



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

Service Company Available to all _____ Design Number _____
 Gun OD & Trade Name 2 1/8" Piranha Strip Gun
 Charge Name 2 1/8" Piranha Next Generation Threaded Cap, HMX (DSC 02-12-21)
 Manufacturer Charge Part No. TG32HNG Date of Manufacture Dec 17th 2002
 Gun Type Semi Expendable Trough Tubing Strip Gun, 6 SPF 0°
 Phasing Tested 0 degrees, Firing Order X Top Down, _____ Bottom Up
 Debris Description Case: Steel Chips, Caps: Retrieved W/Strip
 Remarks * Debris fill in 4 1/2" 11.6#, 5 1/2" 17# and 7" 32# Casing is 0.113", 0.076", 0.049" respectively per charge.

Explosive Weight 14.5 gm, HMX powder, Case Material Steel
 Max. Temp, °F 375 1 hr _____ 3 hr _____ 24 hr _____ 100 hr _____ 200 hr
 Maximum Pressure Rating 20.000 psi, Carrier Material Steel
 Shot Density Tested _____ 6 _____ Shots/ft
 Recommended Minimum ID for Running _____ 2.25 _____ in.
 Available Firing Mode _____ Selective, _____ X _____ Simultaneous
 Debris Weight 113.5 gm/charge, Debris _____ * _____ in³/charge

SECTION 1 - CONCRETE TARGET

Casing Data 5 1/2" OD, Weight 17 lb/ft, L-80 API Grade, Date of Section 1 Test Jan 20th 2003
 Target Data 51.375" OD, Amount of Cement 2913 lb., Amount of Sand 5826 lb., Amount of Water 1515 lb.
 Date of Compressive Strength Test Jan 20th 2003, Briquette Compressive Strength 6989 psi, Age of Target 31 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	0	0	0	0	0	0	0	0	0	0	
Casing Hole Diameter, Short Axis, in..	0.300	0.330	0.310	0.330	0.305	0.340	0.347	0.344	0.338	0.368	0.300	
Casing Hole Diameter, Long Axis, in. .	0.352	0.383	0.340	0.350	0.386	0.380	0.362	0.391	0.353	0.375	0.349	
Average Casing Hole Diameter, in.....	0.326	0.356	0.325	0.340	0.345	0.360	0.354	0.367	0.345	0.371	0.324	
Total Depth, in.	31.426	32.050	31.551	32.301	31.051	31.301	32.426	31.051	33.926	29.051	31.176	
Burr Height, in.....	0.060	0.080	0.051	0.069	0.051	0.085	0.053	0.047	0.032	0.035	0.054	
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	0	0	0	0	0	0	0	0			0
Casing Hole Diameter, Short Axis, in..	0.304	0.320	0.350	0.294	0.300	0.310	0.347	0.310	0.310			0.323
Casing Hole Diameter, Long Axis, in. .	0.318	0.355	0.355	0.298	0.360	0.330	0.350	0.340	0.330			0.353
Average Casing Hole Diameter, in.....	0.311	0.337	0.352	0.296	0.330	0.320	0.348	0.325	0.320			0.338
Total Depth, in.	29.426	30.801	29.801	30.801	30.051	31.301	33.426	31.301	28.051			31.113
Burr Height, in.....	0.029	0.033	0.042	0.021	0.033	0.052	0.058	0.065	0.079			0.049

WITNESSING INFORMATION

Date of Notice of Intent to Test: April 22th 2002 Witnessed by: J. Smirnoff (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 _____ Perforating Projects Manager Jan 31st 2003 Explosivos Tecnologicos Argentinos S.A. Ruta 25Km.13 Pilar- Bs.As. Argentina
 _____ RECERTIFIED _____ Official) (Title) (Date) (Company) (Address)