

EE/CprE/SE 491 WEEKLY REPORT 9

Start Date - April 03, 2024

End Date - April 09, 2024

Group Number: 02

Project Title: Ames Substation

Client &/Advisor: Burns & McDonnell / Hugo Villegas

Team Members/Role:

Derek Elkins - Project Lead

Patrick Musoy - Pilot Scheme Researcher

Mackenzie Ray - Meeting Manager

Nathan Tegeler - I/O assignment Researcher

Matthew Wells - Pilot Scheme Researcher

Weekly Summary:

We began I/O assignments for relays specifically labeling the DC breaker inputs and outputs and their connections to the relays. Additionally we started AC I/O assignments. AC I/O assignment selection included identifying capacitor voltage transformers and current transformers that will be used for making measurements. Then locating the ports to connect these to on each relay. Additionally the sight layout was completed.

Past Week Accomplishments:

Mackenzie Ray: Worked on DC I/O assignments. Looked into data sheets for all the relaying and found the DC connections.

Patrick Musoy: Worked on the DC I/O assignments and created a document on difference of DCUB and POTT in term of PLC (FSK)

Derek Elkins: This past week, I worked on adding the control building, measurements, and equipment names

Nathan Tegeler: Worked on the AC I/O assignments. Found CVT and studied the ansi standards to find CT to use. The ratios are smaller than short circuit current so need to ask Joseph about the CT selection.

Matthew Wells: Decided on GE as the PLC equipment supplier. Compared IEEE standards with the short circuit study.

<u>Name</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>Cumulative Hours</u>
Derek Elkins	Added measurements, control building, and equipment names	3	26
Patrick Musoy	Working on DC & AC I/O assignment	4	24
Mackenzie Ray	Worked on DC I/O assignments.	5	23
Nathan Tegeler	Worked on AC I/O assignments	4	30
Matthew Wells	Chose PLC equipment supplier.	3	21

Action Item Table

Status	Action Item	Assigned to	Due Date	Priority	Notes
Paused	One-Line	Kenzie/Derek	Next Semester	Low	Will continue next semester
In-Progress	General Overview	Derek	4/8	High	
Not Started	Elevation Design	Derek/Kenzie	4/15	Medium	Started research (not a needed deliverable)
In-Progress	DC I/O assignments	Kenzie Patrick	4/9	High	Nearly done
In-Progress	AC I/O assignments	Nathan	4/9	High	Found CVTs to connect to all relays need to identify CTs
Complete	PLC equipment	Matt	4/9		

Plans for Upcoming Week

Mackenzie Ray: Finish DC I/O assignments, focus on reviewing what I already have, and add in the ANSI characters where needed.

Patrick Musoy: Finishing and documentary on DC I/O assignments. Complete the 487E DC I/O

Derek Elkins: I plan to get the overview/general layout design fully finished, add the border, and submit it for review. I will also go through the Bus Configuration Report and make changes based on the feedback we received from the client.

Nathan Tegeler: Finish AC I/O assignments and update the website. Complete the 311L DC I/O.

Matthew Wells: Help the team finish the relay I/O assignments, specifically the 411L DC I/O

Summary of Weekly Advisor Meeting

Kenzie:

For the relays that we are using multiple times, should we set the DC I/O assignments to be on the same relay or will we have multiple of the same type of relay?

For the relays that do not have an example DC wiring shown, should I assign ports conventionally? (following similar naming conventions to the other relays)

Nathan:

The current transformer ratios below 5000:5 when the short circuit currents provided to us are 13.8kA. How can we use this information to select a CT ratio?