



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 Explosive weight 21 gm, HMX powder, Case Material STEEL

Gun OD & Trade Name 4 5/8" HIGH SHOT DENSITY GUN Next Generation DP HMX Max Temp, °F 400°F 1 hr _____ 3 hr _____ 24 hr _____ 100 hr _____ 200 hr _____

Charge Name 21 grams HMX Next Generation DP Maximum Pressure Rating 20000 psi, Carrier Material STEEL

Manufacturer Charge Part No. TC41H NG Date of Manufacture 02/13/2015 Shot Density Tested 12 Shots/ft _____

Gun Type TCP and Wireline Hollow Carrier, Non Reusable Recommended Minimum ID for Running _____ in.

Phasing Tested 135° degrees, Firing Order: Top down _____ Bottom up _____ Available Firing Mode: _____ Selective Simultaneous _____

Debris Description Steel pieces remains inside the gun. Debris Weight N/A gm/charge, Debris N/A in³/charge

Remarks/Exceptions per Section 1.11 _____

Casing Data 7" OD, Weight 32 lb/ft, API Grade, L-80 Date of Section 1 Test 05/18/2015

Target Data 100" OD, Amount of Cement 7215 lb, Amount of Sand 14430 lb, Amount of Water 3750 lb.

Date of Compressive Strength Test 05/18/2015 Briquette Compressive Strength 6560 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.	0.000	1.209	0.645	0.171	1.469	0.171	0.645	1.209	0.000	1.209	0.645
Casing Hole Diameter, Short Axis, in	0.340	0.350	0.350	0.350	0.340	0.350	0.350	0.350	0.330	0.370	0.340
Casing Hole Diameter, Long Axis, in	0.350	0.380	0.370	0.370	0.360	0.360	0.360	0.360	0.350	0.370	0.350
Average Casing Hole Diameter, in.	0.345	0.365	0.360	0.360	0.350	0.355	0.355	0.355	0.340	0.370	0.345
Total Depth, in.	36.453	32.453	36.453	37.453	30.453	35.453	34.453	32.453	33.453	31.453	36.453
Burr Height, in.	0.025	0.030	0.082	0.036	0.045	0.058	0.086	0.041	0.044	0.048	0.044

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.	0.171	1.469	0.171	0.645	1.209	0.000	1.209	0.645				XXXXXX
Casing Hole Diameter, Short Axis, in	0.360	0.330	0.350	0.330	0.360	0.360	0.360	0.320				0.347
Casing Hole Diameter, Long Axis, in	0.360	0.350	0.400	0.360	0.380	0.370	0.370	0.360				0.365
Average Casing Hole Diameter, in.	0.360	0.340	0.375	0.345	0.370	0.365	0.365	0.340				0.357
Total Depth, in.	34.453	31.953	38.453	31.453	35.953	32.453	31.953	35.453				34.092
Burr Height, in.	0.048	0.073	0.066	0.034	0.050	0.051	0.043	0.089				0.052

Remarks _____

Manufacturer's Certification

Type of Certification: _____ Self Carlos Caste API W 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 Torre Ramirez Presidente 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: 4 5/8" High Shot Density Gun, 21grams HMX Next Generation DP

Name of test as it appears on application and application date: TC41H NG - 21 Grams HMX DP