

## **EE/CprE/SE 492 Monthly REPORT**

Start Date - November 1, 2024

End Date - November 14, 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 - Pilot Scheme Researcher

Matthew Wells - Pilot Scheme Researcher

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### **Summary:**

Attempted to fix issues with the PSCAD compiler for the distance relay. Was heavily delayed by this unresolved issue and made minimal progress. Implemented the line differential relay for the Boone and Nevada lines.

### **Past Months Accomplishments:**

Mackenzie Ray: Submitted one-line document and received comments. Updated the drawing and resubmitted for comments.

Patrick Musoy: Worked on substation model simulation with PSCAD. Reviewed the transformer line protection document required for PSCAD, test faults as required by client, apply protection relay (differential and overcurrent).

Derek Elkins: I took in consideration of the comments from the general overview. I implemented those comments and resubmitted them. I am still waiting for comments from the elevation design.

Nathan Tegeler: Completed PSCAD simulations. Incorporated several attempts to fix the compiler issue for PSCAD with some minor success, however the issue continues to persist.

Matthew Wells: Completed the 3D model of the 138kV voltage transformer.

<u>Name</u>	<u>Individual Contributions</u>	<u>Hours Weeks: 11-12</u>	<u>Cumulative Hours</u>
Derek Elkins	Elevation design & overview	4.5	90
Patrick Musoy	PSCAD	15	108.5
Mackenzie Ray	One-line diagram, Lightning Study	15	70.5
Nathan Tegeler	PSCAD	18	121.5
Matthew Wells	Finished transformer model. Started CB model.	5	46.5

**Action Item Table**

Status	Action Item	Assigned to	Due Date	Priority	Notes
Complete	I/O list	Nathan	9/20		
In-progress	PSCAD model	Nathan Patrick	11/28	High	This will be broken into subtasks once more information is provided on this deliverable.
Complete	One Line	Kenzie	10/22	Medium	Comments picked up. Resubmitted.
Complete	Elevation Design	Derek	10/22	Medium	Want feedback before sending in for review
Just started	3D model	Matt	11/25	Low	Finished xfmr model. Starting CB

## **Plans for Upcoming Week**

Mackenzie Ray: Continue work on lightning study.

Patrick Musoy: Continue testing our relay settings to determine to make it work. Build logic circuit to control the operation of circuit breakers for faults internal to the bus. Test each fault on the system to see if the breakers as our client required and finish all lines simulation.

Derek Elkins: I will be a floater. This means I will help people wherever they need assistance. I am still waiting for comments on the elevation design.

Nathan Tegeler: Identify current issue with compiler begin event analysis report and attempt to make more progress on the distance relay.

Matthew Wells: Complete the model for the circuit breakers.