GUEST ARTICLE

By John Nichols, Advanced Control Systems

Asset Management Software Solutions for Small Agencies and Rural Water Associations
Part Two

(Part One on this topic appeared on pages 22–23 of the Spring 2018 issue of The Water Gram)

In Part One of this series, we defined Asset Management and discussed its value to small agencies and municipalities. In this article, we'll explore systems, methodologies, and practices for asset maintenance management.

Once an asset is acquired, installed, and commissioned, proper maintenance is required to ensure its safe and effective operation and longevity. The maintenance components of an Asset Management system, when diligently applied, will enable proper asset maintenance procedures.

In Part Two, we'll describe the most commonly employed asset maintenance practices and systems.

ASSET MANAGEMENT PRACTICES AND TECHNIQUES

Break-fix

Break-fix has few preventive aspects to it, other than scheduled upkeep such as lubrication and inspection. As its name suggests, the break-fix method is to wait for the asset to malfunction or break down and repair or replace it then.

Break-fix is best used when an asset has no available replacement parts, its manufacturer is no longer in business, or it's a static item, such as a water tank shell or pipeline. Note that pumps, instruments, and valves associated with these static assets will require preventive maintenance techniques.

It's a good strategy to have a break-fix asset's replacement specified and acquired so service can be restored as quickly as possible after a non-recoverable breakdown. Another possibility is to install the replacement and operate it in standby mode until needed.

Scheduled Preventive Maintenance

Many assets' manufacturers provide recommended maintenance schedules, with daily, weekly, monthly, quarterly, or annual intervals. These procedures may involve lubrication, inspection, flushing of liquids, or parts replacement.

The upside to scheduled maintenance procedures is that they can head off breakdowns. A potential downside is that, in the case of light operation of the asset, the procedure may not be needed at the scheduled date. Performing it prematurely may cause unnecessary expense and downtime.

Maintenance schedules can be set and tracked on a paper or computer calendar.

Condition-Based Monitoring (CBM)

CBM tracks actual use of an asset, whether time in operation or number of actuations, and triggers a maintenance procedure when a preset time or other operating limit has been reached.

CBM and scheduled methods can also be combined into one procedure. Example: "Pack grease fittings every 90 days or 1,500 hours of operation, whichever comes first."

Other predictors of impending failure, such as faster-than-normal rise in temperature, bearing vibration, or gradual loss of pressure can be instrumented, detected, tracked, and mitigated prior to asset malfunction or breakdown.

ASSET MANAGEMENT SOFTWARE

Enterprise Asset Management (EAM)

EAM systems encompass maintenance procedures, work order generation, repair and spare parts ordering and logistics, costing, repair personnel certification, and integration with accounting systems.

EAM may be a module in an Enterprise Resource Planning (ERP) system, or a stand-alone package that interfaces with existing ERP systems. EAM does not necessarily utilize CBM preventive maintenance.

Due to their size and complexity, EAMs are expensive and require significant time and resources to implement. Therefore, they may be out of reach for small and rural agencies.

Computerized Maintenance Management Systems (CMMS)

These systems enable users to perform maintenance procedures, generate work orders, and order repair and spare parts. They lack the enterprise integration of an EAM.

CMMS does not necessarily utilize CBM preventive maintenance, either.

It is less expensive and complex than EAM but is costlier and more complicated than an asset management add-on to a SCADA[1] system.

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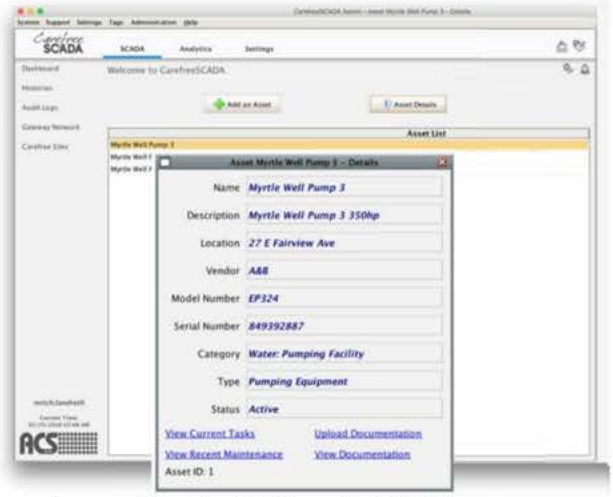
Condition-Based Monitoring Add-on to SCADA

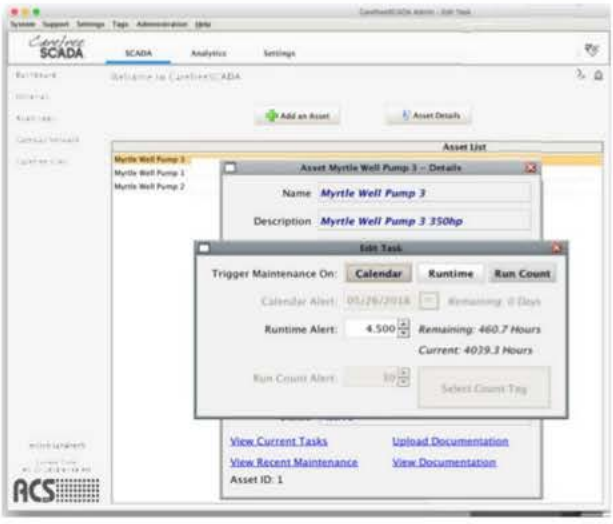
SCADA systems have real-time data connections to many assets and/or their components.

If the SCADA system also has asset maintenance management (AM) functionality, it can use both scheduled and condition-based preventive maintenance methods. Scheduled maintenance can also be configured for non-connected assets.



Asset configuration in AM-enabled SCADA system

An asset can be configured in an AM-capable SCADA system so that texts, emails, and on-screen alerts will be sent to maintenance personnel when a condition threshold or planned maintenance date has been reached.



Asset preventive maintenance task configurations in AM-enabled SCADA system

Asset maintenance work order in AM-enabled SCADA system

In addition to alerts, maintenance procedure documents can also be added to the asset's configuration and called up by maintenance personnel.

An AM-enabled SCADA system provides essential AM functionality at a fraction of the cost and complexity of an EAM or CMMS.

About the company:

ACS is celebrating its 26th year providing process automation and SCADA system integration solutions to Asotin County PUD, City of Payette, City of Nez Perce, and scores of other municipalities, agencies, and manufacturers. ACS is the developer of CarefreeSCADA™, a cloud-hosted SCADA application with Asset Management and Preventive Maintenance functionality built in. ACS is a member of the Idaho Rural Water Association. For info on cloud-hosted SCADA, contact Rick Patton at *rick@advancedcontrol.com*, or go to *www.carefreescada.com*.

ADVANCED CONTROL SYSTEMS

Notes:

1. SCADA – Supervisory Control and Data Acquisition – a system used by plant operators to interact with control systems, view and acknowledge alerts, and to record and review historical process data.

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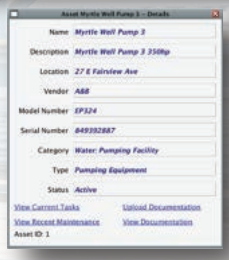
Carefree SCADA

Turnkey water SCADA in the cloud
Water | WWTP | Irrigation
1-208-362-5858
sales@carefreescada.com

Operator Views
- View equipment status in realtime
- Supervisory control from operator views
- View and acknowledge process alarms
- Easy to use

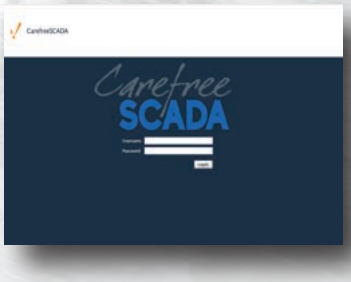
Historical Trends
- Meet regulatory agency requirements
- User-selectable time periods
- Seconds, minutes, hours, days
- Color-coded traces

Asset Management
- Avoid unplanned downtime
- Calendar and condition-based scheduling
- Maintenance work orders
- Easy to use



Mobile Access
- Always be in touch with your plants and processes
- Access your SCADA data from anywhere at any time
- View and acknowledge alarms easily
- Easy and intuitive to use

Cloud Based
- Minimal or no additional computer hardware investment
- Updates automatically
- Low maintenance
- Secure



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www.CarefreeSCADA.com

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