|  |  |  |
| --- | --- | --- |
| 11/10/2019 |  | Bdgr235@UKY.edu |
|  |  |  |

To

Dr. Whitney Blackburn-Lynch, PE

From

Brennen Green

CC

[Name]

Re

D5W Manufacturing Plant Design

Dr. Blackburn-Lynch,

Over the last few weeks we have been discussing the construction and ethical decisions regarding the medical manufacturing plant which primarily be producing and storing the dextrose D5W solution.

The idea of draining spill water into the storm drain was brought up for discussion. Regarding ethics, and as well, logic, this is completely out of discussion. Legally, the solution is well below the minimum pH determined by Fayette county to be drained in the storm drains. And regarding ethics, storm drains are drained to streams, rivers, and lakes. These waters contain life which could be ruined by the draining of this solution into the storm drains. For this reason, we must recommend as little spill water as possible be drained into the storm drainage.

Given the needs for the plan to be able to store enough deionized water for a week of production. We have done the necessary calculations to say that we must build a take with approximately 375 gallons of storage space. Along with this, we must have a hopper big enough to store a parallel amount of dextrose powder for a week. Once again, we performed the calculations necessary to discover that we will need the vendor to construct a hopper capable of storing approximately 4.75 cubic feet of dextrose powder for the week. These two things will give us the ability to meet the manufacturing needs of the plan which consist of producing one hundred 200ml containers per hour, 14 hours per day, 5 days a week.

So, in summary, I must recommend that the manufacturing plant do not consider draining spill water into the storm drains. I as-well recommend that, regarding the construction of storage containers, the manufacturing plan should construct a deionized water tank of about 375 gallons and a dextrose powder hopper of about 4.75 cubic feet.