THE RWCC OPERATIONS APP: ENHANCING OPERATIONAL EFFICIENCY AND SAFETY

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Abstract

Water operations depend on having accurate, up-to-date information, but getting that information hasn't always been simple. Critical details – like site data, documents, chemical lists, emergency procedures, and navigation info – were scattered across different platforms, making it hard for operators to quickly and easily find what they needed. That's why the RWCC Operations App was created – a central hub that brings everything together in one easy-to-use platform.

The application provides site-specific data and specifications, as well as important operational details and navigation tools that help teams locate and manage assets efficiently. It also provides instant access to documents like site manuals, emergency action plans and procedures, asbestos registers, and chemical inventories. The app also includes several built-in calculators for chemical dosing, reservoir and pipeline chlorination, pipe charge time, and volume estimates, making daily tasks simpler and more precise.

To improve communication and collaboration, the app includes discussion pages, site diaries, and a team directory with direct call and email functions. Whether you're in the field or at your desk, you can access all the information you need from your mobile device or computer. By streamlining processes and improving accessibility to data, the RWCC Operations App improves efficiency, compliance, and safety.

I. INTRODUCTION

Riverina Water County Council provides potable drinking water to over 78,000 people across the Wagga Wagga, Lockhart, Greater Hume, and Federation local government areas in regional New South Wales [8]. Maintaining consistent and compliant water supply operations across a wide-spread network of sites depends on quick and reliable access to important operational information, including site specifications, chemical inventories, emergency procedures, and technical calculations. Historically, this information was scattered across multiple platforms and physical records, making it difficult for operators to quickly locate what they needed – especially while working in the field.

In response to these challenges, the RWCC Operations App was developed – a digital platform that consolidates important operational data into one accessible system suitable for desktop and mobile use. By consolidating site information, safety documents, emergency plans, navigation tools, and calculation tools, the app

improves access, safety, decision-making and operational compliance.

The application was designed to align with the future of operations in the water industry, i.e. toward smarter utility management, where having up-to-date, easy-to-access data is crucial to running operations efficiently and managing infrastructure properly [3, 7]. The Operations App also supports RWCC's commitment to innovation, safety, and service reliability by providing field staff and engineers with the tools they need to operate safely and efficiently with confidence and precision [7].

II. DISCUSSION

The RWCC Operations App represents a significant step forward in modernising operational practices at RWCC. Digital tools are increasingly being adopted by industries across Australia to address the inefficiencies associated with disconnected data systems, paper-based processes, and limited field access to critical information [1, 3]. By combining site data, safety documentation, and calculation tools into a mobile-accessible platform, the RWCC Operations App allows for faster, more efficient, and compliant operations.

One of the main benefits of the RWCC Operations App is that it helps operators make faster, better decisions in real time. In the field, having quick access to up-to-date procedures and specifications is crucial – not just for efficiency, but for keeping things running safely and avoiding any disruptions to supply [4]. Emergency response is significantly improved when site-specific data is accessible on-site via mobile devices during an incident. This supports *Water Services Association Australia's* (WSAA) guidance on the importance of robust digital asset management. Frameworks like *BIM4Water* focus on making asset data consistent, clear, and accessible, so field assets are properly defined and easy to work with. This helps ensure that digital platforms can be used reliably in everyday operations. [5].

The centralisation of chemical inventories and automated SDS expiry alerts also contribute to improved safety and regulatory compliance. Under *Safe Work Australia's* model WHS regulations, employers must ensure chemical safety information is both accessible and current [6]. Manually keeping track of SDS updates can lead to compliance issues. The RWCC Operations App solves this with automated monitoring and alerts, reducing admin workload and helping staff stay up-to-date with safety requirements.

Built-in calculators for chemical dosing, generator sizing, super chlorination, pipe volume, and charge time simplify complex fieldwork and reduce the likelihood of human error. These tools reduce reliance on manual calculations and mathematical skills, supporting the shift toward decision support systems in the water industry, where automation and guided inputs help improve accuracy and make it easier to train and support field staff [7].

From a workforce perspective, the app helps teams stay connected through discussion boards and site diaries – simple tools that support knowledge-sharing and keep everyone accountable. This also reflects industry-wide efforts to improve digital engagement between field staff and management. [2].

In summary, the RWCC Operations App shows how regional utilities can successfully implement smart, scalable tools to improve service delivery, safety, and compliance. By designing solutions that focus on the real needs of field staff and integrating regulatory requirements, the app provides a practical, working example of digital transformation at RWCC.

II.I. KEY FEATURES

II.I.I.Site Data and Documents

The applicaiton contains a range of data which was not previously consolidated or easily remotely accessible. Ease of access to important site information whilst in the office or on-site was once a challenging and time-consuming task, as all information relevant to a specific site was not in the one location. By centralising this data, the RWCC Operations App removes the need to search through multiple systems or physical files. Users can now instantly retrieve site-specifications, manuals, diagrams, records, and associated documents with just a few clicks. This feature saves time and ensures that users are working with the most current and accurate information, thus reducing the risk of errors and improving operational decisions.

II.I.II. Site Chemical Lists & SDS

The Chemical Lists & SDS feature provides an overview of all chemicals used across RWCC treatment plants. This ensures that operators have quick and reliable access to essential safety and operational information. Each chemical entry also includes an attached Safety Data Sheet (SDS). In addition to a centralised chemical page containing all chemical data, each individual site page contains a location-specific chemical list. This allows users to view chemicals relevant to a particular site and view the broader chemical inventory when needed. The full chemical list also includes filter and search functionality to

Figure 1: Site Page Summary

improve usability, so that users can identify chemicals by site or chemical name. An automated SDS expiry detection function is also built into the feature that monitors the validity of each SDS and alerts moderators when an update is required.

II.I.III. Emergency Action Plans and Procedures

The Emergency Action Plans and Procedures feature provides access to both site-specific and general emergency documentation. Each individual site page includes the emergency action plans and procedural documents relevant to that location. This ensures that operators can quickly and easily locate the correct documentation during emergency situations. In addition to the individual site pages, there is a dedicated page that consolidates all emergency documents across the network. This provides a full list of relevant documents if required. The central page contains filter and search functions, so that users can easily navigate the list and retrieve specific plans or procedures as needed.

II.I.IV. Asbestos Registers

The Asbestos Registers feature provides access to documentation identifying and managing asbestos-containing materials across various sites. A dedicated page within the application contains all asbestos register documents. This ensures that users can easily locate and view relevant information. Where applicable, each site page includes a direct link to the corresponding asbestos register, allowing for quick reference during site assessments or maintenance. This assists regulatory compliance and promotes safe work practices by ensuring that asbestos-related information is readily accessible and site-specific.

II.I.V. Site Locations

The Site Locations feature provides efficient site access by providing location data and integrated mapping functionality. Each site page includes the site address, GPS coordinates, access comments, and a direct link to Google Maps, enabling users to view the site on a map and initiate navigation with a single click. A centralised site locations page lists all operational sites along with their respective location details and map links. For users unfamiliar with a site's location, this feature provides a straightforward solution for route planning and travel. This functionality ensures that site visits can be completed with accuracy and ease.

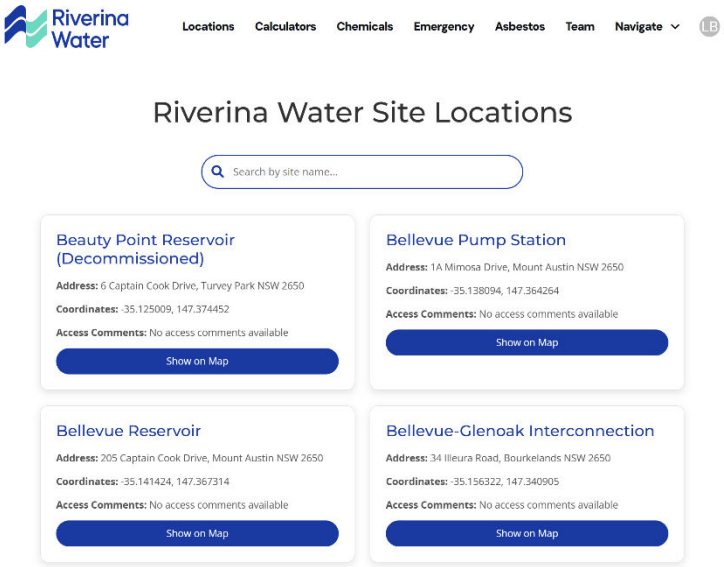

Figure 2: Site Locations Page

II.I.VI. Built-in Calculators

The RWCC Operations App includes a suite of built-in calculators that streamline routine tasks and improve the accuracy of fieldwork. These calculators have been developed to assist operators in performing common treatment and infrastructure-related calculations. They are designed to be simple to use, with intuitive interfaces that guide the user through each step and ensure that all relevant variables are accounted for.

Chemical Dosing Calculator: Supports both dry and solution feed systems and allows users to calculate important dosing parameters such as solution strength, dosing rate, dry mass feed, and final water concentration.

Emergency Generator Sizing Calculator: Assists operators in selecting appropriate backup power systems by considering electrical load, motor characteristics, power factors, and site-specific derating conditions.

Pipeline Super Chlorination Calculator: Provides operators with the required dose rate, sodium hypochlorite volume, and fill time needed to disinfect new or repaired pipelines.

Pipeline Charge Time Calculator: Determines the time and volume required to fully charge a pipeline based on length, diameter, and flow rate.

Storage Hypo Dosing Calculator: Helps increase chlorine residual levels in a water storage tank to a desired level by calculating the exact volume of hypochlorite to be added.

III. CONCLUSION

The RWCC Operations App shows how digital tools can improve water utility operations by bringing key information into one place, simplifying daily processes, and supporting safer, more efficient decisions in the field. It tackles long-standing issues like scattered data, chemical compliance, and emergency preparedness by giving staff quick access to what they need, when they need it. With a mobile-first design and built-in calculators, the app helps standardise fieldwork, reduce errors, and improve compliance across RWCC's widespread network. As more of the industry moves toward digital solutions, the app provides a clear, practical example of how regional utilities can modernise their systems and improve day-to-day operations.

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