# American Petroleum Institute

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

Service Company Available to all          Design Number _____     Explosive Weight __14.5__ gm, ___HMX___ powder, Case Material_____ Steel _____

Gun OD & Trade Name  2 1/8" Retrievable Zig Zag Strip Gun _____     Max. Temp, °F__375__ 1 hr_____3 hr_____24 hr_____100 hr_____200 hr

Charge Name  2 1/8" Piranha Next Generation Threaded cap (DSC 03-02-21)     Maximum Pressure Rating___20.000___ psi, Carrier Material_____ Steel

Manufacturer Charge Part No. TG32HNG ___ Date of Manufacture Feb 7th 2003     Shot Density Tested_____6_____Shots/ft

Gun Type Semi Expendable Trough Tubing Gun, Phased Strip 6 SPF +/-22.5°+/-67.5°     Recommended Minimum ID for Running_____2.25_____in.

Phasing Tested__45°__degrees,   Firing Order __X_Top Down, _____Bottom Up     Available Firing Mode _____Selective, _____Simultaneous

Debris Description Case : Steel chips; Caps Retrieved w/Strip _____     Debris Weight _____110_____gm/charge,  Debris _____*_____in³/charge

Remarks ___ * Debris fill in 4 ½" 11.6#, 5 ½" 17# and 7" 32# Casing is 0.107", 0.073", 0.048" Respectively per charge. _____

## SECTION 1 - CONCRETE TARGET

Casing Data_____ 5 ½"_____OD,   Weight_____17_____lb/ft, _____L-80_____API Grade,    Date of Section 1 Test_____ March 10th 2003 _____

Target Data____70"____OD,   Amount of Cement__5780__lb.,    Amount of Sand____11560____lb.,    Amount of Water_____3006____lb.

Date of Compressive Strength Test   March 10th 2003 ___, Briquette Compressive Strength_____5379_____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. | 0.043 | 0.043 | 0.432 | 0.043 | 0.043 | 0.432 | 0.043 | 0.043 | 0.432 | 0.043 | 0.043 |
| Casing Hole Diameter, Short Axis, in. | 0.305 | 0.306 | 0.330 | 0.290 | 0.295 | 0.290 | 0.301 | 0.292 | 0.276 | 0.294 | 0.308 |
| Casing Hole Diameter, Long Axis, in. | 0.316 | 0.308 | 0.332 | 0.302 | 0.306 | 0.308 | 0.316 | 0.326 | 0.281 | 0.296 | 0.311 |
| Average Casing Hole Diameter, in. | 0.311 | 0.307 | 0.331 | 0.296 | 0.301 | 0.299 | 0.309 | 0.309 | 0.279 | 0.295 | 0.310 |
| Total Depth, in. | 31.567 | 34.567 | 31.067 | 34.200 | 31.817 | 29.692 | 31.067 | 34.317 | 29.567 | 32.067 | 31.442 |
| Burr Height, in. | 0.021 | 0.039 | 0.048 | 0.049 | 0.028 | 0.054 | 0.041 | 0.034 | 0.040 | 0.046 | 0.072 |

| 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. | 0.432 | 0.043 | 0.043 | 0.432 | 0.043 | 0.043 | 0.432 | 0.043 | 0.043 | | | 0.160 |
| Casing Hole Diameter, Short Axis, in. | 0.310 | 0.304 | 0.300 | 0.266 | 0.323 | 0.321 | 0.288 | 0.294 | 0.319 | | | 0.301 |
| Casing Hole Diameter, Long Axis, in. | 0.330 | 0.306 | 0.329 | 0.292 | 0.324 | 0.323 | 0.304 | 0.302 | 0.327 | | | 0.312 |
| Average Casing Hole Diameter, in. | 0.320 | 0.305 | 0.315 | 0.279 | 0.324 | 0.322 | 0.296 | 0.298 | 0.323 | | | 0.306 |
| Total Depth, in. | 27.567 | 32.442 | 29.817 | 30.504 | 31.567 | 32.817 | 30.442 | 30.692 | 30.567 | | | 31.389 |
| Burr Height, in. | 0.035 | 0.033 | 0.083 | 0.034 | 0.055 | 0.057 | 0.013 | 0.017 | 0.057 | | | 0.043 |

## WITNESSING INFORMATION

Date of Notice of Intent to Test: _____ Jan 03rd 2003 _____     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   DARIO E. MATTANZIO Perforating Projects Manager   03/11/03   Explosivos Tecnológicos Argentinos S.A.   Ruta 25 Km.13 Pilar- Bs.As. Argentina
_____ RECERTIFIED   (Company Official)   (Title)   (Date)   (Company)   (Address)

API Form 19R-A