

## KARCO Engineering, LLC. AUTOMOTIVE RESEARCH CENTER

9270 Holly Road Adelanto, CA 92301

Tel: (760) 246-1672 Fax: (760) 246-8112 info@karco.com

Delta Scientific Corp. 40355 Delta Lane Palmdale, CA 93551

Attention: Mr. Harry Dickinson

Date: April 27, 2011

Dear Mr. Dickinson,

Based upon the testing performed on Thursday, April 21, 2011 by KARCO Engineering, LLC., the as-tested configuration of the Delta MP5000 – 20 ft. plate barrier has received an impact rating of P3 at the M40 test level, based on the ASTM F 2656-07 standard test method. The M40 test level is rated using a 6800 kg test vehicle traveling at a nominal velocity of 65 km/h. The P3 penetration rating is given when penetration beyond the protected side of the barrier is greater than 7 m and below 30 m at the lower leading edge of the test vehicle's cargo bed. Maximum penetration measured was 7.09 m from high-speed video. The high-speed video ended before the test vehicle came to a complete stop.

The MP5000 - 20 ft. completely arrested the test vehicle, staying in front of it through the entire event. The test vehicle was disabled by the impact. The MP5000 - 20ft. remained intact after the impact event, with only the control box separating from the unit during the test. The blocking plate and base plate of the MP5000 - 20 ft. both sustained heavy damage as a result of the impact. The base plate bent upwards on either end, and the blocking plate bent in the direction of vehicle travel.

Complete information relating to the test can be found in report number TR-P31008-01-NC and deliverable number 2011-1919 from KARCO Engineering, LLC., including test conditions, test vehicle information, and manufacturer drawings.

Sincerely yours,

Frank D. Richardson

President

KARCO Engineering, LLC.