EBBD EMAIL – for Internal Use Only

To: You

From: Danny Wilco <[*dwilco@ebbd.com*](mailto:dwilco@ebbd.com)>

Subject: Re: Deliveries clogging the loading dock area

OK, here’s what I want to know: how often do we have more than 5 trucks, more than 6 trucks, and more than 7 trucks. What is the highest number of trucks we may have in the system with a 95% probability? And then, assuming the arrival rate of the deliveries does not change, what does the unload rate need to be so that we can service up to five trucks 95% of the time? In other words if we want a 95% probability of 5 or fewer trucks in the system at any one time, what does the unloading (service) rate need to be? Then, consider that we have two unloading teams, each able to unload trucks at the same rate. What does the unloading rate need to be for each team in order to ensure (100%) 5 or fewer trucks in the system at any time? I know we don’t have room for two unloading teams at this time, but there is a possibility we might make room in the future.

Analyze this situation and determine what we need to know and give me report. At this point in time, I am looking only for the problem to be quantified and the unload rate determined for the current situation (single server) and possible two servers.

Let me know if you have any questions.

~DW, VP LogOps.

**Learning Wizard**

If you have mastered the examples and exercises provided in the Background from the Queuing PowerPoint, you are ready to tackle the EBBD problem.

The current situation is a Single Server situation. Enter the arrival rate and service rate to calculate the pertinent queuing system state data. Find out the probabilities of 5 or more trucks in the system, then 6, then 7. Then use trial and error to find the greatest number of trucks or less that can be in the system with 95% (or as close to 95%).

For the Multi-server problem you will need to use a similar process.

Record the results of your calculations and save the Excel file.

Then write your report.

**Assignment Expectations of the written report - write the report to your boss, Danny Wilco.**

The report should thoroughly address these aspects in depth and breadth:

* Problem situation: clearly elucidate the problem situation at EBBD
* Assumptions: what are the assumptions that need to be made and your critical evaluation
* Solution: discuss how you developed the Solver solution. Keep in mind that your audience is not too technical and do not need a lot of detail on this.
  + Make sure you attach the Excel file.
  + You should refer to the Excel file when necessary.
* Explanation: clear articulation of the results that you obtain, based on what Mr. Wilco is asking for.
* Conclusion: Even though Mr. Wilco is not asking for a conclusion, you should determine if there is a conclusion to this situation and elucidate what it is.
* Writing style & Organization: well-formed sentences and paragraphs, well organized with flow of reason, and good use of language that pertain to concepts and terminology
* Use of references & citations: If you use references, be sure to include appropriate use of citations in the paper and reference list (APA is required).