



REGISTERED DATA SHEET PERFORATING SYSTEM EVALUATION, API RP 19B SECTION 1

Service Company Available to all Design Number _____ Explosive Weight 22.7 gm, HMX powder, Case Material Steel
 Gun OD & Trade Name 4 5/8" High Shot Density Gun, HMX, BH Max. Temp, °F 400 1 hr _____ 3 hr _____ 24 hr _____ 100 hr _____ 200 hr
 Charge Name 4 5/8" Universal BH 22.7 gms. HMX (DSC 03-02-20) Maximum Pressure Rating 20.000 psi, Carrier Material Steel
 Manufacturer Charge Part No. TC38H Date of Manufacture Feb 07th 2003 Shot Density Tested _____ 12 _____ Shots/ft
 Gun Type High Shot Density Gun 12 SPF 135° WL/TCP Recommended Minimum ID for Running _____ * _____ in.
 Phasing Tested 135 degrees, Firing Order X Top Down, _____ Bottom Up Available Firing Mode _____ Selective, _____ Simultaneous
 Debris Description N/A Debris Weight N/A gm/charge, Debris N/A in³/charge
 Remarks * Gun OD After shooting in Liquid 4.93In., in air 5.20In.

SECTION 1 - CONCRETE TARGET

Casing Data 7" OD, Weight 32 lb/ft, L-80 API Grade, Date of Section 1 Test March 11th 2003
 Target Data 35" OD, Amount of Cement 1155 lb., Amount of Sand 2310 lb., Amount of Water 600 lb.
 Date of Compressive Strength Test March 11th 2003, Briquette Compressive Strength 5843 psi, Age of Target 32 days

Shot No.	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	
Clearance, in.....	0.00	1.314	0.694	0.182	1.602	0.182	0.694	1.314	0.00	1.314	0.694	
Casing Hole Diameter, Short Axis, in..	0.840	0.870	0.930	0.860	0.880	0.830	0.800	0.860	0.850	0.900	0.910	
Casing Hole Diameter, Long Axis, in. .	0.890	0.970	0.930	0.920	0.920	0.870	0.860	0.970	0.960	0.920	0.960	
Average Casing Hole Diameter, in.....	0.865	0.920	0.930	0.890	0.900	0.850	0.830	0.915	0.905	0.910	0.935	
Total Depth, in.	6.433	7.433	6.933	7.183	6.183	6.433	6.683	6.933	7.683	6.183	6.683	
Burr Height, in.....	0.076	0.059	0.084	0.107	0.094	0.077	0.063	0.105	0.105	0.072	0.063	
Shot No.	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20	No. 21	No. 22	Average
Clearance, in.....	0.182	1.602	0.182	0.694	1.314	0.00	1.314	0.694	0.182	1.602	0.182	0.724
Casing Hole Diameter, Short Axis, in..	0.830	0.850	0.850	0.850	0.920	0.860	0.910	0.880	0.870	0.840	0.890	0.867
Casing Hole Diameter, Long Axis, in. .	0.890	0.880	0.930	0.920	0.930	0.930	0.920	0.930	0.870	0.960	0.940	0.921
Average Casing Hole Diameter, in.....	0.860	0.865	0.890	0.885	0.925	0.895	0.915	0.905	0.870	0.900	0.915	0.894
Total Depth, in.	7.433	6.433	7.683	7.183	6.933	LOST	8.183	6.933	7.433	6.433	7.433	6.993
Burr Height, in.....	0.084	0.094	0.093	0.097	0.096	0.107	0.090	0.055	0.106	0.088	0.102	0.087

WITNESSING INFORMATION

Date of Notice of Intent to Test: Jan 03rd 2003 Witnessed by: *J. Smirnov* J. Smirnov (API Certified)
 Other Activities Witnessed: Target Pouring _____ Briquette: Preparation _____ Testing X Burr Height Measurement X Samples Taken: Concrete X Casing X

CERTIFICATION

I certify that these tests were made according to the procedures as outlined in API RP 19B: Recommended Practices for Evaluation of Well Perforators, First Edition, November 2000. All of the equipment used in these tests, such as the guns, jet charges detonator cord, etc., was standard equipment with our company for the use in the gun being tested and was not changed in any manner for the test. Furthermore, the equipment was chosen at random from stock and therefore will be substantially the same as the equipment, which would be furnished to perforate a well for any operator. The American Petroleum Institute neither endorses these test results nor recommends the use of the perforator system described.

X CERTIFIED BY _____ E. T. A. Perforating Projects Manager 03/12/2003 Explosivos Tecnológicos Argentinos S.A. Ruta 25Km.13 Pilar- Bs.As. Argentina
 _____ RECERTIFIED _____ (Company Official) (Title) (Date) (Company) (Address)

DARIO E. LATTANZIO
 GERENTE PRODUCTO Y SISTEMAS
 PERFORATING PROJECTS MANAGER