

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

Service Company Available to ALL Design Number _____ Explosive Weight 9 gm, HMX powder, Case Material Steel
 Gun OD & Trade Name 1 11/16" Low Debris Link Max. Temp, °F 365 1 hr _____ 3 hr _____ 24 hr _____ 100 hr _____ 200 hr
 Charge Name 1 11/16" Piranha Next Generation, HMX (DSC 02-09-03) Maximum Pressure Rating 20.000 psi, Carrier Material Steel
 Manufacturer Charge Part No. TG31HNG Date of Manufacture Sept 3rd 2002 Shot Density Tested _____ 6 _____ Shots/ft
 Gun Type Fully Expendable Trough Tubing, Low Debris Link 45° 6 SPF Recommended Minimum ID for Running _____ 1.78 _____ in.
 Phasing Tested 45 degrees, Firing Order X Top Down, _____ Bottom Up Available Firing Mode _____ Selective, _____ X _____ Simultaneous
 Debris Description Steel chips Debris Weight _____ 110 _____ gm/charge, Debris _____ * _____ in³/charge
 Remarks * Debris fill in 4 1/2" 11.6#, 5 1/2" 17# casing is 0.113, 0.075

SECTION 1 - CONCRETE TARGET

Casing Data 4 1/2" OD, Weight 11.6 lb/ft, L-80 API Grade, Date of Section 1 Test Nov 13th 2002
 Target Data 56.25" OD, Amount of Cement 3780 lb., Amount of Sand 7560 lb., Amount of Water 1965 lb.
 Date of Compressive Strength Test Nov 12th 2002, Briquette Compressive Strength 7837 psi, Age of Target 36 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	0.164	0.788	1.799	2.313	1.799	0.788	0.164	0	0.164	0.788
Casing Hole Diameter, Short Axis, in.	0.240	0.219	0.232	0.212	0.245	0.194	0.190	0.215	0.222	0.205	0.226
Casing Hole Diameter, Long Axis, in.	0.245	0.255	0.258	0.265	0.273	0.200	0.205	0.215	0.225	0.214	0.226
Average Casing Hole Diameter, in.	0.243	0.237	0.245	0.239	0.259	0.197	0.198	0.215	0.224	0.210	0.226
Total Depth, in.	15.270	17.270	14.520	15.770	18.270	17.645	17.520	LOST	17.270	16.770	17.645
Burr Height, in.	0.030	0.015	0.040	0.067	0.045	0.013	0.050	0.030	0.013	0.070	0.011

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.	1.799	2.313	1.799	0.788	0.164	0	0.164	0.788	1.799			0.909
Casing Hole Diameter, Short Axis, in.	0.220	0.190	0.184	0.175	0.190	0.195	0.228	0.228	0.219			0.211
Casing Hole Diameter, Long Axis, in.	0.222	0.201	0.192	0.195	0.193	0.206	0.240	0.232	0.230			0.225
Average Casing Hole Diameter, in.	0.221	0.196	0.188	0.185	0.192	0.201	0.234	0.230	0.225			0.218
Total Depth, in.	16.770	14.895	16.270	17.020	15.270	16.270	15.770	17.270	16.270			16.513
Burr Height, in.	0.013	0.010	0.019	0.028	0.035	0.025	0.028	0.013	0.017			0.029

WITNESSING INFORMATION

Date of Notice of Intent to Test: April 22th 2002 Witnessed by: Juan C. Valladares
 Other Activities Witnessed: Target Pouring _____ Briquette: Preparation _____ Testing X Burr Height Measurements 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 Nov 15th 2002 _____ E.T.A. S.A. _____ Ruta 25 Km 13 Pilar Bs. As. Argentina _____
 _____ RECERTIFIED _____ (Company Official) (Title) (Date) _____ (Company) _____ (Address)

E.T.A. S.A.
DARIO E. LATTANZIO
 GERENTE PRODUCTO Y SISTEMAS
 PERFORATING PROJECTS MANAGER