



American Petroleum Institute

*address change*

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

Service Company AVAILABLE TO ALL FROM OWEN OIL TOOLS Explosive Weight 26.4 gm, HMX powder, Case Material STEEL  
 Gun OD & Trade Name 2 1/2" SPIRAL SHOGUN / RAPTOR Max. Temp, °F 375 1 hr 3 hr 24 hr 100 hr 200 hr  
 Charge Name 2 1/2" SHOGUN RAPTOR HMX, NTX II Maximum Pressure Rating 20,000 psi, Carrier Material STEEL  
 Manufacturer Charge Part No. STP-2500-401NTXII Date of Manufacture 11-FEB-2003 Shot Density Tested 4 Shots/ft  
 Gun Type WIRELINE TROUGH TUBING STRIP, SEMI-EXPANDABLE Recommended Minimum ID for Running 2.63 in.  
 Phasing Tested 60 degrees, Firing Order X Top Down, Bottom Bottom Up Available Firing Mode Selective, X Simultaneous  
 Debris Description STEEL CHIPS Debris Weight N/A gm/charge, Debris N/A in<sup>3</sup>/charge  
 Remarks THE 2 1/2" SHOGUN SYSTEM INCLUDES 4 SFP 0 PHASE STRIP AND 60 DEGREE SPIRAL PHASED RETRIEVABLE STRIP

SECTION 1 - CONCRETE TARGET

Casing Data 5.5" OD, Weight 17" lb/ft, L-80 API Grade, Date of Section 1 Test 14-APR-2003  
 Target Data 96" OD, Amount of Cement 9285 lb., Amount of Sand 18570 lb., Amount of Water 4824 lb.  
 Date of Compressive Strength Test 14-APR-2003, Briquette Compressive Strength 7042 psi, Age of Target 28 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.....	0.37	0.00	0.37	1.56	2.39	1.56	0.37	0.00	0.37	1.56	2.39
Casing Hole Diameter, Short Axis, in.....	0.33	0.40	0.34	0.35	0.28	0.28	0.33	0.40	0.37	0.31	0.30
Casing Hole Diameter, Long Axis, in.....	0.33	0.45	0.38	0.41	0.32	0.35	0.39	0.43	0.40	0.36	0.38
Average Casing Hole Diameter, in.....	0.33	0.43	0.36	0.38	0.30	0.32	0.36	0.42	0.39	0.34	0.34
Total Depth, in.....	31.31	32.31	34.81	35.44	33.56	28.81	31.81	35.56	36.56	28.56	LOST
Burr Height, in.....											

  

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.....	1.56	0.37	0.00									xxx
Casing Hole Diameter, Short Axis, in.....	0.37	0.39	0.36									0.34
Casing Hole Diameter, Long Axis, in.....	0.40	0.39	0.37									0.38
Average Casing Hole Diameter, in.....	0.39	0.34	0.37									0.36
Total Depth, in.....	LOST	28.44	34.31									32.62
Burr Height, in.....												

WITNESSING INFORMATION

Date of Notice of Intent to Test: 28-FEB-2003 Witnessed by: Truda Stevens  
 Other Activities Witnessed: Target Pouring      Briquette: Preparation      Testing      Burr Height Measurements      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 *Alan W. Pratt* VICE PRESIDENT - ENGINEERING 9-23-03 OWEN OIL TOOLS 12001 County Road 1000 Godley, TX, USA 76044  
 \_\_\_\_\_ RECERTIFIED \_\_\_\_\_ (Company Official) (Title) (Date) (Company) (Address)