

# EXTENDED NATURAL GAS ANALYSIS ("DHA")

## MAIN PAGE

LEASE #: **CHEVRON D20** NAME/DESCRIP : **CHEVRON 18-441 BRADENHEAD GAS**

PROJECT NO. : **201604112** ANALYSIS NO. : **01**

COMPANY NAME : **LINN ENERGY** ANALYSIS DATE: **APRIL 26, 2016 09:11**

OFFICE / BRANCH: **PARACHUTE** SAMPLE DATE : **APRIL 19, 2016**

CUSTOMER REF: TO: **APRIL 19, 2016**

PRODUCER : EFFECTIVE DATE:

### \*\*\*FIELD DATA\*\*\*

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**

SAMPLE PRES. : **8** psig CYLINDER NO. : **0947**

LAB PRES: psig SAMPLED BY : **DEREK JOHNSON**

SAMPLE TEMP. : **55** °f SAMPLING COMPANY **LINN ENERGY**

AMBIENT TEMP.: °f H2S BY STAIN TUBE: **-** ppm

H2O BY STAIN TUBE: **-** #/mmcf CO2 BY STAIN TUBE: **-** Mol %

FIELD COMMENTS: **NO PROBE; BH GAS SAMPLE - CHEVRON 18-441D**

LAB COMMENTS:

COMPONENT	MOLE %	MASS %	GPM @ 14.730	GPM @ 14.650
ALCOHOLS	0.0002	0.0007		
HELIUM	0.02	0.00	---	---
HYDROGEN	0.01	0.00	---	---
OXYGEN/ARGON	0.01	0.02	---	---
NITROGEN	0.5200	0.8500	---	---
CARBON DIOXIDE	0.04	0.10	---	---
METHANE	95.36510	89.79530	---	---
ETHANE	2.5246	4.4557	0.6761	0.6724
PROPANE	0.8751	2.2649	0.2411	0.2398
I-BUTANE	0.1582	0.5397	0.0522	0.0520
N-BUTANE	0.2243	0.7652	0.0713	0.0709
I-PENTANE	0.0803	0.3396	0.0301	0.0300
N-PENTANE	0.0597	0.2528	0.0221	0.0220
HEXANES PLUS	0.1125	0.6161	0.0400	0.0400
TOTALS	100.00000	100.00000	1.1329	1.1271

BTEX COMPONENTS	MOLE%	WT%	BTU @	14.730	14.650
BENZENE	0.0051	0.0234	LOW NET DRY REAL :	953.9 /scf	948.7 /scf
TOLUENE	0.0010	0.0054	NET WET REAL :	937.3 /scf	932.2 /scf
ETHYLBENZENE	0.0001	0.0007	HIGH GROSS DRY REAL :	1057.7 /scf	1052.0 /scf
XYLENES	0.0006	0.0038	GROSS WET REAL :	1039.3 /scf	1033.6 /scf
TOTAL BTEX	0.0068	0.0333	NET DRY REAL :	21264.9 /lb	21149.4 /lb
			GROSS DRY REAL :	23577.3 /lb	23449.2 /lb

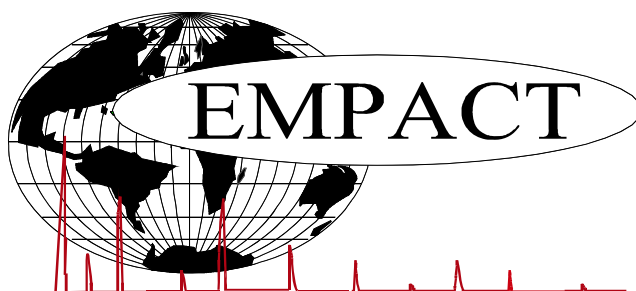
(CALC: GPA STD 2145 & TP-17 @14.696 & 60 F)

\*(DETAILED HYDROCARBON ANALYSIS/NJ 1993) ; ASTM D6730

RELATIVE DENSITY (AIR=1): **0.5878**

COMPRESSIBILITY FACTOR : **0.99777**

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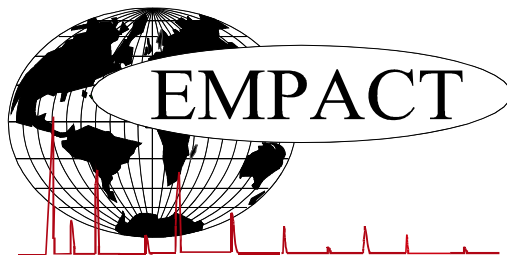
# **EXTENDED NATURAL GAS ANALYSIS (\*DHA)**

## **GLYCALC INFORMATION**

PROJECT NO. :	201604112	ANALYSIS NO. :	01
COMPANY NAME :	LINN ENERGY	ANALYSIS DATE:	APRIL 26, 2016 09:11
ACCOUNT NO. :		SAMPLE DATE :	APRIL 19, 2016
PRODUCER :		CYLINDER NO. :	0947
LEASE NO. :	CHEVRON D20	SAMPLED BY :	DEREK JOHNSON
NAME/DESCRIP :	CHEVRON 18-441 BRADENHEAD GAS		
***FIELD DATA***		SAMPLE TEMP. :	55
SAMPLE PRES. :	8	AMBIENT TEMP.:	
COMMENTS :	NO PROBE; BH GAS SAMPLE - CHEVRON 18-441D SPOT		

Componet	Mole %	Wt %
Helium	0.02	0.00
Hydrogen	0.01	0.00
Carbon Dioxide	0.04	0.10
Nitrogen	0.52	0.85
Methane	95.36510	89.79530
Ethane	2.5246	4.4557
Propane	0.8751	2.2649
Isobutane	0.1582	0.5397
n-Butane	0.2243	0.7652
Isopentane	0.0773	0.3273
n-Pentane	0.0597	0.2528
Cyclopentane	0.0030	0.0123
n-Hexane	0.0170	0.0860
Cyclohexane	0.0066	0.0326
Other Hexanes	0.0404	0.2035
Heptanes	0.0199	0.1166
Methycyclohexane	0.0083	0.0478
2,2,4 Trimethylpentane	0.0001	0.0007
Benzene	0.0051	0.0234
Toluene	0.0010	0.0054
Ethylbenzene	0.0001	0.0007
Xylenes	0.0006	0.0038
C8+ Heavies	0.0134	0.0956
<b>Subtotal</b>	<b>99.98980</b>	<b>99.97930</b>
Oxygen/Argon	0.01	0.02
Alcohols	0.0002	0.0007
<b>Total</b>	<b>100.00000</b>	<b>100.00000</b>

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**EXTENDED NATURAL GAS ANALYSIS (\*DHA)**

**DHA COMPONENT LIST**

PROJECT NO. :	201604112	ANALYSIS NO. :	01
COMPANY NAME :	LINN ENERGY	ANALYSIS DATE:	APRIL 26, 2016 09:11
ACCOUNT NO. :		SAMPLE DATE :	APRIL 19, 2016
PRODUCER :		CYLINDER NO. :	0947
LEASE NO. :	CHEVRON D20	SAMPLED BY :	DEREK JOHNSON
NAME/DESCRIP :	CHEVRON 18-441		
	BRADENHEAD GAS		

\*\*\*FIELD DATA\*\*\*

SAMPLE PRES. :	8	SAMPLE TEMP. :	55
COMMENTS :	NO PROBE; CHEVRON GAS SAMPLE - CHEVRON 18-441D SPOT		
		AMBIENT TEMP.:	

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.730	GPM @ 14.650
Helium	---	0.02	0.00	---	---
Hydrogen	---	0.01	0.00	---	---
Oxygen/Argon	---	0.01	0.02	---	---
Nitrogen	---	0.52	0.85	---	---
Carbon Dioxide	---	0.04	0.10	---	---
Methane	P1	95.36510	89.79530	---	---
Ethane	P2	2.5246	4.4557	0.676	0.672
Propane	P3	0.8751	2.2649	0.241	0.240
i-Butane	I4	0.1582	0.5397	0.052	0.052
n-Butane	P4	0.2243	0.7652	0.071	0.071
2,2-Dimethylpropane	I5	0.0018	0.0076	0.001	0.001
i-Pentane	I5	0.0755	0.3197	0.028	0.028
Acetone	X3	0.0002	0.0007	0.000	0.000
n-Pentane	P5	0.0597	0.2528	0.022	0.022
2,2-Dimethylbutane	I6	0.0019	0.0096	0.001	0.001
Cyclopentane	N5	0.0030	0.0123	0.001	0.001
2,3-Dimethylbutane	I6	0.0033	0.0167	0.001	0.001
2-Methylpentane	I6	0.0183	0.0926	0.008	0.008
3-Methylpentane	I6	0.0096	0.0485	0.004	0.004
n-Hexane	P6	0.0170	0.0860	0.007	0.007
Methylcyclopentane	N6	0.0072	0.0356	0.003	0.003
2,4-Dimethylpentane	I7	0.0008	0.0047	0.000	0.000
2,2,3-Trimethylbutane	I7	0.0002	0.0012	0.000	0.000
Benzene	A6	0.0051	0.0234	0.001	0.001
3,3-Dimethylpentane	I7	0.0001	0.0006	0.000	0.000
Cyclohexane	N6	0.0066	0.0326	0.002	0.002
2-Methylhexane	I7	0.0032	0.0188	0.001	0.001
2,3-Dimethylpentane	I7	0.0022	0.0129	0.001	0.001
1,1-Dimethylcyclopentane	N7	0.0003	0.0017	0.000	0.000
3-Methylhexane	I7	0.0034	0.0200	0.002	0.002
1c,3-Dimethylcyclopentane	N7	0.0009	0.0052	0.000	0.000
1t,3-Dimethylcyclopentane	N7	0.0010	0.0058	0.000	0.000
3-Ethylpentane	I7	0.0002	0.0012	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0015	0.0086	0.001	0.001
2,2,4-Trimethylpentane	I8	0.0001	0.0007	0.000	0.000
UnknownC6s	U6	0.0001	0.0005	0.000	0.000

n-Heptane	P7	0.0049	0.0288	0.002	0.002
1c,2-Dimethylcyclopentane	N7	0.0001	0.0006	0.000	0.000
Methylcyclohexane	N7	0.0083	0.0478	0.003	0.003
2,2-Dimethylhexane	I8	0.0003	0.0020	0.000	0.000
1,1,3-Trimethylcyclopentane	N7	0.0002	0.0013	0.000	0.000
Ethylcyclopentane	N7	0.0003	0.0017	0.000	0.000
2,5-Dimethylhexane	I8	0.0003	0.0020	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0001	0.0007	0.000	0.000
2,4-Dimethylhexane	I8	0.0003	0.0020	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0003	0.0020	0.000	0.000
3,3-Dimethylhexane	I8	0.0001	0.0007	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0002	0.0013	0.000	0.000
Toluene	A7	0.0010	0.0054	0.000	0.000
2,3-Dimethylhexane	I8	0.0002	0.0014	0.000	0.000
2-Methylheptane	I8	0.0013	0.0087	0.001	0.001
4-Methylheptane	I8	0.0004	0.0027	0.000	0.000
3-Methyl-3-ethylpentane	I8	0.0001	0.0007	0.000	0.000
3-Methylheptane	I8	0.0002	0.0014	0.000	0.000
1c,2t,3-Trimethylcyclopentane	N8	0.0013	0.0086	0.001	0.001
3-Ethylhexane	I8	0.0003	0.0020	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0005	0.0033	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0001	0.0007	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0001	0.0007	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0001	0.0007	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0001	0.0007	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0003	0.0020	0.000	0.000
1c,2c,3-Trimethylcyclopentane	N8	0.0001	0.0007	0.000	0.000
UnknownC7s	U7	0.0006	0.0035	0.000	0.000
n-Octane	P8	0.0013	0.0087	0.001	0.001
1c,4-Dimethylcyclohexane	N8	0.0004	0.0026	0.000	0.000
2,3,4-Trimethylhexane	I9	0.0001	0.0008	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0003	0.0022	0.000	0.000
2,2,3-Trimethylhexane	I9	0.0003	0.0022	0.000	0.000
Ethylcyclohexane	N8	0.0001	0.0007	0.000	0.000
n-Propylcyclopentane	N8	0.0002	0.0013	0.000	0.000
Ethylbenzene	I8	0.0001	0.0007	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0003	0.0019	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0001	0.0007	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0001	0.0008	0.000	0.000
4-Methyloctane	I9	0.0001	0.0008	0.000	0.000
2-Methyloctane	I9	0.0002	0.0015	0.000	0.000
3-Methyloctane	I9	0.0002	0.0015	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0002	0.0012	0.000	0.000
i-Butylcyclopentane	N9	0.0001	0.0008	0.000	0.000
UnknownC8s	U8	0.0001	0.0007	0.000	0.000
n-Nonane	P9	0.0005	0.0038	0.000	0.000
1,1-Methylethylcyclohexane	N9	0.0001	0.0008	0.000	0.000
i-Propylbenzene	A9	0.0001	0.0007	0.000	0.000
n-Butylcyclopentane	N9	0.0001	0.0008	0.000	0.000
3,3-Dimethyloctane	I10	0.0001	0.0008	0.000	0.000
n-Propylbenzene	A9	0.0001	0.0007	0.000	0.000
3,6-Dimethyloctane	I10	0.0001	0.0008	0.000	0.000
5-Methylnonane	I10	0.0001	0.0008	0.000	0.000
1,2-Methylethylbenzene	A9	0.0001	0.0007	0.000	0.000
3-Methylnonane	I10	0.0001	0.0008	0.000	0.000
t-Butylbenzene	A10	0.0001	0.0008	0.000	0.000
UnknownC9s	U9	0.0003	0.0022	0.000	0.000
n-Decane	P10	0.0002	0.0016	0.000	0.000
1,3-Methyl-i-propylbenzene	A10	0.0001	0.0008	0.000	0.000
1,3-Diethylbenzene	A10	0.0001	0.0008	0.000	0.000

UnknownC10s	U10	0.0004	0.0034	0.000	0.000
n-Undecane	P11	0.0001	0.0009	0.000	0.000
UnknownC11s	U11	0.0002	0.0018	0.000	0.000
n-Dodecane	P12	0.0001	0.0010	0.000	0.000
UnknownC12s	U12	0.0001	0.0009	0.000	0.000
UnknownC13s	U13	0.0001	0.0011	0.000	0.000
<b>TOTAL</b>		<b>100.00000</b>	<b>100.00000</b>	<b>1.1329</b>	<b>1.1271</b>

<b>BTEX COMPONENTS</b>	<b>MOLE%</b>	<b>WT%</b>	<b>BTU @</b>	<b>14.730</b>	<b>14.650</b>
BENZENE	0.0051	0.0234	<b>LOW</b> NET DRY REAL :	953.9 /scf	948.7 /scf
TOLUENE	0.0010	0.0054	NET WET REAL :	937.3 /scf	932.2 /scf
ETHYLBENZENE	0.0001	0.0007	<b>HIGH</b> GROSS DRY REAL :	1057.7 /scf	1052.0 /scf
XYLENES	0.0006	0.0038	GROSS WET REAL :	1039.3 /scf	1033.6 /scf
<b>TOTAL BTEX</b>	<b>0.0068</b>	<b>0.0333</b>	NET DRY REAL :	21264.9 /lb	21149.4 /lb
			GROSS DRY REAL :	23577.3 /lb	23449.2 /lb

RELATIVE DENSITY (AIR=1): 0.5878  
 COMPRESSIBILITY FACTOR : 0.99777

(CALC: GPA STD 2145 & TP-17 @ 14.696 & 60 F)

\*(DETAILED HYDROCARBON ANALYSIS/NJ 1993) ; ASTM D6730

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