GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Section 34 Compressor Station
File Name: C:\Work\Projects\Berry\Section 34 Compressor Station\Permit Work\April 2011\Application\D1.ddf
Date: May 17, 2011

DESCRIPTION:

Description: D1 PTE

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1338	3.211	0.5860
Ethane	0.1113	2.672	0.4876
Propane	0.2151	5.162	0.9421
Isobutane	0.0770	1.849	0.3374
n-Butane	0.2149	5.157	0.9411
Isopentane	0.0891	2.139	0.3904
n-Pentane	0.1569	3.765	0.6872
n-Hexane	0.1905	4.572	0.8344
Cyclohexane	0.3269	7.846	1.4318
Other Hexanes	0.1312	3.148	0.5746
Heptanes	0.4881	11.715	2.1379
Methylcyclohexane	0.4229	10.150	1.8523
2,2,4-Trimethylpentane	0.0150	0.359	0.0655
Benzene	0.9909	23.781	4.3401
Toluene	1.3984	33.561	6.1249
Ethylbenzene	0.1200	2.879	0.5254
Xylenes	0.9158	21.979	4.0112
C8+ Heavies	1.6767	40.241	7.3440
Total Emissions	7.6744	184.185	33.6138
Total Hydrocarbon Emissions	7.6744	184.185	33.6138
Total VOC Emissions	7.4293	178.303	32.5403
Total HAP Emissions	3.6305	87.132	15.9016
Total BTEX Emissions	3.4250	82.201	15.0016

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	21.3143	511.544	93.3567
Ethane	4.6546	111.709	20.3869

Propane	3.6964	88.714	16.1903
Isobutane	0.8182	19.637	3.5838
n-Butane	1.6818	40.364	7.3664
Isopentane	0.5821	13.971	2.5497
n-Pentane	0.7990	19.176	3.4996
n-Hexane	0.4967	11.921	2.1756
Cyclohexane	0.2217	5.321	0.9711
Other Hexanes	0.4679	11.231	2.0496
Heptanes	0.5765	13.836	2.5251
Methylcyclohexane	0.2094	5.026	0.9172
2,2,4-Trimethylpentane	0.0369	0.887	0.1618
Benzene	0.0772	1.852	0.3381
Toluene	0.0650	1.561	0.2848
Ethylbenzene	0.0030	0.072	0.0131
Xylenes	0.0151	0.362	0.0661
C8+ Heavies	0.1814	4.355	0.7947
Total Emissions	35.8974	861.537	157.2305
Total Hydrocarbon Emissions	35.8974	861.537	157.2305
Total VOC Emissions	9.9285	238.284	43.4869
Total HAP Emissions	0.6939	16.654	3.0394
Total BTEX Emissions	0.1603	3.847	0.7020

EQUIPMENT REPORTS:

ABSORBER

Specified Absorber Stages:	2.10	
Calculated Dry Gas Dew Point:	2.52	lbs. H2O/MMSCF
Temperature:	100.0	deg. F
Pressure:	800.0	psig
Dry Gas Flow Rate:	12.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.1658	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	69.01	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	3.30	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.65%	96.35%
Carbon Dioxide	99.82%	0.18%
Nitrogen	99.98%	0.02%
Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.93%	0.07%
Isobutane	99.91%	0.09%
n-Butane	99.88%	0.12%
Isopentane	99.88%	0.12%
n-Pentane	99.85%	0.15%
n-Hexane	99.76%	0.24%
Cyclohexane	98.94%	1.06%
Other Hexanes	99.82%	0.18%
Heptanes	99.58%	0.42%
Methylcyclohexane	98.86%	1.14%
2,2,4-Trimethylpentane	99.82%	0.18%

Benzene	90.59%	9.41%
Toluene	86.72%	13.28%
Ethylbenzene	82.53%	17.47%
Xylenes	75.46%	24.54%
C8+ Heavies	98.55%	1.45%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 100.0 deg. F
Flash Pressure: 30.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.86%	0.14%
Carbon Dioxide	8.48%	91.52%
Nitrogen	0.59%	99.41%
Methane	0.62%	99.38%
Ethane	2.34%	97.66%
Propane	5.50%	94.50%
Isobutane	8.60%	91.40%
n-Butane	11.33%	88.67%
Isopentane	13.51%	86.49%
n-Pentane	16.66%	83.34%
n-Hexane	27.97%	72.03%
Cyclohexane	60.77%	39.23%
Other Hexanes	22.39%	77.61%
Heptanes	46.06%	53.94%
Methylcyclohexane	68.10%	31.90%
2,2,4-Trimethylpentane	29.50%	70.50%
Benzene	93.13%	6.87%
Toluene	95.91%	4.09%
Ethylbenzene	97.83%	2.17%
Xylenes	98.59%	1.41%
C8+ Heavies	91.34%	8.66%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	31.70%	68.30%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.95%	98.05%
n-Pentane	1.76%	98.24%
n-Hexane	1.24%	98.76%
Cyclohexane	4.80%	95.20%
Other Hexanes	2.84%	97.16%

Heptanes	0.87%	99.13%
Methylcyclohexane	5.39%	94.61%
2,2,4-Trimethylpentane	3.23%	96.77%
Benzene	5.31%	94.69%
Toluene	8.18%	91.82%
Ethylbenzene	10.59%	89.41%
Xylenes	13.07%	86.93%
C8+ Heavies	12.36%	87.64%

STREAM REPORTS:

WET GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia
Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.45e-001	3.46e+001
Carbon Dioxide	3.58e-001	2.08e+002
Nitrogen	4.01e-001	1.48e+002
Methane	8.41e+001	1.78e+004
Ethane	8.07e+000	3.20e+003
Propane	3.85e+000	2.24e+003
Isobutane	5.88e-001	4.51e+002
n-Butane	1.09e+000	8.37e+002
Isopentane	3.13e-001	2.99e+002
n-Pentane	3.90e-001	3.71e+002
n-Hexane	1.75e-001	1.99e+002
Cyclohexane	4.23e-002	4.70e+001
Other Hexanes	1.81e-001	2.06e+002
Heptanes	1.52e-001	2.01e+002
Methylcyclohexane	3.92e-002	5.09e+001
2,2,4-Trimethylpentane	1.19e-002	1.79e+001
Benzene	1.09e-002	1.12e+001
Toluene	8.99e-003	1.09e+001
Ethylbenzene	4.99e-004	7.00e-001
Xylenes	2.70e-003	3.78e+000
C8+ Heavies	5.31e-002	1.19e+002
Total Components	100.00	2.65e+004

DRY GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia
Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.32e-003	1.26e+000
Carbon Dioxide	3.58e-001	2.08e+002
Nitrogen	4.02e-001	1.48e+002

Methane	8.42e+001	1.78e+004
Ethane	8.08e+000	3.20e+003
Propane	3.85e+000	2.24e+003
Isobutane	5.89e-001	4.51e+002
n-Butane	1.09e+000	8.36e+002
Isopentane	3.14e-001	2.98e+002
n-Pentane	3.90e-001	3.70e+002
n-Hexane	1.75e-001	1.99e+002
Cyclohexane	4.20e-002	4.65e+001
Other Hexanes	1.81e-001	2.06e+002
Heptanes	1.51e-001	2.00e+002
Methylcyclohexane	3.89e-002	5.03e+001
2,2,4-Trimethylpentane	1.19e-002	1.79e+001
Benzene	9.88e-003	1.02e+001
Toluene	7.81e-003	9.48e+000
Ethylbenzene	4.13e-004	5.77e-001
Xylenes	2.04e-003	2.85e+000
C8+ Heavies	5.24e-002	1.18e+002
Total Components	100.00	2.64e+004

LEAN GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.83e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	1.01e+003
Water	1.50e+000	1.54e+001
Carbon Dioxide	3.65e-012	3.76e-011
Nitrogen	2.22e-013	2.28e-012
Methane	8.06e-018	8.29e-017
Ethane	6.19e-008	6.37e-007
Propane	6.02e-009	6.20e-008
Isobutane	1.21e-009	1.24e-008
n-Butane	2.42e-009	2.49e-008
Isopentane	1.72e-004	1.77e-003
n-Pentane	2.74e-004	2.82e-003
n-Hexane	2.32e-004	2.39e-003
Cyclohexane	1.60e-003	1.65e-002
Other Hexanes	3.72e-004	3.83e-003
Heptanes	4.15e-004	4.27e-003
Methylcyclohexane	2.34e-003	2.41e-002
2,2,4-Trimethylpentane	4.85e-005	4.99e-004
Benzene	5.40e-003	5.56e-002
Toluene	1.21e-002	1.25e-001
Ethylbenzene	1.38e-003	1.42e-002
Xylenes	1.34e-002	1.38e-001
C8+ Heavies	2.30e-002	2.37e-001
Total Components	100.00	1.03e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia

Flow Rate: 1.99e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.15e+001	1.01e+003
Water	4.41e+000	4.88e+001
Carbon Dioxide	5.40e-002	5.97e-001
Nitrogen	1.63e-002	1.81e-001
Methane	1.94e+000	2.14e+001
Ethane	4.31e-001	4.77e+000
Propane	3.53e-001	3.91e+000
Isobutane	8.09e-002	8.95e-001
n-Butane	1.71e-001	1.90e+000
Isopentane	6.08e-002	6.73e-001
n-Pentane	8.66e-002	9.59e-001
n-Hexane	6.23e-002	6.90e-001
Cyclohexane	5.11e-002	5.65e-001
Other Hexanes	5.45e-002	6.03e-001
Heptanes	9.66e-002	1.07e+000
Methylcyclohexane	5.93e-002	6.56e-001
2,2,4-Trimethylpentane	4.73e-003	5.24e-002
Benzene	1.02e-001	1.12e+000
Toluene	1.43e-001	1.59e+000
Ethylbenzene	1.24e-002	1.37e-001
Xylenes	9.66e-002	1.07e+000
C8+ Heavies	1.89e-001	2.09e+000
Total Components	100.00	1.11e+003

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 44.70 psia
Flow Rate: 6.36e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.27e-001	6.86e-002
Carbon Dioxide	7.41e-001	5.47e-001
Nitrogen	3.83e-001	1.80e-001
Methane	7.92e+001	2.13e+001
Ethane	9.23e+000	4.65e+000
Propane	5.00e+000	3.70e+000
Isobutane	8.39e-001	8.18e-001
n-Butane	1.73e+000	1.68e+000
Isopentane	4.81e-001	5.82e-001
n-Pentane	6.60e-001	7.99e-001
n-Hexane	3.44e-001	4.97e-001
Cyclohexane	1.57e-001	2.22e-001
Other Hexanes	3.24e-001	4.68e-001
Heptanes	3.43e-001	5.76e-001
Methylcyclohexane	1.27e-001	2.09e-001
2,2,4-Trimethylpentane	1.93e-002	3.69e-002
Benzene	5.89e-002	7.72e-002
Toluene	4.21e-002	6.50e-002
Ethylbenzene	1.68e-003	2.98e-003
Xylenes	8.48e-003	1.51e-002

C8+ Heavies	6.35e-002	1.81e-001
Total Components	100.00	3.67e+001

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.91e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.47e+001	1.01e+003
Water	4.55e+000	4.87e+001
Carbon Dioxide	4.73e-003	5.06e-002
Nitrogen	9.96e-005	1.07e-003
Methane	1.25e-002	1.34e-001
Ethane	1.04e-002	1.11e-001
Propane	2.01e-002	2.15e-001
Isobutane	7.20e-003	7.70e-002
n-Butane	2.01e-002	2.15e-001
Isopentane	8.50e-003	9.09e-002
n-Pentane	1.49e-002	1.60e-001
n-Hexane	1.80e-002	1.93e-001
Cyclohexane	3.21e-002	3.43e-001
Other Hexanes	1.26e-002	1.35e-001
Heptanes	4.60e-002	4.92e-001
Methylcyclohexane	4.18e-002	4.47e-001
2,2,4-Trimethylpentane	1.44e-003	1.55e-002
Benzene	9.78e-002	1.05e+000
Toluene	1.42e-001	1.52e+000
Ethylbenzene	1.25e-002	1.34e-001
Xylenes	9.85e-002	1.05e+000
C8+ Heavies	1.79e-001	1.91e+000
Total Components	100.00	1.07e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 7.35e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.53e+001	3.33e+001
Carbon Dioxide	5.94e-002	5.06e-002
Nitrogen	1.96e-003	1.07e-003
Methane	4.30e-001	1.34e-001
Ethane	1.91e-001	1.11e-001

Propane	2.52e-001	2.15e-001
Isobutane	6.84e-002	7.70e-002
n-Butane	1.91e-001	2.15e-001
Isopentane	6.37e-002	8.91e-002
n-Pentane	1.12e-001	1.57e-001
n-Hexane	1.14e-001	1.91e-001
Cyclohexane	2.00e-001	3.27e-001
Other Hexanes	7.85e-002	1.31e-001
Heptanes	2.51e-001	4.88e-001
Methylcyclohexane	2.22e-001	4.23e-001
2,2,4-Trimethylpentane	6.75e-003	1.50e-002
Benzene	6.55e-001	9.91e-001
Toluene	7.83e-001	1.40e+000
Ethylbenzene	5.83e-002	1.20e-001
Xylenes	4.45e-001	9.16e-001
C8+ Heavies	5.08e-001	1.68e+000
Total Components	100.00	4.10e+001

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: SECTION 7 COMPRESSOR SITE TEG
File Name: C:\My Documents\Berry Petroleum\SECTION 7 JULY 04\SECTION 7 TEG 0704.ddf
Date: July 20, 2004

DESCRIPTION:

Description: 6.0 MMscf/day TEG with No Flash Tank
Gas is saturated @ 650 psig 70 deg F
(estimated gas conditions prior to
compression)
Gas is Dehydrated after compression and
therefore is subsaturated.

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	4.1791	100.297	18.3043
Ethane	0.4263	10.230	1.8671
Propane	0.3635	8.725	1.5922
Isobutane	0.0955	2.292	0.4183
n-Butane	0.2032	4.876	0.8900
Isopentane	0.0735	1.763	0.3218
n-Pentane	0.1023	2.454	0.4479
Cyclopentane	0.0195	0.469	0.0856
n-Hexane	0.0516	1.239	0.2260
Cyclohexane	0.0423	1.014	0.1851
Other Hexanes	0.0655	1.572	0.2869
Heptanes	0.1074	2.577	0.4703
Methylcyclohexane	0.0840	2.016	0.3679
Benzene	0.0973	2.336	0.4263
Toluene	0.2663	6.391	1.1664
Ethylbenzene	0.1002	2.404	0.4387
Xylenes	0.4269	10.246	1.8699
C8+ Heavies	0.4580	10.992	2.0060
Total Emissions	7.1623	171.895	31.3708
Total Hydrocarbon Emissions	7.1623	171.895	31.3708
Total VOC Emissions	2.5569	61.367	11.1994
Total HAP Emissions	0.9423	22.616	4.1274
Total BTEX Emissions	0.8907	21.377	3.9014

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	4.77 lbs. H2O/MMSCF
Temperature:	95.0 deg. F
Pressure:	850.0 psig
Dry Gas Flow Rate:	6.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.0602 lb/hr
Wet Gas Water Content:	Subsaturated
Specified Wet Gas Water Content:	32.00 lbs. H2O/MMSCF
Specified Lean Glycol Recirc. Ratio:	3.00 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	14.90%	85.10%
Carbon Dioxide	99.93%	0.07%
Nitrogen	99.99%	0.01%
Methane	100.00%	0.00%
Ethane	99.98%	0.02%
Propane	99.97%	0.03%
Isobutane	99.97%	0.03%
n-Butane	99.95%	0.05%
Isopentane	99.96%	0.04%
n-Pentane	99.94%	0.06%
Cyclopentane	99.76%	0.24%
n-Hexane	99.91%	0.09%
Cyclohexane	99.59%	0.41%
Other Hexanes	99.93%	0.07%
Heptanes	99.83%	0.17%
Methylcyclohexane	99.56%	0.44%
Benzene	96.26%	3.74%
Toluene	94.56%	5.44%
Ethylbenzene	92.88%	7.12%
Xylenes	89.86%	10.14%
C8+ Heavies	99.46%	0.54%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	27.89%	72.11%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.27%	99.73%
n-Pentane	0.30%	99.70%

Cyclopentane	0.43%	99.57%
n-Hexane	0.35%	99.65%
Cyclohexane	2.93%	97.07%
Other Hexanes	0.65%	99.35%
Heptanes	0.41%	99.59%
Methylcyclohexane	3.69%	96.31%
Benzene	4.95%	95.05%
Toluene	7.85%	92.15%
Ethylbenzene	10.37%	89.63%
Xylenes	12.91%	87.09%
C8+ Heavies	11.33%	88.67%

STREAM REPORTS:

WET GAS STREAM

Temperature: 95.00 deg. F
Pressure: 864.70 psia
Flow Rate: 2.50e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.74e-002	8.01e+000
Carbon Dioxide	4.10e-001	1.19e+002
Nitrogen	4.50e-001	8.31e+001
Methane	9.13e+001	9.66e+003
Ethane	4.01e+000	7.96e+002
Propane	1.97e+000	5.73e+002
Isobutane	3.43e-001	1.31e+002
n-Butane	6.36e-001	2.44e+002
Isopentane	1.86e-001	8.84e+001
n-Pentane	2.24e-001	1.06e+002
Cyclopentane	1.50e-002	6.93e+000
n-Hexane	6.90e-002	3.92e+001
Cyclohexane	1.70e-002	9.43e+000
Other Hexanes	1.05e-001	5.96e+001
Heptanes	7.89e-002	5.22e+001
Methylcyclohexane	2.70e-002	1.75e+001
Benzene	5.00e-003	2.57e+000
Toluene	7.99e-003	4.86e+000
Ethylbenzene	2.00e-003	1.40e+000
Xylenes	6.00e-003	4.20e+000
C8+ Heavies	7.00e-002	7.86e+001
Total Components	100.00	1.21e+004

DRY GAS STREAM

Temperature: 95.00 deg. F
Pressure: 864.70 psia
Flow Rate: 2.50e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.01e-002	1.19e+000
Carbon Dioxide	4.10e-001	1.19e+002
Nitrogen	4.50e-001	8.30e+001
Methane	9.14e+001	9.66e+003
Ethane	4.01e+000	7.95e+002
Propane	1.97e+000	5.73e+002
Isobutane	3.43e-001	1.31e+002
n-Butane	6.36e-001	2.43e+002
Isopentane	1.86e-001	8.84e+001
n-Pentane	2.24e-001	1.06e+002
Cyclopentane	1.50e-002	6.91e+000
n-Hexane	6.89e-002	3.91e+001
Cyclohexane	1.69e-002	9.39e+000
Other Hexanes	1.05e-001	5.96e+001
Heptanes	7.89e-002	5.21e+001
Methylcyclohexane	2.69e-002	1.74e+001
Benzene	4.81e-003	2.48e+000
Toluene	7.56e-003	4.59e+000
Ethylbenzene	1.86e-003	1.30e+000
Xylenes	5.39e-003	3.77e+000
C8+ Heavies	6.96e-002	7.81e+001
Total Components	100.00	1.21e+004

LEAN GLYCOL STREAM

Temperature: 95.00 deg. F
Flow Rate: 3.12e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	1.73e+002
Water	1.50e+000	2.64e+000
Carbon Dioxide	4.52e-012	7.94e-012
Nitrogen	2.55e-013	4.49e-013
Methane	9.01e-018	1.58e-017
Ethane	3.24e-008	5.70e-008
Propane	3.32e-009	5.83e-009
Isobutane	7.69e-010	1.35e-009
n-Butane	1.55e-009	2.72e-009
Isopentane	1.13e-004	1.99e-004
n-Pentane	1.75e-004	3.08e-004
Cyclopentane	4.83e-005	8.48e-005
n-Hexane	1.05e-004	1.84e-004
Cyclohexane	7.27e-004	1.28e-003
Other Hexanes	2.45e-004	4.30e-004
Heptanes	2.50e-004	4.39e-004
Methylcyclohexane	1.83e-003	3.22e-003
Benzene	2.89e-003	5.07e-003
Toluene	1.29e-002	2.27e-002
Ethylbenzene	6.59e-003	1.16e-002
Xylenes	3.60e-002	6.33e-002

C8+ Heavies	3.33e-002	5.85e-002
Total Components	100.00	1.76e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 95.00 deg. F
Pressure: 864.70 psia
Flow Rate: 3.42e-001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.11e+001	1.73e+002
Water	4.98e+000	9.45e+000
Carbon Dioxide	6.59e-002	1.25e-001
Nitrogen	1.92e-002	3.64e-002
Methane	2.20e+000	4.18e+000
Ethane	2.25e-001	4.26e-001
Propane	1.92e-001	3.64e-001
Isobutane	5.03e-002	9.55e-002
n-Butane	1.07e-001	2.03e-001
Isopentane	3.88e-002	7.37e-002
n-Pentane	5.40e-002	1.03e-001
Cyclopentane	1.03e-002	1.96e-002
n-Hexane	2.73e-002	5.18e-002
Cyclohexane	2.29e-002	4.35e-002
Other Hexanes	3.47e-002	6.59e-002
Heptanes	5.68e-002	1.08e-001
Methylcyclohexane	4.59e-002	8.72e-002
Benzene	5.39e-002	1.02e-001
Toluene	1.52e-001	2.89e-001
Ethylbenzene	5.89e-002	1.12e-001
Xylenes	2.58e-001	4.90e-001
C8+ Heavies	2.72e-001	5.17e-001
Total Components	100.00	1.90e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.61e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.49e+001	6.82e+000
Carbon Dioxide	4.13e-001	1.25e-001
Nitrogen	1.88e-001	3.64e-002
Methane	3.78e+001	4.18e+000
Ethane	2.06e+000	4.26e-001
Propane	1.20e+000	3.64e-001
Isobutane	2.38e-001	9.55e-002
n-Butane	5.07e-001	2.03e-001
Isopentane	1.48e-001	7.35e-002
n-Pentane	2.06e-001	1.02e-001

Cyclopentane	4.04e-002	1.95e-002
n-Hexane	8.69e-002	5.16e-002
Cyclohexane	7.29e-002	4.23e-002
Other Hexanes	1.10e-001	6.55e-002
Heptanes	1.56e-001	1.07e-001
Methylcyclohexane	1.24e-001	8.40e-002
Benzene	1.81e-001	9.73e-002
Toluene	4.19e-001	2.66e-001
Ethylbenzene	1.37e-001	1.00e-001
Xylenes	5.84e-001	4.27e-001
C8+ Heavies	3.90e-001	4.58e-001
Total Components	100.00	1.41e+001

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Peters Point Station
File Name: C:\DATA\Clients\Bill Barrett Co\Peters Point compressor station\peters point.ddf
Date: May 15, 2003

DESCRIPTION:

Description: Bill Barrett Corporation
New 20MMscf/day Unit
Emissions controlled by condenser and combustion
Gas Analysis - May 5, 2003

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0586	1.407	0.2568
Ethane	0.0099	0.237	0.0432
Propane	0.0068	0.163	0.0297
Isobutane	0.0025	0.059	0.0108
n-Butane	0.0035	0.085	0.0155
Isopentane	0.0015	0.035	0.0064
n-Pentane	0.0014	0.033	0.0061
Cyclopentane	0.0002	0.005	0.0008
n-Hexane	0.0009	0.021	0.0038
Cyclohexane	0.0017	0.040	0.0074
Other Hexanes	0.0015	0.036	0.0066
Heptanes	0.0017	0.040	0.0073
Methylcyclohexane	0.0025	0.061	0.0111
Benzene	0.0051	0.123	0.0224
Toluene	0.0066	0.159	0.0291
Ethylbenzene	0.0002	0.005	0.0009
Xylenes	0.0019	0.045	0.0083
C8+ Heavies	<0.0001	0.001	0.0002
Total Emissions	0.1065	2.555	0.4664
Total Hydrocarbon Emissions	0.1065	2.555	0.4664

Total VOC Emissions	0.0380	0.911	0.1663
Total HAP Emissions	0.0147	0.353	0.0644
Total BTEX Emissions	0.0139	0.332	0.0607

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.9340	70.415	12.8507
Ethane	0.4956	11.893	2.1705
Propane	0.3462	8.310	1.5166
Isobutane	0.1286	3.086	0.5633
n-Butane	0.1894	4.545	0.8294
Isopentane	0.0891	2.137	0.3901
n-Pentane	0.0829	1.990	0.3632
Cyclopentane	0.0133	0.320	0.0585
n-Hexane	0.0733	1.760	0.3212
Cyclohexane	0.1670	4.008	0.7314
Other Hexanes	0.1103	2.648	0.4832
Heptanes	0.2540	6.096	1.1125
Methylcyclohexane	0.4031	9.675	1.7658
Benzene	0.5995	14.387	2.6257
Toluene	1.7962	43.108	7.8673
Ethylbenzene	0.1697	4.073	0.7433
Xylenes	1.7581	42.194	7.7004
C8+ Heavies	1.1913	28.592	5.2180
Total Emissions	10.8016	259.238	47.3110
Total Hydrocarbon Emissions	10.8016	259.238	47.3110
Total VOC Emissions	7.3721	176.930	32.2898
Total HAP Emissions	4.3968	105.522	19.2578
Total BTEX Emissions	4.3234	103.763	18.9367

EQUIPMENT REPORTS:

CONDENSER AND COMBUSTION DEVICE

Condenser Outlet Temperature: 80.00 deg. F
Condenser Pressure: 12.00 psia
Condenser Duty: 2.28e-002 MM BTU/hr

Hydrocarbon Recovery:	0.44	bbls/day
Produced Water:	2.27	bbls/day
Ambient Temperature:	80.00	deg. F
Excess Oxygen:	0.00	%
Combustion Efficiency:	98.00	%
Supplemental Fuel Requirement:	2.28e-002	MM BTU/hr

Component	Emitted	Destroyed
Methane	2.00%	98.00%
Ethane	1.99%	98.01%
Propane	1.96%	98.04%
Isobutane	1.91%	98.09%
n-Butane	1.87%	98.13%
Isopentane	1.65%	98.35%
n-Pentane	1.67%	98.33%
Cyclopentane	1.45%	98.55%
n-Hexane	1.18%	98.82%
Cyclohexane	1.01%	98.99%
Other Hexanes	1.36%	98.64%
Heptanes	0.66%	99.34%
Methylcyclohexane	0.63%	99.37%
Benzene	0.85%	99.15%
Toluene	0.37%	99.63%
Ethylbenzene	0.12%	99.88%
Xylenes	0.11%	99.89%
C8+ Heavies	0.00%	100.00%

ABSORBER

Calculated Absorber Stages:	1.26	
Specified Dry Gas Dew Point:	7.00	lbs. H2O/MMSCF
Temperature:	80.0	deg. F
Pressure:	600.0	psig
Dry Gas Flow Rate:	20.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0567	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	46.91	lbs. H2O/MMSCF
Specified Lean Glycol Recirc. Ratio:	1.20	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	14.91%	85.09%
Carbon Dioxide	99.96%	0.04%
Nitrogen	100.00%	0.00%
Methane	100.00%	0.00%

Ethane	99.99%	0.01%
Propane	99.98%	0.02%
Isobutane	99.98%	0.02%
n-Butane	99.97%	0.03%
Isopentane	99.97%	0.03%
n-Pentane	99.96%	0.04%
Cyclopentane	99.83%	0.17%
n-Hexane	99.93%	0.07%
Cyclohexane	99.70%	0.30%
Other Hexanes	99.94%	0.06%
Heptanes	99.86%	0.14%
Methylcyclohexane	99.64%	0.36%
Benzene	96.83%	3.17%
Toluene	95.08%	4.92%
Ethylbenzene	92.73%	7.27%
Xylenes	89.24%	10.76%
C8+ Heavies	99.54%	0.46%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	14.41%	85.59%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.41%	99.59%
n-Pentane	0.43%	99.57%
Cyclopentane	0.48%	99.52%
n-Hexane	0.46%	99.54%
Cyclohexane	3.13%	96.87%
Other Hexanes	0.89%	99.11%
Heptanes	0.48%	99.52%
Methylcyclohexane	3.93%	96.07%
Benzene	4.99%	95.01%
Toluene	7.89%	92.11%

Ethylbenzene	10.39%	89.61%
Xylenes	12.89%	87.11%
C8+ Heavies	11.84%	88.16%

STREAM REPORTS:

WET GAS STREAM

Temperature: 80.00 deg. F
Pressure: 614.70 psia
Flow Rate: 8.34e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.88e-002	3.91e+001
Carbon Dioxide	3.04e-001	2.94e+002
Nitrogen	2.41e-001	1.48e+002
Methane	9.11e+001	3.21e+004
Ethane	5.19e+000	3.43e+003
Propane	1.62e+000	1.57e+003
Isobutane	3.45e-001	4.40e+002
n-Butane	4.00e-001	5.11e+002
Isopentane	1.43e-001	2.27e+002
n-Pentane	1.07e-001	1.70e+002
Cyclopentane	5.00e-003	7.70e+000
n-Hexane	4.80e-002	9.09e+001
Cyclohexane	2.90e-002	5.36e+001
Other Hexanes	9.39e-002	1.78e+002
Heptanes	7.69e-002	1.69e+002
Methylcyclohexane	5.09e-002	1.10e+002
Benzene	1.10e-002	1.89e+001
Toluene	1.80e-002	3.64e+001
Ethylbenzene	9.99e-004	2.33e+000
Xylenes	6.99e-003	1.63e+001
C8+ Heavies	6.79e-002	2.54e+002
Total Components	100.00	3.99e+004

DRY GAS STREAM

Temperature: 80.00 deg. F
Pressure: 614.70 psia
Flow Rate: 8.33e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.47e-002	5.83e+000
Carbon Dioxide	3.04e-001	2.94e+002
Nitrogen	2.41e-001	1.48e+002
Methane	9.12e+001	3.21e+004
Ethane	5.20e+000	3.43e+003
Propane	1.62e+000	1.57e+003
Isobutane	3.45e-001	4.40e+002
n-Butane	4.00e-001	5.10e+002
Isopentane	1.43e-001	2.27e+002
n-Pentane	1.07e-001	1.69e+002
Cyclopentane	4.99e-003	7.69e+000
n-Hexane	4.80e-002	9.08e+001
Cyclohexane	2.89e-002	5.34e+001
Other Hexanes	9.39e-002	1.78e+002
Heptanes	7.69e-002	1.69e+002
Methylcyclohexane	5.08e-002	1.10e+002
Benzene	1.07e-002	1.83e+001
Toluene	1.71e-002	3.46e+001
Ethylbenzene	9.27e-004	2.16e+000
Xylenes	6.25e-003	1.46e+001
C8+ Heavies	6.77e-002	2.53e+002
Total Components	100.00	3.99e+004

LEAN GLYCOL STREAM

Temperature: 80.00 deg. F
Flow Rate: 6.64e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.83e+001	3.67e+002
Water	1.50e+000	5.61e+000
Carbon Dioxide	2.85e-012	1.06e-011
Nitrogen	9.19e-014	3.43e-013
Methane	6.43e-018	2.40e-017
Ethane	3.27e-008	1.22e-007

Propane	2.59e-009	9.68e-009
Isobutane	7.89e-010	2.95e-009
n-Butane	1.02e-009	3.82e-009
Isopentane	9.88e-005	3.69e-004
n-Pentane	9.58e-005	3.58e-004
Cyclopentane	1.72e-005	6.44e-005
n-Hexane	9.02e-005	3.37e-004
Cyclohexane	1.45e-003	5.40e-003
Other Hexanes	2.65e-004	9.90e-004
Heptanes	3.26e-004	1.22e-003
Methylcyclohexane	4.41e-003	1.65e-002
Benzene	8.43e-003	3.15e-002
Toluene	4.12e-002	1.54e-001
Ethylbenzene	5.27e-003	1.97e-002
Xylenes	6.96e-002	2.60e-001
C8+ Heavies	4.29e-002	1.60e-001
Total Components	100.00	3.73e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 80.00 deg. F
Pressure: 614.70 psia
Flow Rate: 7.53e-001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	8.79e+001	3.67e+002
Water	9.32e+000	3.89e+001
Carbon Dioxide	3.03e-002	1.27e-001
Nitrogen	3.27e-003	1.37e-002
Methane	7.03e-001	2.93e+000
Ethane	1.19e-001	4.96e-001
Propane	8.30e-002	3.46e-001
Isobutane	3.08e-002	1.29e-001
n-Butane	4.54e-002	1.89e-001
Isopentane	2.14e-002	8.94e-002
n-Pentane	2.00e-002	8.33e-002
Cyclopentane	3.21e-003	1.34e-002
n-Hexane	1.76e-002	7.37e-002
Cyclohexane	4.13e-002	1.72e-001
Other Hexanes	2.67e-002	1.11e-001
Heptanes	6.11e-002	2.55e-001

Methylcyclohexane	1.01e-001	4.20e-001
Benzene	1.51e-001	6.31e-001
Toluene	4.67e-001	1.95e+000
Ethylbenzene	4.54e-002	1.89e-001
Xylenes	4.84e-001	2.02e+000
C8+ Heavies	3.24e-001	1.35e+000
Total Components	100.00	4.17e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 8.08e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.68e+001	3.33e+001
Carbon Dioxide	1.35e-001	1.27e-001
Nitrogen	2.29e-002	1.37e-002
Methane	8.59e+000	2.93e+000
Ethane	7.73e-001	4.96e-001
Propane	3.69e-001	3.46e-001
Isobutane	1.04e-001	1.29e-001
n-Butane	1.53e-001	1.89e-001
Isopentane	5.79e-002	8.91e-002
n-Pentane	5.39e-002	8.29e-002
Cyclopentane	8.93e-003	1.33e-002
n-Hexane	3.99e-002	7.33e-002
Cyclohexane	9.31e-002	1.67e-001
Other Hexanes	6.01e-002	1.10e-001
Heptanes	1.19e-001	2.54e-001
Methylcyclohexane	1.93e-001	4.03e-001
Benzene	3.60e-001	5.99e-001
Toluene	9.15e-001	1.80e+000
Ethylbenzene	7.50e-002	1.70e-001
Xylenes	7.77e-001	1.76e+000
C8+ Heavies	3.28e-001	1.19e+000
Total Components	100.00	4.42e+001

CONDENSER PRODUCED WATER STREAM

Temperature: 80.00 deg. F
Flow Rate: 6.62e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	1.00e+002	3.31e+001	999582.
Carbon Dioxide	1.38e-003	4.58e-004	14.
Nitrogen	2.96e-006	9.81e-007	0.
Methane	1.36e-003	4.49e-004	14.
Ethane	2.97e-004	9.85e-005	3.
Propane	1.43e-004	4.73e-005	1.
Isobutane	2.97e-005	9.84e-006	0.
n-Butane	5.98e-005	1.98e-005	1.
Isopentane	1.86e-005	6.16e-006	0.
n-Pentane	1.94e-005	6.44e-006	0.
Cyclopentane	2.21e-005	7.32e-006	0.
n-Hexane	1.10e-005	3.65e-006	0.
Cyclohexane	1.39e-004	4.62e-005	1.
Other Hexanes	1.48e-005	4.91e-006	0.
Heptanes	1.25e-005	4.16e-006	0.
Methylcyclohexane	1.04e-004	3.46e-005	1.
Benzene	1.49e-002	4.92e-003	149.
Toluene	1.71e-002	5.68e-003	171.
Ethylbenzene	4.34e-004	1.44e-004	4.
Xylenes	5.77e-003	1.91e-003	58.
C8+ Heavies	1.20e-007	3.97e-008	0.
Total Components	100.00	3.31e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 80.00 deg. F
Flow Rate: 1.28e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	3.05e-002	1.67e-003
Carbon Dioxide	4.26e-003	2.33e-004
Nitrogen	2.54e-004	1.39e-005
Methane	3.20e-002	1.75e-003
Ethane	3.18e-002	1.74e-003
Propane	1.35e-001	7.36e-003
Isobutane	1.07e-001	5.86e-003
n-Butane	2.22e-001	1.21e-002

Isopentane	2.89e-001	1.58e-002
n-Pentane	2.51e-001	1.37e-002
Cyclopentane	6.71e-002	3.67e-003
n-Hexane	5.52e-001	3.02e-002
Cyclohexane	1.51e+000	8.28e-002
Other Hexanes	6.50e-001	3.55e-002
Heptanes	3.12e+000	1.70e-001
Methylcyclohexane	5.05e+000	2.76e-001
Benzene	6.20e+000	3.39e-001
Toluene	2.67e+001	1.46e+000
Ethylbenzene	2.91e+000	1.59e-001
Xylenes	3.04e+001	1.66e+000
C8+ Heavies	2.18e+001	1.19e+000
Total Components	100.00	5.47e+000

CONDENSER VENT STREAM

Temperature: 80.00 deg. F
Pressure: 12.00 psia
Flow Rate: 9.11e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.29e+000	1.86e-001
Carbon Dioxide	1.19e+000	1.26e-001
Nitrogen	2.03e-001	1.36e-002
Methane	7.61e+001	2.93e+000
Ethane	6.84e+000	4.94e-001
Propane	3.20e+000	3.39e-001
Isobutane	8.79e-001	1.23e-001
n-Butane	1.27e+000	1.77e-001
Isopentane	4.23e-001	7.33e-002
n-Pentane	3.99e-001	6.92e-002
Cyclopentane	5.74e-002	9.67e-003
n-Hexane	2.09e-001	4.32e-002
Cyclohexane	4.16e-001	8.42e-002
Other Hexanes	3.61e-001	7.48e-002
Heptanes	3.48e-001	8.37e-002
Methylcyclohexane	5.39e-001	1.27e-001
Benzene	1.36e+000	2.56e-001
Toluene	1.50e+000	3.32e-001
Ethylbenzene	4.07e-002	1.04e-002
Xylenes	3.71e-001	9.45e-002

C8+ Heavies	5.03e-003	2.06e-003
Total Components	100.00	5.65e+000

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.72e+000 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	8.07e+001	5.86e-002
Ethane	7.25e+000	9.87e-003
Propane	3.39e+000	6.78e-003
Isobutane	9.32e-001	2.45e-003
n-Butane	1.35e+000	3.54e-003
Isopentane	4.48e-001	1.47e-003
n-Pentane	4.23e-001	1.38e-003
Cyclopentane	6.09e-002	1.93e-004
n-Hexane	2.21e-001	8.63e-004
Cyclohexane	4.42e-001	1.68e-003
Other Hexanes	3.83e-001	1.50e-003
Heptanes	3.69e-001	1.67e-003
Methylcyclohexane	5.71e-001	2.54e-003
Benzene	1.45e+000	5.12e-003
Toluene	1.59e+000	6.63e-003
Ethylbenzene	4.32e-002	2.08e-004
Xylenes	3.93e-001	1.89e-003
C8+ Heavies	5.33e-003	4.11e-005
Total Components	100.00	1.06e-001

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: AltamontSouth 2011 NOI
File Name: C:\Documents and Settings\rudolpht\My Documents\El Paso\Altamont South CS\AltamontSouth WGA6Oct2009_PTE2.64gpm_Updated.ddf
Date: July 28, 2011

DESCRIPTION:

Description: El Paso Altamont South Compressor Station
Wet Gas Sample October 6, 2009
Max. potential gas throughput 12 MMscfd
Full TEG pump capacity 2.64 gpm
BTEX Condenser Control

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1460	3.503	0.6393
Ethane	0.3957	9.497	1.7332
Propane	0.7836	18.806	3.4322
Isobutane	0.2780	6.672	1.2176
n-Butane	0.7220	17.328	3.1624
Isopentane	0.1731	4.154	0.7581
n-Pentane	0.1991	4.779	0.8721
n-Hexane	0.0401	0.962	0.1756
Cyclohexane	0.0227	0.544	0.0992
Other Hexanes	0.0609	1.461	0.2667
Heptanes	0.0075	0.179	0.0327
Methylcyclohexane	0.0049	0.117	0.0213
2,2,4-Trimethylpentane	0.0001	0.004	0.0007
Benzene	0.2060	4.945	0.9024
Toluene	0.0108	0.259	0.0473
C8+ Heavies	<0.0001	<0.001	0.0001
Total Emissions	3.0504	73.210	13.3608
Total Hydrocarbon Emissions	3.0504	73.210	13.3608
Total VOC Emissions	2.5087	60.210	10.9883
Total HAP Emissions	0.2571	6.170	1.1260
Total BTEX Emissions	0.2168	5.204	0.9497

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1466	3.520	0.6423
Ethane	0.4057	9.737	1.7771
Propane	0.9100	21.839	3.9857
Isobutane	0.3918	9.403	1.7161
n-Butane	1.2830	30.791	5.6194
Isopentane	0.5142	12.340	2.2520
n-Pentane	0.7330	17.591	3.2103
n-Hexane	0.3985	9.563	1.7453

Condenser Pressure:	12.20	psia
Condenser Duty:	1.96e-002	MM BTU/hr
Hydrocarbon Recovery:	0.55	bbls/day
Produced Water:	1.12	bbls/day
VOC Control Efficiency:	73.07	%
HAP Control Efficiency:	93.81	%
BTEX Control Efficiency:	94.22	%
Dissolved Hydrocarbons in Water:	812.43	mg/L

Component	Emitted	Condensed
Water	0.12%	99.88%
Carbon Dioxide	97.70%	2.30%
Nitrogen	99.63%	0.37%
Methane	99.54%	0.46%
Ethane	97.53%	2.47%
Propane	86.11%	13.89%
Isobutane	70.95%	29.05%
n-Butane	56.28%	43.72%
Isopentane	33.66%	66.34%
n-Pentane	27.17%	72.83%
n-Hexane	10.06%	89.94%
Cyclohexane	6.84%	93.16%
Other Hexanes	16.19%	83.81%
Heptanes	1.92%	98.08%
Methylcyclohexane	3.02%	96.98%
2,2,4-Trimethylpentane	3.40%	96.60%
Benzene	6.68%	93.32%
Toluene	1.62%	98.38%
C8+ Heavies	0.03%	99.97%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	1.34	lbs. H2O/MMSCF
Temperature:	70.0	deg. F
Pressure:	600.0	psig
Dry Gas Flow Rate:	12.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0274	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	34.07	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	9.68	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.92%	96.08%
Carbon Dioxide	99.73%	0.27%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.94%	0.06%
Propane	99.90%	0.10%
Isobutane	99.85%	0.15%
n-Butane	99.79%	0.21%
Isopentane	99.77%	0.23%
n-Pentane	99.70%	0.30%

n-Hexane	99.47%	0.53%
Cyclohexane	97.59%	2.41%
Other Hexanes	99.61%	0.39%
Heptanes	98.93%	1.07%
Methylcyclohexane	97.16%	2.84%
2,2,4-Trimethylpentane	99.56%	0.44%
Benzene	78.61%	21.39%
Toluene	69.32%	30.68%
C8+ Heavies	97.65%	2.35%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 120.0 deg. F
Flash Pressure: 40.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.97%	0.03%
Carbon Dioxide	41.38%	58.62%
Nitrogen	5.26%	94.74%
Methane	5.39%	94.61%
Ethane	17.39%	82.61%
Propane	30.85%	69.15%
Isobutane	40.91%	59.09%
n-Butane	47.87%	52.13%
Isopentane	52.01%	47.99%
n-Pentane	57.74%	42.26%
n-Hexane	71.71%	28.29%
Cyclohexane	91.47%	8.53%
Other Hexanes	65.79%	34.21%
Heptanes	84.34%	15.66%
Methylcyclohexane	93.39%	6.61%
2,2,4-Trimethylpentane	73.12%	26.88%
Benzene	98.73%	1.27%
Toluene	99.23%	0.77%
C8+ Heavies	98.64%	1.36%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	57.65%	42.35%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.96%	99.04%
n-Pentane	0.87%	99.13%
n-Hexane	0.70%	99.30%
Cyclohexane	3.50%	96.50%

Other Hexanes	1.52%	98.48%
Heptanes	0.59%	99.41%
Methylcyclohexane	4.28%	95.72%
2,2,4-Trimethylpentane	2.05%	97.95%
Benzene	5.06%	94.94%
Toluene	7.96%	92.04%
C8+ Heavies	12.19%	87.81%

STREAM REPORTS:

WET GAS STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia
Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.18e-002	1.71e+001
Carbon Dioxide	6.58e-001	3.82e+002
Nitrogen	4.90e-001	1.81e+002
Methane	7.98e+001	1.69e+004
Ethane	1.04e+001	4.11e+003
Propane	4.97e+000	2.89e+003
Isobutane	8.13e-001	6.23e+002
n-Butane	1.67e+000	1.28e+003
Isopentane	4.63e-001	4.41e+002
n-Pentane	4.49e-001	4.27e+002
n-Hexane	9.27e-002	1.05e+002
Cyclohexane	1.36e-002	1.51e+001
Other Hexanes	1.29e-001	1.47e+002
Heptanes	3.26e-002	4.31e+001
Methylcyclohexane	4.70e-003	6.08e+000
2,2,4-Trimethylpentane	8.99e-004	1.36e+000
Benzene	1.42e-002	1.46e+001
Toluene	1.80e-003	2.19e+000
C8+ Heavies	1.40e-003	3.14e+000
Total Components	100.00	2.76e+004

DRY GAS STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia
Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.81e-003	6.68e-001
Carbon Dioxide	6.57e-001	3.81e+002
Nitrogen	4.90e-001	1.81e+002
Methane	7.98e+001	1.69e+004
Ethane	1.04e+001	4.11e+003
Propane	4.97e+000	2.89e+003
Isobutane	8.12e-001	6.22e+002

n-Butane	1.66e+000	1.28e+003
Isopentane	4.62e-001	4.40e+002
n-Pentane	4.48e-001	4.26e+002
n-Hexane	9.23e-002	1.05e+002
Cyclohexane	1.33e-002	1.47e+001
Other Hexanes	1.29e-001	1.46e+002
Heptanes	3.23e-002	4.26e+001
Methylcyclohexane	4.57e-003	5.91e+000
2,2,4-Trimethylpentane	8.96e-004	1.35e+000
Benzene	1.12e-002	1.15e+001
Toluene	1.25e-003	1.52e+000
C8+ Heavies	1.37e-003	3.07e+000
Total Components	100.00	2.75e+004

LEAN GLYCOL STREAM

Temperature: 70.00 deg. F
Flow Rate: 2.64e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.46e+003
Water	1.50e+000	2.23e+001
Carbon Dioxide	6.84e-012	1.02e-010
Nitrogen	2.15e-013	3.20e-012
Methane	6.15e-018	9.14e-017
Ethane	7.41e-008	1.10e-006
Propane	8.08e-009	1.20e-007
Isobutane	1.93e-009	2.87e-008
n-Butane	4.47e-009	6.65e-008
Isopentane	3.36e-004	4.99e-003
n-Pentane	4.31e-004	6.40e-003
n-Hexane	1.88e-004	2.80e-003
Cyclohexane	8.08e-004	1.20e-002
Other Hexanes	3.91e-004	5.80e-003
Heptanes	1.55e-004	2.31e-003
Methylcyclohexane	4.85e-004	7.20e-003
2,2,4-Trimethylpentane	6.17e-006	9.17e-005
Benzene	1.11e-002	1.65e-001
Toluene	3.87e-003	5.75e-002
C8+ Heavies	6.78e-004	1.01e-002
Total Components	100.00	1.49e+003

RICH GLYCOL STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia
Flow Rate: 2.72e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.61e+001	1.46e+003
Water	2.54e+000	3.87e+001
Carbon Dioxide	6.67e-002	1.02e+000
Nitrogen	2.11e-003	3.21e-002
Methane	1.79e-001	2.72e+000

Ethane	1.53e-001	2.33e+000
Propane	1.94e-001	2.95e+000
Isobutane	6.29e-002	9.58e-001
n-Butane	1.76e-001	2.68e+000
Isopentane	6.55e-002	9.98e-001
n-Pentane	8.41e-002	1.28e+000
n-Hexane	3.67e-002	5.60e-001
Cyclohexane	2.46e-002	3.75e-001
Other Hexanes	3.81e-002	5.81e-001
Heptanes	3.03e-002	4.62e-001
Methylcyclohexane	1.18e-002	1.80e-001
2,2,4-Trimethylpentane	4.01e-004	6.11e-003
Benzene	2.16e-001	3.29e+000
Toluene	4.78e-002	7.28e-001
C8+ Heavies	5.50e-003	8.38e-002
Total Components	100.00	1.52e+003

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 54.70 psia
Flow Rate: 1.29e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.86e-001	1.14e-002
Carbon Dioxide	3.98e+000	5.96e-001
Nitrogen	3.20e-001	3.04e-002
Methane	4.72e+001	2.57e+000
Ethane	1.89e+001	1.93e+000
Propane	1.36e+001	2.04e+000
Isobutane	2.86e+000	5.66e-001
n-Butane	7.07e+000	1.40e+000
Isopentane	1.95e+000	4.79e-001
n-Pentane	2.21e+000	5.41e-001
n-Hexane	5.40e-001	1.58e-001
Cyclohexane	1.12e-001	3.20e-002
Other Hexanes	6.78e-001	1.99e-001
Heptanes	2.12e-001	7.23e-002
Methylcyclohexane	3.56e-002	1.19e-002
2,2,4-Trimethylpentane	4.23e-003	1.64e-003
Benzene	1.57e-001	4.17e-002
Toluene	1.79e-002	5.59e-003
C8+ Heavies	1.97e-003	1.14e-003
Total Components	100.00	1.07e+001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 2.69e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.67e+001	1.46e+003
Water	2.56e+000	3.87e+001
Carbon Dioxide	2.78e-002	4.21e-001

Nitrogen	1.12e-004	1.69e-003
Methane	9.70e-003	1.47e-001
Ethane	2.68e-002	4.06e-001
Propane	6.02e-002	9.10e-001
Isobutane	2.59e-002	3.92e-001
n-Butane	8.48e-002	1.28e+000
Isopentane	3.43e-002	5.19e-001
n-Pentane	4.89e-002	7.39e-001
n-Hexane	2.65e-002	4.01e-001
Cyclohexane	2.27e-002	3.43e-001
Other Hexanes	2.53e-002	3.82e-001
Heptanes	2.58e-002	3.90e-001
Methylcyclohexane	1.11e-002	1.68e-001
2,2,4-Trimethylpentane	2.96e-004	4.47e-003
Benzene	2.15e-001	3.25e+000
Toluene	4.78e-002	7.23e-001
C8+ Heavies	5.47e-003	8.27e-002
Total Components	100.00	1.51e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.07e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.47e+001	1.64e+001
Carbon Dioxide	8.90e-001	4.21e-001
Nitrogen	5.62e-003	1.69e-003
Methane	8.51e-001	1.47e-001
Ethane	1.26e+000	4.06e-001
Propane	1.92e+000	9.10e-001
Isobutane	6.28e-001	3.92e-001
n-Butane	2.06e+000	1.28e+000
Isopentane	6.64e-001	5.14e-001
n-Pentane	9.46e-001	7.33e-001
n-Hexane	4.31e-001	3.98e-001
Cyclohexane	3.67e-001	3.31e-001
Other Hexanes	4.06e-001	3.76e-001
Heptanes	3.60e-001	3.87e-001
Methylcyclohexane	1.53e-001	1.61e-001
2,2,4-Trimethylpentane	3.57e-003	4.38e-003
Benzene	3.68e+000	3.09e+000
Toluene	6.72e-001	6.65e-001
C8+ Heavies	3.97e-002	7.26e-002
Total Components	100.00	2.67e+001

CONDENSER VENT GAS STREAM

Temperature: 48.00 deg. F
Pressure: 12.20 psia
Flow Rate: 2.93e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.38e+000	1.92e-002
Carbon Dioxide	1.21e+001	4.11e-001
Nitrogen	7.78e-002	1.68e-003
Methane	1.18e+001	1.46e-001
Ethane	1.71e+001	3.96e-001
Propane	2.30e+001	7.84e-001
Isobutane	6.20e+000	2.78e-001
n-Butane	1.61e+001	7.22e-001
Isopentane	3.11e+000	1.73e-001
n-Pentane	3.58e+000	1.99e-001
n-Hexane	6.03e-001	4.01e-002
Cyclohexane	3.49e-001	2.27e-002
Other Hexanes	9.15e-001	6.09e-002
Heptanes	9.64e-002	7.46e-003
Methylcyclohexane	6.41e-002	4.86e-003
2,2,4-Trimethylpentane	1.69e-003	1.49e-004
Benzene	3.42e+000	2.06e-001
Toluene	1.52e-001	1.08e-002
C8+ Heavies	1.47e-004	1.94e-005
Total Components	100.00	3.48e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 48.00 deg. F
Flow Rate: 3.27e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	1.64e+001	998943.
Carbon Dioxide	2.44e-002	4.00e-003	244.
Nitrogen	1.58e-006	2.59e-007	0.
Methane	3.17e-004	5.18e-005	3.
Ethane	1.32e-003	2.16e-004	13.
Propane	1.13e-003	1.85e-004	11.
Isobutane	2.41e-004	3.94e-005	2.
n-Butane	9.16e-004	1.50e-004	9.
Isopentane	1.73e-004	2.84e-005	2.
n-Pentane	2.28e-004	3.73e-005	2.
n-Hexane	4.49e-005	7.35e-006	0.
Cyclohexane	1.87e-004	3.06e-005	2.
Other Hexanes	5.12e-005	8.39e-006	1.
Heptanes	5.17e-006	8.47e-007	0.
Methylcyclohexane	2.07e-005	3.38e-006	0.
2,2,4-Trimethylpentane	6.47e-008	1.06e-008	0.
Benzene	7.30e-002	1.19e-002	730.
Toluene	3.63e-003	5.94e-004	36.
C8+ Heavies	2.09e-009	3.41e-010	0.
Total Components	100.00	1.64e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 48.00 deg. F
Flow Rate: 1.60e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	2.78e-002	1.89e-003
Carbon Dioxide	8.33e-002	5.67e-003
Nitrogen	8.81e-005	6.00e-006
Methane	9.21e-003	6.27e-004
Ethane	1.44e-001	9.80e-003
Propane	1.85e+000	1.26e-001
Isobutane	1.67e+000	1.14e-001
n-Butane	8.23e+000	5.61e-001
Isopentane	5.01e+000	3.41e-001
n-Pentane	7.84e+000	5.34e-001
n-Hexane	5.26e+000	3.58e-001
Cyclohexane	4.53e+000	3.09e-001
Other Hexanes	4.63e+000	3.15e-001
Heptanes	5.58e+000	3.80e-001
Methylcyclohexane	2.29e+000	1.56e-001
2,2,4-Trimethylpentane	6.21e-002	4.23e-003
Benzene	4.21e+001	2.87e+000
Toluene	9.60e+000	6.54e-001
C8+ Heavies	1.07e+000	7.26e-002
Total Components	100.00	6.81e+000

CONDENSER CONTROL CURVE DATA REPORT:

CONDENSER CONTROL EFFICIENCY CURVES

Note: Condenser curves computed for the range 40.0 F <= T <= 170.0 F. DO NOT EXTRAPOLATE BEYOND THIS RANGE!

Temp(F)	BTEX	Total HAP	VOC
40.0	95.92	95.63	76.63
45.0	94.95	94.59	74.51
50.0	93.77	93.33	72.24
55.0	92.34	91.81	69.82
60.0	90.46	89.81	66.99
65.0	88.32	87.54	64.14
70.0	85.73	84.80	61.04
75.0	82.59	81.52	57.67
80.0	78.82	77.57	53.97
85.0	74.26	72.85	49.89
90.0	68.76	67.21	45.35
95.0	62.13	60.47	40.26
100.0	54.13	52.44	34.51
105.0	44.60	42.99	28.04
110.0	34.64	33.22	21.59
115.0	22.72	21.67	14.17
120.0	11.26	10.69	7.28
125.0	4.79	4.53	3.46
130.0	2.54	2.40	2.12
135.0	1.59	1.49	1.50
140.0	1.05	0.99	1.10
145.0	0.67	0.63	0.72

150.0	0.38	0.35	0.32
155.0	0.24	0.22	0.10
160.0	0.21	0.19	0.08
165.0	0.17	0.16	0.07
170.0	0.14	0.13	0.06

Maximum temperature for 95% control (deg.F):

44.7	43.0	N/A

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	Bluebell Field Cond. TK4
Analysis Date/Time:	4/17/2008	Field:	Bluebell
Analyst Initials:	AST	ML#:	El Paso
Sample Temperature:	44	GC Method:	Quesliq1.M
Sample Pressure:	0	Data File:	QPC26.D
Date Sampled:	4/15/2008	Instrument ID:	1

Component	Mol%	Wt%	LV%
Methane	0.0552	0.0087	0.0207
Ethane	0.1310	0.0386	0.0778
Propane	0.4916	0.2123	0.3000
Isobutane	0.3979	0.2265	0.2882
n-Butane	1.6359	0.9313	1.1421
Neopentane	0.0103	0.0073	0.0088
Isopentane	2.5713	1.8171	2.0841
n-Pentane	4.7692	3.3703	3.8250
2,2-Dimethylbutane	0.1180	0.0996	0.1091
2,3-Dimethylbutane	0.9793	0.8266	0.8885
2-Methylpentane	3.7157	3.1363	3.4143
3-Methylpentane	2.0033	1.6909	1.8100
n-Hexane	8.7153	7.3563	7.9339
Heptanes	35.8893	33.9152	33.4199
Octanes	19.6695	21.1964	20.7073
Nonanes	11.8120	14.0701	13.3348
Decanes plus	7.0262	11.0939	10.6326
Nitrogen	0.0094	0.0026	0.0023
Carbon Dioxide	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		**Units**
Avg Molecular Weight	102.0949	gm/mole
Pseudocritical Pressure	435.81	psia
Pseudocritical Temperatu	525.40	degF
Specific Gravity	0.71620	gm/ml
Liquid Density	5.9709	lb/gal
Liquid Density	250.78	lb/bbl
Specific Gravity	3.2557	air=1
SCF/bbl	935.37	SCF/bbl
SCF/gal	22.2707	SCF/gal
MCF/gal	0.0223	MCF/gal
gal/MCF	44.915	gal/MCF
Net Heating Value	5106.9	BTU/SCF at 60°F
Net Heating Value	18917.5	BTU/lb at 60°F
Gross Heating Value	5472.9	BTU/SCF at 60°F
Gross Heating Value	20351.4	BTU/lb at 60°F
Gross Heating Value	122080.6	BTU/gal at 60°F
API Gravity	66.1	
MON	50.1	
RON	54.1	
RVP	9.508	psia

Component	Mol%	Wt%	LV%
Benzene	1.7081	1.3068	1.0581
Toluene	3.6853	3.3259	2.7319
Ethylbenzene	0.4586	0.4769	0.3918
M&P Xylene	2.5123	2.6125	2.1535
O-Xylene	0.5801	0.6032	0.4883
2,2,4-Trimethylpentane	1.3691	1.5318	1.5233

Data File: Bluebell Field Cond. TK4 Page #2

Component	Mol%	Wt%	LV%
H2S			
O2			
CO2	0.0000	0.0000	0.0000
N2	0.0094	0.0026	0.0023
C1	0.0552	0.0087	0.0207
C2	0.1310	0.0386	0.0778
C3	0.4916	0.2123	0.3000
IC4	0.3979	0.2265	0.2882
NC4	1.6359	0.9313	1.1421
IC5	2.5816	1.8244	2.0929
NC5	4.7692	3.3703	3.8250
Hexanes	6.8163	5.7534	6.2219
Heptanes	34.1812	32.6084	32.3618
Octanes	14.6151	16.3387	16.4521
Nonanes	8.2610	10.3775	10.3012
Benzene	1.7081	1.3068	1.0581
Toluene	3.6853	3.3259	2.7319
E-Benzene	0.4586	0.4769	0.3918
Xylene	3.0924	3.2157	2.6418
n-C6	8.7153	7.3563	7.9339
2,2,4-Trimethylpentane	1.3691	1.5318	1.5233
C10 Mole %	7.0262	11.0939	10.6326
Molecular Wt.	166.0570		
Specific Gravity	0.7480		
Total	100.00	100.00	100.00
Total HAP		3.2157	

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Rabbit Gulch 2011 NOI
File Name: C:\Documents and Settings\rudolpht\My Documents\El Paso\Rabbit Gulch CS\Rabbit Gulch WGA6Oct2009 PTE2.64gpm_Updated.ddf
Date: August 23, 2011

DESCRIPTION:

Description: El Paso Rabbit Gulch Compressor Station
Wet Gas Sample October 6, 2009
Max. potential gas throughput 15 MMscfd
Full TEG pump capacity 2.64 gpm
BTEX Condenser Control

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1454	3.489	0.6368
Ethane	0.3883	9.319	1.7007
Propane	0.7788	18.691	3.4111
Isobutane	0.2743	6.584	1.2016
n-Butane	0.7109	17.062	3.1138
Isopentane	0.1693	4.062	0.7414
n-Pentane	0.1959	4.701	0.8579
n-Hexane	0.0390	0.937	0.1710
Cyclohexane	0.0219	0.526	0.0960
Other Hexanes	0.0594	1.426	0.2602
Heptanes	0.0072	0.174	0.0317
Methylcyclohexane	0.0047	0.113	0.0205
2,2,4-Trimethylpentane	0.0001	0.003	0.0006
Benzene	0.2045	4.909	0.8958
Toluene	0.0109	0.262	0.0478
C8+ Heavies	<0.0001	<0.001	0.0001
Total Emissions	3.0108	72.258	13.1871
Total Hydrocarbon Emissions	3.0108	72.258	13.1871
Total VOC Emissions	2.4771	59.450	10.8496
Total HAP Emissions	0.2546	6.111	1.1153
Total BTEX Emissions	0.2154	5.171	0.9437

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1461	3.506	0.6398
Ethane	0.3981	9.555	1.7438
Propane	0.9037	21.689	3.9583
Isobutane	0.3860	9.265	1.6908
n-Butane	1.2607	30.257	5.5219
Isopentane	0.5029	12.070	2.2028
n-Pentane	0.7150	17.159	3.1315
n-Hexane	0.3859	9.261	1.6901

Cyclohexane	0.3191	7.658	1.3975
Other Hexanes	0.3650	8.759	1.5985
Heptanes	0.3725	8.940	1.6316
Methylcyclohexane	0.1547	3.713	0.6777
2,2,4-Trimethylpentane	0.0042	0.101	0.0185
Benzene	3.0665	73.596	13.4312
Toluene	0.6720	16.129	2.9435
C8+ Heavies	0.0740	1.777	0.3242
Total Emissions	9.7264	233.435	42.6018
Total Hydrocarbon Emissions	9.7264	233.435	42.6018
Total VOC Emissions	9.1822	220.374	40.2182
Total HAP Emissions	4.1286	99.087	18.0834
Total BTEX Emissions	3.7385	89.725	16.3748

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.5526	61.262	11.1804
Ethane	1.9000	45.600	8.3219
Propane	2.0065	48.156	8.7885
Isobutane	0.5538	13.291	2.4256
n-Butane	1.3636	32.728	5.9728
Isopentane	0.4664	11.194	2.0429
n-Pentane	0.5256	12.615	2.3023
n-Hexane	0.1532	3.676	0.6709
Cyclohexane	0.0312	0.748	0.1364
Other Hexanes	0.1926	4.622	0.8436
Heptanes	0.0699	1.677	0.3061
Methylcyclohexane	0.0116	0.278	0.0506
2,2,4-Trimethylpentane	0.0016	0.038	0.0070
Benzene	0.0412	0.988	0.1804
Toluene	0.0056	0.135	0.0247
C8+ Heavies	0.0012	0.028	0.0052
Total Emissions	9.8766	237.038	43.2594
Total Hydrocarbon Emissions	9.8766	237.038	43.2594
Total VOC Emissions	5.4240	130.176	23.7571
Total HAP Emissions	0.2016	4.838	0.8830
Total BTEX Emissions	0.0468	1.124	0.2051

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature: 48.00 deg. F

Condenser Pressure:	12.20	psia
Condenser Duty:	2.40e-002	MM BTU/hr
Hydrocarbon Recovery:	0.54	bbls/day
Produced Water:	1.49	bbls/day
VOC Control Efficiency:	73.02	%
HAP Control Efficiency:	93.83	%
BTEX Control Efficiency:	94.24	%
Dissolved Hydrocarbons in Water:	817.34	mg/L

Component	Emitted	Condensed
Water	0.09%	99.91%
Carbon Dioxide	97.38%	2.62%
Nitrogen	99.62%	0.38%
Methane	99.53%	0.47%
Ethane	97.53%	2.47%
Propane	86.18%	13.82%
Isobutane	71.06%	28.94%
n-Butane	56.39%	43.61%
Isopentane	33.66%	66.34%
n-Pentane	27.40%	72.60%
n-Hexane	10.12%	89.88%
Cyclohexane	6.87%	93.13%
Other Hexanes	16.28%	83.72%
Heptanes	1.94%	98.06%
Methylcyclohexane	3.03%	96.97%
2,2,4-Trimethylpentane	3.42%	96.58%
Benzene	6.67%	93.33%
Toluene	1.63%	98.37%
C8+ Heavies	0.03%	99.97%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	1.57	lbs. H2O/MMSCF
Temperature:	72.0	deg. F
Pressure:	600.0	psig
Dry Gas Flow Rate:	15.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0378	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	36.38	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	7.28	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.31%	95.69%
Carbon Dioxide	99.79%	0.21%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.92%	0.08%
Isobutane	99.88%	0.12%
n-Butane	99.84%	0.16%
Isopentane	99.82%	0.18%
n-Pentane	99.77%	0.23%

n-Hexane	99.59%	0.41%
Cyclohexane	98.14%	1.86%
Other Hexanes	99.70%	0.30%
Heptanes	99.18%	0.82%
Methylcyclohexane	97.81%	2.19%
2,2,4-Trimethylpentane	99.66%	0.34%
Benzene	83.00%	17.00%
Toluene	75.20%	24.80%
C8+ Heavies	98.09%	1.91%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 120.0 deg. F
Flash Pressure: 40.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.97%	0.03%
Carbon Dioxide	41.57%	58.43%
Nitrogen	5.26%	94.74%
Methane	5.41%	94.59%
Ethane	17.32%	82.68%
Propane	31.05%	68.95%
Isobutane	41.07%	58.93%
n-Butane	48.04%	51.96%
Isopentane	52.12%	47.88%
n-Pentane	57.84%	42.16%
n-Hexane	71.73%	28.27%
Cyclohexane	91.39%	8.61%
Other Hexanes	65.80%	34.20%
Heptanes	84.28%	15.72%
Methylcyclohexane	93.32%	6.68%
2,2,4-Trimethylpentane	73.01%	26.99%
Benzene	98.74%	1.26%
Toluene	99.23%	0.77%
C8+ Heavies	98.62%	1.38%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	50.60%	49.40%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.96%	99.04%
n-Pentane	0.86%	99.14%
n-Hexane	0.70%	99.30%
Cyclohexane	3.50%	96.50%

Other Hexanes	1.52%	98.48%
Heptanes	0.59%	99.41%
Methylcyclohexane	4.29%	95.71%
2,2,4-Trimethylpentane	2.05%	97.95%
Benzene	5.06%	94.94%
Toluene	7.96%	92.04%
C8+ Heavies	12.19%	87.81%

STREAM REPORTS:

WET GAS STREAM

Temperature: 72.00 deg. F
Pressure: 614.70 psia
Flow Rate: 6.26e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.66e-002	2.28e+001
Carbon Dioxide	6.58e-001	4.78e+002
Nitrogen	4.90e-001	2.26e+002
Methane	7.98e+001	2.11e+004
Ethane	1.04e+001	5.14e+003
Propane	4.97e+000	3.61e+003
Isobutane	8.13e-001	7.79e+002
n-Butane	1.67e+000	1.60e+003
Isopentane	4.63e-001	5.51e+002
n-Pentane	4.49e-001	5.34e+002
n-Hexane	9.27e-002	1.32e+002
Cyclohexane	1.36e-002	1.89e+001
Other Hexanes	1.29e-001	1.83e+002
Heptanes	3.26e-002	5.38e+001
Methylcyclohexane	4.70e-003	7.60e+000
2,2,4-Trimethylpentane	8.99e-004	1.69e+000
Benzene	1.42e-002	1.83e+001
Toluene	1.80e-003	2.73e+000
C8+ Heavies	1.40e-003	3.93e+000
Total Components	100.00	3.45e+004

DRY GAS STREAM

Temperature: 72.00 deg. F
Pressure: 614.70 psia
Flow Rate: 6.25e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.31e-003	9.82e-001
Carbon Dioxide	6.57e-001	4.77e+002
Nitrogen	4.90e-001	2.26e+002
Methane	7.98e+001	2.11e+004
Ethane	1.04e+001	5.13e+003
Propane	4.97e+000	3.61e+003
Isobutane	8.13e-001	7.78e+002

n-Butane	1.67e+000	1.59e+003
Isopentane	4.63e-001	5.50e+002
n-Pentane	4.48e-001	5.33e+002
n-Hexane	9.24e-002	1.31e+002
Cyclohexane	1.34e-002	1.85e+001
Other Hexanes	1.29e-001	1.83e+002
Heptanes	3.23e-002	5.34e+001
Methylcyclohexane	4.60e-003	7.44e+000
2,2,4-Trimethylpentane	8.97e-004	1.69e+000
Benzene	1.18e-002	1.52e+001
Toluene	1.35e-003	2.05e+000
C8+ Heavies	1.37e-003	3.85e+000
Total Components	100.00	3.44e+004

LEAN GLYCOL STREAM

Temperature: 72.00 deg. F
Flow Rate: 2.64e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.46e+003
Water	1.50e+000	2.23e+001
Carbon Dioxide	6.71e-012	9.97e-011
Nitrogen	2.13e-013	3.17e-012
Methane	6.10e-018	9.07e-017
Ethane	7.30e-008	1.08e-006
Propane	7.97e-009	1.18e-007
Isobutane	1.90e-009	2.82e-008
n-Butane	4.38e-009	6.51e-008
Isopentane	3.28e-004	4.87e-003
n-Pentane	4.20e-004	6.23e-003
n-Hexane	1.82e-004	2.71e-003
Cyclohexane	7.79e-004	1.16e-002
Other Hexanes	3.79e-004	5.63e-003
Heptanes	1.50e-004	2.22e-003
Methylcyclohexane	4.66e-004	6.93e-003
2,2,4-Trimethylpentane	5.96e-006	8.86e-005
Benzene	1.10e-002	1.64e-001
Toluene	3.91e-003	5.81e-002
C8+ Heavies	6.92e-004	1.03e-002
Total Components	100.00	1.49e+003

RICH GLYCOL STREAM

Temperature: 72.00 deg. F
Pressure: 614.70 psia
Flow Rate: 2.73e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.57e+001	1.46e+003
Water	2.88e+000	4.41e+001
Carbon Dioxide	6.53e-002	9.97e-001
Nitrogen	2.08e-003	3.18e-002
Methane	1.77e-001	2.70e+000

Ethane	1.50e-001	2.30e+000
Propane	1.90e-001	2.91e+000
Isobutane	6.15e-002	9.40e-001
n-Butane	1.72e-001	2.62e+000
Isopentane	6.38e-002	9.74e-001
n-Pentane	8.16e-002	1.25e+000
n-Hexane	3.55e-002	5.42e-001
Cyclohexane	2.37e-002	3.62e-001
Other Hexanes	3.69e-002	5.63e-001
Heptanes	2.91e-002	4.45e-001
Methylcyclohexane	1.13e-002	1.73e-001
2,2,4-Trimethylpentane	3.86e-004	5.91e-003
Benzene	2.14e-001	3.27e+000
Toluene	4.82e-002	7.36e-001
C8+ Heavies	5.59e-003	8.55e-002
Total Components	100.00	1.53e+003

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 54.70 psia
Flow Rate: 1.27e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.12e-001	1.28e-002
Carbon Dioxide	3.95e+000	5.83e-001
Nitrogen	3.20e-001	3.01e-002
Methane	4.74e+001	2.55e+000
Ethane	1.88e+001	1.90e+000
Propane	1.36e+001	2.01e+000
Isobutane	2.84e+000	5.54e-001
n-Butane	7.00e+000	1.36e+000
Isopentane	1.93e+000	4.66e-001
n-Pentane	2.17e+000	5.26e-001
n-Hexane	5.30e-001	1.53e-001
Cyclohexane	1.10e-001	3.12e-002
Other Hexanes	6.66e-001	1.93e-001
Heptanes	2.08e-001	6.99e-002
Methylcyclohexane	3.51e-002	1.16e-002
2,2,4-Trimethylpentane	4.16e-003	1.59e-003
Benzene	1.57e-001	4.12e-002
Toluene	1.83e-002	5.64e-003
C8+ Heavies	2.07e-003	1.18e-003
Total Components	100.00	1.05e+001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 2.70e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.64e+001	1.46e+003
Water	2.90e+000	4.41e+001
Carbon Dioxide	2.73e-002	4.14e-001

Nitrogen	1.10e-004	1.67e-003
Methane	9.63e-003	1.46e-001
Ethane	2.62e-002	3.98e-001
Propane	5.95e-002	9.04e-001
Isobutane	2.54e-002	3.86e-001
n-Butane	8.31e-002	1.26e+000
Isopentane	3.35e-002	5.08e-001
n-Pentane	4.75e-002	7.21e-001
n-Hexane	2.56e-002	3.89e-001
Cyclohexane	2.18e-002	3.31e-001
Other Hexanes	2.44e-002	3.71e-001
Heptanes	2.47e-002	3.75e-001
Methylcyclohexane	1.07e-002	1.62e-001
2,2,4-Trimethylpentane	2.84e-004	4.31e-003
Benzene	2.13e-001	3.23e+000
Toluene	4.81e-002	7.30e-001
C8+ Heavies	5.55e-003	8.43e-002
Total Components	100.00	1.52e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 5.20e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.82e+001	2.18e+001
Carbon Dioxide	6.87e-001	4.14e-001
Nitrogen	4.35e-003	1.67e-003
Methane	6.64e-001	1.46e-001
Ethane	9.66e-001	3.98e-001
Propane	1.49e+000	9.04e-001
Isobutane	4.84e-001	3.86e-001
n-Butane	1.58e+000	1.26e+000
Isopentane	5.08e-001	5.03e-001
n-Pentane	7.23e-001	7.15e-001
n-Hexane	3.27e-001	3.86e-001
Cyclohexane	2.77e-001	3.19e-001
Other Hexanes	3.09e-001	3.65e-001
Heptanes	2.71e-001	3.73e-001
Methylcyclohexane	1.15e-001	1.55e-001
2,2,4-Trimethylpentane	2.70e-003	4.22e-003
Benzene	2.86e+000	3.07e+000
Toluene	5.32e-001	6.72e-001
C8+ Heavies	3.17e-002	7.40e-002
Total Components	100.00	3.19e+001

CONDENSER VENT GAS STREAM

Temperature: 48.00 deg. F
Pressure: 12.20 psia
Flow Rate: 2.89e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.38e+000	1.90e-002
Carbon Dioxide	1.20e+001	4.04e-001
Nitrogen	7.80e-002	1.66e-003
Methane	1.19e+001	1.45e-001
Ethane	1.69e+001	3.88e-001
Propane	2.32e+001	7.79e-001
Isobutane	6.19e+000	2.74e-001
n-Butane	1.61e+001	7.11e-001
Isopentane	3.08e+000	1.69e-001
n-Pentane	3.56e+000	1.96e-001
n-Hexane	5.95e-001	3.90e-002
Cyclohexane	3.42e-001	2.19e-002
Other Hexanes	9.05e-001	5.94e-002
Heptanes	9.47e-002	7.23e-003
Methylcyclohexane	6.27e-002	4.69e-003
2,2,4-Trimethylpentane	1.66e-003	1.44e-004
Benzene	3.44e+000	2.05e-001
Toluene	1.56e-001	1.09e-002
C8+ Heavies	1.53e-004	1.98e-005
Total Components	100.00	3.44e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 48.00 deg. F
Flow Rate: 4.35e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	2.17e+001	998939.
Carbon Dioxide	2.43e-002	5.29e-003	243.
Nitrogen	1.59e-006	3.45e-007	0.
Methane	3.19e-004	6.95e-005	3.
Ethane	1.31e-003	2.85e-004	13.
Propane	1.14e-003	2.48e-004	11.
Isobutane	2.41e-004	5.24e-005	2.
n-Butane	9.14e-004	1.99e-004	9.
Isopentane	1.72e-004	3.74e-005	2.
n-Pentane	2.27e-004	4.94e-005	2.
n-Hexane	4.43e-005	9.64e-006	0.
Cyclohexane	1.83e-004	3.99e-005	2.
Other Hexanes	5.06e-005	1.10e-005	1.
Heptanes	5.09e-006	1.11e-006	0.
Methylcyclohexane	2.02e-005	4.40e-006	0.
2,2,4-Trimethylpentane	6.35e-008	1.38e-008	0.
Benzene	7.34e-002	1.60e-002	734.
Toluene	3.72e-003	8.09e-004	37.
C8+ Heavies	2.17e-009	4.71e-010	0.
Total Components	100.00	2.18e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 48.00 deg. F
Flow Rate: 1.58e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	2.79e-002	1.87e-003
Carbon Dioxide	8.28e-002	5.55e-003
Nitrogen	8.96e-005	6.01e-006
Methane	9.25e-003	6.20e-004
Ethane	1.43e-001	9.56e-003
Propane	1.86e+000	1.25e-001
Isobutane	1.67e+000	1.12e-001
n-Butane	8.20e+000	5.50e-001
Isopentane	4.98e+000	3.34e-001
n-Pentane	7.74e+000	5.19e-001
n-Hexane	5.17e+000	3.47e-001
Cyclohexane	4.43e+000	2.97e-001
Other Hexanes	4.56e+000	3.06e-001
Heptanes	5.45e+000	3.65e-001
Methylcyclohexane	2.24e+000	1.50e-001
2,2,4-Trimethylpentane	6.08e-002	4.08e-003
Benzene	4.24e+001	2.85e+000
Toluene	9.85e+000	6.60e-001
C8+ Heavies	1.10e+000	7.40e-002
Total Components	100.00	6.71e+000

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: AltamontEast CS 2011 NOI
File Name: C:\Documents and Settings\rudolpht\My Documents\El Paso\GLYCalc\2009\AltamontEast_WGA6Oct2009_PTE3.34gpm_updated.ddf
Date: July 28, 2011

DESCRIPTION:

Description: El Paso Altamont East Compressor Station
Wet Gas Sample October 6, 2009 (contactor inlet)
Max. potential gas throughput 22 MMscfd
Full TEG pump capacity 3.34 gpm

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1767	4.242	0.7741
Ethane	0.4741	11.379	2.0767
Propane	1.0574	25.378	4.6315
Isobutane	0.3630	8.712	1.5900
n-Butane	0.9494	22.786	4.1585
Isopentane	0.2261	5.427	0.9903
n-Pentane	0.3004	7.210	1.3158
n-Hexane	0.0530	1.271	0.2320
Cyclohexane	0.0418	1.003	0.1831
Other Hexanes	0.0825	1.981	0.3615
Heptanes	0.0120	0.288	0.0525
Methylcyclohexane	0.0093	0.223	0.0406
2,2,4-Trimethylpentane	0.0006	0.013	0.0024
Benzene	0.2181	5.234	0.9551
Toluene	0.0209	0.502	0.0916
Xylenes	0.0004	0.010	0.0018
C8+ Heavies	<0.0001	0.001	0.0002
Total Emissions	3.9858	95.660	17.4580
Total Hydrocarbon Emissions	3.9858	95.660	17.4580
Total VOC Emissions	3.3350	80.039	14.6072
Total HAP Emissions	0.2929	7.031	1.2831
Total BTEX Emissions	0.2394	5.746	1.0486

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1775	4.259	0.7773
Ethane	0.4845	11.628	2.1221
Propane	1.2050	28.919	5.2778
Isobutane	0.4904	11.770	2.1481
n-Butane	1.5718	37.724	6.8847
Isopentane	0.6331	15.194	2.7729
n-Pentane	0.9815	23.556	4.2990

n-Hexane	0.4641	11.138	2.0326
Cyclohexane	0.5170	12.408	2.2645
Other Hexanes	0.4555	10.933	1.9952
Heptanes	0.5365	12.877	2.3501
Methylcyclohexane	0.2579	6.189	1.1295
2,2,4-Trimethylpentane	0.0143	0.342	0.0624
Benzene	2.7431	65.835	12.0148
Toluene	0.9974	23.937	4.3685
Xylenes	0.1048	2.516	0.4592
C8+ Heavies	0.1520	3.649	0.6659
Total Emissions	11.7864	282.875	51.6246
Total Hydrocarbon Emissions	11.7864	282.875	51.6246
Total VOC Emissions	11.1245	266.987	48.7252
Total HAP Emissions	4.3237	103.768	18.9376
Total BTEX Emissions	3.8453	92.288	16.8425

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	3.2190	77.255	14.0990
Ethane	2.4077	57.784	10.5455
Propane	2.7709	66.503	12.1367
Isobutane	0.7295	17.508	3.1952
n-Butane	1.7645	42.348	7.7286
Isopentane	0.6093	14.622	2.6686
n-Pentane	0.7492	17.980	3.2814
n-Hexane	0.1915	4.595	0.8387
Cyclohexane	0.0527	1.264	0.2308
Other Hexanes	0.2499	5.998	1.0946
Heptanes	0.1048	2.516	0.4591
Methylcyclohexane	0.0201	0.483	0.0881
2,2,4-Trimethylpentane	0.0056	0.135	0.0246
Benzene	0.0383	0.918	0.1676
Toluene	0.0087	0.209	0.0381
Xylenes	0.0004	0.008	0.0016
C8+ Heavies	0.0025	0.061	0.0111
Total Emissions	12.9245	310.188	56.6092
Total Hydrocarbon Emissions	12.9245	310.188	56.6092
Total VOC Emissions	7.2979	175.149	31.9647
Total HAP Emissions	0.2444	5.866	1.0705
Total BTEX Emissions	0.0473	1.136	0.2072

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	48.00	deg. F
Condenser Pressure:	12.20	psia
Condenser Duty:	3.06e-002	MM BTU/hr
Hydrocarbon Recovery:	0.63	bbls/day
Produced Water:	2.05	bbls/day
VOC Control Efficiency:	70.02	%
HAP Control Efficiency:	93.22	%
BTEX Control Efficiency:	93.77	%
Dissolved Hydrocarbons in Water:	674.53	mg/L

Component	Emitted	Condensed
Water	0.09%	99.91%
Carbon Dioxide	97.59%	2.41%
Nitrogen	99.72%	0.28%
Methane	99.59%	0.41%
Ethane	97.86%	2.14%
Propane	87.75%	12.25%
Isobutane	74.02%	25.98%
n-Butane	60.40%	39.60%
Isopentane	35.72%	64.28%
n-Pentane	30.61%	69.39%
n-Hexane	11.41%	88.59%
Cyclohexane	8.09%	91.91%
Other Hexanes	18.12%	81.88%
Heptanes	2.24%	97.76%
Methylcyclohexane	3.60%	96.40%
2,2,4-Trimethylpentane	3.92%	96.08%
Benzene	7.95%	92.05%
Toluene	2.10%	97.90%
Xylenes	0.40%	99.60%
C8+ Heavies	0.03%	99.97%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	1.51	lbs. H2O/MMSCF
Temperature:	70.0	deg. F
Pressure:	600.0	psig
Dry Gas Flow Rate:	22.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0511	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	34.07	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	6.71	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.42%	95.58%
Carbon Dioxide	99.82%	0.18%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.93%	0.07%
Isobutane	99.89%	0.11%

n-Butane	99.86%	0.14%
Isopentane	99.85%	0.15%
n-Pentane	99.80%	0.20%
n-Hexane	99.64%	0.36%
Cyclohexane	98.37%	1.63%
Other Hexanes	99.73%	0.27%
Heptanes	99.28%	0.72%
Methylcyclohexane	98.08%	1.92%
2,2,4-Trimethylpentane	99.70%	0.30%
Benzene	84.65%	15.35%
Toluene	77.41%	22.59%
Xylenes	58.99%	41.01%
C8+ Heavies	98.43%	1.57%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 120.0 deg. F
Flash Pressure: 40.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.97%	0.03%
Carbon Dioxide	40.69%	59.31%
Nitrogen	5.06%	94.94%
Methane	5.23%	94.77%
Ethane	16.75%	83.25%
Propane	30.31%	69.69%
Isobutane	40.20%	59.80%
n-Butane	47.11%	52.89%
Isopentane	51.20%	48.80%
n-Pentane	56.93%	43.07%
n-Hexane	70.94%	29.06%
Cyclohexane	91.05%	8.95%
Other Hexanes	64.93%	35.07%
Heptanes	83.74%	16.26%
Methylcyclohexane	93.05%	6.95%
2,2,4-Trimethylpentane	72.20%	27.80%
Benzene	98.69%	1.31%
Toluene	99.20%	0.80%
Xylenes	99.71%	0.29%
C8+ Heavies	98.55%	1.45%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	48.57%	51.43%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%

n-Butane	0.00%	100.00%
Isopentane	0.98%	99.02%
n-Pentane	0.88%	99.12%
n-Hexane	0.70%	99.30%
Cyclohexane	3.51%	96.49%
Other Hexanes	1.54%	98.46%
Heptanes	0.60%	99.40%
Methylcyclohexane	4.30%	95.70%
2,2,4-Trimethylpentane	2.08%	97.92%
Benzene	5.07%	94.93%
Toluene	7.97%	92.03%
Xylenes	12.95%	87.05%
C8+ Heavies	12.20%	87.80%

STREAM REPORTS:

WET GAS STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia
Flow Rate: 9.18e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.18e-002	3.13e+001
Carbon Dioxide	9.17e-001	9.75e+002
Nitrogen	3.55e-001	2.41e+002
Methane	7.93e+001	3.08e+004
Ethane	1.03e+001	7.48e+003
Propane	5.32e+000	5.68e+003
Isobutane	8.26e-001	1.16e+003
n-Butane	1.66e+000	2.33e+003
Isopentane	4.63e-001	8.08e+002
n-Pentane	4.88e-001	8.52e+002
n-Hexane	8.77e-002	1.83e+002
Cyclohexane	1.72e-002	3.50e+001
Other Hexanes	1.27e-001	2.65e+002
Heptanes	3.67e-002	8.89e+001
Methylcyclohexane	6.10e-003	1.45e+001
2,2,4-Trimethylpentane	2.40e-003	6.62e+000
Benzene	9.59e-003	1.81e+001
Toluene	2.00e-003	4.45e+000
Xylenes	9.99e-005	2.57e-001
C8+ Heavies	2.40e-003	9.88e+000
Total Components	100.00	5.09e+004

DRY GAS STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia
Flow Rate: 9.17e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	3.18e-003	1.38e+000
Carbon Dioxide	9.16e-001	9.74e+002
Nitrogen	3.55e-001	2.41e+002
Methane	7.94e+001	3.08e+004
Ethane	1.03e+001	7.47e+003
Propane	5.32e+000	5.67e+003
Isobutane	8.26e-001	1.16e+003
n-Butane	1.66e+000	2.32e+003
Isopentane	4.63e-001	8.07e+002
n-Pentane	4.88e-001	8.50e+002
n-Hexane	8.75e-002	1.82e+002
Cyclohexane	1.69e-002	3.44e+001
Other Hexanes	1.27e-001	2.65e+002
Heptanes	3.64e-002	8.82e+001
Methylcyclohexane	5.98e-003	1.42e+001
2,2,4-Trimethylpentane	2.39e-003	6.60e+000
Benzene	8.13e-003	1.53e+001
Toluene	1.55e-003	3.45e+000
Xylenes	5.90e-005	1.51e-001
C8+ Heavies	2.36e-003	9.72e+000
Total Components	100.00	5.09e+004

LEAN GLYCOL STREAM

Temperature: 70.00 deg. F
Flow Rate: 3.34e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.85e+003
Water	1.50e+000	2.82e+001
Carbon Dioxide	9.50e-012	1.79e-010
Nitrogen	1.55e-013	2.91e-012
Methane	6.07e-018	1.14e-016
Ethane	7.26e-008	1.37e-006
Propane	8.61e-009	1.62e-007
Isobutane	1.95e-009	3.66e-008
n-Butane	4.40e-009	8.27e-008
Isopentane	3.32e-004	6.24e-003
n-Pentane	4.63e-004	8.70e-003
n-Hexane	1.75e-004	3.29e-003
Cyclohexane	1.00e-003	1.88e-002
Other Hexanes	3.79e-004	7.12e-003
Heptanes	1.71e-004	3.22e-003
Methylcyclohexane	6.16e-004	1.16e-002
2,2,4-Trimethylpentane	1.61e-005	3.02e-004
Benzene	7.79e-003	1.46e-001
Toluene	4.59e-003	8.63e-002
Xylenes	8.30e-004	1.56e-002
C8+ Heavies	1.12e-003	2.11e-002
Total Components	100.00	1.88e+003

RICH GLYCOL STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia

Flow Rate: 3.46e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.56e+001	1.85e+003
Water	3.00e+000	5.81e+001
Carbon Dioxide	9.22e-002	1.79e+000
Nitrogen	1.51e-003	2.92e-002
Methane	1.75e-001	3.40e+000
Ethane	1.49e-001	2.89e+000
Propane	2.05e-001	3.98e+000
Isobutane	6.30e-002	1.22e+000
n-Butane	1.72e-001	3.34e+000
Isopentane	6.45e-002	1.25e+000
n-Pentane	8.98e-002	1.74e+000
n-Hexane	3.40e-002	6.59e-001
Cyclohexane	3.04e-002	5.89e-001
Other Hexanes	3.68e-002	7.13e-001
Heptanes	3.33e-002	6.45e-001
Methylcyclohexane	1.50e-002	2.90e-001
2,2,4-Trimethylpentane	1.04e-003	2.02e-002
Benzene	1.51e-001	2.93e+000
Toluene	5.64e-002	1.09e+000
Xylenes	6.24e-003	1.21e-001
C8+ Heavies	9.07e-003	1.76e-001
Total Components	100.00	1.94e+003

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 54.70 psia
Flow Rate: 1.67e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.21e-001	1.75e-002
Carbon Dioxide	5.48e+000	1.06e+000
Nitrogen	2.25e-001	2.77e-002
Methane	4.57e+001	3.22e+000
Ethane	1.82e+001	2.41e+000
Propane	1.43e+001	2.77e+000
Isobutane	2.86e+000	7.30e-001
n-Butane	6.92e+000	1.76e+000
Isopentane	1.92e+000	6.09e-001
n-Pentane	2.37e+000	7.49e-001
n-Hexane	5.06e-001	1.91e-001
Cyclohexane	1.43e-001	5.27e-002
Other Hexanes	6.61e-001	2.50e-001
Heptanes	2.38e-001	1.05e-001
Methylcyclohexane	4.67e-002	2.01e-002
2,2,4-Trimethylpentane	1.12e-002	5.61e-003
Benzene	1.12e-001	3.83e-002
Toluene	2.15e-002	8.71e-003
Xylenes	7.60e-004	3.54e-004
C8+ Heavies	3.40e-003	2.54e-003
Total Components	100.00	1.40e+001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 3.43e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.63e+001	1.85e+003
Water	3.02e+000	5.81e+001
Carbon Dioxide	3.78e-002	7.27e-001
Nitrogen	7.69e-005	1.48e-003
Methane	9.23e-003	1.77e-001
Ethane	2.52e-002	4.84e-001
Propane	6.27e-002	1.20e+000
Isobutane	2.55e-002	4.90e-001
n-Butane	8.18e-002	1.57e+000
Isopentane	3.33e-002	6.39e-001
n-Pentane	5.15e-002	9.90e-001
n-Hexane	2.43e-002	4.67e-001
Cyclohexane	2.79e-002	5.36e-001
Other Hexanes	2.41e-002	4.63e-001
Heptanes	2.81e-002	5.40e-001
Methylcyclohexane	1.40e-002	2.69e-001
2,2,4-Trimethylpentane	7.57e-004	1.46e-002
Benzene	1.50e-001	2.89e+000
Toluene	5.64e-002	1.08e+000
Xylenes	6.27e-003	1.20e-001
C8+ Heavies	9.01e-003	1.73e-001
Total Components	100.00	1.92e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 7.06e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.92e+001	2.99e+001
Carbon Dioxide	8.88e-001	7.27e-001
Nitrogen	2.84e-003	1.48e-003
Methane	5.95e-001	1.77e-001
Ethane	8.66e-001	4.85e-001
Propane	1.47e+000	1.20e+000
Isobutane	4.54e-001	4.90e-001
n-Butane	1.45e+000	1.57e+000
Isopentane	4.72e-001	6.33e-001

n-Pentane	7.31e-001	9.82e-001
n-Hexane	2.90e-001	4.64e-001
Cyclohexane	3.30e-001	5.17e-001
Other Hexanes	2.84e-001	4.56e-001
Heptanes	2.88e-001	5.37e-001
Methylcyclohexane	1.41e-001	2.58e-001
2,2,4-Trimethylpentane	6.71e-003	1.43e-002
Benzene	1.89e+000	2.74e+000
Toluene	5.82e-001	9.97e-001
Xylenes	5.31e-002	1.05e-001
C8+ Heavies	4.80e-002	1.52e-001
Total Components	100.00	4.24e+001

CONDENSER VENT GAS STREAM

Temperature: 48.00 deg. F
Pressure: 12.20 psia
Flow Rate: 3.93e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.38e+000	2.58e-002
Carbon Dioxide	1.56e+001	7.09e-001
Nitrogen	5.08e-002	1.47e-003
Methane	1.06e+001	1.77e-001
Ethane	1.52e+001	4.74e-001
Propane	2.32e+001	1.06e+000
Isobutane	6.03e+000	3.63e-001
n-Butane	1.58e+001	9.49e-001
Isopentane	3.03e+000	2.26e-001
n-Pentane	4.02e+000	3.00e-001
n-Hexane	5.94e-001	5.30e-002
Cyclohexane	4.80e-001	4.18e-002
Other Hexanes	9.25e-001	8.25e-002
Heptanes	1.16e-001	1.20e-002
Methylcyclohexane	9.12e-002	9.27e-003
2,2,4-Trimethylpentane	4.72e-003	5.58e-004
Benzene	2.70e+000	2.18e-001
Toluene	2.19e-001	2.09e-002
Xylenes	3.83e-003	4.21e-004
C8+ Heavies	2.56e-004	4.51e-005
Total Components	100.00	4.72e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 48.00 deg. F
Flow Rate: 5.97e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	2.98e+001	999011.
Carbon Dioxide	3.14e-002	9.39e-003	314.
Nitrogen	1.03e-006	3.08e-007	0.
Methane	2.85e-004	8.53e-005	3.
Ethane	1.18e-003	3.51e-004	12.
Propane	1.14e-003	3.39e-004	11.

Isobutane	2.34e-004	6.99e-005	2.
n-Butane	8.96e-004	2.68e-004	9.
Isopentane	1.69e-004	5.04e-005	2.
n-Pentane	2.56e-004	7.64e-005	3.
n-Hexane	4.42e-005	1.32e-005	0.
Cyclohexane	2.57e-004	7.68e-005	3.
Other Hexanes	5.17e-005	1.54e-005	1.
Heptanes	6.20e-006	1.85e-006	0.
Methylcyclohexane	2.94e-005	8.77e-006	0.
2,2,4-Trimethylpentane	1.80e-007	5.39e-008	0.
Benzene	5.75e-002	1.72e-002	575.
Toluene	5.24e-003	1.56e-003	52.
Xylenes	1.39e-004	4.16e-005	1.
C8+ Heavies	3.62e-009	1.08e-009	0.
Total Components	100.00	2.99e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 48.00 deg. F
Flow Rate: 1.83e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	2.50e-002	1.95e-003
Carbon Dioxide	1.04e-001	8.10e-003
Nitrogen	4.98e-005	3.88e-006
Methane	8.32e-003	6.48e-004
Ethane	1.29e-001	1.00e-002
Propane	1.89e+000	1.47e-001
Isobutane	1.63e+000	1.27e-001
n-Butane	7.99e+000	6.22e-001
Isopentane	5.22e+000	4.07e-001
n-Pentane	8.74e+000	6.81e-001
n-Hexane	5.28e+000	4.11e-001
Cyclohexane	6.10e+000	4.75e-001
Other Hexanes	4.79e+000	3.73e-001
Heptanes	6.73e+000	5.25e-001
Methylcyclohexane	3.19e+000	2.49e-001
2,2,4-Trimethylpentane	1.76e-001	1.37e-002
Benzene	3.22e+001	2.51e+000
Toluene	1.25e+001	9.75e-001
Xylenes	1.34e+000	1.04e-001
C8+ Heavies	1.95e+000	1.52e-001
Total Components	100.00	7.79e+000

CONDENSER CONTROL CURVE DATA REPORT:

CONDENSER CONTROL EFFICIENCY CURVES

Note: Condenser curves computed for the range 40.0 F <= T <= 170.0 F. DO NOT EXTRAPOLATE BEYOND THIS RANGE!

Temp(F)	BTEX	Total HAP	VOC
40.0	95.60	95.20	73.75
45.0	94.56	94.07	71.53

50.0	93.30	92.71	69.19
55.0	91.65	90.94	66.48
60.0	89.77	88.92	63.78
65.0	87.52	86.50	60.90
70.0	84.82	83.62	57.80
75.0	81.59	80.21	54.46
80.0	77.75	76.17	50.85
85.0	73.18	71.42	46.92
90.0	67.78	65.86	42.63
95.0	61.43	59.38	37.92
100.0	53.99	51.90	32.75
105.0	45.44	43.42	27.14
110.0	36.73	34.89	21.71
115.0	26.82	25.31	15.81
120.0	17.37	16.30	10.44
125.0	10.17	9.50	6.52
130.0	5.99	5.58	4.29
135.0	3.79	3.52	3.10
140.0	2.53	2.35	2.37
145.0	1.72	1.59	1.81
150.0	1.13	1.04	1.28
155.0	0.61	0.56	0.62
160.0	0.31	0.28	0.12
165.0	0.27	0.24	0.10
170.0	0.22	0.19	0.08

Maximum temperature for 95% control (deg.F):

42.9	40.9	N/A

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Altamont West CS 2011 NOI
File Name: C:\Documents and Settings\rudolpht\My Documents\El Paso\Altamont West CS\AltamontWest WGA6Oct2009_PTE3.34gpm_2011NOI.ddf
Date: July 27, 2011

DESCRIPTION:

Description: El Paso Altamont West Compressor Station
Wet Gas Sample October 6, 2009
Max. potential gas throughput 12.0 MMscfd
Full TEG pump capacity 3.34 gpm
BTEX Condenser Control

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1620	3.889	0.7097
Ethane	0.4847	11.633	2.1231
Propane	1.2256	29.414	5.3681
Isobutane	0.4378	10.508	1.9177
n-Butane	1.2810	30.743	5.6107
Isopentane	0.3135	7.525	1.3733
n-Pentane	0.3701	8.882	1.6209
n-Hexane	0.0598	1.436	0.2620
Cyclohexane	0.0351	0.841	0.1535
Other Hexanes	0.0963	2.311	0.4217
Heptanes	0.0096	0.231	0.0421
Methylcyclohexane	0.0062	0.148	0.0270
2,2,4-Trimethylpentane	0.0003	0.007	0.0013
Benzene	0.3006	7.214	1.3165
Toluene	0.0132	0.316	0.0577
C8+ Heavies	<0.0001	<0.001	0.0001
Total Emissions	4.7958	115.099	21.0055
Total Hydrocarbon Emissions	4.7958	115.099	21.0055
Total VOC Emissions	4.1490	99.576	18.1727
Total HAP Emissions	0.3739	8.973	1.6375
Total BTEX Emissions	0.3138	7.530	1.3742

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1626	3.903	0.7123
Ethane	0.4943	11.862	2.1649
Propane	1.3812	33.150	6.0499
Isobutane	0.5788	13.892	2.5353
n-Butane	2.0513	49.232	8.9848
Isopentane	0.7773	18.655	3.4045
n-Pentane	1.1517	27.640	5.0443
n-Hexane	0.4845	11.629	2.1222

Cyclohexane	0.4105	9.853	1.7981
Other Hexanes	0.4899	11.758	2.1458
Heptanes	0.4325	10.380	1.8943
Methylcyclohexane	0.1611	3.865	0.7054
2,2,4-Trimethylpentane	0.0066	0.159	0.0291
Benzene	3.4788	83.492	15.2373
Toluene	0.6247	14.993	2.7362
C8+ Heavies	0.0510	1.224	0.2234
Total Emissions	12.7370	305.687	55.7878
Total Hydrocarbon Emissions	12.7370	305.687	55.7878
Total VOC Emissions	12.0801	289.921	52.9107
Total HAP Emissions	4.5947	110.273	20.1248
Total BTEX Emissions	4.1035	98.485	17.9735

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	3.2078	76.988	14.0503
Ethane	2.6262	63.029	11.5028
Propane	3.5020	84.049	15.3389
Isobutane	0.9447	22.672	4.1376
n-Butane	2.5254	60.609	11.0612
Isopentane	0.8183	19.639	3.5841
n-Pentane	0.9602	23.045	4.2057
n-Hexane	0.2171	5.210	0.9509
Cyclohexane	0.0444	1.066	0.1946
Other Hexanes	0.2920	7.007	1.2788
Heptanes	0.0909	2.181	0.3981
Methylcyclohexane	0.0133	0.320	0.0585
2,2,4-Trimethylpentane	0.0028	0.067	0.0123
Benzene	0.0531	1.275	0.2327
Toluene	0.0059	0.142	0.0260
C8+ Heavies	0.0009	0.022	0.0039
Total Emissions	15.3051	367.322	67.0363
Total Hydrocarbon Emissions	15.3051	367.322	67.0363
Total VOC Emissions	9.4711	227.306	41.4833
Total HAP Emissions	0.2790	6.695	1.2219
Total BTEX Emissions	0.0591	1.418	0.2587

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature: 48.00 deg. F

Condenser Pressure:	12.20	psia
Condenser Duty:	1.97e-002	MM BTU/hr
Hydrocarbon Recovery:	0.64	bbls/day
Produced Water:	1.12	bbls/day
VOC Control Efficiency:	65.65	%
HAP Control Efficiency:	91.86	%
BTEX Control Efficiency:	92.35	%
Dissolved Hydrocarbons in Water:	770.76	mg/L

Component	Emitted	Condensed
Water	0.18%	99.82%
Carbon Dioxide	98.31%	1.69%
Nitrogen	99.74%	0.26%
Methane	99.63%	0.37%
Ethane	98.07%	1.93%
Propane	88.73%	11.27%
Isobutane	75.64%	24.36%
n-Butane	62.45%	37.55%
Isopentane	40.34%	59.66%
n-Pentane	32.13%	67.87%
n-Hexane	12.35%	87.65%
Cyclohexane	8.54%	91.46%
Other Hexanes	19.65%	80.35%
Heptanes	2.22%	97.78%
Methylcyclohexane	3.83%	96.17%
2,2,4-Trimethylpentane	4.31%	95.69%
Benzene	8.64%	91.36%
Toluene	2.11%	97.89%
C8+ Heavies	0.03%	99.97%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	1.26	lbs. H2O/MMSCF
Temperature:	70.0	deg. F
Pressure:	600.0	psig
Dry Gas Flow Rate:	12.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0317	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	34.04	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	12.22	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.70%	96.30%
Carbon Dioxide	99.66%	0.34%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.93%	0.07%
Propane	99.87%	0.13%
Isobutane	99.81%	0.19%
n-Butane	99.74%	0.26%
Isopentane	99.73%	0.27%
n-Pentane	99.64%	0.36%

n-Hexane	99.37%	0.63%
Cyclohexane	97.11%	2.89%
Other Hexanes	99.53%	0.47%
Heptanes	98.74%	1.26%
Methylcyclohexane	96.63%	3.37%
2,2,4-Trimethylpentane	99.48%	0.52%
Benzene	75.15%	24.85%
Toluene	65.39%	34.61%
C8+ Heavies	97.43%	2.57%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 120.0 deg. F
Flash Pressure: 40.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.97%	0.03%
Carbon Dioxide	38.48%	61.52%
Nitrogen	4.71%	95.29%
Methane	4.82%	95.18%
Ethane	15.84%	84.16%
Propane	28.28%	71.72%
Isobutane	37.99%	62.01%
n-Butane	44.82%	55.18%
Isopentane	48.97%	51.03%
n-Pentane	54.76%	45.24%
n-Hexane	69.21%	30.79%
Cyclohexane	90.54%	9.46%
Other Hexanes	63.03%	36.97%
Heptanes	82.72%	17.28%
Methylcyclohexane	92.65%	7.35%
2,2,4-Trimethylpentane	70.74%	29.26%
Benzene	98.57%	1.43%
Toluene	99.13%	0.87%
C8+ Heavies	98.48%	1.52%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	63.23%	36.77%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.02%	98.98%
n-Pentane	0.91%	99.09%
n-Hexane	0.72%	99.28%
Cyclohexane	3.53%	96.47%

Other Hexanes	1.59%	98.41%
Heptanes	0.60%	99.40%
Methylcyclohexane	4.32%	95.68%
2,2,4-Trimethylpentane	2.12%	97.88%
Benzene	5.07%	94.93%
Toluene	7.97%	92.03%
C8+ Heavies	12.20%	87.80%

STREAM REPORTS:

WET GAS STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia
Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.17e-002	1.70e+001
Carbon Dioxide	9.94e-001	5.77e+002
Nitrogen	3.04e-001	1.12e+002
Methane	7.62e+001	1.61e+004
Ethane	1.09e+001	4.33e+003
Propane	6.61e+000	3.84e+003
Isobutane	1.05e+000	8.06e+002
n-Butane	2.32e+000	1.78e+003
Isopentane	6.12e-001	5.82e+002
n-Pentane	6.14e-001	5.84e+002
n-Hexane	9.80e-002	1.11e+002
Cyclohexane	1.42e-002	1.58e+001
Other Hexanes	1.47e-001	1.67e+002
Heptanes	3.15e-002	4.16e+001
Methylcyclohexane	4.00e-003	5.18e+000
2,2,4-Trimethylpentane	1.20e-003	1.81e+000
Benzene	1.38e-002	1.42e+001
Toluene	1.50e-003	1.82e+000
C8+ Heavies	8.99e-004	2.02e+000
Total Components	100.00	2.91e+004

DRY GAS STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia
Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.65e-003	6.30e-001
Carbon Dioxide	9.91e-001	5.75e+002
Nitrogen	3.04e-001	1.12e+002
Methane	7.63e+001	1.61e+004
Ethane	1.09e+001	4.32e+003
Propane	6.61e+000	3.84e+003
Isobutane	1.05e+000	8.05e+002

n-Butane	2.32e+000	1.77e+003
Isopentane	6.11e-001	5.81e+002
n-Pentane	6.12e-001	5.82e+002
n-Hexane	9.75e-002	1.11e+002
Cyclohexane	1.38e-002	1.53e+001
Other Hexanes	1.46e-001	1.66e+002
Heptanes	3.11e-002	4.11e+001
Methylcyclohexane	3.87e-003	5.00e+000
2,2,4-Trimethylpentane	1.19e-003	1.80e+000
Benzene	1.04e-002	1.07e+001
Toluene	9.81e-004	1.19e+000
C8+ Heavies	8.77e-004	1.97e+000
Total Components	100.00	2.91e+004

LEAN GLYCOL STREAM

Temperature: 70.00 deg. F
Flow Rate: 3.34e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.85e+003
Water	1.50e+000	2.82e+001
Carbon Dioxide	1.04e-011	1.95e-010
Nitrogen	1.38e-013	2.59e-012
Methane	6.02e-018	1.13e-016
Ethane	7.83e-008	1.47e-006
Propane	1.06e-008	1.99e-007
Isobutane	2.43e-009	4.57e-008
n-Butane	6.04e-009	1.13e-007
Isopentane	4.26e-004	8.02e-003
n-Pentane	5.64e-004	1.06e-002
n-Hexane	1.87e-004	3.52e-003
Cyclohexane	8.00e-004	1.50e-002
Other Hexanes	4.20e-004	7.90e-003
Heptanes	1.40e-004	2.63e-003
Methylcyclohexane	3.86e-004	7.26e-003
2,2,4-Trimethylpentane	7.65e-006	1.44e-004
Benzene	9.89e-003	1.86e-001
Toluene	2.88e-003	5.41e-002
C8+ Heavies	3.77e-004	7.09e-003
Total Components	100.00	1.88e+003

RICH GLYCOL STREAM

Temperature: 70.00 deg. F
Pressure: 614.70 psia
Flow Rate: 3.44e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.61e+001	1.85e+003
Water	2.32e+000	4.46e+001
Carbon Dioxide	1.01e-001	1.95e+000
Nitrogen	1.35e-003	2.61e-002
Methane	1.75e-001	3.37e+000

Ethane	1.62e-001	3.12e+000
Propane	2.54e-001	4.88e+000
Isobutane	7.91e-002	1.52e+000
n-Butane	2.38e-001	4.58e+000
Isopentane	8.33e-002	1.60e+000
n-Pentane	1.10e-001	2.12e+000
n-Hexane	3.66e-002	7.05e-001
Cyclohexane	2.44e-002	4.70e-001
Other Hexanes	4.10e-002	7.90e-001
Heptanes	2.73e-002	5.26e-001
Methylcyclohexane	9.43e-003	1.82e-001
2,2,4-Trimethylpentane	4.98e-004	9.59e-003
Benzene	1.93e-001	3.72e+000
Toluene	3.55e-002	6.85e-001
C8+ Heavies	3.06e-003	5.90e-002
Total Components	100.00	1.93e+003

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 54.70 psia
Flow Rate: 1.85e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.69e-001	1.49e-002
Carbon Dioxide	5.59e+000	1.20e+000
Nitrogen	1.82e-001	2.48e-002
Methane	4.10e+001	3.21e+000
Ethane	1.79e+001	2.63e+000
Propane	1.63e+001	3.50e+000
Isobutane	3.33e+000	9.45e-001
n-Butane	8.90e+000	2.53e+000
Isopentane	2.32e+000	8.18e-001
n-Pentane	2.73e+000	9.60e-001
n-Hexane	5.16e-001	2.17e-001
Cyclohexane	1.08e-001	4.44e-002
Other Hexanes	6.94e-001	2.92e-001
Heptanes	1.86e-001	9.09e-002
Methylcyclohexane	2.78e-002	1.33e-002
2,2,4-Trimethylpentane	5.03e-003	2.81e-003
Benzene	1.39e-001	5.31e-002
Toluene	1.32e-002	5.94e-003
C8+ Heavies	1.08e-003	8.98e-004
Total Components	100.00	1.65e+001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 3.40e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.69e+001	1.85e+003
Water	2.34e+000	4.46e+001
Carbon Dioxide	3.94e-002	7.52e-001

Nitrogen	6.43e-005	1.23e-003
Methane	8.52e-003	1.63e-001
Ethane	2.59e-002	4.94e-001
Propane	7.23e-002	1.38e+000
Isobutane	3.03e-002	5.79e-001
n-Butane	1.07e-001	2.05e+000
Isopentane	4.11e-002	7.85e-001
n-Pentane	6.09e-002	1.16e+000
n-Hexane	2.56e-002	4.88e-001
Cyclohexane	2.23e-002	4.26e-001
Other Hexanes	2.61e-002	4.98e-001
Heptanes	2.28e-002	4.35e-001
Methylcyclohexane	8.81e-003	1.68e-001
2,2,4-Trimethylpentane	3.55e-004	6.78e-003
Benzene	1.92e-001	3.66e+000
Toluene	3.55e-002	6.79e-001
C8+ Heavies	3.04e-003	5.81e-002
Total Components	100.00	1.91e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.29e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.05e+001	1.64e+001
Carbon Dioxide	1.51e+000	7.52e-001
Nitrogen	3.88e-003	1.23e-003
Methane	8.96e-001	1.63e-001
Ethane	1.45e+000	4.94e-001
Propane	2.77e+000	1.38e+000
Isobutane	8.80e-001	5.79e-001
n-Butane	3.12e+000	2.05e+000
Isopentane	9.52e-001	7.77e-001
n-Pentane	1.41e+000	1.15e+000
n-Hexane	4.97e-001	4.85e-001
Cyclohexane	4.31e-001	4.11e-001
Other Hexanes	5.02e-001	4.90e-001
Heptanes	3.81e-001	4.32e-001
Methylcyclohexane	1.45e-001	1.61e-001
2,2,4-Trimethylpentane	5.14e-003	6.64e-003
Benzene	3.94e+000	3.48e+000
Toluene	5.99e-001	6.25e-001
C8+ Heavies	2.65e-002	5.10e-002
Total Components	100.00	2.99e+001

CONDENSER VENT GAS STREAM

Temperature: 48.00 deg. F
Pressure: 12.20 psia
Flow Rate: 4.47e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.38e+000	2.93e-002
Carbon Dioxide	1.42e+001	7.39e-001
Nitrogen	3.71e-002	1.23e-003
Methane	8.57e+000	1.62e-001
Ethane	1.37e+001	4.85e-001
Propane	2.36e+001	1.23e+000
Isobutane	6.39e+000	4.38e-001
n-Butane	1.87e+001	1.28e+000
Isopentane	3.69e+000	3.14e-001
n-Pentane	4.35e+000	3.70e-001
n-Hexane	5.89e-001	5.98e-002
Cyclohexane	3.53e-001	3.51e-002
Other Hexanes	9.48e-001	9.63e-002
Heptanes	8.13e-002	9.60e-003
Methylcyclohexane	5.33e-002	6.17e-003
2,2,4-Trimethylpentane	2.13e-003	2.86e-004
Benzene	3.26e+000	3.01e-001
Toluene	1.21e-001	1.32e-002
C8+ Heavies	8.54e-005	1.72e-005
Total Components	100.00	5.57e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 48.00 deg. F
Flow Rate: 3.27e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	1.64e+001	998941.
Carbon Dioxide	2.88e-002	4.72e-003	288.
Nitrogen	7.55e-007	1.24e-007	0.
Methane	2.30e-004	3.77e-005	2.
Ethane	1.06e-003	1.73e-004	11.
Propane	1.16e-003	1.90e-004	12.
Isobutane	2.48e-004	4.06e-005	2.
n-Butane	1.06e-003	1.74e-004	11.
Isopentane	2.06e-004	3.37e-005	2.
n-Pentane	2.77e-004	4.54e-005	3.
n-Hexane	4.38e-005	7.18e-006	0.
Cyclohexane	1.89e-004	3.10e-005	2.
Other Hexanes	5.30e-005	8.68e-006	1.
Heptanes	4.36e-006	7.14e-007	0.
Methylcyclohexane	1.72e-005	2.81e-006	0.
2,2,4-Trimethylpentane	8.13e-008	1.33e-008	0.
Benzene	6.96e-002	1.14e-002	696.
Toluene	2.90e-003	4.74e-004	29.
C8+ Heavies	1.21e-009	1.97e-010	0.
Total Components	100.00	1.64e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 48.00 deg. F
Flow Rate: 1.87e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	2.60e-002	2.06e-003
Carbon Dioxide	1.01e-001	7.98e-003
Nitrogen	3.84e-005	3.05e-006
Methane	7.04e-003	5.59e-004
Ethane	1.18e-001	9.36e-003
Propane	1.96e+000	1.55e-001
Isobutane	1.78e+000	1.41e-001
n-Butane	9.70e+000	7.70e-001
Isopentane	5.84e+000	4.64e-001
n-Pentane	9.85e+000	7.82e-001
n-Hexane	5.35e+000	4.25e-001
Cyclohexane	4.73e+000	3.75e-001
Other Hexanes	4.96e+000	3.94e-001
Heptanes	5.33e+000	4.23e-001
Methylcyclohexane	1.95e+000	1.55e-001
2,2,4-Trimethylpentane	8.00e-002	6.35e-003
Benzene	3.99e+001	3.17e+000
Toluene	7.70e+000	6.11e-001
C8+ Heavies	6.42e-001	5.10e-002
Total Components	100.00	7.94e+000

CONDENSER CONTROL CURVE DATA REPORT:

CONDENSER CONTROL EFFICIENCY CURVES

Note: Condenser curves computed for the range 40.0 F <= T <= 170.0 F. DO NOT EXTRAPOLATE BEYOND THIS RANGE!

Temp(F)	BTEX	Total HAP	VOC
40.0	94.70	94.36	70.16
45.0	93.28	92.85	67.29
50.0	91.63	91.09	64.45
55.0	89.61	88.96	61.43
60.0	87.16	86.36	58.21
65.0	84.18	83.23	54.78
70.0	80.58	79.45	51.09
75.0	76.24	74.93	47.12
80.0	71.01	69.54	42.82
85.0	64.75	63.13	38.12
90.0	57.25	55.55	32.95
95.0	48.36	46.67	27.26
100.0	38.93	37.36	21.58
105.0	27.50	26.24	15.05
110.0	15.25	14.46	8.34
115.0	5.55	5.24	3.22
120.0	2.31	2.17	1.52
125.0	1.32	1.24	0.97
130.0	0.86	0.80	0.69
135.0	0.58	0.54	0.47
140.0	0.36	0.33	0.24
145.0	0.23	0.21	0.08

150.0	0.20	0.18	0.07
155.0	0.17	0.16	0.06
160.0	0.15	0.13	0.05
165.0	0.12	0.11	0.04
170.0	0.10	0.09	0.03

Maximum temperature for 95% control (deg.F):

N/A	N/A	N/A

August 7, 2006

FESCO, Ltd.
4484 North East Evangeline Thruway - Carencro, Louisiana 70520

For: COMM Engineering Inc.
P.O. Box 53463
Lafayette, La. 70505

Sample: Newfield Exploration-Ashley Compressor Station **Field:** Myton, Utah
Spot Gas Sample @ ATM psig & 72 °F

Station: 3743062
Date Sampled: 8/1/2006 at 16:15 hours

CHROMATOGRAPH ANALYSIS

COMPONENT	MOL%	GPM
Nitrogen	0.633	
Carbon Dioxide	0.421	
Methane	84.933	
Ethane	6.500	1.772
Propane	3.407	0.957
Isobutane	0.697	0.233
n-Butane	1.206	0.388
Isopentane	0.387	0.144
n-Pentane	0.486	0.180
Hexanes	0.558	0.234
Heptanes Plus	0.772	0.380
Totals:	**100.000**	**4.288**

Computed Real Properties:

Specific Gravity	0.710 (Air=1.000)
Compressibility(Z)	0.9964
Gross Heating Value at 15.025 psia & 60 °F	
Dry Basis	1259 BTU/CF
Saturated Basis	1238 BTU/CF

Base Conditions: 15.025 psia & 60 °F

Certified: FESCO, Ltd. - Lafayette, Louisiana

Ron Anson 337-896-3838

Job Number: 08076.002
Analyst ID: RA

Cyl Number: F-103

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Monument Butte Compressor Station
File Name: C:\Data\Clients\Newfield\Monument Butte Air Quality\18mm with 21015 pump.ddf
Date: May 21, 2008

DESCRIPTION:

Description: 30 MM/day PTE Dehy #1
Controlled by BTEX condenser
Gas Analysis Dated April 15, 2008
Kimray 21015 glycol pump
3.55 gpm; no flash tank

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	16.8264	403.833	73.6995
Ethane	4.6358	111.260	20.3050
Propane	5.0040	120.097	21.9177
Isobutane	1.3057	31.337	5.7191
n-Butane	2.9944	71.866	13.1156
Isopentane	0.9571	22.970	4.1920
n-Pentane	1.3175	31.620	5.7707
n-Hexane	0.5046	12.111	2.2102
Cyclohexane	0.3514	8.434	1.5393
Other Hexanes	0.5903	14.167	2.5855
Heptanes	0.5316	12.757	2.3282
Methylcyclohexane	0.2411	5.787	1.0561
2,2,4-Trimethylpentane	0.0223	0.535	0.0976
Benzene	0.9885	23.725	4.3298
Toluene	0.6526	15.663	2.8585
Xylenes	0.0807	1.936	0.3533
C8+ Heavies	0.0295	0.708	0.1291
Total Emissions	37.0336	888.805	162.2070
Total Hydrocarbon Emissions	37.0336	888.805	162.2070
Total VOC Emissions	15.5714	373.713	68.2025
Total HAP Emissions	2.2487	53.969	9.8493
Total BTEX Emissions	1.7218	41.323	7.5415

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	16.8278	403.866	73.7056
Ethane	4.6368	111.283	20.3091
Propane	5.0076	120.182	21.9332
Isobutane	1.3078	31.387	5.7281
n-Butane	3.0017	72.041	13.1476
Isopentane	0.9646	23.149	4.2248
n-Pentane	1.3286	31.885	5.8191
n-Hexane	0.5183	12.439	2.2701

Cyclohexane	0.3658	8.780	1.6023
Other Hexanes	0.6016	14.438	2.6349
Heptanes	0.5825	13.980	2.5514
Methylcyclohexane	0.2630	6.313	1.1521
2,2,4-Trimethylpentane	0.0243	0.584	0.1066
Benzene	1.0375	24.900	4.5443
Toluene	0.7645	18.349	3.3487
Xylenes	0.1408	3.379	0.6166
C8+ Heavies	0.3921	9.410	1.7174
Total Emissions	37.7653	906.367	165.4121
Total Hydrocarbon Emissions	37.7653	906.367	165.4121
Total VOC Emissions	16.3008	391.218	71.3974
Total HAP Emissions	2.4855	59.651	10.8864
Total BTEX Emissions	1.9428	46.628	8.5096

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	53.00 deg. F
Condenser Pressure:	11.30 psia
Condenser Duty:	5.95e-002 MM BTU/hr
Hydrocarbon Recovery:	0.06 bbls/day
Produced Water:	4.93 bbls/day
VOC Control Efficiency:	4.47 %
HAP Control Efficiency:	9.53 %
BTEX Control Efficiency:	11.38 %
Dissolved Hydrocarbons in Water:	287.20 mg/L

Component	Emitted	Condensed
Water	0.68%	99.32%
Carbon Dioxide	99.81%	0.19%
Nitrogen	100.00%	0.00%
Methane	99.99%	0.01%
Ethane	99.98%	0.02%
Propane	99.93%	0.07%
Isobutane	99.84%	0.16%
n-Butane	99.76%	0.24%
Isopentane	99.22%	0.78%
n-Pentane	99.17%	0.83%
n-Hexane	97.36%	2.64%
Cyclohexane	96.07%	3.93%
Other Hexanes	98.13%	1.87%
Heptanes	91.25%	8.75%
Methylcyclohexane	91.66%	8.34%
2,2,4-Trimethylpentane	91.48%	8.52%
Benzene	95.28%	4.72%
Toluene	85.36%	14.64%
Xylenes	57.29%	42.71%
C8+ Heavies	7.52%	92.48%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	4.76	lbs. H2O/MMSCF
Temperature:	95.0	deg. F
Pressure:	750.0	psig
Dry Gas Flow Rate:	30.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.2895	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	62.63	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	2.94	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	7.59%	92.41%
Carbon Dioxide	99.86%	0.14%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.97%	0.03%
Propane	99.95%	0.05%
Isobutane	99.93%	0.07%
n-Butane	99.91%	0.09%
Isopentane	99.91%	0.09%
n-Pentane	99.88%	0.12%
n-Hexane	99.81%	0.19%
Cyclohexane	99.14%	0.86%
Other Hexanes	99.85%	0.15%
Heptanes	99.65%	0.35%
Methylcyclohexane	99.06%	0.94%
2,2,4-Trimethylpentane	99.85%	0.15%
Benzene	92.28%	7.72%
Toluene	89.08%	10.92%
Xylenes	79.90%	20.10%
C8+ Heavies	98.82%	1.18%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	30.61%	69.39%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.39%	99.61%
n-Pentane	0.41%	99.59%
n-Hexane	0.44%	99.56%
Cyclohexane	3.10%	96.90%
Other Hexanes	0.84%	99.16%
Heptanes	0.46%	99.54%
Methylcyclohexane	3.89%	96.11%

2,2,4-Trimethylpentane	1.27%	98.73%
Benzene	4.98%	95.02%
Toluene	7.89%	92.11%
Xylenes	12.92%	87.08%
C8+ Heavies	11.79%	88.21%

STREAM REPORTS:

WET GAS STREAM

Temperature: 95.00 deg. F
Pressure: 764.70 psia
Flow Rate: 1.25e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.32e-001	7.84e+001
Carbon Dioxide	2.72e-001	3.96e+002
Nitrogen	6.46e-001	5.97e+002
Methane	8.37e+001	4.43e+004
Ethane	7.93e+000	7.87e+003
Propane	4.31e+000	6.27e+003
Isobutane	6.86e-001	1.32e+003
n-Butane	1.28e+000	2.46e+003
Isopentane	3.32e-001	7.90e+002
n-Pentane	3.74e-001	8.91e+002
n-Hexane	8.17e-002	2.32e+002
Cyclohexane	1.49e-002	4.13e+001
Other Hexanes	1.19e-001	3.39e+002
Heptanes	4.61e-002	1.53e+002
Methylcyclohexane	8.39e-003	2.72e+001
2,2,4-Trimethylpentane	3.60e-003	1.35e+001
Benzene	5.19e-003	1.34e+001
Toluene	2.30e-003	6.98e+000
Xylenes	2.00e-004	7.00e-001
C8+ Heavies	5.79e-003	3.26e+001
Total Components	100.00	6.58e+004

DRY GAS STREAM

Temperature: 95.00 deg. F
Pressure: 764.70 psia
Flow Rate: 1.25e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.00e-002	5.95e+000
Carbon Dioxide	2.72e-001	3.95e+002
Nitrogen	6.47e-001	5.97e+002
Methane	8.39e+001	4.43e+004
Ethane	7.94e+000	7.87e+003
Propane	4.31e+000	6.26e+003
Isobutane	6.86e-001	1.31e+003
n-Butane	1.28e+000	2.46e+003

Isopentane	3.32e-001	7.89e+002
n-Pentane	3.74e-001	8.90e+002
n-Hexane	8.16e-002	2.32e+002
Cyclohexane	1.48e-002	4.10e+001
Other Hexanes	1.19e-001	3.39e+002
Heptanes	4.60e-002	1.52e+002
Methylcyclohexane	8.32e-003	2.69e+001
2,2,4-Trimethylpentane	3.59e-003	1.35e+001
Benzene	4.80e-003	1.23e+001
Toluene	2.05e-003	6.22e+000
Xylenes	1.60e-004	5.59e-001
C8+ Heavies	5.73e-003	3.22e+001
Total Components	100.00	6.57e+004

LEAN GLYCOL STREAM

Temperature: 95.00 deg. F
Flow Rate: 3.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	1.97e+003
Water	1.60e+000	3.20e+001
Carbon Dioxide	2.70e-012	5.40e-011
Nitrogen	3.22e-013	6.44e-012
Methane	7.31e-018	1.46e-016
Ethane	5.72e-008	1.14e-006
Propane	6.61e-009	1.32e-007
Isobutane	1.41e-009	2.81e-008
n-Butane	2.87e-009	5.73e-008
Isopentane	1.87e-004	3.73e-003
n-Pentane	2.71e-004	5.42e-003
n-Hexane	1.14e-004	2.28e-003
Cyclohexane	5.86e-004	1.17e-002
Other Hexanes	2.56e-004	5.11e-003
Heptanes	1.36e-004	2.71e-003
Methylcyclohexane	5.33e-004	1.06e-002
2,2,4-Trimethylpentane	1.56e-005	3.13e-004
Benzene	2.72e-003	5.44e-002
Toluene	3.28e-003	6.55e-002
Xylenes	1.05e-003	2.09e-002
C8+ Heavies	2.62e-003	5.24e-002
Total Components	100.00	2.00e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 95.00 deg. F
Pressure: 764.70 psia
Flow Rate: 3.78e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.32e+001	1.97e+003
Water	4.95e+000	1.04e+002
Carbon Dioxide	3.09e-002	6.51e-001

Nitrogen	1.10e-002	2.32e-001
Methane	7.98e-001	1.68e+001
Ethane	2.20e-001	4.64e+000
Propane	2.38e-001	5.01e+000
Isobutane	6.20e-002	1.31e+000
n-Butane	1.42e-001	3.00e+000
Isopentane	4.59e-002	9.68e-001
n-Pentane	6.33e-002	1.33e+000
n-Hexane	2.47e-002	5.21e-001
Cyclohexane	1.79e-002	3.78e-001
Other Hexanes	2.88e-002	6.07e-001
Heptanes	2.78e-002	5.85e-001
Methylcyclohexane	1.30e-002	2.74e-001
2,2,4-Trimethylpentane	1.17e-003	2.47e-002
Benzene	5.18e-002	1.09e+000
Toluene	3.94e-002	8.30e-001
Xylenes	7.67e-003	1.62e-001
C8+ Heavies	2.11e-002	4.45e-001
Total Components	100.00	2.11e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.09e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.29e+001	7.25e+001
Carbon Dioxide	2.68e-001	6.51e-001
Nitrogen	1.50e-001	2.32e-001
Methane	1.90e+001	1.68e+001
Ethane	2.79e+000	4.64e+000
Propane	2.06e+000	5.01e+000
Isobutane	4.08e-001	1.31e+000
n-Butane	9.35e-001	3.00e+000
Isopentane	2.42e-001	9.65e-001
n-Pentane	3.34e-001	1.33e+000
n-Hexane	1.09e-001	5.18e-001
Cyclohexane	7.87e-002	3.66e-001
Other Hexanes	1.26e-001	6.02e-001
Heptanes	1.05e-001	5.83e-001
Methylcyclohexane	4.85e-002	2.63e-001
2,2,4-Trimethylpentane	3.86e-003	2.43e-002
Benzene	2.41e-001	1.04e+000
Toluene	1.50e-001	7.65e-001
Xylenes	2.40e-002	1.41e-001
C8+ Heavies	4.17e-002	3.92e-001
Total Components	100.00	1.11e+002

CONDENSER VENT GAS STREAM

Temperature: 53.00 deg. F
Pressure: 11.30 psia
Flow Rate: 5.76e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.80e+000	4.92e-001
Carbon Dioxide	9.73e-001	6.50e-001
Nitrogen	5.47e-001	2.32e-001
Methane	6.91e+001	1.68e+001
Ethane	1.02e+001	4.64e+000
Propane	7.47e+000	5.00e+000
Isobutane	1.48e+000	1.31e+000
n-Butane	3.39e+000	2.99e+000
Isopentane	8.74e-001	9.57e-001
n-Pentane	1.20e+000	1.32e+000
n-Hexane	3.86e-001	5.05e-001
Cyclohexane	2.75e-001	3.51e-001
Other Hexanes	4.51e-001	5.90e-001
Heptanes	3.49e-001	5.32e-001
Methylcyclohexane	1.62e-001	2.41e-001
2,2,4-Trimethylpentane	1.28e-002	2.23e-002
Benzene	8.34e-001	9.89e-001
Toluene	4.67e-001	6.53e-001
Xylenes	5.00e-002	8.07e-002
C8+ Heavies	1.14e-002	2.95e-002
Total Components	100.00	3.84e+001

CONDENSER PRODUCED WATER STREAM

Temperature: 53.00 deg. F
Flow Rate: 1.44e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	1.00e+002	7.20e+001	999696.
Carbon Dioxide	1.65e-003	1.19e-003	17.
Nitrogen	9.63e-006	6.94e-006	0.
Methane	1.59e-003	1.15e-003	16.
Ethane	6.55e-004	4.71e-004	7.
Propane	3.33e-004	2.40e-004	3.
Isobutane	5.19e-005	3.74e-005	1.
n-Butane	1.73e-004	1.24e-004	2.
Isopentane	4.35e-005	3.13e-005	0.
n-Pentane	6.79e-005	4.89e-005	1.
n-Hexane	2.52e-005	1.82e-005	0.
Cyclohexane	1.27e-004	9.15e-005	1.
Other Hexanes	2.23e-005	1.61e-005	0.
Heptanes	1.64e-005	1.18e-005	0.
Methylcyclohexane	4.47e-005	3.22e-005	0.
2,2,4-Trimethylpentane	4.32e-007	3.11e-007	0.
Benzene	1.49e-002	1.07e-002	149.
Toluene	9.23e-003	6.65e-003	92.
Xylenes	1.48e-003	1.07e-003	15.
C8+ Heavies	1.66e-007	1.20e-007	0.
Total Components	100.00	7.20e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 53.00 deg. F

Flow Rate: 1.67e-003 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	1.62e-002	1.15e-004
Carbon Dioxide	3.82e-003	2.72e-005
Nitrogen	2.77e-004	1.97e-006
Methane	3.44e-002	2.45e-004
Ethane	6.74e-002	4.79e-004
Propane	4.63e-001	3.30e-003
Isobutane	2.86e-001	2.04e-003
n-Butane	1.01e+000	7.17e-003
Isopentane	1.05e+000	7.46e-003
n-Pentane	1.55e+000	1.10e-002
n-Hexane	1.92e+000	1.37e-002
Cyclohexane	2.01e+000	1.43e-002
Other Hexanes	1.58e+000	1.13e-002
Heptanes	7.16e+000	5.09e-002
Methylcyclohexane	3.08e+000	2.19e-002
2,2,4-Trimethylpentane	2.92e-001	2.07e-003
Benzene	5.38e+000	3.83e-002
Toluene	1.48e+001	1.05e-001
Xylenes	8.31e+000	5.91e-002
C8+ Heavies	5.10e+001	3.63e-001
Total Components	100.00	7.11e-001

CONDENSER CONTROL CURVE DATA REPORT:

CONDENSER CONTROL EFFICIENCY CURVES

Note: Condenser curves computed for the range 40.0 F <= T <= 170.0 F. DO NOT EXTRAPOLATE BEYOND THIS RANGE!

Temp(F)	BTEX	Total HAP	VOC
40.0	23.65	20.12	7.38
45.0	17.67	14.91	5.91
50.0	13.37	11.22	4.92
55.0	10.14	8.48	4.20
60.0	7.76	6.48	3.67
65.0	6.02	5.02	3.28
70.0	4.74	3.95	2.99
75.0	3.78	3.15	2.75
80.0	3.05	2.54	2.56
85.0	2.49	2.07	2.40
90.0	2.04	1.70	2.25
95.0	1.68	1.40	2.11
100.0	1.38	1.15	1.97
105.0	1.13	0.94	1.81
110.0	0.91	0.76	1.63
115.0	0.73	0.60	1.42
120.0	0.57	0.47	1.17
125.0	0.41	0.34	0.85
130.0	0.27	0.21	0.41
135.0	0.16	0.12	0.02
140.0	0.14	0.11	0.02
145.0	0.12	0.09	0.02
150.0	0.10	0.08	0.01
155.0	0.08	0.07	0.01
160.0	0.07	0.05	0.01
165.0	0.05	0.04	0.01

170.0	0.04	0.03	0.01

Maximum temperature for 95% control (deg.F):

N/A	N/A	N/A

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Newfield EDA - Pleasant Valley
File Name: J:\Newfield - 387\387-34 Utah Air Permitting\PV West Compressor Station\Emission Calculations\40MMscfd Dehy.ddf
Date: September 07, 2010

DESCRIPTION:

Description: 40 MMscfd/day Dehy
Controlled Emissions (incinerator)
Gas Analysis Dated April 15, 2008
Kimray 21015 glycol pump
Max glycol pump rate (3.55 gpm); no flash tank

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0484	1.162	0.2121
Methane	17.9165	429.995	78.4741
Ethane	4.7902	114.965	20.9812
Propane	5.0980	122.351	22.3291
Isobutane	1.2983	31.160	5.6866
n-Butane	2.9444	70.664	12.8963
Isopentane	0.9267	22.240	4.0589
n-Pentane	1.2623	30.295	5.5289
n-Hexane	0.4695	11.268	2.0565
Cyclohexane	0.3177	7.624	1.3914
Other Hexanes	0.5544	13.307	2.4285
Heptanes	0.4844	11.626	2.1217
Methylcyclohexane	0.2162	5.189	0.9470
2,2,4-Trimethylpentane	0.0207	0.497	0.0907
Benzene	0.9002	21.605	3.9430
Toluene	0.6029	14.471	2.6409
Xylenes	0.0828	1.987	0.3626
C8+ Heavies	0.0366	0.879	0.1605
Total Emissions	37.9703	911.287	166.3099
Total Hydrocarbon Emissions	37.9219	910.124	166.0977
Total VOC Emissions	15.2152	365.164	66.6424
Total HAP Emissions	2.0762	49.828	9.0937
Total BTEX Emissions	1.5860	38.063	6.9465

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0488	1.171	0.2137
Methane	17.9183	430.040	78.4822
Ethane	4.7912	114.990	20.9856
Propane	5.1007	122.416	22.3409
Isobutane	1.2998	31.195	5.6931
n-Butane	2.9494	70.786	12.9185

Isopentane	0.9316	22.358	4.0803
n-Pentane	1.2696	30.471	5.5610
n-Hexane	0.4783	11.479	2.0949
Cyclohexane	0.3268	7.842	1.4312
Other Hexanes	0.5618	13.484	2.4609
Heptanes	0.5162	12.388	2.2609
Methylcyclohexane	0.2298	5.514	1.0064
2,2,4-Trimethylpentane	0.0220	0.529	0.0965
Benzene	0.9369	22.485	4.1036
Toluene	0.6784	16.282	2.9715
Xylenes	0.1248	2.996	0.5467
C8+ Heavies	0.3430	8.233	1.5024
Total Emissions	38.5275	924.660	168.7505
Total Hydrocarbon Emissions	38.4787	923.489	168.5368
Total VOC Emissions	15.7692	378.460	69.0689
Total HAP Emissions	2.2405	53.771	9.8132
Total BTEX Emissions	1.7401	41.763	7.6218

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	53.00 deg. F
Condenser Pressure:	11.30 psia
Condenser Duty:	8.51e-002 MM BTU/hr
Hydrocarbon Recovery:	0.04 bbls/day
Produced Water:	7.07 bbls/day
VOC Control Efficiency:	3.51 %
HAP Control Efficiency:	7.33 %
BTEX Control Efficiency:	8.86 %
Dissolved Hydrocarbons in Water:	256.03 mg/L

Component	Emitted	Condensed
Water	0.50%	99.50%
Carbon Dioxide	99.75%	0.25%
Hydrogen Sulfide	99.26%	0.74%
Nitrogen	100.00%	0.00%
Methane	99.99%	0.01%
Ethane	99.98%	0.02%
Propane	99.95%	0.05%
Isobutane	99.89%	0.11%
n-Butane	99.83%	0.17%
Isopentane	99.48%	0.52%
n-Pentane	99.42%	0.58%
n-Hexane	98.17%	1.83%
Cyclohexane	97.22%	2.78%
Other Hexanes	98.68%	1.32%
Heptanes	93.84%	6.16%
Methylcyclohexane	94.10%	5.90%
2,2,4-Trimethylpentane	94.02%	5.98%
Benzene	96.09%	3.91%
Toluene	88.88%	11.12%
Xylenes	66.32%	33.68%
C8+ Heavies	10.68%	89.32%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	6.91	lbs. H2O/MMSCF
Temperature:	100.0	deg. F
Pressure:	800.0	psig
Dry Gas Flow Rate:	40.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.5377	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	69.03	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	2.06	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	10.00%	90.00%
Carbon Dioxide	99.90%	0.10%
Hydrogen Sulfide	99.37%	0.63%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.98%	0.02%
Propane	99.96%	0.04%
Isobutane	99.95%	0.05%
n-Butane	99.93%	0.07%
Isopentane	99.93%	0.07%
n-Pentane	99.92%	0.08%
n-Hexane	99.87%	0.13%
Cyclohexane	99.43%	0.57%
Other Hexanes	99.90%	0.10%
Heptanes	99.77%	0.23%
Methylcyclohexane	99.39%	0.61%
2,2,4-Trimethylpentane	99.90%	0.10%
Benzene	94.77%	5.23%
Toluene	92.73%	7.27%
Xylenes	86.63%	13.37%
C8+ Heavies	99.23%	0.77%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	23.56%	76.44%
Carbon Dioxide	0.00%	100.00%
Hydrogen Sulfide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.37%	99.63%

n-Pentane	0.39%	99.61%
n-Hexane	0.43%	99.57%
Cyclohexane	3.08%	96.92%
Other Hexanes	0.82%	99.18%
Heptanes	0.46%	99.54%
Methylcyclohexane	3.86%	96.14%
2,2,4-Trimethylpentane	1.22%	98.78%
Benzene	4.98%	95.02%
Toluene	7.88%	92.12%
Xylenes	12.92%	87.08%
C8+ Heavies	11.74%	88.26%

STREAM REPORTS:

WET GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.45e-001	1.15e+002
Carbon Dioxide	2.72e-001	5.27e+002
Hydrogen Sulfide	4.99e-003	7.49e+000
Nitrogen	6.46e-001	7.96e+002
Methane	8.37e+001	5.91e+004
Ethane	7.93e+000	1.05e+004
Propane	4.31e+000	8.35e+003
Isobutane	6.86e-001	1.75e+003
n-Butane	1.28e+000	3.28e+003
Isopentane	3.32e-001	1.05e+003
n-Pentane	3.74e-001	1.19e+003
n-Hexane	8.17e-002	3.10e+002
Cyclohexane	1.49e-002	5.51e+001
Other Hexanes	1.19e-001	4.52e+002
Heptanes	4.61e-002	2.03e+002
Methylcyclohexane	8.39e-003	3.62e+001
2,2,4-Trimethylpentane	3.59e-003	1.81e+001
Benzene	5.19e-003	1.78e+001
Toluene	2.30e-003	9.31e+000
Xylenes	2.00e-004	9.33e-001
C8+ Heavies	5.79e-003	4.34e+001
Total Components	100.00	8.78e+004

DRY GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.46e-002	1.15e+001

Carbon Dioxide	2.73e-001	5.27e+002
Hydrogen Sulfide	4.97e-003	7.44e+000
Nitrogen	6.47e-001	7.96e+002
Methane	8.38e+001	5.91e+004
Ethane	7.94e+000	1.05e+004
Propane	4.31e+000	8.35e+003
Isobutane	6.86e-001	1.75e+003
n-Butane	1.28e+000	3.28e+003
Isopentane	3.32e-001	1.05e+003
n-Pentane	3.74e-001	1.19e+003
n-Hexane	8.17e-002	3.09e+002
Cyclohexane	1.48e-002	5.48e+001
Other Hexanes	1.19e-001	4.52e+002
Heptanes	4.61e-002	2.03e+002
Methylcyclohexane	8.35e-003	3.60e+001
2,2,4-Trimethylpentane	3.60e-003	1.80e+001
Benzene	4.93e-003	1.69e+001
Toluene	2.13e-003	8.63e+000
Xylenes	1.73e-004	8.08e-001
C8+ Heavies	5.76e-003	4.31e+001
Total Components	100.00	8.77e+004

LEAN GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 3.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	1.97e+003
Water	1.60e+000	3.20e+001
Carbon Dioxide	2.72e-012	5.43e-011
Hydrogen Sulfide	2.36e-013	4.71e-012
Nitrogen	3.32e-013	6.64e-012
Methane	7.53e-018	1.50e-016
Ethane	5.68e-008	1.13e-006
Propane	6.52e-009	1.30e-007
Isobutane	1.35e-009	2.70e-008
n-Butane	2.74e-009	5.47e-008
Isopentane	1.74e-004	3.48e-003
n-Pentane	2.51e-004	5.02e-003
n-Hexane	1.03e-004	2.05e-003
Cyclohexane	5.20e-004	1.04e-002
Other Hexanes	2.32e-004	4.64e-003
Heptanes	1.18e-004	2.36e-003
Methylcyclohexane	4.62e-004	9.23e-003
2,2,4-Trimethylpentane	1.37e-005	2.73e-004
Benzene	2.46e-003	4.91e-002
Toluene	2.91e-003	5.81e-002
Xylenes	9.27e-004	1.85e-002
C8+ Heavies	2.28e-003	4.56e-002
Total Components	100.00	2.00e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 100.00 deg. F

Pressure: 814.70 psia
Flow Rate: 3.84e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.18e+001	1.96e+003
Water	6.34e+000	1.36e+002
Carbon Dioxide	3.10e-002	6.62e-001
Hydrogen Sulfide	2.28e-003	4.88e-002
Nitrogen	1.16e-002	2.47e-001
Methane	8.37e-001	1.79e+001
Ethane	2.24e-001	4.79e+000
Propane	2.38e-001	5.10e+000
Isobutane	6.07e-002	1.30e+000
n-Butane	1.38e-001	2.95e+000
Isopentane	4.37e-002	9.35e-001
n-Pentane	5.96e-002	1.27e+000
n-Hexane	2.24e-002	4.80e-001
Cyclohexane	1.58e-002	3.37e-001
Other Hexanes	2.65e-002	5.66e-001
Heptanes	2.42e-002	5.19e-001
Methylcyclohexane	1.12e-002	2.39e-001
2,2,4-Trimethylpentane	1.04e-003	2.23e-002
Benzene	4.61e-002	9.86e-001
Toluene	3.44e-002	7.36e-001
Xylenes	6.70e-003	1.43e-001
C8+ Heavies	1.82e-002	3.89e-001
Total Components	100.00	2.14e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.78e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.86e+001	1.04e+002
Carbon Dioxide	2.05e-001	6.62e-001
Hydrogen Sulfide	1.95e-002	4.88e-002
Nitrogen	1.20e-001	2.47e-001
Methane	1.52e+001	1.79e+001
Ethane	2.17e+000	4.79e+000
Propane	1.58e+000	5.10e+000
Isobutane	3.05e-001	1.30e+000
n-Butane	6.93e-001	2.95e+000
Isopentane	1.76e-001	9.32e-001
n-Pentane	2.40e-001	1.27e+000
n-Hexane	7.57e-002	4.78e-001
Cyclohexane	5.30e-002	3.27e-001
Other Hexanes	8.90e-002	5.62e-001
Heptanes	7.03e-002	5.16e-001
Methylcyclohexane	3.19e-002	2.30e-001
2,2,4-Trimethylpentane	2.63e-003	2.20e-002
Benzene	1.64e-001	9.37e-001
Toluene	1.00e-001	6.78e-001
Xylenes	1.60e-002	1.25e-001

C8+ Heavies	2.75e-002	3.43e-001
Total Components	100.00	1.43e+002

CONDENSER VENT GAS STREAM

Temperature: 53.00 deg. F
Pressure: 11.30 psia
Flow Rate: 6.04e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.80e+000	5.15e-001
Carbon Dioxide	9.44e-001	6.61e-001
Hydrogen Sulfide	8.93e-002	4.84e-002
Nitrogen	5.55e-001	2.47e-001
Methane	7.02e+001	1.79e+001
Ethane	1.00e+001	4.79e+000
Propane	7.27e+000	5.10e+000
Isobutane	1.40e+000	1.30e+000
n-Butane	3.18e+000	2.94e+000
Isopentane	8.07e-001	9.27e-001
n-Pentane	1.10e+000	1.26e+000
n-Hexane	3.42e-001	4.70e-001
Cyclohexane	2.37e-001	3.18e-001
Other Hexanes	4.04e-001	5.54e-001
Heptanes	3.04e-001	4.84e-001
Methylcyclohexane	1.38e-001	2.16e-001
2,2,4-Trimethylpentane	1.14e-002	2.07e-002
Benzene	7.24e-001	9.00e-001
Toluene	4.11e-001	6.03e-001
Xylenes	4.90e-002	8.28e-002
C8+ Heavies	1.35e-002	3.66e-002
Total Components	100.00	3.94e+001

CONDENSER PRODUCED WATER STREAM

Temperature: 53.00 deg. F
Flow Rate: 2.06e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	1.00e+002	1.03e+002	999724.
Carbon Dioxide	1.60e-003	1.65e-003	16.
Hydrogen Sulfide	3.43e-004	3.54e-004	3.
Nitrogen	9.78e-006	1.01e-005	0.
Methane	1.62e-003	1.67e-003	16.
Ethane	6.45e-004	6.66e-004	6.
Propane	3.24e-004	3.34e-004	3.
Isobutane	4.93e-005	5.09e-005	0.
n-Butane	1.62e-004	1.67e-004	2.
Isopentane	4.01e-005	4.14e-005	0.
n-Pentane	6.21e-005	6.41e-005	1.
n-Hexane	2.24e-005	2.31e-005	0.
Cyclohexane	1.10e-004	1.13e-004	1.
Other Hexanes	2.00e-005	2.06e-005	0.
Heptanes	1.42e-005	1.47e-005	0.

Methylcyclohexane	3.82e-005	3.95e-005	0.
2,2,4-Trimethylpentane	3.83e-007	3.95e-007	0.
Benzene	1.29e-002	1.33e-002	129.
Toluene	8.14e-003	8.41e-003	81.
Xylenes	1.45e-003	1.50e-003	15.
C8+ Heavies	1.97e-007	2.03e-007	0.
Total Components	100.00	1.03e+002	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 53.00 deg. F
Flow Rate: 1.25e-003 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	1.52e-002	8.07e-005
Carbon Dioxide	3.58e-003	1.90e-005
Hydrogen Sulfide	1.16e-003	6.13e-006
Nitrogen	2.50e-004	1.33e-006
Methane	3.44e-002	1.83e-004
Ethane	6.65e-002	3.53e-004
Propane	4.47e-001	2.37e-003
Isobutane	2.68e-001	1.42e-003
n-Butane	9.25e-001	4.91e-003
Isopentane	9.14e-001	4.85e-003
n-Pentane	1.37e+000	7.28e-003
n-Hexane	1.65e+000	8.75e-003
Cyclohexane	1.69e+000	8.98e-003
Other Hexanes	1.39e+000	7.38e-003
Heptanes	5.99e+000	3.18e-002
Methylcyclohexane	2.55e+000	1.35e-002
2,2,4-Trimethylpentane	2.48e-001	1.32e-003
Benzene	4.40e+000	2.33e-002
Toluene	1.26e+001	6.71e-002
Xylenes	7.64e+000	4.05e-002
C8+ Heavies	5.78e+001	3.06e-001
Total Components	100.00	5.31e-001

****
* Project Setup Information *
****

Project File : H:\API\E&P TANK Version 2.0\Blind Canyon Stable.ept
Model : Stable Oil Tank
Calculation Method : AP42
Control Efficiency : 100.0%

Filed Name : ML 40/104
Well Name : Blind Canyon Compressor Station
Date : 2011.11.22

****
* Data Input *
****

Separator Pressure : 650.00[psig]
Separator Temperature : 54.27[F]
Ambient Pressure : 14.70[psia]
Ambient Temperature : 54.27[F]
C10+ SG : 0.7455
C10+ MW : 160.52

-- Stable Oil ----------

No.	Component	mol %
1	H2S	0.0298
2	O2	0.0000
3	CO2	0.0813
4	N2	0.0006
5	C1	0.1429
6	C2	0.3200
7	C3	1.6601
8	i-C4	1.0163
9	n-C4	4.3102
10	i-C5	3.0783
11	n-C5	5.0568
12	C6	4.2584
13	C7	10.6399
14	C8	11.1525
15	C9	5.6739
16	C10+	47.3307
17	Benzene	0.5815
18	Toluene	0.2191
19	E-Benzene	0.0732
20	Xylenes	0.6999
21	n-C6	3.6746
22	224Trimethylp	0.0000

-- Sales Oil ----------
Production Rate : 10[bbl/day]
Days of Annual Operation : 365 [days/year]
API Gravity : 58.5
Reid Vapor Pressure : 6.30[psia]
Bulk Temperature : 54.27[F]

-- Tank and Shell Data ----------
Diameter : 12.00[ft]
Shell Height : 20.00[ft]
Cone Roof Slope : 0.06
Average Liquid Height : 10.00[ft]
Vent Pressure Range : 0.06[psi]
Solar Absorbance : 0.68

-- Meteorological Data ----------
City : Salt Lake City, UT

Ambient Pressure : 14.70[psia]
Ambient Temperature : 54.27[F]
Min Ambient Temperature : 39.30[F]
Max Ambient Temperature : 64.00[F]
Total Solar Insolation : 1603.00[Btu/ft^2*day]

****
* Calculation Results *
****

-- Emission Summary --

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
Total HAPs	0.040	0.009
Total HC	1.199	0.274
VOCs, C2+	1.199	0.274
VOCs, C3+	1.172	0.268

Uncontrolled Recovery Info.

Vapor	43.2200 x1E-3	[MSCFD]
HC Vapor	42.8900 x1E-3	[MSCFD]
GOR	4.32	[SCF/bbl]

-- Emission Composition --

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.004	0.001
2	O2	0.000	0.000
3	CO2	0.002	0.000
4	N2	0.000	0.000
5	C1	0.000	0.000
6	C2	0.027	0.006
7	C3	0.263	0.060
8	i-C4	0.116	0.026
9	n-C4	0.366	0.084
10	i-C5	0.129	0.029
11	n-C5	0.157	0.036
12	C6	0.045	0.010
13	C7	0.041	0.009
14	C8	0.014	0.003
15	C9	0.003	0.001
16	C10+	0.003	0.001
17	Benzene	0.004	0.001
18	Toluene	0.000	0.000
19	E-Benzene	0.000	0.000
20	Xylenes	0.000	0.000
21	n-C6	0.031	0.007
22	224Trimethylp	0.000	0.000
	Total	1.205	0.275

-- Stream Data --

No.	Component	MW	Stable Oil mol %	Sales Oil mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0073	0.5353
2	O2	32.00	0.0000	0.0000	0.0000
3	CO2	44.01	0.4253	0.0012	0.2338
4	N2	28.01	0.0120	0.0000	0.0002
5	C1	16.04	23.6256	0.0000	0.0001
6	C2	30.07	5.8169	0.0400	4.2853
7	C3	44.10	5.2798	0.9268	28.6304
8	i-C4	58.12	2.1717	0.8297	9.5899
9	n-C4	58.12	3.6596	3.7765	30.2352
10	i-C5	72.15	2.9526	2.9889	8.5985
11	n-C5	72.15	2.8641	4.9879	10.4479
12	C6	86.16	3.4078	4.3292	2.5795
13	C7	100.20	13.2877	10.9071	2.0218
14	C8	114.23	4.0281	11.4629	0.6247

15	C9	128.28	3.1164	5.8362	0.1028
16	C10+	160.52	22.6134	48.7000	0.0899
17	Benzene	78.11	0.7109	0.5930	0.2631
18	Toluene	92.13	1.3767	0.2249	0.0260
19	E-Benzene	106.17	0.1451	0.0753	0.0027
20	Xylenes	106.17	1.3316	0.7197	0.0220
21	n-C6	86.18	2.7293	3.7462	1.7110
22	224Trimethylp	114.24	0.4454	0.0000	0.0000
	MW		123.96	125.56	57.91
	Stream Mole Ratio		1.0000	0.9946	0.0054
	Heating Value	[BTU/SCF]			3230.05
	Gas Gravity	[Gas/Air]			2.00
	Bubble Pt. @ 100F	[psia]	16.47	7.51	
	RVP @ 100F	[psia]	67.73	45.14	
	SG @ 100F		0.683	0.685	

****
* Project Setup Information *
****

Project File : H:\API\E&P TANK Version 2.0\Blind Canyon Flash.ept
Flowsheet Selection : Oil Tank with Separator
Calculation Method : AP42
Control Efficiency : 100.0%
Known Separator Stream : Low Pressure Oil
Entering Air Composition : No

Filed Name : ML 40/104
Well Name : Blind Canyon Compressor Station
Date : 2011.11.22

****
* Data Input *
****

Separator Pressure : 650.00[psig]
Separator Temperature : 54.27[F]
Ambient Pressure : 14.70[psia]
Ambient Temperature : 54.27[F]
C10+ SG : 0.7455
C10+ MW : 160.52

-- Low Pressure Oil ----------

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.4253
4	N2	0.0120
5	C1	23.6256
6	C2	5.8169
7	C3	5.2798
8	i-C4	2.1717
9	n-C4	3.6596
10	i-C5	2.9526
11	n-C5	2.8641
12	C6	3.4078
13	C7	13.2877
14	C8	4.0281
15	C9	3.1164
16	C10+	22.6134
17	Benzene	0.7109
18	Toluene	1.3767
19	E-Benzene	0.1451
20	Xylenes	1.3316
21	n-C6	2.7293
22	224Trimethylp	0.4454

-- Sales Oil ----------
Production Rate : 10[bbl/day]
Days of Annual Operation : 365 [days/year]
API Gravity : 58.5
Reid Vapor Pressure : 6.30[psia]
Bulk Temperature : 54.27[F]

-- Tank and Shell Data ----------
Diameter : 12.00[ft]
Shell Height : 20.00[ft]
Cone Roof Slope : 0.06
Average Liquid Height : 10.00[ft]
Vent Pressure Range : 0.06[psi]
Solar Absorbance : 0.68

-- Meteorological Data ----------

City : Salt Lake City, UT
Ambient Pressure : 14.70[psia]
Ambient Temperature : 54.27[F]
Min Ambient Temperature : 39.30[F]
Max Ambient Temperature : 64.00[F]
Total Solar Insolation : 1603.00[Btu/ft^2*day]

****

* Calculation Results

****

-- Emission Summary ----------

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
Total HAPs	0.650	0.148
Total HC	62.733	14.323
VOCs, C2+	38.415	8.771
VOCs, C3+	27.898	6.369

Uncontrolled Recovery Info.

Vapor	5.0000	[MSCFD]
HC Vapor	4.9400	[MSCFD]
GOR	500.00	[SCF/bbl]

-- Emission Composition ----------

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	1.167	0.266
4	N2	0.022	0.005
5	C1	24.317	5.552
6	C2	10.517	2.401
7	C3	11.467	2.618
8	i-C4	4.152	0.948
9	n-C4	5.557	1.269
10	i-C5	2.490	0.568
11	n-C5	1.777	0.406
12	C6	0.730	0.167
13	C7	0.945	0.216
14	C8	0.087	0.020
15	C9	0.022	0.005
16	C10+	0.018	0.004
17	Benzene	0.103	0.024
18	Toluene	0.055	0.013
19	E-Benzene	0.002	0.000
20	Xylenes	0.015	0.003
21	n-C6	0.449	0.103
22	224Trimethylp	0.029	0.007
	Total	63.921	14.594

-- Stream Data ----------

No.	Component	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.4253	0.0267	0.0000	1.1136	0.0046	1.1018
4	N2	28.01	0.0120	0.0001	0.0000	0.0326	0.0001	0.0323
5	C1	16.04	23.6256	0.4300	0.0000	63.6741	0.0001	62.9976
6	C2	30.07	5.8169	0.7202	0.0721	14.6167	7.0044	14.5358
7	C3	44.10	5.2798	2.2115	1.2294	10.5775	32.2818	10.8081
8	i-C4	58.12	2.1717	1.7798	1.4713	2.8483	14.2133	2.9690
9	n-C4	58.12	3.6596	3.5848	3.1878	3.7888	21.1798	3.9736
10	i-C5	72.15	2.9526	3.8802	3.8263	1.3510	9.1704	1.4341
11	n-C5	72.15	2.8641	3.9668	3.9751	0.9602	6.9097	1.0235
12	C6	86.16	3.4078	5.1872	5.3560	0.3356	2.7708	0.3614

13	C7	100.20	13.2877	20.7683	21.6328	0.3720	3.4844	0.4050
14	C8	114.23	4.0281	6.3440	6.6266	0.0296	0.3142	0.0326
15	C9	128.28	3.1164	4.9176	5.1407	0.0066	0.0788	0.0074
16	C10+	160.52	22.6134	35.7084	37.3413	0.0041	0.0608	0.0047
17	Benzene	78.11	0.7109	1.0934	1.1328	0.0505	0.4276	0.0546
18	Toluene	92.13	1.3767	2.1609	2.2543	0.0228	0.2216	0.0249
19	E-Benzene	106.17	0.1451	0.2288	0.2390	0.0007	0.0073	0.0007
20	Xylenes	106.17	1.3316	2.0999	2.1946	0.0051	0.0572	0.0057
21	n-C6	86.18	2.7293	4.1940	4.3433	0.2004	1.7210	0.2166
22	224Trimethylp	114.24	0.4454	0.6977	0.7274	0.0098	0.0920	0.0106
	MW		82.36	114.86	117.05	26.24	56.96	26.57
	Stream Mole Ratio		1.0000	0.6332	0.6293	0.3668	0.0039	0.3707
	Heating Value	[BTU/SCF]				1528.66	3189.60	1546.31
	Gas Gravity	[Gas/Air]				0.91	1.97	0.92
	Bubble Pt. @ 100F	[psia]	867.37	27.83	8.50			
	RVP @ 100F	[psia]	1232.45	91.86	50.81			
	Spec. Gravity @ 100F		0.631	0.681	0.684			

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Ute Energy - Randlett
File Name: J:\Ute Energy - 405\118971 Randlett Air Permit\12MMscfd Dehy.ddf
Date: June 24, 2011

DESCRIPTION:

Description: 12 MMscfd/day Dehy
Controlled Emissions
Gas Analysis Dated April 15, 2008
Kimray 4015 glycol pump
3 lb/gal recirculation rate; w/ flash tank

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0136	0.327	0.0597
Methane	0.1058	2.539	0.4633
Ethane	0.1091	2.618	0.4778
Propane	0.2725	6.539	1.1934
Isobutane	0.1082	2.597	0.4740
n-Butane	0.3166	7.599	1.3868
Isopentane	0.1171	2.810	0.5128
n-Pentane	0.1923	4.615	0.8423
n-Hexane	0.1095	2.628	0.4797
Cyclohexane	0.1197	2.874	0.5245
Other Hexanes	0.1081	2.595	0.4736
Heptanes	0.1651	3.963	0.7233
Methylcyclohexane	0.0897	2.152	0.3927
2,2,4-Trimethylpentane	0.0053	0.126	0.0230
Benzene	0.4013	9.631	1.7577
Toluene	0.2934	7.043	1.2853
Xylenes	0.0531	1.274	0.2325
C8+ Heavies	0.1515	3.637	0.6637
Total Emissions	2.7320	65.567	11.9661
Total Hydrocarbon Emissions	2.7183	65.240	11.9063
Total VOC Emissions	2.5035	60.084	10.9652
Total HAP Emissions	0.8626	20.703	3.7782
Total BTEX Emissions	0.7478	17.948	3.2755

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr

Hydrogen Sulfide	0.0081	0.196	0.0357
Methane	7.8884	189.321	34.5510
Ethane	2.0457	49.097	8.9603
Propane	1.9898	47.756	8.7155
Isobutane	0.4705	11.293	2.0610
n-Butane	0.9962	23.910	4.3635
Isopentane	0.2992	7.181	1.3105
n-Pentane	0.3753	9.007	1.6438
n-Hexane	0.1057	2.537	0.4630
Cyclohexane	0.0301	0.724	0.1320
Other Hexanes	0.1446	3.470	0.6332
Heptanes	0.0696	1.670	0.3047
Methylcyclohexane	0.0159	0.383	0.0698
2,2,4-Trimethylpentane	0.0048	0.114	0.0208
Benzene	0.0104	0.249	0.0455
Toluene	0.0044	0.105	0.0192
Xylenes	0.0003	0.006	0.0012
C8+ Heavies	0.0076	0.182	0.0332
Total Emissions	14.4667	347.200	63.3640
Total Hydrocarbon Emissions	14.4585	347.004	63.3283
Total VOC Emissions	4.5244	108.586	19.8170
Total HAP Emissions	0.1255	3.012	0.5497
Total BTEX Emissions	0.0150	0.361	0.0659

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	5.18	lbs. H2O/MMSCF
Temperature:	100.0	deg. F
Pressure:	800.0	psig
Dry Gas Flow Rate:	12.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.1627	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	69.03	lbs. H2O/MMSCF
Specified Lean Glycol Recirc. Ratio:	3.00	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	7.50%	92.50%
Carbon Dioxide	99.85%	0.15%
Hydrogen Sulfide	99.06%	0.94%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.97%	0.03%
Propane	99.94%	0.06%
Isobutane	99.92%	0.08%
n-Butane	99.90%	0.10%
Isopentane	99.90%	0.10%

n-Pentane	99.87%	0.13%
n-Hexane	99.80%	0.20%
Cyclohexane	99.13%	0.87%
Other Hexanes	99.85%	0.15%
Heptanes	99.65%	0.35%
Methylcyclohexane	99.06%	0.94%
2,2,4-Trimethylpentane	99.85%	0.15%
Benzene	92.34%	7.66%
Toluene	89.37%	10.63%
Xylenes	80.96%	19.04%
C8+ Heavies	98.81%	1.19%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 85.0 deg. F
Flash Pressure: 30.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	18.45%	81.55%
Hydrogen Sulfide	62.59%	37.41%
Nitrogen	1.24%	98.76%
Methane	1.32%	98.68%
Ethane	5.06%	94.94%
Propane	12.04%	87.96%
Isobutane	18.70%	81.30%
n-Butane	24.12%	75.88%
Isopentane	28.39%	71.61%
n-Pentane	34.14%	65.86%
n-Hexane	51.09%	48.91%
Cyclohexane	80.51%	19.49%
Other Hexanes	43.26%	56.74%
Heptanes	70.50%	29.50%
Methylcyclohexane	85.49%	14.51%
2,2,4-Trimethylpentane	53.09%	46.91%
Benzene	97.60%	2.40%
Toluene	98.64%	1.36%
Xylenes	99.57%	0.43%
C8+ Heavies	95.80%	4.20%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	29.06%	70.94%
Carbon Dioxide	0.00%	100.00%
Hydrogen Sulfide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%

Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.31%	98.69%
n-Pentane	1.16%	98.84%
n-Hexane	0.84%	99.16%
Cyclohexane	3.83%	96.17%
Other Hexanes	1.90%	98.10%
Heptanes	0.65%	99.35%
Methylcyclohexane	4.52%	95.48%
2,2,4-Trimethylpentane	2.32%	97.68%
Benzene	5.10%	94.90%
Toluene	7.99%	92.01%
Xylenes	12.97%	87.03%
C8+ Heavies	12.26%	87.74%

STREAM REPORTS:

WET GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia
Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.45e-001	3.46e+001
Carbon Dioxide	2.72e-001	1.58e+002
Hydrogen Sulfide	4.99e-003	2.25e+000
Nitrogen	6.46e-001	2.39e+002
Methane	8.37e+001	1.77e+004
Ethane	7.93e+000	3.15e+003
Propane	4.31e+000	2.51e+003
Isobutane	6.86e-001	5.26e+002
n-Butane	1.28e+000	9.84e+002
Isopentane	3.32e-001	3.16e+002
n-Pentane	3.74e-001	3.56e+002
n-Hexane	8.17e-002	9.29e+001
Cyclohexane	1.49e-002	1.65e+001
Other Hexanes	1.19e-001	1.36e+002
Heptanes	4.61e-002	6.10e+001
Methylcyclohexane	8.39e-003	1.09e+001
2,2,4-Trimethylpentane	3.59e-003	5.42e+000
Benzene	5.19e-003	5.35e+000
Toluene	2.30e-003	2.79e+000
Xylenes	2.00e-004	2.80e-001
C8+ Heavies	5.79e-003	1.30e+001
Total Components	100.00	2.63e+004

DRY GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia

Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.09e-002	2.59e+000
Carbon Dioxide	2.72e-001	1.58e+002
Hydrogen Sulfide	4.95e-003	2.22e+000
Nitrogen	6.47e-001	2.39e+002
Methane	8.39e+001	1.77e+004
Ethane	7.94e+000	3.15e+003
Propane	4.31e+000	2.51e+003
Isobutane	6.86e-001	5.26e+002
n-Butane	1.28e+000	9.83e+002
Isopentane	3.32e-001	3.16e+002
n-Pentane	3.74e-001	3.56e+002
n-Hexane	8.16e-002	9.27e+001
Cyclohexane	1.48e-002	1.64e+001
Other Hexanes	1.19e-001	1.36e+002
Heptanes	4.60e-002	6.08e+001
Methylcyclohexane	8.32e-003	1.08e+001
2,2,4-Trimethylpentane	3.59e-003	5.41e+000
Benzene	4.80e-003	4.94e+000
Toluene	2.06e-003	2.50e+000
Xylenes	1.62e-004	2.27e-001
C8+ Heavies	5.73e-003	1.29e+001
Total Components	100.00	2.63e+004

LEAN GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	8.60e+002
Water	1.50e+000	1.31e+001
Carbon Dioxide	2.74e-012	2.40e-011
Hydrogen Sulfide	2.41e-013	2.10e-012
Nitrogen	3.44e-013	3.01e-012
Methane	7.75e-018	6.76e-017
Ethane	5.91e-008	5.16e-007
Propane	6.60e-009	5.77e-008
Isobutane	1.38e-009	1.20e-008
n-Butane	2.79e-009	2.43e-008
Isopentane	1.78e-004	1.56e-003
n-Pentane	2.57e-004	2.25e-003
n-Hexane	1.06e-004	9.24e-004
Cyclohexane	5.46e-004	4.77e-003
Other Hexanes	2.39e-004	2.09e-003
Heptanes	1.23e-004	1.08e-003
Methylcyclohexane	4.87e-004	4.25e-003
2,2,4-Trimethylpentane	1.43e-005	1.25e-004
Benzene	2.47e-003	2.16e-002
Toluene	2.92e-003	2.55e-002
Xylenes	9.06e-004	7.91e-003
C8+ Heavies	2.42e-003	2.12e-002

Total Components	100.00	8.73e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.65e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.32e+001	8.59e+002
Water	4.89e+000	4.51e+001
Carbon Dioxide	3.18e-002	2.93e-001
Hydrogen Sulfide	2.36e-003	2.18e-002
Nitrogen	1.20e-002	1.11e-001
Methane	8.67e-001	7.99e+000
Ethane	2.34e-001	2.15e+000
Propane	2.45e-001	2.26e+000
Isobutane	6.28e-002	5.79e-001
n-Butane	1.42e-001	1.31e+000
Isopentane	4.53e-002	4.18e-001
n-Pentane	6.18e-002	5.70e-001
n-Hexane	2.34e-002	2.16e-001
Cyclohexane	1.68e-002	1.55e-001
Other Hexanes	2.76e-002	2.55e-001
Heptanes	2.56e-002	2.36e-001
Methylcyclohexane	1.19e-002	1.10e-001
2,2,4-Trimethylpentane	1.10e-003	1.01e-002
Benzene	4.70e-002	4.33e-001
Toluene	3.51e-002	3.23e-001
Xylenes	6.64e-003	6.13e-002
C8+ Heavies	1.95e-002	1.80e-001
Total Components	100.00	9.22e+002

FLASH TANK OFF GAS STREAM

Temperature: 85.00 deg. F
Pressure: 44.70 psia
Flow Rate: 2.48e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.51e-001	1.78e-002
Carbon Dioxide	8.29e-001	2.39e-001
Hydrogen Sulfide	3.65e-002	8.15e-003
Nitrogen	5.96e-001	1.09e-001
Methane	7.51e+001	7.89e+000
Ethane	1.04e+001	2.05e+000
Propane	6.89e+000	1.99e+000
Isobutane	1.24e+000	4.71e-001
n-Butane	2.62e+000	9.96e-001
Isopentane	6.34e-001	2.99e-001
n-Pentane	7.95e-001	3.75e-001
n-Hexane	1.87e-001	1.06e-001
Cyclohexane	5.47e-002	3.01e-002
Other Hexanes	2.56e-001	1.45e-001

Heptanes	1.06e-001	6.96e-002
Methylcyclohexane	2.48e-002	1.59e-002
2,2,4-Trimethylpentane	6.36e-003	4.75e-003
Benzene	2.03e-002	1.04e-002
Toluene	7.27e-003	4.38e-003
Xylenes	3.83e-004	2.66e-004
C8+ Heavies	6.79e-003	7.57e-003
Total Components	100.00	1.48e+001

FLASH TANK GLYCOL STREAM

Temperature: 85.00 deg. F
Flow Rate: 1.62e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.47e+001	8.59e+002
Water	4.97e+000	4.51e+001
Carbon Dioxide	5.95e-003	5.40e-002
Hydrogen Sulfide	1.50e-003	1.36e-002
Nitrogen	1.51e-004	1.37e-003
Methane	1.17e-002	1.06e-001
Ethane	1.20e-002	1.09e-001
Propane	3.00e-002	2.72e-001
Isobutane	1.19e-002	1.08e-001
n-Butane	3.49e-002	3.17e-001
Isopentane	1.31e-002	1.19e-001
n-Pentane	2.14e-002	1.95e-001
n-Hexane	1.22e-002	1.10e-001
Cyclohexane	1.37e-002	1.25e-001
Other Hexanes	1.21e-002	1.10e-001
Heptanes	1.83e-002	1.66e-001
Methylcyclohexane	1.03e-002	9.39e-002
2,2,4-Trimethylpentane	5.93e-004	5.38e-003
Benzene	4.66e-002	4.23e-001
Toluene	3.51e-002	3.19e-001
Xylenes	6.72e-003	6.10e-002
C8+ Heavies	1.90e-002	1.73e-001
Total Components	100.00	9.07e+002

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 6.91e+002 scfh

Component	Conc.	Loading

	(vol%)	(lb/hr)
Water	9.75e+001	3.20e+001
Carbon Dioxide	6.74e-002	5.40e-002
Hydrogen Sulfide	2.20e-002	1.36e-002
Nitrogen	2.68e-003	1.37e-003
Methane	3.62e-001	1.06e-001
Ethane	1.99e-001	1.09e-001
Propane	3.39e-001	2.72e-001
Isobutane	1.02e-001	1.08e-001
n-Butane	2.99e-001	3.17e-001
Isopentane	8.91e-002	1.17e-001
n-Pentane	1.46e-001	1.92e-001
n-Hexane	6.98e-002	1.10e-001
Cyclohexane	7.81e-002	1.20e-001
Other Hexanes	6.89e-002	1.08e-001
Heptanes	9.05e-002	1.65e-001
Methylcyclohexane	5.01e-002	8.97e-002
2,2,4-Trimethylpentane	2.52e-003	5.25e-003
Benzene	2.82e-001	4.01e-001
Toluene	1.75e-001	2.93e-001
Xylenes	2.75e-002	5.31e-002
C8+ Heavies	4.88e-002	1.52e-001
Total Components	100.00	3.48e+001

GRI-GLYCalc VERSION 4.0 - EMISSIONS SUMMARY

Case Name: Ute Energy - Randlett
File Name: J:\Ute Energy - 405\118971 Randlett Air Permit\12MMscfd Dehy.ddf
Date: June 24, 2011

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0136	0.327	0.0597
Methane	0.1058	2.539	0.4633
Ethane	0.1091	2.618	0.4778
Propane	0.2725	6.539	1.1934
Isobutane	0.1082	2.597	0.4740
n-Butane	0.3166	7.599	1.3868
Isopentane	0.1171	2.810	0.5128
n-Pentane	0.1923	4.615	0.8423
n-Hexane	0.1095	2.628	0.4797
Cyclohexane	0.1197	2.874	0.5245
Other Hexanes	0.1081	2.595	0.4736
Heptanes	0.1651	3.963	0.7233
Methylcyclohexane	0.0897	2.152	0.3927
2,2,4-Trimethylpentane	0.0053	0.126	0.0230
Benzene	0.4013	9.631	1.7577
Toluene	0.2934	7.043	1.2853
Xylenes	0.0531	1.274	0.2325
C8+ Heavies	0.1515	3.637	0.6637
Total Emissions	2.7320	65.567	11.9661
Total Hydrocarbon Emissions	2.7183	65.240	11.9063
Total VOC Emissions	2.5035	60.084	10.9652
Total HAP Emissions	0.8626	20.703	3.7782
Total BTEX Emissions	0.7478	17.948	3.2755

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0081	0.196	0.0357
Methane	7.8884	189.321	34.5510
Ethane	2.0457	49.097	8.9603
Propane	1.9898	47.756	8.7155
Isobutane	0.4705	11.293	2.0610
n-Butane	0.9962	23.910	4.3635
Isopentane	0.2992	7.181	1.3105
n-Pentane	0.3753	9.007	1.6438
n-Hexane	0.1057	2.537	0.4630
Cyclohexane	0.0301	0.724	0.1320
Other Hexanes	0.1446	3.470	0.6332
Heptanes	0.0696	1.670	0.3047
Methylcyclohexane	0.0159	0.383	0.0698

2,2,4-Trimethylpentane	0.0048	0.114	0.0208
Benzene	0.0104	0.249	0.0455
Toluene	0.0044	0.105	0.0192
Xylenes	0.0003	0.006	0.0012
C8+ Heavies	0.0076	0.182	0.0332
Total Emissions	14.4667	347.200	63.3640
Total Hydrocarbon Emissions	14.4585	347.004	63.3283
Total VOC Emissions	4.5244	108.586	19.8170
Total HAP Emissions	0.1255	3.012	0.5497
Total BTEX Emissions	0.0150	0.361	0.0659

GRI-GLYCalc VERSION 4.0 - EQUIPMENT SUMMARY REPORT

Case Name: Ute Energy - Randlett
File Name: J:\Ute Energy - 405\118971 Randlett Air Permit\12MMscfd Dehy.ddf
Date: June 24, 2011

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	5.18	lbs. H2O/MMSCF
Temperature:	100.0	deg. F
Pressure:	800.0	psig
Dry Gas Flow Rate:	12.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.1627	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	69.03	lbs. H2O/MMSCF
Specified Lean Glycol Recirc. Ratio:	3.00	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	7.50%	92.50%
Carbon Dioxide	99.85%	0.15%
Hydrogen Sulfide	99.06%	0.94%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.97%	0.03%
Propane	99.94%	0.06%
Isobutane	99.92%	0.08%
n-Butane	99.90%	0.10%
Isopentane	99.90%	0.10%
n-Pentane	99.87%	0.13%
n-Hexane	99.80%	0.20%
Cyclohexane	99.13%	0.87%
Other Hexanes	99.85%	0.15%
Heptanes	99.65%	0.35%
Methylcyclohexane	99.06%	0.94%
2,2,4-Trimethylpentane	99.85%	0.15%
Benzene	92.34%	7.66%
Toluene	89.37%	10.63%
Xylenes	80.96%	19.04%
C8+ Heavies	98.81%	1.19%

FLASH TANK

Flash Control:	Recycle/recompression
Flash Temperature:	85.0 deg. F
Flash Pressure:	30.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	18.45%	81.55%

Hydrogen Sulfide	62.59%	37.41%
Nitrogen	1.24%	98.76%
Methane	1.32%	98.68%
Ethane	5.06%	94.94%
Propane	12.04%	87.96%
Isobutane	18.70%	81.30%
n-Butane	24.12%	75.88%
Isopentane	28.39%	71.61%
n-Pentane	34.14%	65.86%
n-Hexane	51.09%	48.91%
Cyclohexane	80.51%	19.49%
Other Hexanes	43.26%	56.74%
Heptanes	70.50%	29.50%
Methylcyclohexane	85.49%	14.51%
2,2,4-Trimethylpentane	53.09%	46.91%
Benzene	97.60%	2.40%
Toluene	98.64%	1.36%
Xylenes	99.57%	0.43%
C8+ Heavies	95.80%	4.20%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	29.06%	70.94%
Carbon Dioxide	0.00%	100.00%
Hydrogen Sulfide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.31%	98.69%
n-Pentane	1.16%	98.84%
n-Hexane	0.84%	99.16%
Cyclohexane	3.83%	96.17%
Other Hexanes	1.90%	98.10%
Heptanes	0.65%	99.35%
Methylcyclohexane	4.52%	95.48%
2,2,4-Trimethylpentane	2.32%	97.68%
Benzene	5.10%	94.90%
Toluene	7.99%	92.01%
Xylenes	12.97%	87.03%
C8+ Heavies	12.26%	87.74%

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Ute Energy - Randlett
File Name: J:\Ute Energy - 405\118971 Randlett Air Permit\12MMscfd Dehy.ddf
Date: June 24, 2011

DESCRIPTION:

Description: 12 MMscfd/day Dehy
Controlled Emissions
Gas Analysis Dated April 15, 2008
Kimray 4015 glycol pump
3 lb/gal recirculation rate; w/ flash tank

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0136	0.327	0.0597
Methane	0.1058	2.539	0.4633
Ethane	0.1091	2.618	0.4778
Propane	0.2725	6.539	1.1934
Isobutane	0.1082	2.597	0.4740
n-Butane	0.3166	7.599	1.3868
Isopentane	0.1171	2.810	0.5128
n-Pentane	0.1923	4.615	0.8423
n-Hexane	0.1095	2.628	0.4797
Cyclohexane	0.1197	2.874	0.5245
Other Hexanes	0.1081	2.595	0.4736
Heptanes	0.1651	3.963	0.7233
Methylcyclohexane	0.0897	2.152	0.3927
2,2,4-Trimethylpentane	0.0053	0.126	0.0230
Benzene	0.4013	9.631	1.7577
Toluene	0.2934	7.043	1.2853
Xylenes	0.0531	1.274	0.2325
C8+ Heavies	0.1515	3.637	0.6637
Total Emissions	2.7320	65.567	11.9661
Total Hydrocarbon Emissions	2.7183	65.240	11.9063
Total VOC Emissions	2.5035	60.084	10.9652
Total HAP Emissions	0.8626	20.703	3.7782
Total BTEX Emissions	0.7478	17.948	3.2755

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr

Hydrogen Sulfide	0.0081	0.196	0.0357
Methane	7.8884	189.321	34.5510
Ethane	2.0457	49.097	8.9603
Propane	1.9898	47.756	8.7155
Isobutane	0.4705	11.293	2.0610
n-Butane	0.9962	23.910	4.3635
Isopentane	0.2992	7.181	1.3105
n-Pentane	0.3753	9.007	1.6438
n-Hexane	0.1057	2.537	0.4630
Cyclohexane	0.0301	0.724	0.1320
Other Hexanes	0.1446	3.470	0.6332
Heptanes	0.0696	1.670	0.3047
Methylcyclohexane	0.0159	0.383	0.0698
2,2,4-Trimethylpentane	0.0048	0.114	0.0208
Benzene	0.0104	0.249	0.0455
Toluene	0.0044	0.105	0.0192
Xylenes	0.0003	0.006	0.0012
C8+ Heavies	0.0076	0.182	0.0332
Total Emissions	14.4667	347.200	63.3640
Total Hydrocarbon Emissions	14.4585	347.004	63.3283
Total VOC Emissions	4.5244	108.586	19.8170
Total HAP Emissions	0.1255	3.012	0.5497
Total BTEX Emissions	0.0150	0.361	0.0659

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	5.18 lbs. H2O/MMSCF
Temperature:	100.0 deg. F
Pressure:	800.0 psig
Dry Gas Flow Rate:	12.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.1627 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	69.03 lbs. H2O/MMSCF
Specified Lean Glycol Recirc. Ratio:	3.00 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	7.50%	92.50%
Carbon Dioxide	99.85%	0.15%
Hydrogen Sulfide	99.06%	0.94%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.97%	0.03%
Propane	99.94%	0.06%
Isobutane	99.92%	0.08%
n-Butane	99.90%	0.10%
Isopentane	99.90%	0.10%

n-Pentane	99.87%	0.13%
n-Hexane	99.80%	0.20%
Cyclohexane	99.13%	0.87%
Other Hexanes	99.85%	0.15%
Heptanes	99.65%	0.35%
Methylcyclohexane	99.06%	0.94%
2,2,4-Trimethylpentane	99.85%	0.15%
Benzene	92.34%	7.66%
Toluene	89.37%	10.63%
Xylenes	80.96%	19.04%
C8+ Heavies	98.81%	1.19%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 85.0 deg. F
Flash Pressure: 30.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	18.45%	81.55%
Hydrogen Sulfide	62.59%	37.41%
Nitrogen	1.24%	98.76%
Methane	1.32%	98.68%
Ethane	5.06%	94.94%
Propane	12.04%	87.96%
Isobutane	18.70%	81.30%
n-Butane	24.12%	75.88%
Isopentane	28.39%	71.61%
n-Pentane	34.14%	65.86%
n-Hexane	51.09%	48.91%
Cyclohexane	80.51%	19.49%
Other Hexanes	43.26%	56.74%
Heptanes	70.50%	29.50%
Methylcyclohexane	85.49%	14.51%
2,2,4-Trimethylpentane	53.09%	46.91%
Benzene	97.60%	2.40%
Toluene	98.64%	1.36%
Xylenes	99.57%	0.43%
C8+ Heavies	95.80%	4.20%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	29.06%	70.94%
Carbon Dioxide	0.00%	100.00%
Hydrogen Sulfide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%

Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.31%	98.69%
n-Pentane	1.16%	98.84%
n-Hexane	0.84%	99.16%
Cyclohexane	3.83%	96.17%
Other Hexanes	1.90%	98.10%
Heptanes	0.65%	99.35%
Methylcyclohexane	4.52%	95.48%
2,2,4-Trimethylpentane	2.32%	97.68%
Benzene	5.10%	94.90%
Toluene	7.99%	92.01%
Xylenes	12.97%	87.03%
C8+ Heavies	12.26%	87.74%

STREAM REPORTS:

WET GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia
Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.45e-001	3.46e+001
Carbon Dioxide	2.72e-001	1.58e+002
Hydrogen Sulfide	4.99e-003	2.25e+000
Nitrogen	6.46e-001	2.39e+002
Methane	8.37e+001	1.77e+004
Ethane	7.93e+000	3.15e+003
Propane	4.31e+000	2.51e+003
Isobutane	6.86e-001	5.26e+002
n-Butane	1.28e+000	9.84e+002
Isopentane	3.32e-001	3.16e+002
n-Pentane	3.74e-001	3.56e+002
n-Hexane	8.17e-002	9.29e+001
Cyclohexane	1.49e-002	1.65e+001
Other Hexanes	1.19e-001	1.36e+002
Heptanes	4.61e-002	6.10e+001
Methylcyclohexane	8.39e-003	1.09e+001
2,2,4-Trimethylpentane	3.59e-003	5.42e+000
Benzene	5.19e-003	5.35e+000
Toluene	2.30e-003	2.79e+000
Xylenes	2.00e-004	2.80e-001
C8+ Heavies	5.79e-003	1.30e+001
Total Components	100.00	2.63e+004

DRY GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia

Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.09e-002	2.59e+000
Carbon Dioxide	2.72e-001	1.58e+002
Hydrogen Sulfide	4.95e-003	2.22e+000
Nitrogen	6.47e-001	2.39e+002
Methane	8.39e+001	1.77e+004
Ethane	7.94e+000	3.15e+003
Propane	4.31e+000	2.51e+003
Isobutane	6.86e-001	5.26e+002
n-Butane	1.28e+000	9.83e+002
Isopentane	3.32e-001	3.16e+002
n-Pentane	3.74e-001	3.56e+002
n-Hexane	8.16e-002	9.27e+001
Cyclohexane	1.48e-002	1.64e+001
Other Hexanes	1.19e-001	1.36e+002
Heptanes	4.60e-002	6.08e+001
Methylcyclohexane	8.32e-003	1.08e+001
2,2,4-Trimethylpentane	3.59e-003	5.41e+000
Benzene	4.80e-003	4.94e+000
Toluene	2.06e-003	2.50e+000
Xylenes	1.62e-004	2.27e-001
C8+ Heavies	5.73e-003	1.29e+001
Total Components	100.00	2.63e+004

LEAN GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	8.60e+002
Water	1.50e+000	1.31e+001
Carbon Dioxide	2.74e-012	2.40e-011
Hydrogen Sulfide	2.41e-013	2.10e-012
Nitrogen	3.44e-013	3.01e-012
Methane	7.75e-018	6.76e-017
Ethane	5.91e-008	5.16e-007
Propane	6.60e-009	5.77e-008
Isobutane	1.38e-009	1.20e-008
n-Butane	2.79e-009	2.43e-008
Isopentane	1.78e-004	1.56e-003
n-Pentane	2.57e-004	2.25e-003
n-Hexane	1.06e-004	9.24e-004
Cyclohexane	5.46e-004	4.77e-003
Other Hexanes	2.39e-004	2.09e-003
Heptanes	1.23e-004	1.08e-003
Methylcyclohexane	4.87e-004	4.25e-003
2,2,4-Trimethylpentane	1.43e-005	1.25e-004
Benzene	2.47e-003	2.16e-002
Toluene	2.92e-003	2.55e-002
Xylenes	9.06e-004	7.91e-003
C8+ Heavies	2.42e-003	2.12e-002

Total Components	100.00	8.73e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 100.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.65e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.32e+001	8.59e+002
Water	4.89e+000	4.51e+001
Carbon Dioxide	3.18e-002	2.93e-001
Hydrogen Sulfide	2.36e-003	2.18e-002
Nitrogen	1.20e-002	1.11e-001
Methane	8.67e-001	7.99e+000
Ethane	2.34e-001	2.15e+000
Propane	2.45e-001	2.26e+000
Isobutane	6.28e-002	5.79e-001
n-Butane	1.42e-001	1.31e+000
Isopentane	4.53e-002	4.18e-001
n-Pentane	6.18e-002	5.70e-001
n-Hexane	2.34e-002	2.16e-001
Cyclohexane	1.68e-002	1.55e-001
Other Hexanes	2.76e-002	2.55e-001
Heptanes	2.56e-002	2.36e-001
Methylcyclohexane	1.19e-002	1.10e-001
2,2,4-Trimethylpentane	1.10e-003	1.01e-002
Benzene	4.70e-002	4.33e-001
Toluene	3.51e-002	3.23e-001
Xylenes	6.64e-003	6.13e-002
C8+ Heavies	1.95e-002	1.80e-001
Total Components	100.00	9.22e+002

FLASH TANK OFF GAS STREAM

Temperature: 85.00 deg. F
Pressure: 44.70 psia
Flow Rate: 2.48e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.51e-001	1.78e-002
Carbon Dioxide	8.29e-001	2.39e-001
Hydrogen Sulfide	3.65e-002	8.15e-003
Nitrogen	5.96e-001	1.09e-001
Methane	7.51e+001	7.89e+000
Ethane	1.04e+001	2.05e+000
Propane	6.89e+000	1.99e+000
Isobutane	1.24e+000	4.71e-001
n-Butane	2.62e+000	9.96e-001
Isopentane	6.34e-001	2.99e-001
n-Pentane	7.95e-001	3.75e-001
n-Hexane	1.87e-001	1.06e-001
Cyclohexane	5.47e-002	3.01e-002
Other Hexanes	2.56e-001	1.45e-001

Heptanes	1.06e-001	6.96e-002
Methylcyclohexane	2.48e-002	1.59e-002
2,2,4-Trimethylpentane	6.36e-003	4.75e-003
Benzene	2.03e-002	1.04e-002
Toluene	7.27e-003	4.38e-003
Xylenes	3.83e-004	2.66e-004
C8+ Heavies	6.79e-003	7.57e-003
Total Components	100.00	1.48e+001

FLASH TANK GLYCOL STREAM

Temperature: 85.00 deg. F
Flow Rate: 1.62e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.47e+001	8.59e+002
Water	4.97e+000	4.51e+001
Carbon Dioxide	5.95e-003	5.40e-002
Hydrogen Sulfide	1.50e-003	1.36e-002
Nitrogen	1.51e-004	1.37e-003
Methane	1.17e-002	1.06e-001
Ethane	1.20e-002	1.09e-001
Propane	3.00e-002	2.72e-001
Isobutane	1.19e-002	1.08e-001
n-Butane	3.49e-002	3.17e-001
Isopentane	1.31e-002	1.19e-001
n-Pentane	2.14e-002	1.95e-001
n-Hexane	1.22e-002	1.10e-001
Cyclohexane	1.37e-002	1.25e-001
Other Hexanes	1.21e-002	1.10e-001
Heptanes	1.83e-002	1.66e-001
Methylcyclohexane	1.03e-002	9.39e-002
2,2,4-Trimethylpentane	5.93e-004	5.38e-003
Benzene	4.66e-002	4.23e-001
Toluene	3.51e-002	3.19e-001
Xylenes	6.72e-003	6.10e-002
C8+ Heavies	1.90e-002	1.73e-001
Total Components	100.00	9.07e+002

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 6.91e+002 scfh

Component	Conc.	Loading

	(vol%)	(lb/hr)
Water	9.75e+001	3.20e+001
Carbon Dioxide	6.74e-002	5.40e-002
Hydrogen Sulfide	2.20e-002	1.36e-002
Nitrogen	2.68e-003	1.37e-003
Methane	3.62e-001	1.06e-001
Ethane	1.99e-001	1.09e-001
Propane	3.39e-001	2.72e-001
Isobutane	1.02e-001	1.08e-001
n-Butane	2.99e-001	3.17e-001
Isopentane	8.91e-002	1.17e-001
n-Pentane	1.46e-001	1.92e-001
n-Hexane	6.98e-002	1.10e-001
Cyclohexane	7.81e-002	1.20e-001
Other Hexanes	6.89e-002	1.08e-001
Heptanes	9.05e-002	1.65e-001
Methylcyclohexane	5.01e-002	8.97e-002
2,2,4-Trimethylpentane	2.52e-003	5.25e-003
Benzene	2.82e-001	4.01e-001
Toluene	1.75e-001	2.93e-001
Xylenes	2.75e-002	5.31e-002
C8+ Heavies	4.88e-002	1.52e-001
Total Components	100.00	3.48e+001

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: K12-22
File Name: C:\Data\Clients\Dominion\K-12-22 Permit\K12-22 dehy.ddf
Date: April 04, 2002

DESCRIPTION:

Description: K12-22 Dehydrator
Kimray 4015 pump @ 12 spm
.1MMscf/day

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.0342	24.820	4.5297
Ethane	0.1158	2.780	0.5073
Propane	0.0585	1.403	0.2561
Isobutane	0.0199	0.478	0.0873
n-Butane	0.0246	0.591	0.1079
Isopentane	0.0132	0.318	0.0579
n-Pentane	0.0112	0.268	0.0489
n-Hexane	0.0095	0.229	0.0418
Cyclohexane	0.0233	0.559	0.1021
Other Hexanes	0.0121	0.290	0.0529
Heptanes	0.0200	0.481	0.0878
Methylcyclohexane	0.0473	1.134	0.2070
2,2,4-Trimethylpentane	0.0009	0.023	0.0041
Benzene	0.0480	1.151	0.2101
Toluene	0.1072	2.573	0.4697
Ethylbenzene	0.0045	0.107	0.0196
Xylenes	0.0651	1.562	0.2851
C8+ Heavies	0.1380	3.313	0.6046
Total Emissions	1.7534	42.082	7.6799

Total Hydrocarbon Emissions	1.7534	42.082	7.6799
Total VOC Emissions	0.6034	14.481	2.6429

Total HAP Emissions	0.2352	5.646	1.0303
Total BTEX Emissions	0.2248	5.394	0.9844

EQUIPMENT REPORTS:

ABSORBER

Calculated Absorber Stages: 1.27
Specified Dry Gas Dew Point: 7.00 lbs. H2O/MMSCF
Temperature: 145.0 deg. F
Pressure: 790.0 psig
Dry Gas Flow Rate: 0.1000 MMSCF/day
Glycol Losses with Dry Gas: 0.0063 lb/hr
Wet Gas Water Content: Saturated
Calculated Wet Gas Water Content: 228.97 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 13.22 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.04%	96.96%
Carbon Dioxide	98.21%	1.79%
Nitrogen	99.80%	0.20%
Methane	99.81%	0.19%
Ethane	99.44%	0.56%
Propane	99.17%	0.83%
Isobutane	98.92%	1.08%
n-Butane	98.64%	1.36%
Isopentane	98.67%	1.33%
n-Pentane	98.36%	1.64%
n-Hexane	97.48%	2.52%
Cyclohexane	89.35%	10.65%
Other Hexanes	98.00%	2.00%
Heptanes	95.68%	4.32%
Methylcyclohexane	88.78%	11.22%
2,2,4-Trimethylpentane	97.93%	2.07%
Benzene	53.16%	46.84%
Toluene	44.21%	55.79%
Ethylbenzene	36.77%	63.23%
Xylenes	29.06%	70.94%

C8+ Heavies	84.58%	15.42%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	55.10%	44.90%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.38%	99.62%
n-Pentane	0.40%	99.60%
n-Hexane	0.43%	99.57%
Cyclohexane	3.08%	96.92%
Other Hexanes	0.82%	99.18%
Heptanes	0.45%	99.55%
Methylcyclohexane	3.86%	96.14%
2,2,4-Trimethylpentane	1.24%	98.76%
Benzene	4.95%	95.05%
Toluene	7.83%	92.17%
Ethylbenzene	10.32%	89.68%
Xylenes	12.80%	87.20%
C8+ Heavies	11.65%	88.35%

STREAM REPORTS:

WET GAS STREAM

Temperature: 145.00 deg. F
Pressure: 804.70 psia
Flow Rate: 4.20e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.82e-001	9.61e-001
Carbon Dioxide	1.67e-001	8.15e-001
Nitrogen	1.27e-001	3.93e-001
Methane	9.39e+001	1.67e+002
Ethane	3.52e+000	1.17e+001
Propane	9.51e-001	4.64e+000
Isobutane	2.05e-001	1.32e+000
n-Butane	2.14e-001	1.38e+000
Isopentane	9.42e-002	7.52e-001
n-Pentane	6.76e-002	5.39e-001
n-Hexane	3.38e-002	3.23e-001
Cyclohexane	2.26e-002	2.10e-001
Other Hexanes	5.20e-002	4.96e-001
Heptanes	3.80e-002	4.21e-001
Methylcyclohexane	3.73e-002	4.05e-001
2,2,4-Trimethylpentane	2.99e-003	3.77e-002
Benzene	1.17e-002	1.01e-001
Toluene	1.87e-002	1.91e-001
Ethylbenzene	5.97e-004	7.01e-003
Xylenes	7.76e-003	9.12e-002
C8+ Heavies	4.62e-002	8.70e-001
Total Components	100.00	1.92e+002

DRY GAS STREAM

Temperature: 145.00 deg. F
Pressure: 804.70 psia
Flow Rate: 4.17e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.47e-002	2.92e-002
Carbon Dioxide	1.66e-001	8.01e-001
Nitrogen	1.27e-001	3.92e-001
Methane	9.44e+001	1.66e+002
Ethane	3.53e+000	1.16e+001
Propane	9.50e-001	4.60e+000
Isobutane	2.04e-001	1.30e+000

n-Butane	2.13e-001	1.36e+000
Isopentane	9.37e-002	7.42e-001
n-Pentane	6.69e-002	5.31e-001
n-Hexane	3.32e-002	3.14e-001
Cyclohexane	2.03e-002	1.88e-001
Other Hexanes	5.14e-002	4.86e-001
Heptanes	3.66e-002	4.03e-001
Methylcyclohexane	3.34e-002	3.60e-001
2,2,4-Trimethylpentane	2.94e-003	3.69e-002
Benzene	6.29e-003	5.39e-002
Toluene	8.33e-003	8.43e-002
Ethylbenzene	2.21e-004	2.58e-003
Xylenes	2.27e-003	2.65e-002
C8+ Heavies	3.93e-002	7.36e-001
Total Components	100.00	1.90e+002

LEAN GLYCOL STREAM

Temperature: 145.00 deg. F
Flow Rate: 2.04e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.90e+001	1.14e+002
Water	1.00e+000	1.15e+000
Carbon Dioxide	1.27e-012	1.46e-012
Nitrogen	6.96e-014	7.99e-014
Methane	9.16e-018	1.05e-017
Ethane	2.68e-008	3.07e-008
Propane	1.36e-009	1.56e-009
Isobutane	3.72e-010	4.27e-010
n-Butane	4.03e-010	4.63e-010
Isopentane	4.37e-005	5.01e-005
n-Pentane	3.87e-005	4.44e-005
n-Hexane	3.56e-005	4.09e-005
Cyclohexane	6.45e-004	7.41e-004
Other Hexanes	8.74e-005	1.00e-004
Heptanes	7.97e-005	9.16e-005
Methylcyclohexane	1.65e-003	1.90e-003
2,2,4-Trimethylpentane	1.04e-005	1.19e-005
Benzene	2.18e-003	2.50e-003

Toluene	7.94e-003	9.11e-003
Ethylbenzene	4.47e-004	5.14e-004
Xylenes	8.32e-003	9.56e-003
C8+ Heavies	1.58e-002	1.82e-002
Total Components	100.00	1.15e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 145.00 deg. F
Pressure: 804.70 psia
Flow Rate: 2.10e-001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.67e+001	1.14e+002
Water	1.77e+000	2.08e+000
Carbon Dioxide	1.54e-002	1.81e-002
Nitrogen	2.13e-003	2.50e-003
Methane	8.80e-001	1.03e+000
Ethane	9.86e-002	1.16e-001
Propane	4.98e-002	5.85e-002
Isobutane	1.70e-002	1.99e-002
n-Butane	2.10e-002	2.46e-002
Isopentane	1.13e-002	1.33e-002
n-Pentane	9.54e-003	1.12e-002
n-Hexane	8.15e-003	9.57e-003
Cyclohexane	2.05e-002	2.41e-002
Other Hexanes	1.04e-002	1.22e-002
Heptanes	1.71e-002	2.01e-002
Methylcyclohexane	4.18e-002	4.91e-002
2,2,4-Trimethylpentane	8.15e-004	9.57e-004
Benzene	4.30e-002	5.05e-002
Toluene	9.90e-002	1.16e-001
Ethylbenzene	4.24e-003	4.98e-003
Xylenes	6.35e-002	7.46e-002
C8+ Heavies	1.33e-001	1.56e-001
Total Components	100.00	1.18e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.85e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.07e+001	9.36e-001
Carbon Dioxide	3.22e-001	1.81e-002
Nitrogen	7.00e-002	2.50e-003
Methane	5.05e+001	1.03e+000
Ethane	3.02e+000	1.16e-001
Propane	1.04e+000	5.85e-002
Isobutane	2.69e-001	1.99e-002
n-Butane	3.32e-001	2.46e-002
Isopentane	1.44e-001	1.32e-002
n-Pentane	1.21e-001	1.12e-002
n-Hexane	8.66e-002	9.53e-003
Cyclohexane	2.17e-001	2.33e-002
Other Hexanes	1.10e-001	1.21e-002
Heptanes	1.57e-001	2.00e-002
Methylcyclohexane	3.77e-001	4.73e-002
2,2,4-Trimethylpentane	6.48e-003	9.45e-004
Benzene	4.81e-001	4.80e-002
Toluene	9.11e-001	1.07e-001
Ethylbenzene	3.29e-002	4.47e-003
Xylenes	4.80e-001	6.51e-002
C8+ Heavies	6.35e-001	1.38e-001
Total Components	100.00	2.71e+000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	RBU 9-10-F
Analysis Date/Time:	1/10/00 12:44	Field:	River Bend Unit
Analyst Initials:	AST	ML#:	387730-CNG
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC26.D		
Date Sampled:	6-Jan-00		

Component	Mol%	Wt%	LV%
Methane	94.4399	87.4804	91.2288
Ethane	3.5446	6.1542	5.4172
Propane	0.9358	2.3826	1.4704
Isobutane	0.1933	0.6486	0.3605
n-Butane	0.2040	0.6845	0.3887
Neopentane	0.0038	0.0158	0.0083
Isopentane	0.0875	0.3647	0.1827
n-Pentane	0.0647	0.2694	0.1336
2,2-Dimethylbutane	0.0049	0.0243	0.0116
2,3-Dimethylbutane	0.0085	0.0422	0.0198
2-Methylpentane	0.0237	0.1180	0.0561
3-Methylpentane	0.0140	0.0698	0.0326
n-Hexane	0.0328	0.1630	0.0768
Heptanes	0.1314	0.7093	0.2955
Octanes	0.0429	0.2585	0.1036
Nonanes	0.0095	0.0603	0.0223
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.1095	0.1772	0.0685
Carbon Dioxide	0.1492	0.3792	0.1450
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	1077.7	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1060.1	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9976	
Specific Gravity	0.5996	air=1
Avg Molecular Weight	17.319	gm/mole
Propane GPM	0.257279	gal/MCF
Butane GPM	0.127263	gal/MCF
Gasoline GPM	0.154337	gal/MCF
26# Gasoline GPM	0.219340	gal/MCF
Total GPM	0.539711	gal/MCF
Base Mol%	99.782	%v/v

Sample Temperature:	65	°F
Sample Pressure:	295	psig
Hydrogen Sulfide	0.0000	Mole%

Reviewed By: AST

Component	Mol%	Wt%	LV%
Benzene	0.0127	0.0574	0.0203
Toluene	0.0199	0.1061	0.0381
Ethylbenzene	0.0006	0.0037	0.0013
M&P Xylene	0.0068	0.0418	0.0150
O-Xylene	0.0008	0.0050	0.0018
2,2,4-Trimethylpentane	0.0029	0.0191	0.0083
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0221	0.1076	0.0430
Methylcyclohexane	0.0347	0.1965	0.0794
Description:	RBU 9-10-F		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.1492	0.3792	0.1450
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.1095	0.1772	0.0686
Methane	94.4399	87.4804	91.2288
Ethane	3.5446	6.1542	5.4172
Propane	0.9358	2.3826	1.4704
Isobutane	0.1933	0.6486	0.3605
n-Butane	0.2040	0.6845	0.3667
Isopentane	0.0813	0.3805	0.1910
n-Pentane	0.0647	0.2694	0.1336
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0328	0.1630	0.0768
Cyclohexane	0.0221	0.1076	0.0430
Other Hexanes	0.0511	0.2543	0.1201
Heptanes	0.0391	0.2226	0.1064
Methylcyclohexane	0.0347	0.1965	0.0794
2,2,4 Trimethylpentane	0.0029	0.0191	0.0083
Benzene	0.0127	0.0574	0.0203
Toluene	0.0199	0.1061	0.0381
Ethylbenzene	0.0006	0.0037	0.0013
Xylenes	0.0076	0.0468	0.0168
C8+ Heavies	0.0442	0.2663	0.1076
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	RBU 15-14-F
Analysis Date/Time:	1/10/00 17:01	Field:	River Bend
Analyst Initials:	AST	ML#:	387733-CNG
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC31.D		
Date Sampled:	6-Jan-00		

Component	Mol%	Wt%	LV%
Methane	95.2452	89.3144	92.5500
Ethane	3.0203	5.3086	4.6431
Propane	0.7774	2.0038	1.2288
Isobutane	0.1710	0.5811	0.3210
n-Butane	0.1708	0.5804	0.3090
Neopentane	0.0028	0.0118	0.0061
Isopentane	0.0713	0.3007	0.1497
n-Pentane	0.0528	0.2226	0.1096
2,2-Dimethylbutane	0.0038	0.0189	0.0090
2,3-Dimethylbutane	0.0068	0.0341	0.0159
2-Methylpentane	0.0182	0.0916	0.0433
3-Methylpentane	0.0106	0.0533	0.0248
n-Hexane	0.0243	0.1225	0.0573
Heptanes	0.0875	0.4727	0.1937
Octanes	0.0271	0.1631	0.0647
Nonanes	0.0052	0.0334	0.0122
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.1040	0.1703	0.0654
Carbon Dioxide	0.2009	0.5167	0.1964
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties	Data	
Gross BTU/Real CF	1065.1	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1047.8	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9977	
Specific Gravity	0.5923	air=1
Avg Molecular Weight	17.109	gm/mole
Propane GPM	0.213730	gal/MCF
Butane GPM	0.109541	gal/MCF
Gasoline GPM	0.113277	gal/MCF
26# Gasoline GPM	0.187392	gal/MCF
Total GPM	0.436835	gal/MCF
Base Mol%	99.837	%v/v

Sample Temperature:	45	°F
Sample Pressure:	300	psig
Hydrogen Sulfide	0.0000	Mole%

Reviewed By: _____

Component	Mol%	Wt%	LV%
Benzene	0.0108	0.0493	0.0173
Toluene	0.0139	0.0748	0.0267
Ethylbenzene	0.0003	0.0022	0.0008
M&P Xylene	0.0038	0.0236	0.0084
O-Xylene	0.0005	0.0028	0.0010
2,2,4-Trimethylpentane	0.0020	0.0134	0.0058
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0161	0.0794	0.0315
Methylcyclohexane	0.0235	0.1349	0.0542
Description:	RBU 15-14-F		

GRI Gyrata Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.2009	0.5167	0.1964
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.1040	0.1703	0.0654
Methane	95.2452	89.3144	92.5500
Ethane	3.0203	5.3086	4.6431
Propane	0.7774	2.0038	1.2288
Isobutane	0.1710	0.5811	0.3210
n-Butane	0.1708	0.5804	0.3090
Isopentane	0.0741	0.3125	0.1558
n-Pentane	0.0528	0.2226	0.1096
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0243	0.1225	0.0573
Cyclohexane	0.0161	0.0794	0.0315
Other Hexanes	0.0394	0.1979	0.0930
Heptanes	0.0212	0.1209	0.0582
Methylcyclohexane	0.0235	0.1349	0.0542
2,2,4 Trimethylpentane	0.0020	0.0134	0.0058
Benzene	0.0108	0.0493	0.0173
Toluene	0.0139	0.0748	0.0267
Ethylbenzene	0.0003	0.0022	0.0008
Xylenes	0.0043	0.0264	0.0094
C8+ Heavies	0.0277	0.1679	0.0667
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 382-7292

LIMS ID:	N/A	Description:	RBU 13-21-F
Analysis Date/Time:	1/10/00 16:11	Field:	River Bend
Analyst Initials:	AST	ML#:	387556-CNG
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC30.D		
Date Sampled:	7-Jan-00		

Component	Mol%	Wt%	LV%
Methane	93.3776	85.0070	89.5701
Ethane	4.0476	6.9064	6.1424
Propane	1.1541	2.8878	1.8007
Isobutane	0.2534	0.8358	0.4694
n-Butane	0.2713	0.8949	0.4844
Neopentane	0.0048	0.0196	0.0104
Isopentane	0.1139	0.4683	0.2361
n-Pentane	0.0862	0.3530	0.1768
2,2-Dimethylbutane	0.0064	0.0314	0.0152
2,3-Dimethylbutane	0.0107	0.0521	0.0247
2-Methylpentane	0.0310	0.1516	0.0728
3-Methylpentane	0.0183	0.0895	0.0423
n-Hexane	0.0448	0.2192	0.1043
Heptanes	0.1771	0.9473	0.3985
Octanes	0.0627	0.3768	0.1565
Nonanes	0.0169	0.1072	0.0415
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.1685	0.2678	0.1046
Carbon Dioxide	0.1547	0.3863	0.1493
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	1092.9	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1075.1	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9975	
Specific Gravity	0.6100	air=1
Avg Molecular Weight	17.623	gm/mole
Propane GPM	0.317296	gal/MCF
Butane GPM	0.168049	gal/MCF
Gasoline GPM	0.207230	gal/MCF
26# Gasoline GPM	0.295251	gal/MCF
Total GPM	0.695255	gal/MCF
Base Mol%	99.600	%v/v

Sample Temperature:	68	°F
Sample Pressure:	310	psig
Hydrogen Sulfide	0.0000	Mole%

Reviewed By: AST

Component	Mol%	Wt%	LV%
Benzene	0.0119	0.0528	0.0189
Toluene	0.0225	0.1175	0.0426
Ethylbenzene	0.0010	0.0059	0.0022
M&P Xylene	0.0100	0.0600	0.0218
O-Xylene	0.0014	0.0083	0.0030
2,2,4-Trimethylpentane	0.0041	0.0264	0.0116
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0300	0.1431	0.0578
Methylcyclohexane	0.0544	0.3033	0.1239
Description:	RBU 13-21-F		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.1547	0.3863	0.1493
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.1685	0.2678	0.1046
Methane	93.3776	85.0070	89.5701
Ethane	4.0476	6.9064	6.1424
Propane	1.1541	2.8878	1.8007
Isobutane	0.2534	0.8358	0.4694
n-Butane	0.2713	0.8949	0.4844
Isopentane	0.1187	0.4859	0.2465
n-Pentane	0.0862	0.3530	0.1768
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0448	0.2192	0.1043
Cyclohexane	0.0300	0.1431	0.0578
Other Hexanes	0.0664	0.3246	0.1550
Heptanes	0.0542	0.3042	0.1437
Methylcyclohexane	0.0544	0.3033	0.1239
2,2,4 Trimethylpentane	0.0041	0.0264	0.0116
Benzene	0.0119	0.0528	0.0189
Toluene	0.0225	0.1175	0.0426
Ethylbenzene	0.0010	0.0059	0.0022
Xylenes	0.0114	0.0683	0.0248
C8+ Heavies	0.0672	0.4098	0.1710
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000