Survey says…

CIM Mining Standards and Guidelines Committee
November 2012
Requested: CIM Surface Mining Standards and Guidelines Committee meeting held in Edmonton (CIM Conference) on May 2012.

Intent: Ask about the current use of mobile mining equipment telemetry.

Purpose: Examine the why, what, and adequacy of current tools and systems to collect, retain, analyse, and visualize mobile equipment events and telemetry.
Survey Format

- Six categories
- Total of 31 questions
- Comment space for short answers
- General comments at end
- Used Survey Monkey for easier access

- 12 responses received
  - one was blank and not used
Summary

- This data is useful now
- Making decisions about safety, production, planning, financial, and training
- Future growth is planned
- Often a mix of equipment OEM in a mine although one strategy is focus on homogeneity with OEM equipment types
- Raises issues with a single solution.
- In-house solutions used to integrate the data.
- Current tools are insufficient or unfriendly to use.
- Integration into existing fleet management tools or business systems is desired.
Some background about the respondent,

1. Does your company operate surface mines?
   - Yes: 82%
   - No: 18%

2. Does your company operate underground?
   - Yes: 55%
   - No: 45%

3. Does your company operates mining equipment remotely?
   - Yes: 45%
   - No: 55%

4. Does your company manage multiple mines?
   - Yes: 91%
   - No: 9%
Data Usage

- **Is the data generated by the equipment of value to your company?**
- **Is heterogeneity of a equipment fleet an issue?**

1. Does your company currently collect the raw data available from the mobile equipment?
   - Yes: 91%
   - No: 9%

2. Does your company collect the raw data that it needs from the mobile equipment?
   - Yes: 64%
   - No: 36%

3. Does your company plan to collect the raw data or additional data from the mobile equipment in the future?
   - Yes: 100%
   - No: 0%

4. Does your company use different OEM equipment for the same function -- e.g. haulers, shovels?
   - Yes: 82%
   - No: 18%

5. What is your estimate of the data that you need that is currently made available by the OEM on the equipment?
   - Most (75%): 27%
   - Some (55%): 50%
   - Very little (18%): 17%
Data Collection

What tools and infrastructure are used in data collection?

1. Does your company use only the OEM solutions for collecting data from the unit?
   - Yes: 33%
   - No: 67%

2. Does your company use custom-built or third party tools for collecting data?
   - Yes: 33%
   - No: 67%

3. Is the raw data collected when needed?
   - Yes: 33%
   - No: 67%

4. Is the raw data (automatically) systematically collected and transmitted from the units to a common location?
   - Yes: 33%
   - No: 67%

5. Are there challenges to collect the data from the OEM equipment?
   - Yes: 33%
   - No: 67%

6. Do you collect data a single time and store it in a master data base for multiple use (Yes), or each application collects its own data independently (No)
   - Yes: 33%
   - No: 67%

7. How is the data collected? (Check all that apply)
   - Real Time: 33%
   - Batch Time Scheduled: 22%
   - ad hoc: 28%
   - Other: 17%
Data Management

- Is the data retained for any purposes?
- What is the data used for in your company?
- Is the analysis needed complex or relatively simple?

1. Is the data collected retained in an data historian or database (e.g. retained for 3/6/12 months)?
   - Yes: 78%
   - No: 22%

2. Is real-time data required?
   - Yes: 78%
   - No: 22%

3. Is the data used for forensic analyses?
   - Yes: 78%
   - No: 22%

4. Is the data used for predictive purposes -- e.g. CBM, Safety, Planning?
   - Yes: 78%
   - No: 22%

5. Is the raw data displayed as-is (time series strip chart)?
   - Yes: 78%
   - No: 22%

6. Is there a need to further process the data before using it?
   - Yes: 78%
   - No: 22%
Purpose

Why is the data collected?

1. Is the data collected used for safety related issues?  
   Yes: 73%  No: 27%

2. Is the data collected used for Production Control?  
   Yes: 73%  No: 27%

3. Is the data collected used for Production and Equipment Reporting and Accounting?  
   Yes: 73%  No: 27%

4. Is the data collected used for Condition Based Maintenance?  
   Yes: 70%  No: 30%

5. Is the data collected used to understand fleet related activities?  
   Yes: 73%  No: 27%

6. Is the data collected used to influence mine operations?  
   Yes: 82%  No: 18%
Data Mining

Are the tools available adequate?

1. Do the current OEM vendor tools suffice for your purposes?
   - Yes: 9%
   - No: 91%

2. Do current third party (OTM) tools suffice for your purposes?
   - Yes: 27%
   - No: 73%

3. Do you need or did you need to develop analysis tools in-house?
   - Yes: 91%
   - No: 9%