

AVAPOLYMER 5050

Shale Inhibitor & Filtrate Reducer



Drilling Interval completed in 23 days rather than the 47 that was programmed.

INTRODUCTION

AVAPOLYMER 5050 is a blend of organic polymers, based on polyalcohol and cellulose derivatives, which stabilize hydratable and dispersible shale, reducing filtrate invasion into formation.

AVAPOLYMER 5050 was successfully used in the ALLI 4 OR (Val D'Agri area, Italy) well in October 2003 during the drilling of the 14 3/4" section, from 1,300 to 1,800 m (4,300 – 5,900 ft).

AVAPOLYMER 5050 has been used as shale stabilizer and filtrate reducer in several water-based inhibitive systems.

OBJECTIVES

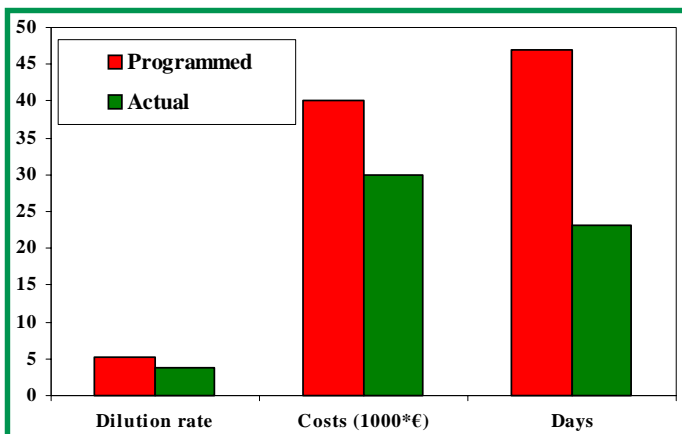
Oil companies primary objectives were to drill through a reactive shale formation, maximizing inhibition and minimizing the chance of borehole stability problems.

ACTIONS

AVAPOLYMER 5050 was used as a shale stabilizer and filtrate reducer in a Potassium Carbonate based mud system. The AVAPOLYMER 5050 was used at a concentration of 3.5 – 4.0 kg/m³ (1.2 – 1.4 ppb) in a Potassium Carbonate mud system

during the drilling of the shale and calcareous formations. Potassium Carbonate concentration was 30 – 40 kg/m³ (10.5 – 14.0 ppb).

The treatment of AVAPOLYMER 5050 used in conjunction with potassium carbonate provided exceptional shale inhibition with cuttings at the shale shaker screens coming



Programmed vs Actual Performance

off dry with no indication of balling.

RESULTS

API filtrate was progressively lowered from 6.5 ml to 4.5 ml. This improved the appearance and the consistency of the filter-cake, creating a firm, thin filter cake.

Due to the excellent inhibition provided by the fluid system, drilling continued without any back

reaming, and the interval was completed in 23 days rather than the 47 days that had been programmed. A gauge hole was obtained as seen from caliper logs.

Parameter	U.M.	Programmed	Actual
Density	sg	1.10	1.20
Marsh viscosity	sec/L	60 – 70	65
PV	cP	12 – 25	30
YP	g/100ft ²	24 – 40	24 – 30
Gels	g/100ft ²	5/7 – 15/20	5 – 10
API Filtrate	ml	8.0 – 10.0	4.5 – 5.0
MBT	kg/m ³	40 – 50	48
pH	-	11 – 12	11 – 12

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CASE STUDY