



## 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    Explosive weight 10 gm, HMX powder, Case Material Steel

Gun OD & Trade Name 1-11/16" 6 SPF 0° Phase Strip    Max Temp, °F 400    1 hr 3 hr 300    24 hr 100 hr 200 hr

Charge Name STR 10g HMX SDP    Maximum Pressure Rating 20,000 psi, Carrier Material Steel

Manufacturer Charge Part No. OT60321    Date of Manufacture 8 Feb 2010    Shot Density Tested 6    Shots/ft \_\_\_\_\_

Gun Type Wireline, Through tubing, Semi expendable    Recommended Minimum ID for Running 1-25/32" in.

Phasing Tested 0 degrees, Firing Order: Top down  Bottom up    Available Firing Mode: \_\_\_\_\_ Selective \_\_\_\_\_ X \_\_\_\_\_ Simultaneous \_\_\_\_\_

Debris Description N/A    Debris Weight N/A gm/charge, Debris N/A in<sup>3</sup>/charge

Remarks/Exceptions per Section 1.11 Casing used was 12.6 lb/ft, since 11.6 lb/ft is not available

Casing Data 4-1/2" OD, Weight 12.6 lb/ft, API Grade, L-80    Date of Section 1 Test 12 Mar 2010

Target Data 28" OD, Amount of Cement 1,612 lb, Amount of Sand 3,263 lb, Amount of Water 838 lb.

Date of Compressive Strength Test 11 Mar 2010    Briquette Compressive Strength 6,930 psi,    Age of Target 35 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Casing Hole Diameter, Short Axis, in	0.29	0.29	0.29	0.28	0.26	0.25	0.32	0.28	0.27	0.28	0.29
Casing Hole Diameter, Long Axis, in	0.32	0.32	0.31	0.32	0.30	0.27	0.33	0.31	0.31	0.32	0.34
Average Casing Hole Diameter, in.	0.31	0.31	0.30	0.30	0.28	0.26	0.33	0.30	0.29	0.30	0.32
Total Depth, in.	18.77	16.27	19.27	20.27	18.27	15.77	13.27	18.77	17.77	15.77	19.27
Burr Height, in.	0.02	0.02	0.03	0.01	0.02	0.02	0.03	0.01	0.05	0.03	0.03

  

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		XXXXXX
Casing Hole Diameter, Short Axis, in	0.29	0.25	0.25	0.28	0.29	0.28	0.26	0.30	0.23	0.29		0.28
Casing Hole Diameter, Long Axis, in	0.36	0.31	0.31	0.31	0.33	0.33	0.28	0.30	0.27	0.31		0.31
Average Casing Hole Diameter, in.	0.33	0.28	0.28	0.30	0.31	0.31	0.27	0.30	0.25	0.30		0.30
Total Depth, in.	16.27	18.27	18.77	loss	loss	19.27	19.27	19.27	18.27	17.77		17.93
Burr Height, in.	0.06	0.04	0.04	0.03	0.04	0.04	0.04	0.02	0.03	0.08		0.03

Remarks Shot no. 15 and 16 was not included in the average, since the penetration was lost after the test. The above charges were manufactured by Dahana Oiltech Joint Operation (DOJO), Indonesia

### Manufacturer's Certification

Type of Certification:     Self     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

RECERTIFIED    (Company Official)    (Title)    (Date)    (Company)    (Address)

Name of test as it should appear on website: 1-11/16" , STR 10g HMX SDP, 0 deg Phasing, 6 SPF

Name of test as it appears on application and application date: Charge: STR10g HMX SDP, Gun 1-11/16", 6 SPF, 0° Phase Strip