Attorny Kalny and Town Board members,

I submitted two emails to the Plan Commission for yesterday’s (9/23) meeting .

(If you did not receive them Donna can send them to you I am certain)

Unfortunately I did not feel that the issues were addressed properly and so I do need to readdress my concerns with you.

1. It seems to me and several others that Commission members might not understand that the disagreeable and harmful odor we are discussing is created during the anaerobic digestion process, when biogas, which contains toxic and noxious gases, is produced and not from the manure smell that the Commission keeps referring to.

The Plan Commission and Town Board toured the Crave Digester as part of their due diligence to observe the odors and noise first hand.

When manure is anaerobically digested, the biogas produced is primarily composed of methane and carbon dioxide, with lesser amounts of hydrogen sulfide, ammonia, and other gases. Each of these gases has safety issues.

Hydrogen sulfide is a highly toxic gas that is heavier than air. At very low levels (Human detection levels of hydrogen sulfide are very low, in the parts per billion), it smells like rotten eggs and can produce eye irritation. At dangerous levels, it destroys the sense of smell and produces respiratory paralysis. Thus, at dangerous and fatal levels, where one can literally drop dead, there is no odor to warn of its presence.

Ammonia is a gas that is lighter than air, has a pungent odor, and can irritate the eyes and respiratory tract. Ammonia can displace oxygen in the bloodstream.

I refer to an article at this link which explains quite well the importance of controlling odor.

 I think you will find the article beneficial! Please read and then continue my email!

<https://www.wateronline.com/doc/methods-to-control-odors-from-anaerobic-digester-plants-and-prevent-nuisance-to-nearby-communities-0001>

Do you know specifically what active odor control methodology and equipment BC Organics will have in place? Have you checked to make sure this is the latest and best biogas odor and toxic gas removal available? How will the control methods be maintained? How often, how long each time and in what situations will flaring happen? When the digestion process is finished will flaring occur? With 16 digesters and 20-25 day digestion length that would mean flaring every day and a half or less.

The manure being processed by the system is fresh and taken from the farms prior to storage or decomposition. Typically, the odors come from storage in which the manure is held for months and then agitated prior to removing from the lagoon. Our system has 2-3 days of storage of fresh manure on site to minimize storage time and limit the chance for the manure to start to decompose. The manure will be pumped into the enclosed digestion system prior to decomposing or going anaerobic.

All the digester tanks are sealed to ensure an anaerobic environment in order to produce the biogas. The biogas is continually pulled from the head space of the digester tanks and processed through the gas upgrading system. The first step of the upgrading system is a hydrogen sulfide removal process. It converts the hydrogen sulfide gas to elemental sulfur cake and water. The sulfur is mixed with the concentrate going back to the farms since it is a beneficial micro-nutrient and the water is added to the digestate and processed by the filtration system. A water-scrubbing technology is used to separate the carbon dioxide from the methane.

The flare is only used in the event that the biogas upgrading system is down and the biogas storage is full. Flaring is not a planned event and the system is managed to avoid it. If we are flaring biogas, we are losing revenue since we are not converting it into renewable natural gas.

 Noxious/toxic odor is a very real health issue and is the most common digester complaint from residents. Therefore I am surprised at how little this complicated and important issue has been looked into! As has been pointed out at our meetings, emissions release (venting, flaring and leakage ) is hard to monitor and possibly the prudent way to proceed may be assuring that BC Organics uses methods, equipment/filters etc with superior quality and specifications for best ability to remove or destroy toxic and odorous gases and then of course superior maintenance! Do you know specifically what BC Organics is planning to use?

As mentioned above, if there is any biogas leakage, we are highly motivated to find the source of the leak and fix it since we are losing revenue anytime biogas is not being converted into renewable natural gas.

All processing equipment is in enclosed buildings to minimize odor and noise issues. Part of the purpose of the trip to the Crave Digester by the Plan Commission and Town Board was to observe the odor and noise first hand. They walked through the system and stood by the lagoon and could observe the odors (or lack of odors) first hand.

In yesterday’s email I referred to examples of digesters that shut down primarily because of odor complaints and immediately BC Organics shot in (with in my mind the usual answer) that that is not the same kind of digester. Well, the same BASICS chemistry applies- Anaerobic digestion of organic materials with biogas produced and causing the same type of problems!

The feedstock used in the digestion process will have a significant influence on the amount of odor generated by the facility and that is why I pointed out that distinction. I agree that food waste/rendering waste and municipal digestion plants have the ability to create much more odor than a dairy manure digester and more aggressive odor control measures need to be in place to minimize the odors associated with receiving and processing those types of waste.

1. The increase to 13 farms instead of the original 7 was not confirmed nor explained. Who are these added farms. Why are they added? How will their manure be delivered? How does the truck traffic not increase? I also asked to see the factual numbers for the latest manure trucking calculations.

The increase in the number of farms was originally done to offset the use of substrates in the system. Since starting the conditional use permitting process with the Town of Wrightstown, we have been approached by a number of additional farms in the Town requesting to join the project. We would like to accommodate as many of these farms as possible while staying within the processing limits of the system. The number of farms is not finalized as shown below. We tried to provide the Town with information on all those that have the potential to join to be as transparent as possible. If all those that are pending join, the truck count could be as high as 59 trucks per day. These estimates are shown below. The routing map that was provided to the Plan Commission is also attached.

Farms that are currently contracted to deliver manure to the facility:

|  |  |
| --- | --- |
| **Farm** |  |
| Wiese | Pumped |
| CA#1 | Pumped |
| CA#2 | Pumped |
| Gold Dust | 10 |
| Rueden | Pumped |
| New Horizons | 7 |
| Brickstead | 3 |
| Total Manure Trucks | 20 |
| Fiber Trucks | 4 |
| **Total Trucks** | **24** |

We have either term sheets or contracts pending with the following farms:

|  |  |
| --- | --- |
| **Farm** |  |
| Meadowlark | 8 |
| Brightside | 4 |
| Plum Pride | 2 |
| Woldt | 11 |
| Grandview | 8 |
| Additional Manure Trucks | 33 |
| Additional Fiber Trucks | 2 |
| **Total Trucks** | **35** |

One change from the map we provided is Woldt went from an estimated 50,000 gallons/day to 60,000 gallons/day of manure which added 2 more trucks per day.  If all these farms agree to join the project, the total number of trucks we could have is shown below. This is the maximum capacity of the plant. In order to accept manure from any additional farms not listed below, one of these farms would need to drop out or have less volume than they are estimating.

|  |  |
| --- | --- |
| **Farm** |  |
| Wiese | Pumped |
| CA#1 | Pumped |
| CA#2 | Pumped |
| Gold Dust | 10 |
| Rueden | Pumped |
| New Horizons | 7 |
| Meadowlark | 8 |
| Brightside | 4 |
| Plum Pride | 2 |
| Woldt | 11 |
| Brickstead | 3 |
| Grandview | 8 |
| Total Manure Trucks | 53 |
| Fiber Trucks | 6 |
| **Total Trucks** | **59** |

Town permit conditions maximize truck trips to 55 per day. How will this number be monitored? Only 15 of the total number of trucks will be using about 2.5 miles of Town Roads. The rest of the roads are State Highways and County Highways.

1. Corrected number of processed manure at a 12% increase to max 800,000 gpd daily surprised me as we were told early on, before the increase, that the facility was already at its max.

If substrate waste was removed and replaced with manure , why then do we have this overall increase of 12% gpd? We can accept more manure than substrate since the manure is more dilute than the substrate and has less energy potential per gallon.

70% piped and 30% hauled we still are told. My original numbers show piped manure amount at 464,100 gallons (70% times 663,000 gallons) I assume that number remains the same? The remaining 335,900 (800,000-464,100) is to be hauled I conclude. This is 58% piped and 42% hauled. What is accurate? Will these numbers continue to change?

If all the potential farms join the project, 58% pumped and 42% trucked is accurate. These numbers may change depending on those that choose to sign contracts to be a participant in the project and those that choose not to participate.

Finally, I think if we had been permitted several public hearings throughout the process and/or we had been permitted to have a bit of time for public commentary/questions during or after each meeting, I think the Town as a whole would have benefitted. For sure my questions and concerns would not have been so fragmented.

At least we all agree to the seriousness of this CUP for our Town.

 I would certainly appreciate these points addressed before or during Wednesday’s meeting.

In candor-thanks,

Linda Clemedtson