
EE/CprE/Se 491 WEEKLY REPORT 04

September 25, 2018- October 5, 2018

Group Number : sdmay19-17

Project Title: Substation Design

Client: Burns & McDonnell

Advisor: Craig Rupp

Team Members:

Jacob Heiller- Controls Engineer

Rebecca Franzen- Studies Engineer

Connor Mislivec- Quality Control Specialist

Riley O'Donnell- Administrator

Tom Kelly- Project Manager

Wilson Pietruszewski- AutoCAD Engineer

Weekly Summary:

During this reporting period, we completed the grounding study report; a template was provided by Burns and McDonnell. We also began researching information regarding lightning studies. This information included IEEE Standard 998 and the relevant sections of the substation design guide provided to us by Burns and McDonnell. We also completed a “practice” lightning study. The main tasks that had to be performed in order to complete this study were performing calculations and determining—once the study was completed—what data would need to be included in a lightning study report. In order to determine this, we examined past lightning protection studies that were provided to us by Burns and McDonnell.

Past Week Accomplishments:

- Burns & McDonnell conference call- Everyone
 - Finalized the project timeline and the due dates of deliverables. Notable dates include:
 - Grounding and lightning studies: November 2
 - Physical Design drawing: November 30
 - AC/DC studies: March 1
 - (Second semester) Controls & NIA: April 12
- Lightning protection research- Everyone
 - Evaluated equations used in IEEE 998

- Learned about the various methods of lightning protection
- Reviewed sample calculations given in IEEE 998 for fixed angle method, empirical method, and rolling sphere method
- Lightning protection practice study- Tom and Connor
 - Performed the necessary calculations for a lightning study
 - Reviewed various methods for lightning protection
 - Analyzed the results after performing the necessary calculations
- Familiarization with lightning protection report- Wilson and Jake
 - Determined what equations are used for a Burns and McDonnell lightning protection report
 - Made a list of the information we would need for the lightning study report
- CDEGS software training seminar part 2- Everyone
 - Discussed software capabilities and meaning of study report data
 - Discussed what a passing grounding study looks like
 - Discussed differences between MALT and MALZ
 - Discussed mitigation techniques for non-passing grounding studies
- Grounding study report- Rebecca and Riley
 - Collected necessary information from CDEGS for report
 - Completed report for study using template supplied by BMcD
 - Submitted report to BMcD so it can be discussed in upcoming conference call

Pending Issues:

- Finalize meeting agenda for upcoming bi-weekly meeting with BMcD.
- Discuss grounding grid optimization with BMcD

Individual Contributions:

Name / Role	Individual Contribution	Hours this week	Cumulative Hours
Rebecca Franzen	Completed grounding study report. Sent report to BMcD	12	38
Jacob Heiller	Determined the information necessary to complete lightning study report. Examined past lightning study reports	14.5	35.5
Tom Kelly	Completed "practice" lightning	16	37.5

	study. Made note of questions regarding study to discuss with BMcD		
Connor Mislivec	Completed "practice" lightning study. Made note of questions regarding study to discuss with BMcD	14.5	37
Riley O'Donnell	Completed grounding study report. Sent report to BMcD	15.5	38
Wilson Pietruszewski	Determined the information necessary to complete lightning study report. Examined past lightning study reports	15	36

Comments and extended discussion:

Plan for coming week:

- Begin Cyclone Substation lightning study - Everyone
 - Perform necessary calculations
 - Determine data needed for report
 - Write down any questions that arise
 - Discuss grounding study results with BMcD during conference call - Everyone
- Begin Cyclone Substation site layout - Everyone
 - Determine software needed to complete drawings
 - Review example drawings provided by Burns and McDonnell

Weekly Advisor Meeting Summary:

- Discussed Project Plan
- Discussed frequency of future meetings