safety devices for installation along a public road remains the prerogative of the appropriate highway authority, this letter should not be interpreted as tacit encouragement to use, nor as discouragement against using, roadside hardware that exceeds currently accepted minimum performance requirements.



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

- This acceptance is limited to the crashworthiness characteristics of the devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, 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, and that it will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number CC-87A, shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- The QUEST crash cushions are patented products and considered proprietary. If proprietary devices are specified by a highway agency 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 the 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.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

George E. Rice, Jr.  
Acting Director, Office of Safety Design  
Office of Safety

FHWA:HSSD:NArtimovich:tb:x61331:5/1/07

File: s://directory folder/nartimovich/CC87-Aquest1151EASI.doc

cc: HSSD (Reader, HSA; Chron File, HSSD; N.Artimovich, HSSD;  
MMcDonough, HSSD)



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Sincerely yours,

A handwritten signature in blue ink, appearing to read "George E. Rice, Jr.", with a stylized flourish at the end.

George E. Rice, Jr.  
Acting Director, Office of Safety Design  
Office of Safety