

Note: This is a reference cited in AP 42, *Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at [www.epa.gov/ttn/chief/ap42/](http://www.epa.gov/ttn/chief/ap42/)

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**DEC 28 1992**

San Joaquin Valley Unified  
Air Pollution Control District

**California Fruit Produce  
Madera, CA**

**Boiler Emissions Test  
Test Date: 12-2-92**

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San Joaquin Valley Unified  
Air Pollution Control District

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**SAN JOAQUIN COUNTY  
AIR POLLUTION CONTROL DISTRICT**

## **BEST ENVIRONMENTAL, INC.**

15890 Foothill Boulevard  
San Leandro, California 94578

**(510) 278-4011      FAX (510) 278-4018**

December 17, 1992

Canandaigua Wine Company  
P.O. Box 55  
Woodridge, CA 95258

**Attn: Mr. Vernon DeWulf**

**Subject: Boiler Emissions Testing**

**Test Date: December 2, 1992**

**Sampling Location:** Outlet of the C.E. Boiler located at California Fruit Produce's facility in Madera, CA.

**Sampling Personnel:** Guy Worthington and Mike Wiley of BEST ENVIRONMENTAL.

**Process Description:** California Fruit Produce operates a Bisceglia Bros. CE Type A #85973 boiler for steam production. At full load the boiler produces 70,000 lbs/hr steam, and can be fired on natural gas or oil. The boiler has a capacity of 67 mmBTU/hr and 2000 Hp.

**Test Program:** Boiler emissions were continuously monitored for CO, O<sub>2</sub>, CO<sub>2</sub> and NO<sub>x</sub> concentration at the stack outlet. Triplicate forty minute test runs were performed on the boiler using natural gas. Calibrations were performed before and after each run with the appropriate concentrations. Moisture determination and volumetric flowrate measurements were taken at the boiler outlet. All tests were performed with the boiler at or above 90% full load.

**Sampling Methods:** The following Source Test Methods of the California Air Resources Board (CARB) were used:

|              |                                                                                   |
|--------------|-----------------------------------------------------------------------------------|
| Method 1-100 | CO <sub>2</sub> , NO <sub>x</sub> , O <sub>2</sub> , CO, THC, Continuous Sampling |
| Method 1     | Traverse Point Determination                                                      |
| Method 2     | Volumetric Flowrate Determination                                                 |
| Method 3     | CO <sub>2</sub> and O <sub>2</sub> Determination                                  |
| Method 4     | Moisture Determination                                                            |

## **Instrumentation:**

Horiba Model PIR-2000 CO<sub>2</sub> Analyzer

Infrared Ind. Model 2200 O<sub>2</sub> Analyzer

Thermo Electron Model 10 NO<sub>x</sub> Analyzer

Horiba Model PIR-2000 CO Analyzer

Hewlett Packard Strip Chart Recorders

Inclined Manometer

Standard Pitot Tube

Omega Temperature Meter & K-type Thermocouple

TFE Tubing & Glass Condensers

**Test Results:** Table 1 presents the results of the Boiler emissions test while burning natural gas fuel. Average NO<sub>x</sub> concentration and NO<sub>x</sub> @ 3% O<sub>2</sub> were 67.6 and 86.0 ppm, respectively. Average NO<sub>x</sub> emission rate was 0.67 lbs/hr or 0.104 lbs/mmBTU. Average CO concentration and emission rate were 46.1 ppm and 2.17 lbs/hr, respectively. Average CO lbs/mmBTU was 0.071. The stack gas flowrate was 10,786 scfm.

**Comments:** Strip chart recordings, field data sheets, flowrate calculations, permit to operate documentation and calibration gas certifications are contained in the appendix to this report.

If there are any questions concerning this report, please contact Craig Thiry or myself at (510) 278-4011.

Reviewed by,



Craig Thiry  
Operations Manager

Submitted by,



Dan Cartner  
Source Test Engineer

TABLE 1  
CEMS Emissions Results  
CALIFORNIA PRODUCE, MADERA

| TEST                                             | 1         | 2         | 3         | AVERAGE |
|--------------------------------------------------|-----------|-----------|-----------|---------|
| TEST LOCATION                                    | OUTLET    | OUTLET    | OUTLET    |         |
| FUEL                                             | Nat. Gas  | Nat. Gas  | Nat. Gas  |         |
| TEST TIME                                        | 1445-1515 | 1525-1605 | 1615-1655 |         |
| TEST DATE                                        | 12-2-92   | 12-2-92   | 12-2-92   |         |
| FLOWRATE, SDCFM                                  | 10,786    | 10,786    | 10,786    | 10,786  |
| O <sub>2</sub> , %                               | 6.75      | 6.75      | 7.00      | 6.83    |
| CO <sub>2</sub> , %                              | 8.1       | 8.1       | 7.8       | 8.00    |
| H <sub>2</sub> O, %                              | 14.7      | 14.7      | 14.7      | 14.70   |
| NO <sub>x</sub> , ppm                            | 67.5      | 69.0      | 66.2      | 67.6    |
| NO <sub>x</sub> , ppm corr.<br>3% O <sub>2</sub> | 85.4      | 87.3      | 85.3      | 86.0    |
| NO <sub>x</sub> , lbs/hr                         | 5.22      | 5.34      | 5.12      | 5.23    |
| NO <sub>x</sub> , lbs/mmBTU                      | 0.103     | 0.106     | 0.103     | 0.104   |
| CO, ppm                                          | 49.5      | 47.5      | 41.4      | 46.1    |
| CO, lbs/hr                                       | 2.33      | 2.24      | 1.95      | 2.17    |
| CO, lbs/mmBTU                                    | 0.076     | 0.073     | 0.065     | 0.071   |

## WHERE,

CO = Carbon Monoxide  
 NO<sub>x</sub> = Oxides of Nitrogen  
 CO<sub>2</sub> = Carbon Monoxide  
 THC = Tot. Hydrocarbons @CH<sub>4</sub>  
 ppm = Parts Per Million Concentration  
 N.D. = Not Determined  
 lbs/hr = Pounds Per Hour Emission Rate  
 F = EPA F-factor for Natural Gas = 8710

## Calculations,

$\text{lbs/hr} = \text{ppm} \times \text{SDCFM} \times 1.56\text{e-}7 \times 10 \times \text{Mol. Wt.}$   
 $\text{lbs/mmBTU} = \text{ppm} \times F \times \text{Mol. Wt.} \times 2.59\text{e-}9 \times 20.9 / (20.9 - \%O_2)$   
 $\text{NO}_x \text{ @3\%O}_2 = \text{ppm} \times 17.9 / (20.9 - \%O_2)$

## **APPENDICES**

## **CALCULATIONS**

# BEST ENVIRONMENTAL STACK VOLUMETRIC FLOW RATE DETERMINATION

## California Fruit Products C.E. Boiler

Date: 12/2/92  
Time: 1550

|                                             |                        |
|---------------------------------------------|------------------------|
| 1. Avg. (SQRT $\Delta P$ )                  | 0.362 H <sub>2</sub> O |
| 2. Pitot Coefficient (Cp)                   | 0.99                   |
| 3. Temperature of Stack (ts)                | 550.0 °F               |
| 4. Barometric Pressure (Pb)                 | 29.45 "Hg              |
| 5. Static Pressure (Pstatic)                | -0.02 H <sub>2</sub> O |
| 6. Stack Pressure (Ps)                      | 29.45 "Hg              |
| 7. Percent of H <sub>2</sub> O in Stack (%) | 14.7 %                 |
| 8. Molecular Weight of Stack Gas (MWs)      | 27.86 lb/lb-mole       |
| A. Percent O <sub>2</sub>                   | 6.8 %                  |
| B. Percent CO <sub>2</sub>                  | 8.1 %                  |
| C. Percent CO                               | 0.0 %                  |
| 9. Area of Stack ft <sup>2</sup> (As)       | 12.048 ft <sup>2</sup> |

|                                    |              |
|------------------------------------|--------------|
| STACK GAS VELOCITY , Actual (Vs)   | 34.0 ft/sec  |
| STACK GAS VOL. FLOWRATE, (Qactual) | 24,574 ACFM  |
| STACK GAS VOL. FLOWRATE (Qstd)     | 10,786 SDCFM |

WHERE,      Vs = Velocity of the stack gas, actual (ft/sec)  
               Qstd = Volumetric flowrate at standard conditions  
               MWs = Molecular Wt. Stack Gas, wet basis  
               MWd = Molecular Wt. Stack Gas, dry basis  
               Ps = Stack pressure  
                $\Delta P$  = Differential pressure measured by the pitot  
               ACFM = Actual Cubic Feet Per Minute  
               SDCFM = Standard Dry Cubic Feet Per Minute  
               Bws = %H<sub>2</sub>O / 100

### CALCULATIONS,

$$\begin{aligned}
 MWs &= (MWd) \times (1-Bws) + 18 (Bws) \\
 MWd &= .44 (\%CO_2) + .32 (\%O_2) + .28 (\%CO + \%N_2) \\
 Ps &= Pb + (Pstatic / 13.6) \\
 Vs &= 85.49 \times Cp \times \sqrt{\Delta P} \times \sqrt{(ts + 460) / (Ps \times MWs)} \\
 Q_{actual} &= 60 \times Vs \times As \\
 Q_{std} &= 60 \times Vs \times As \times 528 / (ts + 460) \times Ps / 29.92 \times (1-Bws)
 \end{aligned}$$

**BEST ENVIRONMENTAL  
STACK MOISTURE DETERMINATION**

California Fruit Products - Madera  
C.E. Boiler

Date: 12/2/92  
Time: 1450-1520

|                                                           |        |                   |
|-----------------------------------------------------------|--------|-------------------|
| 1. Uncorrected Meter Volume (Vm)                          | 27.544 | ft <sup>3</sup>   |
| 2. Meter Factor (Yd)                                      | 0.9553 |                   |
| 3. Barometric Pressure (Pb)                               | 29.45  | "Hg               |
| 4. Meter Pressure (^H)                                    | 1.0    | "H <sub>2</sub> O |
| 5. Meter Temperature (tm)                                 | 85.0   | °F                |
| 6. Std. Temperature (tstd)                                | 68.0   | °F                |
| 7. Impinger H <sub>2</sub> O Gain (VwH <sub>2</sub> O)    | 82.0   | ml                |
| 8. Silica Gel Wt. Gain (Vwsg)                             | 10.0   | gm                |
| 9. Moisture Vapor (Vw std)                                | 4.33   | ft <sup>3</sup>   |
| Std. Meter Volume (Vm std)                                | 25.154 | ft <sup>3</sup>   |
| Percent of H <sub>2</sub> O in Stack (% H <sub>2</sub> O) | 14.7   | %                 |

**WHERE,**

ft<sup>3</sup> = Cubic Feet  
Hg = Mercury  
°F = Degrees Fahrenheit  
ml = milliliters  
gm = grams  
% = Percent

**CALCULATIONS,**

Moisture Vapor =  $0.00267 \times (VwH_2O + Vwsg) \times (460 + tstd) / 29.92$   
Std. Meter Vol. =  $Vm \times Yd \times (tstd + 460) \times (Pb + ^H/13.6) / (tm + 460) \times 29.92$   
Stack Moisture = Moisture Vapor / Moisture Vapor + Vm std



**FIELD DATA SHEETS**

## BEST ENVIRONMENTAL

CONTINUOUS MON. JR DATA SHEET

Plant Ch. Fruit products - MADRCA

Date 12/2/92

Test Location CE Boiler

Run Number 142

Operator SW. MW

### Ambient Temperature

## Barometric Pressure

## Static Pressure Duct

Fuel Nat Gas. Full Fire (Gas valve wide open).

Cyl. Numbers 114758, 83078

116776

| Time | Sample Point | Fuel Flow | Dry Uncorrected  |                   |        |                     |        |                     | 3% O <sub>2</sub> Dry |      | Hydrocarbons |                 |                     | TOC ppm | CO <sub>2</sub> ppm | VOC ppm | Comments            |
|------|--------------|-----------|------------------|-------------------|--------|---------------------|--------|---------------------|-----------------------|------|--------------|-----------------|---------------------|---------|---------------------|---------|---------------------|
|      |              |           | O <sub>2</sub> % | CO <sub>2</sub> % | CO ppm | SO <sub>2</sub> ppm | NO ppm | NO <sub>x</sub> ppm | ppm                   | ppm  | THC          | CH <sub>4</sub> | Non CH <sub>4</sub> |         |                     |         |                     |
|      |              |           |                  |                   |        |                     |        |                     |                       |      |              |                 |                     |         |                     |         |                     |
| CAL  |              |           | 5.17             | 7.96              | 25.1   | —                   | —      | —                   | 50.5                  |      |              |                 |                     |         |                     |         | CAL FRUIT PRODUCTS  |
| 2000 |              |           | 0                | 0                 | 0      |                     |        |                     | 0                     |      |              |                 |                     |         |                     |         | PHILADELPHIA BEER.  |
| 1445 |              |           | 6.75             | 8.1               | 55     |                     |        |                     | 67.5                  | 85.1 |              |                 |                     |         |                     |         | CETANE #85973       |
| 1450 |              |           | 6.75             | 8.1               | 55     |                     |        |                     | 67.5                  |      |              |                 |                     |         |                     |         | RATED 70,000 Btu/lb |
| 1455 |              |           | 6.75             | 8.1               | 57     |                     |        |                     | 67.5                  |      |              |                 |                     |         |                     |         | 67 MIN Btu Calacety |
| 1500 |              |           | 6.75             | 8.1               | 50     |                     |        |                     | 67.5                  |      |              |                 |                     |         |                     |         | 2 OPEN Burners.     |
| 1505 |              |           | 6.75             | 8.1               | 59     |                     |        |                     | 67.5                  |      |              |                 |                     |         |                     |         | 2000 HP             |
| 1510 |              |           | 6.75             | 8.1               | 60     |                     |        |                     | 67.5                  |      |              |                 |                     |         |                     |         |                     |
| CAL  |              |           | 5.2              | 8.17              | 26.7   |                     |        |                     | 49                    |      |              |                 |                     |         |                     |         |                     |
| 2000 |              |           | 0                | 0                 | 12.5   |                     |        |                     | 0                     |      |              |                 |                     |         |                     |         |                     |
| 144  |              |           | 6.75             | 8.1               | 57.3   |                     |        |                     | 67.5                  |      |              |                 |                     |         |                     |         |                     |
|      |              |           |                  |                   | 44.5   |                     |        |                     |                       |      |              |                 |                     |         |                     |         |                     |
|      |              |           |                  |                   |        |                     |        |                     |                       |      |              |                 |                     |         |                     |         |                     |
|      |              |           |                  |                   |        |                     |        |                     |                       |      |              |                 |                     |         |                     |         |                     |
|      |              |           |                  |                   |        |                     |        |                     |                       |      |              |                 |                     |         |                     |         |                     |
| CAL  |              |           | 5.17             | 7.96              | 25.1   |                     |        |                     | 50.5                  |      |              |                 |                     |         |                     |         |                     |
| 2000 |              |           | 0                | 0                 | 0      |                     |        |                     | 0                     |      |              |                 |                     |         |                     |         |                     |
| 1525 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 70                    |      |              |                 |                     |         |                     |         |                     |
| 1530 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 69.5                  |      |              |                 |                     |         |                     |         |                     |
| 1535 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 69.5                  |      |              |                 |                     |         |                     |         |                     |
| 1540 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 69.0                  |      |              |                 |                     |         |                     |         |                     |
| 1545 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 69.0                  |      |              |                 |                     |         |                     |         |                     |
| 1550 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 69.0                  |      |              |                 |                     |         |                     |         |                     |
| 1555 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 68.5                  |      |              |                 |                     |         |                     |         |                     |
| 1558 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 68.5                  |      |              |                 |                     |         |                     |         |                     |
| 1559 |              |           | 6.75             | 8.1               | 47.5   |                     |        |                     | 68.5                  |      |              |                 |                     |         |                     |         |                     |

Plant CAL FRUIT PRODUCTS - MADDERA

Date 12/2/92

Test Location CE BOLLER

Run Number

Operator GW, MW

### Ambient Temperature

Barometric Pressure 29.52

## Static Pressure Duct

Fuel Nat Gas.

Number

[illegible]

[illegible]

# BEST ENVIRONMENTAL Particulate Field Data Sheet

Run # 1 Method # 4

Plant Manduca ONE — H<sub>2</sub>O Assum. 15% Filter # NA F.H. Wt. (mg) —  
 Date 12/2/92 Meter Yd 0.955 Pitot Cp NA Pitot # NA S.H. Wt. (mg) —  
 Location outlet PBar. 29.45 Noz. Diam. NA Net Imp Vol 87 G.H. Wt. (mg) 10.0  
 Port Dim. 4.5 Stat Press -0.02 Noz. I.D. NA Tot Imp Vol 2.2 XCO<sub>2</sub> Actual 6.5  
 Stack I.D. 4.7 XCO<sub>2</sub> Assum 7 Meter # R-1750935 Sample Time 30M XCO<sub>2</sub> Actual 8.1  
 Stack Area 12.048 ft<sup>2</sup> XCO<sub>2</sub> Assum 12 Probe # NA Sort AP Ave NA Tot. Moisture 4.852  
 Personnel HW Pre leak ck 0.015 cfm 10" Hg Post leak ck 0.012 cfm 7" Hg Std Vm 24.767

4.0 = 14.8%

| Sample Point | Clock Time | Vel. ΔP | M.R. cfm | Drif. ΔH | Gas Meter Volume ft <sup>3</sup> | Gas Meter |       | Temperatures F |      |        |       | Pump Vac. | Comments |
|--------------|------------|---------|----------|----------|----------------------------------|-----------|-------|----------------|------|--------|-------|-----------|----------|
|              |            |         |          |          |                                  | In        | Out   | Stack          | Imp. | Filter | Probe |           |          |
| 1            | 1450       | —       | 0.90     | —        | 846.888                          | 75        | 78    | 554            | 40   | —      | —     | 5         | 178 10   |
| 2            | 1455       | —       | 0.90     | —        | 852.18                           | 87        | 79    | 555            | —    | —      | —     | 5         | 184 2    |
| 3            | 1500       | —       | 0.90     | —        | 856.92                           | 91        | 81    | 552            | —    | —      | —     | 3         | 282 w    |
| 4            | 1505       | —       | 0.84     | —        | 861.46                           | 92        | 82    | 550            | —    | —      | —     | 4         |          |
| 5            | 1510       | —       | 0.84     | —        | 865.91                           | 79        | 83    | 550            | —    | —      | —     | 4         |          |
| 6            | 1515       | —       | 0.85     | —        | 870.17                           | 94        | 85    | 548            | —    | —      | —     | 3         |          |
| 7            | 1520       | —       | 0.85     | —        | 874.432                          | 94        | 87    | 549            | —    | —      | —     |           |          |
| 8            | End        |         |          |          |                                  |           |       |                |      |        |       |           |          |
|              |            |         |          |          | (27.914)                         | (65)      | (551) |                |      |        |       |           |          |
| 10           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 11           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 12           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 13           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 14           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 15           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 16           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 17           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 18           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 19           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 20           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 21           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 22           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 23           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 24           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 25           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 26           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 27           |            |         |          |          |                                  |           |       |                |      |        |       |           |          |
| 28           | Average    |         |          |          |                                  |           |       |                |      |        |       |           |          |

Notes:

Ms =  
 Vs =  
 Sample I.D. # =

Final Imp Vol =  
 Initial Imp Vol =

# BEST ENVIRONMENTAL Particulate Field Data Sheet

Run # 1 Method # 4

Plant Machery OME — XH2O Assum. 15% Filter # NA F.H. Wt. (mg) —  
 Date 12/2/92 Meter Yd 0.955 Pitot Cp NA Pitot # NA B.H. Wt. (mg) —  
 Location outlet PBar. 29.45 Noz. Diam. NA Net Imp Vol 87 Calc. Wt. (mg) 10.0  
 Port Dim. 4.5 Stat Press -0.02 Noz. I.D. NA Tot Imp Vol 2.2 xCO2 Actual 6.5  
 Stack I.D. 47 X02 Assum 7 Meter # R-1950 Sample Time 30M xCO2 Actual 8.1  
 Stack Area 12.048 ft2 X002 Assum 10 Probe # NA Sqrt AP Ave NA Tot. Moisture 4.892  
 Personnel HW Pre leak ck 0.015 cfm 10 "Hg Post leak ck 0.012 cfm 7 "Hg Std Vm 24.767

H<sub>2</sub>O = 14.8%

| Sample Point | Clock Time | Vel. AP | H.R. cfm | Drif. AM | Gas Meter Volume ft2 | Gas Meter |       | Temperatures F |      |        |       | Pump Vac. | Comments |
|--------------|------------|---------|----------|----------|----------------------|-----------|-------|----------------|------|--------|-------|-----------|----------|
|              |            |         |          |          |                      | In        | Out   | Stack          | Imp. | Filter | Probe |           |          |
| 1            | 1450       | —       | 0.96     | —        | 846.888              | 85        | 88    | 554            | 40   | —      | —     | 5         | 178 15   |
| 2            | 1500       | —       | 0.96     | —        | 852.18               | 87        | 89    | 555            | —    | —      | —     | 5         | 184 2    |
| 3            | 1500       | —       | 0.96     | —        | 856.92               | 91        | 81    | 552            | —    | —      | —     | 3         | 282 m    |
| 4            | 1505       | —       | 0.94     | —        | 861.46               | 92        | 82    | 550            | —    | —      | —     | 4         |          |
| 5            | 1510       | —       | 0.89     | —        | 865.91               | 93        | 83    | 550            | —    | —      | —     | 4         |          |
| 6            | 1515       | —       | 0.85     | —        | 870.17               | 94        | 85    | 548            | —    | —      | —     | 5         |          |
| 7            | 1520       | —       | 0.85     | —        | 874.432              | 94        | 85    | 549            | —    | —      | —     |           |          |
| 8            | End        |         |          |          |                      |           |       |                |      |        |       |           |          |
|              |            |         |          |          | (27.844)             | (95)      | (551) |                |      |        |       |           |          |
| 11           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 12           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 13           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 14           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 15           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 16           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 17           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 18           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 19           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 20           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 21           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 22           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 23           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 24           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 25           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 26           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 27           |            |         |          |          |                      |           |       |                |      |        |       |           |          |
| 28           | Average    |         |          |          |                      |           |       |                |      |        |       |           |          |

Notes:

As =  
 P =, Vs =  
 le I.D. =

01 02

Final Imp Vol =  
 Initial Imp Vol =

## **STRIP CHART RECORDS**

1445

1420

6"/hr

CO<sub>2</sub>

CO<sub>2</sub> 7.96/15  
O<sub>2</sub> 5.17/25

CO<sub>2</sub>

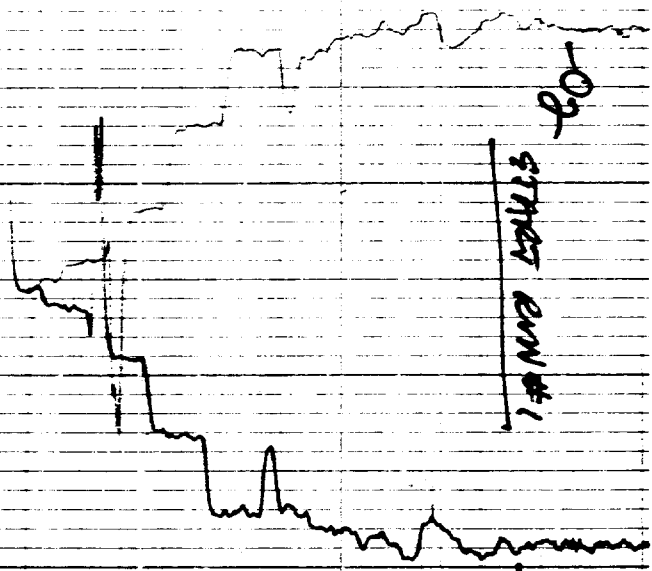
CO<sub>2</sub> 7.96%

12/2/92

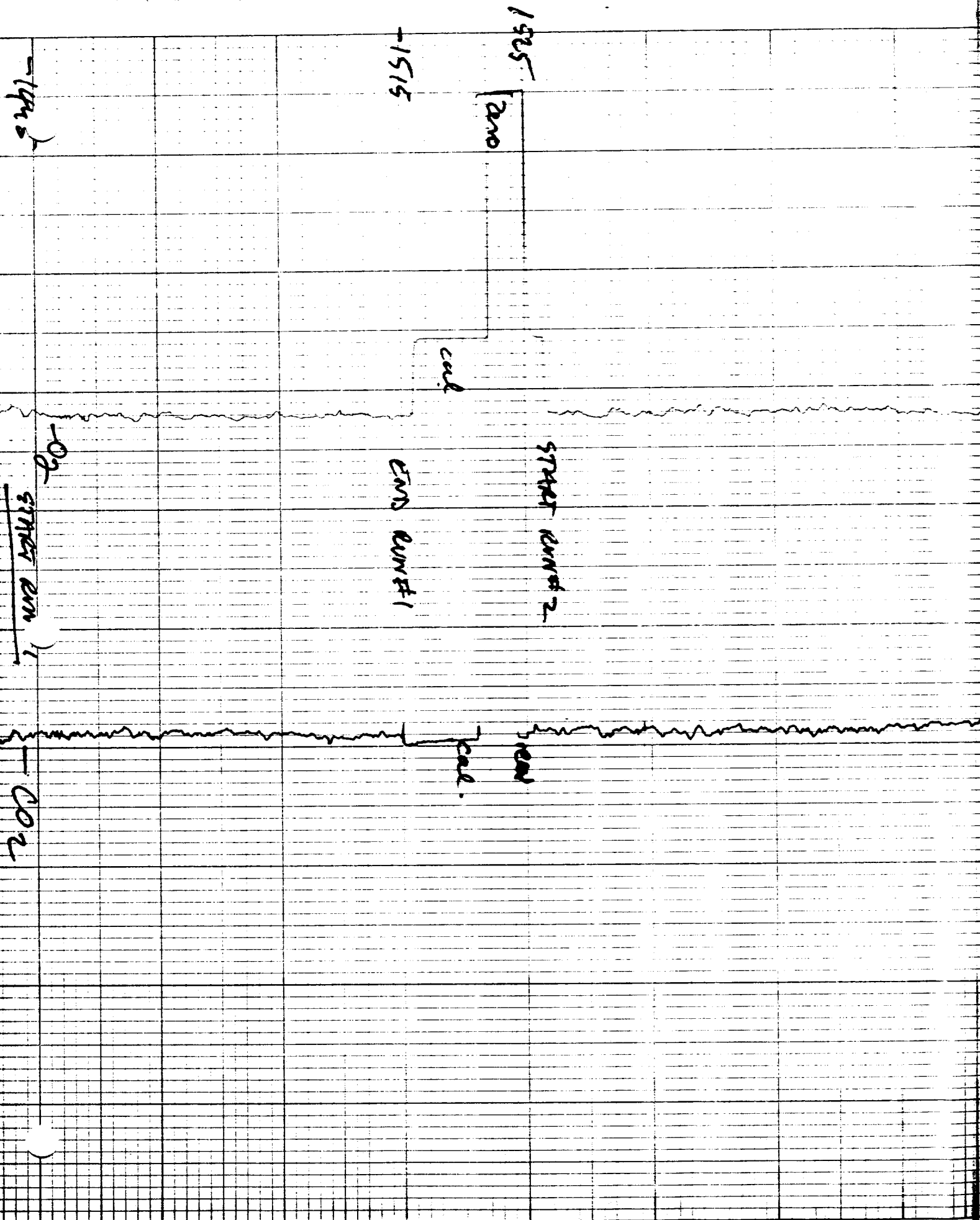
CAL FEUW PRODUCTS  
MADDEA  
CHANDAYGAH NINE CO.

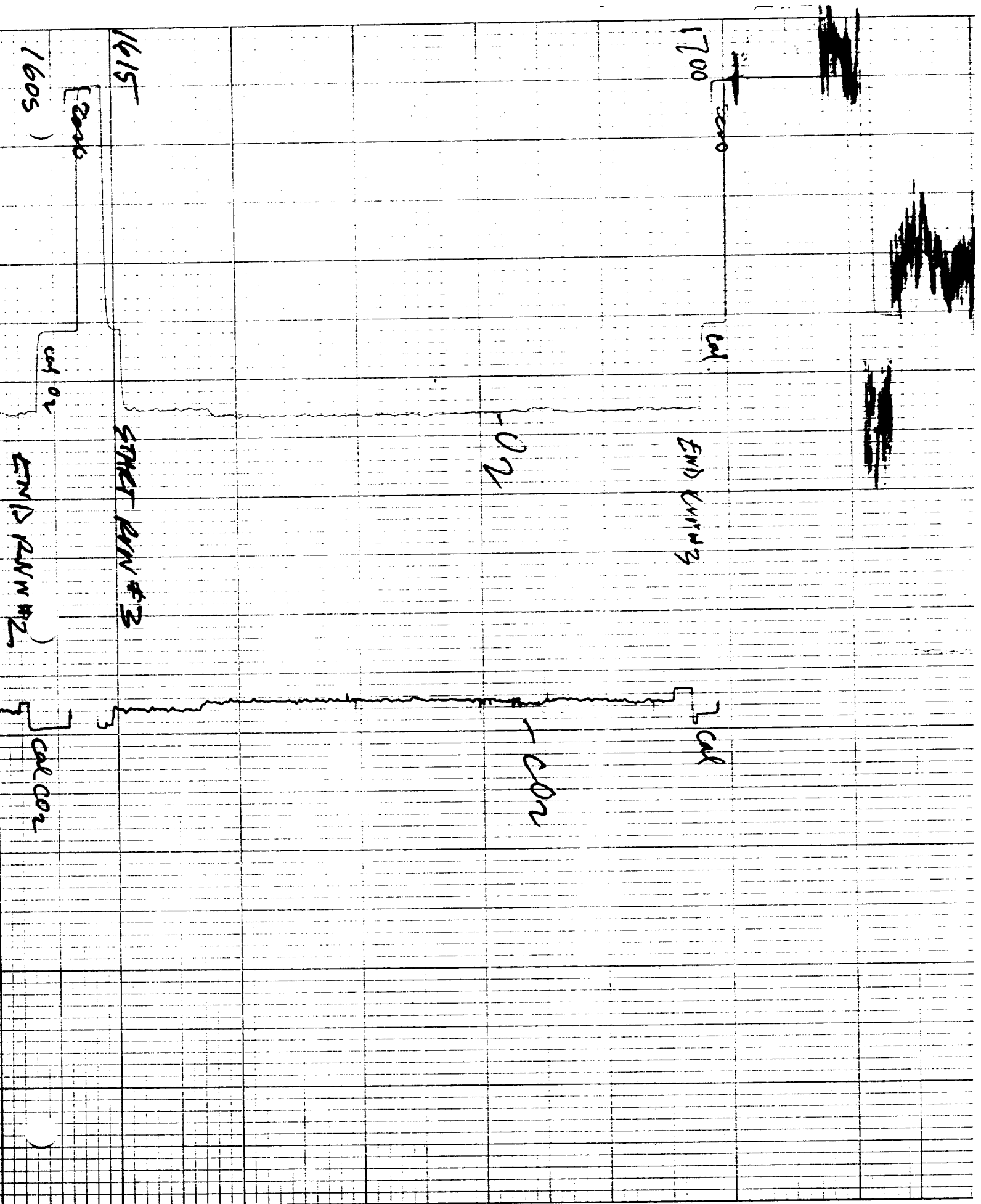
O<sub>2</sub>  
STRET ENV#1

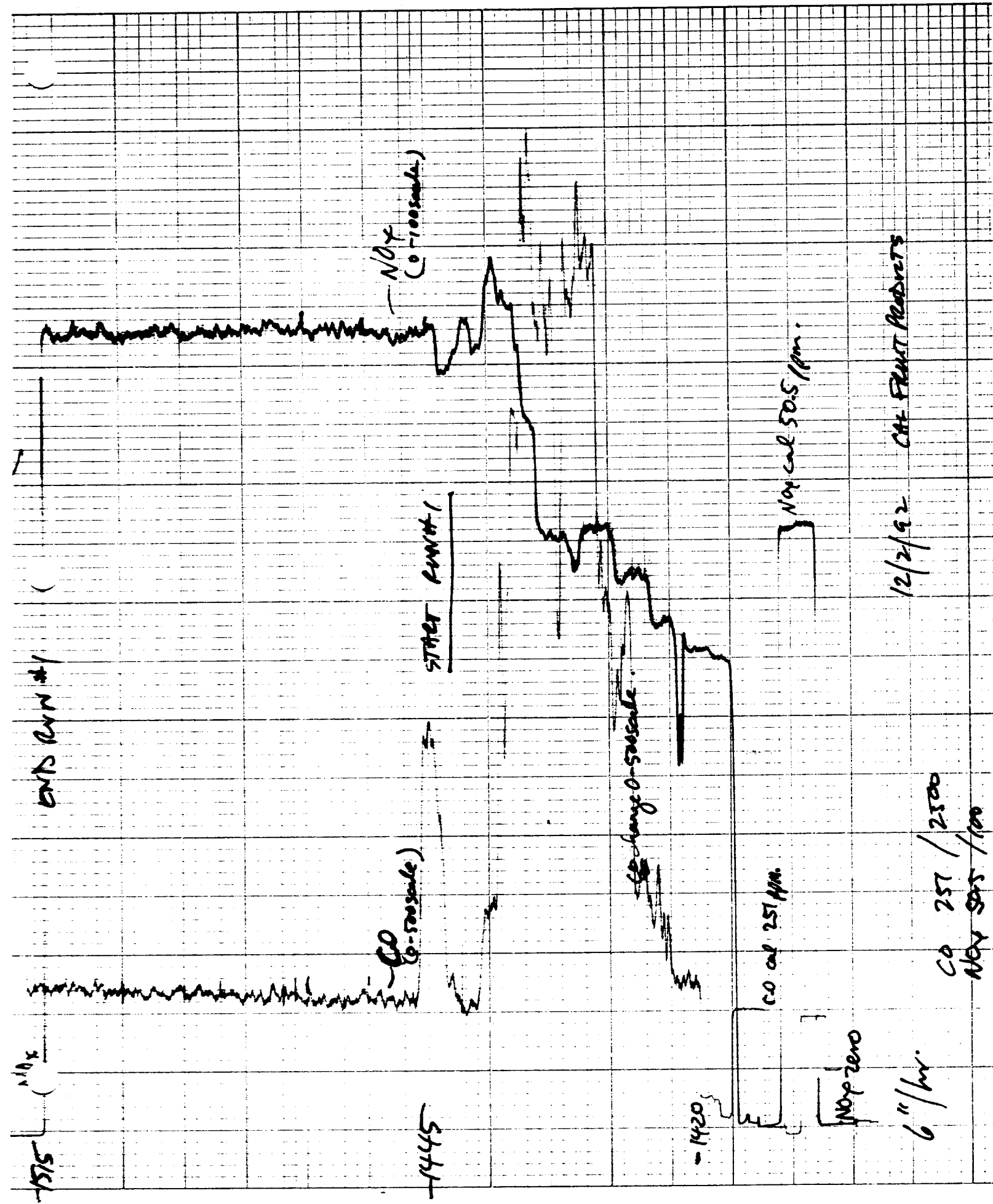
CO<sub>2</sub>

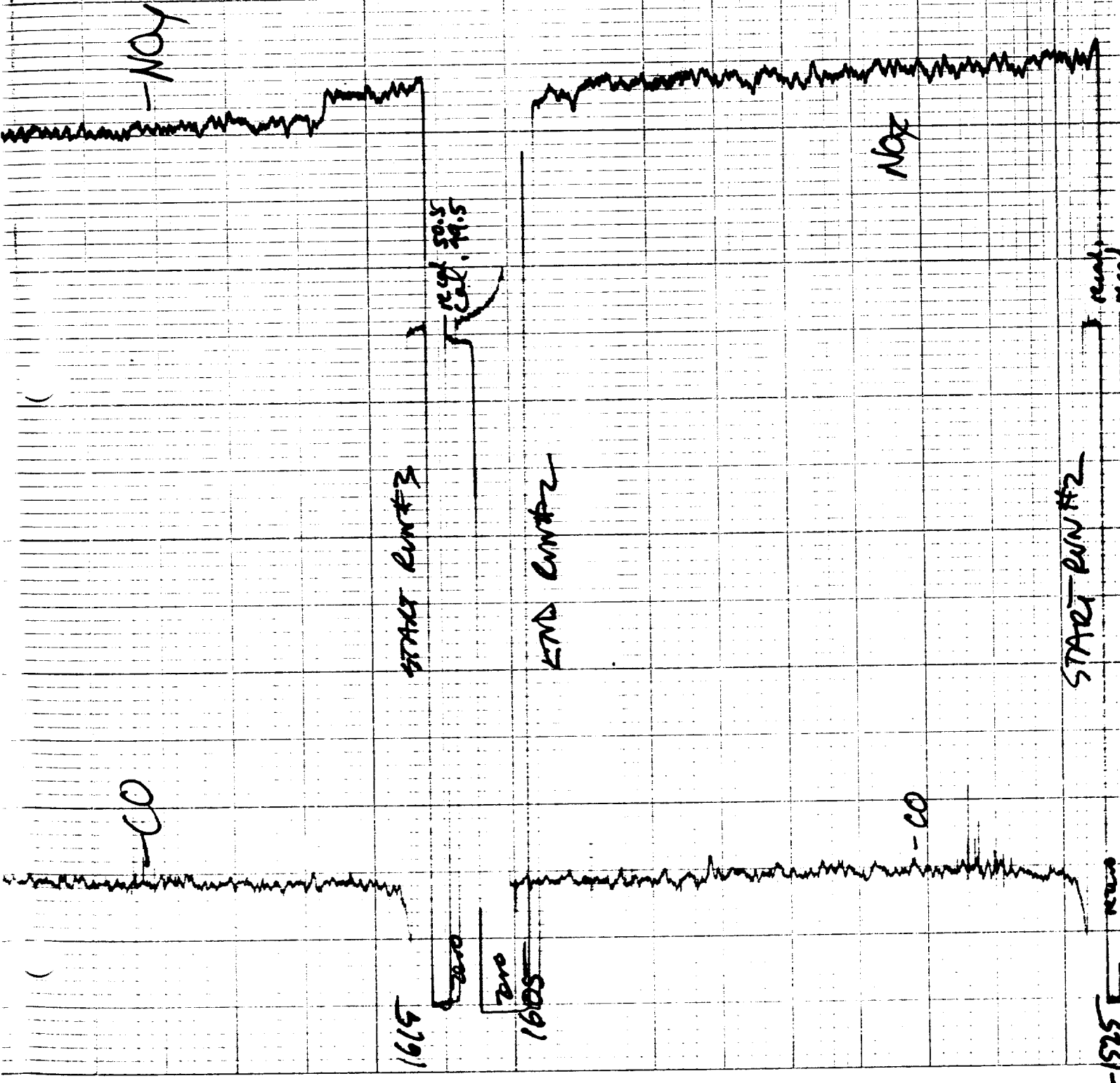














**CALIBRATION GAS CERTIFICATES**

REPORT OF ANALYSIS  
NIST TRACEABLE GAS MIXTURES

**BEST01**

**TO:**

DATE: 07/23/92

REGAN BEST  
BEST ENVIRONMENTAL  
15890 FOOTHILL BLVD.  
SAN LEANDRO, CA 94578-2101

**CUSTOMER ORDER NUMBER: 8451**

**PAGE 1**

XXXXXXXXXXXXX

| CYLINDER NUMBER | COMPONENT       | CONCENTRATION (v/v) | NIST TRACEABLE<br>REFERENCE STANDARD |
|-----------------|-----------------|---------------------|--------------------------------------|
| CC114758        | Oxygen          | 5.17 ± 0.05 %       | SRM 2658a                            |
|                 | Carbon Dioxide  | 7.96 ± 0.08 %       | SRM 1674b                            |
|                 | Carbon Monoxide | 251.0 ± 2.5 ppm     | SRM 2636                             |
|                 | Nitrogen        | Balance             |                                      |

$$\text{ppm} = \text{umole/mole}$$

$\xi$  = mole-%

The above analyses are traceable to the National Institute of Standards and Technology by intercomparison with the reference standards listed above. Where indicated, volumetric and gravimetric reference standards are traceable thru use of our analytical balance. NIST Report No. MMAP 232.09/207491.

**Analyst:**

Mark Monson  
M.J. Monson

**Approved:**

*J.T. Marrin*  
-----  
J.T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

## STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS



**REPORT OF ANALYSIS**  
**NIST TRACEABLE GAS MIXTURES**

**PAGE 1**

SRM 1683b

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS



**PERMIT TO OPERATE**

MADERA COUNTY AIR POLLUTION CONTROL DISTRICT  
135 W. Yosemite, Madera, California 93637 Telephone: 675-7823

# PERMIT TO OPERATE

Date: 02/28/92

**A PERMIT TO OPERATE**

IS HEREBY GRANTED TO: Biscaglia Brothers Wine Company  
25427 Avenue 13  
Madera, CA 93637

FOR EQUIPMENT LOCATED AT: Same

RECEIVED MAR03 '92

**DESCRIPTION:**

One Combustion Engineering Type A #85973 Steam Boiler with a rated capacity of 70,000 pounds/hr. of steam. The boiler is equipped with two (2) Coen burners model #s DAZ-32 and 1033, capable of firing either natural gas or #2 or #6 fuel oil. Fuel oil, as standby fuel, to be stored using one (1) 20,000 gallon capacity storage tank.

$47 \times 10^6$  BTU/hr. capacity rating.

**CONDITIONS:** The permittee may be required to provide adequate sampling and testing facilities. This permit does not authorize the emission of air contaminants in excess of those allowed by the Rules and Regulations of the Madera County Air Pollution Control District.

1. Fuel oil consumption shall not exceed 7,200 gal./day and the fuel sulfur content shall not exceed 0.68% for the #2 fuel oil and 0.79% for #6 fuel oil by weight.
2. Seasonal source: usage not to exceed the equivalent of 108 days/year at full capacity and at 24 hours/day.
3. Each year submit to Madera County APCD the fuel oil consumption in gallons and natural gas consumption in cubic feet or therms.

NUMBER 2084-04-0101

FOR PERIOD 01/01/92 TO 01/01/93

PERMIT TO OPERATE

THIS PERMIT BECOMES VOID UPON ANY  
CHANGE OF OWNERSHIP OR ADDRESS, OR  
ANY ALTERATION OR MODIFICATION.

BY: W. Stark

MADERA COUNTY AIR POLLUTION CONTROL DISTRICT

135 W. Yosemite, Madera, California 93637 Telephone: 675-7823

**AUTHORITY TO CONSTRUCT**

Date: 03/16/92

AN AUTHORITY TO CONSTRUCT  
IS HEREBY GRANTED TO:

Bisceglia Brothers Wine Company  
25427 Avenue 13  
Madera, CA 93637

FOR EQUIPMENT LOCATED AT:

Same

DESCRIPTION: Retro fit the existing Combustion Engineering Water tube boiler with a new Low NOx burner capable of meeting 30 ppm<sub>v</sub> or lower NOx (NO<sub>2</sub>) emissions when firing natural gas or propane fuels. The system will also incorporate a Flue Gas Recirculation (F.G.R) using 10-15% recirculation capacity. The new burner will either be a Coen, Todd, or CSI Low NOx burner.

Rating: 67 x 10<sup>6</sup> BTU/hr.

**CONDITIONS:**

1. The maximum Btu rating of the replacement burners shall not exceed that of the existing burners.
2. Build and install the proposed equipment as per manufacturer's specifications.
3. Data for the selected burner to meet the 30 ppm<sub>v</sub> NOx and the FGR systems shall be submitted to the Madera Zone at least 30 days prior to installations, for review and approval.
4. A source test shall be conducted to establish the emission levels for NOx (NO<sub>2</sub>), H.C. and CO. The results of the approved tests will be used to determine the Emission Credits Reduction.
5. A pre test plan for all tests methods for NOx, H.C., and CO shall be submitted to the Madera Zone for approval. A 30 day advance notice is required for all tests methods.
6. Results of the tests shall be submitted within 30 days from the source test dates.

Number 2084-04-0101

FOR PERIOD 03/13/92 TO 03/13/94

**AUTHORITY TO CONSTRUCT**

This is NOT a permit to operate.  
When construction is complete,  
notify the Madera County Air  
Pollution Control District, 135  
Yosemite, Madera, CA 93637

BY: W. Sturk

Revised 5-1-81

# PERMIT TO OPERATE

Date: 02/28/92

A PERMIT TO OPERATE  
IS HEREBY GRANTED TO: Bisceglia Brothers Wine Company  
25427 Avenue 13  
Madera, CA 93637

FOR EQUIPMENT LOCATED AT: Same

## DESCRIPTION:

One Combustion Engineering Type A #85973 Steam Boiler with a rated capacity of 70,000 pounds/hr. of steam. The boiler is equipped with two (2) Coen burners model #s DAZ-32 and 1033, capable of firing either natural gas or #2 or #6 fuel oil. Fuel oil, as standby fuel, to be stored using one (1) 20,000 gallon capacity storage tank.

67 x 10<sup>6</sup> BTU/hr. capacity rating.

CONDITIONS: The permittee may be required to provide adequate sampling and testing facilities. This permit does not authorize the emission of air contaminants in excess of those allowed by the Rules and Regulations of the Madera County Air Pollution Control District.

1. Fuel oil consumption shall not exceed 7,200 gal./day and the fuel sulfur content shall not exceed 0.68% for the #2 fuel oil and 0.79% for #6 fuel oil by weight.
2. Seasonal source: usage not to exceed the equivalent of 108 days/year at full capacity and at 24 hours/day.
3. Each year submit to Madera County APCD the fuel oil consumption in gallons and natural gas consumption in cubic feet or therms.

NUMBER 2084-04-0101

FOR PERIOD 01/01/92 TO 01/01/93

PERMIT TO OPERATE

THIS PERMIT BECOMES VOID UPON ANY  
CHANGE OF OWNERSHIP OR ADDRESS, OR  
ANY ALTERATION OR MODIFICATION.

BY: W. Stank