**From:** Chris White [ceedave@mac.com]
**Sent:** Wednesday, May 12, 2010 1:51 PM
**To:** William Burch
**Subject:** Re: Freeze

Bill,

But J \propto \frac {kh} {\mu (g(geom) + **s**).

Who knows what s is for this "completion"?

CDW

On May 12, 2010, at 1:30 PM, William Burch wrote:

> Tell me. PI = 50-55 stb/d/psi and we're only flowing 5000 bopd with 3800 psi from an 11,835 psi reservoir? I don't think so...
>
> Yes - that's the belief. The shear rams appeared to have activated but are flow cut. No surprise. The plans are moving forward quickly with the "junk" shot. If it holds and we don't part the casing string, we should be able to stop the leak. At least if it starts an UGBO, the oil won't be on the water quickly.
>
> Bill
>
> -----Original Message-----
> From: Chris White [mailto:ceedave@mac.com]
> Sent: Wednesday, May 12, 2010 1:24 PM
> To: William Burch
> Subject: Re: Freeze
>
> Bill,
>
> There are so many elements to this problem, it's hard to know where to begin...
>
> Does that 1000 psi drop across the BOP indicates it "partly closed"?
>
> Chris
>
> On May 12, 2010, at 1:06 PM, William Burch wrote:
>
>> Interesting development:
>>
>> FWHP is 3800 psi below the BOP and 2800 psi above the BOP. Apparently Los Alamos labs ran some sort of gamma ray survey on the ROV and is reporting there is no DP across the top bent riser joint. Interesting. I've got a good hunch that the well is choked downhole with the annulus being partly bridged off with solids (collapse gradient at the shoe was 13.8 ppg and we're flowing an 11.2 ppg EMW.) If it is acting like a poor gravel pack, that might explain the lower than expected FWHP below the BOP (unless of course, it's also flowing sideways somewhere and we're aren't seeing the UGBO (yet)).
>>
>> There's a bunch of gurus here trying to answer the hydrate questions. I'm staying out of that goat-roping.

>>
>> Bill
>>
>> -----Original Message-----
>> From: William Burch
>> Sent: Thursday, May 06, 2010 10:07 PM
>> To: 'Christopher D White'
>> Subject: RE: Freeze
>>
>> Dr. White,
>>
>> We knocked it around - BP wasn't too supportive of it. We have a ton of N2 freeze equipment and it works quite well as long as there is sufficient water content to the flow stream. However, trying to freeze running water (a la a stream) is impossible. Look at Niagara Falls - it freezes the top but not to the base of the river. Oil is a lousy freeze medium.
>>
>> We've looked at trying to inject some resin or chemical that would help bind up or thicken the oil or cause hydrates but with the flowing temperatures, there's not much that'll work well. Ideas of chemicals?
>>
>> It's been interesting that the ROV temp survey around the kinked
>> riser is between 80 deg F on the outside and 160 deg F on the center.
>> Reservoir temp is about 260 deg F static. Any bets on the 5,000 bopd
>> media number? :-)
>>
>> Also, we are getting the subsea pod changed out and once reinstalled on the stack, we should finally get a flowing wellhead pressure. This is going to tell us a lot of how much the flow is choked or if we have an UGBO going on.
>>
>> Thanks for your suggestions.
>>
>> Bill
>>
>> -----Original Message-----
>> From: Christopher D White [mailto:ceedave@mac.com]
>> Sent: Thursday, May 06, 2010 9:40 PM
>> To: William Burch
>> Subject: Freeze
>>
>> Bill,
>>
>> Given the low T on the seafloor, I was wondering of y'all had
>> considered trying to freeze it in? Not confident that there's enough
>> water in the produced stream?
>>
>> And... I assume they are estimating rate from the plume geometry at
>> the exit?
>>
>> Answer if it's fun, when you're not too too busy.
>>
>> Chris
>>
>> Terse because sent from a handheld
>