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: 3-3/8" 6 SPF 60° Phase Carrier
Charge Name: HSD 34BX 22.7g HMX XDP
Manufacturer Charge Part No.: OT60185 Date of Manufacture: 24 Jun 2011
Gun Type: TCP, Wireline, Retrievable Tubular Carrier with scallop
Phasing Tested: 60 degrees, Firing Order: X Top down ___ Bottom up
Debris Description: N/A

Explosive weight: 22.7 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: 6 Shots/ft ___
Recommended Minimum ID for Running: 3.75 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 casing thickness

Casing Data: 4-1/2" OD, Weight: 11.6 lb/ft, API Grade: L-80 Date of Section 1 Test: 27 Jul 2011
Target Data: 89" OD, Amount of Cement: 9,612 lb, Amount of Sand: 19,224 lb, Amount of Water: 4,998 lb.
Date of Compressive Strength Test: 26 Jul 2011 Briquette Compressive Strength: 6,286 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	0.14	0.45	0.63	0.45	0.14	0.00	0.14	0.45	0.63	0.45
Casing Hole Diameter, Short Axis, in	0.33	0.32	0.33	0.33	0.33	0.31	0.34	0.33	0.31	0.31	0.33
Casing Hole Diameter, Long Axis, in	0.35	0.35	0.35	0.35	0.36	0.33	0.37	0.35	0.32	0.34	0.36
Average Casing Hole Diameter, in.	0.34	0.34	0.34	0.34	0.35	0.32	0.36	0.34	0.32	0.33	0.25
Total Depth, in.	33.95	35.95	35.45	27.45*	31.95	33.95	35.95	28.95*	36.95	26.45	36.95
Burr Height, in.	0.06	0.02	0.05	0.06	0.03	0.03	0.03	0.05	0.04	0.03	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.	0.14	0.00	0.14	0.45	0.63	0.45	0.14	0.00	0.14	0.45		XXXXXX
Casing Hole Diameter, Short Axis, in	0.33	0.32	0.32	0.31	0.32	0.32	0.31	0.32	0.33	0.33		0.32
Casing Hole Diameter, Long Axis, in	0.36	0.35	0.34	0.34	0.35	0.35	0.34	0.35	0.36	0.35		0.35
Average Casing Hole Diameter, in.	0.35	0.34	0.33	0.33	0.34	0.34	0.33	0.34	0.35	0.34		0.34
Total Depth, in.	35.95	32.45	21.95*	24.95*	27.95*	26.45*	33.45	33.45	30.45*	14.95*		34.30
Burr Height, in.	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.06		0.04

Remarks: 100% penetration marked with "*" could not be determined, and are not included in the average. The average penetration with compressive strength of 5,000 psi is 36.50".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	31 Aug 2012	Oiltech Services Pte Ltd	Loyang Offshore Supply Base. 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: 3-3/8", HSD 22.7g HMX XDP, 60° Phasing, 6 SPF

Name of test as it appears on application and application date: Charge: HSD 22.7g HMX XDP, Gun: 3-3/8", 6 SPF, 60° Phase Carrier