

# MANAGED WIRELESS PERFORATING

INTELLIGENT TRIGGER FIRES DEEP  
SET TCP GUNS ENABLING COMINGLED  
FLOW WITH A PREVIOUSLY TESTED  
UPPER ZONE ON CONSECUTIVE DEEP  
WATER WELL TESTS

CROSS-FIRE

JANUARY 2016

PRODUCT:

DATE:

LOCATION:

**West Africa**

SERVICE:

**Perforating services**

BENEFITS:

**PERFORATING EFFICIENCY**

**FLEXIBLE TECHNOLOGY**

CASE STUDY:

**1005/02**

**METROL**<sup>®</sup>  
APPLIED INTELLIGENCE

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# CASE STUDY: 1005/02

PRODUCT:	CROSS-FIRE
DATE:	JANUARY 2016

METROL'S INTELLIGENT CROSS-FIRE ALLOWED THE CLIENT TO PERFORATE THE LOWER OF TWO ZONES AND CONDUCT A DUAL ZONE TEST WITH A SINGLE RUN IN HOLE. THE 'LOW PERM' UPPER ZONE WAS PERFORATED WITH 7" GUNS AND FLOWED BEFORE PERFORATING THE 'HIGHER PERM' LOWER ZONE. BY BEING ABLE TO CLEAN UP THE 'LOW PERM' ZONE FIRST, ANY PREFERENTIAL OR 'MASK-OUT' FLOW AT THE EXPENSE OF THE UPPER ZONE WAS MINIMISED.

## CHALLENGE

Metrol were asked to provide a safe and precise perforating system, that could wirelessly initiate detonation of a firing head and allow a 'low perm' section of the reservoir to be perforated and cleaned-up before shooting a 'higher perm' reservoir approximately 30 metres below. Both appraisal wells were 100km offshore West Africa, in a total water depth of 1,200m. (see fig.1)

## METHOD

The CROSS-FIRE was attached to a standard hydrostatic firing head and run-in-hole with the PARAGON Wireless Telemetry System. 7" guns were used in both the upper and lower zones. The upper guns were fired first, this meant the CROSS-FIRE and telemetry electronics had to withstand significant g-forces. Signals were successfully propagated across the 'spent' guns to initiate detonation and monitor the well performance. Data was collected at a time resolution of 32pts/sec to validate the moment of perforation. (see fig.2)

## RESULTS

The prime and fire commands delivered to CROSS-FIRE successfully triggered the guns. The fire command had to be received within a fixed time frame after the prime had been delivered. This adds another level of safety to the operation. The status of all tools were checked and confirmed to be functioning after detonation of both sets of guns. This demonstrates that additional guns could be fired at a later stage if ever required enhancing testing design options.

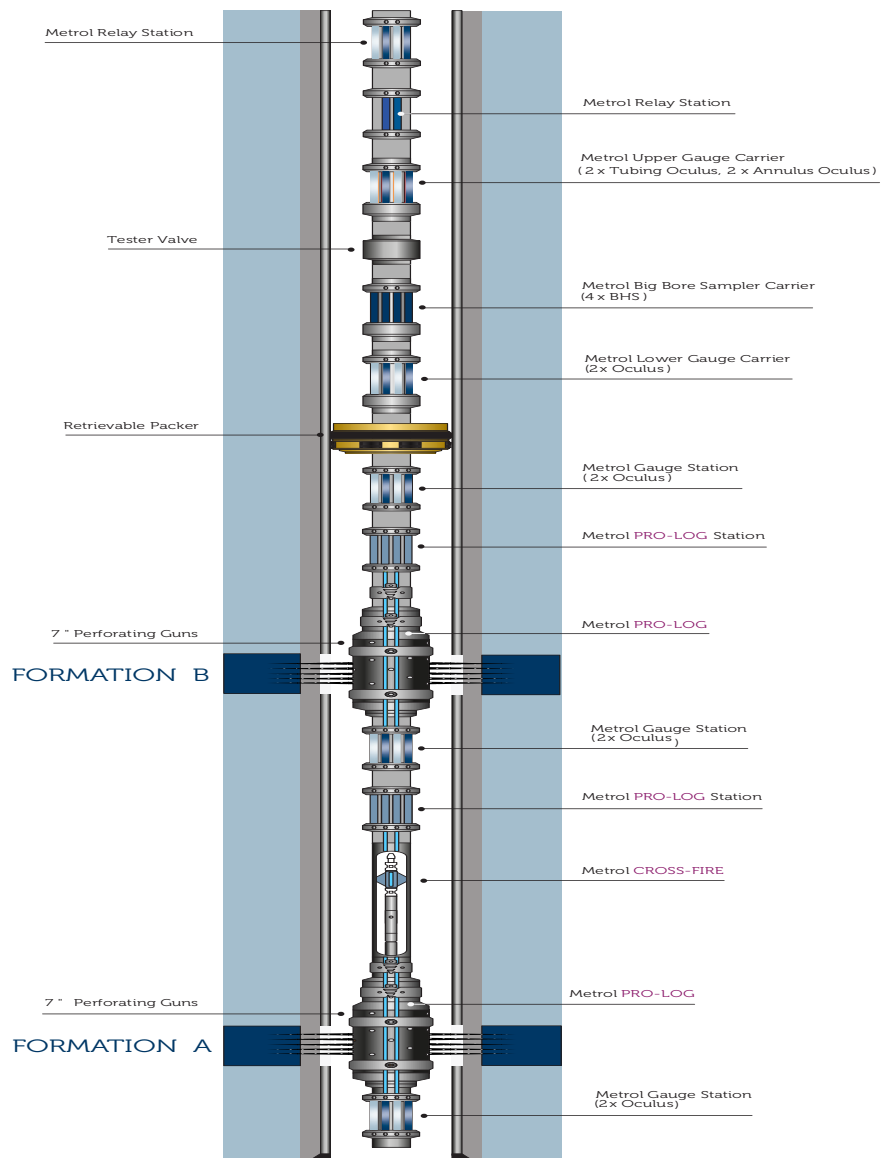


Figure 1

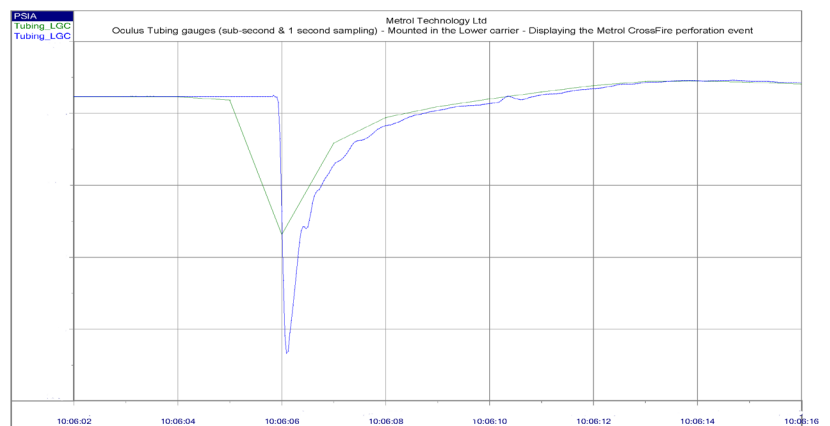


Figure 2

## CROSS-FIRE WELL TEST CONFIGURATION

## CASE STUDY INDEX

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1006 – WIRELESS BARRIER MONITORING

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