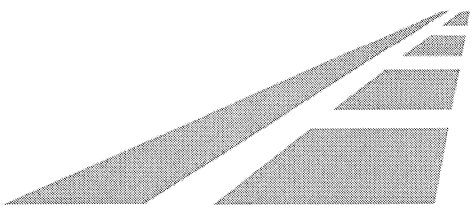

DOS K8 TESTING AND EVALUATION OF THE URBACO HIGH SECURITY BOLLARDS

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SUMMARY AND CONCLUSIONS

ASSESSMENT OF TEST RESULTS

Target impact speed for this *ST-STD-02.01, Revision A* Condition Designation K8 test was 65 km/h (40 mi/h), and the actual impact speed was 64.9 km/h (40.3 mi/h). The 1997 NaviStar 4700 single-unit flatbed truck impacted the barrier at 90 degrees, with the centerline of the vehicle aligned with the centerline of the Urbaco high security bollards. The Urbaco high security bollards brought the vehicle to a complete stop. The cargo remained onboard the vehicle; however, several parts of the vehicle were thrown beyond the inside edge of the barrier. The front of the cargo bed penetrated beyond the inside edge of the barrier, and came to rest 7.6 m (25 ft) beyond the inside edge.

CONCLUSIONS

ST-STD-02.01, Revision A performance criteria limits penetration of the leading edge of the cargo bed to 1 m (3.3 ft) or less beyond the pre-impact, inside edge of the barrier. As stated above, the cargo bed did penetrate 7.6 m (25 ft) beyond the inside edge of the barrier.

According to the results of the full-scale crash test, the Urbaco high security bollards, as configured for this test, does not meet the requirements for Condition Designation K8 in accordance March 2003 standard, *SD-STD-02.01, Revision A – Test Method for Vehicle Crash Testing of Perimeter Barriers and Gates.*

Penetration levels detailed in the April 1985 *SD-STD-02.01 Test Method for Vehicle Crash Testing of Perimeter Barriers and Gates* are still being accepted by other branches of the armed forces for use at facilities where adequate distance permits additional penetration past the barrier. [2] Table 2 presents the penetration criterion for the April 1985 *SD-STD-2.01.*

In accordance with April 1985 *SD-STD-02.01 Test Method for Vehicle Crash Testing of Perimeter Barriers and Gate,* the Urbaco high security bollards does meet the penetration requirements for Condition Designation K8/L1, which permits penetration of up to 15.2 m (50 ft).