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

**Service Company:** AVAILABLE TO ALL FROM OWEN OIL TOOLS  
**Gun OD & Trade Name:** 1 11/16" SPIRAL SHOGUN / RAPTOR  
**Explosive Weight:** 8.4 gm, HMX powder, Case Material: STEEL  
**Max. Temp. °F:** 375 1 hr, 3 hr, 24 hr, 100 hr, 200 hr  
**Maximum Pressure Rating:** 20,000 psi, Carrier Material: STEEL  
**Manuf. Charge Part No.** STP-1687-401NTX  
**Date of Manufacture:** 11-AUG-2003  
**Manufacturer Charge Part No.**  
**Gun Type:** WIRELINE TROUGHS TUBING STRIP, SEMI-EXPANDABLE  
**Shot Density Tested:** 6 Shots/ft  
**Gun Phasing Tested:** 40 degrees, Firing Order: X Top Down, X Bottom Up  
**Recommended Minimum ID for Running:** 1,781 in.  
**Debris Description:** STEEL CHIPS  
**Available Firing Mode:** Selective, X Simultaneous  
**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: 21-OCT-2003  
**Target Data:** 60 OD, Amount of Cement: 7415 lb, Amount of Sand: 14950 lb, Amount of Water: 3876 lb, Date of Compressive Strength Test: 21-OCT-2003  
**Briquette Compressive Strength:** 6463 psi, Age of Target: 33 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. | 1.70 | 0.67 | 0.14 | 0.00 | 0.14 | 0.67 | 1.70 | 2.59 | 2.59 | 1.70 | 0.67  
Casing Hole Diameter, Short Axis, in. | 0.22 | 0.23 | 0.26 | 0.23 | 0.24 | 0.22 | 0.27 | 0.20 | 0.25 | 0.25 | 0.25  
Casing Hole Diameter, Long Axis, in. | 0.22 | 0.23 | 0.26 | 0.24 | 0.27 | 0.24 | 0.28 | 0.21 | 0.25 | 0.25 | 0.27  
Average Casing Hole Diameter, in. | 0.22 | 0.23 | 0.26 | 0.24 | 0.26 | 0.24 | 0.28 | 0.21 | 0.25 | 0.25 | 0.26  
Burr Height, in. | 0.07 | 0.06 | 0.05 | 0.03 | 0.07 | 0.07 | 0.07 | 0.02 | 0.03 | 0.02 | 0.07  
---|---|---|---|---|---|---|---|---|---|---  
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. | 0.14 | 0.00 | 0.14 | 0.67 | 1.70 | 2.59 | 2.59 | 1.70 | 0.67 | 0.14 | 0.00 | xxx  
Casing Hole Diameter, Short Axis, in. | 0.24 | 0.25 | 0.26 | 0.19 | 0.25 | 0.24 | 0.23 | 0.25 | 0.20 | 0.25 | 0.21 | 0.20 | 0.24  
Casing Hole Diameter, Long Axis, in. | 0.25 | 0.26 | 0.26 | 0.20 | 0.26 | 0.24 | 0.24 | 0.26 | 0.24 | 0.26 | 0.23 | 0.22 | 0.25  
Average Casing Hole Diameter, in. | 0.25 | 0.26 | 0.26 | 0.20 | 0.26 | 0.24 | 0.24 | 0.26 | 0.24 | 0.26 | 0.23 | 0.22 | 0.24  
Total Depth, in. | LOST | 18.25 | 19.63 | 18.75 | 18.00 | LOST | 15.25 | 22.75 | 16.25 | 17.25 | 20.25 | 19.31  
Burr Height, in. | 0.07 | 0.02 | 0.04 | 0.05 | 0.05 | 0.08 | 0.02 | 0.04 | 0.08 | 0.07 | 0.02 | 0.05  

## WITNESSING INFORMATION

**Date of Notice of Intent to Test:** September 29, 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 this test results nor recommends the use of the perforator system described.

**Certified by:**  
**Title:**  
**Date:**  
**Company:**  
**Address:** 12001 County Road 1000, Golley, TX 76044