



TRANE THERMAL COMPANY

BROOK ROAD — CONSHOHOCKEN, PA. 19428
PHONE: 215-828-5400
TELEX 84-6484

QUOTATION

TO: Tenneco Chemicals
Turner Place
P.O. Box 365
Piscataway, N. J. 08854

Attention: Mr. Elliott Schwartz
Project Engineer
Flemington Plant

REFERENCE: Incineration of VCM Vent Gas

DATE: August 30, 1977 NO.: 4082

FILE: WE

DELIVERY: 26-30 Weeks from P.O.

TERMS: Net 30 Days

PAYMENT: FOB Shipping Point

One (1) Trane Thermal Sub-X Incinerator-Scrubber System for disposal of gaseous chlorinated hydrocarbons as stated in your specifications. The system proposed will be as shown schematically on Drawing No. PFB-2987-C. Included as part of the proposal is a control panel for the unit.

The system is supplied for the following operating conditions and specifications:

PROCESS CONDITIONS

- | | |
|-------------------------------|--|
| 1. Waste Stream | VCM - 17% (v)
N ₂ - 83% (v)
O ₂ - Trace
VAM - Trace
H ₂ O - Trace |
| 2. Waste Flow | 45 SCFM (by purchaser) |
| 3. Auxiliary Fuel | No. 2 Fuel Oil (by purchaser) |
| 4. Fuel Flow | 9.3 GPH - Max. (warm-up) |
| 5. Incineration Temperature | 2800°F |
| 6. Cooling-Scrubbing Solution | Water
24 GPM at 40 psig (total quenching and scrubbing)
20% NaOH Solution 29 GPM |
| 7. Burner Control System | Automatic Aux. Fuel Control
Automatic Safety Devices |
| 8. Drawing Reference | PFB-2987-C |

BY: *Walt Erbe /js*

WE:cmr

PRICES SUBJECT TO INCREASE AND DO NOT INCLUDE TAXES. SEE REVERSE SIDE
FOR TERMS AND CONDITIONS OF SALE UPON WHICH THIS PROPOSAL IS BASED

COLORITE 018933

40. One (1) prewired electric control panel box, containing the following items:

- a) annunciator system
- b) ignition transformer, Doagan
- c) combustion air blower start-stop station, Allen-Bradley
- d) waste gas start-stop station, Allen-Bradley
- e) pump start-stop station, Allen-Bradley
- f) water start-stop station, Allen-Bradley
- g) burner off-on selector switch, Allen-Bradley
- h) indicating lights as follows: (Dialco)
 - "Blower On"
 - "Purge Complete"
 - "Pilot On"
 - "Flame On"
 - "Pump On"
 - "Water On"
- i) three (3) time delay relays, Agastat
- j) control relays, Allen-Bradley
- k) flame relay, Honeywell
- l) alarm horn, Federal
- m) nameplates

DRAWINGS AND INSTRUCTIONS

See attached Form ST-1, Rev. 7.

SERVICE

Start-up service by a qualified Trane Thermal Service Technician is not included in our price. The attached Form ST-1, Rev. 7 details our Service Terms.

EMISSION GUARANTEE

<u>Component</u>	<u>Expected</u>	<u>Guaranteed</u>
VCM	less than 1 ppm	5 ppm
NO _x	125 - 150 ppm	200 ppm
CO	15 - 25 ppm	50 ppm
HCl	less than 5 ppm	10 ppm
Cl ₂	less than 1 ppm	1 ppm

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QUOTATION

TO: Tenneco Chemicals
Turner Place
P. O. Box 365
Piscataway, N. J. 08854

Attention: Mr. Paul Scheiner
Proj. Engr., Burlington Plant

REFERENCE: Incineration of VCM Vent Gas

DATE: August 29, 1977 NO.: 4079

FILE: WE

DELIVERY: 30-34 Weeks from P.O.

TERMS: Net 30 Days

PAYMENT: FOB Shipping Point

One (1) Trane Thermal Sub-X Incinerator-Scrubber System for disposal of gaseous chlorinated hydrocarbons as stated in your Specification ESR-509, dated July 26, 1977. The system proposed will be as shown schematically on Drawing No. PFB-2986-C. Included as part of the proposal is an annunciator control panel for the unit.

The system is supplied for the following operating conditions and specifications:

PROCESS CONDITIONS

- | | |
|------------------------------------|---|
| 1. Waste Stream----- | VCM - 575 lbs./hr.
Vinyl Acetate - 17 lbs./hr.
N ₂ - 912 lbs./hr.
H ₂ O - 4 lbs./hr. |
| 2. Waste Flow----- | 1508 lbs./hr. at 2 psig
(by purchaser) |
| 3. Auxiliary Fuel----- | No. 2 Fuel Oil (by purchaser) |
| 4. Fuel Flow----- | 11 GPH, Flooded Suction, Max.
(warm-up)
3 GPH Normal |
| 5. Quenching Steam----- | As required at 100 psig |
| 6. Incineration Temperature----- | 1800° - 2600°F |
| 7. Cooling-Scrubbing Solution----- | Water
150 GPM at 40 psig (total
quenching and scrubbing)
20% NaOH Solution 3 GPM |

BY:

WE:cmr

PRICES SUBJECT TO INCREASE AND DO NOT INCLUDE TAXES. SEE REVERSE SIDE
FOR TERMS AND CONDITIONS OF SALE UPON WHICH THIS PROPOSAL IS BASED.

COLORITE 018935

TRANE THERMAL COMPANY

QUOTATION NO.: 4079

SHEET NO.: 8

EMISSION GUARANTEE

<u>Component</u>	<u>Expected</u>	<u>Guaranteed</u>
VCM	less than 1 ppm	5 ppm
NO _x	125-150 ppm	200 ppm
CO	15-25 ppm	50 ppm
HCl	less than 5 ppm	10 ppm
Cl ₂	less than 1 ppm	1 ppm

PRICE

The total price for the equipment and design described above,
excluding applicable taxes, is-----\$150,940.00

The price for duplicate unit, excluding applicable taxes, is-----\$141,880.00

ALTERNATE I

Design and drawings for structural steel platforms and ladders for
both units, add-----\$ 3,000.00

ALTERNATE II

Supply structural steel platforms and ladders for one unit with
installation by purchaser, add-----\$ 18,550.00

ALTERNATE III

Caustic feed forward option for one (1) unit, add-----\$ 2,340.00

NOTE

Above prices subject to Price Adjustment Clause attached.

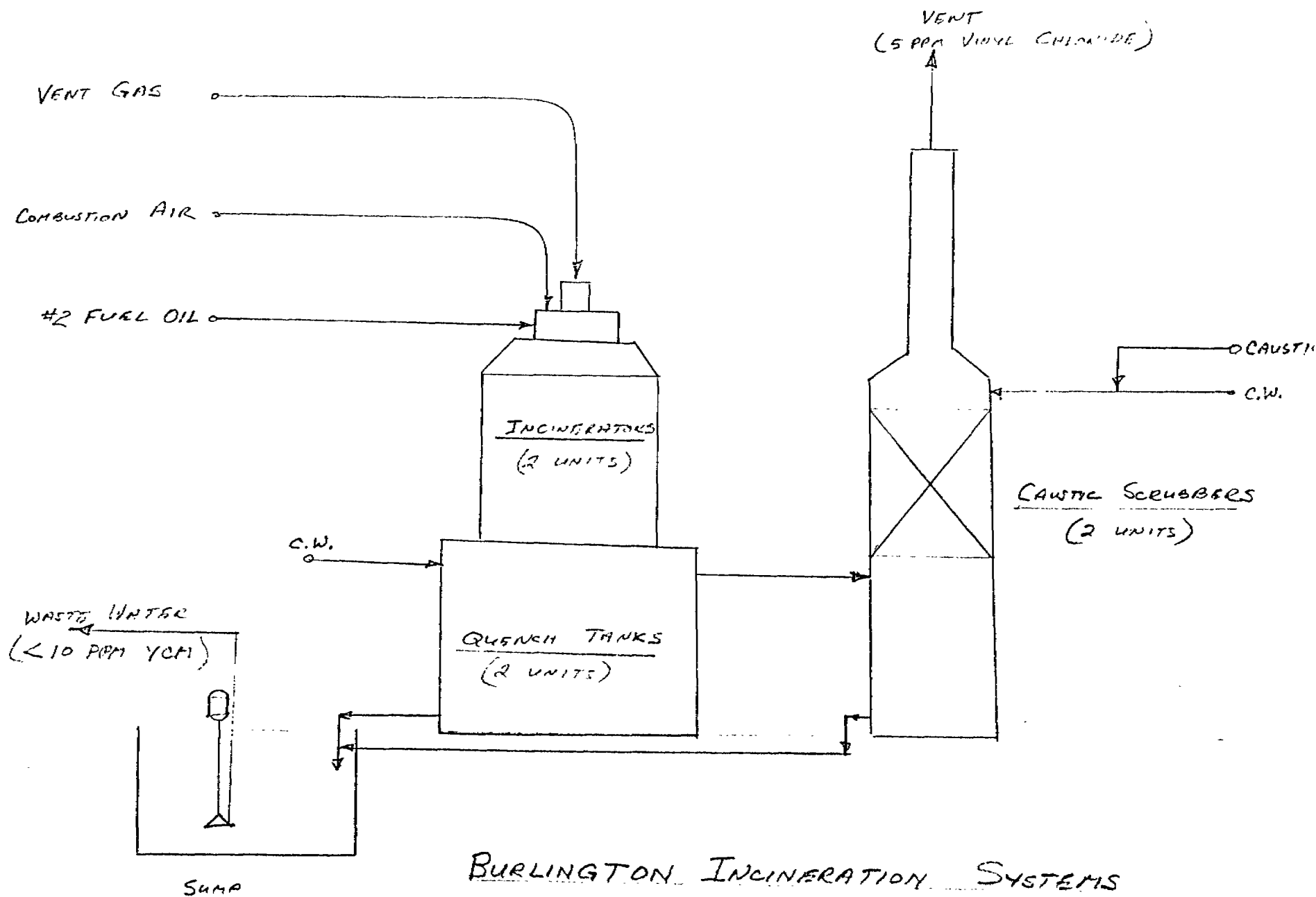
SCHEDULE FOR CANCELLATION FOR TENNECO BURLINGTON
(Calendar Days from Date of Order)

<u>Calendar Days</u>	<u>Cancellation</u>
0 - 14 days	0
14 - 30 days	3600 Max.
30 - 60 days	6500 Max. (Additional)
60 - 90 days	8000 Max. (additional) plus any cancellation charges from vendors.

Cancellation charges will be billed on actual charges accumulated but not
to exceed amounts shown above.

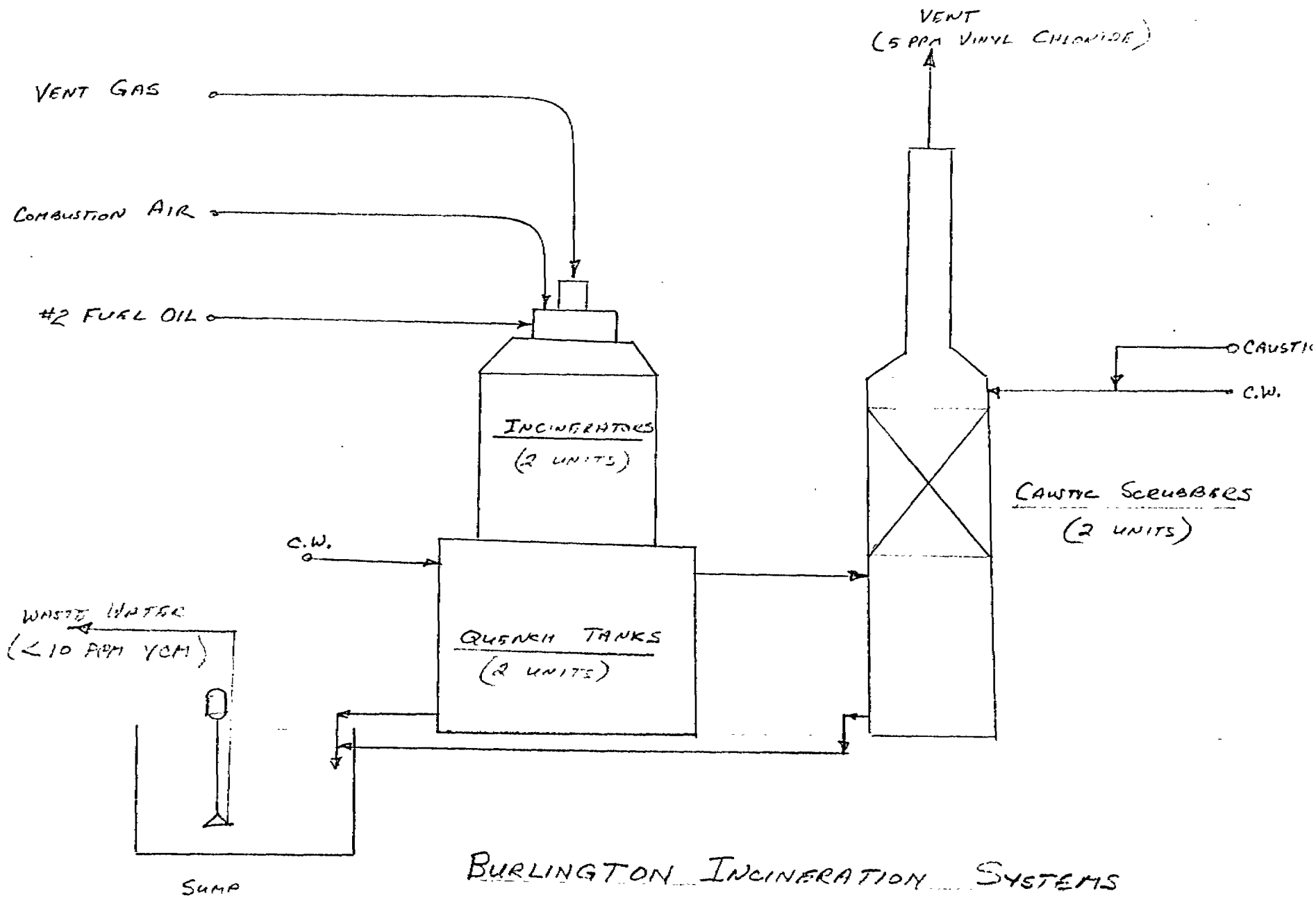
COLORITE 018936

COLORITE 018937



P.S. 1/13/78

COLORTITE 018938



P.S. 1/13/78

John,

Here are the

...

Paul

P.S. 1/10/78

VOL% MW #/hr Total

		#/hr	Mol/hr
H ₂ O	15	207	44.3
N ₂	28	4923	172.9
CO ₂	44	851	19.3
O ₂	32	364	11.4

$$\frac{22.4 \times}{60}$$

$$\rightarrow 252.4 \text{ Mol/hr}$$

$$5 \text{ ppm} = .00126 \text{ #/hr}$$

$$= 0.079 \text{ #/hr}$$

$$2 \text{ INC OR } 10 \text{ PPM (INC)} = 0.16 \text{ #/hr}$$

$$3.84 \text{ #/DAY}$$

2.5 Inc

$$575 \text{ #/hr} \times \left(\frac{1}{6} \right) \times \frac{24 \text{ hr}}{\text{DAY}}$$

$$= 3450 \text{ #/DAY}$$

@ 70°F = 1863.5 satm
10.5 ppm
1770 KPM
0.28 ppm

60 Discards

$$\frac{352.4 \text{ #/hr}}{60 \text{ min/hr}} \times 379 \text{ sec} \times \frac{600^\circ\text{C}}{540^\circ\text{C}}$$

$$= 1771 \text{ A-FM}$$

Assuming 10" ID STACK

$$\text{Ft/hr} = \frac{1771}{.775 \times 10 \text{ ft/hr}} = 3249 \text{ Ft/hr}$$

25

1/10/78

OPERATING COSTS ONE INC.

#2 F.O

100 GALLONS/DAY

$\frac{1}{112}$
\$ 14,000

CASING

2244 #/DAY (5%)

\$ 165/TON 5% = 116,000

POWER

18 KW

$\times \$.035 / KW = \$ 5,40$

B1

\$
135,000
YR

MANPOWER

1/2 MAN/SHIFT

\$
25,000
YR

\$
160,000

IMPACT ON PRODUCTIVITY

FOR

COPOLYMER EPA RECOVERY

	TYPE 315 CONTROL	STEAM @ ALL MANWAY CLEANING	PROPOSED STEAM @ H.P. CLEANING	FUTURE PROPOSED STEAM @ H.P. CLEANING AND CLOSED REACTOR
CHARGE TIME	1.0	1.0	1.0	0.6 (NO EVAC OR PRESS CHECK)
H.V. TIME	1.1	1.1	1.1	1.1
RX TIME	7.3	7.7 (REDUCE L.P.)	7.3	6.9 (INC. L.P.)
DUMP TIME	0.3	0.3	0.3	0.4
W.T. DUMP	0.6	0.6	0.6	0.5
ADDITIONAL DUMP DELAY AT STRIPPER	0	0.2	0.2	0
REACTOR RECOV.	0.2	0.6	0.6	0.1
W.T. CHARGE	0.8	0.8	0.8	0.8
MAINTENANCE	0.4	0.4	0.4	0.4
W.T. CLEAN	0.1	0.3	0.7	0.4
CLEANING (INC. AIROUT)				
(1) MANUAL	0.4 (20 Bz)	1.2 (7 Bz)	0.2 (20 Bz)	0.2 (20 Bz)
(2) High Press.	0	0	0.5 (3 Bz)	0.3 (5 Bz)
TOTAL CYCLE TIME	12.2	14.2	13.7	11.7
VEILN lbs/Bz	9950	9950	9950	9950
lbs/Reactor Hr	816	701	726	850
% CHANGE (Based ON LBS)	CONTROL	(-14.1)	(-11.0)	+4.2
lbs (8 REACTORS): DAY	156,672	134,592	139,392	163,200
(350 DAYS)-YR	54.84 M	47.11 M	48.79 M	57.12 M

NOTES: (1) NO TIME ALLOWED FOR EPA SAMPLING

(2) THE FOLLOWING TIMES WERE UTILIZED FOR COMPUTING THE TOTAL CLEANING
IMPACT: EACH AIROUT 0.5 HRS, OPEN MANWAY 0.25 HRS, CLOSE MANWAY 0.25 HRS,

COLORITE 018942