



REGISTERED DATA SHEET PERFORATING SYSTEM EVALUATION, API RP 19B SECTION 1

Service Company AVAILABLE TO ALL FROM OWEN OIL TOOLS Explosive Weight 8.4 gm, HMX powder, Case Material STEEL
 Gun OD & Trade Name 1 11/16" 0 DEGREE SHOGUN / RAPTOR Max. Temp, °F 375 1 hr 3 hr 24 hr 100 hr 200 hr
 Charge Name 1 11/16" SHOGUN RAPTOR HMX Maximum Pressure Rating 20,000 psi, Carrier Material STEEL
 Manufacturer Charge Part No. STP-1687-401NTX Date of Manufacture 11-AUG-2003 Shot Density Tested 6 Shots/ft
 Gun Type WIRELINE TROUGH TUBING STRIP, SEMI-EXPANDABLE Recommended Minimum ID for Running 1.781 in.
 Phasing Tested 0 degrees, Firing Order X Top Down, Bottom Up Available Firing Mode Selective, X Simultaneous
 Debris Description STEEL CHIPS Debris Weight N/A gm/charge, Debris N/A in³/charge
 Remarks THE 1 11/16" SHOGUN SYSTEM INCLUDES 4 OR 6 SPF; 0 PHASE STRIP, +/- 45 DEG. STRIP, PHASEABLE LINK, AND SPIRAL PHASED (60° & 40°) RETRIEVABLE STRIP

SECTION 1 - CONCRETE TARGET

Casing Data 4.5 OD, Weight 11.6 lb/ft, L-80 API Grade, Date of Section 1 Test 6-NOV-2003
 Target Data 60 OD, Amount of Cement 10735 lb., Amount of Sand 21680 lb., Amount of Water 5571 lb.
 Date of Compressive Strength Test 6-NOV-2003, Briquette Compressive Strength 8996 psi, Age of Target 269 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.....	0.22	0.22	0.23	0.24	0.21	0.23	0.22	0.22	0.22	0.22	0.21
Casing Hole Diameter, Long Axis, in.....	0.23	0.22	0.23	0.25	0.23	0.24	0.23	0.23	0.23	0.23	0.22
Average Casing Hole Diameter, in.....	0.23	0.22	0.23	0.25	0.22	0.24	0.23	0.23	0.23	0.23	0.22
Total Depth, in.....	19.25	19.25	17.25	18.25	18.25	18.75	18.25	18.50	16.75	17.25	17.25
Burr Height, in.....	0.05	0.05	0.05	0.05	0.02	0.05	0.03	0.02	0.02	0.02	0.03

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
Casing Hole Diameter, Short Axis, in.....	0.22											0.22
Casing Hole Diameter, Long Axis, in.....	0.23											0.23
Average Casing Hole Diameter, in.....	0.23											0.23
Total Depth, in.....	17.00											0.23
Burr Height, in.....	0.02											18.00
												0.03

WITNESSING INFORMATION

Date of Notice of Intent to Test: October 27, 2003 Witnessed by: Ed Langford
 Other Activities Witnessed: Target Pouring Briquette: Preparation Testing Burr Height Measurements X Samples Taken: Concrete X Casing X

CERTIFICATION

I certify that these tests were made according to the procedures as outlined in API RP 19B: Recommended Practices for Evaluation of Well Perforators, First Edition, November 2000. 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, which would be furnished to perforate a well for any operator. The American Petroleum Institute neither endorses these test results nor recommends the use of the perforator system described.

X CERTIFIED BY [Signature] VICE PRESIDENT - ENGINEERING 11-07-03 OWEN OIL TOOLS 12001 County Road 1000 Godlev, TX 76044
 RECERTIFIED (Company Official) (Title) (Date) (Company) (Address)