



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

Service Company AVAILABLE TO ALL FROM OWEN OIL TOOLS Explosive Weight 6.4 gm, HMX powder, Case Material STEEL
 Gun OD & Trade Name 2 1/8" RTG BIG HOLE Max. Temp, °F 400 1 hr 3 hr 24 hr 100 hr 200 hr
 Charge Name 2 1/8" RTG BH. HMX. PFINODAL Maximum Pressure Rating 20,000 psi, Carrier Material STEEL
 Manufacturer Charge Part No. RTG-2125-402F Date of Manufacture 10-MAR-2004 Shot Density Tested 6 Shots/ft
 Gun Type SCALLOPED, RETRIEVABLE EXPENDABLE HOLLOW CARRIER Recommended Minimum ID for Running 2.25 (2.18 AT 4 spf) in.
 Phasing Tested 60 degrees, Firing Order X Top Down, X Bottom Up Available Firing Mode X Selective, X Simultaneous
 Debris Description N/A Debris Weight N/A gm/charge, Debris N/A in³/charge
 Remarks GUNS AVAILABLE AT 0, 60, 90, 180 DEGREE PHASING AT 4SPF AND 6SPF. MAY BE USED WITH EITHER 40 GRAIN/FOOT ROUND OR FLAT DETONATING CORD.

SECTION 1 - CONCRETE TARGET

Casing Data 2.875" OD, Weight 6.4 lb/ft, L-80 API Grade, Date of Section 1 Test 7-APR-2004
 Target Data 24" OD, Amount of Cement 6606 lb., Amount of Sand 13218 lb., Amount of Water 3457 lb.
 Date of Compressive Strength Test 7-APR-2004, Briquette Compressive Strength 7160 psi, Age of Target 118 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.....	0.10	0.32	0.44	0.32	0.10	0.00	0.10	0.32	0.44	0.32	0.10
Casing Hole Diameter, Short Axis, in.....	0.35	0.41	0.43	0.43	0.42	0.43	0.40	0.42	0.39	0.43	0.41
Casing Hole Diameter, Long Axis, in.....	0.42	0.41	0.43	0.43	0.43	0.43	0.40	0.43	0.41	0.43	0.43
Average Casing Hole Diameter, in.....	0.39	0.41	0.43	0.43	0.43	0.43	0.40	0.43	0.40	0.43	0.42
Total Depth, in.....	2.75	3.13	2.75	3.00	2.75	3.13	3.75	3.00	3.25	3.00	3.50
Burr Height, in.....	0.04	0.05	0.05	0.05	0.06	0.08	0.07	0.05	0.05	0.04	0.04

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	0.10	0.32	0.44	0.32	0.10	0.00					xxx
Casing Hole Diameter, Short Axis, in.....	0.42	0.42	0.42	0.39	0.41	0.41	0.41					0.41
Casing Hole Diameter, Long Axis, in.....	0.44	0.44	0.43	0.41	0.42	0.42	0.43					0.42
Average Casing Hole Diameter, in.....	0.43	0.43	0.43	0.40	0.42	0.42	0.42					0.42
Total Depth, in.....	2.75	LOST	3.25	3.50	2.75	2.50	2.75					3.03
Burr Height, in.....	0.07	0.04	0.03	0.02	0.04	0.06	0.09					0.05

WITNESSING INFORMATION

Date of Notice of Intent to Test: March 24, 2004 Witnessed by: Ray Feigenbutz
 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 *David Reed* VICE PRESIDENT – ENGINEERING 4/9/2004 OWEN OIL TOOLS 8900 FORUM WAY FORT WORTH, TX, USA 76140
 _____ RECERTIFIED _____ (Company Official) (Title) (Date) (Company) (Address)