



December 15, 2009

CQI Report to Stakeholders

### Subject: October 2009 Condensate Results

As of January 1, 2008, the Crude Quality Monitoring Project has modified its condensate testing program. We acknowledge that industry requirements and specifications are different for condensates than for other types of crude. As such, we have updated our condensate testing program in an effort to provide the industry with reliable, accurate, and usable information specifically relevant to condensates. We believe that this information will be valuable for numerous industry purposes, such as better blending data and formulating condensate specifications and guidelines. Should you have any questions regarding this report, or the modified condensate testing program, please contact Crude Quality Inc. at (780) 991-9900 or at [crudequality@gmail.com](mailto:crudequality@gmail.com).

#### Observations:

Attached are detailed C30+ compositional and trace sulphur analyses, as well as historical data from [crudemonitor.ca](http://crudemonitor.ca) pertaining to typical light ends and bulk properties for Condensate Blend (CRW).

In addition to the attached, we note the following testing results:

	Sample Date	Batch #	Sulphur (wt%)	API Gravity (degree)	Absolute Density (kg/m <sup>3</sup> )	MCR (wt%)	Viscosity @ 7.5°C (cSt)	RVP (kPa)	Organo-Phosphates (ppmw)	Total Mercaptans (ppm)	Olefins (wt%)
<b>Current Data</b>	10/16/09	CRW-857	0.11	66	714.9	0.1	0.76	69	-	119	-
<b>Average To Date</b>			0.19	65.3	718.5	0.23	0.79	74.8	0.9	103	8xND
<b>Std Dev.</b>			0.08	2.1	7.7	0.13	0.05	3.3	0.23	19	-
<b>Avg+StdDev</b>			0.27	67.4	726.2	0.35	0.84	78.2	1.13	122	-
<b>Avg-StdDev</b>			0.11	63.2	710.7	0.10	0.74	72.2	0.67	84	-

Table 1: Summary of CRW current and average properties

The October sample of CRW had slightly lower than average RVP and pentanes along with marginally increased C7s x C9s. The sample contained 39 mg/L of sediment, which is lower than stream's average.

In context, the sediment values observed for CRW since October 2008 have been tabulated below:

Oct08	Nov08	Dec08	Jan09	Feb09	Mar09	Apr09	May09	Jun09	Jul09	Aug09	Sep09	Oct09
40	21	70	150	320	80	-	90	130	140	73	43	39

Table 2: Sediment values for CRW, in mg/L, from October 2008 to October 2009

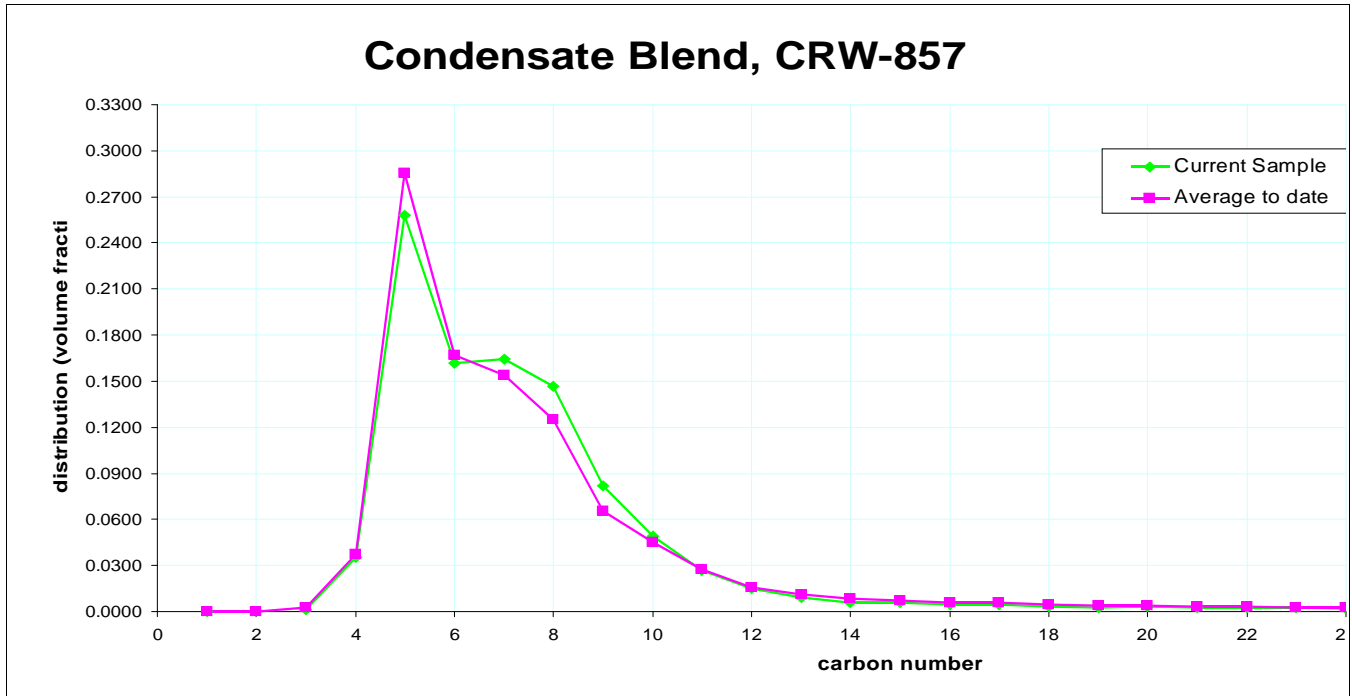


Figure 1: C30+ Compositional Analysis for CRW-857



# C30+ COMPOSITIONAL ANALYSIS

A962543:R58935

MaxxID

Client ID

Meter Number

Laboratory Number

CRUDE QUALITY INC.

Operator Name

LSD

Well ID

CRUDE QUALITY INC. OCT09 LIGHT CRUDES

ENBRIDGE

Well Name

Initials of Sampler

Sampling Company

COND. BLEND CRW-857

1L CAN

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No.

Multiple Recovery

From:

To:

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m3/d

Oil m3/d

Gas 1000m3/d

Source

As Received

Source

23

As Received

Gas or Condensate Project

Licence No.

2009/10/19

2009/11/03

2009/11/06

2009/11/10

GS1,DJ2

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

## COMPOSITION

COMPONENT	MOLE FRACTION	MASS FRACTION	VOLUME FRACTION
N2			
CO2			
H2S			
C1	0.0000	0.0000	0.0000
C2	Trace	Trace	Trace
C3	0.0023	0.0011	0.0015
IC4	0.0060	0.0037	0.0046
NC4	0.0420	0.0255	0.0308
IC5	0.1457	0.1101	0.1243
NC5	0.1584	0.1196	0.1337
C6	0.1695	0.1529	0.1616
C7+	0.4761	0.5871	0.5435
TOTAL	1.0000	1.0000	1.0000

## PROPERTIES

RESIDUE	RELATIVE DENSITY @ 15 °C		RELATIVE MOLECULAR MASS		DATA SUMMARY		
	OBSERVED	CALCULATED	OBSERVED	CALCULATED	MOLE FRACTION	MASS FRACTION	VOLUME FRACTION
	C5+		0.711	98		0.9497	0.9697
C6+		0.741	109		0.6456	0.7400	0.7051
C7+	0.762		118	118	0.4761	0.5871	0.5435
C10+					0.0923	0.1737	0.1509
C12+					0.0383	0.0910	0.0749
TOTAL		0.706	95				

Calculated Absolute Density Total Sample:  
Gas Equivalent Factor:

705.4 kg/m3 @ 15°C  
174.21 m3 Gas/m3 Liquid

\*\* Information not supplied by client -- data derived from LSD information

Results relate only to items tested

Remarks:

**Distillation Corrected to 101.3 kPa**



# C30+ COMPOSITIONAL ANALYSIS

CRUDE QUALITY INC.

A962543:R58935

Operator Name

Laboratory Number

CRUDE QUALITY INC. OCT09 LIGHT CRUDES

COND. BLEND CRW-857

Well Name

Sample Point

ENBRIDGE

Sampling Company

MaxxID

Client ID

2009/10/19

2009/11/03

2009/11/06

2009/11/10

GS1,DJ2

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

COMPONENT	BOILING POINT (°C)	MOLE FRACTION	MASS FRACTION	VOLUME FRACTION
Nitrogen	-196			
Carbon Dioxide	-79			
Hydrogen Sulphide	-60			
Methane	-162	0.0000	0.0000	0.0000
Ethane	-89	Trace	Trace	Trace
Propane	-42	0.0023	0.0011	0.0015
Iso-Butane	-12	0.0060	0.0037	0.0046
n-Butane	0	0.0420	0.0255	0.0308
Iso-Pentane	28	0.1457	0.1101	0.1243
n-Pentane	36	0.1584	0.1196	0.1337
Hexanes	37-69	0.1695	0.1529	0.1616
Heptanes	70-98	0.1738	0.1691	0.1641
Octanes	99-126	0.1401	0.1557	0.1468
Nonanes	127-151	0.0699	0.0886	0.0817
Decanes	152-174	0.0356	0.0525	0.0494
Undecanes	175-196	0.0184	0.0302	0.0266
Dodecanes	197-216	0.0098	0.0175	0.0152
Triadecanes	217-236	0.0056	0.0108	0.0092
Tetradecanes	237-253	0.0035	0.0074	0.0062
Pentadecanes	254-271	0.0032	0.0071	0.0059
Hexadecanes	272-287	0.0022	0.0052	0.0043
Heptadecanes	288-302	0.0023	0.0056	0.0046
Octadecanes	303-317	0.0016	0.0043	0.0035
NonaDecanes	318-331	0.0012	0.0035	0.0029
Eicosanes	332-343	0.0013	0.0038	0.0031
Heneicosanes	344-357	0.0011	0.0036	0.0029
Docosanes	358-369	0.0010	0.0031	0.0024
Triacosanes	370-380	0.0009	0.0029	0.0023
Tetracosanes	381-391	0.0008	0.0026	0.0020
Pentacosanes	392-402	0.0007	0.0025	0.0020
Hexacosanes	403-412	0.0006	0.0020	0.0015
Heptacosanes	413-422	0.0006	0.0020	0.0015
Octacosanes	423-432	0.0005	0.0017	0.0013
Nonacosanes	433-441	0.0004	0.0015	0.0011
triacontanes+	442-449+	0.0010	0.0039	0.0030
Totals		1.0000	1.0000	1.0000
neoHexane	50	0.0000	0.0000	0.0000
Methylcyclopentane	70	0.0337	0.0297	0.0275
Benzene	80	0.0134	0.0109	0.0086
Cyclohexane	81	0.0268	0.0236	0.0211
Methylcyclohexane	101	0.0404	0.0416	0.0377
Toluene	111	0.0222	0.0214	0.0172
Ethylbenzene	136	0.0032	0.0035	0.0028
m&p-Xylene	139	0.0148	0.0164	0.0131
o-Xylene	144	0.0048	0.0054	0.0043
1,2,4-Trimethylbenzene	169	0.0034	0.0045	0.0036

\*\* Information not supplied by client -- data derived from LSD information

Results relate only to items tested

Remarks:

**Distillation Corrected to 101.3 kPa**



# TRACE SULPHUR ANALYSIS

A962543:R58936

<b>CRUDE QUALITY INC.</b>	<b>CRUDE QUALITY INC. OCT09 LIGHT CRUDES</b>	<b>COND. BLEND CRW-857</b>	<b>VIAL</b>
<i>Operator Name</i>	<i>Initials of Sampler</i>	<i>LSD</i>	<i>Well ID</i>
<i>Field or Area</i>	<i>Pool or Zone</i>	<i>Sample Point</i>	<i>Container Identity</i> <i>Percent Full</i>
<i>Test Recovery</i>	<i>Interval</i>	<i>Elevations (m)</i>	<i>Sample Gathering Point</i> <i>Solution Gas</i>
<i>Test Type</i> <i>No.</i> <i>Multiple Recovery</i>	<i>From:</i> <i>To:</i>	<i>KB</i> <i>GRD</i>	<i>Well Fluid Status</i> <i>Well Status Mode</i>
<i>Production Rates</i>	<i>Gauge Pressures kPa</i>	<i>Temperature °C</i>	<i>Well Status Type</i> <i>Well Type</i>
<i>Water m3/d</i> <i>Oil m3/d</i> <i>Gas 1000m3/d</i>	<i>Source</i> <i>As Received</i>	<i>Source</i> <i>As Received</i> <b>23.0</b>	<i>Gas or Condensate Project</i> <i>Licence No.</i>
<i>2009/10/19</i>	<i>2009/11/03</i>	<i>2009/11/06</i>	<i>2009/11/10</i> <i>GA</i>
<i>Date Sampled Start</i>	<i>Date Sampled End</i>	<i>Date Received</i>	<i>Date Reported</i> <i>Date Reissued</i> <i>Analyst</i>

COMPOSITION			Boiling Pt. (°C)	Sulphur mole ppm	Sulphur mass ppm	PROPERTIES
Component	Common Name					
Hydrogen Sulphide	H2S		-60.4	<0.5	<0.5	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <i>Molecular Wt. (g/mole)</i> Measured         </div> <div style="border: 1px solid black; padding: 5px;"> <i>Molecular Wt. (g/mole)</i> Calculated         </div>
Carbonyl Sulphide	COS		-50	1.4	<0.5	
Methanethiol	Methyl mercaptan		6.2	15.4	4.4	
Ethanethiol	Ethyl mercaptan		35	112.0	31.7	
Dimethyl Sulphide	DMS		38	23.8	6.7	
Carbon Disulphide	CS2		46.5	5.2	1.5	
Iso-Propanethiol	Iso-propyl mercaptan		58	128.6	36.4	
t-Butanethiol	tert-butyl mercaptan		64	22.3	6.3	
Methyl Ethyl Sulphide	MES		67	17.1	4.8	
n-Propanethiol	Propyl mercaptan		70	25.7	7.3	
Unknown			36-69	<0.5	<0.5	
Thiophene/sec-Butanethiol	Thiophene/sec-Butyl mercaptan		84/90	77.2	21.9	
Diethyl Sulphide	DES		92.1	8.0	2.3	
Iso-Butanethiol	Iso-butyl mercaptan		99	4.2	1.2	
n-Butanethiol	Butyl mercaptan		98	8.8	2.5	
Unknown			71-97	8.1	2.3	
Dimethyl Disulphide	DMDS		110	25.9	7.3	
n-Pentanethiol	Pentyl mercaptan		127	7.4	2.1	
Unknown			100-126	71.7	20.3	
n-Hexanethiol	Hexyl mercaptan		151	15.3	4.3	
Unknown			127-150	78.2	22.2	
n-Heptanethiol	Heptyl mercaptan		177	5.7	1.6	
Unknown			152-176	95.0	26.9	
<b>Total Sulphur</b>				<b>3949</b>	<b>1118.2</b>	<div style="border: 1px solid black; padding: 5px;"> <i>Onsite H2S</i>   <i>ppm(mole)</i>      <i>mole%</i> </div>
Mercaptan Sulphur on Naphtha fraction (IBP 204°C) ASTM D3227 (mass%) Naphtha IBP 204°C (volume %) Elemental Sulphur (mass ppm)						
** Information not supplied by client -- data derived from LSD information						

Remarks:

Results relate only to items tested

## Light Crude Quality Project Analyses Summary (December 2007)

Crude	Sample Date	No. Samples or Batch #	Sulphur (wt%)	API Density (degree)	Absolute Density (kg/m3)	Sediment (ppmw)	MCR (wt%)	Salt (ptb)	TAN (mgKOH/g)	Nickel (mg/L)	Vanadium (mg/L)
<b>CRW Condensate Blend</b>											
	2005 Q2	3	0.17	62.9	727.0		0.2			43.5	4.8
	2005 Q3	3	0.16	63.3	725.8		0.4			17.9	2.4
	2005 Q4	3	0.17	63.6	724.6		0.3				3.6
	2006 Q1	4	0.16	64.8	720.2		0.3				6.8
	2006 Q2	3	0.21	63.3	725.9		0.3				1.4
	2006 Q3	2	0.17	62.1	730.2		0.2				1.2
	2006 Q4	2	0.13	67.0	712.2		0.1				
	2007 Q1	3	0.13	65.4	718.1		0.2				
	2007 Q2	3	0.10	67.6	710.3		0.1				
	2007 Q3	3	0.13	65.7	717.0		0.2				
	2007 Q4	3	0.22	64.8	720.3		0.2				1.6
	2008 Q1	1	0.39	65.1	719.2		0.4				
	12/1/2007	CRW-753	0.15	67.6	710.2		0.1				
	1/1/2008	CRW-757	0.39	65.1	719.2		0.4				
	<b>Average</b>		<b>0.17</b>	<b>64.6</b>	<b>721.0</b>		<b>0.2</b>			<b>35.0</b>	<b>3.2</b>
	<b>Std Dev</b>		<b>0.07</b>	<b>2.1</b>	<b>7.7</b>		<b>0.1</b>			<b>13.1</b>	<b>2.0</b>
	<b>Avg + StdDev</b>		<b>0.24</b>	<b>66.7</b>	<b>728.7</b>		<b>0.4</b>			<b>48.1</b>	<b>5.2</b>
	<b>Avg - StdDev</b>		<b>0.10</b>	<b>62.5</b>	<b>713.3</b>		<b>0.1</b>			<b>21.9</b>	<b>1.2</b>

## Light Crude Quality Project Light Ends Summary (December 2007)

Crude Sample Date	Count of Batches or Batch No.	Ethane (vol%)	Propane (vol%)	Butanes (vol%)	Pentanes (vol%)	Hexanes (vol%)	Heptanes (vol%)	Octanes (vol%)	Nonanes (vol%)	Decanes (vol%)	Benzene (vol%)	Toluene (vol%)	Ethyl Benzene (vol%)	Xylenes (vol%)
<b>CRW Condensate Blend</b>														
2005 Q2	3	0.02	0.32	3.54	23.63	21.20	15.23	10.08	5.12	2.28	1.15	2.10	0.23	1.86
2005 Q3	3	0.02	0.23	3.23	23.45	21.28	16.37	10.77	5.51	2.45	1.23	2.34	0.25	2.03
2005 Q4	3	0.02	0.23	3.15	21.79	21.60	16.33	11.80	6.09	2.40	1.16	2.26	0.30	2.13
2006 Q1	4	0.02	0.19	2.76	22.50	22.77	14.89	10.86	6.18	2.49	1.23	2.07	0.28	1.92
2006 Q2	3	0.02	0.27	3.42	22.51	19.93	15.65	10.90	5.69	2.30	1.06	2.08	0.26	1.86
2006 Q3	2	0.02	0.28	2.96	20.36	19.74	16.38	11.82	6.08	2.52	1.06	2.19	0.29	2.06
2006 Q4	2	0.02	0.22	3.37	25.43	22.50	15.32	10.35	5.29	2.09	1.13	2.00	0.25	1.82
2007 Q1	3	0.02	0.24	3.33	24.64	24.26	15.17	10.54	5.29	2.17	1.27	2.10	0.27	1.93
2007 Q2	3	0.02	0.20	3.22	25.40	23.30	15.51	10.59	5.37	1.96	1.25	2.15	0.27	1.86
2007 Q3	3	0.02	0.24	3.42	23.97	20.53	15.46	10.25	5.10	2.08	1.08	2.13	0.25	1.82
2007 Q4	3	0.02	0.26	3.49	24.77	21.60	16.06	11.39	5.70	2.22	1.08	2.15	0.30	1.97
2008 Q1	1	0.02	0.21	3.06	25.40	21.80	16.14	11.48	5.53	2.05	1.07	2.13	0.31	1.99
12/1/2007	CRW-753	0.02	0.18	2.89	26.08	22.84	16.97	11.76	5.53	2.07	1.14	2.22	0.3	1.94
1/1/2008	CRW-757	0.02	0.21	3.06	25.4	21.8	16.14	11.48	5.53	2.05	1.07	2.13	0.31	1.99
<b>Average</b>		<b>0.02</b>	<b>0.24</b>	<b>3.25</b>	<b>23.56</b>	<b>21.77</b>	<b>15.65</b>	<b>10.85</b>	<b>5.59</b>	<b>2.27</b>	<b>1.16</b>	<b>2.14</b>	<b>0.27</b>	<b>1.93</b>
<b>Std Dev</b>		<b>0.01</b>	<b>0.06</b>	<b>0.34</b>	<b>2.28</b>	<b>1.95</b>	<b>0.94</b>	<b>0.96</b>	<b>0.65</b>	<b>0.30</b>	<b>0.12</b>	<b>0.16</b>	<b>0.04</b>	<b>0.16</b>
<b>Avg + StdDev</b>		<b>0.03</b>	<b>0.30</b>	<b>3.59</b>	<b>25.84</b>	<b>23.72</b>	<b>16.59</b>	<b>11.82</b>	<b>6.24</b>	<b>2.56</b>	<b>1.28</b>	<b>2.30</b>	<b>0.31</b>	<b>2.09</b>
<b>Avg - StdDev</b>		<b>0.01</b>	<b>0.18</b>	<b>2.91</b>	<b>21.28</b>	<b>19.82</b>	<b>14.71</b>	<b>9.89</b>	<b>4.94</b>	<b>1.97</b>	<b>1.04</b>	<b>1.99</b>	<b>0.23</b>	<b>1.78</b>