



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 3 3/8" 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 6 Shots/ft _____

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

Phasing Tested 60° 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 4 1/2" OD, Weight 11,6 lb/ft, API Grade, L-80 Date of Section 1 Test 05/18/2015

Target Data 100" OD, Amount of Cement 11050 lb, Amount of Sand 22100 lb, Amount of Water 5750 lb.

Date of Compressive Strength Test 05/18/2015 Briquette Compressive Strength 6707 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	0.138	0.450	0.625	0.450	0.138	0.000	0.138	0.450	0.625	0.450
Casing Hole Diameter, Short Axis, in.	0.350	0.340	0.350	0.350	0.340	0.350	0.330	0.340	0.340	0.350	0.370
Casing Hole Diameter, Long Axis, in.	0.370	0.350	0.360	0.370	0.350	0.350	0.360	0.360	0.370	0.360	0.370
Average Casing Hole Diameter, in.	0.360	0.345	0.355	0.360	0.345	0.350	0.345	0.350	0.355	0.355	0.370
Total Depth, in.	40.750	LOST	37.250	34.250	36.750	40.250	41.250	32.750	36.750	34.750	34.250
Burr Height, in.	0.035	0.038	0.016	0.043	0.041	0.081	0.024	0.055	0.056	0.027	0.030

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.	0.138	0.000	0.138	0.450	0.625	0.450	0.138					XXXXXX
Casing Hole Diameter, Short Axis, in.	0.330	0.320	0.340	0.330	0.330	0.350	0.370					0.343
Casing Hole Diameter, Long Axis, in.	0.340	0.340	0.360	0.360	0.350	0.380	0.400					0.361
Average Casing Hole Diameter, in.	0.335	0.330	0.350	0.345	0.340	0.365	0.385					0.352
Total Depth, in.	32.250	36.250	37.250	39.750	39.250	33.250	40.250					36.897
Burr Height, in.	0.027	0.018	0.017	0.050	0.041	0.028	0.037					0.037

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 (Title) ZAC PERFORATING S.A. de C.V. (Company) Carretera Zacatecas/Saltillo; Concepción del Oro, México (Address)

RECERTIFIED _____ (Company Official) _____ (Date) _____ (Company) _____ (Address)

Name of test as it should appear on website: 3 3/8" 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