

POLY PLUG®

PROFESSIONAL FLUID SERVICES, LLC

PRODUCT DESCRIPTION

Poly Plug® consists of a *pharmaceutical* grade-cross-linking agent, a blend of **high molecular** weight polymer and *Ultra Seal-Plus®*, (a broad range of fibers to slow seepage of the polymer into the formation),

The cross-linking action is a function of temperature. For temperatures below 100 degrees F an accelerator, *Ultra Seal-XLA®* is required. For temperatures above 125 degrees F, a delaying agent, *Ultra Seal-XLR®* is required.

Ultra Seal-XLD® is a silicone based de-foamer and aids in reducing viscosity. Other de-foamers should be pilot tested prior to use.

Poly Plug® was developed for **high permeable formations**. *Poly Plug®* has a **high viscosity** thus enabling the polymer to stay with in the loss zone targeted.



JANUARY 2005



Case Histories

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Special points of interest:

- **Time Controlled**
- **Robust Gel Chemistry**
- **Density controllable with barite or hematite**
- **Insensitive to H₂S and CO₂**
- **Temperature stable up to 400 F**
- **Not intended for use in the reservoir, product should be considered permanent**

PRODUCT BENEFITS

Poly Plug® effectively seals fractured, vugular, weak, flowing and over pressured formations.

Poly Plug® can be pumped through the bit, mud motors and MWD/LWD tools.

Poly Plug® can be circulated around the BHA without the risk of stuck pipe.

Poly Plug® develops minimal compressive strength, eliminating the risk of side track.

Poly Plug® is a single sack, pre-blended product and is designed for ease of use. Simply add one sack of Poly Plug® per 42 gallons of water.

Poly Plug® is compatible with WBM and OBM.

Deep Water–Casing Shoe Estimated SAVINGS \$700,000

Drilled out 13 3/8" casing shoe and could not obtain the desired shoe test. A 100 bbl 13.3 ppg Poly Plug pill was blended. The pill was blended in the rig slugging tank and took 3 hours and 45 minutes to build and weight up. (Note: Only a gun line available for agitation, the Poly Plug was mixed through the rig hopper)

-The well was drilled to 6,749' the drill string was POOH to 6,589'. 88 bbls of Poly Plug® was squeezed into the formation. The well was left shut in for eight hours.

After waiting 8 hours, the drill string was TIH and the Poly Plug pill was tagged at 6,725'. Washing and reaming continued to a depth of 6749' and the drill string was then POOH to the casing shoe. A FIT was performed to 425 psi, an EMW of 14.5 ppg.

Drilling Operations commenced without incident. Money saved on rig time when compared to a cement squeeze was **\$700,000**.

OPERATOR: EL PASO

LOCATION: EWING BANKS

DRILLING FLUID: GYP WBM



Gulf of Mexico-Sub Salt (Rubble Zone)

A 100 bbl pill of Poly Plug® was mixed in the slug tank and weighted to 17.0 ppg. The bit was placed 10' above the estimated loss zone. The pill was pumped to the bit with no returns. After 15 bbls of Poly Plug® cleared the bit, full returns were observed.

After evacuating the drill string of Poly Plug®, the drill string was POOH to the casing shoe. The Hydril was closed and 50 bbls of Poly Plug® was squeezed

into the formation leaving 35 bbls in the annulus. Shut-in pressure was 300 psi on the casing and 150 psi on the drill pipe.

“Loss Rate was over 100 BPH static and Over 200 BPH dynamic”

The well was left shut-in and the pill was waited on (8) hours. After (8) hours circulation was established and the drill string was staged in the hole. The plug was washed through and drilling commenced without further losses.

OPERATOR: BHP AMERICAS

DRILLING FLUID: SOB M

South Louisiana-Tuscaloosa Trend (Deep & Hot)

All exposed sands were pay zones and the well was losing 25 BPH.

The Poly Plug pill was blended in a 40 bbl batch blender and took 1.5 hours to build and weight up to 17.4 ppg.

The pill was pumped down the drill pipe and after clearing the bit by (1) bbl, the drill string was POOH to 100' above the casing shoe (+/- 19,000') and a total of 8 bbls was squeezed into the

loss zone before pressure limitations of 800 psi on the casing occurred. The Poly Plug pill was held in place for (1) hour and then a trip was made for a new bit. Operator was able to wash and ream to bottom with no further losses and continue to drill without further incident.

OPERATOR: BP

DRILLING FLUID: 17.4 lb/gal OBM

BHT: 380 DEGREES F

Grady County, Oklahoma (Oil Sand Creek)

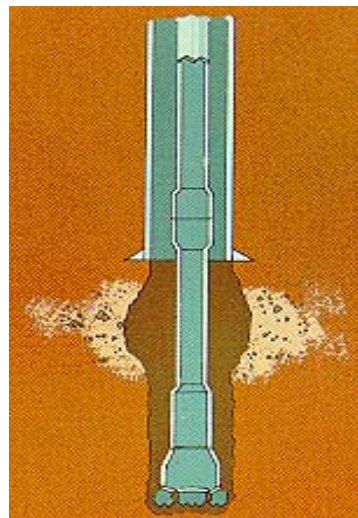
Lost complete returns @ 16714' and 1000 bbls of OBM was lost while attempting to circulate. Mud weight was cut and LCM pills were spotted in concentrations of 40-50 ppb. Another 700 bbls of OBM was lost.

The fluid level was checked with wire line and was determined to be 800'. A 60 bbl Poly Plug® pill was mixed and spotted. After 6 hours the annulus was filled with 30 bbls of 11.8 ppg OBM with some seepage noted at 20 BPH. The drill string was TIH to 16273' & attempted to circulate with no returns. A second 60 bbl Poly Plug pill was

mixed & spotted. After 120 bbls into the displacement a trickle of returns were obtained increasing to 75-80% once all the displacement fluid had been pumped. The drill string was POOH to 15,427' and shut down. After waiting 5 hours POOH to 7951' and break circulation. Full returns were established at 7,951'. The drill string was staged into the well bore to the total depth of 16,714' with full returns. Drilling was completed to the depth of 16962' with no further losses.

OPERATOR: MARATHON

WELL: MITCHELL 2-34



Western Desert, Egypt (Fractured Dolomite)

1,000 bbls of volume lost over a 24 hour period. The drill string was POOH to 8,400' (bottom of the Alamein formation). The top was at 7,900'. Attempted to circulate with 30 bbls/hr losses noted. A 100 bbl Poly Plug® pill was spotted across the Alamein formation and over displaced by 1 bbl. The Operator POOH 18 stands and attempted to circulate. Full returns were observed. The Hydril was

then closed and 32 bbls of the Poly Plug® was squeezed into the formation and held for 6 hours. The squeeze pressure was released and bottoms up circulated with full returns. The drill string

was TIH and the Poly Plug® pill was washed through without further losses to the Alamein Formation. Drilling commenced without further loss circulation problems.

“PRIOR TO POLY PLUG®, THREE CEMENT PLUG HAD BEEN PUMPED WITHOUT SUCCESS”

OPERATOR: KHALDA

WELL: RAS EL HEKMA-1

North Africa, Algerian Desert (Fractured Limestone)

While drilling ahead at 6,230' total loss returns occurred. Five cement plugs had been pumped without success. Over 2,500 bbls of drilling fluid had been lost.

100 bbls of Poly Plug® was mixed in the slug tank and weighted up to 10 ppg. The pill was spotted through the bit with no returns. The pill was waited on for five hours. After waiting

five hours, circulation was established and drilling commenced without further incident. The drilling fluid was weighted up to 10.5 ppg without any further losses and drilling commenced to TD.

OPERATOR: BP

LOCATION: ALGERIA



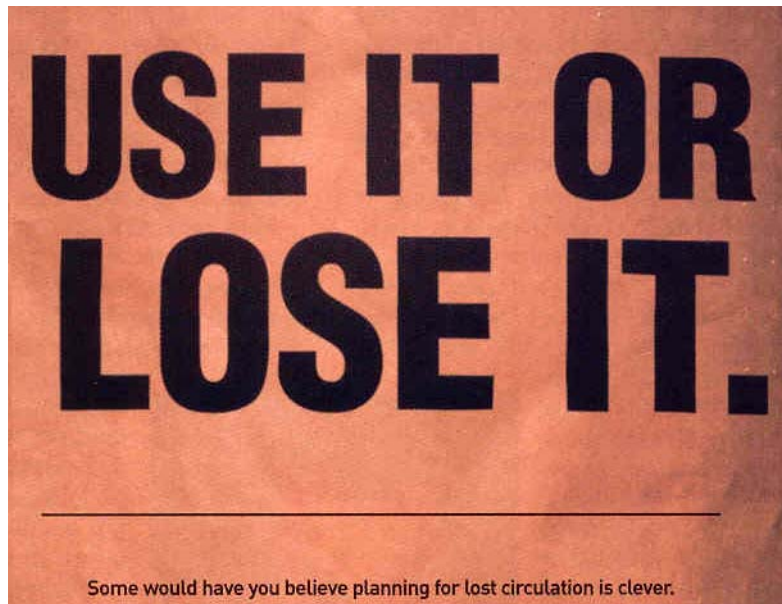
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POLY PLUG®



Who is Professional Fluid Services, LLC ?

Professional Fluid Services, LLC has grown into one of the most technically innovative fluid loss control companies in North America. PFS strives to produce superior products that will aid the oil and gas operator with down hole sealing and zonal isolation.

Professional Fluid Services, LLC works closely with the customer to identify and understand the situation at hand

and recommend the most economically appropriate solution from within our product line.

**THE GREATEST IDEA
IN SEALANTS
HAS FINALLY GELLED**

STOCK POINTS:

Airdrie, Alberta, Canada
(Supply Rite)

Casper, Wyoming
(USA Trucking)

Midland, Texas
(Agri-Empressa)

Bridgetown/Alice, Texas
(Ainsworth, Trucking)