



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 companies. Manufactured by ZAC Perforating
 Gun OD & Trade Name 3 1/8" HIGH SHOT DENSITY GUN Extra DP
 Charge Name 21grams HMX EXTRA DP
 Manufacturer Charge Part No. TC41H Extra Date of Manufacture 09/20/2013
 Gun Type TCP and Wireline Hollow Carrier, Non Reusable
 Phasing Tested 60° degrees, Firing Order: X Top down Bottom up
 Debris Description Steel pieces remains inside the gun.
 Available Firing Mode: X Selective X Simultaneous
 Recommended Minimum ID for Running gm/charge, Debris N/A in./charge
 Explosive weight 21 gm, HMX gm, powder, Case Material STEEL
 Max Temp, °F 400°F 1 hr 3 hr 24 hr 100 hr 200 hr
 Maximum Pressure Rating 20000 psi, Carrier Material STEEL
 Shot Density Tested 6 Shots/ft
 Recommended Minimum ID for Running gm/charge, Debris N/A in./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 11/26/2013
 Target Data 110" OD, Amount of Cement 12140 lb, Amount of Sand 24280 lb, Age of Target 32 days
 Date of Compressive Strength Test 11/27/2013 Briquette Compressive Strength 6158 psi

Shot No.	No 1	No 2	No 3	No 4	No 5	No 6	No 7	No 8	No 9	No 10	No 11	Average
Clearance, in.	0.000	0.183	0.620	0.875	0.620	0.183	0.000	0.183	0.620	0.875	0.620	XXXXXXX
Casing Hole Diameter, Short Axis, in	0.390	0.420	0.400	0.360	0.410	0.410	0.400	0.400	0.390	0.390	0.390	0.397
Casing Hole Diameter, Long Axis, in	0.420	0.430	0.400	0.390	0.420	0.420	0.410	0.440	0.420	0.400	0.440	0.416
Average Casing Hole Diameter, in.	0.405	0.425	0.400	0.375	0.415	0.415	0.405	0.420	0.405	0.395	0.415	0.407
Total Depth, in.	43.500	39.750	40.500	37.000	42.750	43.000	41.500	40.000	38.750	40.500	43.500	41.097
Burr Height, in.	0.011	0.019	0.018	0.022	0.014	0.017	0.014	0.015	0.021	0.018	0.012	0.016
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.	0.183	0.000	0.183	0.620	0.875	0.620	0.183	0.620	0.875	0.620	0.183	XXXXXXX
Casing Hole Diameter, Short Axis, in	0.420	0.420	0.410	0.400	0.370	0.380	0.390	0.390	0.410	0.410	0.410	0.416
Casing Hole Diameter, Long Axis, in	0.440	0.420	0.430	0.410	0.390	0.400	0.410	0.400	0.390	0.400	0.400	0.407
Average Casing Hole Diameter, in.	0.430	0.420	0.420	0.405	0.380	0.390	0.400	0.400	0.390	0.400	0.400	0.407
Total Depth, in.	43.000	42.250	42.000	40.000	39.750	40.250	41.750	40.000	38.750	40.500	43.000	41.097
Burr Height, in.	0.017	0.013	0.015	0.021	0.012	0.012	0.017	0.015	0.021	0.018	0.012	0.016

Manufacturer's Certification

Type of Certification: Self
 Signature: [Signature]
 Name: George Salmhoff Title: 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 Carlos Gustavo Torres Ramirez Presidente 11/27/2013 ZAC PERFORATING S.A. de C.V. Carretera Zacatecas/Saltillo, Concepción del Oro, México
 RECERTIFIED (Company Official) (Title) (Date) (Company) (Address)
 Name of test as it should appear on website: 3 1/8" High Shot Density Gun, 21grams HMX EXTRA DP
 Name of test as it appears on application and application date: TC41H EXTRA - 21 Grams HMX DP