Implementation of mobile technology software cuts time, improves data collection and helps in meeting regulatory requirements

Facilities across many industry sectors are turning to mobile technology software designed for PDA (Personal Digital Assistant) handheld devices to meet various environmental compliance demonstration requirements. This article discusses the capabilities of mobile technology in this regard and describes several situations in which facilities fulfilled regulatory requirements by utilizing software designed for handheld devices.

The widespread implementation of enhanced data management systems and the transformation of the PDA from personal organizer to handheld computer made mobile technology software an obvious next step to advance efficiency in environmental, health and safety (EH&S) and operations data management. Today, many facilities have already consolidated multiple data management systems into a single centralized system. Mobile technology can seamlessly integrate with a facility's current desktop system, EH&S management information systems (EMIS), or other information management systems.
On the Road to Greater Compliance

By Ryan Kreutzwiser
This capability makes software for handheld devices extremely attractive, offering many features and benefits:

- Replaces hand-written data sheets and logbooks to minimize the risk of human error, improving accuracy of recorded data.
- Uploads data to database applications for storage to accelerate the process and reduce efforts associated with recordkeeping and reporting.
- Provides real-time notification of corrective actions while in the field allowing fast, simple data collection through customized entry screens.
- Formats records and reports to support and accelerate on-site audits performed by regulatory enforcement personnel.

Another convenience of mobile technology software is the easy to learn and user-friendly interface. Field data entry forms are clear and concise with helpful pop-ups that guide users through inspections and alert users to erroneous or critical inputs. Simple pick lists, check boxes, and option buttons minimize errors and time devoted to data entry. Mobile technology software can facilitate any process that requires remote collection and subsequent storage of data, including:

- Visible emissions (VE) monitoring
- Health and safety checklists
- Stormwater pollution prevention plans (SWPPP) and wastewater checklists
- Spill prevention controls and countermeasure (SPCC) checklists
- Pressure drop monitoring

Power Company Streamlines SPCC/SWPPP Inspections

A power generation company needed to improve organization and maintenance of routine environmental compliance, reduce the amount of paperwork, and increase flexibility in routine reporting. The solution required consolidation of over 350 inspections across six facilities under the facility's spill prevention, control, and countermeasure (SPCC) plan and stormwater pollution prevention plan (SWPPP). Inspections are required monthly and are performed by a group of five to 10 inspectors.

T3’s QuickList™ product was implemented to meet the company’s needs. QuickList is a checklist tool that can be utilized by facilities for virtually any in-the-field data collection or inspection requirements, including:

- SPCC and SWPPP inspections
- Continuous parameter monitoring system checks and calibrations
- Resource Conservation Recovery Act/Boiler Industrial Furnace (BIF) inspections

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The software’s versatility also enables other departments to create and modify custom checklists specific to each department.

Following the implementation, the power company was able to incorporate required action items into the inspection routine. This allows for a concise and readily available summary report for appropriate personnel to correct any negative inspection results.

After successful completion of the initial project, the company decided to expand the use of handheld devices to facilitate weekly inspections of pollution control equipment at its facilities under the facility's operating permit under Part 70/Title V of the Clean Air Act. The software allowed the environmental staff to easily program other inspection activities, routinely monitor results, and generate required semiannual and annual compliance reports.

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The desktop utility allows for the creation and modification of checklist/inspection templates, which are downloaded and completed on a handheld device.
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Mobile technology turns handheld devices into powerful, efficient tools for EH&S and maintenance data gathering and reporting as described in the following real-world profiles.

**Meeting Portland Cement MACT Requirements**

A Portland cement facility subject to the requirements set out in the Portland cement maximum achievable control technology (PC MACT) standards established by the U.S. Environmental Protection Agency (EPA) must comply with visible emission monitoring requirements aimed at reducing emissions. Facility operators may be required to monitor visible emissions at 100 or more individual sources. Some sources require a monthly Method 22 test, which is an EPA-mandated test method intended to determine the frequency of visible smoke emissions from flares. Other sources require a daily inspection based on Method 9, which is an EPA mandated test designed to determine the opacity of emissions from stationary sources. Depending upon equipment type, a qualitative Method 22 inspection specifies test durations of 1 to 6 minutes whereas a quantitative Method 9 inspection is typically required to be 6 to 30 minutes long.

The PC MACT standard also requires extensive recordkeeping that includes storage of each visible emission inspection recorded for five years. A typical Portland cement facility may accumulate on average 150 to 250 individual records per month. In a traditional paper-based monitoring and recordkeeping system, each individual record would exist as a paper log. The logistics of filing, organizing, and retrieving these documents is a time-consuming and inefficient task.

T3®, a Trinity Consultants company, streamlined the entire inspection process by applying the Visible Emissions Monitoring System (VEMS®), a product in its Pocket Solutions® product line. Upon implementing this mobile technology software, plant operators were able to accurately and quickly record essential visible emissions data on site and then upload the information to an accompanying database on their desktop computer. VEMS enables Method 22, Method 9, General Visible Emissions, and Initial Performance testing for any stationary sources that discharge emissions into the atmosphere. In this situation, mobile technology software replaced an ineffective, paper-based system and reduced overall staff time commitments associated with recordkeeping and reporting. Due to overall satisfaction with the result, the facility expanded the use of handheld technology in areas outside the environmental department, including the maintenance department for dust collector maintenance inspections and the health and safety department for health and safety audits.

**Implementation of a Custom Mobile Solution**

A leading aerospace company elected to implement a customized mobile technology solution to streamline the process of collecting monthly natural gas meter readings at a manufacturing facility and...
directly transfer the remotely collected readings into the facility’s EMIS. The primary goals of the project were to reduce data entry/transcription errors and simplify the data collection process.

Equipment information for the meters was maintained in the facility’s EMIS. As changes arose at the facility, such as the addition or removal of a metered source, the custom mobile technology software needed to dynamically reflect those changes. T3’s project team implemented an integrated mobile technology solution that facilitated the collection of meter readings and meter turnovers. The data was collected electronically at the source, easily referenced and validated against past readings, and electronically transferred into the EMIS database.

The solution minimized the chance of user input errors and eliminated the possibility of data transcription errors. By leveraging the power of the existing EMIS, the collected data can be reviewed through quality assurance/quality control (QA/QC) methods, used in emission calculations, and incorporated into environmental compliance reports. The solution can also send e-mail notifications to appropriate personnel when readings are not taken in a timely manner.

Conclusion
Mobile technology solutions such as those described are an incredibly efficient and customizable approach to enhancing compliance, increasing efficiency, and focusing personnel on higher-order tasks. Implementation of mobile technology is an easy first step to organize compliance activities, gain immediate benefits of electronic capture and data storage, and promote compatibility with future management systems.

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