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

**SDMay18-06**

**Faculty Advisor: Dr. Ajjarapu**

**EE 491 Weekly Report 4**

**Date: 2/24/2018 to 3/9/2018**

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

## Summary of Progress this Report

In our meetings we emphasize safety through continuing education. We rotate through our team and each week one person presents on an issue they deem important. In this period we covered the effects of chronic sleep loss and microwave use safety.

We completed the bank annunciator (1806-020), bank 1 auxiliaries (1806-021), ABS switch 10 (1806-018), and ABS switch 13 (1806-019).

## Pending Issues

Over break we will perform an internal check of our drawings and then gather them into one PDF and submit them to our clients at Black & Veatch.

We have yet to select a transformer for the control house for which we have already complete calculations complete. The drawings have been a priority thus pushing this back.

## Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Andrew Brown	Completed diagrams for COMM RTU (1806-024) and COMM OUTSIDE STA (1806-023) to match listed specifications and the other relay documents .	18	119
Gavin Christenson	Completed the SEL-2441 relay diagrams and assisted with the completion of others.	18	122
Eric Fritz	I worked to complete the CB 4 (1806-007), and I recorded the details of the meeting with Black and Veatch and reported them in the prescribed bulleted format.	19	157
Brent Hines	Completed the Primary relay Diagram, provided internal reviews of the various drawings before sending them out for review.	15	179
Weng Hoong Loo (Terry)	Completed Bank AUX, Bank ANN circuit as well as working on the IO Board to match description of the project given by the client.	15	116

## Plans for Coming Week

We are 1 drawing away from completing all the drawings. Once this is complete we will submit all drawings completed since the start of the project for a final review.

## Drawing Database

DWG NO	Rev	TITLE v1	TYPE	DATE ISSUED	CONTRIBUTORS	REVIEWED BY	REVIEWED BY	STATUS
		ONE LINE DIAGRAM						COMPLETE
1806-001	2 R	KEY PROTECTION PLAN	1 LINE DIAGRAM	1/9/2018	1806/ ISU		CAB/ B&V	COMPLETE
1806-002	2 R	AC1 138kV	3 LINE DIAGRAM	11/8/2017	TL, ECF/ ISU		CAB/ B&V	COMPLETE
1806-003	2 R	AC2 13.8kV	3 LINE DIAGRAM	11/8/2018	BDH/ ISU		CAB/ B&V	COMPLETE
1806-004	2 R	AC AUX	PROTECTION & CONTROL SCHEMATICS	1/9/2018	BDH, TLWH/ ISU	ECF/ ISU	CAB/ B&V	COMPLETE
1806-005	2 R	PRIMARY RELAY	PROTECTION & CONTROL SCHEMATICS	1/8/2017	BDH, TL, GDC/ ISU		CAB/ B&V	IN PROGRESS
1806-006	2 R	BACKUP RELAY	PROTECTION & CONTROL SCHEMATICS	1/8/2017	ABB, GDC, TLWH/ ISU		CAB/ B&V	COMPLETE
1806-007	2 R	CB 4 RELAY	PROTECTION & CONTROL SCHEMATICS		ABB, ECF/ ISU	BDH/ ISU	CAB/ B&V	IN PROGRESS
1806-008	2 R	CONTROL HOUSE PANEL LAYOUT	LAYOUT DIAGRAM	11/20/2017	ABB, GDC/ ISU		CAB/ B&V	COMPLETE
1806-009	2 R	CONTROL HOUSE CABLE TRAY	LAYOUT DIAGRAM	11/20/2017	ABB, GDC/ ISU		CAB/ B&V	COMPLETE
1806-010	2 R	CONTROL HOUSE LIGHTING LAYOUT	LAYOUT DIAGRAM	11/20/2017	ABB, GDC/ ISU		CAB/ B&V	COMPLETE
1806-011	2 R	PANEL 1 COMMUNICATION	PANEL ELEVATION	11/3/2017	1806/ ISU		CAB/ B&V	ON HOLD
1806-012	2 R	PANEL 3 BANK 1	PANEL ELEVATION	11/20/2017	1806/ ISU		CAB/ B&V	COMPLETE
1806-013	2 R	PANEL 4 BUS 1	PANEL ELEVATION	11/3/2017	1806/ ISU		CAB/ B&V	COMPLETE
1806-014	2 R	MAIN AC 138kV/13.8kV	3 LINE DIAGRAM				CAB/ B&V	UNEDITED
1806-015	2 R	FEEDER 1 RELAY	PROTECTION & CONTROL SCHEMATICS	1/8/2017	ABB/ ISU		CAB/ B&V	COMPLETE
1806-016	2 R	FEEDER 2 RELAY	PROTECTION & CONTROL SCHEMATICS	1/8/2017	ABB/ ISU		CAB/ B&V	COMPLETE
1806-017	2 R	FEEDER 3 RELAY	PROTECTION & CONTROL SCHEMATICS	1/8/2017	ABB/ ISU		CAB/ B&V	COMPLETE

1806-0	2	R	ABS SWITCH 10	PROTECTION & CONTROL SCHEMATICS				CAB/ B&V	COMPLETE
1806-0	2	R	ABS SWITCH 13	PROTECTION & CONTROL SCHEMATICS				CAB/ B&V	COMPLETE
1806-0	2	R	BANK ANNUNCIATOR	PROTECTION & CONTROL SCHEMATICS	3/5/2018	TLWH/ISU	GDC/ISU	CAB/ B&V	COMPLETE
1806-0	2	R	BANK 1 AUXILIARIES	PROTECTION & CONTROL SCHEMATICS	2/27/2018	TLWH/ISU	GDC/ISU	CAB/ B&V	COMPLETE
1806-0	2	R	BREAKER FAILURE	PROTECTION & CONTROL SCHEMATICS				CAB/ B&V	IN PROGRESS
1806-0	2	R	COMM OUTSIDE STA	PROTECTION & CONTROL SCHEMATICS		ABB/ISU		CAB/ B&V	IN PROGRESS
1806-0	2	R	COMM RTU	PROTECTION & CONTROL SCHEMATICS		ABB/ISU		CAB/ B&V	IN PROGRESS
1806-0	2	R	DC AUX	PROTECTION & CONTROL SCHEMATICS	1/10/18	BDH/ ISU	EF/ ISU	CAB/ B&V	COMPLETE
1806-0	2	R	IO BOARD(SEL-2440)	PROTECTION & CONTROL SCHEMATICS				CAB/ B&V	IN PROGRESS
1806-0	2	R	SEL-2441 RELAY	PROTECTION & CONTROL SCHEMATICS				CAB/ B&V	IN PROGRESS