



## 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.    Explosive weight 15.0 gm, HMX powder, Case Material Steel

Gun OD & Trade Name 2-1/8" Capsule Gun, 4 SPF 0 Degree    Max Temp, °F 365 1 hr 3 hr 24 hr 100 hr 200 hr

Charge Name Charge, 2-1/8" 15G HMX SDP    Maximum Pressure Rating 15,000 psi, Carrier Material Formed Steel Strip

Manufacturer Charge Part No. CAP-2115-420T    Date of Manufacture 4 Nov 2009    Shot Density Tested 4    Shots/ft 4

Gun Type Semi-Expendable Strip    Recommended Minimum ID for Running 2.25 in.

Phasing Tested 0 degrees, Firing Order:  Top down  Bottom up    Available Firing Mode: Selective  Simultaneous

Debris Description Small steel chips    Debris Weight 136 gm/charge, Debris 1.22 in<sup>3</sup>/charge

Remarks/Exceptions per Section 1.11 \_\_\_\_\_

Casing Data 5-1/2" OD, Weight 17 lb/ft, API Grade, L-80    Date of Section 1 Test 25 January 2010

Target Data 48" OD, Amount of Cement 2,085 lb, Amount of Sand 4,169 lb, Amount of Water 1,088 lb.

Date of Compressive Strength Test 25 January 2010    Briquette Compressive Strength 7,125 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Casing Hole Diameter, Short Axis, in	0.27	0.27	0.30	0.26	0.27	0.27	0.27	0.26	0.27	0.26	0.26	
Casing Hole Diameter, Long Axis, in	0.30	0.28	0.30	0.30	0.30	0.29	0.29	0.27	0.27	0.28	0.28	
Average Casing Hole Diameter, in.	0.29	0.28	0.30	0.28	0.29	0.28	0.28	0.27	0.27	0.27	0.27	
Total Depth, in.	31.90	34.80	33.90	34.55	37.80	37.05	36.80	36.30	35.80	34.60	34.80	
Burr Height, in.	0.05	0.06	0.04	0.05	0.05	0.05	0.04	0.05	0.06	0.05	0.05	
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.	0.00	0.00										XXXXXX
Casing Hole Diameter, Short Axis, in	0.26	0.26										0.27
Casing Hole Diameter, Long Axis, in	0.29	0.27										0.29
Average Casing Hole Diameter, in.	0.28	0.27										0.28
Total Depth, in.	33.80	30.80										34.84
Burr Height, in.	0.04	0.05										0.05

Remarks 48" offset target

### Manufacturer's Certification

Type of Certification: \_\_\_\_\_ Self     Third Party    API Witness: Jim Stout & Mona Elkhatib

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 Kenneth B. Blawie CEO    2 February 2010    Titan Specialties Ltd.    143 HCR 4361, Milford, TX 76670  
 \_\_\_\_\_ RECERTIFIED    (Company Official)    (Title)    (Date)    (Company)    (Address)

Name of test as it should appear on website: 2.13-in. Capsule Gun 4 SPF w/ SDP CAP-2115-420T

Name of test as it appears on application and application date: CAP-2115-420T, Charge, 2-1/8" 15G HMX SDP (Appl: 4 Jan. 2010)