9.1. INFRASTRUCTURE--OPERATING COSTS

9.1.3. LOADING FACILITIES

9.1.3.1. LOAD-OUT FACILITIES

The load-out operating costs represented are only applicable for concentrates stored using a conveyor, bucket elevator, and elevated storage bin system. The storage bins are capable of holding a 2-day supply of mill concentrate output, and are emptied every other day into 45 mt trucks or 90 mt railcars for delivery to the smelter. An example of the type of materials stored would be copper or molybdenum concentrates.

The total cost is the sum of the three separate cost curves (labor, supplies, and equipment operation) having on a production rate (X), in metric tons of concentrate transferred from a mill to storage bins in a 24 h period. The curves are valid for operations between 150 and 1,500 mtpd, operating one shift per day.

BASE CURVES

(L) Labor Operating Costs $(Y_L) = 71.565(X)^{0.145}$
The operating labor costs are distributed as follows:

Direct labor.....	84%
Maintenance labor.....	16%

The direct labor costs consist of the following typical range of personnel:

		Av salary per hour (base rate)
Mechanic.....	42.9%	$17.99
Conveyor Operator.....	30.2%	14.89
Laborer.....	26.9%	13.26

The average wage for labor is $15.78 per worker-hour (including burden and average shift differential).

(S) Supply Operating Costs $(Y_S) = 0.0009(X)^{1.202}$
The supply curve consists of 100% electric power.

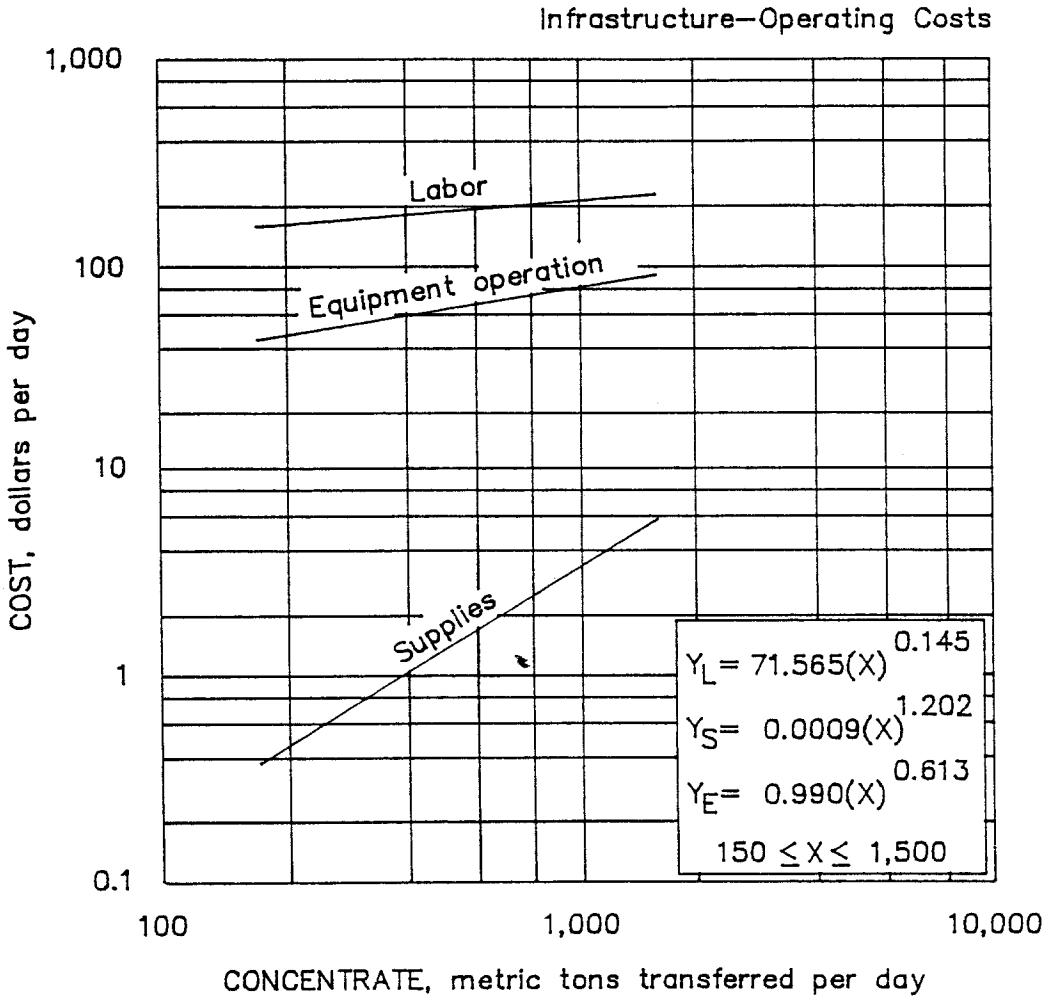
(E) Equipment Operating Costs $(Y_E) = 0.990(X)^{0.613}$
The equipment operating cost consists of 94% for repair and maintenance parts and 6% for lubrication.

ADJUSTMENT FACTORS

Secondary Mineral Recovery Operating costs for the recovery of secondary minerals are not included in this section. If such operations are considered, appropriate adjustments should be made to the cost curves.

Shift factor Planned use of off-loading equipment is considered to occur intermittently throughout the 24-h work day as concentrates in adequate quantities are

made available from the mill for transportation to the storage bins. If the operations occur for periods of time 110% greater than or 70% less than 9 h/d, suitable adjustments must be made to the cost curves.



9.1.3.1. Loading facilities
LOAD—OUT FACILITIES

9.1. INFRASTRUCTURE--OPERATING COSTS

9.1.3. LOADING FACILITIES

9.1.3.2. OFF-LOADING FACILITIES

The total cost is the sum of the three separate cost curves (labor, supplies, and equipment operation) having on a production rate (X), in metric tons of ore off-loaded and stored in bins for use by the mill per day. The curves are valid for operations between 800 and 12,000 mtpd, operating two shifts per day.

BASE CURVES

(L) Labor Operating Costs $(Y_L) = 241.612(X)^{0.161}$
The operating labor costs are distributed as follows:

Direct labor.....	57%
Maintenance labor.....	43%

The direct labor costs consist of the following typical range of personnel:

		Av salary per hour (base rate)
Mechanic.....	42.9%	$17.99
Conveyor Operator.....	30.2%	14.89
Laborer.....	26.9%	13.26

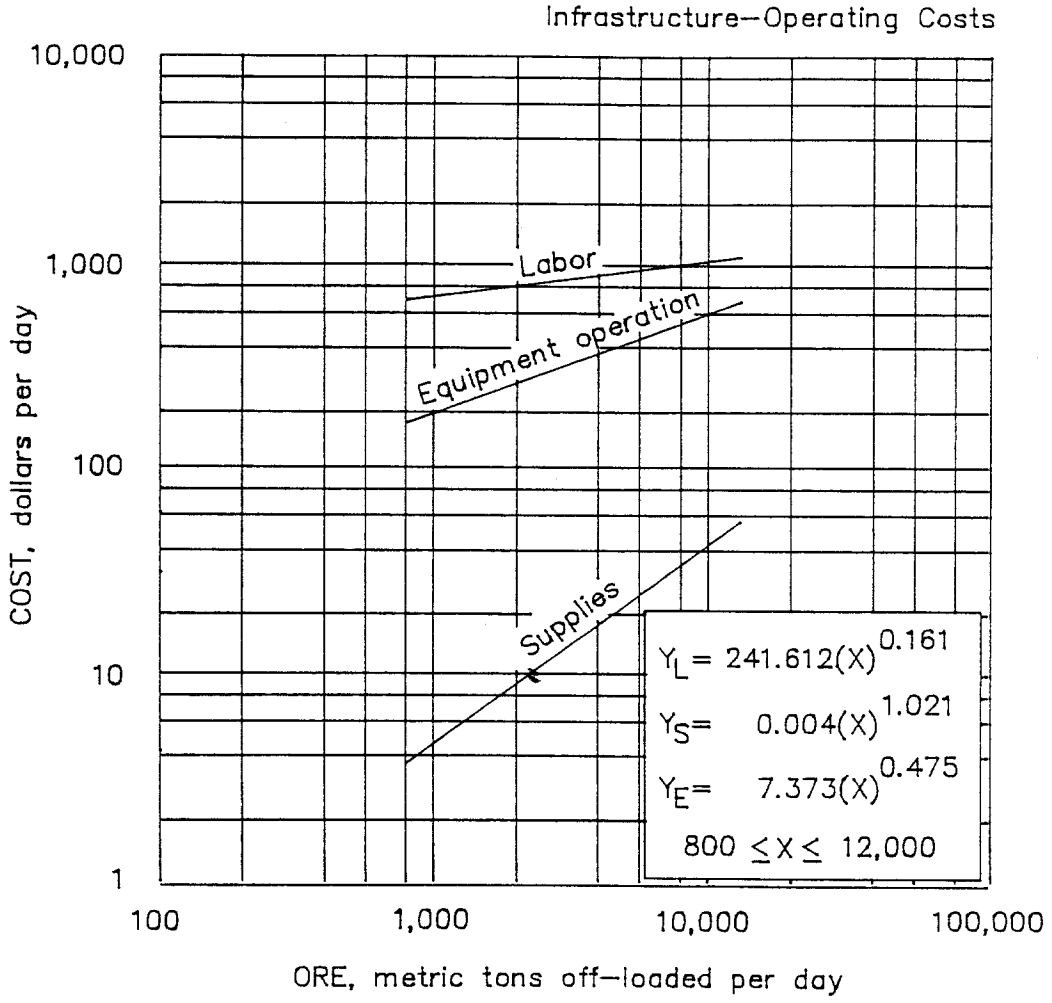
The average wage for labor is $15.38 per worker-hour (including burden and average shift differential).

(S) Supply Operating Costs $(Y_S) = 0.004(X)^{1.021}$
The supply curve consists of 100% electric power.

(E) Equipment Operating Costs $(Y_E) = 7.373(X)^{0.475}$
The equipment operating cost consists of 94% for repair and maintenance parts and 6% for lubrication.

ADJUSTMENT FACTORS

Variable shift rate If the off-loading facility is to be operated one shift per day, multiply the daily off-loading rate by two; calculate the operating costs from the base curves using the adjusted rate, then decrease the calculated cost by 50% to arrive at the adjusted cost. If the facility is operating three shifts per day, multiply the daily off-loading rate by 0.67; calculate the operating costs from the base curves using the adjusted off-loading rate, then increase the calculated cost by 50% to arrive at the adjusted cost.



9.1.3.2. Loading facilities
OFF—LOADING FACILITIES