Table "C"

PROCEDURES FOR DETERMINING EMISSIONS FROM REFINERY SOURCES IDENTIFIED IN TABLE "A"

1. General

Described herein are the procedures to be used for calculating refinery emissions. These procedures, including reference to emission factors, continuous emission monitoring data, and fuel usage rates, are consistent with those used by the District in its evaluation of Tosco's Permit Application No. 27769.

Calculated emissions shall be reported in units of short tons (2000 lbs avoirdupois) rounded to three (3) significant figures.

2. SO2 Emissions

Fired Furnaces and Boilers

The total quantity of fuel gas (expressed in billions of BTU's) burned in the combined Group A, B, C, D, E, and I furnaces and boilers during each month shall be multiplied by an emission factor of 19(H2S/125) lbs. of SO2 per billion BTU, where H2S is the monthly average of daily measurements of ppm H2S in the fuel gas. When applicable , the total, quantity of fuel oil burned (expressed in billions of BTUs) shall be multiplied by an emission factor of 410(S/0.39) lbs SO2 per billion BTU, where S is the weight per cent sulfur in the fuel oil.

FCCU-COB, Coker-COB, and No. 6 Boiler

Emissions shall be measured by in-stack monitors

Sulfur Plant and Sulfuric Acid Plant

Emissions shall be measured by in-stack monitors.

(d) Flare System

During periods when the entire sulfur removal capability of the sulfur recovery facility is not operating or when the sulfur plant is shut down and the acid plant is operating, the volume of vent gas (expressed in millions of SCF) burned at the flare each day shall be multiplied by an emission factor of 1700(S) lbs SO2 per million SCF, where S is the average percent by volume of H2S in the flare gas.

3. NOx Emissions

(a) Fired Furnaces and Boilers

(i) Records. Separate fuel monitoring records shall be maintained for the following groups of furnaces and boilers:

Group A (controlled with SCR)

Group B (controlled with low NOx burners)

Group C (controlled with oxygen analyzers)

Group D (controlled with oxygen analyzers)

Group E (uncontrolled)

Group I (uncontrolled)

(ii) Emission factors. For each furnace/boiler group, the total quantity of fuel gas (expressed in billions of BTU's) burned during each month shall be multiplied by the following fuel gas emission factor for that group:

Group A	50 lbs NOx per billion BTU
Group B	90 lbs NOx per billion BTU
Group C	160 lbs NOx per billion BTU
Group D	160 lbs NOx per billion BTU
Group E	200 lbs NOx per billion BTU
Group I	200 lbs NOx per billion BTU

When applicable, the quantity of fuel oil burned (expressed in billions of BTU's) shall be multiplied by an emission factor which is 1.6 times greater than the appropriate fuel gas emission factor.

(iii) Adjustment of Group A emission factor: If Tosco can demonstrate to the satisfaction of the APCO that the NOx concentration from any Group A furnace is less than 40 ppm, then the emission factor identified in 3(a)(ii) may be adjusted.

(iv) Adjustment of Group B emission factor: If Tosco can demonstrate to the satisfaction of the APCO that the NOx concentration from any Group B furnace is less than 75 ppm, then the emission factor identified in 3(a)(ii) may be adjusted.

(v) Adjustment of Group D emission factor: If, after installing control equipment other than oxygen analyzers with feedback systems on one or more furnaces in Group D, Tosco can demonstrate to the satisfaction of the APCO that aggregate average NOx emissions from the combined Group D furnaces are less than 160 lbs per billion BTU, then the emission factor identified in 3(a) (ii) may be adjusted.

FCC-COB, Coker-COB, and No. 6 Boiler

Emissions shall be measured by in-stack monitors.

Gas Fired Engines

The total quantity of fuel gas (expressed in billions of BTU's) burned in the gas fired engines at No. 1 Gas Plant and No. 4 Gas Plant during each month shall be multiplied by an emission factor of 2,400 lbs. NOx per billion BTU.

Gas Fired Turbine

The total quantity of fuel gas (expressed in billions of BTU's) burned in the gas turbine during each month shall be multiplied by an emission factor of 190 lbs NO_x per billion BTU.

4. Particulate Emissions

Fired Furnaces and Boilers

The total quantity of fuel gas (expressed in billions of BTU's) burned in the combined Group A, B, C, D, E, and I furnaces and boilers during each month shall be multiplied by an emission factor of 10 lbs. particulates per billion BTU. When applicable, the total quantity of fuel oil burned (expressed in billions of BTU's) shall be multiplied by an emission factor of 47 lbs. particulates per billion BTU.

(b) FCCU-COB, Coker-COB, and No. 6 Boiler

Particulate emissions from these units shall be calculated using a formula of the general type shown below:

$$P = aX + bY + cZ$$

The terms in this formula have the following meaning:

- P is the calculated particulate emissions in lbs.
- a, b, and c are average emission factors, which may be different for each unit, and are computed from source test data as described below.

- X, Y, and Z are unit operating parameters, which may be different for each unit. (Examples of possible operating parameters are unit feed rate MBBL/D; input air rate, MMSCF/D; fuel gas burned, billion BTU/D; fuel oil burned, billion BTU/D; coke burned, billion BTU/D; etc.)

Within twelve (12) months following startup of the No. 3 HDS Unit, an independent contractor mutually selected by Tosco and the District shall conduct 12 source tests at the FCCU-CO Boiler and 24 source tests at the Coker-CO Boiler. Before startup of the No. 3 HDS Unit, the contractor shall conduct 12 tests at the No. 6 boiler. The time of each source test shall be selected by the contractor, provided, however, that the selection of source tests at each Unit covers the full range of operating parameters at that Unit. The methodology for conducting such source tests shall be subject to approval of the APCO. The emission factors (a, b, and c) and operating parameters (X, Y, and Z) to be used in the particulate emissions formula shall be determined using the above-described source test data, and a regression analysis of such data or other equivalent analysis, as performed by the contractor. The correlations derived by means of this analysis shall be subject to approval of the APCO. Except as provided below, the emission factors and operating parameters so determined shall be the basis for establishing compliance with the emission limits for particulates set forth in Section 2 of these permit conditions.

After the initial test program, an independent contractor will conduct 12 tests (one each month) at these three Units every other year. The contractor shall select days to insure a coverage of the full range of operating conditions. These 36 data sets, adjusted to reflect average conditions over each month, will be used to provide a second test for compliance with the annual particulates limit, and based on these data, the APCO may revise the emission factors used to calculate particulate emissions from these units.

During the first year of operation under the terms of these permit conditions, and until the initial source test program is completed for the FCCU-COB and the Coker-COB, the following emission factors and unit operating parameters shall be used to calculate particulate emissions to check compliance with the particulate emission limitations set forth in Sections 2.B and 2.C, unless Tosco can demonstrate to the satisfaction of the APCO, by means of additional source test data obtained prior to the startup of the No. 3 HDS Unit, that other emission factors and operating parameters provide a more accurate estimate of particulate emissions.

FCCU-CO Boiler

X = Fuel gas burned in billion BTU
Y = Fuel oil burned in billion BTU
Z = Fresh feed rate in MBBL
a = 10 lbs particulate per billion BTU
b = 47 lbs particulate per billion BTU
c = 12.4 lbs particulate per MBBL fresh feed

Coker-CO Boiler

X = Fuel gas burned in billion BTU
Y = Fuel oil burned in billion BTU
Z = Coker fresh feed rate in MBBL
a = 10 lbs particulate per billion BTU
b = 47 lbs particulate per billion BTU
c = 21.4 lbs. particulate per MBBL fresh feed

The equations derived from the initial source testing program shall be the basis for determining compliance with the annual emission limit in Section 2.A at the end of the first year. The baseline particulate emissions for the FCCU-COB, for purposes of permitting new projects shall be 87.6 tons per year (20 pounds per hour, on a yearly basis).

Gas Fired Engines

The total quantity of fuel gas (expressed in billions of BTU's) burned in the gas fired engines at No. 1 Gas Plant and No. 4 Gas Plant during each month shall be multiplied by an emission factor of 10 lbs. particulates per billion BTU.

Gas Fired Turbine

The total quantity of fuel gas (expressed in billions of BTU's) burned in the gas turbine during each month shall be multiplied by an emission factor of 10 lbs. particulates per billion BTU.

5. Nonmethane Hydrocarbon Emissions

Fired Furnaces and Boilers

The total quantity of fuel gas (expressed in billions of BTU's) burned in the combined Group A, B, C, D, E, and I furnaces and boilers during each month shall be multiplied by an emission factor of 3 lbs hydrocarbons per billion BTU. When applicable, the total quantity of fuel oil burned (expressed in billions of BTU's) shall be multiplied by an emission factor of 7 lbs hydrocarbon per billion BTU.

FCCU-COB, Coker-COB, and No. 6 Boiler

The total quantity of fuel gas and fuel oil (each fuel total being measured separately and expressed in billions of BTU's) burned in the combined Group H units during each month shall be multiplied by the following emission factor:

Fuel Gas	3 lbs hydrocarbon per billion BTU
Fuel Oil	7 lbs hydrocarbon per billion BTU

Gas Fired Engines

The total quantity of fuel gas (expressed in billions of BTU's) burned in the gas fired engines at No. 1 Gas Plant and No. 4 Gas Plant during each month shall be multiplied by an emission factor of 130 lbs. non-methane hydrocarbons per billion BTU.

Gas Fired Turbine

The total quantity of fuel gas (expressed in billions of BTU's) burned in the gas turbine during each month shall be multiplied by an emission factor of 2 lbs. non-methane hydrocarbons per billion BTU.

6. Carbon Monoxide Emissions

Fired Furnaces and Boilers

The total quantity of fuel gas (expressed in billions of BTU's) burned in the combined Group A, B, C, D, E, and I furnaces and boilers during each month shall be muliplied by an emission factor of 17 lbs carbon monoxide per billion BTU. When applicable, the total quantity of fuel oil burned (expressed in billions of BTU's) shall be multiplied by an emission factor of 34 lbs carbon monoxide per billion BTU.

FCCU-COB, Coker-COB, and No. 6 Boiler

The total quantity of fuel gas, fuel oil, and coke (each fuel total being measured separately and expressed in billions of BTU's) burned in the combined Group H units during each month shall be multiplied by the following emission factor:

Fuel Gas	17 lbs carbon monoxide per billion BTU
Fuel Oil	34 lbs carbon monoxide per billion BTU
Coke	34 lbs carbon monoxide per billion BTU

Gas Fired En nes

The total quantity of fuel gas (expressed in billions of BTU's) burned in the gas fired engines at No. 1 Gas Plant and No. 4 Gas Plant during each month shall be multiplied by an emission of 310 lbs. carbon monoxide per billion BTU.

Gas Fired Turbine

The total quantity of fuel gas (expressed in billions of BTU's) burned in the gas turbine during each month shall be multiplied by an emission factor of 71 lbs carbon monoxide per billion BTU.