Niedjatu Elpmeyout
CT Environmental Law Partners
101 Park St.
New Haven CT 06511

March 9, 2015

O.D.E. Consulting
275 Mount Carmel Ave.
Hamden CT 06518

Dear sir or madam:

I have been assigned a case here at my law offices defending a client who got himself into a quite a sticky situation (or rather, a slippery one). My firm would like to secure your services to help us understand the physical aspects and data surrounding the event. In order to protect our client's anonymity, we will request your discretion in sharing this information with the press.

Our client allegedly caused an oil spill over some open water while transporting some cargo. There seems to be some dispute with respect to the amount of oil spilled, and the EPA (those tree-huggers!) has assigned massive fines, which we dispute. While we concede that there was a small amount of oil spilled, we contend that the amount is really not nearly as much as they claim. In fact, our client actually improved the local economy by hiring local workers to assist with containing and cleaning the oil. They should be thanking our client, really. But I digress.

Here's where we need your help. We know that as soon as the resulting oil slick was detected, the Coast Guard wanted to document the size of the oil slick. From time to time, but irregularly, a helicopter was dispatched to photograph the oil slick. On each trip, it arrived over the slick, the pilot took a picture, waited 10 minutes, took another, and then headed home. On each of seven trips the size (in area) of the slick was measured from both photographs, as below.

Area of oil slick (in miles):

Initial Obs.	10 min. later
1.047	1.139
2.005	2.087
3.348	3.413
5.719	5.765
7.273	7.304
8.410	8.426
9.117	9.127

We would like to request the following information from you.

- Build a model for the growth of the oil slick at time t.
- Predict the size of the oil slick, say at $t = 10$, $t = 20$, and $t = 120$ minutes from the start of the oil spill.
- Plot your model of the size of the oil slick as a function of time.
- Find the time at which the oil slick was 8 square miles.
- Determine the time of each of the observations.

Please help us help our client (who, despite what you might have heard in the news, was definitely *not* under the influence of an illegal substance–not at the time of the incident, anyway). We will have to present your argument in court, so please fully explain your work in a clear and concise fashion.

Your company was suggested by one Professor Bliss of Quinnipiac University, whose services we have used before. She has promised to be available to you, but cannot herself commit to this work because she is teaching some talented and motivated students Differential Equations this semester.

Looking forward to seeing your results soon.

Sincerely,

Niedjatu Elpmeyout
CT Environmental Law Partners