Stone & Webster Solutions

Process Safety & Plant Engineering

Background

We have been providing process safety testing, consulting and engineering to power generation, oil and gas and industrial clients since 1980. Our specialty is solving complex problems that arise in these sectors and we have earned a reputation for world-class expertise in reactive relief system design.

Capabilities

Our plant and process engineering capabilities include:

- Mechanical assessments
- Finite element analysis (FEA)
- Electrical engineering and testing
- Seismic engineering
- Plant measurements and experimental studies
- Process simulation
- Thermal hydraulics
- Transient calculations
- Computational fluid dynamics (CFD)
- Relief system design

Services

Some of our specialized services are described below.

Cable Health and Aging Management Program (CHAMP)

Scheduled analysis of cables can prevent costly replacement and preemptively identify faults to avoid shutdowns. The CHAMP™ program was developed specifically to support electrical cable aging management programs in power plants, a requirement of their long-term operation (LTO) licensing commitment. The program has expanded to address the many other industries where electric cabling is crucial. Our cable services include:

- Cable visual inspections (“walk downs”)
- Cable testing using LIRA®/Tan Delta/HiPot
- Identifying cable locations that are damaged using the LIRA cable testing system)
- Cable qualification electrical engineering

Structural Assessments for Piping Systems

We engineer solutions for our clients’ most crucial business issues. For example, we have designed patented vibration sensing clamps – in this case for a nuclear power plant – for easy transition to piping systems at a multitude of facilities in multiple industrial settings.

Performing analysis of a piping system

Arc Flash Hazard Analysis and Risk Assessment

We provide electrical engineering support to power generation facilities with services including:

- Electrical hazardous area classification:
- Load flow, motor starting, short-circuit, arc flash and coordination studies using Electrical Transient Analyzer Program (ETAP) or SKM Power*tools
- Probabilistic risk assessment (PRA) and circuit analysis
- Complex circuit analysis
- Component analysis
- Through-fault testing

S&W STONE & WEBSTER™
A WESTINGHOUSE ELECTRIC COMPANY

FAUSKE & ASSOCIATES, LLC
WORLD LEADER IN NUCLEAR AND CHEMICAL PROCESS SAFETY

Explosive Dust Testing and Combustible Dust Hazards Analysis (DHA)

We are an industry leader in fire and dust combustion prevention. Our services include combustible dust testing, on-site assessments, Occupational Safety and Health Administration (OSHA) and National Fire Protection Association (NFPA) compliance assistance for dust hazards, audit preparation, training, ignition source evaluation and vent sizing calculations.

Combustible dust testing being conducted for a major airline's service/paint facility. Dust created in that process proved was highly explosive and required a reworking of their safety program and engineering controls.

Experience

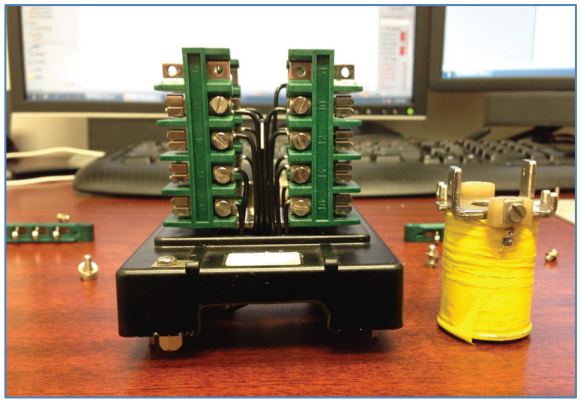
Following are examples of our many engagements across the industries we serve:

Vibration Analysis

At a combined cycle natural gas plant with a large diameter steam pipe that was vibrating, we performed a walk-down inspection and installed instrumentation to record the vibration frequency and magnitude. We determined that the root cause of the vibration was due to a recently installed valve. Our proposed solution was accepted and implemented, resulting in vibration levels reduced to acceptable parameters.

Relay Analysis

Auxiliary relays are heavily used in power and industrial applications. In one project, we analyzed a relay crucial to several non-safety control schemes. The relay (shown below) was no longer in production but this design was deemed necessary given critical characteristics and application. We refurbished the unit and performed diagnostic testing to ensure it performed to original criteria.



Electrical engineering analysis and refurbishment to maintain crucial relays.

Transmission Line Fault Analysis

In a recent project, we analyzed a transmission line providing service to the city of New York. The line developed a fault that stopped service resulting in cost exceeding $1 million per day to the service provider. Our client was unable to determine where the fault lay. Employing our LIRA® cable fault system, we quickly identified the fault location, enabling electrical contractors to repair the cable and return it to service.

Benefits

In a business climate where returns on assets have never been more important, protecting the operation of capital investments and plant safety is imperative.

Our process safety and plant engineering services help to ensure your asset maintenance integrity as well as the spectrum of safety considerations inherent to all industrial power generation settings.

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March 2018
Stone & Webster, Inc. is a unit of Westinghouse Electric Company.

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