

STP's Mobile Work offers innovation for



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Management platform efficiency

By Amanda Sitka

The STP Nuclear Operating Company operates the South Texas Project Electric Generating Station, located eight miles west of Wadsworth, Texas. One of STP's core values is innovation—a value that is evident in the organization's 2021 Nuclear Energy Institute Top Innovative Practice (TIP) award-winning mobile work management (MWM) platform, which strives to utilize technology to bring efficiency to the field for nuclear professionals.

Beginning with the seed of an idea, STP began assembling a group that envisioned an electronic or mobile solution that would leverage existing technology investments to drive work management innovation, including more efficient ways to get work done in the field.

"The concept of developing the MWM platform started as an idea by a team member," said Prasad Kalva, supervisor of information technology enterprise applications and coleader of the MWM team. "Management embraced the idea and provided the resources needed to build this innovative solution."

The team included application developers and business analysts tasked with building the system, along with business customers from the work control and maintenance sides who understood the needs of the workers and leaders who perform work in the field on a daily basis. Team members joining Kalva included Lynn Davidson, Gerry Stone, Vince Yantes, Sampat Byru, Reddy Kolla, Jim Trust, Paul Sturgis, Heather Caddie-Mendiola, Ben Johnson, Gillian Hunter-Reay, Jeff Lovejoy, Tyson Blakeburn, Julio Gonzalez, Andrew Keeler, Connor Collins, Sabrina Cannon, Dennis Rawlings, and Waco Bankston.

The team worked many days, nights, and weekends over two years from concept to launch of the MWM platform within the organization. "The team faced many technical and process challenges, since this was a first-time evolution," Kalva said. "But strong team collaboration always yielded good solutions for every challenge encountered. The team spirit we created and the solutions we built to bring in efficiencies and reduce equipment return-to-service times make me proud."

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Implementation of the MWM electronic platform has provided for a more empowered workforce in the field. MWM is delivered on a tablet device containing the MWM application itself coupled with structured access to plant equipment and work process information. Through MWM, users are able to access activities for review, reference, walkdown, assignment, execution, schedule update, post-maintenance testing, and closeout of work packages, permits, and impairments without returning to the shop. This saves many person-hours over a year. The MWM platform works on previously installed w-fi infrastructure, which enables connectivity from anywhere on-site. However, should a field technician find that they are out of range of the wi-fi infrastructure, the platform was designed to also accommodate off-network use to avoid work interruptions. This is a unique feature when compared to similar, off-the-shelf platforms for fieldwork management.

The MWM platform is fully integrated with the station's work management System (WMS), enabling near-real-time updates from either platform. This tight integration provides the unique capability to execute a paperless work order while providing field access to the WMS and supply chain applications for work-in-progress needs. This is done with the inclusive goal of reducing equipment restoration times and improving equipment reliability and plant performance. This platform is currently in use by maintenance staff, security technicians, performance technicians, and cybersecurity staff with operations staff also having roles in the process.

The MWM mobile tablet device is a fully functioning computer running on a Microsoft operating system and allows the same local area network and Oracle-based application access to individuals no matter where they are located on-site. The tablet provides high-quality camera, video, and communications tools to capture as-found conditions. Once these conditions are found, livestream sharing throughout the process may be used and also serves as a repository for historical purposes and helps provide training material for future training needs.

This in-house-developed platform has resulted in many benefits for STP and team members, including cost savings and process improvements. This system has also created a ripple effect of efficiencies and improvements across STP's business. Over the years, STP has incrementally introduced many process checks and balances to incorporate human performance tools into the work management program. Streamlining and automating the implementation of

the work management process and human performance tools have been proven to increase worker productivity and lower the costs to operate. Electronic work packages (eWPs) have become a primary vehicle for integrating work activities with basic plant workflow processes; eWPs have also eliminated several costly legacy activities that are associated with paper processes, further reducing costs.

Development and implementation of the MWM application with STP's very own development team has alleviated the need for additional servers, databases, user and maintenance fees, and enterprise licenses. In-house development methods and the use of STP's existing Oracle platform have allowed for tight integration among all work management and condition reporting processes. Many off-the-shelf products achieve this without the level of integration STP has been able to realize and at a much greater expense. The design of the system included central data storage in Oracle, which is accessible from the majority of STP platforms, eliminating stranded or disparate information.

The effective use of this platform has resulted in a significant reduction in administrative burden for paper routing, markup, closure, and document retention. Also, to ensure one user does not step on another's work, the eWP has a built-in "check-out" feature. This helps ensure quality in the work package itself and eliminate duplicated work.

MWM tablets also have access to other STP applications, including live scheduling updates through Sentempo. Work package updates for work in progress can be downloaded to the tablet via the station's wi-fi infrastructure, alleviating the need for field workers to go back to the planning group or supervisor. This could save many hours in unproductive time spent walking from the shop to the field or field to shop.

MWM devices have access to over 450 wi-fi access points in the plant's power block, protected area, and circulating water intake areas, and the system can be extended to include outer areas in the future, such as the well water area. As previously mentioned, an "off network" feature is designed into the product.

Waco Bankston, STP's general manager of corporate services, is proud of the group's achievements. "The team was able to aggregate and leverage STP's existing technology infrastructure assets by integrating various already existing systems to create an all-inclusive MWM solution that allows for in-the-field use of the product regardless of the device being on or off network," Bankston said.

One of the team's main focus areas was ensuring that the

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Prasad Kalva tests the MWM application in the field on a mobile device. (Photo: STP)

MWM application was secure. In 2020, a security audit was performed on the MWM application, infrastructure tablet, and other areas, which was a critical step for ensuring the protection of station's data.

MWM and STP's WMS are housed in the same database environment, and this was both an advantage and a game changer for how and when the organization could leverage the platform. For this application to be able to function in offline mode, STP utilized Java and Chrome browsers to download the database data to the local client and present it to the worker in the field as needed, regardless of whether the user was on network or off. Seamless navigation between various technologies and the ability to interact with legacy applications (the WMS, records management systems, FileNet, and parts procurement systems) was a huge win. STP was able to gain synergies among these systems by creating innovative integration touch points and then exposing this data and information to the field user, allowing complete interaction with the data just as if they were in their shops or offices.

The MWM team acknowledges that they didn't get to where they are today alone; rather, they built upon existing

knowledge gained through industry partnerships and operating experience shared by others. "I am a technical advisory team member for the Electric Power Research Institute's Electronic Work Package and Mobile Work Management Group," said Lynn Davidson, STP's business process analyst and coleader of STP's MWM team. "This enabled me great access to industry eWP projects, lessons learned, and actual project managers and users. This invaluable access allowed me to write the initial eWP/MWM requirements for development, as well as provide that information to IT and the project management team to include in our project."

In January 2021, STP rolled out updated core values, with the addition of respect and innovation, to join the previously held values of safety and excellence. The acronym RISE was adopted to collectively reflect the company's values, along with a new vision statement: "Regardless of the challenges we face, as seasons change and days turn to years, we'll be here—powering through it all and redefining what's possible."

While efforts around MWM began several years ago, STP is certainly moving toward its vision of redefining possible and helping others along the way. STP acknowledges that MWM is not a perfect platform, and so the company makes ongoing efforts to identify how it can improve the system to drive even more value and return on the investments already made. This approach will result in an even better system in the future.

Bankston sees a bright future ahead as he reflects on the faith and perseverance that fueled this team. "I'm thrilled that the industry [NEI] recognized this team of innovators for their efforts and solid results by awarding them the 2021 TIP award. With this team's 'continuous improvement' mindset and our company's focus on fostering and sustaining a culture of respect, innovation, safety, and excellence, I'm confident we will continue to build on and improve the MWM platform in the months and years ahead." ❧

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Chris Paschall reviews an electronic work package using the MWM system at STP.
(Photo: STP)

