**Southern Water Corp Case Study – Objectives**

The reliability engineering team has stressed that the reliability of the desalination plants (or asset) is key — if the asset fails, the failed asset will not bring in any revenue. At the same time the maintenance operation costs will increase. Surjek is the location of four major desalination plants and the age of these assets is concerning.

In particular, one of the chief scientists, Joanna Luez, noted particular signatures around a number of pumps that had provided abnormally high-pressure readings, indicative of system failure. Having previously forecast an increase in maintenance costs due to major outages, Southern Water Corp management is on alert to control operational costs and prevent untimely asset failure which will lead to loss of revenues. The management team has asked me to work with the Analytics Business Unit (ABU) to do a statistical analysis of previous Desalination Pump Failure Data to understand what variables may drive an asset failure. I will be working with Joanna Luez and her team.

Joanna has indicated that by the end of this analysis, she would like me to:

1. Identify **a list of variables** that may provide an indication of when the pump may be failing

2. Come up with **a prototype linear equation** that can be used to ‘describe’ what variables are closely related to pump failure.