



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

Service Company Available to all Design Number _____ Explosive Weight 3.5 gm, HMX powder, Case Material Steel
 Gun OD & Trade Name 1 9/16" RTTG 6 SPF 60" Max. Temp, °F 400 1 hr 3 hr 24 hr 100 hr 200 hr
 Charge Name 1 9/16" RTG HMX (DSC 02-12-24) Maximum Pressure Rating 20.000 psi, Carrier Material Steel
 Manufacturer Charge Part No. RT-37- H Date of Manufacture Dec 18th 2002 Shot Density Tested 6 Shots/ft
 Gun Type Retrievable trough tubing gun Recommended Minimum ID for Running _____ * _____ in.
 Phasing Tested 60 degrees, Firing Order X Top Down, _____ Bottom Up Available Firing Mode _____ X _____ Selective, _____ X _____ Simultaneous
 Debris Description _____ Case Debris kept inside the gun after shooting Debris Weight N/A gm/charge, Debris N/A in³/charge
 Remarks * Gun OD after shooting 1.74 in.

SECTION 1 - CONCRETE TARGET

Casing Data 2 7/8" OD, Weight 6.4 lb/ft, L-80 API Grade, Date of Section 1 Test _____
 Target Data 54 3/4" OD, Amount of Cement 3525 lb., Amount of Sand 7050 lb., Amount of Water 1833 lb.
 Date of Compressive Strength Test 01-20-2003, Briquette Compressive Strength 6.922 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. | <u>0.00</u> | <u>0.159</u> | <u>0.598</u> | <u>0.879</u> | <u>0.598</u> | <u>0.159</u> | <u>0.00</u> | <u>0.159</u> | <u>0.598</u> | <u>0.879</u> | <u>0.598</u> |
| Casing Hole Diameter, Short Axis, in.. | <u>0.169</u> | <u>0.250</u> | <u>0.152</u> | <u>0.149</u> | <u>0.147</u> | <u>0.156</u> | <u>0.149</u> | <u>0.137</u> | <u>0.147</u> | <u>0.150</u> | <u>0.162</u> |
| Casing Hole Diameter, Long Axis, in... | <u>0.171</u> | <u>0.267</u> | <u>0.165</u> | <u>0.156</u> | <u>0.149</u> | <u>0.157</u> | <u>0.174</u> | <u>0.154</u> | <u>0.161</u> | <u>0.160</u> | <u>0.163</u> |
| Average Casing Hole Diameter, in..... | <u>0.170</u> | <u>0.258</u> | <u>0.158</u> | <u>0.152</u> | <u>0.148</u> | <u>0.156</u> | <u>0.161</u> | <u>0.145</u> | <u>0.154</u> | <u>0.155</u> | <u>0.162</u> |
| Total Depth, in. | <u>9.52</u> | <u>8.146</u> | <u>11.896</u> | <u>12.271</u> | <u>9.396</u> | <u>9.396</u> | <u>9.771</u> | <u>9.646</u> | <u>8.146</u> | <u>11.521</u> | <u>8.521</u> |
| Burr Height, in. | <u>0.033</u> | <u>0.103</u> | <u>0.039</u> | <u>0.032</u> | <u>0.032</u> | <u>0.029</u> | <u>0.043</u> | <u>0.041</u> | <u>0.038</u> | <u>0.056</u> | <u>0.046</u> |

| 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. | <u>0.159</u> | <u>0.00</u> | <u>0.159</u> | <u>0.598</u> | <u>0.879</u> | <u>0.598</u> | <u>0.159</u> | <u>0.00</u> | <u>0.159</u> | | | <u>0.366</u> |
| Casing Hole Diameter, Short Axis, in.. | <u>0.154</u> | <u>0.158</u> | <u>0.160</u> | <u>0.157</u> | <u>0.158</u> | <u>0.162</u> | <u>0.160</u> | <u>0.163</u> | <u>0.150</u> | | | <u>0.160</u> |
| Casing Hole Diameter, Long Axis, in... | <u>0.170</u> | <u>0.180</u> | <u>0.180</u> | <u>0.167</u> | <u>0.160</u> | <u>0.180</u> | <u>0.165</u> | <u>0.170</u> | <u>0.170</u> | | | <u>0.171</u> |
| Average Casing Hole Diameter, in..... | <u>0.162</u> | <u>0.169</u> | <u>0.170</u> | <u>0.162</u> | <u>0.159</u> | <u>0.171</u> | <u>0.162</u> | <u>0.166</u> | <u>0.160</u> | | | <u>0.165</u> |
| Total Depth, in. | <u>8.271</u> | <u>8.021</u> | <u>6.396</u> | <u>9.771</u> | <u>13.396</u> | <u>7.521</u> | <u>8.021</u> | <u>10.771</u> | <u>9.458</u> | | | <u>9.493</u> |
| Burr Height, in. | <u>0.021</u> | <u>0.033</u> | <u>0.038</u> | <u>0.041</u> | <u>0.032</u> | <u>0.029</u> | <u>0.040</u> | <u>0.036</u> | <u>0.038</u> | | | <u>0.040</u> |

WITNESSING INFORMATION

Date of Notice of Intent to Test: April 22th 2002 Witnessed by: 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 Oscar Migliorata Explosives Plant Manager Jan 20 th 2003 Explosivos Tecnologicos Argentinos S.A. Ruta 25Km.13 Pilar- Bs.As. Argentina
 _____ RECERTIFIED _____ (Company Official) _____ (Title) _____ (Date) _____ (Company) _____ (Address)