Luminant Mining

Luminant is the largest competitive power generation business in Texas. Luminant’s mining division is the state’s leading producer of lignite coal, producing around 33 million tons per year to meet the fuel needs of its generation plants located across Texas. Mine Maintenance Support Services is responsible for providing support for 15 draglines, 10 loading stations, railroads and 600 pieces of mining rolling stock spread across nine separate mines in Texas. The area encompassing the mines stretches 325 miles from Northeast to Central Texas.

Mine Maintenance Support Services (MMS) has many faces but by working together as one, we have seen success that benefits the company as a whole. The support group is responsible for providing electrical engineering, mechanical engineering, technical design, reliability, predictive services, planning and project management support. This unifies the functional departments of each site with the support organizations to maintain mining assets and improve reliability.

The MMS toolbox consists of many activities to prolong and maintain the life of our assets including:

- **Condition Based Maintenance**
  - Conditioning monitoring of our draglines and mobile mining equipment
  - Standardized PM program across all locations
  - Software for oil analysis tracking and reporting
  - Total Tire Care for tracking and evaluating large mining tire performance

**Predictive Maintenance (PdM)**
- Ultrasonic, acoustic, infrared, vibration, electrical
- **CMMS software, Asset Health Management Software, Predictive Maintenance Instruments and Software:**
  - **Software & Program List:**
    - MAXIMO is our on-Windows-based CMMS (Computerized Maintenance Management System) and built on a dot.net platform.
    - COM – Work Management
    - MAXIMO
  - **Mobil Equipment:**
    - Leica Dragline monitoring
    - WBM Dragline monitoring
  - **Heavy Equipment:**
    - Program.
    - Fossil Division Root Cause Failure
    - Metrics
    - 2012 M-CAV
    - 2012 M-CAV
  - **PdM Instruments:**
    - 3 ea. USN 50 Krautkramer Flaw Detection
    - 1 ea. 52 Krautkramer Flaw Detection
    - 1 ea. USL 48 Krautkramer Branson
    - 1 ea. Epic 1 & 2 Panametrics Flaw Detection
    - Panametrics
    - 1 ea. 5228 Ultrasonic Gage Panametrics
    - 1 ea. Olympus N1633L2 PILEX LT Industrial Video scope/Bores scope
    - 1 ea. File 695 Infrared Camera & one more older unit
    - 1 ea. Flir Hand Infrared Gun
    - 5 ea. Equotip Piccolo hardness tester
    - 3 ea. Parker 300 Mag Guns
    - 3 ea. 52 Krautkramer Flaw Detection
    - 2 ea. SBLT Krautkramer Flaw Detection
    - 3 ea. USK 7.5 Krautkramer
    - 1 ea. USL 48 Krautkramer Branson
    - 1 ea. USD 10 Krautkramer Branson
    - 1 ea. Epic 1 & 2 Panametrics Flaw Detection
    - Panametrics
    - 1 ea. Olympus N1633L2 PILEX LT Industrial Video scope/Bores scope
    - 1 ea. Flir 695 Infrared Camera & one more older unit
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    - 5 ea. Equotip Piccolo hardness tester
    - 3 ea. Parker 300 Mag Guns
  - **Reliability Centered Maintenance (RCM)**
    - Our goal is asset preservation; we achieve this goal by identifying changes in condition that indicate some potential failure (P-F curve). Each of these characteristics is measured, analyzed and recorded so we can recognize trends and take appropriate actions before they become issues. Our corporate maintenance standardization initiative, known as Conduct of Maintenance, allows us to allocate funding (using RCM analysis) to do the right tasks at the right time in an efficient, cost-effective and safe manner. Over the past four years, we have seen an 8 percent improvement in asset availability and an 18 percent reduction in maintenance spend. Our goal was not to cut maintenance; rather to do the right thing at the right time, and we are enjoying the results of that hard work.

Emphasizing our commitment to safety and the environment at eight mine sites and three railroad locations, Luminant implemented a behavior-based safety process and human performance improvement program. HPI is a system of reducing human error and providing an understanding of why errors occur. This understanding allows us to develop a robust system to identify error-like situations, create defenses and always look to remove latent weaknesses within the organization. We have many tools we use in this effort including pre-job briefs, three-way communication and near-miss reporting.

Along our journey, we’ve had our successes and our learning opportunities. The success of the MMS team, our knowledge, productivity and overall benefit to our operations did not happen overnight. We have and will continue to learn from our experiences. We are better today than we were last year and we intend to be better next year than we are today.