Engineering

High Technology Solutions for the Producers, Distributors and Users of Electric Power

Cadick Corporation

Background

For almost a third of a century, the engineers of Cadick Corporation (CC) have been at the forefront of power system engineering technology. Using state-of-the-art software and standards as laid out in IEEE, ANSI, NFPA, and other applicable industry regulations, CC can perform various engineering studies for your facility.

Engineering Services:

- Flash Hazard Analysis
- System Stability and Transient Analysis
- Short Circuit Analysis
- Protective Device Coordination
- Load Flow
- Motor Starting
- Harmonic Studies
- Reliability Analysis
- Compliance Assessment
- Grounding Design
- Condition Assessment
- Engineering Design
- Engineering Documentation
- Fault and Failure Analysis
- Design of shipboard electrical instrumentation calibration systems

Details and Benefits:

The Benefits of such engineering services include:

- Safe and efficient operation of the electric power system
- Reduced fees and fines incurred due to poor power factor or other such problems
- Reduced power bills
- Compliance with regulatory standards such as OSHA and NEC

Now, learn how Cadick Corporation performs the services offered.

Flash Hazard Analysis

Research during the last decade of the 20th century and the first decade of the 21st century, has defined the high risk levels associated with electrical arc. The practical results of this research have included methods that may be used for the calculation of minimum approach distances for the avoidance of both electrical shock and severe electrical arc burns. See Cadick Corporation Technical Bulletin 001a.

Recognizing that some activities require approaching closer than allowable when unprotected, methods have been developed to determine the type, style, and amount of personal protective equipment (PPE) that must be worn. For example, electrical shock PPE selected using tables based on the voltage level and the nature of the task to be performed.

The selection of PPE for electrical arc protection is somewhat more complicated and uses a technique called flash hazard analysis. Always at the leading edge of technology, Cadick Corporation is the first engineering firm to offer flash hazard analysis.

Whether based on worst case industry tables or using analytical engineering techniques, flash hazard analysis is a safety related (and required) must-do for commercial, industrial, and utility electrical power systems.

For more information
visit our website at
http://www.cadickcorp.com

Or call us today at 972.240.1594
Fax 214.722-0070

Cadick Corporation
P.O. Box 495578
Garland, Texas 75049-5578

email: Info@Cadickcorp.com

System Stability and Transient Analysis

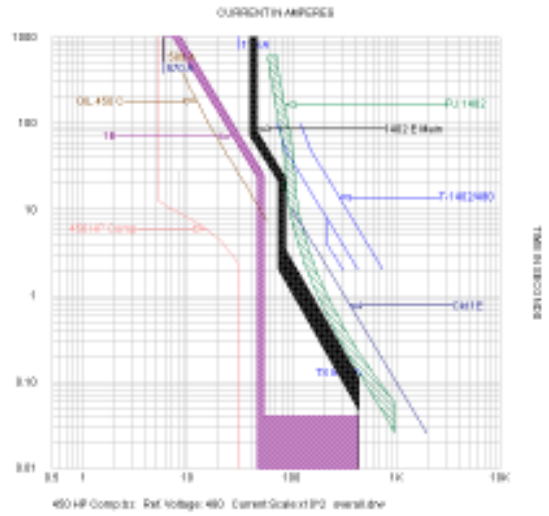
Cadick Corporation models your power system using our state-of-the-art analysis software. We then perform various transient and/or steady state stability studies to determine whether your system will return to normal operation following a short or long term perturbation.

Short Circuit Analysis

A short circuit analysis is performed to determine the adequacy of your interrupting devices (such as circuit breakers) and to identify correct set points for instantaneous elements. A short circuit analysis is required for proper sizing of circuit breakers and/or fuses.

Protective Device Coordination

Using a graphical software program, Cadick Corporation selects optimum set points for your timed overcurrent devices. Such a study is necessary to insure that only the minimum amount of your system is de-energized when a short circuit occurs.



Load Flow

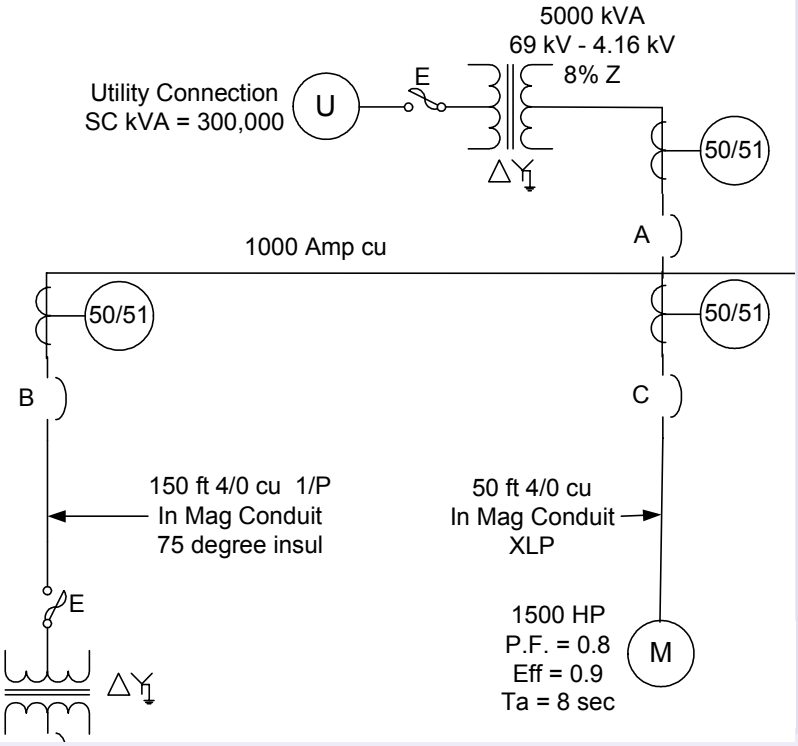
A load flow study calculates the currents, voltages, and phase angles for each bus in your system. This information is used to determine proper sizing of current carrying equipment, to identify overloaded devices, and to determine locations where power factor correction may be required.

Motor Starting

A motor starting study is performed to determine the voltages, currents, and starting times involved when starting large motors. Such a study is critical before installing a large motor to make certain that your system can start the motor successfully. It may also be performed anytime a change in the power supply is implemented.

Harmonic Studies

Harmonic studies involve a two phase approach. First, your system harmonic levels are measured using recording equipment. Second, using a computer model, harmonic load flows, voltages, and currents are calculated. The results from the two studies are compared, and trouble spots are identified. The results of these studies can then be used to prepare corrective actions such as filters.



Reliability Analysis

Using standard IEEE models, your system operations are analyzed and compared to industry norms. Outage records which exceed industry standards are pinpointed and corrective actions are recommended.

Compliance Assessment

Your system installations are reviewed by our field experienced engineers. Protective schemes, classified locations, conductor sizing, transformer sizing, grounding, and many other items are inspected and compared to the NEC, NESC, IEEE, ANSI, and other applicable design and safety standards. If upgrading or modifications are required, they are identified in the final report.

Grounding Design

New or existing grounding systems are analyzed and/or designed according to IEEE standards. Properly designed grounding systems are required to insure safe operation.

Condition Assessment

The condition of your power system equipment is analyzed by a combination of on-site inspections, operational reviews, and test records analysis. Trouble spots are identified and corrective recommendations developed.

Engineering Design

Cadick Corporation is expert in the provision of small to medium size design projects. Our design expertise includes protective schemes, control systems, SCADA systems, and generation installations.

Engineering Documentation

Using state-of-the-art software, we can update and or create single-line diagrams, three-line diagrams, elementary diagrams, and wiring diagrams. Our clients are optionally supplied with paper prints, electronic files, or both.

Fault and Failure Analysis

Our experienced electrical experts can review the fault or failure of your power system and help you determine causes and preventions for future occurrences. The analysis will include site visits, review of operating records, fault recorder records, personnel interviews, and other investigative and diagnostic approaches. Such analyses may involve short circuit mis-operations, accident investigations, or other such events that require a technical review.

Design of shipboard electrical instrumentation calibration systems

Cadick Corporation has been at the forefront of the development of shipboard calibration systems for electrical power systems. Our experience in this area allows us to design and implement such systems quickly and according to the specifications laid out jointly with our client.

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