

**From:** [DoNotReply@delaware.gov](mailto:DoNotReply@delaware.gov)  
**To:** [HearingComments, DNREC \(MailBox Resources\); demartinom@si.rr.com](#)  
**Subject:** Public Hearing Comments  
**Date:** Monday, August 5, 2019 6:18:34 PM

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## Comments on Docket #2019-P-W-0016

Name: Marguerite DeMartino  
Phone: 718-600-7123  
Email Address: [demartinom@si.rr.com](mailto:demartinom@si.rr.com)  
Organization: No

### Comments:

The quality of our water is an extremely important issue to me and this proposal to use the waste water to irrigate crops is totally unacceptable. The environmental destruction that is going on today is out of control and the factory farming along with the inhumane treatment of chickens has got to stop. I am a proud vegan and care about what is happening having clean water to drink and bath in not only for now but for the future. The future is in our hands and we must make the right decision.

**From:** [DoNotReply@delaware.gov](mailto:DoNotReply@delaware.gov)  
**To:** [HearingComments, DNREC \(MailBox Resources\)](#); [eborys06@comcast.net](mailto:eborys06@comcast.net)  
**Subject:** Public Hearing Comments  
**Date:** Thursday, August 8, 2019 5:43:38 PM

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## Comments on Docket #2019-R-WH-0015

Name: Edward A Borys  
Phone: 3023299600  
Email Address: [eborys06@comcast.net](mailto:eborys06@comcast.net)  
Organization: Private resident in Wagaman's community, Milton, De.

### Comments:

First, when I looked for a home in Delaware my first priority was to avoid living near or next to any chicken farms or plants. Co-workers who lived here advised me to beware. So this is my primary concern, the possibly of the smell due to your proposal. What guarantee do we have that this will never happen even on the most humid and hottest of days? Then if this does happen what will be done if anything? Second, the environment as it pertains to our water table and the ground itself. Asking this question I have no doubts the answers will be "don't worry." But what level of confidence can we gain? Has this done else where so you can illustrate it does work? If so, how long have the operation or operations been going on? Can we see any/all test results of the ground water and the land? Overall my concern is greed. Too many times such projects begin with good intentions but promises are broken because it's cheaper to do what you shouldn't. In this regard, will there be trusted independent inspectors? Thank you in advance for answering the above. Currently my wife has a broken leg and pretty much immobile, so I'm not certain if we can make the meetings. v/r, Ed Borys

## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Wednesday, August 21, 2019 2:20 PM  
**To:** HearingComments, DNREC (MailBox Resources); chris.edginton@yahoo.com  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Christopher Edginton  
Phone: 4847942187  
Email Address: chris.edginton@yahoo.com  
Organization: Mr.

### Comments:

My comments against the operation are based on the following concerns: 1. How will the wastewater be stored for disinfecting if additional treatment is required prior to spray irrigation if it is going directly into the lagoon from Allen Harim as outlined in the building plans? 2. Agricultural Preservation Easement states that the land must be used to for the highest agricultural use. Spray irrigation has been shown to reduce crop yields, so how is that the highest use. 3. Current monitoring wells on spray field G show that nitrate levels are above 10 ppm. Water above that level will be sprayed onto those fields, how will it be monitored, and will the results be transparent to the public? 4. Clean Delaware's location down stream from the spray fields seems not to have been a siting consideration. This concern could not be addressed in our building permit hearing challenge, we were told to do it at this point. So, I ask again. The polluted ground water plume that currently exists east of the spray field locations will be impacted by the additional volume of surface water generated from these spray fields. This should be studied in a thorough environmental impact study before granting an operating permit. 5. If tainted water reaches the lagoon all the water in the lagoon will be tainted, how will it be treated while water continues to flow from the processing facility? 6. What are the nutrient uptake plans, especially when crops can not absorb at the same rate during the winter and prolonged rain events? 7. Since the water comes from a facility that runs virtually 24 hours a day, seven days a week, how will Artesian be able to stop accepting wastewater if needed? Thank you for considering my concerns, Christopher Edginton, 14440 Slim Street, Milton, Delaware

## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 3:15 PM  
**To:** HearingComments, DNREC (MailBox Resources); davejaeger@verizon.net  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: David Jaeger  
Phone: 3026458023  
Email Address: davejaeger@verizon.net  
Organization: Inland Bays Foundation

**Comments:**

DNREC should not approve any application to pipe wastewater from its Harbeson plant to the Artesian Northern Water Reclamation Facility (ANSWRF) for disposal via spray irrigation without a through Environmental Impact Study. The water quality in the Inland Bays area is already in a dire condition and should not be further endangered without competent and expert analysis of potential future contamination. People's lives are at stake.

**Rebar Jr., John J (DNREC)**

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**From:** DoNotReply@delaware.gov  
**Sent:** Saturday, August 17, 2019 5:53 PM  
**To:** HearingComments, DNREC (MailBox Resources)  
**Subject:** Public Hearing Comments  
**Attachments:** Kristl-2019-P-W-0016-Public Comment 1.docx

Comments on Docket #2019-P-W-0016

Name: Kenneth Kristl  
Phone: 3024772053  
Email Address: [ktkristl@widener.edu](mailto:ktkristl@widener.edu)  
Organization:

Comments:

Widener University   
Delaware Law School

Environmental & Natural Resources Law Clinic  
*Kenneth T. Kristl, Professor of Law and Director*

August 17, 2019

List Vest  
Hearing Officer  
Department of Natural Resources and Environmental Control  
89 Kings Highway  
Dover, DE 19901

Re: Docket # 2019-P-W-0016 — Public Comment #1: Public Notice Issues

Dear Hearing Officer Vest:

I am submitting this comment separately to raise an issue concerning the public notice and public record in connection with the above-referenced Docket.

At least one DNREC website page concerning this Docket reference that there are draft permits for both the Allen Harim and the Artesian Wastewater Management applications. *See* <https://dnrec.alpha.delaware.gov/2019/07/31/public-hearing-allen-harim-on-site-wastewater-treatment-and-disposal-system-permit-application-and-artesian-wastewater-management-spray-irrigation-permit-application/>

which states (emphasis supplied):

For additional information on the above matters, and to review these applications **and draft permits** online, visit [de.gov/dnrehearings](http://de.gov/dnrehearings) or contact John Rebar, Jr., Division of Water, Groundwater Discharges Section, 89 Kings Highway, Dover, DE, 19901; by phone at 302-739-9948; or, by email, at [John.Rebar@delaware.gov](mailto:John.Rebar@delaware.gov).

Persons wishing to comment on the above applications **and draft permits** may do so either orally or in written form at the public hearing on August 21, 2019. In lieu of attending the public hearing, written comment may be submitted to the Hearing Officer via the online comment form at [dnrec.alpha.delaware.gov/public-hearings/comment-form/](http://dnrec.alpha.delaware.gov/public-hearings/comment-form/) or via USPS to the following address:

Lisa A. Vest, Hearing Officer  
Office of the Secretary  
Department of Natural Resources and Environmental Control  
89 Kings Highway, Dover, DE 19901

However, the DNREC web page containing the documents related to these two permit requests does not contain draft permits for either application request but only the application documents.

It would seem there are three possibilities here:

- (1) There are no draft permits for either application;
- (2) There is a draft permit for one but not the other application;
- (3) There are draft permits for both applications.

If possibility #1 is true, then the references to draft permits are simply wrong, and the only documents currently available are the application packages themselves. This would mean that the August 21 hearing and the public comment period set to close on that date are solely focused on what the applications say, and that DNREC plans to use the information and comments to draft the permits. If that is the case, then I request that DNREC make available for public review and comment the draft permits when completed so that the public has an opportunity to comment on those drafts and add to the record before the Secretary. Failure to do so would deprive the public of the right to create a full record—and members of the public or the applicants could be deprived of the ability to raise issues about those permits on appeal to the EAB if the Board decides to enforce its Rule 5.3(g) limiting appellants to presenting information that was before the Secretary.

If possibilities #2 or #3 are true, and there are draft permits for either or both Allen Harim and Artesian, then DNREC's failure to provide those draft is unfair and it is a violation of Delaware law to require the public to comment on those documents in meaningful way by the August 21 hearing and comment deadline, now only three working days away. I request that, if such draft permits exist, DNREC:

1. Provide copies of the draft permits to the public on the DNREC website alongside the permit application packages already there;
2. Continue the public hearing until the public has had at least 30 days to review the draft permits before such hearing is held; and
3. Leave open the public comment period until at least 30 days after the draft permits are posted online.

Failure to make the draft permits available with meaningful opportunity to review and comment on those permits makes any final decision on the permits subject to challenge on public notice, procedural, and constitutional due process grounds.

Thank you for the opportunity to submit this public comment.

Sincerely,

/s/ Kenneth T. Kristl, Esq.

**Rebar Jr., John J (DNREC)**

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**From:** DoNotReply@delaware.gov  
**Sent:** Wednesday, August 21, 2019 8:33 AM  
**To:** HearingComments, DNREC (MailBox Resources)  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Eric Martin  
Phone: 3023735405  
Email Address: ejmartin1106@aol.com  
Organization:

Comments:

Although I am not a Sussex county resident, I do utilize Sussex waterways for recreational fishing and crabbing. I am in favor of the proposed wastewater irrigation plan as long as stringent quality standards are met. Excess nutrients are considered contamination in Delaware's waterways and the utmost care and consideration must be made to reduce these levels. The proposed irrigation plan is a viable solution as the plants will use the nitrates as food before they reach the groundwater. As long as water quality is monitored and results are shared with the public to ensure that nitrate and other "contaminants" are not making their way into the groundwater or nearby waterways, I support these proposals.



## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 3:06 PM  
**To:** HearingComments, DNREC (MailBox Resources)  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Ken Gregory  
Phone: 3026451727  
Email Address: kenneth\_w\_gregory@yahoo.com  
Organization: Self

**Comments:**

Block this piping Allen Harim poultry wastewater from Harbeson to the Artesian Northern Sussex Regional Water Reclamation Facility (ANSWRF) for disposal via spray irrigation.

## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 10:12 PM  
**To:** HearingComments, DNREC (MailBox Resources)  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Lewis R Podolske  
Phone: 302-933-0145  
Email Address: lpodolske@aol.com  
Organization: Millsboro Homeowner

### Comments:

We oppose the proposed permits both because they will allow continued trucking of wastewater from the Pinnacle Plant rather than building the state-of-the-art wastewater processing plant at Pinnacle Allen-Harim originally said they would build, and it is not clear the actions to be taken under the permits will adequately address the need for nitrates reduction called for in the existing NPDES permit which required building a treatment facility to reduce the nitrates to no more than 4 mg/L. Instead, they'll be discharging effluent with nitrate levels of closer to 30 with the assumption that if all goes exactly according to plan, with no upsets and no non-compliant wastewater, and crops doing uptake exactly as Artesian plans, the water, when it reaches the aquifer, will contain nitrates at a level of 9.9 mg/L. The idea that land application and crop uptake is the ideal wastewater treatment approach has been clearly disproved by Mountaire and there is no need for DNREC to make the same mistake with Allen Harim. They convince the Department and local officials that this plan is great because the farms get fertilized and nothing goes into the creek. They ignore the fact that the crops are drowned because the land doesn't always need irrigation, the land is sometimes frozen, or saturated, or has no crop, but the water just keeps coming. There is no indication that the applicants are considering the TMDLs. It's all a matter of how much wastewater they need to get rid of and what's the bare minimum in treatment they can get away with. DNREC is supposed to protect the public interest. What they seem to be doing is approving the applications of large corporate interests to just barely meet the technical requirements of the law and ignoring the reality that systems do not always operate at maximum efficiency. Have they not learned anything from the problems at Mountaire? Must citizens always enter into costly lawsuits because Delaware state entities do not care about the citizens of the state?

## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 2:50 PM  
**To:** HearingComments, DNREC (MailBox Resources); vfaden@gmail.com  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Valerie Faden  
Phone: 570-490-8832  
Email Address: vfaden@gmail.com  
Organization:

### Comments:

I am concerned with the impacts of piping Allen Harim poultry wastewater from Harbeson to the Artesian Northern Sussex Regional Water Reclamation Facility (ANSWRF) for disposal via spray irrigation. Concerns include contamination of private wells, the lack of an Environmental Impact Study, and effects on neighbors' health, property values, and quality of life. Wastewater from Allen Harim's Harbeson plant was previously discharged into Beaverdam Creek, a tributary of the Broadkill River that eventually leads into the Delaware Bay. I am writing to ask that DNREC and Artesian Water monitor surface and groundwater quality closely to ensure that the already high nitrate levels detected in the area by Artesian Water are mitigated by this irrigation strategy. I also ask that they proactively share water quality monitoring results from surface groundwater near the spray irrigation fields in a format understandable to the public in order to educate community members on this method's effectiveness. 90 percent of Delaware's waterways are considered contaminated due in part to excess nutrients. I commend the proposed change to a failing system and ask that all possible steps be taken to ensure this new method of wastewater treatment and disposal does not negatively impact our waterways and environment. DNREC, Sussex County officials, and Sussex municipalities must take PROACTIVE steps to protect our water quality and ensure that all commercial enterprises are FULLY transparent about water quality monitoring and follow the regulatory framework in place to protect residents and tourists from harm resulting from Delaware's impaired waterways. Thank you.

**Rebar Jr., John J (DNREC)**

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 4:34 PM  
**To:** HearingComments, DNREC (MailBox Resources)  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Boe Daley  
Phone: 8568893731  
Email Address: bojangles21@comcast.net  
Organization: No

**Comments:**

Allen Harim does not have a good track record. They were cited in 2016 by DNREC for discharging improperly treated wastewater into Beaverdam Creek. What makes you think they will do differently this time around? We are talking about peoples' health, not to mention their property values.

## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 12:19 PM  
**To:** HearingComments, DNREC (MailBox Resources); laura@delnature.org  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Anne Harper  
Phone: 3022392334  
Email Address: laura@delnature.org  
Organization: Delaware Nature Society

### Comments:

Wastewater treatment and disposal throughout Delaware are of great concern to Delaware Nature Society's constituents. Allen Harim's Harbeson facility previously released treated wastewater into Beaverdam Creek, a waterway that eventually flows into the Delaware Bay, and has a history of permit violations for wastewater discharge. Delaware Nature Society strongly opposes this method of wastewater disposal. The new system proposed in these permit applications could benefit surface and groundwater quality if enacted with great care. Delaware Nature Society asks that the Department of Natural Resources and Environmental Control and Artesian Water monitor surface and groundwater quality closely to ensure that the already high nitrate levels detected in the area by Artesian Water are mitigated by this irrigation strategy. We also ask that they proactively share water quality monitoring results from surface and groundwater near the spray irrigation fields in a format understandable to the public in order to educate community members on this method's effectiveness. 90 percent of Delaware's waterways are considered contaminated due in part to excess nutrients. We commend the proposed change to a failing system and ask that all possible steps be taken to ensure this new method of wastewater treatment and disposal does not negatively impact our waterways and environment. Thank you for the opportunity to comment.

## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 4:08 PM  
**To:** HearingComments, DNREC (MailBox Resources)  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: David O. Rickards  
Phone: 3025399034  
Email Address: dorickards@aol.com  
Organization: Birdsong Gardens

**Comments:**

If 400 acres of the available land designated for the wastewater spray-discharging project were used to create 5 foot wide, 3 foot deep lined channels 390,994,560 gallons of wastewater could be treated with lemna minor to remove/reduce the total nitrogen and phosphorus levels of the wastewater. Using data obtained from the NSF SBIR study #1215075 performed by Dr. Bryan Tracy of the University of Delaware, a system using the 3,484,800 linear feet available in 400 acres would allow lemna minor to reduce the total nitrogen and phosphorus levels to or near zero. This would allow the treated wastewater to reach EPA TMDL levels and be safely released into the local tributary. On the backside lemna minor has a value for use as an organic feed additive for chickens. The protein level exceeds 30% making it a better product than soybeans and university studies have shown that it can generate 10X the amount of biomass per acre as soybeans. This option should therefore be placed into consideration before allowing the current proposed permit be approved.

**Rebar Jr., John J (DNREC)**

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**From:** DoNotReply@delaware.gov  
**Sent:** Monday, August 19, 2019 10:49 AM  
**To:** HearingComments, DNREC (MailBox Resources); cgrobbel@grobbelenvironmental.com  
**Subject:** Public Hearing Comments  
**Attachments:** HarimArtesian Public Comment - Grobbel (8\_19\_19).pdf

Comments on Docket #2019-P-W-0016

Name: Christopher Grobbel  
Phone: 2314997165  
Email Address: cgrobbel@grobbelenvironmental.com  
Organization: Grobbel Environmental and Planning Associates

**Comments:**

Please include the attached comment letter regarding the proposed Allen Harim/Artestian operation permits to the public record. Thanks.



# Grobbel Environmental & Planning Associates

8288 E North Wind Tr PO Box 58 Lake Leelanau, MI 49653

August 19, 2019

Lisa A. Vest, Hearing Officer  
Office of the Secretary  
Department of Natural Resources and Environmental Control  
89 Kings Highway  
Dover, DE 19901

**RE: Public Comment - Allen Harim On-Site Wastewater Treatment and Disposal System Permit Application and Artesian Wastewater Management Spray Irrigation Permit Application - Docket #2019-P-W-0016.**

Dear Ms. Vest,

Allen Harim Foods, LLC has applied to the State of Delaware for an operations permit for on-site wastewater treatment and disposal system to treat up to 4.0 MGD of poultry processing wastewater at the Allen Harim Harbeson Processing Facility.<sup>1</sup> The wastewater treatment system consists of primary screening, grit removal, a dissolved air flotation device, two anoxic biological nutrient removal basins, two activated sludge aeration cells, a flocculation tank, two clarifiers, a chlorination/de-chlorination contact tank, and two aerobic digesters. Treated wastewater effluent is proposed to be pumped to the Artesian Northern Sussex Regional Water Reclamation Facility (ANSRWRWF or “Artesian”) at 14227 Isaacs Rd., Milton for lagoon storage and ultimate disposal through spray irrigation on fields.

Artesian Wastewater Management, Inc. has also applied for a spray irrigation operations permit to receive treated wastewater effluent from the Harim Plant for lagoon storage and disposal via spray irrigation at ANSRWRWF fields. The design average daily flow is 1.5 MGD with a peak flow of 2.0 MGD, and wastewater is proposed to be sprayed on privately-owned agricultural lands under a lease held *in perpetuity* by Artesian. Proposed irrigation sites total approximately 1,714 acres, which include both wooded and agricultural areas. The effluent is proposed to receive a level of treatment to meet DNREC’s “Unlimited Public Access” requirement at the Allen Harim Wastewater Treatment Plant, and nitrogen polishing is proposed through crop uptake. Effluent disinfection is not planned, but the “ANSRWRWF is also capable of disinfecting the stored wastewater if additional treatment is required prior to spray irrigation.” Proposed wastewater spray fields will rely upon Nitrogen removal through biological plant uptake, denitrification from beneficial bacteria, and Ammonia volatilization to the air.

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<sup>1</sup> The majority of the poultry processing water is generated onsite at the Harbeson facility with a minor amount discharged to the treatment system from the Pinnacle Processing and Dagsboro Hatchery facilities. The facility is capable of diverting “offspec” wastewater to on-site lagoons followed by recirculating and retreating the wastewater.



We have reviewed the proposed operating permit applications and provide the following public comment:

1) **Proposed Waste Water Spray Irrigation Will Likely Exacerbate Existing Groundwater Contamination.** Clean Delaware on-site groundwater monitoring well #24259249 documents groundwater contamination with Nitrate at 46.4 ppm (i.e., November 2015), E. coli at 1,203.3 colonies/100 ml (i.e., August 2017), and Dissolved Oxygen as low as 3.01 ppm (i.e., May 2016).<sup>2</sup> Clean Delaware groundwater monitoring well #24259254 near Russell St. documents groundwater contamination with Nitrate at 89.1 ppm (i.e., May 2016), E. coli at 2,419.6 colonies/100 mL (i.e., August 2017), and Dissolved Oxygen as low as 0.22 ppm (i.e., February 2014).<sup>3</sup> Clean Delaware groundwater monitoring well #24259253 also near Russell St. documents groundwater contamination with Nitrate at 44.6 ppm (i.e., May 2016), E. coli at 365.4 colonies/100 mL (i.e., July 2017), and Dissolved Oxygen as low as 1.35 ppm (i.e., February 2014).<sup>4</sup> Notably, groundwater at and downgradient of the Clean Delaware spray fields is documented to be contaminated with bacteria, i.e., E. coli and fecal coliform. It is highly unusual to see bacterial contamination in groundwater, and it is alarming for it to exist within an aquifer being used for drinking water.<sup>5</sup> Moreover, groundwater mounding has been observed at 5 of 11 facility groundwater monitor wells, and the above-described groundwater contamination is very likely the direct result of the past over land application of improperly treated wastewater from the Clean Delaware facility.<sup>6</sup> We are very concerned that groundwater has already been severely impacted at and downgradient of this facility and its spray fields, and proposed additional spray irrigation will lead to additional groundwater mounding, and likely exacerbate existing, documented groundwater contamination.

2) **Proposed Waste Water Spray Irrigation Will Further Threaten Residential Drinking Water Wells.** ANSRWRF's Field G (590.5 acres) is proposed receive 1 million gallons per day in year 1 and then up to 1.2 million gallons per day. Field G exists adjacent to and upgradient of Clean Delaware spray fields, and 3,700 feet upgradient in groundwater flow of the Russell, Slim and Collins Streets neighborhood. Based on reported hydraulic conductivity (i.e., K is reported at 66 and 120 feet/day), groundwater flow time from Field G to downgradient residences relying solely upon groundwater for drinking water sources is 56 to 92.5 days. Sixty-eight percent (68%), i.e., 45 of 66, residential wells in

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<sup>2</sup> See Duffield Associates, Quarterly Groundwater Monitoring Report, August 31, 2017 (summarizing groundwater data from May 2013 through August 2017).

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> The long term application of inadequately treated sewage effluent to soils and groundwater can result in the naturalization of strains of E. Coli and other enteric pathogens, the loss of beneficial bacteria in the vadose zone and in groundwater, and the overtaxing of the natural treatment in the environment relied upon by the ANSRWRF system. Enteric pathogens include *Campylobacter* spp., *Salmonella* spp., *Listeria monocytogenes*, *Escherichia coli*, *Cryptosporidium parvum*, *Giardia lamblia*, etc.

<sup>6</sup> Ibid.

this neighborhood are already contaminated with Nitrate above 10 ppm.<sup>7</sup> Nitrate concentration in residential drinking water in this neighborhood have been documented up to 53.35 ppm, or 5.35 times the Nitrate drinking water standard. The above-described groundwater contamination is very likely the direct result of the over-land application of improperly treated wastewater from the Clean Delaware facility - presumably under DNREC discharge permits.<sup>8</sup>

Nitrogen, in the forms of nitrate, nitrite, or ammonium, is a nutrient needed for plant growth. Although nitrogen is abundant naturally in the environment, it is also introduced through sewage and fertilizers. Chemical fertilizers or animal manure is commonly applied to crops to add nutrients. Wastewater-treatment facilities that do not specifically remove nitrogen can also lead to excess levels of nitrogen in surface water and/or groundwater. Nitrate (NO<sub>3</sub>), Nitrite (NO<sub>2</sub>), and Ammonia (NH<sub>3</sub>) are considered inorganic forms of nitrogen and are analyzed separately in water quality monitoring to determine the total inorganic nitrogen (TIN).<sup>9</sup> Total Kjeldahl nitrogen (TKN) is the combination of organically bound nitrogen and ammonia in wastewater. Total nitrogen is the combination of organic nitrogen and TIN. Nitrate can get into water directly as the result of runoff of fertilizers. Nitrate can also be formed in water bodies through the oxidation of other forms of nitrogen, including nitrite, ammonia, and organic nitrogen compounds such as amino acids. Ammonia and organic nitrogen can enter water through sewage effluent discharge and runoff from land where manure has been applied or stored.

We find that proposed land application of additional wastewater upgradient of the existing groundwater contamination plume described above, likely violates the Delaware Administrative Code Section 6.5.3.2.3.6 which requires that soils and vegetative cover be able to adequately treat the wastewater without causing undue hazard to the environment or to the public health, and Section 6.5.3.2.3.7 which requires the full exploration of potential for adverse environmental impacts to groundwater resources or surface water bodies before the issuance of an operation permit.

### **3) Area Soils and Groundwater Are Unsuitable for Sewage Spray Irrigation.**

The Artesian facility and spray fields exist within the Broadkill River/Cedar Creek Watershed, within the Columbia aquifer.<sup>10</sup> The facility is typified by highly porous, highly permeable unconsolidated sands.<sup>11</sup>

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<sup>7</sup> See Clean Delaware, LLC Area Residential Wells, November 2013, and Duffield Associates, Quarterly Groundwater Monitoring Report, August 31, 2017

<sup>8</sup> Ibid. The Artesian facility was permitted to spray irrigate up to 1 million gallons per day in 2013, and up to 2 million gallons per day in 2017.

<sup>9</sup> Nitrite (NO<sub>2</sub>-) + nitrate (NO<sub>3</sub>-) + Ammonium (NH<sub>4</sub><sup>+</sup>) = Total Inorganic Nitrogen (TIN).

<sup>10</sup> The Columbia aquifer consists of fine to medium sands, Transmissivity (T) of 6,156 square feet/day, Conductivity (K) of 66 feet/day, 8 feet bgs average water depth, with 1.7 feet bgs seasonal high water table.

<sup>11</sup> Soils within Field G include Downer loamy sand, Fort Mott loamy sand, Henlopen-Rosedale complex, Ingelside loamy sand, Rosedale loamy sand, Sassafras sandy loam, and small areas of Long marsh and Indiantown hydric soils. See Brickhouse's Soils Investigation Report, December 2008.

Groundwater flow is documented to be generally from west to east within an unconfined surficial aquifer, with groundwater saturation or the “water table” as shallow as 9.2 feet below ground surface and soil mottling evidencing seasonal soil saturation documented at 3.2 feet bgs.<sup>12</sup> A 2008 soil investigation within Field G documented thirty-six (36) of eighty (80), or 45%, of soils borings with saturation at 5 feet bgs or less.<sup>13</sup> Dissolved oxygen concentration in saturated soil at 2 ppm or less results in oxidation reduction or “redox” conditions and soil mottling. Sixty-nine (69) of eighty (80) shallow soil borings completed in Field G indicate soils with high value (i.e., 5-8) and low chroma (i.e., 1-2), high chroma (i.e., 6-8), or mottling documenting poor soil conditions for waster waster spray application/irrigation.<sup>14</sup> In other words, 86.25% of soils are documented to be inadequate for such waster water infiltration and treatment. Importantly, Artesian’s own consultants have concluded that “(s)everal areas of concern (exist in Field G including)...closed depressions in fields and woods ... an area of ponding along Route 16 (Sawmill Rd.) south of G-130,” and “G-137 possesses shallow redox features (exist within Field G)...avoid the triangular area West and wood portion(s).”<sup>15</sup> Artesian reported in 2017 that “Field G West (and wooded areas) are “poorly drained with numerous seeps keeping water on-site.”<sup>16</sup>

DNREC has also found that the water table is not as deep as claimed by the Applicant, and though it varies when corrected for topographic relief groundwater exists at 2 ft to 4 feet bgs, with a 1.7 feet seasonal high water table. Such conditions do not meet DNREC requirement of a minimum 2 foot separation from the soil surface to the water table for approved spay irrigation fields.<sup>17</sup> For the above reasons, we find that the water table is too shallow, mounding and mottling are documented, and soils too sandy for the effective nutrient uptake and the treatment of pathogens at many spray Field G. Field G drains to the north to Ingham Branch and the southwest to the Brittinham Branch of Primebrook Creek.<sup>18</sup>

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<sup>12</sup> See Groundwater Associates’ Groundwater Elevation and Monitor Well Location Report, May 18, 2016, and Artesian Utility Development, Peter Demicco, Preliminary Ground Water Mounding Analysis (Appendix 7), dated July 20, 2009.

<sup>13</sup> See Brickhouse’s Soils Investigation Report, December 2008.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid., pp. 24-25.

<sup>16</sup> Amended Design Development Report, ANSRWRF, Artesian Resources Corp., May 5, 2017, p. 22.

<sup>17</sup> See Brian Venables, Groundwater Protection Branch, DNREC memo to ANSRWRF, dated October 28, 2009.

<sup>18</sup> See Artesian Utility Development, Peter Demicco, Preliminary Ground Water Mounding Analysis (Appendix 7), dated July 20, 2009.

For the above reasons, we strongly recommend DNREC deny the proposed Artesian/Harim operation permits. If you have any questions regarding these rebuttal comments, please feel free to contact me at 231-499-7165 or [cgrobbel@grobbelenvironmental.com](mailto:cgrobbel@grobbelenvironmental.com). Thank you.

Sincerely,

**Grobbel Environmental & Planning Associates**

A handwritten signature in black ink, appearing to read "C Grobbel".

Christopher P. Grobbel, Ph.D.  
Sr. Project Manager

## CHRISTOPHER P. GROBBEL

### EDUCATION

**Ph. D.** Environmental Policy and Law, Michigan State University, Resource Development Department, College of Agriculture and Natural Resources, 1998, GPA 3.96.

**M.S.** Environmental Policy and Law / Hydrogeology - Michigan State University, Resource Development Department, College of Agriculture and Natural Resources, 1986, GPA 3.93.

**B.S.** Environmental Science / Forestry with High Honor - Michigan State University, Resource Development Department, College of Agriculture and Natural Resources, 1983, GPA 3.82.

### PROFESSIONAL EXPERIENCE

**Principal/Senior Associate** – Grobbel Environmental & Planning Associates, Traverse City, Michigan.

1998 to Present            Founder and president of the environmental consulting and land use planning firm, Grobbel Environmental & Planning Associates. Project experience includes watershed management and protection planning; community master planning, police power and zoning ordinance development; land use and environmental planning; ecological assessment; wetland determination, restoration and delineation; soil/groundwater investigation and remediation; risk assessment, management and communication; brownfield redevelopment; innovative stormwater treatment system design and construction; litigation support and expert witness; and all aspects of business development, media relations, financial management, marketing and administration.

**Assistant/Adjunct Professor** – Department of Community Sustainability/CARRS/Resource Development Department, College of Agriculture & Natural Resources, Michigan State University, Traverse City and East Lansing, Michigan.

1992 to 2016            Design and teaching of college undergraduate courses entitled: CSUS 425 Environmental Impact Assessment; CSUS 465 Environmental and Natural Resources Law; CSUS 200 Introduction to Sustainability; CSUS 320 Environmental Planning and Management; ESA 225 Land and Environmental Issues in Law; RD 336 State Environmental Law; RD 491 Environmental Ethics; and RD 430 Natural Resources Law. Director of MSU undergraduate environmental studies program at the University Center in Traverse City, Michigan.

**Land Use Programs Consultant** – Tip of the Mitt Watershed Council, Petoskey/Traverse City, Michigan.

2002 - 2004            Land use programs consultant undertaking master planning, zoning ordinance audit and development, site conservation design/development, site plan review, and land use training and education programs. Duties also include environmental planning; ecological assessment; soil and groundwater investigation; wetland determination, assessment, delineation and restoration; risk assessment, management and communication; brownfield redevelopment; litigation support and expert witness; and all aspects of technical services development, marketing and administration.

**CHRISTOPHER P. GROBBEL**

**Page 2**

**Northwest Michigan Land Use Agent** – MSU Extension, Grand Traverse County, Michigan.

1999 - 2003 Developer, co-author and coordinator of MSUE's award winning Citizen Planner statewide land use training program in Michigan. Design and teaching of college credit and adult learner non-credit courses in land use planning and law, environmental law and policy, community development, wetlands and watershed management, *etc.* Member of Leelanau County Agricultural Alliance, Antrim-Grand Traverse County farmland preservation task force involved in undertaking surveys and geographic information system mapping toward county administered farmland preservation programs.

**Director of Education and Land Stewardship** – Leelanau Conservancy, Leland, Michigan.

1998 - 1999 Design and delivery of land use, conservation and environmental education programs for school children, landowners, professionals and local and regional units of government. Implementation of the Leelanau Geography Project, including the training of middle school teachers from ten (10) area public and private schools. Communication and outreach to visual, print, audio and electronic media. Design and implementation of web pages for Leelanau Conservancy and regional environmental education consortium. Writing and administration of numerous grants.

**Co-owner/Senior Project Manager** - Compliance, Inc. Environmental Engineering, Traverse City and Detroit, Michigan.

1996 - 1998 Founder of Southwest Detroit office for Compliance, Inc. Regulatory specialist and senior project manager for the investigation and remediation of sites of environmental contamination, brownfield redevelopment, air permitting, emergency response, expert witness and leaking underground storage tank programs. Recipient of Kresge Foundation brownfield redevelopment project grant, and board member for Cluster 5 (Southwest Detroit) of Detroit's Community Reinvestment Strategy initiative.

**Regulatory Specialist/Project Manager** - Environmental Solutions, Inc., Traverse City, Michigan.

1992 - 1996 Regulatory specialist and project manager for the investigation and remediation of sites of environmental contamination.

**Environmental Enforcement Specialist** - Michigan Department of Environmental Quality, Environmental Response Division, Lansing, Michigan.

1991 - 1992 Liaison to the Department of the Attorney General in the enforcement and litigation of state environmental regulations.

**Environmental Quality Analyst** - Michigan Department of Environmental Quality, Environmental Response Division, Gaylord, Michigan.

1989 - 1991 Compliance and enforcement of state hazardous waste, solid waste and leaking underground storage tank (LUST) regulations for eight county region. Responsible for coordination of Part 201 and LUST programs for the eight (8) county Gaylord District.

**CHRISTOPHER P. GROBBEL**

**Page 3**

**Water Quality Specialist** - Michigan Department of Natural Resources, Land and Water Management Division, Lansing, Michigan.

1988 - 1989      Production supervisor and design assistant for the Michigan Statewide Groundwater Data Base geographic information system.

**U.S. Peace Corps** – Returned Peace Corps Volunteer.

1987 - 1988      Worked in the development of agro-forestry systems, soil conservation and environmental education projects in Guayas Province, Ecuador.

**Consultant** - Michigan Department of Natural Resources, Groundwater Quality and Land and Water Management Divisions, Lansing, Michigan.

1986 - 1987      Staff planner and development specialist for the prototype computerized Michigan Statewide Groundwater Data Base.

**SELECT PROFESSIONAL PUBLICATIONS & PRESENTATIONS**

**The Rap Sheets: Paying for Pollution. The Misuse of Public Resources for Manure-to-Energy Projects at Industrial Dairies in Wisconsin**, Socially Responsible Agriculture Project and Kewaunee CARES, May, 2019.

**Delaware CAFO Guide**, Socially Responsible Agriculture Project, May 2019.

**Michigan CAFO Guide**, Socially Responsible Agriculture Project, January 2019.

**Local Governmental Role in Oil and Gas Regulation**, WMEAC Conference, Fracking in Michigan, December 3, 2014, Kellogg Center, E. Lansing, Michigan.

**Environmental Issues in Natural Gas Production**, Harrison, W.B. III, Peters, J., Poll, J., Grobbel, C., VanDyke, A., and Sadler, S., Foxmoor Continuing Education, a Division of Half Moon Education, Inc., publication, 2014.

**What is a Taking? Exploring the Boundary between Public Interest and Private Property**, Kohler, Ellen, Esq. and Grobbel, Christopher, Ph.D., Tip of the Mitt Watershed Council publication, 2004.

**Summary of Property Takings Case Law**, Michigan State University Land Use Series, East Lansing, Michigan, December 16, 2002, <http://www.msue.msu.edu/aoe/landuse/landindex.html>.

**Citizen Planner Program Curriculum**, training course series for non-professionals involved in local land use decision-making, Michigan State University Extension, 175 pp., copyright 2000. Legal Foundations of Planning and Zoning; Private Property Rights and the Takings Issue; Zoning for Water Quality; Farmland Preservation Tools and Techniques; Principles of the New Urbanism; Brownfield Redevelopment; Wetland Science and Regulation; and Riparian Rights.

**An Examination Of Indicators Of Social Equity In Michigan Environmental Policy: The Case Of The Michigan Environmental Response Program**, Ph.D. dissertation for the College of Agriculture and Natural Resources, Resource Development Department, Michigan State University, 200 pp., 1998.

**Environmental Justice Bibliography, 1975-1994**, D. Doberneck, C. Grobbel, T. Link, and G. Guluma, Office of Diversity and Pluralism, College of Agriculture and Natural Resources, and the Resource Development Department, Michigan State University, 79 pp., 1995.

**CHRISTOPHER P. GROBBEL**

**Page 4**

**Environmental Equity and U.S. Policy**, Community News & Views, Vol. 6, No. 4, Urban Affairs Programs, Michigan State University, Winter 1994.

**Wellkey: User Documentation**, Christopher P. Grobbel and Bruce Morrison, 69 pp., 1989.

**Water Well Record Location Verification and Automation: A Pilot Project for Isabella County, Michigan**, M.N. Beaulac and Christopher P. Grobbel, 50 pp., 1987.

**State v.s. Federal Rights in the Regulation of Natural Resources: Legal Issues Surrounding Great Lakes Water Diversion**, A Master's Thesis for the College of Agricultural and Natural Resources, Michigan State University, Christopher P. Grobbel, 120 pp., 1986.

**Water Management in Michigan: Legal Issues in Michigan Water Planning**, Dan Bronstein, Leighton Leighty, John Vincent and Christopher Grobbel, 214 pp., 1985.

Presenter of “**Environmental Issues with Hydraulic Fracturing: Unconventional Natural Gas Development of Collingwood Shale**” numerous conferences and presentations through-out Michigan, 2010 – 2014.

Panelist: “**Risks of Hydraulic Fracturing: Unconventional Natural Gas Development of Collingwood Shale**,” Michigan State University Extension, Traverse City, Michigan, June 24, 2010.

Instructor of “**Planning and Zoning Essentials**” Michigan Association of Planning, February 25, 2010, Perry Davis Hotel, Petoskey, Michigan.

Presenter of “**Role of Local Government in Protecting Wetlands**” at the Planning Michigan Conference, Michigan Association of Planning's 2009 Planning Conference, October 2, 2009, Mt. Pleasant, Michigan.

Presenter of “**Role of Local Government in Michigan Wetland Regulation**” at the Michigan Wetlands: Celebrating the 25<sup>th</sup> Anniversary of the Wetland Protection Act Conference, Michigan Department of Environmental Quality, Michigan Department of Natural Resources, Northwestern Michigan College, Water Studies Institute, and U.S. Environmental Protection Agency, May 20-22, Traverse City Michigan.

Presenter of “**Groundwater Disputes: Case Studies and Solutions**” at the 10<sup>th</sup> Annual Michigan Environmental Health Professionals Conference, October 12-15, 2003, Shanty Creek, Bellaire, Michigan.

Presenter of “**Water Quality Protection Tools for Local Government**,” Kellogg Foundation/People and Land Project, September 30, 2003, Inland Lakes Education Center, Indian River, Michigan.

Presenter of “**Water Quality Protection Tools for Local Government**,” Kellogg Foundation/People and Land Project, August 22, 2003, Grand Traverse Bay Watershed Conference, Holiday Inn, Traverse City, Michigan.

Presenter of “**Farmland Preservation Tools and Techniques and Landowner Options**” at the 52<sup>nd</sup> Annual Benzie-Manistee Horticultural Show, March 18-20, 2003, Crystal Mountain, Thompsonville, Michigan.

Presenter “**Riparian Rights**” for HARBOR, Inc. at the Little Traverse Township Hall, Emmet County, Michigan, March 25, 2003.

Panelist “**The Legalities of Land Use**” for MSU Extension/HARBOR, Inc. at the Little Traverse Township Hall, Emmet County, Michigan, December 10, 2002.

Presenter “**Planning and Zoning - How to Stay Out of Court**” at the Annual Michigan Society of Planning Conference, Community, Culture, Change: Planning Michigan, Kalamazoo, October 2 through 5, 2002.



## CHRISTOPHER P. GROBBEL

### Page 5

Presenter of **“Michigan’s Environmental Regulatory Legacy”** at the 2001 Kickoff: Michigan Groundwater Stewardship Program, Michigan Department of Agriculture, Michiganiana, Boyne City, Michigan, October 25, 2000.

Presenter of **“Hydrogeology, Contaminant Monitoring, Fate and Transport, and Contaminant Remediation”** at the Chemical Applications: Pesticide/Fertilizer Application Workshop, Michigan State University, East Lansing, Michigan, March 30 – 31, 2000.

Presenter at the 2000 Envirothon, **“Renewable Energy: Taking Another Look”**, Northwest Michigan Horticulture Research Station, Michigan State University Extension, February 18, 2000.

Co-presenter **“Land Use Conflict: When City and Country Clash”**, A project of the National Public Policy Education Committee in Cooperation with the Farm Foundation, Northwest Michigan Orchard Show, Grand Traverse Resort, Acme, Michigan, January 25, 2000.

Panelist **“Building Consensus in Land Use and Growth”**, Council of Michigan Foundations annual conference, Grand Traverse Resort, Acme, Michigan, October 4, 2000.

Panelist at **“A Community Forum of Brownfield Redevelopment along Boardman Lake”**, Traverse City, Michigan, October 13 and 27, 1998.

Panelist on **“Impact of the Michigan Environmental Response Act”** at the Michigan Department of Treasury's 8th Annual Directions in Public Finance Conference at the Grand Traverse Resort, Acme Michigan on June 2, 1995.

Presented an **Environmental Regulatory Update: Issues Related to Commercial Lender Liability** for Old Kent Bank, March 11, 1994 and June 7, 1995.

Presented Guidelines for the **Purchasing, Handling and Disposal of Hazardous Materials** with Benson, McCurdy & Wotila, P.C. for Northern Michigan Purchasing Agents in Kalkaska, Michigan on March 9, 1994.

Presenter - **An Overview of Michigan Environmental Response Act and Other Environmental Regulations** for Grand Traverse Area Certified Public Accountants and Attorneys at the Grand Traverse Resort, Traverse City, December 10, 1991.

Guest Lecturer in **Wetland Law** – Detroit College of Law, Michigan State University, East Lansing, Michigan, Spring 2002.

Guest Lecturer in **Environmental Justice Studies** – University of Michigan, School of Natural Resources, Ann Arbor, Michigan, Spring 1998.

Guest Lecturer in **Environmental Justice and the Law** – Cooley Law School, Lansing, Michigan, Fall 1997.

Guest Lecturer in **Environmental Studies** – Western Michigan University, Kalamazoo, Michigan, 1994 through 1999.

### FURTHER EDUCATION

Seminar - **New Digital Joint Permit Application (JPA) in MiWaters: Submitting Wetlands, Lakes and Streams Applications**, Water Resources Division of the Michigan Department of Environmental Quality, March 5, 2019.

Training – **Understanding the Depth of Deep Well Injection**, North Central Michigan College, Petoskey, Michigan, May 20, 2010.

**CHRISTOPHER P. GROBBEL**

**Page 6**

Training – **Design for Rain Gardens: Stormwater and Runoff Control**, North Carolina State University and Tetra Tech, April 16, 2009.

Training – **Wetland Plant Identification**, Wetland Training Institute, Dr. Mollenberg, Lansing, Michigan, May 21-24, 2002.

Training - **Planning Hydrology for Constructed Wetlands**, Wetland Training Institute, Dr. Gary Pierce, Pierce Cedar Creek Institute, Hastings, Michigan, July 9 - 13, 2001.

Training - **U.S. Army Corps of Engineers Wetland Delineation and Management Training**, Richard Chinn Environmental Training, Inc., Chicago, Illinois, October 9 - 13, 2000.

Training – **Special Wetland Area Management Project**, Geographic Information System Wetland Data Northwest Michigan Council of Governments, Traverse City, Michigan, August 31, 2000.

Training – **Web Site Design Course**, Michigan State University Extension, University Center, Traverse City, Michigan May 4, 2000.

Training - **American Institute of Certified Planners (AICP) Comprehensive Exam Preparatory Course**, February through April 17, 2000.

Training - **Computer Technologies and Groundwater Resource Data Management**, U.S. EPA, Atlanta, Georgia, August 1986.

Seminar - **Hazardous Waste Management under the Resource Conservation and Recovery Act**, Waste Management Division of the Michigan Department of Natural Resources, February 1989.

Training - **Soil and Groundwater Sampling and Analysis** - Michigan Department of Natural Resources, April 1989.

Training - **Innovative Remedial Action Technologies**, Environmental Response Division, Michigan Department of Natural Resources, 1989.

Seminar - **Underground Storage Tank Management**, Department of Engineering Professional Development, University of Wisconsin, 1989.

Training - **Amendments to the Michigan Environmental Response Act, 1988 P.A. 307**, Michigan Department of Natural Resources, 1990.

Seminar - **Leak Detection and Corrective Action for Underground Storage Tanks**, Department of Engineering Professional Development, University of Wisconsin, 1990.

Seminar - **Groundwater Flow and Well Hydraulics**, Department of Engineering Professional Development, University of Wisconsin, 1991.

**Cleaning The Air in West Michigan #4: Recognizing and Dealing with Non-compliance**, Varnum, Riddering, Schmidt and Howlett, and Grand Valley State University - Water Resources Institute, Grand Rapids, Michigan, September 1994.

**ASTM - Environmental Site Assessment Up-date**, Chicago, Illinois, August 1994.

## CHRISTOPHER P. GROBBEL

### Page 7

Seminar - **IBM PC Applications in Groundwater Pollution and Hydrology**, Groundwater Modeling and Computer Technologies for Groundwater Quality Management - National Ground Water Association, Boston, Massachusetts, August 1994.

Workshop - **Waste Minimization and Energy Efficiency Workshop** - American Automobile Manufacturers Association, Michigan Departments of Commerce and Natural Resources and the U.S. EPA, Detroit, Michigan, December 1994.

Seminar - **Clean Air Act Amendments, Sec. 112(R) - Process Safety Management and Risk Management Compliance**, Michigan Association of Environmental Professionals Howell, Michigan, December 1994.

Workshop - **Waste Minimization and Energy Efficiency Workshop** - Michigan Departments of Commerce and Natural Resources, Traverse City, Michigan, May 1995.

Training - **Risk-Based Corrective Action (RBCA) Applied at Petroleum Sites (ASTM E38-94)**, ASTM by Foster Wheeler Environmental Corporation, Bellevue, Washington, July 14-15, 1995.

Conference – **Restructuring Rural Society and Rural Sociology**, Environmental Justice, 58<sup>th</sup> Annual Meeting, Rural Sociological Society, Ritz-Carlton Hotel, Pentagon City, Virginia, August 17-20, 1995.

Conference – **Michigan Chapter of the American Planning Association and the Michigan Society of Planning Officials**, 4<sup>th</sup> Annual Joint Conference, “Planning Michigan For the People, By the People”, Amway Grand Plaza, Grand Rapids, Michigan, September 22-25, 1999.

Seminar - **Innovative Septic Technologies**, Michigan State University Engineering Department, Michigan State University Extension and Northwest Michigan Council of Governments, Traverse City Library, Traverse City, Michigan, August 25, 2000.

#### **Academic Achievement:**

Phi Theta Kappa National Honor Society  
Golden Key National Honor Society  
Alpha Zeta Agriculture and Natural Resources Honor Society  
Numerous MSU scholarships and assistantships – 3/84 through 3/86.  
MSU graduate student fellowship – 9/92 through 8/98.

#### **Professional Certifications:**

OSHA 40-Hour Site Safety Training  
OSHA 8-Hour Site Safety Training  
OSHA Hazardous Waste Site Supervisory Safety Training  
Qualified Underground Storage Tank Professional #190, State of Michigan, Department of Environmental Quality.  
Michigan Association of Planning, certified instructor.

#### **Professional Associations:**

Michigan Association of Environmental Professionals, member.  
National Association of Environmental Professionals, member.  
National Ground Water Association, member.  
Society of Wetland Scientists, member.  
Michigan Association Planning, certified instructor and former education committee member.  
American Planning Association, member.

**Rebar Jr., John J (DNREC)**

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 3:30 PM  
**To:** HearingComments, DNREC (MailBox Resources); gfaden24@gmail.com  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Glen Faden  
Phone: 5704902195  
Email Address: gfaden24@gmail.com  
Organization:

Comments:

I am concerned with the impacts of piping Allen Harim poultry wastewater from Harbeson to the Artesian Northern Sussex Regional Water Reclamation Facility (ANSWRF) for disposal via spray irrigation. Concerns include contamination of private wells, the lack of an Environmental Impact Study, and effects on neighbors' health, property values, and quality of life. Wastewater from Allen Harim's Harbeson plant was previously discharged into Beaverdam Creek, a tributary of the Broadkill River that eventually leads into the Delaware Bay. I am writing to ask that DNREC and Artesian Water monitor surface and groundwater quality closely to ensure that the already high nitrate levels detected in the area by Artesian Water are mitigated by this irrigation strategy. I also ask that they proactively share water quality monitoring results from surface groundwater near the spray irrigation fields in a format understandable to the public in order to educate community members on this method's effectiveness. 90 percent of Delaware's waterways are considered contaminated due in part to excess nutrients. I commend the proposed change to a failing system and ask that all possible steps be taken to ensure this new method of wastewater treatment and disposal does not negatively impact our waterways and environment. DNREC, Sussex County officials, and Sussex municipalities must take PROACTIVE steps to protect our water quality and ensure that all commercial enterprises are FULLY transparent about water quality monitoring and follow the regulatory framework in place to protect residents and tourists from harm resulting from Delaware's impaired waterways. Thank you.

## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Monday, August 19, 2019 10:49 AM  
**To:** HearingComments, DNREC (MailBox Resources)  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: matthew eric bailey  
Phone: 3029813970  
Email Address: pogocwp@yahoo.com  
Organization: Citizen of Delaware

### Comments:

As a lifetime citizen of Delaware who also hopes to live out his remaining years here, I strenuously object to the proposal to permit the building of a pipeline, lagoon and spray irrigation field to receive wastewater from the Allen Harim chicken plant without the benefit of a full Environmental Impact Statement. In addition to the typical requirements of an EIS, this EIS should exhaustively address: current quality of groundwater in the wastewater-shed that is proposed; contingency plans in the event of a pipeline failure; a mechanism to obligate Allen Harim to pay for any cleanup/remediation that undertaking this project creates and a full study of how the creation of the wastewater system will impact wildlife habitat, waterways and open space. After what transpired at Mountaire's chicken plant in Millsboro, it is madness to consider permitting other spray irrigation pipelines and other facilities without thorough and already DNREC-required impact studies. The citizens of Delaware will be watching this process closely.

## Rebar Jr., John J (DNREC)

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**From:** DoNotReply@delaware.gov  
**Sent:** Tuesday, August 20, 2019 3:18 PM  
**To:** HearingComments, DNREC (MailBox Resources); 1charlotte.reidJD@gmail.com  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Charlotte A Reid  
Phone: 7039666817  
Email Address: 1charlotte.reidJD@gmail.com  
Organization:

### Comments:

1. Monitoring. An effort by Allen Harim to reduce the amount of nitrogen and phosphorus in spray irrigation is a worthy endeavor, however, the devil is in the details. The proposal is to treat the wastewater onsite at Harbeson to reduce nitrogen levels to conform to drinking water standards before it enters the pipeline. How does the proposed process improve upon the system proposed in 2015? How will DNREC ensure that treatment process is adequate, effective and constantly monitored? And how will Artesian and DNREC monitor the groundwater subsequent to application? 2. Transparency. I request that DNREC disclose how it will monitor the treatment process and the spray application. I request that all data be promptly released to the public in a format that any citizen can understand. I request an audit of the \$3.2 m state loan granted Allen Harim in 2015 for the process upgrade. And, I request that DNREC establish a citizen advisory committee to provide input from the affected communities to DNREC on a regular basis. At a minimum the advisory committee should include representatives from the Delaware Nature Society, SHEN, Keep Our Wells Clean, and the Inland Bays Foundation. Conclusion. Failure to implement these reasonable measures to supervise the activities presents a clear and present danger to the health and welfare of the citizens of Sussex County, and will most certainly result in environmental damage that can never be remediated. Respectfully, Charlotte A Reid. Esq. 21052 Laguna Dr Rehoboth Beach DE 19971 302.227.1846/703.966.6817 (mobile)

## **Mahaffie, Mike (DNREC)**

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**From:** DoNotReply@delaware.gov  
**Sent:** Wednesday, August 21, 2019 3:59 PM  
**To:** HearingComments, DNREC (MailBox Resources); jeffhorn72@gmail.com  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Jeff Horn  
Phone: 9178854969  
Email Address: jeffhorn72@gmail.com  
Organization:

### Comments:

With Delaware making such a big push to attract retirees to the state, such as many of us at MoBC are, there seems to be no effort to inform people that their drinking water is regularly being put at risk. In fact, it appears that officials are going out of their way to minimize individuals' ability to learn that potentially damaging farming and food processing practices still go on here in Sussex County. While the tax benefits to residents are obvious, and appreciated, one should be given a clear understanding of exactly what we're trading to obtain the financial advantage. Although long term health effects will likely be more acutely experienced by our children and grandchildren, a more immediate impact may be a negative impact to property values in southern Delaware in the foreseeable future. Now is the time to get the attention of state, county and agribusiness and wastewater industry officials and let them know that we are concerned. Those who have followed the Allen Harim story know that the Sussex County Board of Adjustment first granted conditional approval for the trucking of additional wastewater from Harim's facilities in Millsboro up to Harbeson. Allowing the company to self monitor its operations, a few months later the BOA reversed itself and gave permission for the trucking of tens of thousands of gallons of additional wastewater being trucked to Harbeson daily without DNREC permits to a questionably adequate treatment system. While we understand the need for commercial agriculture, (and we are not tinfoil hat wearing, sky-is-falling radical activists,) we have the right to expect Allen Harim and Artesian to be good neighbors. Allen Harim has applied for a permit for an on-site wastewater treatment system to treat up to 4.0 MGD of poultry processing wastewater at their Harbeson Facility. Some of this water is trucked in from Harim's Pinnacle Processing and Dagsboro Hatchery facilities. Treated sewage in addition to wastewater will be pumped via force main (an eight mile pipeline) to the Artesian Northern Sussex Regional Water Reclamation Facility (ANSRWRF). This is the 90,000,000 gallon man-made "lagoon" facility located on Rte 30 northwest of the town of Milton Artesian Wastewater Management, Inc., (MoBC's water and sewer provider) has applied for a spray irrigation operations permit to receive that treated wastewater effluent for storage, in a synthetically lined lagoon, and disposal, via spray irrigation at the Artesian Northern Sussex Regional Water Reclamation Facility. The design average daily flow is 1.5 MGD with a peak flow of 2.0 MGD. What is to become of the excess 2 MGD Artesian receives but cannot process?

## **Mahaffie, Mike (DNREC)**

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**From:** DoNotReply@delaware.gov  
**Sent:** Wednesday, August 21, 2019 4:34 PM  
**To:** HearingComments, DNREC (MailBox Resources); philliegyrl1968@gmail.com  
**Subject:** Public Hearing Comments

Comments on Docket #2019-P-W-0016

Name: Shelly Cohen  
Phone: 302-448-1519  
Email Address: philliegyrl1968@gmail.com  
Organization: I am a member of a grassroots environmental organization, KEEP OUR WELLS CLEAN

### Comments:

REMINDER MISSION - The mission of DNREC is to ensure the wise management, conservation, and enhancement of the State's natural resources, protect public health and the environment, provide quality outdoor recreation, improve the quality of life and educate the public on historic, cultural, and natural resource use, requirements and issues. VISION - DNREC envisions a Delaware that offers a healthy environment where people embrace a commitment to the protection, enhancement and enjoyment of the environment in their daily lives; where Delawareans' stewardship of natural resources ensures the sustainability of these resources for the appreciation and enjoyment of future generations; and where people recognize that a healthy environment and a strong economy support one another. DNREC IS FAILING TO ACHIEVE BOTH IT'S MISSION AND VISION! CLEAN AND SAFE DRINKING WATER IS ESSENTIAL FOR LIFE! This piping, storing and spraying of Allen Harim chicken processing wastewater, employee sanitary waste and hatchery waste creates a vast expansion of their pollution footprint for at least 3 separate DE business entities. This group of businesses conduct different business operations related to Harim related to chicken slaughter, hatcheries and packaging. They have have different legal names so they do not share financial or liability responsibilities. These businesses should not be treated as one business operation. Sussex County Council, DNREC and other governmental agencies need to ask questions and stop treating these different entities as one. The WWTP at the Allen Harim Foods entity in Harbeson is only licensed to treat the wastewater from the chicken processing at that location. They should not be taking on sanitary waste, hazardous waste, or waste/wastewater from any other business operation. It has not been disclosed if the AH Harbeson WWTP intends to reduce the future treatment standards of wastewater effluent for the pipeline to ANSWRF. If the NPDES permit is cancelled OR converted are they obligated to meet the standards as prescribed in the current document allowing operation under NPDES Permit NO.DE 0000299/ State Permit WPCC 3131F/76. This is an 8 page document which sets the standards for testing and waste water treatment operations for the effluent before discharge. It dictates that there are 2 RDC personnel on site for each shift. This plant operates 3 shifts in each 24 hour period. Are the treatment and testing standards lower for wastewater that will be sprayed on crops, trees and Ingrahm Creek (flowing through the woods) ? It all goes into our waterways and aquifers. The standard should be the same as the NPDES permit or stricter because this WASTE enters our water supply and food chain! The food produced mainly marketed for animal consumption but whether directly or indirectly, ultimately the waste/nutrients/pollutants are consumed by humans. When AH was awarded 2 taxpayer loans from WIAC totaling \$11.5 million for 15 years @2% interest, the expectation was for AH to abide by the terms of the loans. They were to make use of these taxpayer supplied loans by purchase and installation of upgraded replacement WWTP equipment in order to reduce pollution by direct discharge into Beaver Dam Creek. The 2nd portion of the project was supposed to be installation of an on-site Sanitary Waste treatment facility to process their employee human (sanitary) waste. The 3rd portion of the project would have put Allen Harim in the admirable position of being the first Integrator to install a Green Project. This would have been modern equipment enabling the facility to reduce their daily



withdrawal of water from the aquifer from 2MGD to 1MGD. Allen Harim did not do the 2nd and 3rd projects. Note: In this hearing notice, Allen Harim is using 4 Million Gallons a Day of fresh water from the aquifer which becomes 4 Million Gallons of Chicken Processing Wastewater. Prior to this, they stated they had a maximum capacity of 2 MGD! The “Lagoon” at ANSWRF holds 90 Million Gallons or a 45 day maximum capacity. Spraying is not allowed during rain, snow or freezing temperatures which is a good portion of the year here in Sussex County. Now the “Lagoon” holding capacity is limited to 22 days. Part of the loan agreement was to file AS BUILT drawings to show these accurately completed projects. The filed plan is obviously incorrect and does not reflect what was actually completed or the equipment and business operation currently in place as preparation for the WASTEWATER PIPELINE AND THE CONTRACTURAL AGREEMENTS WITH ARTESIAN ANSWRF AND THE ISSACS (ALL ENTITIES USING SEVERAL OTHER LEGAL NAMES). Also part of the agreement was a waiver of the MANDATORY ENVIRONMENTAL IMPACT STUDY because all of these Allen Harim WasteWater treatment operations were to remain confined to the Allen Harim HARBESON business location. Where are the agreement(s) between A Harim and Artesian or Artesian and the Issacs? These arrangements certainly don’t make sense for public health, the safety our Eastern Sussex Drinking Water Supply or the Sussex County Environment. Therefore, we and DNREC should do the DUE DILIGENCE of discovery of how it benefits these businesses. In other words, the money trail needs to be examined. Allen Harim Foods, Artesian and the Issacs are companies here to make money. Clearly, they are not good business neighbors and obviously do not care about the HARM this “Lagoon” storage and Spraying of polluted chicken processing wastewater will inflict on people, land, air and water. Harim received those loans because had not been in compliance with their NPDES permit for years. WIAC issued the loans to protect public health in Harbeson and protect Beaver Dam Creek and the Aquifer. It was in response to years of neighbors’ complaints of stench and chicken parts throughout the area that washed up on their properties. Sometimes we admire people who think outside the box. In this case Harim, whose parent company is in So. Korea, decided to defy the terms of the loan, DE laws and any applicable rules. It is not clear how these business entities found each other, but somehow, Harim, Artesian found each other to convert WASTEWATER INTO AN OPPORTUNISTIC STREAM OF MONEY. Business executives focused on obfuscating, working around laws to pollute miles of land and the drinking water for thousands of people. Enabled by all local and state government officials and agencies. The only oversight was on paper only. All of it rubber stamped by Sussex, government officials and agencies. Does anyone read the attached documents, let alone question what is submitted. Where is the documentation of on site visits to verify any of this? A few twists and turns led to a 3 way business marriage of convenience. Artesian had been stuck with an investment in 75 acres purchased years ago for a residential WWTP that was never built due to the Great Recession. The Issacs had more than 1700 acres of taxpayer paid conserved land to be leased - always nice to double dip to create revenue streams without effort. Harim had 1.5 to 2 MGD in polluted heavily contaminated wastewater to process and they didn't want to make the financial investment in the rest of the new WWT equipment. It may have reduced profits for this \$50 Billion+ a year conglomerate. Besides, a foreign owned entity using AMERICAN taxpayer dollars to create more profit makes sound BUSINESS SENSE FOR S. KOREA! In this process - this OPPORTUNISTIC SHELL GAME, there was added value for all three because the LIABILITY for increased public health problems would be OBSCURED. Who would be responsible? When someone's private well would test for dangerously high Nitrates or bacteria, who would be subject to a lawsuit? Which company’s LIABILITY INSURANCE WOULD PROCESS THE DISEASED PERSON’S CLAIM? It's as clear as sludge. Murky wastewater, confusing business entities, undefined business operations, obscure the lines of liability benefiting by government turning a blind eye to the whole scheme. Sussex County and DNREC go with the chicken business flow. The plan aided by the lack of questioning regarding any and all operations. Those pipelines were laid under county roads, along private property, public waterways and creeks. the people who live and work in these unincorporated areas were not asked about this. It just happened - a real surprise to the community. Expired permits for different business operations and entity names were revived to permit wastewater from what was said to be just one industrial client which is now 3! The massive “Lagoon” storage and subsequent spraying of polluted wastewater on 1700 to 1800 acres of farmland WILL lead to disaster, possibly catastrophe. When the quantity of water is too much to drain into the aquifer, there is mounding of land and ponding on top. This ruins the sustainability of the land to support crops. This area is subject to flooding, Sea Level Rise in the

many streams, ponds, rivers and Delaware Bay. It's also subject to Storm Surge and yes, Delaware has earthquakes too! What are the contingency plans in the event of any natural or un-natural disaster? Can the local VOLUNTEER fire department rescue people when that first LAGOON containing 90 MILLION GALLONS OF POLLUTED WATER breaks! Spraying this toxic soup of polluting "nutrients", chemicals, pharmaceuticals, bacteria and other microbes on land to drain into the aquifer is the result of status quo magical thinking. The land doesn't clean this wastewater. The toxic soup enters the aquifer and stays there. It accumulates and bonds with the other contaminants. It's there forever or until we bring it up through our well systems and consume it. Note: The crops can't possibly utilize the increased nitrates. Nitrates in this area are already to high. It is more magical thinking! Spraying polluted wastewater on crops is not "new" technology or a good farming practice. This is an archaic practice that is not good for the land, the aquifer, humans, their children, their pets, the environment or any living thing needing to live on the land, drink water or breath air. Spraying should be abolished! This ANSWRF project is the BIG Win, Win, Win for Harim, Artesian and the Issacs (aka Farm Boys+). They have found a way to turn Chicken waste and wastewater into a 3 way revenue stream. Where are the agreements between these companies and what is the established remuneration that inspired this vile scheme? By evading their own business environmental and financial responsibilities, they foist vast and intolerable suffering on the public. They will do anything to decrease their expenses, increase their profits, shareholder dividends, take advantage of taxpayers and preserve standing on NASDAQ. These are mercenary business operators. Human suffering inflicted on Eastern Sussex residents via permanently polluted water and the damaged environment are simply considered COLLATERAL DAMAGE. Who will fund more Cancer Hospitals in Eastern Sussex? How many hospitals will be needed to handle the increased incidences of cancer, miscarriages, birth defects, gastrointestinal problems and other diseases? I checked the cancer statistics. Delaware is only 2nd to Kentucky in the incidence of cancer in our population. Our local environment is already impacted by the poultry industry. Fish have lesions and are unable to reproduce in local waters. Sea turtles and sea mammals are washing up in Inlets and Bays. People cannot swim or recreate in local waters because of flesh eating bacteria! Please DO NOT authorize these operational permits for Allen Harim or Artesian ANSWRF (or whatever business name they are using). DNREC, Mr. Garvin, please do your job. Abide by your mission to protect people and the environment. Please end this abominable project now. It should not be in unincorporated Milton or anywhere else. Sincerely, Shelly Cohen Milton DE Sent from my iPad