

## PowerVision Cleans Up MES

The world's leading manufacturer of flooring products needed to overhaul two key systems supporting its manufacturing process. PowerVision re-engineered major portions of these systems to correct errors, improve efficiency, and extend functionality. The solution has improved the client's production processes by providing an improved, easy-to-use interface; increased speed in the production of event processing and reporting; and by ensuring accurate and reliable data.

*MES systems have a significant impact on manufacturing.*

*Industry research shows a reduction in:*

- cycle time (45%)
- work in progress (24%)
- paperwork between shifts (61%)
- lead time (27%), and
- product defects (18%).

### Business Area:

- Manufacturing Execution Systems

### Key Technologies:

- Visual Basic
- Oracle
- ActiveX / COM
- Microsoft Access

### PowerVision's Role:

- Analysis
- Design
- Development
- Testing
- Implementation

### The Main Event: Event Management and Reporting

As part of a corporate directive to modernize operations, PowerVision's client embraced the development and maintenance of Manufacturing Execution Systems (MES), a group of inter-related systems that collect, maintain, and report operational data—information critical to the company's manufacturing processes, such as the utilization of equipment, the consumption of inventories, and schedule completion. Two key components of this MES are production line event monitoring, and reporting.

The client's production lines are largely managed by Programmable Logic Controllers (PLCs) which monitor the production process. A variety of measures are collected by the PLCs at pre-defined intervals or thresholds. When a certain interval or threshold is reached, the PLC performs a variety of actions including raising temperature, adding a new component, or moving the product or material to the next production stage. Under adverse situations, the PLC may also send warning events, or stop the production line altogether.

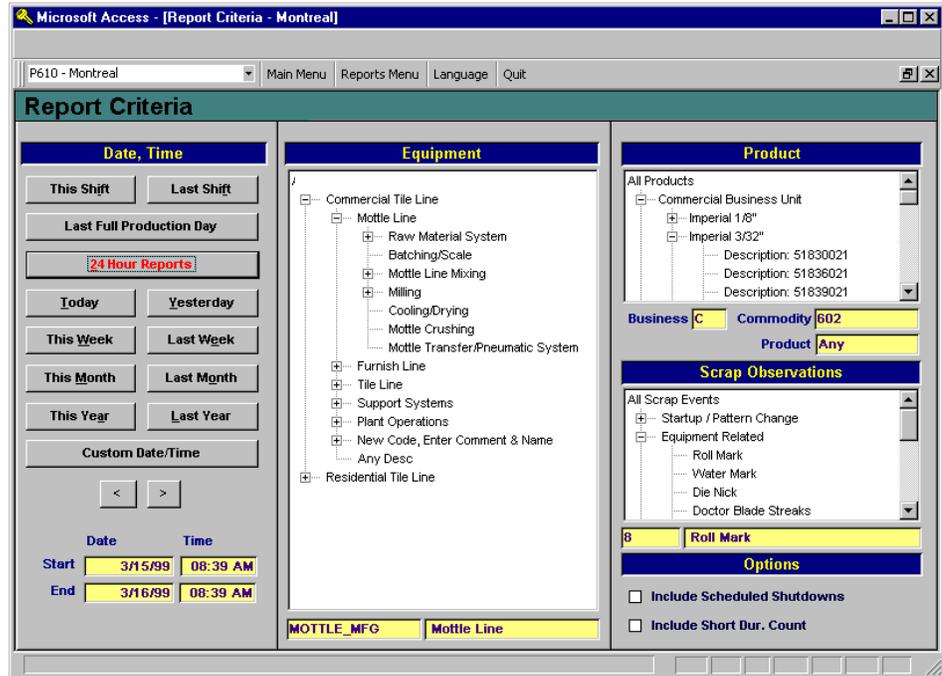
The Event Server and Event Editor systems collect and store adverse production line event data, while the Scrap/Downtime Reporting System (SUDS) collects, groups, and reports on such events. Previous releases of these systems were fraught with design and program inefficiencies: not all event data was being collected, reports included erroneous data, and reports were unacceptably slow. In addition, changes to the database necessitated an upgrade to the Event Server and Event Editor programs.

### Re-Engineering the Event

To correct program limitations, PowerVision provided technical support and re-engineered major portions of two key programs supporting the manufacturing process: Event Systems and SUDS reporting. Specifically, PowerVision provided services in the maintenance and enhancement of production line event incident management, and the enhancement of the scrap/downtime reporting system. The system provides a variety of user-selectable reports regarding production line event incidents.

The Event Server and Event Editor systems provide real-time connection and reporting of production line events to line managers. Such activity is accomplished by extracting data from Programmable Logic Controls (PLCs), which monitor the

production line, and storing this data in Oracle database tables. Events such as machine downtime, production line speed, and scrapped production are immediately displayed on the Event Editor for action by operators. The enhancements implemented by PowerVision have effected increased performance, an upgrade of communications between the server and editor programs, and correction of many errors in the former system. Collectively, these upgrades provide improved production capability at client plants.



The Scrap/Downtime Reporting System (SUDS) provides a user-friendly GUI that allows users to specify search parameters in the generation of reports. Utilizing MS Access with ODBC connections to an Oracle database, PowerVision upgraded and enhanced the reporting tool to provide more accurate results, enhanced graphing capabilities, and increased the speed of data retrieval and subsequent report production.

PowerVision provided analysis, GUI programming, SQL reporting, and product testing to clean up the MES process. In a series of incremental releases, the systems were delivered on time, within budget, and met all the client's needs. The resulting products have improved the client's production processes by providing an improved, easy-to-use interface, increased speed in the production of event processing and reporting, and accurate and reliable data.