

from

DICK CHURNS

8-25, 1971

To

Grady

7 Check tanks

12:53

8-23-71

06:55

8-25-71

By TANKS

3,408,979

INTEGRATER

3,430,200

- 21,221

$\frac{\text{DIFF}}{\text{LOW}} - 1$

- 0.6225 %

6 Check tanks

By TANKS

2,919,650

INTEGRATER

2,914,400

+ 5,250

+ 0.1801 %

CCR 000007059

RWC

T-401C

$$\text{FLOWMETER} = 93171 \times 0.913 \times 5.1667 = 482026$$

$$\text{TANK} = 67466 \times 7.413 - 14 \times 7.507 = 500020$$

T-401B

$$\text{FLOWMETER} = 93171 \times 0.918 \times 3.3333 = 285103$$

$$\text{TANK} = 61713 \times 7.430 - 14 \times 7.557 = 458422$$

T-401A

$$\text{FLOWMETER} = 93171 \times 0.905 \times 6.6667 = 562132$$

$$\text{TANK} = 58763 \times 7.388 - 14 \times 7.600 = 434025$$

T-401E

$$\text{FLOWMETER} = 93171 \times 0.913 \times 6.00 = 510391$$

$$\text{TANK} = 65083 \times 7.271 - 51 \times 7.600 = 479337$$

T-401B

$$\text{FLOWMETER} = 93171 \times 0.907 \times 5.8333 = 492979$$

$$\text{TANK} = 67926 \times 7.447 - 1270 \times 7.507 = 496311$$

$$\text{TOTAL FLOWMETER} = 2332611$$

$$\text{TOTAL TANK} = 2368127$$

RWC

CONTINENTAL OIL COMPANY
CALCULATION SHEET

CCR 000007060

MADE BY

CHECKED BY

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8-12-71

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T-401 C

$$\text{FLOWMETER} = 93171 \times 0.908 \times 5.6667 = 479396$$

$$\text{TANK} = 64999 \times 7.388 - 51 \times 7.507 = 479830$$

T-401 B

$$\text{FLOWMETER} = 93171 \times 0.891 \times 5.8333 = 484254$$

$$\text{TANK} = 67120 \times 7.388 - 691 \times 7.507 = 490695$$

T-401 C

$$\text{FLOWMETER} = 93171 \times 0.889 \times 5.5000 = 455560$$

$$\text{TANK} = 64241 \times 7.405 - 547 \times 7.507 = 471598$$

T-401 B

$$\text{FLOWMETER} = 93171 \times 0.895 \times 6.000 = 509328$$

$$\text{TANK} = 68404 \times 7.405 - 938 \times 7.490 = 499506$$

T-401 C

$$\text{FLOWMETER} = 93171 \times 0.912 \times 5.667 = 481536$$

$$\text{TANK} = 67385 \times 7.413 - 581 \times 7.540 = 495144$$

$$\text{TOTAL FLOWMETER} = 2401074 = 4733685$$

$$\text{TOTAL TANK} = 2436773 = 4804900$$

RWC

CONTINENTAL OIL COMPANY
CALCULATION SHEET

CCR 000007061

0040	8-10	→	0620	8-10	T-401C
	MTY			19' 7 1/4"	32°C
0620	8-10	→	0940	8-10	T-401B
	MTY			18' 2"	31°C
0940	8-10	→	1620	8-10	T-401A
	MTY			17' 0"	34°C
1620	8-10	→	2220	8-10	T-401C
	0' 4"			19' 0"	35°C
2220	8-10	→	0410	8-11	T-401B
	2' 0"			19' 8 1/2"	30°C
0410	8-11	→	0950	8-11	T-401C
	0' 4"			18' 11 3/4"	34°C
0950	8-11	→	1540	8-11	T-401B
	1' 5 1/2"			19' 6"	34°C
1540	8-11	→	2110	8-11	T-401C
	1' 3 1/2"			18' 9 1/2"	33°C
2110	8-11	→	0310	8-12	T-401B
	1' 8 1/2"			19' 10"	33°C
0310	8-12	→	0850	8-12	T-401C
	1' 4"			19' 7"	32°C

CCR 000007062

13-231-PB

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VAPOR SPACE

19'0" @ 33°C
- 0'8" @ 26°C

T401 A	85746	65012	157
T401 B	86032	65141	158
T401 C	85993	65022	158
AVERAGE	85924	65078	158

VAPOR CHANGE PER TRANSFER

$$\begin{aligned} F_{19'} &= 70 \times 62.5 / 551 \times 2.73 \times 7.481 = 0.098916 \text{ PERAL} \\ F_{0'8"} &= 57 \times 62.5 / 539 \times 10.73 \times 7.481 = 0.082339 \text{ PERAL} \end{aligned}$$

$$\begin{aligned} \text{CHANGE} &= (25924 - 65078) \times 0.098916 \\ &\quad - (85924 - 158) \times 0.082339 \end{aligned}$$

$$= 2062 - 7062$$

$$= -5000 \text{ \# PER TRANSFER}$$

$$\text{TOTAL TANK} = 4804900 + 10(-5000) = 4754900$$

$$\text{TOTAL FLOWMETER} = 4733685$$

$$\Delta = 0.004462$$

$$= 0.45 \text{ PERCENT}$$

$$\text{FULL TANK VAPOR} = 8500 \text{ \#}$$

CCR 000007063

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T-401B START

$$\begin{aligned}\text{LIQUID} &= 7.447 \text{ \#/GAL} \\ \text{VAPOR} &= 64 \times 62.5 / 10.73 \times 546 \times 7.447 = 0.091266 \\ \text{LEVEL} &= 19' 8''\end{aligned}$$

T-401B END

$$\begin{aligned}\text{LIQUID} &= 7.540 \text{ \#/GAL} \\ \text{VAPOR} &= 54.5 \times 62.5 / 10.73 \times 535 \times 7.481 = 0.079316 \\ \text{LEVEL} &= 2' 11'' 4''\end{aligned}$$

START

$$\begin{aligned}\text{LIQUID} &= 7.447 \times 67766 = 504653 \\ \text{VAPOR} &= 0.091266 (86032 - 67766) = \frac{1667}{506320}\end{aligned}$$

END

$$\begin{aligned}\text{LIQUID} &= 7.540 \times 1401 = 10564 \\ \text{VAPOR} &= 0.079316 (86032 - 1401) = \frac{670}{17277}\end{aligned}$$

TRANSFER 489043

$$\begin{aligned}\text{LIQUID} &= 7.498 \times 603627 = 4525995 \\ \text{VAPOR} &= 0.08507 \times (867091 - 603627) = \frac{22413}{4548408}\end{aligned}$$

TAPE

$$\begin{aligned}\text{LIQUID} &= 7.532 \times 540299 = 4069532 \\ \text{VAPOR} &= 0.0799 \times (867091 - 540299) = \frac{26111}{4095643} \\ &= 452765\end{aligned}$$

T-401 B TO T-411 C

T-411 C END

$$\text{DENSITY} = 0.9797 - 0.001016 \times 80 = 0.8984$$

$$\text{FACTOR} = 0.8984 \div 0.91 = 0.9872$$

$$\begin{aligned}\text{LEVEL} &= 0.64 \times 60 \times 0.9872 + 4.0(0.9872 - 1.0) \\ &= 37.8615' = 37' 10\frac{3}{8}''\end{aligned}$$

59 62.4 603627

$$\text{LIQUID} = 7.498 \text{ \# / GAL}$$

$$\text{VAPOR} = 59 \times 62.4 \div 10.73 \times 540 \times 7.481 = 0.08507 \text{ \# / GAL}$$

T-411 C START

$$\text{DENSITY} = 0.9797 - 0.001016 \times 76 = 0.9025$$

$$\text{FACTOR} = 0.9025 \div 0.91 = 0.9918$$

$$\begin{aligned}\text{LEVEL} &= 0.59 \times 60 \times .9918 + 4.0(.9918 - 1.0) \\ &= 35.0769' = 35' 0\frac{7}{8}''\end{aligned}$$

35' 2 1/8"

540299

$$\text{LIQUID} = 7.532 \text{ \# / GAL}$$

$$\text{VAPOR} = 55 \times 62.5 \div 10.73 \times 536 \times 7.481 = 0.07990 \text{ \# / GAL}$$

END

$$\text{LIQUID} = 7.498 \times 593812 = 4452402$$

$$\begin{aligned}\text{VAPOR} &= 0.08507 \times (867091 - 593812) = 23248 \\ &4475650\end{aligned}$$

START

$$\text{LIQUID} = 7.532 \times 536375 = 4039977$$

$$\begin{aligned}\text{VAPOR} &= 0.0799 \times (867091 - 536375) = 26424 \\ &4066401\end{aligned}$$

TRANSFER

409249

MADE BY

RWC

CONTINENTAL OIL COMPANY
CALCULATION SHEET

CCR 000007065
JOB NO.

CHECKED BY

DATE 8-26-71 TITLE

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T-411D

9:40 AM

8-26-71

$$\text{LEVEL} = 26\% \text{ of } 69' = 17.94'$$

$$\text{DENSITY} = 0.9797 - .001016 \times 77 = 0.9015$$

$$\text{FACTOR} = 0.9907$$

$$\text{TRUE LEVEL} = 17.7732' \quad 17' 9 \frac{1}{4}"$$

$$\text{TAPE} = 17' 6 \frac{7}{8}"$$

CCR 000007066

CONTINENTAL OIL COMPANY
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1234.51

T-411A

54'

30.5 °C = 87 °F

$$\begin{aligned}
 \text{density} &= 0.9797 - 0.001016 \times 87 = 0.8913 \\
 \text{factor} &= 0.8913 \div 0.91 = 0.9795 \\
 \text{level} &= 54 \times 0.9795 + (.9795 - 1.0) \times 4 \\
 &= 52.8118 \text{ FT} \\
 &830675
 \end{aligned}$$

T-411B

68 %

84.5 °F

$$\begin{aligned}
 \text{density} &= 0.8938 \\
 \text{factor} &= 0.9795 \\
 \text{level} &= 0.68 \times 60 \times 0.9892 + 4.0 (0.9892 - 1) \\
 &= 40.0306 \text{ ft} \rightarrow 42' 2 \frac{1}{4}" \\
 &637258 \qquad \qquad \qquad 677668
 \end{aligned}$$

T-411C

59 %

86 °F

$$\begin{aligned}
 \text{density} &= 0.8922 \\
 \text{factor} &= 0.9805 \\
 \text{level} &= 0.59 \times 60 \times 0.9805 + (4.0)(0.9805 - 1) \\
 &= 34.6317 \text{ ft} \rightarrow 35' 3 \frac{1}{2}" \\
 &527127 \qquad \qquad \qquad 541170
 \end{aligned}$$

	tape	d/p	difference
T-411A		617939.1	

T-411B	5052693	4751396	- 301297
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T-411C	4030093	3925962	- 104131
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			- 405428
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CCR 000007067

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CONTINENTAL OIL COMPANY
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11:30

8-23

T-401A

358390 + 3706

A

483437

= 362096

401 B

508998

C

475290

B

484710

C

389551

- 362096

+ 3340

1983230

by check tank

CCR 000007068

MADE BY RWC

CONTINENTAL OIL COMPANY
CALCULATION SHEET

JOB NO. _____

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To: Bill Howell

T-411 A

$$\text{DENSITY} = 0.9797 - 0.001016 \times \text{TEMP. } ^\circ\text{F}$$

$$\text{FACTOR} = \text{DENSITY} \div 0.91$$

$$\text{LEVEL} = \text{FACTOR} \times \text{READING} + 4 (\text{FACTOR} - 1)$$

CCR 000007069

RWC

8-25-71

from

DICK CHURNS

8-23, 1971

To Bill Howell

When putting the level
on T-411 A only into
the computer correct it
for temperature as
follows:

$$\text{DENSITY} = 0.9797 - 0.001016 \times \text{TEMP}^{\circ}\text{F}$$

$$\text{FACTOR} = \frac{\text{DENSITY}}{0.910}$$

$$\text{TRUE LEVEL} = \text{FACTOR} \times \text{LEVEL}$$

RWC

CCR 000007070