EMPACT ANALYTICAL SYSTEMS INC.
365 S. MAIN ST.
BRIGHTON, CO
80601

303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201406057	ANALYSIS NO. :	01
COMPANY NAME :	EE3	ANALYSIS DATE:	JUNE 10, 2014
ACCOUNT NO. :		SAMPLE DATE :	
PRODUCER :		CYLINDER NO. :	1422
LEASE NO. :		SAMPLED BY :	
NAME/DESCRIP :	MUTUAL 07-17H		
FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :			

COMPONENT	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
ALCOHOLS	0.0011	0.0026		
HELIUM	0.05	0.01	---	---
HYDROGEN	0.01	0.00	---	---
OXYGEN/ARGON	0.02	0.02	---	---
NITROGEN	1.02	1.07	---	---
CARBON DIOXIDE	2.84	4.68	---	---
METHANE	66.22280	39.76760	---	---
ETHANE	8.5214	9.5917	2.2777	2.2901
PROPANE	10.5361	17.3917	2.9010	2.9168
I-BUTANE	1.2583	2.7377	0.4118	0.4141
N-BUTANE	4.8017	10.4473	1.5131	1.5214
I-PENTANE	1.3175	3.5477	0.4720	0.4745
N-PENTANE	1.3736	3.7099	0.4980	0.5007
HEXANES PLUS	2.0275	7.0238	0.8342	0.8385
TOTALS	100.00000	100.00000	8.9078	8.9561

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0418	0.1222
TOLUENE	0.0298	0.1028
ETHYLBENZENE	0.0031	0.0123
XYLENES	0.0084	0.0334
TOTAL BTEX	0.0831	0.2707

	BTU @	14.650	14.730
LOW	NET DRY REAL :	1362.4 **/scf**	1369.8 **/scf**
	NET WET REAL :	1338.6 **/scf**	1346.0 **/scf**
HIGH	GROSS DRY REAL :	1493.1 **/scf**	1501.2 **/scf**
	GROSS WET REAL :	1467.0 **/scf**	1475.1 **/scf**
	NET DRY REAL :	19387.6 **/lb**	19493.4 **/lb**
	GROSS DRY REAL :	21256.5 **/lb**	21372.6 **/lb**
	RELATIVE DENSITY (AIR=1):		0.9218
	COMPRESSIBILITY FACTOR :		0.99482

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

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

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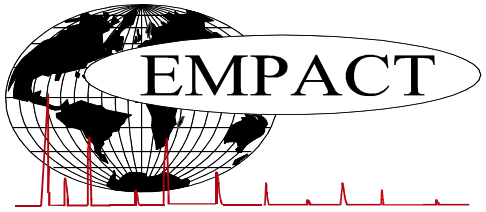
GLYCALC INFORMATION

PROJECT NO. :	201406057	ANALYSIS NO. :	01
COMPANY NAME :	EE3	ANALYSIS DATE:	JUNE 10, 2014
ACCOUNT NO. :		SAMPLE DATE :	
PRODUCER :		CYLINDER NO. :	1422
LEASE NO. :		SAMPLED BY :	
NAME/DESCRIP :	MUTUAL 07-17H		
FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :			

Componet	Mole %	Wt %
Helium	0.05	0.01
Hydrogen	0.01	0.00
Carbon Dioxide	2.84	4.68
Nitrogen	1.02	1.07
Methane	66.22280	39.76760
Ethane	8.5214	9.5917
Propane	10.5361	17.3917
Isobutane	1.2583	2.7377
n-Butane	4.8017	10.4473
Isopentane	1.1774	3.1799
n-Pentane	1.3736	3.7099
Cyclopentane	0.1401	0.3678
n-Hexane	0.3506	1.1310
Cyclohexane	0.1070	0.3371
Other Hexanes	0.7760	2.4817
Heptanes	0.3782	1.4068
Methycyclohexane	0.0984	0.3617
2,2,4 Trimethylpentane	0.0001	0.0004
Benzene	0.0418	0.1222
Toluene	0.0298	0.1028
Ethylbenzene	0.0031	0.0123
Xylenes	0.0084	0.0334
C8+ Heavies	0.2341	1.0344
Subtotal	99.97890	99.97740
Oxygen/Argon	0.02	0.02
Alcohols	0.0011	0.0026
Total	100.00000	100.00000



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201406057	ANALYSIS NO. :	01
COMPANY NAME :	EE3	ANALYSIS DATE:	JUNE 10, 2014
ACCOUNT NO. :		SAMPLE DATE :	
PRODUCER :		CYLINDER NO. :	1422
LEASE NO. :		SAMPLED BY :	
NAME/DESCRIP :	MUTUAL 07-17H		
FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :			

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
Helium	---	0.05	0.01	---	---
Hydrogen	---	0.01	0.00	---	---
Oxygen/Argon	---	0.02	0.02	---	---
Nitrogen	---	1.02	1.07	---	---
Carbon Dioxide	---	2.84	4.68	---	---
Methane	P1	66.22280	39.76760	---	---
Ethane	P2	8.5214	9.5917	2.278	2.290
Propane	P3	10.5361	17.3917	2.901	2.917
i-Butane	I4	1.2583	2.7377	0.412	0.414
n-Butane	P4	4.8017	10.4473	1.513	1.521
2,2-Dimethylpropane	I5	0.0023	0.0062	0.001	0.001
Ethanol	X2	0.0001	0.0002	0.000	0.000
i-Pentane	I5	1.1751	3.1737	0.430	0.432
Acetone	X3	0.0006	0.0013	0.000	0.000
i-Propanol	X3	0.0002	0.0005	0.000	0.000
n-Pentane	P5	1.3735	3.7096	0.498	0.501
t-Butanol	X4	0.0002	0.0006	0.000	0.000
2,2-Dimethylbutane	I6	0.0025	0.0081	0.001	0.001
Cyclopentane	N5	0.1401	0.3678	0.041	0.041
2,3-Dimethylbutane	I6	0.0473	0.1526	0.019	0.019
2-Methylpentane	I6	0.2695	0.8694	0.112	0.113
3-Methylpentane	I6	0.1696	0.5471	0.069	0.070
UnknownC5s	U5	0.0001	0.0003	0.000	0.000
n-Hexane	P6	0.3506	1.1310	0.144	0.145
2,2-Dimethylpentane	I7	0.0012	0.0045	0.001	0.001
Methylcyclopentane	N6	0.2871	0.9045	0.101	0.102
2,4-Dimethylpentane	I7	0.0091	0.0341	0.004	0.004
2,2,3-Trimethylbutane	I7	0.0003	0.0011	0.000	0.000
Benzene	A6	0.0418	0.1222	0.012	0.012
3,3-Dimethylpentane	I7	0.0006	0.0023	0.000	0.000
Cyclohexane	N6	0.1070	0.3371	0.036	0.036
2-Methylhexane	I7	0.0409	0.1534	0.019	0.019
2,3-Dimethylpentane	I7	0.0213	0.0799	0.010	0.010
1,1-Dimethylcyclopentane	N7	0.0112	0.0412	0.005	0.005
3-Methylhexane	I7	0.0526	0.1973	0.024	0.024
1c,3-Dimethylcyclopentane	N7	0.0346	0.1272	0.016	0.016
1t,3-Dimethylcyclopentane	N7	0.0310	0.1140	0.014	0.014
3-Ethylpentane	I7	0.0023	0.0086	0.001	0.001
1t,2-Dimethylcyclopentane	N7	0.0633	0.2327	0.029	0.029
2,2,4-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
n-Heptane	P7	0.0887	0.3327	0.041	0.041

EMPACT Analytical Systems, Inc 365 S. Main Street, Brighton, CO 80601 303-637-0150

1c,2-Dimethylcyclopentane	N7	0.0046	0.0169	0.002	0.002
Methylcyclohexane	N7	0.0984	0.3617	0.039	0.039
2,2-Dimethylhexane	I8	0.0096	0.0411	0.004	0.004
Ethylcyclopentane	N7	0.0139	0.0511	0.006	0.006
2,5-Dimethylhexane	I8	0.0022	0.0094	0.001	0.001
2,2,3-Trimethylpentane	I8	0.0006	0.0026	0.000	0.000
2,4-Dimethylhexane	I8	0.0037	0.0158	0.002	0.002
1c,2t,4-Trimethylcyclopentane	N8	0.0091	0.0382	0.004	0.004
3,3-Dimethylhexane	I8	0.0003	0.0013	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0137	0.0575	0.006	0.006
2,3,4-Trimethylpentane	I8	0.0016	0.0069	0.001	0.001
2,3,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
Toluene	A7	0.0298	0.1028	0.010	0.010
2,3-Dimethylhexane	I8	0.0033	0.0141	0.002	0.002
2-Methyl-3-ethylpentane	I8	0.0023	0.0099	0.001	0.001
2-Methylheptane	I8	0.0182	0.0778	0.009	0.009
4-Methylheptane	I8	0.0047	0.0201	0.002	0.002
3-Methyl-3-ethylpentane	I8	0.0005	0.0021	0.000	0.000
3,4-Dimethylhexane	I8	0.0008	0.0034	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0004	0.0017	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0005	0.0021	0.000	0.000
3-Methylheptane	I8	0.0090	0.0385	0.005	0.005
1c,2t,3-Trimethylcyclopentane	N8	0.0151	0.0634	0.008	0.008
3-Ethylhexane	I8	0.0021	0.0090	0.001	0.001
1t,4-Dimethylcyclohexane	N8	0.0055	0.0231	0.003	0.003
1,1-Dimethylcyclohexane	N8	0.0015	0.0063	0.001	0.001
3t-Ethylmethylcyclopentane	N8	0.0032	0.0134	0.002	0.002
2t-Ethylmethylcyclopentane	N8	0.0028	0.0118	0.001	0.001
1,1-Methylethylcyclopentane	N8	0.0101	0.0424	0.005	0.005
2,2,4-Trimethylhexane	I9	0.0005	0.0024	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0097	0.0407	0.005	0.005
1t,3-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
UnknownC7s	U7	0.0026	0.0098	0.001	0.001
n-Octane	P8	0.0250	0.1069	0.013	0.013
1c,4-Dimethylcyclohexane	N8	0.0030	0.0126	0.002	0.002
i-Propylcyclopentane	I8	0.0008	0.0034	0.000	0.000
2,4,4-Trimethylhexane	I9	0.0003	0.0014	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0004	0.0019	0.000	0.000
2,2,3,4-Tetramethylpentane	I9	0.0002	0.0010	0.000	0.000
2,3,4-Trimethylhexane	I9	0.0002	0.0010	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0021	0.0088	0.001	0.001
2,2-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0085	0.0402	0.004	0.004
2,2,3-Trimethylhexane	I9	0.0027	0.0130	0.001	0.001
2,4-Dimethylheptane	I9	0.0010	0.0048	0.001	0.001
4,4-Dimethylheptane	I9	0.0003	0.0014	0.000	0.000
Ethylcyclohexane	N8	0.0047	0.0197	0.002	0.002
n-Propylcyclopentane	N8	0.0016	0.0067	0.001	0.001
1c,3c,5-Trimethylcyclohexane	N9	0.0002	0.0009	0.000	0.000
2,5-Dimethylheptane	I9	0.0007	0.0034	0.000	0.000
3,3-Dimethylheptane	I9	0.0008	0.0039	0.000	0.000
3,5-Dimethylheptane	I9	0.0005	0.0024	0.000	0.000
2,6-Dimethylheptane	I9	0.0007	0.0034	0.000	0.000
1,1,3-Trimethylcyclohexane	N9	0.0019	0.0090	0.001	0.001
Ethylbenzene	I8	0.0031	0.0123	0.001	0.001
1c,2t,4t-Trimethylcyclohexane	N9	0.0017	0.0081	0.001	0.001
2,3-Dimethylheptane	I9	0.0033	0.0158	0.002	0.002
1,3-Dimethylbenzene (m-Xylene)	A8	0.0048	0.0191	0.002	0.002
1,4-Dimethylbenzene (p-Xylene)	A8	0.0011	0.0044	0.000	0.000
3,4-Dimethylheptane	I9	0.0002	0.0010	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0012	0.0058	0.001	0.001
4-Ethylheptane	I9	0.0002	0.0010	0.000	0.000
4-Methyloctane	I9	0.0013	0.0063	0.001	0.001
2-Methyloctane	I9	0.0016	0.0077	0.001	0.001

1c,2t,3-Trimethylcyclohexane	N9	0.0004	0.0019	0.000	0.000
3-Ethylheptane	I9	0.0005	0.0024	0.000	0.000
3-Methyloctane	I9	0.0020	0.0096	0.001	0.001
1c,2t,4c-Trimethylcyclohexane	I9	0.0002	0.0009	0.000	0.000
1,1,2-Trimethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
3,3-Diethylpentane	I9	0.0003	0.0014	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0025	0.0099	0.001	0.001
i-Butylcyclopentane	N9	0.0014	0.0066	0.001	0.001
UnknownC8s	U8	0.0005	0.0021	0.000	0.000
n-Nonane	P9	0.0048	0.0231	0.003	0.003
1,1-Methylethylcyclohexane	N9	0.0010	0.0047	0.001	0.001
i-Propylbenzene	A9	0.0018	0.0081	0.001	0.001
i-Propylcyclohexane	N9	0.0004	0.0019	0.000	0.000
2,2-Dimethyloctane	I10	0.0002	0.0011	0.000	0.000
2,4-Dimethyloctane	I10	0.0002	0.0011	0.000	0.000
2,5-Dimethyloctane	I10	0.0002	0.0011	0.000	0.000
n-Butylcyclopentane	N9	0.0012	0.0057	0.001	0.001
3,3-Dimethyloctane	I10	0.0004	0.0021	0.000	0.000
n-Propylbenzene	A9	0.0008	0.0036	0.000	0.000
3,6-Dimethyloctane	I10	0.0002	0.0011	0.000	0.000
3-Methyl-5-ethylheptane	I10	0.0013	0.0069	0.001	0.001
1,3-Methylethylbenzene	A9	0.0005	0.0023	0.000	0.000
1,4-Methylethylbenzene	A9	0.0002	0.0009	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0003	0.0014	0.000	0.000
2,3-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
5-Methylnonane	I10	0.0003	0.0016	0.000	0.000
1,2-Methylethylbenzene	A9	0.0004	0.0018	0.000	0.000
2-Methylnonane	I10	0.0004	0.0021	0.000	0.000
3-Ethyloctane	I10	0.0002	0.0011	0.000	0.000
3-Methylnonane	I10	0.0003	0.0016	0.000	0.000
1,2,4-Trimethylbenzene	A9	0.0002	0.0009	0.000	0.000
t-Butylbenzene	A10	0.0005	0.0025	0.000	0.000
i-Butylcyclohexane	N10	0.0003	0.0016	0.000	0.000
1t-Methyl-2-n-propylcyclohexane	I10	0.0001	0.0005	0.000	0.000
i-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
sec-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC9s	U9	0.0070	0.0336	0.004	0.004
n-Decane	P10	0.0011	0.0059	0.001	0.001
1,2,3-Trimethylbenzene	A9	0.0003	0.0014	0.000	0.000
1,3-Methyl-i-propylbenzene	A10	0.0001	0.0005	0.000	0.000
Sec-Butylcyclohexane	A10	0.0003	0.0016	0.000	0.000
1,2-Methyl-i-propylbenzene	A10	0.0002	0.0010	0.000	0.000
1,3-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Methyl-n-propylbenzene	A10	0.0001	0.0005	0.000	0.000
n-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Dimethyl-5-ethylbenzene	A10	0.0002	0.0010	0.000	0.000
1,2-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
t-Decahydronaphthalene	A9	0.0001	0.0006	0.000	0.000
1,2-Dimethyl-4-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Dimethyl-2-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,2-Dimethyl-3-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC10s	U10	0.0042	0.0224	0.003	0.003
n-Undecane	P11	0.0003	0.0018	0.000	0.000
1,4-Ethyl-i-propylbenzene	A11	0.0001	0.0006	0.000	0.000
1,2-Methyl-n-butylbenzene	A11	0.0001	0.0006	0.000	0.000
UnknownC11s	U11	0.0008	0.0047	0.001	0.001
n-Dodecane	P12	0.0001	0.0006	0.000	0.000
UnknownC12s	U12	0.0001	0.0006	0.000	0.000
TOTAL		100.00000	100.00000	8.9078	8.9561

BTEX COMPONENTS	**MOLE%**	**WT%**		**BTU @**	14.650	14.730
BENZENE	0.0418	0.1222	**LOW**	NET DRY REAL :	1362.4 **/scf**	1369.8 **/scf**
TOLUENE	0.0298	0.1028		NET WET REAL :	1338.6 **/scf**	1346.0 **/scf**
ETHYLBENZENE	0.0031	0.0123	**HIGH**	GROSS DRY REAL :	1493.1 **/scf**	1501.2 **/scf**

XYLENES	0.0084	0.0334
TOTAL BTEX	0.0831	0.2707

GROSS WET REAL :	1467.0 **/scf**	1475.1 **/scf**
NET DRY REAL :	19387.6 **/lb**	19493.4 **/lb**
GROSS DRY REAL :	21256.5 **/lb**	21372.6 **/lb**
RELATIVE DENSITY (AIR=1):		0.9218
COMPRESSIBILITY FACTOR :		0.99482

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

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

THIS DATA HAS BEEN ACQUIRED THROUGH APPLICATION OF CURRENT STATE-OF-THE-ART ANALYTICAL TECHNIQUES. THE USE OF THIS INFORMATION IS THE RESPONSIBLITY OF THE USER. EMPACT ANALYTICAL SYSTEMS, ASSUMES NO RESPONSIBLITY FOR ACCURACY OF THE REPORTED INFORMATION NOR ANY CONSEQUENCES OF IT'S APPLICATION.

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