



**From:** Edmond Shtepani Intertek <edmond.shtepani@intertek.com>  
**Sent:** Thursday, May 20, 2010 8:06 PM  
**To:** Wang, Yun <Yun.Wang@bp.com>; McAughan, Kelly <Kelly.McAughan@bp.com>  
**Cc:** Stephanie Heard Intertek <stephanie.heard@intertek.com>  
**Subject:** RE: Quote for Rush CCE Testing  
**Attach:** WTC-10-001812 BP CCE Report.pdf

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Yun,

Please find attached the results from the first CCE test with the mixer on. The density data above the saturation pressure cannot be provided as we do not have the GOR data. The test has been video recorded. Tomorrow we are going to repeat the test without using the mixer.

Regards,

Edmond

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**From:** Wang, Yun [mailto:Yun.Wang@bp.com]  
**Sent:** Tuesday, May 18, 2010 9:00 AM  
**To:** McAughan, Kelly  
**Cc:** Stephanie Heard Intertek; Edmond Shtepani Intertek  
**Subject:** FW: Quote for Rush CCE Testing

Kelly, could you please provide the info requested by Westport below asap?

Thanks  
Yun

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**From:** Stephanie Heard Intertek [mailto:stephanie.heard@intertek.com]  
**Sent:** Monday, May 17, 2010 6:49 PM  
**To:** Wang, Yun  
**Cc:** Edmond Shtepani Intertek  
**Subject:** Quote for Rush CCE Testing

Dr. Wang,  
Thank you for your recent request. I have attached the quote for your review. Please let us know if you have any questions and/or provide a PO# at your earliest convenience.

Have a good evening!

DW 0007170

TREX 010415.0001

TREX-010415.0001

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DW 0007171

TREX 010415.0002

TREX-010415.0002

TABLE 1  
AVERAGE FLUID COMPRESSIBILITIES

Pressure Range		Average Fluid Compressibility (psi <sup>-1</sup> )
From (psia)	To (psia)	
13500	12500	1.2284E-05
12500	11500	1.2789E-05
11500	10500	1.3753E-05
10500	9500	1.5323E-05
9500	8500	1.7331E-05
8500	7500	2.0654E-05
<b>7500</b>	<b>6438 Psat</b>	<b>2.6101E-05</b>

Pressure Range		Average Fluid Compressibility (MPa <sup>-1</sup> )
From (MPa)	To (MPa)	
93.08	86.18	1.7816E-03
86.18	79.29	1.8550E-03
79.29	72.39	1.9947E-03
72.39	65.50	2.2225E-03
65.50	58.61	2.5137E-03
58.61	51.71	2.9957E-03
<b>51.71</b>	<b>44.39 Psat</b>	<b>3.7857E-03</b>

Psat - Saturation Pressure

TABLE 2  
CONSTANT COMPOSITION EXPANSION @ 243.0 F (390.4 K)

Pressure (psia)      (MPa)		Relative Volume [1]	Y-Function [2]	Liquid Volume (% of V <sub>tot</sub> )	Fluid Density (g/cc)
13500	93.08	0.886046			
12500	86.18	0.897065			
11500	79.29	0.908687			
10500	72.39	0.921358			
9500	65.50	0.935696			
8500	58.61	0.952199			
7500	51.71	0.972281			
<b>6438 *</b>	<b>44.39</b>	<b>1.000000</b>		<b>100.00</b>	
6141	42.34	1.012860	3.7606	68.67	
5844	40.29	1.027735	3.6647	66.27	
5547	38.25	1.045009	3.5688	64.25	
5250	36.20	1.065157	3.4729	62.52	
4953 **	34.15	1.088782	3.3770	60.48	
4656 **	32.10	1.116648	3.2811	58.81	
4359 **	30.05	1.149738	3.1852	57.08	
4062 **	28.01	1.189343	3.0893	55.03	
3765 **	25.96	1.237177	2.9934	52.87	
3468 **	23.91	1.295569	2.8975	50.09	
3171 **	21.86	1.367750	2.8016	47.17	
2874 **	19.82	1.458330	2.7057	43.55	
2577 **	17.77	1.574099	2.6098	40.12	
2280 **	15.72	1.725457	2.5138	36.03	
1983 **	13.67	1.929138	2.4179	31.75	
[1] Volume at indicated pressure per volume at saturation pressure [2] Y Function = ((P <sub>sat</sub> -P)/P)/(Relative Volume - 1) * Saturation Pressure ** Asphaltenes Precipitation					