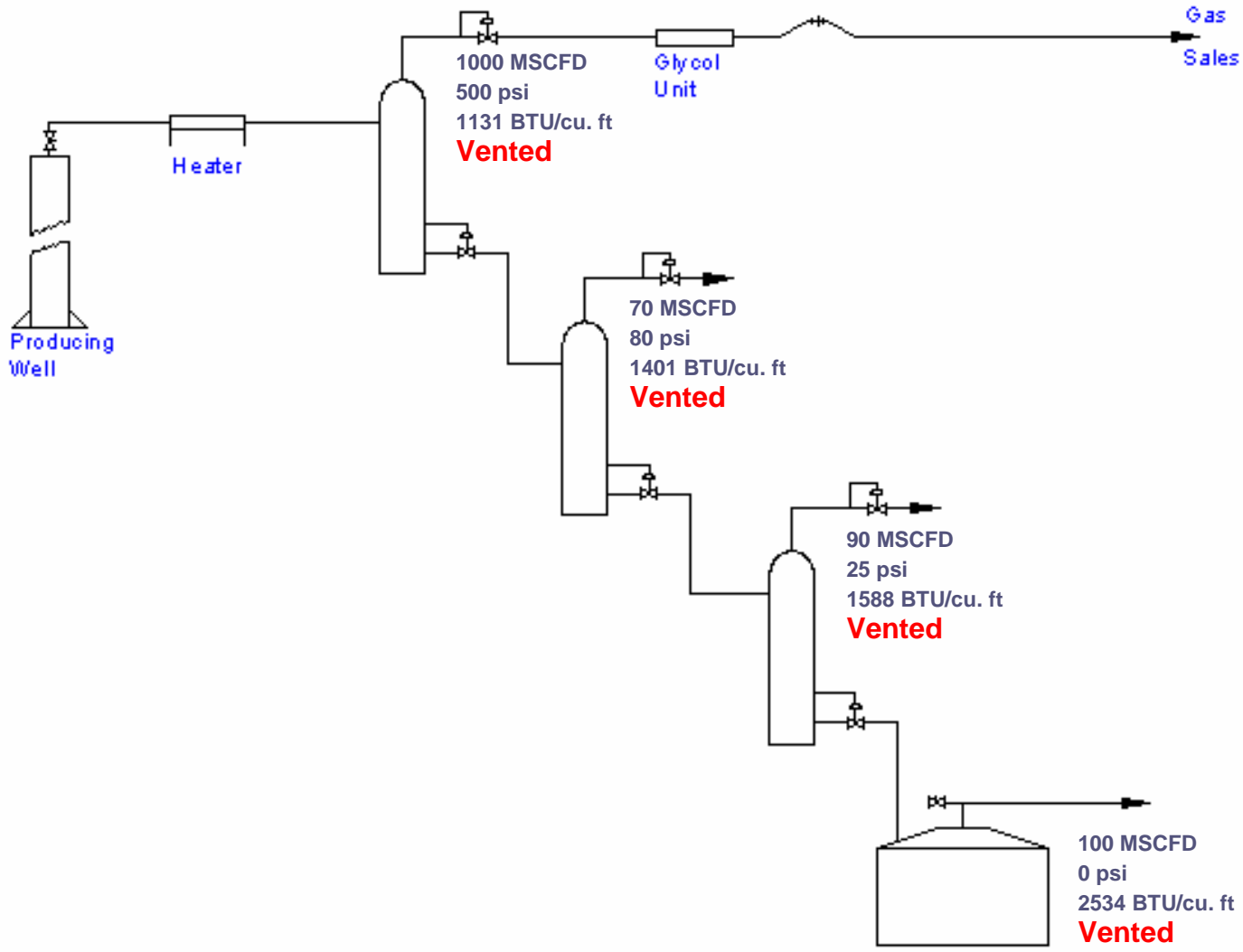


The logo for HY-BON features the text "HY-BON" in a bold, black, sans-serif font. The text is positioned above a blue arrow that points to the right. The arrow has a wavy, ribbon-like appearance.

Engineering Company, Inc.

CASE STUDIES



Gross Sales
Per Day

$\$5.00 \times 1.13 \times$
 $1000 \text{ MSCFD} = \$5650$

$\$5.00 \times 0 \text{ MSCFD} = \0

$\$5.00 \times 0 \text{ MSCFD} = \0

$\$5.00 \times 0 \text{ MSCFD} = \0

TOTAL GAS SALES
= \$5650

NOTE: Price based upon
\$5.00/MMBTU

THE SOLUTION

A system was designed to allow the customer to capture the vented gas from all phases of his separation process. A multi-stage unit was designed and built that took the gas from the tank vapors at atmospheric pressure, gathered the vent gas from the other separators and delivered the stream to the sales line at 500 psig.

Crude Oil Analysis

600 PSIG SEPARATION

SOUTHWESTERN LABORATORIES
 1703 West Industrial — P. O. Box 2150
 MIDLAND, TEXAS 79701
 (915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 7-15-81
 FILE NO. C-1902-G
 LAB. NO. 45569
 DATE SECURED 7-11-81
 SECURED BY _____

LE MARKED Belco Federal, Well No. 1 (Strawn)
Oil sampled from H. Press., Sep. 600 psi (11)
 TITLE FROM Estoril Producing Corporation
 DATE OF RUN 7-15-81

COMPONENT	MOL. %	LIQUID VOL. %
Hydrogen		
Nitrogen		
Carbon Dioxide		
Ethane		3.44
Propane		2.40
Isobutane		2.93
Normal Butane		1.35
Isopentane		3.07
Normal Pentane		2.29
Isopentane		2.50
Hexanes plus		82.02
Heptanes & Heavier		
Hydrogen Sulfide		
Silicon		
Hydrogen		
Carbon Monoxide		
TOTALS		100.00

CONDENSATE VALUES, G.P.M.
 Propane _____
 Butane _____
 Gasoline _____

HEATING VALUE, B.T.U. Per Cu. Ft.*
 Calculated from % Composition _____
 Calculated water saturated _____

SULPHUR CONTENT, Grains Per 100 Cu. Ft.*
 Hydrogen Sulfide _____
 Mercaptans _____

SPECIFIC GRAVITY*
 Calculated from % Composition _____

*14.896 lbs./sq. in., 60° F

Low Pressure Gas Study

300 Estoril Producing Corp.

SOUTHWESTERN LABORATORIES
Mary M. Bunch

At 500 psig separation pressure the gas has a BTU content of 1131 BTU/cu. ft.

SOUTHWESTERN LABORATORIES

1703 West Industrial — P. O. Box 2150

MIDLAND, TEXAS 79701

(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 7-15-81

MARKED Belco Federal, Well No. 1 (Strawn)

FILE NO. C-1902-G

Sampled from sales line 500 psi (D)

LAB. NO. 45564

FROM Estoril Producing Corporation

DATE SECURED 7-11-81

RUN 7-15-81

SECURED BY ---

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %
n			
en	0.95		
Di Oxide	0.17		
ne	88.48		
	6.42	1.712	
ie	2.13	0.585	
ve	0.36	0.124	
ine	0.64	0.201	
ine	0.21	0.077	
one	0.24	0.087	
es	plus 0.38	0.164	
ies & Heavier			
an Sulfide	*None Det.		
an			
Monoxide			
A L S	100.00	2.950	

CONDENSATE VALUES, G.P.M.

100% Propane 0.585

Excess Butane 0.124

26/70 Gasoline 0.500

HEATING VALUE, B.T.U. Per Cu. Ft.*

Calculated from % Composition 1131

Calculated water saturated 1111

SULPHUR CONTENT, Grains Per 100 Cu. Ft.

Hydrogen Sulfide

Mercaptans

SPECIFIC GRAVITY*

Calculated from % Composition 0.644

*14.696 lbs./sq. in., 60° F

Propane + GPM — 1.238

*Determined on laboratory sample.

Low Pressure Gas Study

3cc Estoril Producing Corp.

SOUTHWESTERN LABORATORIES

Mary M. Bunch

500 PSIG
SEPARATION

At 80 psig separation pressure the gas has reached a BTU value of 1401 BTU/ cu. ft.

SOUTHWESTERN LABORATORIES

1703 West Industrial -- P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 7-15-81
FILE NO. C-1902-G
LAB. NO. 45566
DATE SECURED 7-11-81
SECURED BY ---

MARKED Belco Federal, Well No. 1 (Strawn)
Sampled from low press. sep. vent, 10" Hg press. (A)
FROM Estoril Producing Corporation 80 psig
AP
OF RUN 7-15-81

COMPONENT	MOL. %	G.P.M.c.f.	LIQUID MOL. %
Hydrogen			
Hydrogen	0.27		
Carbon Dioxide	0.25		
Ethane	69.88		
Propane	16.03	4.275	
Butane	7.60	2.086	
Pentane	1.45	0.473	
Hexane	2.23	0.701	
Heptane	0.69	0.252	
Octane	0.70	0.253	
Nonane	plus 0.90	0.387	
Ten & Heavier			
Oxygen Sulfide	*None Det.		
Mercaptans			
Hydrogen Monoxide			
Carbon Monoxide			
TOTAL	100.00	8.427	

CONDENSATE VALUES, G.P.M.	
100% Propane	2.086
Excess Butane	0.724
20/70 Gasoline	1.342
HEATING VALUE, B.T.U. Per Cu. Ft.*	
Calculated from % Composition	1401
Calculated water saturated	1377
SULPHUR CONTENT, Grains Per 100 Cu. Ft.	
Hydrogen Sulfide	
Mercaptans	
SPECIFIC GRAVITY*	
Calculated from % Composition	0.812
*14.696 lbs./sq. in., 60° F	

Propane + GPM -- 4.152

*Determined on laboratory sample.

BTU Most Equitable way to sell Gas.

Propane 36 cu ft per gal

Low Pressure Gas Study

Estoril Producing Corp.

Home Gas 95 to 97% Methane.

5 lbs water per 1000 cu ft.

SOUTHWESTERN LABORATORIES

A. M. Bunch

80 PSIG SEPARATION

SOUTHWESTERN LABORATORIES

1703 West Industrial — P. O. Box 2150

MIDLAND, TEXAS 79701

(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 7-15-81

MARKED Belco Federal, Well No. 1 (Strawn)

FILE NO. C-1902-G

SAMPLED FROM Heater-Treater Vent - 2" Hg **(B)**

LAB. NO. 45567

FROM Estoril Producing Corporation **25 psig**

DATE SECURED 7-11-81

RUN 7-15-81

SECURED BY _____

COMPONENT	MOL. %	G. P. M.	LIQUOR VOL. %	
n	5.17			
Dioxide	0.31			
o	48.04			
	23.49	6.264		
e	13.10	3.596		
s	2.60	0.848		
ne	3.35	1.245		
ne	1.23	0.449		
ine	1.08	0.390		
plus	1.02	0.439		
es & Heavier				
en Sulfide	*None Det.			
en				
Monoxide				
l s	100.00	13.231		

CONDENSATE VALUES, G.P.M.		
100% Propane		3.596
Excess Butane		1.496
26/70 Gasoline		1.875
HEATING VALUE, B.T.U. Per Cu. Ft.*		
Calculated from % Composition		1588
Calculated water saturated		1560
SULPHUR CONTENT, Grains Per 100 Cu. Ft.*		
Hydrogen Sulfide		
Mercaptans		
SPECIFIC GRAVITY*		
Calculated from % Composition		0.985
*14.696 lbs./sq. in., 60° F		

Propane + GPM — 6.967

*Determined on laboratory sample.

Low Pressure Gas Study

3cc Estoril Producing Corp.

SOUTHWESTERN LABORATORIES

Ann M. Bunch

At 25 psig separation, the gas stream is at its richest point yet, with a BTU value of 1588 BTU/cu. ft.

25 PSIG SEPARATION

This gas stream reaches its most valuable point during storage in the oil tank. This gas has a BTU value of 2514 BTU/ cu. Ft. Obviously, this gas is worth capturing!

OIL TANK STORAGE

1703 West Industrial — P. O. Box 2150
MIDLAND, TEXAS 79701
(915) 683-3348

FRACTIONAL ANALYSIS REPORT

DATE RECEIVED 7-15-81
 MARKED Belco Federal, Well No. 1 (Strawn) FILE NO. C-1902-G
Sampled from stock tank vent 4-8 oz. pressure LAB. NO. 45568 C
 FROM Estoril Producing Corporation DATE SECURED 7-11-81
 RUN 7-15-81 SECURED BY —

COMPONENT	MOL. %	G. P. M.	LIQUID VOL. %	
n	3.95			
Dioxide	0.10			
n	8.29			
	21.63	5.768		
e	29.20	8.015		100% Propane 8.015
e	8.56	2.793		Excess Butane 5.260
n	14.93	4.694		26/70 Gasoline 7.281
ne	5.22	1.906		
me	5.02	1.814		
s plus	3.10	1.335		
ts & Heavier				
en Sulfide	*None Det.			
en				
Monoxide				
ILS	100.00	26.325		

CONDENSATE VALUES, G.P.M.

HEATING VALUE, B.T.U. Per Cu. Ft.

SULPHUR CONTENT, Grains Per 100 Cu. Ft.

SPECIFIC GRAVITY*

*14,696 lbs./sq. in., 60° F

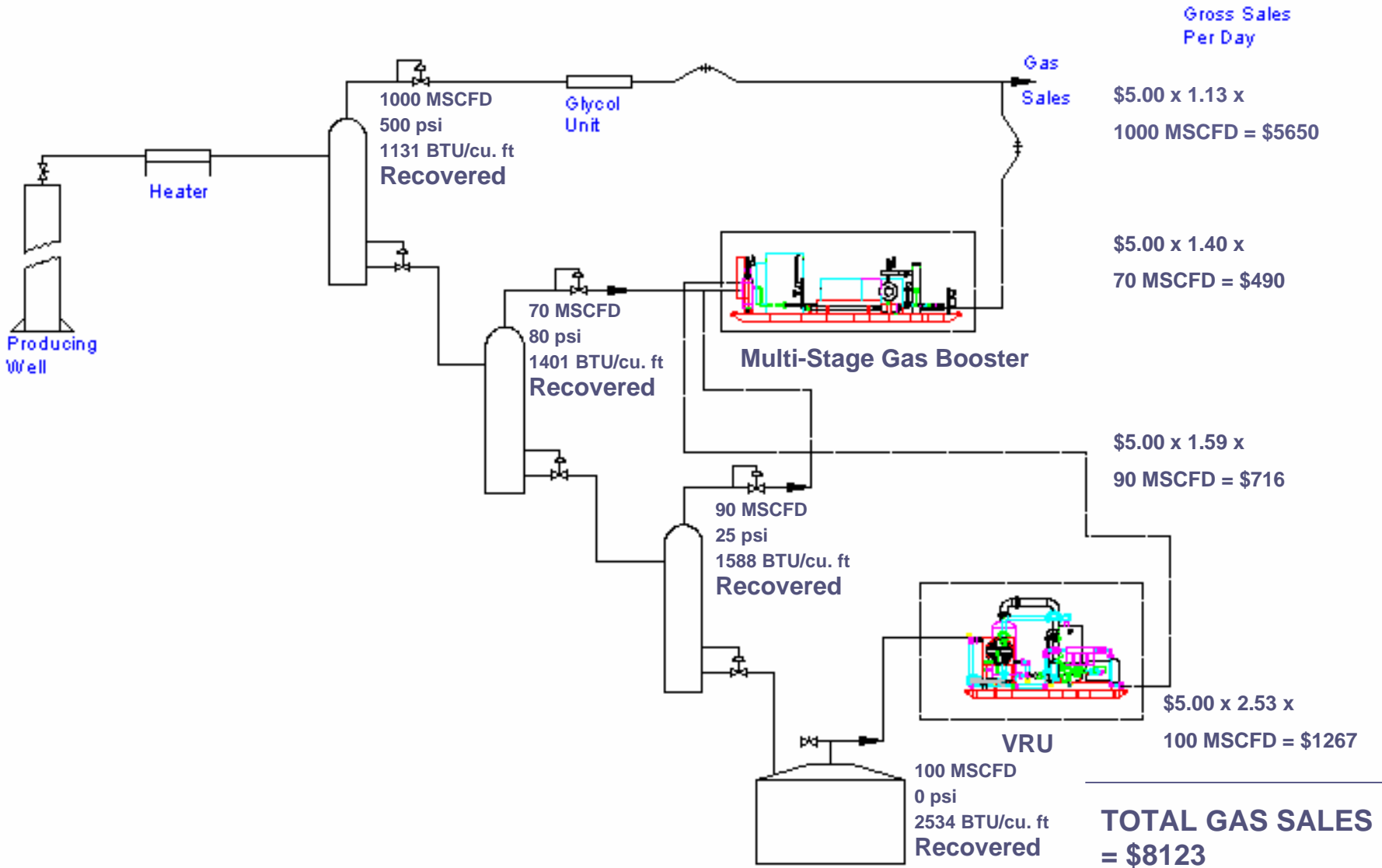
Propane + GPM — 20.557

*Determined on laboratory sample.

Low Pressure Gas Study.

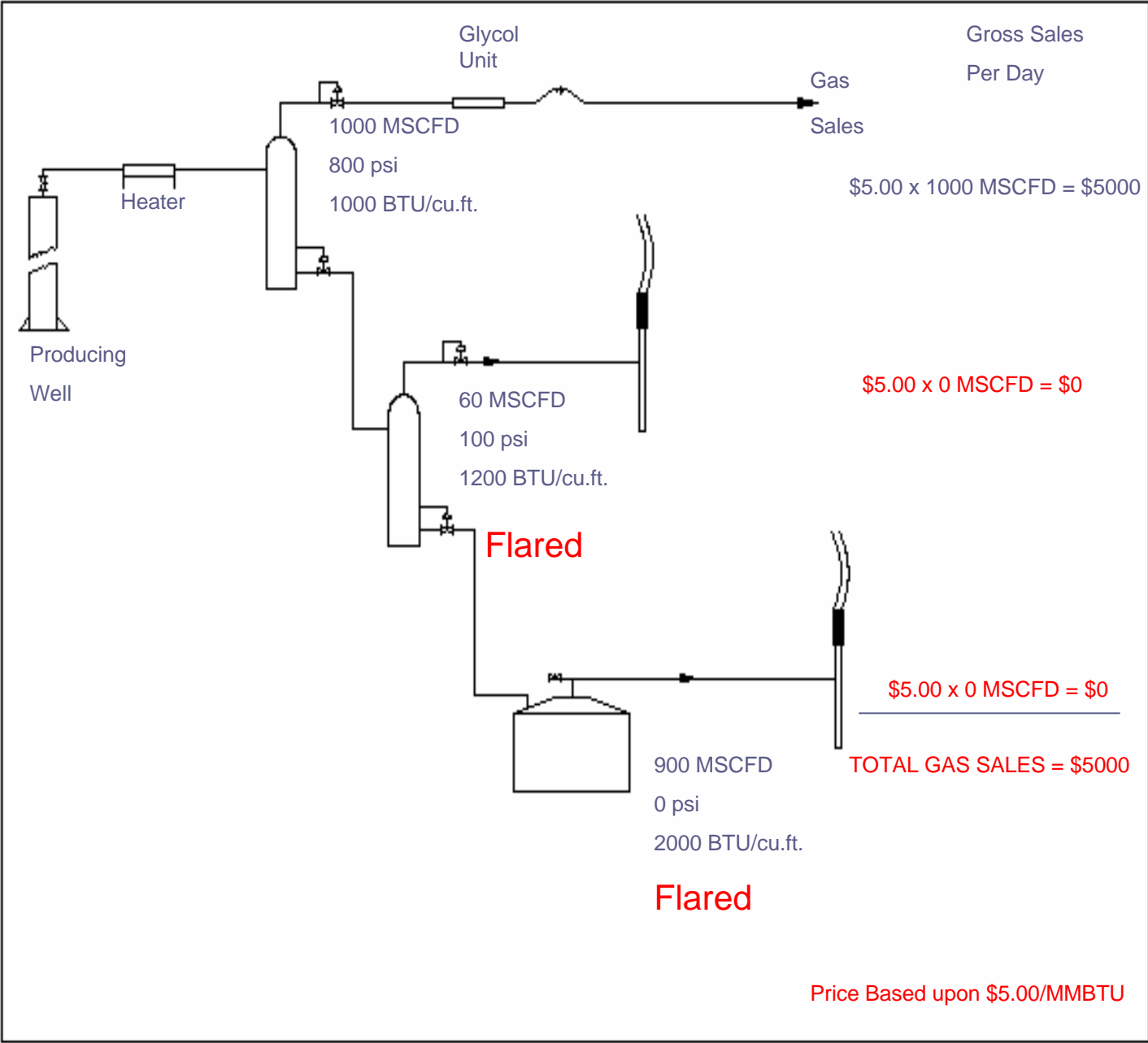
3cc Estoril Producing Corp.

SOUTHWESTERN LABORATORIES
Harry M. Bunch



MONTHLY GAS SALES INCREASE
= \$74,190

NOTE: Price based upon \$5.00/MMBTU



Glycol Unit

Gross Sales Per Day

Gas Sales

1000 MSCFD
800 psi
1000 BTU/cu.ft.

$\$5.00 \times 1000 \text{ MSCFD} = \5000

Heater

Producing Well

60 MSCFD
100 psi
1200 BTU/cu.ft.

$\$5.00 \times 0 \text{ MSCFD} = \0

Flared

$\$5.00 \times 0 \text{ MSCFD} = \0

900 MSCFD
0 psi
2000 BTU/cu.ft.

TOTAL GAS SALES = \$5000

Flared

Price Based upon \$5.00/MMBTU

