

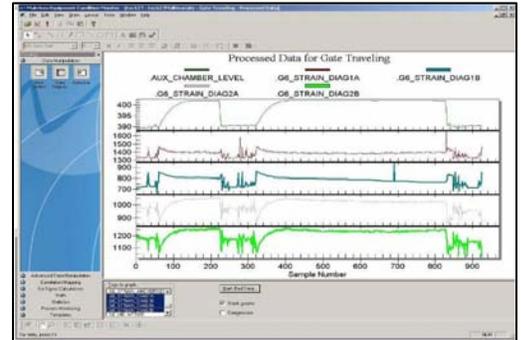


**US Army Corps
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Engineer Research and
Development Center

Conditioning Monitoring & Predictive Maintenance for Infrastructure

Description

This research addresses electrical, mechanical and fatigue monitoring of lock and dam gates and associated machinery. Operating condition signature curves will be developed from data acquired from sensors that monitor loads in critical structural members and machinery, correlated with machinery movements, and interfaced to a condition monitoring system to diagnose system malfunctions, optimize operational procedures and assist in predictive maintenance.



Issue

Unscheduled maintenance can be disruptive and costly. Lock and dam gates and machinery are subject to failure due to excessive loads and wear of components, resulting in excessive costs and downtime.

Users

Corps' District engineers can use the results of this research to provide locks and dams with the capability for early indication of deficiencies that can be corrected, to prevent failure.



Products

Guidelines for condition monitoring for locks and dams:
(1) structural components and (2) operating machinery

- Vibrating wire strain gages on gate anchorage and gate diagonals
- Guidelines for predictive maintenance

Benefits

Conditioning monitoring and predictive maintenance will provide real-time indication of overall electrical, mechanical and structural condition, reduce the likelihood of failure or fracture of critical components, reduce maintenance cost and personnel requirements, and improve safety and reliability of lock gates and dam gates and associated machinery.

Corps Program

Navigation Systems Research Program, Mr. James Clausner, Program Manager.

Point of Contact

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Partners

Locks 27, St. Louis District; Lock 19, Rock Island District; Port Allen Lock, New Port and Port Allen Lock, New Orleans District.