

EE 491 WEEKLY REPORT

Date: 03/06/2017

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

For this week, we had a group discussion meeting instead of meeting with our advisor Anne Kimber since she cannot make it at certain time. After doing bunch of research on all the components for dealing with Line 98, we discussed the problems should be considered in both re-conductor situation and new construction situation.

With the help of faculty rating criteria sent to us by MPW (our client company), we are able to do some simple calculation to find more appropriate combinations to optimize Line 98.

After calculating and discussing the major issues of re-conductor and new construction, we came up with 3 most practical combinations of conducting method and construction components. These 3 combinations will be modified once we got more information and requirements from our client.

Past week accomplishments

- Robert Cohoon:**
- Did research on transmission lines protection issues
 - Determined the potential relay problem for the cables
 - Analyzed the major characters should be considered on re-conductor
- Abdelmagieed Ibrahim:**
- Did research on cable types
 - Did calculation between desired power and the diameter of cables in order to determine which type of cable to use
 - Analyzed the major characters should be considered on new construction of Line 98
- Jinan Li:**
- Fixed the problem on our webpage
 - Set up our web page and uploaded the past-week materials
- Chang Sun:**
- Wrote the meeting record for Friday group meeting

- Figured out the faculty rating criteria of MPW (our client company)
- Developed the timeline chart for the project on first semester

Pending issues

- 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	Research on transmission lines; Question list for the client	5	18
Abdelmagieed Ibrahim	Meeting with client; Poles load calculation	5	23
Jinan Li	Join the meeting with client	5	18
Chang Sun	Meeting with the client; Ampacity calculation; Meeting record	5	22

Comments and extended discussion

During the meeting, we discussed problems to be considered for both re-conductor and new construction, the major issues are listed as following:

For Re-conductor:

1. Pole weight → based on cable type
2. Outage time → based on:
 - Construction time
 - Commission
3. Protection added → Z-line
4. { Over Current }
 { Over Voltage } Break Transformers

New Construction:

1. Poles:
 - Weight → distribution/transmission
 - Type → Bases
 - Construction time

2. Cable type
3. Protection → Re-use
4. Path:
 - Old
 - New

Plan for coming week

- **Robert Cohoon:**
 - Research on cable type, including basic parameter of each kind of cable.
- **Abdelmagieed Ibrahim:**
 - Research on construction knowledge (since we are all electrical student, not familiar with constructing poles according to foundation and weight, etc.)
 - Find out the relationship between pole distribution and cable weight and the effect of wind damping.
- **Jinan Li:**
 - Research on the lifetime of all conductors, poles and cables
- **Chang Sun:**
 - Get NDA Forms from the client
 - Get full materials of the transmission line (Line 98) from the client
 - Write the whole project proposal

Summary of weekly advisor meeting

Since our advisor cannot make to our usual meeting time, we did not meet with Anne this week. But we had our own two-hour group discussion on Friday afternoon.

During this meeting, we finalized our evaluation combinations for the construction plan, that is whether to use re-conductor or new construction, whether to use the original poles or schedule a new path/change to new poles. We have found 3 most appropriate combinations based on the information we know so far, shown as following:

Construction Plan Combinations:

1. Re-conductor
2. New Construction → Same Configuration
3. New Construction → New Configuration

The 3 combination is listed from the least cost to the most cost, we will evaluate all 3 combinations with both economic and technical parameters. And we will decide which combination to use with further information provided by our client.