**Report Guidelines**

**Sections of Report:**

**Cover Page:** Name, METC143, Date

**Problem Statement:** Problem Description listed on Cable Design Project Instructions

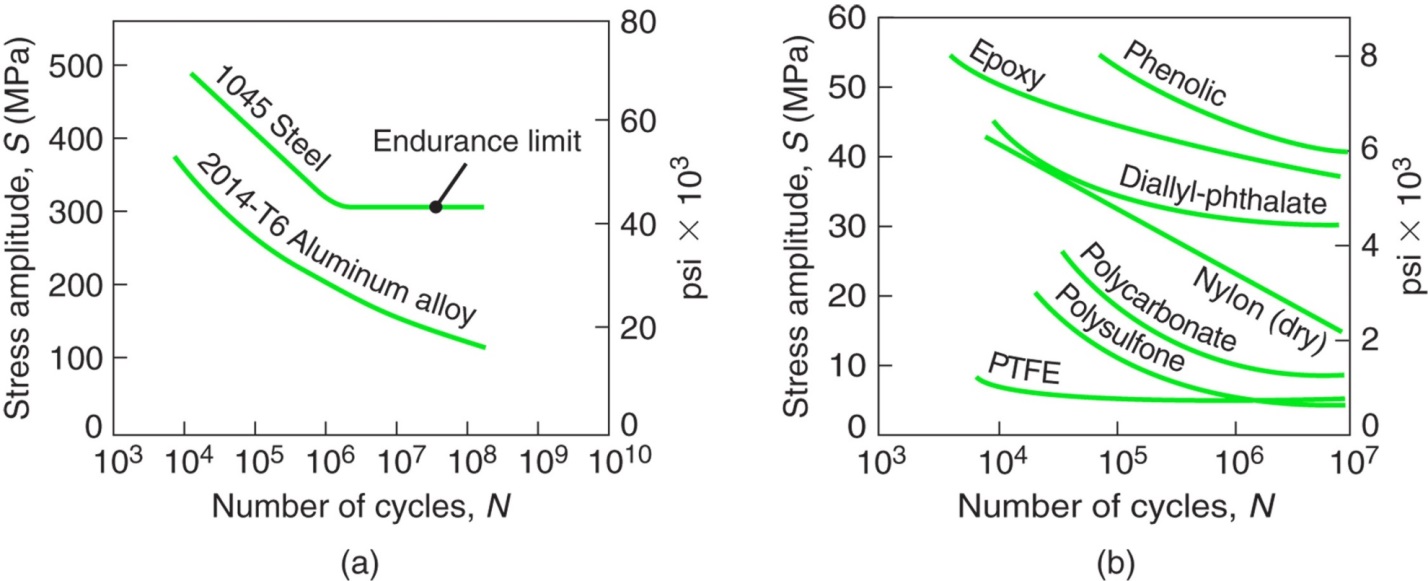
**Introduction:** Explain process used to figure out answers and results.

**Results:** Include the information listed below

1. Material information (Component Elements Table from Matweb) (Show as a Table in your report)
2. Calculated Diameter Required for Each Material Based on Modulus of Elasticity
3. Stress Calculations Based on all common diameter sizes given in Project Instructions. (Show as a Table in your report)
4. Stress Vs Diameter Plot based on your calculations

**Fatigue Analysis:**

1. Include S-N Curves that are shown below. (Use for only Aluminum and Steel)



1. Answer the following questions
   1. For your selected diameter, calculate the stress generated for aluminum and steel.
   2. What is the maximum number of cycles your selected diameter will survive based on the S-N Curves for aluminum and steel (based on the stress you calculated)?

**Thermal Analysis:**

1. Calculate Thermal Expansion of each material (Show in a Table)
2. Plot Temperature Vs Change in Length for temperature range listed in Project Instructions in 20°F increments (One plot per material)

**Conclusion:**

1. Explain what size diameter per material and why.
2. Among the four materials analyzed, which would you pick and why?