

SCANIMETRICS
Advanced Technology Driving Change

Automated Reporting of Mining Asset Condition Yields Big Benefits



October 13, 2011

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Equipment Integrity

Scanimetrix will demonstrate how our Condition-Based Monitoring and Maintenance System is an integrated solution for structural integrity management.

Enabling your organization to more effectively:

- Measure
- Manage
- Predict
- Plan

Resulting in time and cost saving while minimizing lost revenues and production downtime.

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Scanimetrix' Solution

- The Condition-Based Monitoring and Maintenance System consists of:
 - Hardware "Mote"
 - Analysis software "MoteScan"
 - Installation
 - Data gathering, analysis, reporting
- A revolutionary solution to better serve organizations where equipment performance is paramount to overall fiscal and operational success.



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Addresses Corporate Objectives

- **Maximize**
 - Responsible revenue generation
 - Shareholder value
 - Production Volumes
 - Safety
- **Minimize**
 - Downtime
 - Environmental impact
 - Damage to Brand Reputation



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Equipment Failures -> Corporate Implications

Operations

- Failures of bottlenecks cause **immediate** production loss.
- In-field failures are 3x to 10x **more costly** to repair.
- Failures with **environmental** issues require immediate process changes and extended downtime.

Brand

- Failures with environmental implications can be detrimental to company **brand and reputation**.
- Corporate reputation can negatively affect **stock value**.

= FAILURES ARE COSTLY




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Addresses Industry Reality

- Machinery and equipment require maintenance.
- Unscheduled downtime due to mechanical problems is very costly.
- Oil sands lost \$6.5B



Minimize unscheduled downtime through the Scanimetrix's solution


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Solution – Monitor Structural Integrity

Product availability

- Measure strain and fatigue
- Better predict:
 - component lifetime
 - replacement/servicing frequency
- Reveal:
 - Risk of yield failures
 - Risk of cracking
 - Changes in material properties
 - Remaining equipment life




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Scanimetrix' Leading Wireless Innovation

- Reliable measurement of strain, bolts and cracks
- Wireless
 - Battery operated (battery life 1 year)
 - Longevity
- No interference
- Tolerant to harsh environment
 - Completely sealed
 - Wide temperature range
 - Easy installation
- Low per unit cost



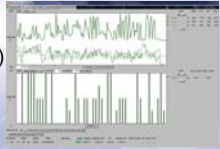
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Scanimetrix' Product Solution


Data Analysis

- Fatigue rainflow
- Remaining useful life (RULE)
- Crack propagation
- Bolt tension levels



Reports Customized for:

- Reliability Engineers
- Financial Decision-makers
- Maintenance Managers
- Safety Managers



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Application - Crack Propagation Monitoring

- 30-35 haulers (25% of fleet) out of service at any given time
- 5-10 new cracks per week per hauler inspected
- 3-5 are critical and need to be repaired or monitored
- Scheduling repair takes up to 2 weeks
- Monitoring requires hauler to park in maintenance loop and inspector to go out on site every day (1-2 hours downtime per day)

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Application – Hauler Crack Propagation

Wireless Crack Sensor Report 888 Hauler Truck
Crack Sensor Data for 40 Day Period

Location	13 Oct	14 Oct	15 Oct	16 Oct	17 Oct	18 Oct	19 Oct	20 Oct	21 Oct	22 Oct	23 Oct	24 Oct	25 Oct	26 Oct	27 Oct	28 Oct	29 Oct	30 Oct	31 Oct	1 Nov	2 Nov	3 Nov	4 Nov
Location 1 (1st sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 1 (2nd sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 1 (8th sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 2 (1st sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 2 (2nd sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 3 (1st sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 3 (2nd sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 3 (8th sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 4 (1st sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 4 (2nd sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Location 4 (8th sensor)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

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ROI for Crack Propagation Monitoring

Return on Investment Using SCANIMETRICS Wireless Mote Solution

RESULTS	
Total saving in 6 months per hauler	\$17,576
Total annual saving per hauler	\$35,152
Total annual saving per 130 haulers	\$ 4,569,760
ROI	335%
Hauler Operations Uptime Increase (%)	2.75%
Hauler Operations Uptime Increase (hr.)	31,286 hrs.
Equivalent number of haulers recovered	3.57
Recovered Revenue	\$370,860,857

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Other Applications

- Supports – strain and load
- Apron feeder chain links – strain
- Pipelines – flanges, strain, thickness
- Drums, mills – bolt tension
- Gear teeth – strain

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Summary

- **Reduces maintenance costs**
 - Fewer unscheduled maintenance events
- **Reliable**
 - Suited for harsh environments
- **Easy to install**
 - No wiring, no connections
- **Flexible applications**
 - Monitor hard-to-reach places
- **Non-intrusive – NO risk to equipment**
- **Repair when convenient**

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Thank You

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