

### ROP AND FOOTAGE INCREASE IN 8 1/2" SECTION IN METAMORPHIC QUARTZITE FORMATION

Sinai, Egypt  
Vegas East Lagia Incorporated

**\$122k**  
POTENTIAL COST SAVINGS

**36.2%**  
ROP INCREASE WITH 1 THRUSTER

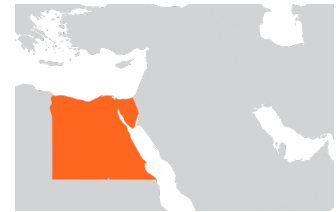
**37.5%**  
ROP INCREASE WITH 2 THRUSTERS

The Thruster provides consistent force to bit by balancing hydraulic and mechanical forces. This balance provides smooth energy transfer to the bit, even in erratic situations. By providing consistent parameters, the Thruster reduces shock and vibration, BHA damage and failures.

## THE CHALLENGE THE SOLUTION

While drilling a deep 8.5" vertical well in Egypt, Vegas East Lagia Incorporated was experiencing high axial and lateral vibrations which led to inability to increase WOB and ultimately, low ROP. A rotary BHA with a PDC bit was being utilized.

TAQA recommended adding the 6.75" Thruster as close to the bit as possible to mitigate bit bounce. After seeing the improvement when adding the Thruster, a second Thruster was added higher in the BHA.

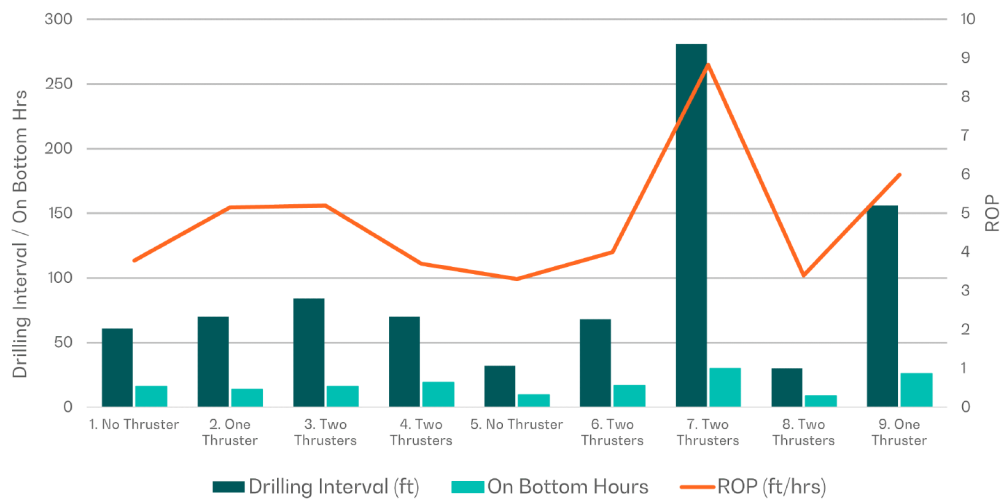


## THE RESULT

Adding 1 Thruster resulted in a footage increase of 14.8%, ROP increase of 36.2% and bit bounce was mitigated.

Adding 2 Thruster resulted in a footage increase of 37.7%, ROP increase of 37.5% and vibration was minimal.

THRUSTER PERFORMANCE



### RUN OVERVIEW

- 8 1/2" PDC/TCI/ Hybrid Bit
- Bit Sub
- Thruster
- Stabilizer
- Drill Collar
- Thruster
- Drill Collars

BHA #	1. No Thruster	2. One Thruster	3. Two Thrusters	4. Two Thrusters	5. No Thruster	6. Two Thruster	7. Two Thruster	8. Two Thruster	9. One Thruster
Drilling Interval (ft)	61	70	84	70	32	68	281	30	156
On Bottom Hrs	16.1	13.8	16	19.15	9.75	17	30	8.83	26
ROP (ft/hr)	3.78	5.15	5.2	3.7	3.3	4	8.83	3.4	6