

## 5 MINUTE REFRESHER: Electrical Stability

Possible causes of discrepancies in ES measurements:

- **weighting material** - in highly treated muds, weighting with barite generally increases reading while weighting with hematite decreases it.
- **emulsifier concentration** - reading generally increases with small amounts of emulsifier as expected, but in some cases, as the concentration is increased further, the ES measurements drop.
- **time lapse** between onset of breakdown and build-up of material on electrodes.

**HTHP reading** -ES readings and HTHP fluid loss, both of which are considered indicators of oil base mud stability, are expected to track in opposite directions, however in some cases they track the same way.

A decrease in electrical stability is always of some concern, but the ES is only a guideline to emulsion stability. If the ES decreases, observe the HTHP filtrate closely.

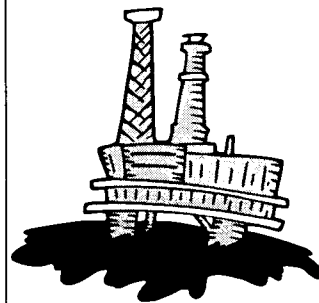
If the filtrate increases or if water or emulsion begins to show up in the HTHP, then there is genuine cause for concern about the emulsion stability.

A reliable spot check to determine if the ES has actually decreased and the emulsion has become unstable is to screen the mud across a 200 mesh screen, taking the readings before and after. If the ES decreased before the addition of an additive and increases after most of the material is removed across the screen, chances are the conductive material has bridged across the electrodes and that the electrical stability has not decreased.

Source: SPE Drilling and Completion, March 1994, Ellis, Growcock and Schmidt and VCI TSR-1001-91

## OIL: Endangered Resource or Endless Supply?

Ever since the oil industry got it's start in Pennsylvania in the late 19th century, people have wondered when the world would run out of "black gold." Doomsday predictions have been commonplace. The earliest U.S. Government estimates believed that the oil would be gone by 1925; updated predictions from the Department of the Interior in both the 1940s and 1950s argued that oil supplies would run out before 1970. The 1980s, 1990s and the early 21st century have also been pinpointed, by both environmentalists and geologists, as periods in which the wells would finally peter out.



Each of these predictions may have been proven correct, if only the supply of oil was a static figure. But instead, like oil itself, the amount of oil remaining in the world, according to one analyst, is "totally fluid." Even as the world consumes more than 73 million barrels of oil per day, according to U.S. Department of Energy figures, the total available supply continues to grow.

The standing figure for proven and easily accessible oil reserves remains what it was in the 1980's—1 trillion barrels. That's more than double estimates from the 1940s, and the number doesn't even reflect improvements in technology that will let oil companies pull even more from the ground.

"When you drill you expect to get 30% of the oil under the ground," says Daniel Butler, an energy analyst with the U.S. Department of Energy. "But...you can now get 50% and in some cases—in places like the North Sea—70%. If you look at the series of estimates, it's an increasing series. When they do it again in a few more years, I guarantee that they'll even find more."

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In fact, the most recent U.S. Geological Survey estimates declare that the world holds 3 trillion barrels—enough to satisfy world demand at the present level for about 100 years. These surveys could be overstating the potential, but there are also other sources of oil that remain untapped.

Tar sands and shale rock formations hold substantial quantities of oil. Some experts estimate—according to Bjorn Lomborg, author of *The Skeptical Environmentalist*—that shale rock alone contains 242 times more oil than conventional petroleum resources.

As Saudi Arabia's former oil minister, Sheik Yamani, pointed out, "The Stone Age came to an end not for lack of stones and the Oil Age will end, but not for lack of oil."

- *The Skeptical Environmentalist*, salon.com, and *Reason* (Feb. 2002)

## PRODUCT CORNER

### VEN-GEL™ 420

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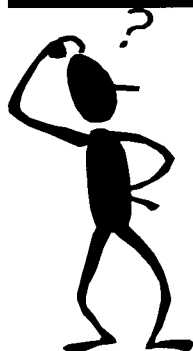
**VEN-GEL™ 420** is a specially reacted organophilic attapulgite clay derivative with potential applications in a variety of organic systems.

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### THOUGHT TICKLERS



"I've been on so many blind dates, I should get a free dog."

- Wendy Liebman

"If love is the answer, could you please rephrase the question?"

- Lily Tomlin

"When you see a married couple walking down the street, the one that's a few steps ahead is the one that's mad."

- Helen Rowland



"To love and be loved is to feel the sun from both sides."

- David Viscott

"One word frees us from all the weight and pain of life: That word is love."

- Sophocles

"Life has taught us that love does not consist in gazing at each other, but in looking outward together in the same direction."

- Antoine de Saint-Exupery

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# VEN-BRIEFS

## LIAR, LIAR, FACE ON FIRE!

A camera that detects liars by monitoring the temperature of their face could lead to more effective screening procedures at airports and other high security locations say U.S. scientists.

The camera will reportedly identify an instant rush of blood to the area around the eyes, a phenomenon that has been linked with lying.

"The ultimate concept being that you would ask someone if they were carrying a weapon and get an immediate response from the camera," says James Levine one of the scientists on the project.

Skeptics believe the system is unlikely to work perfectly perhaps varying significantly between individuals and could lead to complacency at high-security checkpoints.

- *Nature* (vol 415, p. 35)

## FORE!!

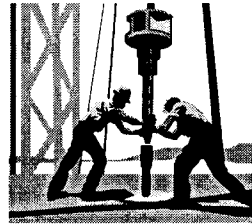
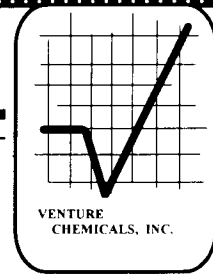
A golf ball covered with hexagonal and pentagonal dimples rather than the traditional circular ones, will be available in March. The creators of the HX say it could improve player performance by traveling through the air more aerodynamically.

"Every touring pro that tested our ball told us the same thing: into the wind, downwind, through crosswinds, the HX is more stable than any ball they've ever played," says Richard C. Helmtetter, senior executive vice president of research and development at Callaway, the company that created the HX.

The ball was designed by ex-Boeing aircraft aerodynamics expert Steve Ogg, who now works for Callaway. The HX has been approved for competitive play by the US Golf Association.

- *New Scientist*, January 2002

## CHARTS-N-TABLES



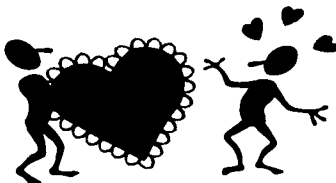
## U.S. OIL SUPPLY 2000

Source	Millions of barrels per day	
Domestic production	9.39	45.8%
Canada	1.69	8.2%
Mexico	1.36	6.6%
South and Central America	2.58	12.6%
Western Europe	0.89	4.3%
Former Soviet Union	0.07	0.3%
Middle East	2.50	12.2%
North Africa	0.23	1.1%
West Africa	1.40	6.8%
Australia	0.05	0.2%
China	0.04	0.2%
Japan	0.01	0.1%
Other Asia Pacific	0.18	0.9%
Unidentified	0.11	0.5%
TOTAL	20.50	100.0%

Source: Energy Information Administration and BP Statistical Review of World Energy 2001

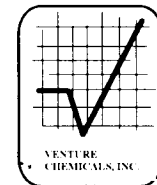
*"To be loved,  
be lovable."*

- Ovid



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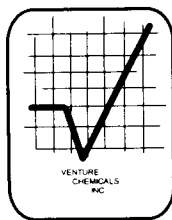
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