EMPACT

NATURAL GAS ANALYSIS

LEASE #: NAME/DESCRIP : **KAUFMAN #4**
WELL CASING GAS

PROJECT NO. :	**201705001**	ANALYSIS NO. :	**01**
COMPANY NAME :	**FOUNDATION ENERGY**	ANALYSIS DATE:	May 10, 2107
OFFICE / BRANCH:	DENVER	SAMPLE DATE :	APRIL 27, 2017
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	

*****FIELD DATA*****

SAMPLE CYCLE:			SAMPLE TYPE:	SPOT	
SAMPLE PRES. :	50	psig	CYLINDER NO. :	1023	
LAB PRES:		psig	SAMPLED BY :	JOHN MOSER	
SAMPLE TEMP. :	52	ºf	SAMPLING COMPANY:	EMPACT	
AMBIENT TEMP.:		ºf	H2S BY STAIN TUBE:	-	ppm
H2O BY STAIN TUBE:	-	#/mmcf	CO2 BY STAIN TUBE:	-	Mol %
FIELD COMMENTS:	NO PROBE				
LAB COMMENTS:					

COMPONENTS	NORM. MOLE%	GPM @ 14.73	d13C ‰ VPDB	dD ‰ VSMOW
HELIUM	0.00	-	-	-
HYDROGEN	0.01	-	-	-
OXYGEN/ARGON	0.03	-	-	-
NITROGEN	0.43	-	-	-
CO2	2.49	-	-1.6	-
METHANE	52.97	-	-49.0	-281.0
ETHANE	19.10	5.1407	-33.3	-
PROPANE	13.25	3.6737	-28.6	-
ISOBUTANE	1.93	0.6357	-30.9	-
N-BUTANE	4.97	1.5770	-27.6	-
ISOPENTANE	1.48	0.5448	-28.3	-
N-PENTANE	1.61	0.5872	-27.6	-
HEXANES+	1.73	0.7557	-	-
TOTAL	100.00	12.9148		

BTU @ 60 DEG F	**14.73**	
GROSS DRY REAL =	1658.7	**/scf**
GROSS SATURATED REAL =	1629.9	**/scf**

RELATIVE DENSITY (AIR=1 @14.696 PSIA 60F)	1.0069
GRAVITY (LB/SCF)	0.07685
COMPRESSIBILITY FACTOR :	0.99340

NOTE: REFERENCE GPA 2261(ASTM D1945 & ASME-PTC), 2145, & 2172 CURRENT PUBLICATIONS

Reference: Per GPA 2261 sec 7.3.6 ***The C6+ is derived from the following ratios of C6, C7 & C8+ respectively:*** **60% 30% 10%**

Note:Stable isotope results based on multi-point laboratory calibration
Error d13C < 0.5 ‰ **Error dD < 5.0 ‰**
Values in red represent low peak heights. Interpret with caution.

EMPACT

NATURAL GAS ANALYSIS

LEASE #: NAME/DESCRIP : **KAUFMAN #4**
BRADENHEAD GAS

PROJECT NO. : **201705001** ANALYSIS NO. : **02**
COMPANY NAME : **FOUNDATION ENERGY** ANALYSIS DATE: May 10, 2107
OFFICE / BRANCH: DENVER SAMPLE DATE : APRIL 27, 2017
CUSTOMER REF: TO:
PRODUCER : EFFECTIVE DATE:

*****FIELD DATA*****

SAMPLE CYCLE:			SAMPLE TYPE:	SPOT	
SAMPLE PRES. :	45	psig	CYLINDER NO. :	0773	
LAB PRES:		psig	SAMPLED BY :	JOHN MOSER	
SAMPLE TEMP. :	50	ºf	SAMPLING COMPANY:	EMPACT	
AMBIENT TEMP.:		ºf	H2S BY STAIN TUBE:	-	ppm
H2O BY STAIN TUBE:	-	#/mmcf	CO2 BY STAIN TUBE:	-	Mol %
FIELD COMMENTS:	NO PROBE				
LAB COMMENTS:					

COMPONENTS	NORM. MOLE%	GPM @ 14.73	d13C ‰ VPDB	dD ‰ VSMOW
HELIUM	0.00	-	-	-
HYDROGEN	0.00	-	-	-
OXYGEN/ARGON	0.05	-	-	-
NITROGEN	0.69	-	-	-
CO2	2.19	-	-0.2	-
METHANE	56.79	-	-48.5	-272.0
ETHANE	18.09	4.8669	-33.2	-
PROPANE	12.23	3.3895	-28.6	-
ISOBUTANE	1.79	0.5889	-30.5	-
N-BUTANE	4.60	1.4582	-27.4	-
ISOPENTANE	1.39	0.5113	-28.3	-
N-PENTANE	1.46	0.5325	-27.5	-
HEXANES+	0.72	0.3146	-	-
TOTAL	100.00	11.6619		

	14.73	
BTU @ 60 DEG F		
GROSS DRY REAL =	1573.8	**/scf**
GROSS SATURATED REAL =	1546.4	**/scf**

RELATIVE DENSITY (AIR=1 @14.696 PSIA 60F)	0.9515
GRAVITY (LB/SCF)	0.07261
COMPRESSIBILITY FACTOR :	0.99390

NOTE: REFERENCE GPA 2261(ASTM D1945 & ASME-PTC), 2145, & 2172 CURRENT PUBLICATIONS

Reference: Per GPA 2261 sec 7.3.6 ***The C6+ is derived from the following ratios of C6, C7 & C8+ respectively:*** **60% 30% 10%**

Note:Stable isotope results based on multi-point laboratory calibration
Error d13C < 0.5 ‰ **Error dD < 5.0 ‰**
Values in red represent low peak heights. Interpret with caution.