

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

Service Company Available to all Design Number _____ Explosive Weight 16.5 gm, HMX powder, Case Material Steel
 Gun OD & Trade Name 4" High Shot Density Gun 12 SPF 135" - COMBO - HMX Max. Temp, °F _____ 1 hr _____ 3 hr _____ 24 hr _____ 100 hr _____ 200 hr
 Charge Name 16.5 gms. Barracuda DP & BH HMX (DSC 03-08-45 & 03-08-47) Maximum Pressure Rating 20,000 psi, Carrier Material Steel
 Manufacturer Charge Part No. TC46H&TC46HBH Date of Manufacture Aug 15th & 19th 2003 Shot Density Tested _____ 12 _____ Shots/ft
 Gun Type High Shot Density Gun For WL or 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 firing in liquid 4.28"

SECTION 1 - CONCRETE TARGET

Casing Data 5 1/2" OD, Weight 17 lb/ft, L-80 API Grade, Date of Section 1 Test Sept 22nd 2003
 Target Data 70" OD, Amount of Cement 4810 lb., Amount of Sand 9618 lb., Amount of Water 2500 lb.
 Date of Compressive Strength Test Sept 23rd 2003, Briquette Compressive Strength 7164 psi, Age of Target 30 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.	0.000	0.741	0.405	0.110	0.892	0.110	0.405	0.741	0.000	0.741	0.405
Casing Hole Diameter, Short Axis, in.	0.382	0.684	0.356	0.726	0.380	0.650	0.384	0.670	0.371	0.675	0.358
Casing Hole Diameter, Long Axis, in.	0.392	0.692	0.382	0.740	0.410	0.720	0.387	0.720	0.377	0.715	0.383
Average Casing Hole Diameter, in.	0.387	0.688	0.369	0.733	0.395	0.685	0.386	0.695	0.374	0.695	0.371
Total Depth, in.	28.554	6.304	29.804	6.179	27.054	7.054	29.304	6.304	28.179	5.804	29.304
Burr Height, in.	0.062	0.042	0.081	0.083	0.052	0.048	0.030	0.073	0.041	0.063	0.035

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.	0.110	0.892	0.110	0.405	0.741	0.000	0.741	0.405	0.110	0.892	0.110	0.412
Casing Hole Diameter, Short Axis, in.	0.728	0.396	0.715	0.357	0.686	0.356	0.690	0.367	0.701	0.357	0.678	0.503
Casing Hole Diameter, Long Axis, in.	0.733	0.404	0.723	0.379	0.705	0.375	0.710	0.395	0.708	0.368	0.742	0.553
Average Casing Hole Diameter, in.	0.731	0.400	0.719	0.368	0.696	0.366	0.700	0.381	0.705	0.363	0.710	0.542
Total Depth, in.	7.554	27.804	6.304	26.304	6.429	27.617	6.804	28.054	6.054	28.429	5.804	17.318
Burr Height, in.	0.045	0.041	0.092	0.072	0.044	0.034	0.036	0.081	0.039	0.038	0.082	0.055

Remarks DP Performance Pen. 28,219" EH 0.378" BH Performance Pen 6.418" EH 0.705"

WITNESSING INFORMATION

Date of Notice of Intent to Test: July 25th 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 DARIO ENRIQUE VITANZIO Perforating Projects Manager Sept 25th 2003 Explosivos Tecnologicos Argentinos S.A. Ruta 25Km.13 Pilar- Bs.As. Argentina
 _____ RECERTIFIED _____ (Title) _____ (Date) _____ (Company) _____ (Address)