

EE 492 WEEKLY REPORT #1

1/27/2020 - 2/2/2020

Group number: Sdmay20-14

Project title: 115kV /34.5kV Solar Power Plant & Substation Design Project

Client &/Advisor: Black and Veatch / Venkataramana Ajarapu

Team Members/Role: (Roles are rotated on an as needed basis) Jake Ciccola (Scribe / Client communications), Ethan Curnutte (Chief engineer), Ada Lupa (Test engineer), Blake Danek (Meeting facilitator), Michael Lortz (Design engineer), Bashir Mohamed (Test engineer)

Weekly Summary: This week, after meeting with our client we were told to focus on completing a one line diagram for our 115 kV substation design. This also includes looking at zones of protection for the substation.

Past Week Accomplishments: As a group we worked on:

- **Member 1: Jake Ciccola**
 - Researched the various components that we will need to use in our substation. These components included, different types of bus configurations, current and voltage transformers, disconnect switches, etc.
 - Helped plan the preliminary one-line diagram for client.
- **Member 2: Ethan Curnutte**
 - Researched different types of bus networks for our substation, as well as decide the type of transformers we will use in the design. See the different effects of the zones of protection on our substation.
- **Member 3: Blake Danek**
 - Researched the advantages and disadvantages of the different types of bus configurations. Also helped incorporate bus configuration to our first rough draft of the one-line diagram.
- **Member 4: Ada Lupa**
 - Helped plan the preliminary one-line diagram for client and researched the ring bus characteristics and advantages.

Member 5: Michael Lortz

- Drafted the preliminary one-line diagram using AutoCAD.
- Coordinated with Black and Veatch to get their symbols and template for AutoCAD to ensure our model matches their basis of design.

- **Member 6: Bashir Mohamed**

- Worked on understanding the scheme of the ring bus and helped with brainstorming Idea for the one line diagram.
- Worked on ring bus protection zones identification and relay positioning.

Pending Issues: Final draft of one line diagrams that includes labeling and zones of protection.

Individual Contributions: (Total hours only reflect hours accumulated from weekly reports)

Team Member	Contribution	Weekly Hours	Total Hours
Ethan Curnutte	Research one line diagrams and zones of protection	7	7
Ada Lupa	Researched the main concepts of ring bus protection zones and figured out how they would work best in a layout.	6	6
Jake Ciccola	Researched topics and components in order to help design our preliminary one-line diagram.	7	7
Blake Danek	Researched all the different types of bus configuration to determine what would be best for our plan.	6.5	6.5
Michael Lortz	Drafted the one-line diagram.	7	7
Bashir Mohamed	researched the basic concepts in protective relaying and zones of protection.	7.5	7.5

Plans For The Upcoming Week:

- **Member 1: Jake Ciccola**
 - Continue research and finalize design choices (for components). Help plan out our final draft for our one-line diagram that includes the updated ring bus design (with feedback from previous client meeting).
- **Member 2: Ethan Curnutte**
 - Finalize and complete one line diagrams as well zones of protection. Start looking into different types of calculations that we will have to complete for the substation.
- **Member 3: Blake Danek**
 - Work as a group to finalize our one-line diagram by adding certain missing parts, labeling the parts, and drawing the zones of protection. Also research the bus plan since that will be worked on next.
- **Member 4: Ada Lupa**
 - Work together to finalize the one-line diagram and ask Black and Veatch for suggestions on how to improve the next version of the layout.
 - Research more on zone protection.
- **Member 5: Michael Lortz**
 - Use Black and Veatch's feedback to draft the finalized one-line-diagram.
 - Coordinate with team on substation design decisions.
- **Member 6: Bashir Mohamed**
 - Understanding the principle of overlapping around a circuit breaker
 - Learn about relay system objectives, reliability and selectivity to use it for the rest of the design.

