



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: BashVzryvTechnologii, CJSC
Gun OD & Trade Name: 3,5" (89 mm) PKO89-AT
Charge Name: ZPK89-AT-M-04
Manufacturer Charge Part No.: 01 028
Date of Manufacture: Sept. 08, 2015
Gun Type: Expendable Gun TCP/Wireline
Phasing Tested: 60 degrees, Firing Order: Top Down X Bottom up
Debris Description: N/A

Explosive Weight: 27,7 gm, RDX powder, Case Material: Steel
Max Temp, °F: 302(150°C) 2hr, 284(140°C) 5hr, 266(130°C) 12hr, Carrier Material: Steel
Maximum Pressure Rating: 15011,4 (103,5 MPa) psi
Shot Density Tested: 6,1 (20 shots/m) shots/ft
Recommended Minimum ID for Running: 4,528 (115 mm) in.
Available Firing Mode: Selective X Simultaneous

Remarks/Exceptions per Section 1.12: Casing used: 5,748" (146 mm)x0,374"(9,5 mm) GRADE D, GOST 632-80; Gun shot with water
Casing Data: 5,748" (146 mm) OD, Weight: 21,49 (31,98 kg/m) lb/ft, API Grade, Date of Section 1 Test: October 12, 2015
Target Data: 118,11" (3000 mm) OD, Amount of Cement: 16799,22 (7620 kg) lb, Amount of Sand: 33620,49 (15250 kg) lb, Amount of Water: 8741,33 (3965 kg) lb.
Date of Compressive Strength Test: October 12, 2015, Briquette Compressive Strength: 5467,7 (37,70 MPa) psi, Age of Target: 32 days

Table with 12 columns (Shot No. 1-12) and 13 rows (Clearance, Casing Hole Diameter, Average Casing Hole Diameter, Total Depth, Burr Height). Values include measurements in mm and psi, with some entries marked as LOST.

Table with 12 columns (Shot No. 12-22) and 13 rows (Clearance, Casing Hole Diameter, Average Casing Hole Diameter, Total Depth, Burr Height). Values include measurements in mm and psi, with some entries marked as LOST. Includes an AVERAGE column.

Remarks: The gun can be used in gas wells. Penetration normalized to 5000 psi by method of SPE 27424 (approx. 3,8% / 1000psi) = 50,5 " (1284 mm)

Witnessed by:

K. Poliakov

WITNESSING INFORMATION

Optionally Witnessed Activities:

Target Pouring

Briquette Preparation

Briquette Testing

Burr Height Measurements

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.

Penetration data recorded in API RP 19B Section 1 may not directly correlate to penetration downhole

X

CERTIFIED BY

A. Yakuba

Director for Project Management

October 16, 2015

BVT, CJSC

41 Rabochaya St., Samara, 443041, Russian Federation

(Company Official)

(Title)

(Date)

(Company)

(Address)

Name of test as it should appear on website:

PKO89-AT / ZPK89-AT-M-04

Name of test as it appear on application and application date:

PKO89-AT / ZPK89-AT-M-04

August 19, 2015