

EE 491 WEEKLY REPORT

Date: 03/20/2017

Group number: Dec1702B

Project title: Re-Conductor or New Construction Transmission Line

Client: Musctine Power and Water

Advisor: Anne Kimber

Team Members & Role:

1. Bob Cohoon (Team Leader)
2. Abdelmagieed Ibrahim (Kay Concept Holder)
3. Jinan Li (Web Master)
4. Chang Sun (Communication Leader)

Weekly Summary

Since this week is spring break, we made our trip to Musctine to visit our client and to see the actual situation of Line 98. During the visit, we:

- Discussed the history and the current situation of Line 98
- Made notes on the map for the pole location and the route of Line 98.
- Drove along Line 98 and saw the load and underbuilt circuits on the poles
- Our client illustrated the line components, problems and the challenges of Line 98
- Took photos of the starting point, ending point and environment of Line 98

Past week accomplishments

Robert Cohoon:

- Did research on cable type, including basic parameter of each type of cable
- Did further research on protection of the transmission line (mainly for re-conductor plan)

Abdelmagieed Ibrahim:

- Visited the client in Musctine with the advisor and the team
- Visited the actual location of the transmission Line 98
- Starting the calculate the seg, cost & ampacity on conductor AAAC

Jinan Li:

- Visited the client in Musctine with the advisor and the team
- Visited the actual location of the transmission Line 98
- Did more work on website set up

Chang Sun:

- Visited the client in Musctine with the advisor and the team
- Visited the actual location of the transmission Line 98
- Did reformat for the project plan

Pending issues

The client still hesitates about the point where the transmission line become overhead. They gave us possible location but they might change it.

- Robert Cohoon: NA
- Abdelmagieed Ibrahim: NA
- Jinan Li: NA
- Chang Sun: NA

Individual contributions

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>Hours cumulative</u>
Robert Cohoon	On break, did some research into protection schemes and poles	2	30
Abdelmagieed Ibrahim	Met with the client; visited the location of the transmission line; calculations on conductors	21	56
Jinan Li	Met with the client, visited the location of the transmission line	12	40
Chang Sun	Met with the client; visited the location of the transmission line	15	49

Comments and extended discussion

Since we have visited the actual location of Transmission Line 98, combining the map the client sent to us, we have found that almost half of the Line 98 route is by the side of Mississippi River, which means that the poles are actually constructed in muddy area. This situation has increased the difficulty of construction of poles. Moreover, because of the special feature of muddy ground, the weight and the material of the poles should be reconsidered. Some of the assumptions we have made before need adjustments.

Furthermore, with the visit of the locations of current poles, we have found that almost half number of the poles are built in the bushes, thus it is challenging for us to identify a better route for easy construction for the transmission line (there are many Musctine properties along the route, transmission lines cannot be overhead of those properties).

Also, the strong wind is the enemy of transmission lines. Two of the poles of Line 98 got influenced by the tornado 3 weeks ago. We also need to take the wind

influence into consideration. Not only the influence of tornados, but also the loss and efficiency during the damping while wind blows through.

Plan for coming week

- **Robert Cohoon:**
 - Keeping up with the team
 - Distributing work and coming up with individual timeline for this semester
 - Starting the design for re-conductor of Transmission Line 98
- **Abdelmagieed Ibrahim:**
 - Research on double underbuilt circuits
 - Find five possible appropriate types of poles for the transmission line (69kV)
 - Work on different types of conductor seg, cost, heat loss& ampacity calculations
- **Jinan Li:**
 - Collect geographical parameters for the locations of poles
 - Determine the possible locations of the poles for Line 98
 - Develop a form on different types of poles
- **Chang Sun:**
 - Finish organizing the project plan and design documents
 - Determine the current locations of the poles for Line 98 on google map
 - Research on setting poles on muddy and sandy area (by the river)
 - Collect pole selling parameters from pole sellers

Summary of weekly advisor meeting

Since this week is spring break, went to visit Musctine together with our advisor Anne. We discussed the current situation of Line 98 together with our client (MPW) and went to see the location of Line 98.

After visiting the actual location of Line 98, we got lots of information that we cannot get from the maps. Our client also provided us some valuable advice. For example, the underbuilt circuits on the poles, the material of poles at different construction situations, etc.