

EE/CprE/SE 491 WEEKLY REPORT 8

Start Date - March 26, 2024

End Date - April 02, 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:

This week, we continued working on the relay assignments and identifying the AC circuit components needed for inputs on the relays, including the power line carrier equipment, current transformers, and voltage transformers. In addition to I/O assignments, the sight layout was finalized using AutoCAD, with a few modifications that will need to be made after discussion with the client.

Past Week Accomplishments:

Mackenzie Ray: Started DC I/O assignments.

Patrick Musoy: Still trying to finalize the piloting scheme research report based on the client preference and provide any information required for relaying selection. Starting researching on the I/O assignments.

Derek Elkins: I worked in CAD on the general layout of the substation. I have the equipment, buses, and lines connected.

Nathan Tegeler: Worked on researching the AC I/O equipment and selected the CT ratios we will need for motoring the line current.

Matthew Wells: Identified the rating of the PLC equipment in the IEEE standards based on the short circuit study provided by our client. Found potential retailers for the PLC equipment.

<u>Name</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>Cumulative Hours</u>
Derek Elkins	Worked on General Overview/Sight Layout	6	23
Patrick Musoy	Finalized the piloting scheme research report. Researching on the I/O assignments.	4	14
Mackenzie Ray	Continued looking into Elevation plans and started working on DC I/O assignments.	3	18
Nathan Tegeler	Worked on review relay selections and ensuring that they are the best option.	1	26
Matthew Wells	PLC standards, ratings, and suppliers.	2	18

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/Kenzie	4/8	High	Finished basic design
Not Started	Elevation Design	Derek	4/15	Medium	Started research (not a needed deliverable)
In-Progress	DC I/O assignments	Kenzie Patrick	4/9	High	Just started
In-Progress	AC I/O assignments	Nathan	4/9	High	
In-Progress	PLC equipment	Matt	4/9	High	Partly finished.

Plans for Upcoming Week

Mackenzie Ray: Complete work on the DC I/O assignments.

Patrick Musoy: Researching the I/O assignments, AC & DC I/O for relays.

Derek Elkins: I hope to add a border, equipment information, and measurements to the CAD file. Once that is completed, I will send the deliverable to our client for review.

Nathan Tegeler: Help research the DC I/O and get caught up on work for the project by finishing the AC I/O assignments for all of the relays.

Matthew Wells: Choose a supplier company for the rest of the PLC equipment. Finalize our pilot scheme report.

Summary of Weekly Advisor Meeting

This week, several questions were generated for our client meeting, including how to complete the DC I/O selection. There has been some confusion on exactly what this process should look like to ensure no equipment is missed. Another question is, what should we do for the breaker connection to the solar farm transmission line, as this line does not match up on the AutoCAD drawing? Is there a different spacing requirement needed?