# Registered Data Sheet Perforating System Evaluation, API RP 19B Section 1

API Form 19B-Section 1 ☑ Conforms to All Requirements of Section 1 ☐ Special Test - See Remarks/Exceptions below

Service Company: Available to all from Titan Specialties Ltd.
Gun OD & Trade Name: 3-1/8" EXP Gun, 6 SPF 60 Degree
Charge Name: 3-3/8" 22.7 Gm RDX BH CF
Manufacturer Charge Part No. FLO-3323-311CF Date of Manufacture 18 March 2008
Gun Type: Hollow Steel Carrier, Expendable (HC, E)
Phasing Tested 60 degrees, Firing Order: X Top down ___ Bottom up
Debris Description: Small steel chips, usually retained in carrier

Explosive weight 22.7 gm, RDX powder, Case Material Steel
Max Temp, °F 325 1 hr ___ 3 hr ___ 24 hr ___ 100 hr ___ 200 hr
Maximum Pressure Rating 20,000 psi, Carrier Material H.T. Steel
Shot Density Tested 6 Shots/ft 6
Recommended Minimum ID for Running 3.58 in.
Available Firing Mode: X Selective X Simultaneous
Debris Weight n/a gm/charge, Debris n/a $in^3$/charge

Remarks/Exceptions per Section 1.11

Casing Data 4-1/2" OD, Weight 11.6 lb/ft, API Grade, L-80 Date of Section 1 Test 30 Sept 2010
Target Data 36" OD, Amount of Cement 744 lb, Amount of Sand 1,489 lb, Amount of Water 392 lb.
Date of Compressive Strength Test 30 Sept 2010 Briquette Compressive Strength 6,710 psi, Age of Target 28 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. | 0.00 | 0.18 | 0.62 | 0.87 | 0.62 | 0.18 | 0.00 | 0.18 | 0.62 | 0.87 | 0.62 |
| Casing Hole Diameter, Short Axis, in | 0.64 | 0.60 | 0.63 | 0.67 | 0.62 | 0.64 | 0.64 | 0.66 | 0.65 | 0.64 | 0.64 |
| Casing Hole Diameter, Long Axis, in | 0.64 | 0.65 | 0.76 | 0.76 | 0.70 | 0.72 | 0.67 | 0.73 | 0.76 | 0.71 | 0.74 |
| Average Casing Hole Diameter, in. | 0.64 | 0.63 | 0.70 | 0.72 | 0.66 | 0.68 | 0.66 | 0.70 | 0.71 | 0.68 | 0.69 |
| Total Depth, in. | 7.25 | 8.25 | 6.75 | 7.25 | 7.25 | 7.25 | 6.25 | 5.75 | 7.00 | 7.75 | 7.00 |
| Burr Height, in. | 0.06 | 0.08 | 0.08 | 0.04 | 0.09 | 0.07 | 0.06 | 0.08 | 0.05 | 0.09 | 0.04 |

| 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. | 0.18 | | | | | | | | | | | XXXXXX |
| Casing Hole Diameter, Short Axis, in | 0.65 | | | | | | | | | | | 0.64 |
| Casing Hole Diameter, Long Axis, in | 0.68 | | | | | | | | | | | 0.71 |
| Average Casing Hole Diameter, in. | 0.67 | | | | | | | | | | | 0.68 |
| Total Depth, in. | 7.50 | | | | | | | | | | | 7.10 |
| Burr Height, in. | 0.08 | | | | | | | | | | | 0.07 |

Remarks

## Manufacturer's Certification

Type of Certification: X Self ___ Third Party

I certify that these tests were made according to the procedures as outlined in API 19B: Recommended Practice for Evaluation of Well Perforators, Second Edition, September 2006. 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 that would be furnished to perforate a well for any operator. API neither endorses these tests nor recommends the use of the perforator system described.

| | CERTIFIED BY / RECERTIFIED | (Company Official) | (Title) | (Date) | (Company) | (Address) |
|---|---|---|---|---|---|---|
| X | CERTIFIED BY | Kenneth B Brown | CEO | 18 Oct 2010 | Titan Specialties Ltd. | 143 HCR 4361, Milford, TX 76670 |
| ___ | RECERTIFIED | | | | | |

Name of test as it should appear on website: 3.13-in. EXP 6 SPF w/ BH FLO-3323-311CF

Name of test as it appears on application and application date: