60001974

Mining District File Summary Sheet

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	Rosebud - Operating Costs for St. Louis Drift
AUTHOR	Dexter M; Blattmann M; Appling R
DATE OF DOC(S)	2000
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine. Hecla Mining Co. Saint Louis Drift
COMMODITY If not obvious	gold; silver
NOTES	Correspondence; cost estimation for operation 3p.

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

	Initials	Date
SS:	DR	9/12/08
DB:		
SCANNED:		

Revised: 1/22/08

St. Louis Draft Operating Costs

60001974 4010

Hecla Mining Co.

Memo

To: Mike Dexter

From: Matt Blattman

CC: Rich Appling

Date: 03/08/00

Re: Operating Costs for St. Louis Drift

Costs

As per your request, here is an estimate of the operating costs required to maintain the St. Louis Drift. Basically this translates to services being used in the drift. namely; ventilation, pumping, and electricity being used by the drill.

Electrical services cost while drilling is approximately $75.55 per day.

Pumping maintenance cost is approximately $8.35 per day.

Total operating cost is approximately $83.90 per day

These costs do not reflect any additional labor or production/mining costs. Additional costs not included in this estimate include: power costs to pump water from the RBW-17 to the main water tank, power costs to pump water from the de-silting basin back to the mine water tank, and air compressor power requirements.

Ventilation cost calculations

Assume: 75-hp fan

Operates 24 hours per day

Running at 75% of maximum draw

Cost of electricity is $0.051/kW-hr

Calculate operating cost per day:

$$Cost = (0.746kW/hp)(75hp)(75\%)(24hr/day)(\$0.051/kW-hr) = \$51.34/day$$

Pumping electrical cost calculations

Assume: Entire mine generates 15 gpm of water to be pumped to surface

5% of that water comes from the St. Louis Drift (0.75 gpm)

Pump skid is at the 4330' elevation

De-silting pond is at the 5000' elevation

Pump motor efficiency: 80%

Pump efficiency: 75%

Cost of electricity is $0.051/kW-hr

Calculate operating cost per day:

Power requirements:

Head calculation:

Static head = 5000' – 4330' = 670'

Friction/Velocity head ≈ 100'

Horsepower requirements:

$$Hp = \frac{(0.75 gpm)(770' tdh)(8.33)}{(33{,}000)(80\%)(75\%)} = 0.243 Hp$$

Costs:

$$Cost = (0.746 kW/hp)(0.243 hp)(24 hr/day)(\$0.051/kW-hr) = \$0.22/day$$

Pumping maintenance cost calculations

Assume: Cost to maintain the pumping system for 1999 was $60,000

St. Louis responsible for 5% of that cost

12 months/per year

30 days/month

Calculate pumping maintenance cost per day:

$$Cost = \frac{(\$60{,}000/year)(5\%)}{(12 mon/year)(30 day/mon)} = \$8.33/day$$

Drilling electrical cost calculations

Assume: 75-hp motor on drill

Drill is running 50% of the day

During usage, drill runs at full load 40% of the time

During usage, drill runs at half load 60% of the time

Cost of electricity is $0.051/kW-hr

Calculate operating cost per day:

$$FullloadCost = (0.746kW/hp)(75hp)(40\%)(50\%)(24hr/day)(\$0.051/kW-hr) = \$13.70/day$$
$$HalfloadCost = (0.746kW/hp)(75hp)(50\%)(60\%)(50\%)(24hr/day)(\$0.051/kW-hr) = \$10.27/day$$
$$FullCost = FullloadCost + Halfload\,\mathrm{cost} = \$23.97/day$$