



Black & Veatch's 138kV/13.8kV Substation Design Project

SDMay18-06

Faculty Advisor: Dr. Ajjarapu

EE 491 Weekly Report

Date: 1/8/18 to 1/26/18

Andrew Brown	-AutoCAD Director, Design Engineer
Eric Fritz	-Meeting & Communication Director, Test Engineer, Design Engineer, Quality Assurance
Brent Hines	- Project Lead, Materials, Executive Budget lead, Design Engineer
Gavin Christensen	-Chief Design Engineer
Weng Hoong Loo (Terry)	-Scheduling, Design Engineer

Summary of Progress this Report

We found that we could work better and collaborate better by setting aside more time to sit and work together. This caused us to add 5 hours of group time per week. This is in addition to our 2 weekly meetings that we've had since the start of the project.

We completed the feeder diagram and we continued to refine our document database. These revisions involve refining the names to be more concise and changing the drawing numbers to not have gaps between the number sequence.

We calculated the total power of the control house by reading the datasheets for each component to find its load current and voltage.

We completed one control house panel diagram along with the DC circuit diagram for the control house. Completion of the DC diagram heavily relied on the DC calculations that we completed in order to properly size the fuzes for each component.

Pending Issues

We are now several weeks behind our original schedule. Our intention was to be working on the materials list but we still have several design documents to finish. Our solution to this is to continue on our accelerated pace in order to finish the project's original scope.

Team Member	Contribution	Two Week Sum (Hours)	Total Hours
Andrew Brown	Made changes to SEL 351-S backup relay diagram for circuit breaker 4. Assisted with AC/DC calculations for power flow into the control house.	12	
Gavin Christenson	Assisted with the DC calculations for the control house. Marked up the DC Aux drawing as well as the Communication Panel drawing.	16	
Eric Fritz	I renamed 8 drawings to the new numbering system. Improved the method we use to submit	19	113

Individual Contributions

	drawings to our client by submitting as grayscale PDFs as opposed to our often incompatible .dwg files. I recorded the details of the meeting with Black and Veatch and reported them in the prescribed bulleted format.		
Brent Hines	Completed control house power calculations, calculating the power required from each component factoring using a safety constant. Completed the AC AUX and DC AUX, using appropriate fuse sizes rated for each control component. Created a document detailing each control component's power supply from their respective datasheet.	25	
Weng Hoong Loo (Terry)	Implemented changes of AC and DC AUX drawings by ensuring fuse sizes and protection components are align with the project scope. As well as the Primary and Backup Relay drawings. Verified the connections and understand the relationship between each drawings. Initiated the process of updating the formats of each drawing (include but not limited drawing number, consistency of revision cloud format, drawing block information.)	20	110

Plans for Coming Week

We will continue to work on the remaining documents which are documents 1806-014 to 1806-024, and 1806-026.