



API 30-045-25498  
Bradenhead

Gas Analysis Certificate

OIL CONS. DIV DIST. 3

GPA Standard 2261-13

Acquisition Method Name au\_report\_150\_C6+  
Last calibration date 7/10/2015 10:21:38 AM

DEC 18 2015

Client:	BP	Project #:	03143-0880
Site Name:	GCU 228E	Meter ID:	3004525448 (BHD)
Sampled by:	Sawyer M.	Date Sampled	07-13-15
Analyzed by:	Logan Richter	Date Received:	07-14-15
Sample Pressure:	25 psig	Date Analyzed:	07-15-15
Sample Temperature	N/R	Analysis Time:	Standard

Component Results (14.696)

Name	Qty (Norm) [Mol %]	Wt Percent (%)	GPM
Helium	0.011	0.002	0.001
Oxygen	0.004	0.007	0.000
Nitrogen	0.318	0.488	0.035
Carbon Dioxide	0.000	0.000	0.000
Methane	90.053	79.292	15.268
Ethane	6.003	9.907	1.606
Propane	2.261	5.472	0.623
i-Butane	0.422	1.346	0.138
n-Butane	0.489	1.559	0.154
i-Pentane	0.165	0.655	0.060
n-Pentane	0.107	0.426	0.039
C6+	0.168	0.847	0.073
	100.000	100.000	17.997

Calculations at Pressure Base 14.696

Compressibility (Z) (Dry Gas)	0.99736	C2+	2.693
Density (G) (Dry Gas)	0.62915	C3+	1.088
Component MW Total	18.22	C5+	0.173
Heating Value (Dry Ideal) Total BTU	1121.85	Heating Value (Sat Ideal) Total BTU	1102.27
Heating Value (Dry Real) Total BTU	1124.81	Heating Value (Sat Real) Total BTU	1105.08

*Signature*

10/9/2015

API 30-D45-25448  
Casing



**Gas Analysis Certificate**

**GPA Standard 2261-13**

Acquisition Method Name au\_report\_150\_C6+  
Last calibration date 7/10/2015 10:21:38 AM

Client:	BP	Project #:	03143-0880
Site Name:	GCU 228E	Meter ID:	3004525448 (CSG)
Sampled by:	Sawyer M.	Date Sampled	07-13-15
Analyzed by:	Logan Richter	Date Received:	07-14-15
Sample Pressure:	81 psig	Date Analyzed:	07-15-15
Sample Temperature	N/R	Analysis Time:	Standard

**Component Results (14.696)**

Name	Qty (Norm) [Mol %]	Wt Percent (%)	GPM
Helium	0.041	0.007	0.004
Oxygen	0.020	0.028	0.002
Nitrogen	0.710	0.894	0.078
Carbon Dioxide	1.015	2.007	0.174
Methane	79.031	56.951	13.419
Ethane	8.895	12.015	2.383
Propane	4.501	8.915	1.242
i-Butane	0.738	1.927	0.242
n-Butane	1.616	4.219	0.510
i-Pentane	0.647	2.097	0.237
n-Pentane	0.633	2.051	0.230
C6+	2.153	8.889	0.941
	100.000	100.000	19.462

**Calculations at Pressure Base 14.696**

Compressibility (Z) (Dry Gas)	0.99586	C2+	5.785
Density (G) (Dry Gas)	0.76961	C3+	3.402
Component MW Total	22.26	C5+	1.408
Heating Value (Dry Ideal) Total BTU	1307.31	Heating Value (Sat Ideal) Total BTU	1284.49
Heating Value (Dry Real) Total BTU	1312.74	Heating Value (Sat Real) Total BTU	1289.64

*BSG*

10/19/2015