



Non-Traditional Indicators of System Performance

Water Environment Research Foundation - Decentralized

The use of real-time sensors and supervisory control and data acquisition (SCADA) systems has become commonplace in large centralized wastewater treatment systems, however, this WERF research project indicates the number of decentralized wastewater treatment facilities currently using on-line sensors for real-time remote monitoring is relatively small. This could be due to perceptions of high cost for installation and maintenance, and perceptions of poor reliability. However, the cost effectiveness and reliability of the technology has been demonstrated in larger systems, which should be transportable to smaller clustered, decentralized systems.

This project focused on assessing on-line sensing and data acquisition technologies applicable for use in decentralized wastewater treatment systems to provide real-time information on the performance and operational status of the facility. A life-cycle cost analysis tool is provided that can be used by the decentralized wastewater system professional to provide defensible budgetary estimates of instrumentation procurement and installation costs and ongoing labor expenses to support maintenance requirements over the life-time of on-line sensing equipment. The results of this study will help wastewater facility managers, operators, and designers select real-time sensors and SCADA systems for decentralized wastewater treatment facilities.

Improved remote monitoring of these facilities should provide facilities with a cost-effective means to manage and improve the performance of decentralized wastewater treatment plants. The research project involved five main areas of investigation related to the use of on-line sensing and data acquisition technologies in decentralized wastewater treatment systems, including a literature and technical review, development of monitoring needs, identification of sensor capabilities, identification of SCADA capability, and additional research needs. The results of the literature and technical review were used to help identify the monitoring needs for decentralized wastewater treatment facilities.

The review identified traditional and non-traditional parameters that could be monitored in decentralized wastewater treatment systems to allow operations or management staff at a remote location to assess the operating or performance status of a facility and to respond to upsets, process or mechanical failures, or other non-routine situations. This study determined that operating conditions, process control parameters, and effluent quality parameters could be monitored on-line at decentralized facilities, and a list of parameters requiring further investigation in the third area of the study ("identification of sensor capabilities") was identified.

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The study also determined the status and characteristics of real-time sensing equipment for on-line monitoring of the parameters in decentralized wastewater treatment systems. Selection matrices were developed that display traditional and non-traditional instrument technologies, listing specific attributes of individual manufactured instruments categorized by cost of ownership and on-line monitoring capabilities to assist the end-user in making direct comparisons of the differences in manufactured instruments. The data provides decentralized wastewater treatment system professionals with general principle of operation descriptions to assist in determining which technology would best fit the application.

Additionally, individual instrumentation specification matrices are also provided which report supplementary instrument parameters for further consideration in the decentralized wastewater treatment system instrumentation selection process. Included is a review of the capability of

SCADA systems to collect and analyze the information generated by real-time sensors to provide relevant operational and performance information to remote operational staff.

Wireless and wired communication systems can relay information from a decentralized site to an operator or central monitoring location. A review and discussion of the advantages and disadvantages and relative costs for the options available for data transfer from remote facilities to a centralized operations center is also provided. Following up on information obtained from previous stages of the study, research needs that could lead to broader acceptance and use of real-time sensors and SCADA in decentralized wastewater systems were identified. This included gaps in knowledge or technology for real-time remote monitoring of decentralized wastewater treatment systems.

The study identified three main areas requiring further study:

- Technology and technology transfer
- Verification of cost-effectiveness n Education and training

Specific recommendations for research are provided and presented in order of priority in Table 1. Detailed descriptions of the research recommendations are available in the full report. A proposed priority list of parameters for field testing of sensors was identified for field testing, which is presented in Table 2. Detailed rationales of the proposed priority list of parameters for field testing are available in the full report.

Executive Assistant Position Available

The AOWMA is seeking an Executive Assistant. The successful candidate would perform administrative duties for executive management. The ideal candidate will possess strong computer and internet research skills. This position requires someone capable of flexibility in their work tasks and working hours, excellent interpersonal skills, project coordination, experience and the ability to work well with all levels of internal management and staff as well as outside clients and vendors. Position would initially be part-time, transitioning to full time at a later date.

More information is available by contacting the AOWMA office at 877.489.7471.

2016 Convention & Trade Show - Save The Date!

The 2016 AOWMA Convention and Trade Show has been announced:

February 25 – 28, 2016

**Grey Eagle Resort and Convention Center
Calgary, AB**

Call for Papers: 2016 AOWMA Convention

The Alberta Onsite Wastewater Management Association (AOWMA) welcomes abstracts for papers to be presented at the Annual Conference being held in February 2016. The conference will take place in Calgary on February 25 – 28, 2016. Presenters are invited to submit their papers for consideration.

More information can be found by contacting our office or on our website: <http://www.aowma.com/call-for-papers-2016-aowma-convention/>.

Onsite Wastewater Practitioner Training

The next available training session dates are:

Days 1 – 3 – December 16, 17 & 18, 2015 Calgary, AB

Days 4 – 7 – January 12, 13, 14 & 15, 2016 Calgary AB

Registration is now open. Visit our website or contact the association office at 877-489-7471 for more information.

Site & Soil Evaluation Field Training

The AOWMA is hosting two upcoming Site & Soils Evaluation Field Days:

October 8, 2015— Edmonton region

October 22, 2015— Pincher Creek

This practical training day is a great opportunity to get hands-on experience evaluating a site, as well as practicing hand texturing and sampling. Installers who have recently completed the Onsite Wastewater Practitioner Training Program will be able to take their new knowledge and apply it on-site. Experienced designers and installers should also consider this opportunity to continue their education.

Register online, download a registration form, or contact the association office at 877.489.7471 for more information.

Ground Disturbance Trench & Excavation: Competent Person Training

UNITED ACADEMY

This one day (8 hour) course is designed for persons who will be supervising, planning, executing, or participating in any ground disturbance activities in Alberta, Canada.

The course is designed to focus on effective communication between all levels of workers, identify specific responsibilities adhering to the relevant legislation, and classify potential hazards using hazard assessments and control measures for safe excavation and the prevention of underground facility damage.

This course is being offered in the following locations:

October 19-20 Edmonton

October 22-23 Calgary

More information can be found on their website: http://unitedacademy.ur.com/cart_builder.cfm?ProductID=47569

AAMDC Trade Show

AAMDC

March 14 – Edmonton

The AAMDC's annual Trade Show will take place **Monday, March 14, 2016** at the Shaw Conference Centre in Edmonton. The event features over 140 booths, including AAMDC approved suppliers. For more information, please see the Tradeshow attachment below.

For more information on future conventions, please contact Cindy Carstairs, Administrative and Convention Coordinator, at 780.955.4095.

Rural Utilities And Safety Association Convention And Trade Show Field Code Changed

November 30 - Red Deer

Operating since 1973, RUSA is an association made up of rural municipalities, counties, towns, special areas and villages dedicated to the safer working conditions for contractors and the public in general when working near any utility, and in the long term, lower costs to municipalities. RUSA represents and supports our members in areas of professional development, safety, uniform interpretation and application of appropriate legislation.

Conference Hotel
Sheraton Red Deer Hotel
3310-50 Ave
Red Deer, T4N 3X9
(800) 662-7197

Water Week North

AQUATERA UTILITIES

October 20 – 22 – Grande Prairie

Aquatera Utilities is proud to present the 2015 Water Week North Conference in Grande Prairie, Alberta, Canada from October 20-22, 2015. This conference will provide communities in the water treatment, wastewater treatment, water distribution, and wastewater collection industry an opportunity for education and networking.

More information can be found on their website: <http://www.waterweeknorth.ca/>