MI SWACO
A Schlumberger Company

PIPE-LAX W EH

PIPE-LAX* W EH stuck-pipe additive is a liquid one-drum product for preparing weighted oil-base spotting fluids.

It contains gellants, emulsifiers, wetting agents and filter-cake-cracking materials. PIPE-LAX W EH spotting fluid can be mixed in diesel oil or mineral oil. Freshwater, seawater or brine can be used for the water portion of the spot. PIPE-LAX W EH product dehydrates and cracks filter cakes, allowing the spotting fluid to penetrate between the drillstring and the formation. The product wets and lubricates the drillstring and reduces the force required to free stuck pipe. PIPE-LAX W EH spots are easily and quickly mixed, requiring no special rig or mixing equipment.

Typical Physical Properties

Physical appearance	Dark brown, oily liquid
Specific gravity	1.0-1.1
Pour point	< 32°F (0°C)
Flash point	84°F (29°C) (PMCC)

Applications

PIPE-LAX W EH stuck-pipe additive has application in all wells that require a weighted soak solution to free differentially stuck pipe. PIPE-LAX W EH spotting fluids can be prepared from either diesel oil or mineral oil using any make-up water. Densities of PIPE-LAX W EH spots are in the range of 8-18 lb/gal (0.96-2.16 sg).

Success in freeing differentially stuck pipe is greatest when the soaking solution is spotted in the minimum amount of time after the pipe becomes stuck. A soak solution that can be quickly mixed and spotted often frees the drillstring before fishing operations are required. Because PIPE-LAX W EH stuck-pipe additive, is a single-package liquid blend, it is easy to mix and prepare quickly.

PIPE-LAX W EH spotting fluid yields excellent oil-wetting characteristics and is formulated to ensure rapid penetration through the filter cake to the formation. The quantity of the PIPE-LAX W EH spotting fluid (50-200 bbl [8-32 m^3]) should be placed in the annulus around the suspected stuck pipe area, and one or two barrels of fresh spotting fluid should be pumped every hour. PIPE-LAX W EH spotting fluid is designed to remain effective when contaminated by water-base mud.

Formulation

The chart below lists the required quantities for formulating one barrel of PIPE-LAX W EH solution in diesel oil with M-I BAR* weighting material. This formulation is designed to produce the minimum viscosity required to support weight material. The concentration of PIPE-LAX W EH stuck-pipe additive should be increased from 3.36 gal/bbl (80 l/m^3) to 4.0-4.5 gal/bbl (95-107 l/m^3) when higher viscosities are required or if mineral oil is being used. If it is necessary to reduce the viscosity of a PIPE-LAX W EH solution, dilution with oil or the addition of 0.25 - 0.5 lb/bbl (0.71-1.43 kg/m^3) VERSAWET* surfactant is recommended.

Example: To mix 120 bbl, 12-lb/gal PIPE-LAX W EH spot using diesel oil and M-I BAR weight material:.

From the chart calculate:.

Diesel oil:	0.54 x 120 = 64.8 bbl	
Water:		0.22 x 120 = 26.41 bbl
PIPE-LAX W EH	3.36 x 120 = 403.2 gal or 7.3 drum	

Chart for One Barrel of Spotting Fluid

Mud Weight	Diesel Oil	Pipe-Lax W	Freshwater	M-I Bar
(lb/gal)	(bbl)	(gal)	(bbl)	(lb)
8	0.620	3.36	0.280	25.6
10	0.580	3.36	0.260	138.6
12	0.540	3.36	0.220	248.5
14	0.490	3.36	0.210	349.3
16	0.510	3.36	0.110	458.5
18	0.440	3.36	0.100	567

Chart for One Cubic Meter of Spotting Fluid

Mud Weight	Diesel Oil	Pipe-Lax W	Freshwater	M-I Bar
(S.G.)	(litres)	(litres)	(litres)	(kg)
0.96	620	80	280	73
1.20	580	80	260	396
1.44	540	80	220	710
1.68	490	80	210	995
1.92	510	80	110	1310
2.16	440	80	100	1620

NOTE: The effectiveness of 3.36 gal/bbl (80 l/m3) Pipe-Lax W EH per barrel of spotting fluid is adequate for all types of base oils. However, when preparing spotting fluid in low-toxicity mineral oils, slightly more Pipe-Lax W EH additive can be required to obtain the desired rheological properties and gel strengths.

Preparation

Preparing Pipe-Lax W EH solutions is quick and simple. Follow the recommended mixing procedure:

1. Clean the spotting tank (slug pit or available rig tank) of any drilling mud. Flush mixing lines with water and drain..
2. Add the necessary amounts of oil and Pipe-Lax W EH product followed by water. Shear with centrifugal pump for 30 minutes minimum until a stable emulsion forms.
3. Add weight material until desired density is achieved. Adjust the viscosity by adding Pipe-Lax W EH product, adding organoclay or adding oil or Versawet surfactant to reduce viscosity.

Spotting Procedure

Most frequently, it is the drill collars that become differentially stuck. The placement of a Pipe-Lax W EH spot is relatively simple. The procedure for spotting a Pipe-Lax W EH solution is:

1. Determine the number of barrels of Pipe-Lax W EH spot required to fill the annular space around the drillstring from the bit to the differentially stuck zone. To this calculated volume, add at least 25%. The extra volume remains inside the drillstring to allow for the periodic displacement of additional spotting fluid.
2. Determine the proper pumping time to spot the fluid across the affected area. Displace, then shut off the pumps.
3. Work the pipe regularly and use jars if possible. Displace 0.5 to 1 barrel (80-159 L) of Pipe-Lax W EH solution every half hour to keep the pipe covered
4. When the pipe is freed, or if the spot needs to be circulated out of the hole, the Pipe-Lax W EH spot can be incorporated into the drilling mud system. In offshore wells being drilled in environmentally sensitive areas, it might be necessary to catch the fluid in a tank to segregate it from the drilling fluid

Advantages

- Simple, single-drum product does not require other additives
- Can be used in diesel oil, crude oil or low-toxicity oil
- Does not require high shear or long mixing time, which allows for quick and effective application

Toxicity and Handling
Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the Material Safety Data Sheet (MSDS).

Packaging and Storage
PIPE-LAX W EH stuck-pipe additive is packaged in 55-gal (208-L) drums.

Keep away from heat, sparks and open flame. Keep in cool, dry, ventilated storage area and in closed containers. Keep in original container.

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M-I SWACO
A Schlumberger Company

P.O. Box 42842
Houston, Texas 77242-2842
Tel: 281·561·1300
Fax: 281·561·1441
www.miswaco.com
E-mail: questions@miswaco.com