

Cortez Gold Mines

Don Smales - Mine Maintenance General Foreman

Greg Rice - Electrical Leadman

Cortez Gold Mines History

- ◉ Originally opened in 1968 - 1976
- ◉ Reopened in 1980
- ◉ Newest pit started in 1996
- ◉ Approximately 400 employees
- ◉ Fleet:
 - (2) P&H 2800 XPB Electric Mining Shovels
 - (1) LeTourneau 1850 Front End Loader
 - (1) Demag H285S Hydraulic Mining Shovel
 - (15) Komatsu 830E Haul Trucks
 - (3) Komatsu 930E Haul Trucks (1 dash-1, 2 dash-2)
 - (4) Driltech D75K Rotary Drills
 - (9) Dozers
 - (3) Blades

Upgraded Shovel Description

- ◉ P&H 2800 XPB
- ◉ Commissioned 1996
- ◉ 45,432 hours at time of upgrade
- ◉ 43 cu. yd. dipper
- ◉ 4100A crowd pinions and racking
- ◉ DELTA drive tumblers and tracks
- ◉ Digital drive upgrade installed January 2003



Digital Drive Justification

- Production
 - Cycle time improvement
 - Fill factor improvement
- Reliability
 - Improved motor operation and protection
- Troubleshooting Capabilities
 - Phase out analog systems
 - Ease of setting limits and timers
 - No annual tune-up
 - Improved Diagnostics

Digital Drive Package

- ◉ ABB DCS600 Drives
- ◉ SLC 5/05 upgrade
- ◉ Stayed with K925 hoist motors
- ◉ ABSS
- ◉ Opti-Dig
- ◉ Panel Views in operators coop and control panel
- ◉ Software controlled rolling RPC

Installation

- Drop in installation
 - Installation of DDC cabinet was a clean fit
 - Panel view fit in place of the PMD
 - Simplified wiring for auxiliaries and the lube system
 - New RPC controls fit in existing slots
- DDC installation takes up less space in the PLC room than the analog system

Installation



Benefits

- Three (3) second improvement in cycle time due to less time in the dig face
- 20% increase in fill factor
- Improved DC motor performance and decreased maintenance
- Future upgrades
 - Load weigh
 - I²T

Drawbacks

- ◉ Downtime required for installation and tuning
- ◉ Operator training
 - Opti-Dig performs differently than analog system
 - Understanding of protection messages
- ◉ Electrical maintenance training
 - Additional training required for electrical maintenance due to differences between analog and digital controls
- ◉ High initial cost

Where Do We Go From Here

- ◉ Complete drive training for all electrical personnel
- ◉ Install GUI for improved troubleshooting capabilities and Diagnostics
- ◉ DDC upgrade on our other 2800XPB
- ◉ I2T
- ◉ Loadweigh