



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 18.0 gm, HMX powder, Case Material Steel
Gun OD & Trade Name 2-7/8" EXP Gun, 6 SPF 60 Degree
Max Temp, °F 400 1 hr 3 hr 24 hr 100 hr 200 hr
Charge Name 2-7/8" 18G HMX SDP
Maximum Pressure Rating 25,000 psi, Carrier Material H.T. Steel
Manufacturer Charge Part No. EXP-2818-421T Date of Manufacture 19 Oct 2009
Shot Density Tested 6 Shots/ft 6
Gun Type Hollow Steel Carrier, Expendable (HC, E)
Recommended Minimum ID for Running 3.25 in.
Phasing Tested 60 degrees, Firing Order: X Top down Bottom up
Available Firing Mode: X Selective X Simultaneous
Debris Description Small steel chips, usually retained in carrier
Debris Weight n/a gm/charge, Debris n/a in³/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 17 December 2009
Target Data 96" OD, Amount of Cement 9,926 lb, Amount of Sand 19,852 lb, Amount of Water 5,204 lb.
Date of Compressive Strength Test 17 December 2009 Briquette Compressive Strength 6,850 psi, Age of Target 28 days

Table with 12 columns for Shot No. (No 1 to No 12) and rows for Clearance, Casing Hole Diameter (Short/Long Axis), Average Casing Hole Diameter, Total Depth, Burr Height. Includes an Average column for the last 11 shots.

Remarks

Manufacturer's Certification

Type of Certification: Self [] X 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.

X CERTIFIED BY Kenneth B. Babuch CEO 23 December 2009 Titan Specialties Ltd. 143 HCR 4361, Milford, TX 76670
RECEIVED (Company Official) (Title) (Date) (Company) (Address)

Name of test as it should appear on website: 2.88-in. EXP 6 SPF w/ DP EXP-2818-421T
Name of test as it appears on application and application date: EXP-2818-421T, Charge, 2-7/8" 18G HMX SDP (Appl: 20 Nov. 2009)



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Shot No.	No 23	No 24	No 25	No 26	No 27	No 28	No 29	No 30	No 31	No 32	No 33	
Clearance, in.	1.21											
Casing Hole Diameter, Short Axis, in.	0.28											
Casing Hole Diameter, Long Axis, in.	0.28											
Average Casing Hole Diameter, in.	0.28											
Total Depth, in.	34.25											
Burr Height, in.	0.05											
Shot No.	No 34	No 35	No 36	No 37	No 38	No 39	No 40	No 41	No 42	No 43	No 44	Average
Clearance, in.												
Casing Hole Diameter, Short Axis, in.												XXXXXXXX
Casing Hole Diameter, Long Axis, in.												0.39
Average Casing Hole Diameter, in.												0.39
Total Depth, in.												37.50
Burr Height, in.												0.05
Remarks	_____											

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.

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