

PTM **PULSE**TerraMetrix **DL**

Health, Production and Payload Management Solutions for Draglines

www.pulseterramatrix.com



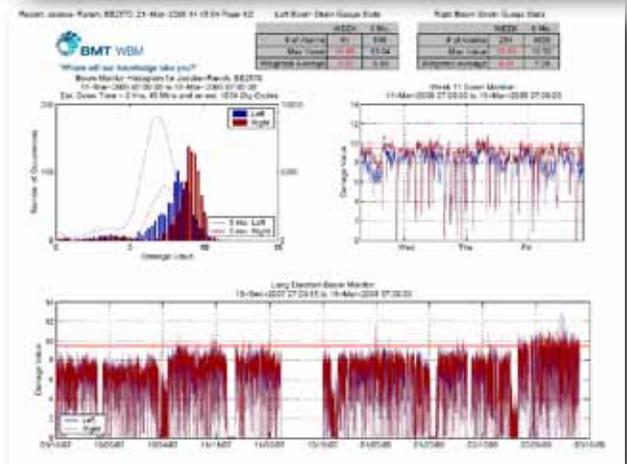
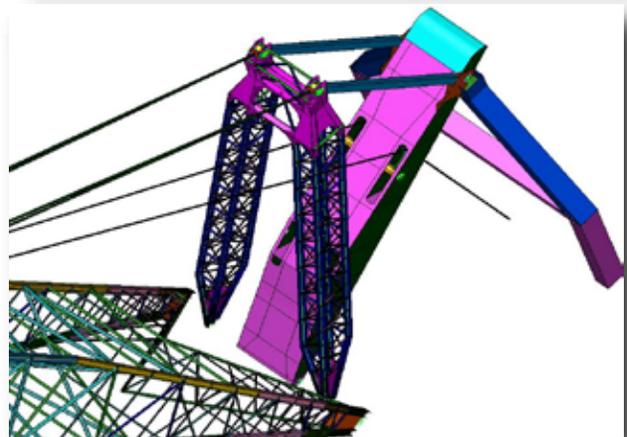
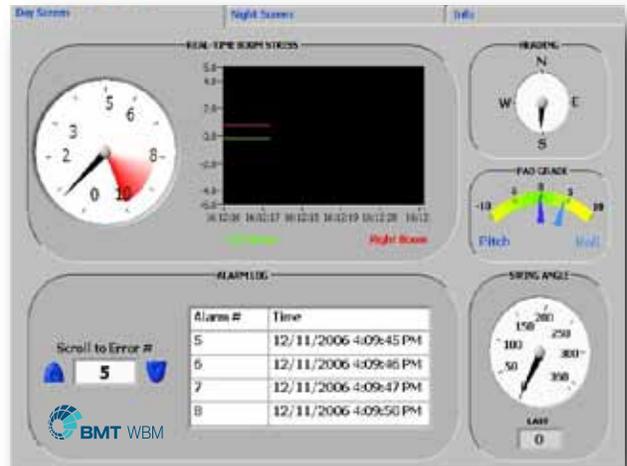
The Problem

Draglines today are a key component of many surface mining operations, and often the largest single asset at the site. Since utilization of the machine is a critical priority, operators are increasingly pushed for more production and less downtime.



While increasing the bucket size is a popular way to increase production, it usually comes at the cost of an increase in the risk of catastrophic failure, increased maintenance and unplanned downtime. Repair welding on the aging major structural components has become commonplace during maintenance outages, and "Preventative Maintenance" has been replaced by a game of "chasing the cracks".

Understanding what actually contributes most toward these failures can be a tough problem to understand. Are we overloading the machine? Is our machine under-designed? Are we nearing the end of the machine's "Design Life"? How do we extend the useful life of our machine? Are our operators abusing the machine? Are our mining conditions different from other dragline users? How do our failures compare with other sites using similar equipment?





Load Transducer Pins

BMT WBM designs and supplies instrumented load pins for measuring the loads in:

- Intermediate boom suspension ropes
- Main suspension ropes
- Boom feet
- Other locations where it is desired to monitor loads over the long term

These transducer pins can be coupled with the Pulse Structural Health Monitor; or can be used with portable displays where it is desired to measure the load at intervals. BMT WBM's instrumented pins are drop-in replacements for the original pin.



The Solution



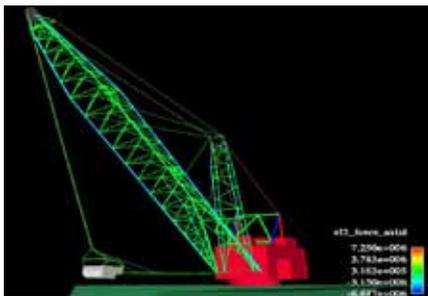
Pulse was developed over 10 years ago to help dragline owners reduce structural failures on their machinery, increase the remaining life of the machinery, and give them the information to understand and manage existing and potential failures.

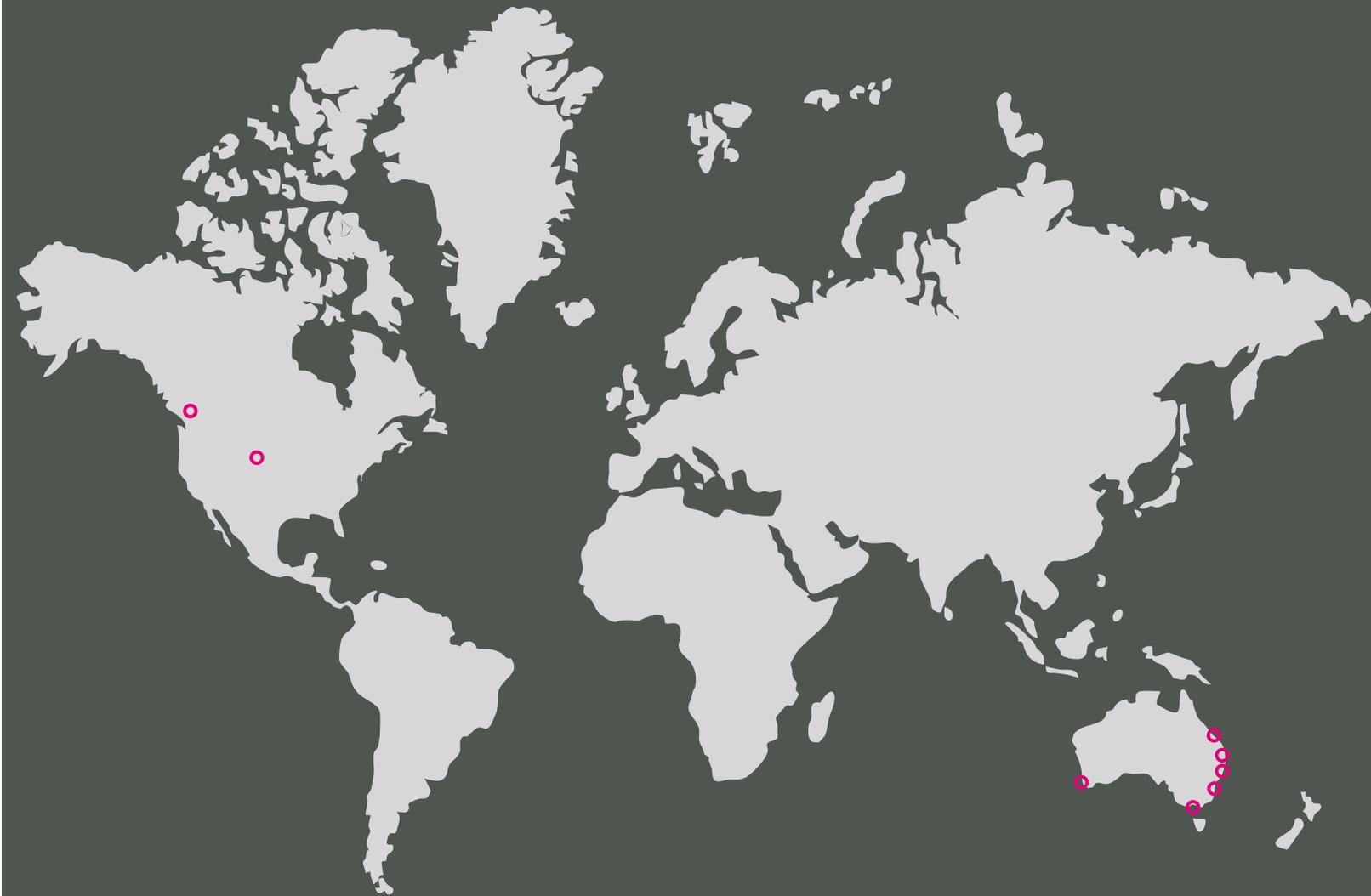
By monitoring key positions on the Boom, Mast, and A-Frame, coupled with inertial sensing, BMT WBM is able to help with:

Production Needs	Maintenance Needs
Changes in payload/bucket sizing/overall suspended load opportunities	Decreasing fatigue failure rate of structural components
Operator performance to evaluate training needs or provide disciplinary backup	Prediction of future structural maintenance requirements
Understanding site specific trends in machine damage – such as dig depth, spoil height, swing angle, etc.	Optimizing suspension rope life
Reducing the possibility of catastrophic failure	

BMT WBM's unique approach to Structural Monitoring gives the operator real-time information to understand what situations cause high stress, allowing them to continuously improve their skill and techniques to achieve the highest production with the least amount of machine damage. Time-stamped data is constantly recorded to provide mine management with the necessary information to improve the operations where the operators cannot.

Installing Pulse on your machine can be accomplished in a 12-hour PM by BMT WBM engineers. The monitor can be integrated into existing production systems or act as a stand-alone monitoring device. A one year warranty on the system and data analysis reporting service is standard, and BMT WBM provides lifetime review of device data for suggestions on where improvements can be made.





BMT WBM has a proven record in addressing today's engineering and environmental issues.

We aim to continue to enhance our services, capabilities and areas of application to meet the community's future development and environmental protection needs.

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