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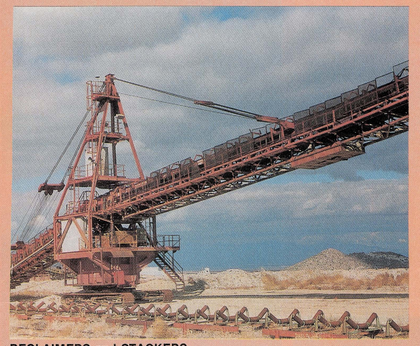
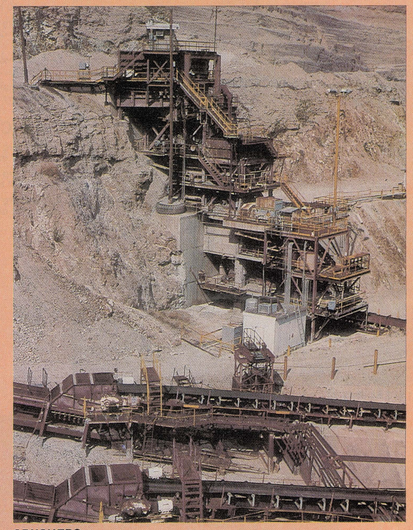
COMPLETE MODERN PLANTS & LATE MODEL MACHINES & EQUIPMENT



RECLAIMERS and STACKERS

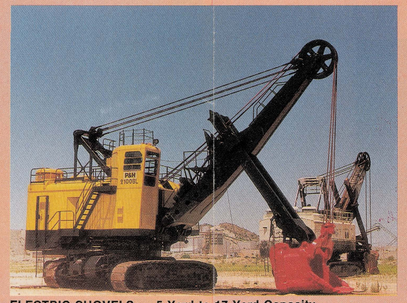
LOADERS — 13 Yard Capacity



CRUSHERS

TRUCKS 110, 120, & 170 Ton — Excellent Condition — Excellent Rubber

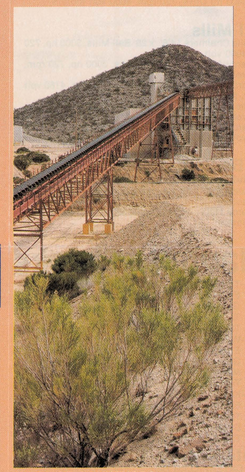
ROTARY DRILLS



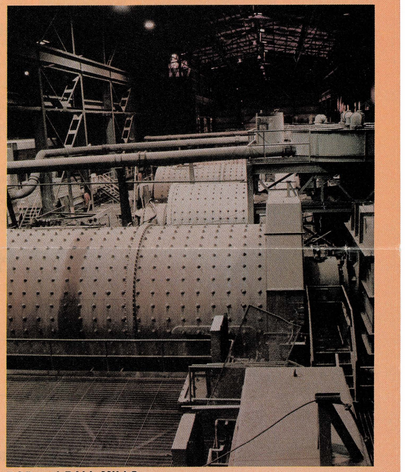
ELECTRIC SHOVELS — 5 Yard to 17 Yard Capacity

All Equipment Is Immediately Available

For Information Call (602) 648-1630



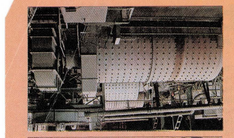
MILES OF CONVEYORS

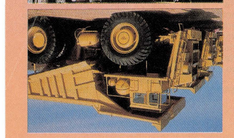


ROD and BALL MILLS

ELECTRICAL EQUIPMENT

NEW SPARE and REPLACEMENT PARTS





COMPLETE MODERN PLANTS

~~OXIDE PLANT~~ • SULPHIDE CONCENTRATE PLANT
MOLY PLANT • PELLETIZING PLANT

LATE MODEL EQUIPMENT AND MACHINES

CRUSHERS • GRINDING MILLS • CONVEYORS
ELECTRIC SHOVELS • HAULAGE TRUCKS and
LOADERS • ELECTRIC and DIESEL/ELECTRIC DRILLS
STACKERS • RECLAIMERS

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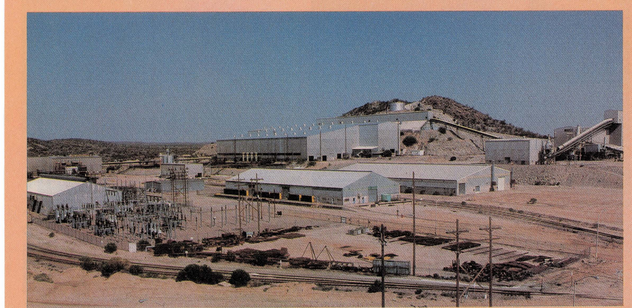
Stockers

SULPHIDE CONCENTRATOR PLANT



44,000 ton per day plant—opened in 1970 and operated until recently.
Three major elements: CONCENTRATOR (Mills, Flotation, Thickeners)—MOLYBDENUM PLANT—FILTRATION.

CONCENTRATOR

44,000 ton per day concentrator consists of four milling divisions, each of which draw their rod mill feed from beneath the fine ore storage bin.
Each division consists of a rod mill and two ball mills, two cyclone feed pumps and four Krebs D-26 cyclones.
Flotation consists of 14 rows of rougher cells, three regrind mills, three sets of nine Krebs D15B cyclones and six rows of cleaner and scavenger cells. There are three 120' rougher concentrate thickeners.
The Concentrator sends its tails to two 400' thickeners which each have eight D26B cyclones. The concentrate is fed to the molybdenum plant to remove moly and then goes to the filter plant.

MOLYBDENUM PLANT

The Molybdenum Plant was designed to process 1200 tons per day of CuMo concentrate and produce up to 20 tons per day of MoS_2. The circuit consists of two parallel trains of conditioning, rougher flotation and up to seven cleaner cells. Additionally, there is an insoluble flotation circuit, two thickeners, two spray dryers and a dry handling and packaging system.

FILTRATION

The sulfide concentrate is stored and thickened in two 100' thickeners, than fed into three drum filters. These are installed outdoors and designed to operate 24 hours per day on an 85% availability. Maximum output was designed at 50 tons per hour with the feed slurry at 58% solids, 120°F temperature, 1.85 SG. The screen size is 325 mesh. Ph to be 7 plus.
The filter cake is 10% moisture by weight by the use of 80 PSI steam.
The plant includes concentrate handling and rail car loading systems put into operation in 1976.

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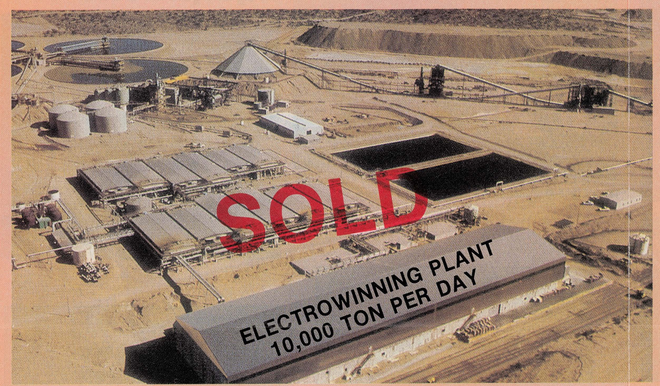
OXIDE PLANT



OXIDE PLANT

GRINDING, LEACHING & THICKENING

Oxide ore is reclaimed by belt feeders from fine ore storage and milled in two parallel trains consisting of an 11.5' x 18' rod mill feeding a 12.5' x 30' ball mill in an open circuit wet grinding. The ball mill discharge is pumped to an overflow leach tank circuit using concentrated H_2SO_4 acid. The slurry is then pumped to a train of four thickener countercurrent decantation for liquid solid separation. The pregnant solution is sent through two clarifiers and to the SX plant and the thickened solids are pumped to tails. The plant is designed to mill 10,000 ton per day.

COPPER SOLVENT EXTRACTION

The copper bearing solution is split into two streams of 3000 to 3300 gpm each for counter current copper extraction in two parallel trains of mixer settlers. Each train has four extraction and two stripping stages. Mixer settlers are a standard Davey Powergas gravity design. A square mixing box 15' x 15' contains a draft tube through which the phases are introduced into the eye of the turbine.
All wetted parts of the mixer settlers are 316 stainless steel construction.

ELECTROWINNING

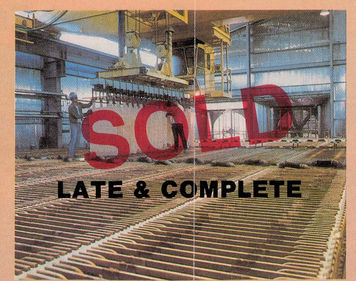
The tank house has 216 concrete cells lined with PVC paraliner. Each cell contains 51 3' x 4' cathodes and 52 cast lead calcium alloy anodes on 4" centers. Starter sheets are prepared on titanium blanks. There are three recirculation systems in the tank house all fed from the common reservoir. Each recirculation system has eight sections of nine cells each, and each has a transformer/rectifier for a nominal capacity of 120 tons per day.
The tank house is 100 ft. wide by 400 ft. long. Steel construction with 316SS corrugated sheeting on walls and roof. Both cranes are on the same rails and cover the entire tank house cells and sheet preparation area. All piping is either PVC lined mild steel, 316 stainless steel, or polythene.

GRINDING, LEACHING & THICKENING

COPPER SOLVENT EXTRACTION

10,000 ton per day plant—opened in 1975 and operated until recently.

Three major elements: GRINDING, LEACHING and THICKENING — COPPER SOLVENT EXTRACTION — ELECTROWINNING.



ELECTROWINNING

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