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Active Dam Safety Monitoring

Dam safety monitoring in real time—mitigating risk and optimizing operations

OneRain provides successful dam owners peace of mind knowing their dams are safe, their operational costs minimized and, if there's a problem, the right people are actively notified.

The Problem

Dams create risk. High and significant hazard dam risks include loss of life and significant property damage. Even small dams can present serious risk; in the September 2013 Colorado floods, a cascading failure of five small dams resulted in a loss of life¹.

Most dams were built for specific purposes. If for any reason—faulty design, poor construction or advancing age without rehabilitation—a dam does not function as it should, it may not fulfill its intended purpose in a cost effective and safe manner.

Historically, real-time automated monitoring was costly and dam owners opted either to monitor their dams with personnel based on site, or perhaps not to monitor at all.

Personnel-based monitoring carries a high cost especially when on-site staffing is not otherwise required, but inadequate monitoring can impact safety with devastating consequences as well as undermine operational efficiency and threaten regulatory compliance.

What's a dam owner to do?

The Solution

Safe, cost-effective dam operations require reliable, timely environmental and dam status information. Integrating instrumentation and telemetry with data collection and dissemination software can bring real cost savings to dam operators.

Visualization of current conditions, operational feedback, customized alarms, automated notifications, and 24/7 access from any mobile device are now affordable reality.

These solutions bring dam owners peace of mind.

¹ Bear Jack Gebhardt and Stephen Johnson, "The 500-Year Flood, One Year Later," *Stormwater Journal*, July 21, 2014.

"Critical dam operations require dependable and accurate environmental status information."

OneRain's Active Dam Safety Monitoring

Dam operations are dependably and accurately monitored and easily understood at reduced costs. Users have reliable information and peace of mind knowing their dam functions as it should. **Contrail**®, OneRain's web-based specialized software, is a cornerstone of an Active Dam Safety Monitoring program.

Accurate, timely and reliable data

OneRain's toolbox for real-time monitoring includes integrated instruments measuring reservoir elevation, flow, spillway, discharge, weather, rainfall, float switches, wind, temperature, vibrating wire piezometers, tiltmeters, inclinometers, seismic...

Designed for high availability and reliability

Robust equates to good design and implementation. Ensuring that no single point of failure exists across the network and data collection platform is critical for early warning systems. **OneRain's** systems offer multiple in and out paths for delivery and receipt of critical data.

Extended system support

Optional extended support provides additional peace of mind for dam operator critical operations with day and night, weekend and holiday round-the-clock **OneRain** technical assistance.

System maintenance and performance

Routine, preventative and proactive maintenance programs ensure field instrumentation operates at optimum performance. **Contrail** has tools to manage field inventory, maintenance schedules, workorders and maintenance history.

Advanced warnings with EAP notifications

Customized early warning alerts sent via **Contrail** to the right people support better decision making for dam safety first-in-line responders.

Contrail supports decision criteria and notification procedures for Emergency Action Plans (EAPs).

Get the full picture in one place

Knowing what's going on now with up-to-the-minute visual cues, maps and graphical information enables dam operators and safety officers to quickly evaluate conditions at dams.

Real-time data collection and analysis

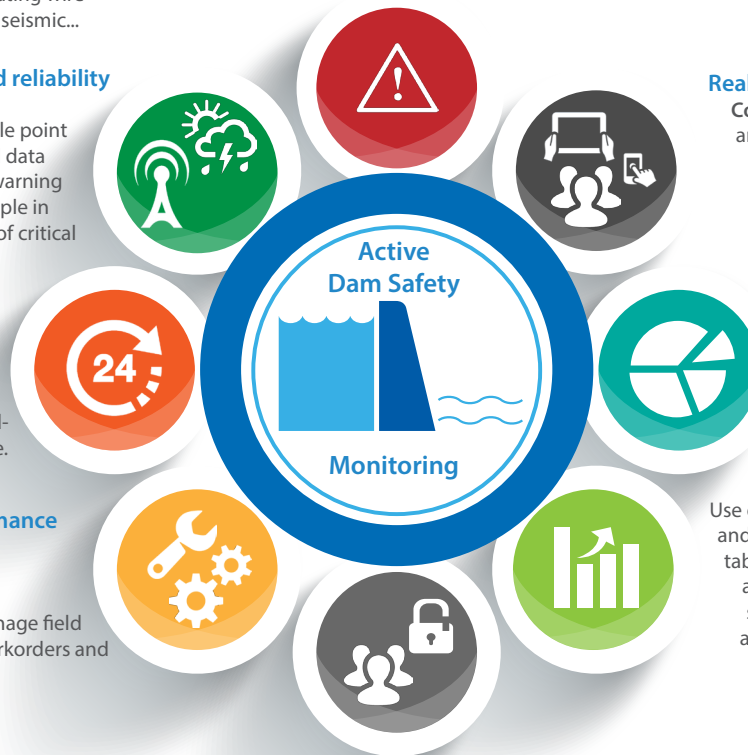
Contrail's web-accessed system captures, analyzes, validates (QA/QC), archives and disseminates data in real time.

Data management and reporting

Analyze past, present and future data with **Contrail**. Plan, manage and predict with insightful performance reports and recognize patterns. Hold your system accountable.

Decision critical operating data

Use our **GateOps™** capabilities to see actual and forecasted inflows, site-specific ratings tables and outputs, display calculated and actual gate positions, calculate reservoir summary and weir flow, aggregate flow and power calculations, storage volume, evapotranspiration...



24/7 secure access

As a dam operator and safety manager, securely monitor your entire system from anywhere at any time by smartphone, laptop or tablet. **Contrail** supports any number of users with advanced user privileges so authorized people can view and access only the information they need.

OneRain
The Rainfall Company

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T: 303 774-2033
Toll Free: 800-758-RAIN (7246)
Email: sales@onerain.com
www.onerain.com

OneRain Inc. 1531 Skyway Dr., Unit D, Longmont, CO 80504, USA



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