



# ENGINEERING SERVICES

POWER SYSTEM STUDIES

COMPLIANCE WITH NFPA 70E

FIELD DATA COLLECTION

WHOLE SYSTEM INTEGRATION  
OF POWER CHAIN

[WWW.TDSSOLUTIONS.COM](http://WWW.TDSSOLUTIONS.COM)

# HAVE A UNIQUE POWER SYSTEM CHALLENGE OR JUST ENDEAVORING TO MAINTAIN NFPA 70E COMPLIANCE?

Our team offers a full range of engineering services, providing consulting and design solutions to ensure the safe, sustainable use of electric power. As a specialized power engineering group, we input actual field verified data to ensure our studies, and therefore your solutions, reflect your real-world conditions. We partner with you to take all of our engineering recommendations through to full implementation, including calibration and testing.

## Services Include:

### POWER SYSTEM STUDIES

Short Circuit, Coordination and Arc Flash Analysis

Grounding

Load Flow

Motor Starting

Power Quality

Harmonic Analysis

### COMPLIANCE WITH NFPA 70E

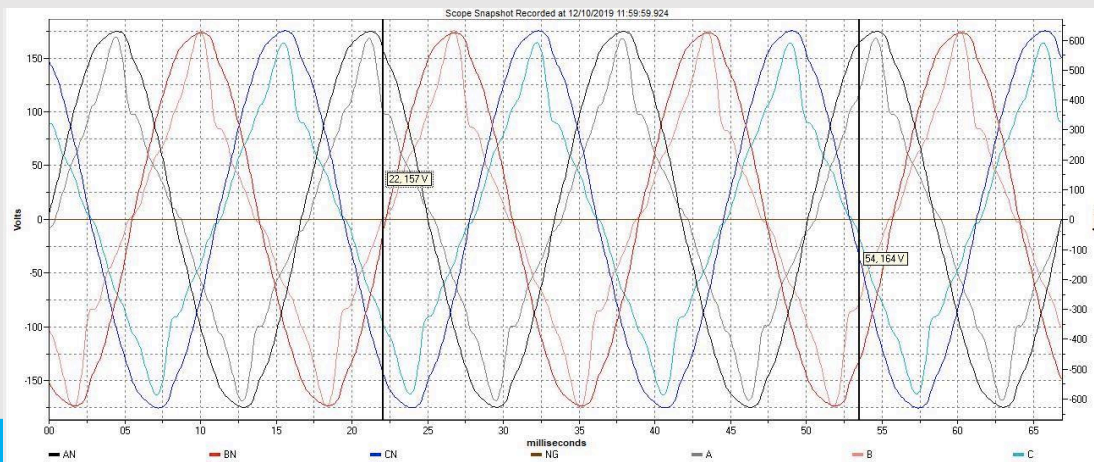
Update New and Modified Equipment  
Periodic Study Updates

### FIELD DATA COLLECTION

### WHOLE SYSTEM INTEGRATION OF POWER CHAIN

From service incoming to individualized load

**SAFETY**  
is our  
**PRIORITY**

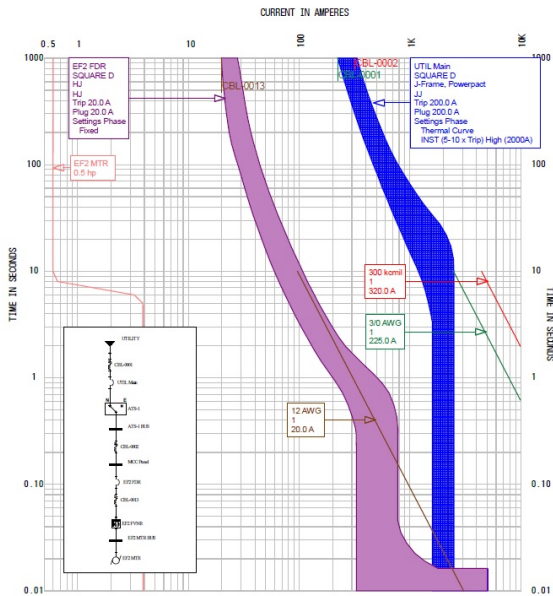


EXAMPLE | High Current Harmonics but not yet affecting voltage waveform caused by drives.

## ARC FLASH HAZARD ANALYSIS


To comply with today's NFPA 70E regulations (Electrical Safety Requirements for Employee Workplaces), facility owners now need to perform maintenance on their low and medium voltage switchgear. TDS technicians can perform this maintenance to ensure proper operation of protective devices which is required for accuracy of the arc flash hazard analysis.

Our engineers collect data from your electrical distribution equipment and analyze the data to determine the flash-protection boundary distance and the appropriate PPE requirement. We will install the proper labeling so the facility is compliant and is better able to alert and safeguard employees against potential injury.



### Compliance & Labeling

Any employee working on energized equipment must see a prominently displayed label that identifies the existence of an arc flash hazard, and alerts them to the level of hazard they are to be exposed to. The labeling and identification of a safety plan to deal with this hazard is something that OSHA inspectors now look for in routine inspections as well as after accident investigations. A well maintained system that alerts operators of the hazards will allow for a robust, safe, and reliable power system.

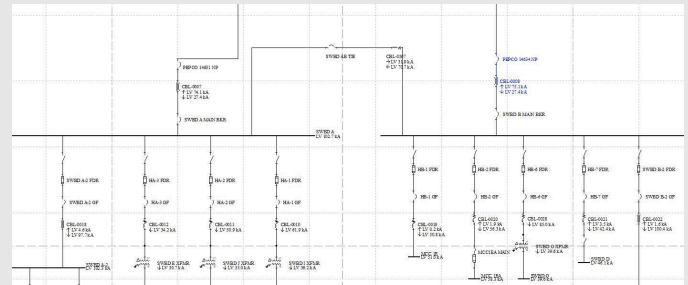
<b>WARNING</b>	
<b>Arc Flash and Shock Risk</b>	
<b>Appropriate PPE Required</b>	
234 in 80.4 cal/cm <sup>2</sup>	Arc Flash Boundary Incident Energy at 18 in
PPE 480 VAC 00 42 in 12 in	Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit Shock Risk when cover is removed Glove Class Limited Approach Restricted Approach
<b>Location:</b> ATS BUS	
 <b>Technical Diagnostic Services, LLC</b> 15825 Trinity Blvd. Fort Worth, TX 76155 (817) 465-9494	
Job#: 16190A	Prepared on: 05/06/19 By: J. W.
Warning: Changes in equipment settings or system configuration will invalidate the calculated values and PPE requirements	

## POWER QUALITY STUDIES

Our engineers are authorities in the area of power quality recording and analysis. Our engineers have an excellent track record of locating the causes of concerns, including utility faults, insulation failure, equipment inadequacy, lightning, non-linear loads, and improper grounding.

Our team not only has the engineering capabilities to uncover the root cause of problems, but we have the field service capabilities to investigate and resolve these concerns. Technicians safely and carefully install and remove the appropriate power recording devices that will provide the data for a power quality study.

Our field and engineering personnel work hand-in-hand to monitor, diagnose, and implement solutions to the most challenging power quality problems.



EXAMPLE | Fault current flow single line.

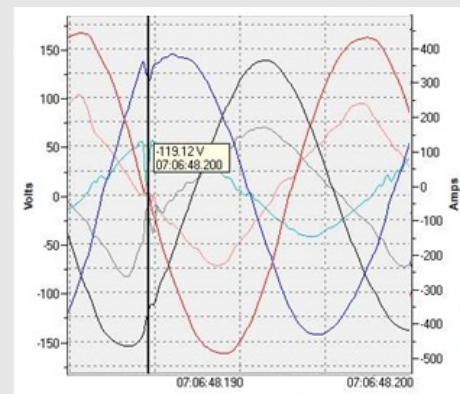
## COMMON PROBLEMS WITH ELECTRICAL DISTRIBUTION SYSTEMS INCLUDE:

### VOLTAGE RELATED

- Dip
- Spike
- Swell
- Unbalance
- Fluctuation

### OTHER COMMON ISSUES

- Harmonic Distortions
- Disruptions
- Noise







## AN OVERALL SYSTEM LIFE CYCLE APPROACH BEST SERVES OUR CLIENT'S NEEDS

Our engineering staff has the unique advantage of teaming with the maintenance and testing personnel of the company to ensure the correct equipment is installed during the construction phase, assist in the life cycle of the equipment over time, and help plan for the future when looking to upgrade the electrical infrastructure.

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### ABOUT TDS

A TechPro Power Group company, Technical Diagnostic Services (TDS), based in Dallas/Ft. Worth, TX, has been delivering industry-leading service solutions for over 25 years that empower its customers to safely start up and optimize the performance of their facilities' electrical and controls systems. TDS provides electrical, instrumentation and control testing and start-up and commissioning services to the power, oil & gas, process industries and other industrial end markets.

SOLUTIONS THAT EMPOWER<sup>TM</sup>



### FOR MORE INFO, PLEASE CONTACT:

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