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: Oiltech Services Pte.Ltd
Gun OD & Trade Name: 7" 16 SPF 105° Phase Carrier
Charge Name: HSD 39g HMX BH
Manufacturer Charge Part No.: OT60426 Date of Manufacture: March 01,2012
Gun Type: TCP, Wireline, Retrievable Tubular Carrier with scallop
Phasing Tested: 105 degrees, Firing Order: X Top down X Bottom up
Debris Description: N/A

Explosive weight: 39 gm, HMX powder, Case Material: Steel
Max Temp, °F: 400 1 hr 3 hr 24 hr 100 hr 200 hr
Maximum Pressure Rating: 20,000 psi, Carrier Material: Steel
Shot Density Tested: 16 Shots/ft
Recommended Minimum ID for Running: - in.
Available Firing Mode: N/A Selective: X Simultaneous
Debris Weight: N/A gm/charge, Debris: N/A in³/charge

Remarks/Exceptions per Section 1.11: The total depth include the thickness of the casing.

Casing Data: 9-5/8" OD, Weight: 47 lb/ft, API Grade: L-80 Date of Section 1 Test: April 04,2012
Target Data: 37" OD, Amount of Cement: 2403 lb, Amount of Sand: 4806 lb, Amount of Water: 1252 lb.
Date of Compressive Strength Test: April 3,2012 Briquette Compressive Strength: 6317 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.	0.00	0.98	1.54	0.20	0.35	1.65	0.76	0.01	1.19	1.39	0.09
Casing Hole Diameter, Short Axis, in	1.03	1.05	1.01	1.01	1.01	1.01	0.99	1.05	1.01	1.05	1.01
Casing Hole Diameter, Long Axis, in	1.07	1.11	1.05	1.05	1.05	1.04	1.03	1.09	1.05	1.09	1.05
Average Casing Hole Diameter, in.	1.05	1.07	1.03	1.03	1.03	1.03	1.01	1.07	1.03	1.07	1.03
Total Depth, in.	5.0	5.5	4.5	6.0	8.0	6.5	5.5	*	5.5	6.0	6.5
Burr Height, in.	0.07	0.05	0.03	0.07	0.07	0.05	0.04	0.05	0.07	0.01	0.08

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.	0.54	1.68	0.54	0.09	1.39	1.19	0.02	0.75	1.64	0.35		XXXXXX
Casing Hole Diameter, Short Axis, in	0.99	1.01	1.01	1.01	1.01	1.02	1.03	1.01	0.98	1.04		1.02
Casing Hole Diameter, Long Axis, in	1.03	1.05	1.03	1.03	1.07	1.06	1.07	1.02	1.01	1.06		1.05
Average Casing Hole Diameter, in.	1.01	1.03	1.02	1.02	1.05	1.04	1.05	1.01	0.99	1.05		1.04
Total Depth, in.	7.0	6.5	*	6.5	5.5	6.5	*	6.0	7.0	5.5		6.1
Burr Height, in.	0.03	0.04	0.05	0.08	0.03	0.07	0.03	0.04	0.05	0.05		0.05

Remarks: Data marked with " * " is lost and not included in average. Normalised Penetration is 6.4". The above charges were manufactured by Dahana Oiltech Joint Operation (DOJO), Indonesia

Manufacturer's Certification

Type of Certification: ____ Self X 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	Frankie Teo	AGM	15 Oct 2012	Oiltech Services Pte Ltd	25 Loyang Crescent, Blk 302 TOPS Ave 3, #02-06, Singapore 508988
X RECERTIFIED	(Company Official)	(Title)	(Date)	(Company)	(Address)

Name of test as it should appear on website: 7", HSD 39g HMX BH, 105° Phasing, 16 SPF

Name of test as it appears on application and application date: Charge: HSD 39g HMX BH, Gun: 7", 16 SPF, 105° Phase Carrier